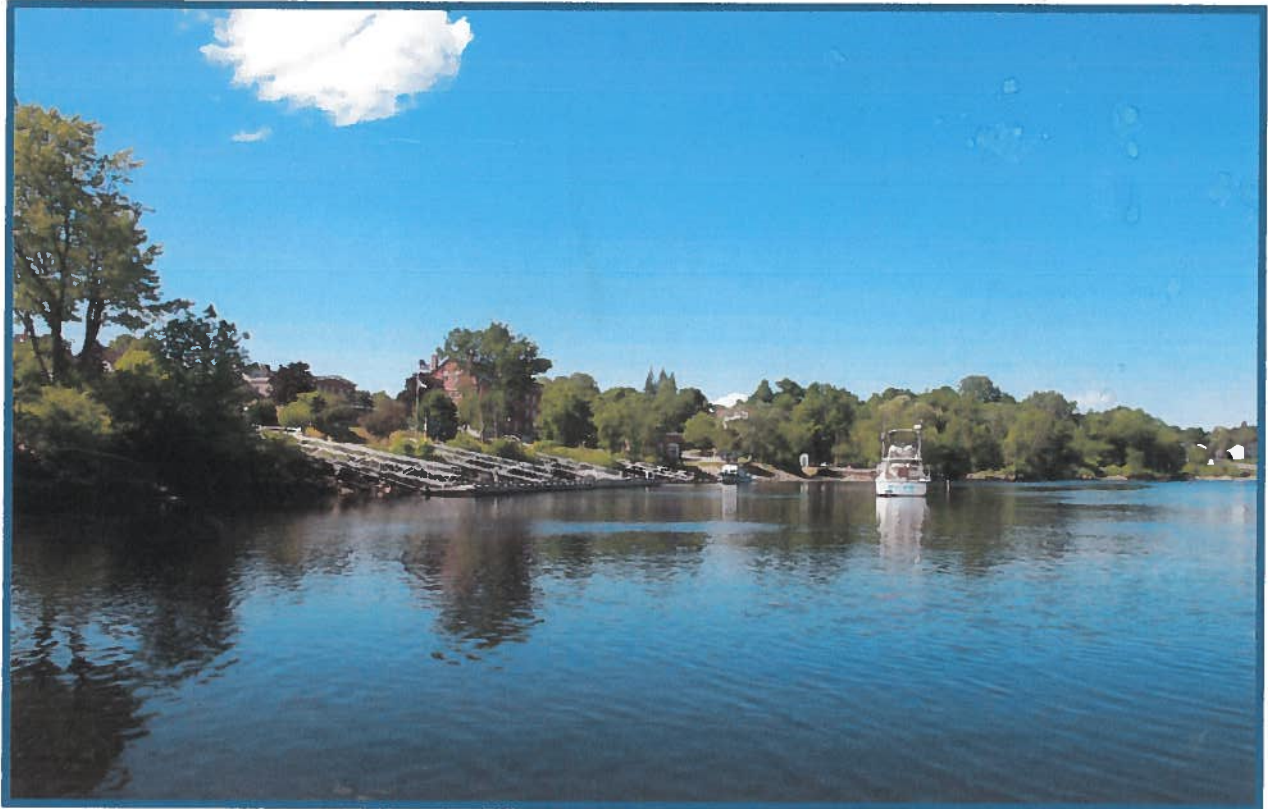


July, 2008

# **RICHMOND WATERFRONT IMPROVEMENTS PROFESSIONAL PLANNING REPORT**

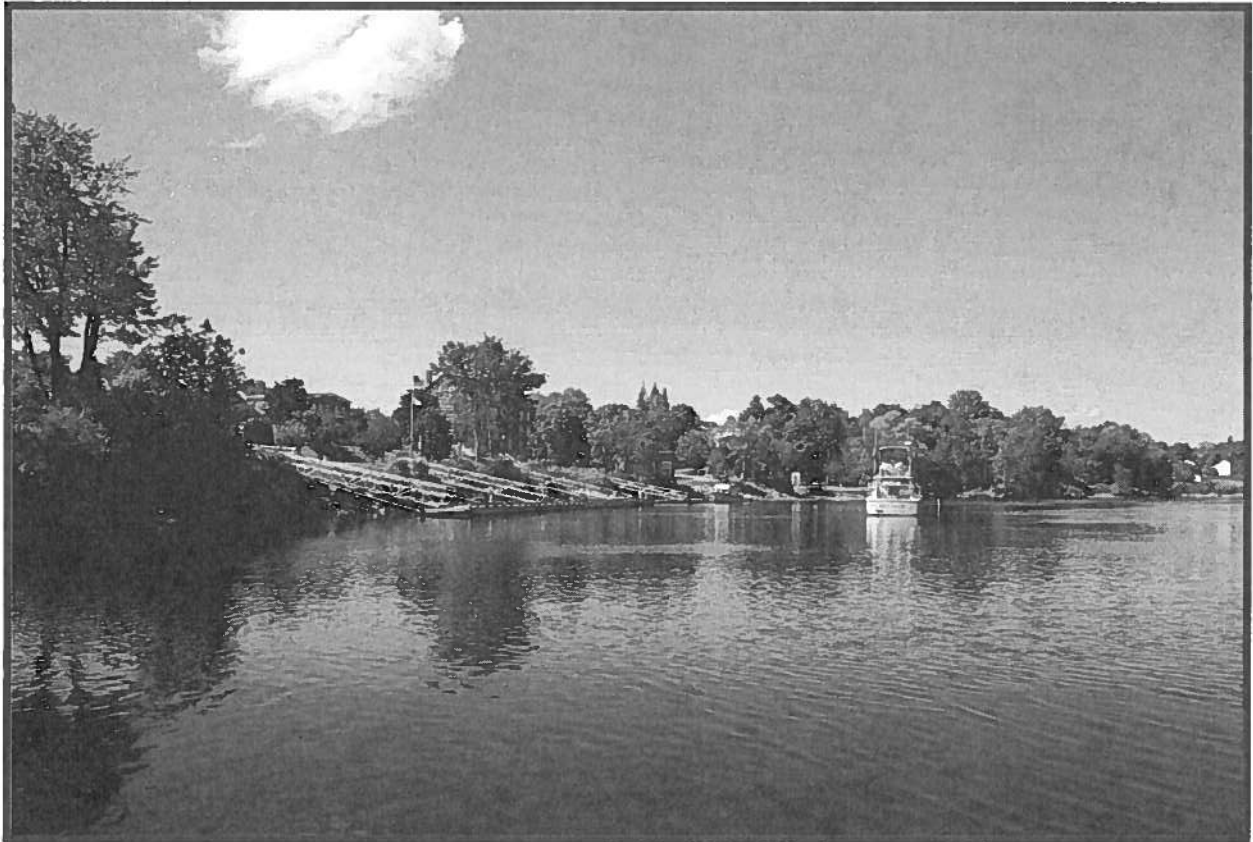


**WRIGHT-PIERCE**   
Engineering a Better Environment

Land Use  
Planning and  
Development

July, 2008

# **RICHMOND WATERFRONT IMPROVEMENTS PROFESSIONAL PLANNING REPORT**



**WRIGHT-PIERCE**   
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Land Use  
Planning and  
Development

**TOWN OF RICHMOND**  
**PROFESSIONAL PLANNING REPORT**  
**FOR**  
**WATERFRONT IMPROVEMENTS**  
**PROJECT**

**JULY 2008**

**Prepared By:**

**Wright-Pierce**  
**99 Main Street**  
**Topsham, Maine 04086**

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## **ACKNOWLEDGEMENTS**

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The development of this plan was guided by the Richmond Waterfront Committee, the Committee's Chair, Burt Batty, Richmond's Office of Community and Economic Development, Director, Darryl Sterling and Richmond's Harbor Master, John McMullen. The plan also benefitted from the assistance of Maine Inland Fish and Wildlife Staff on Swan Island who provided a guided boat tour of the harbor.

This document was prepared by Wright-Pierce of Topsham, Maine. The consultant team assisting the Town was comprised of Jonathan Edgerton, Travis Pryor and Jeffrey Preble of Wright-Pierce. Mapping of the project area was prepared by Wright-Pierce and the Town of Richmond.

Data obtained for this project was provided from a variety of useful sources include:

- "Downtown Revitalization Plan" by Wright-Pierce and Kent Associates dated March, 2004;
- Topographic survey data by Wright-Pierce from various Town projects dating from 2004 to 2008;
- GPS located underwater utility crossings to Swan Island by the Richmond Waterfront Committee;
- Recently adopted ordinance language for the rezoned Commercial Fisheries-Maritime Activities Zone by the Town of Richmond's Codes Enforcement Officer, Douglas Marble, dated June 2008;
- 2006 Waterfront Improvements Documents by Pine Tree Engineering;
- Geographic Information Systems data, including aerial photography by the Maine Office of Geographic Information Systems; and
- Navigational data by the National Oceanic and Atmospheric Administration.

## **PART I - INTRODUCTION**

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### **Project Overview**

The Town of Richmond established and Waterfront Committee in June of 2007 to identify needs for improving access and functionality of the Fort Richmond Waterfront Park and Harbor area. Since then they have established a diverse committee consisting of Town Staff, elected officials and local residents and business owners with strong connections to the waterfront. The committee has established immediate improvement and management goals. The committee has also identified several long range planning and development goals for the waterfront, many of which are consistent with the Town's Downtown Revitalization planning efforts that began in 2002.

In the Spring of 2008 the Town of Richmond applied for, and obtained Shore and Harbor Planning Grant through the state's federally funded Coastal Management Program and the Submerged Lands Fund managed by the Maine Department of Conservation, Submerged Lands Program for coastal communities to promote balanced planning and development of harbors and shore areas that improves marine infrastructure and access to the shore. The town obtained the professional services of Wright-Pierce to assist in the performance of the planning study and to prepare the plan

The study area is primarily comprised of the Town owned parcel at the intersection of Maine Street and Front street, designated as Fort Richmond park, along with the Town's harbor zones along the adjacent Kennebec River, surrounded by the Town's of Bowdoinham and Dresden, and Swan Island and the Steve Powell Wildlife Management Area. The study area also considers the adjacent land owned by the Richmond Utility district and the Town owned gravel parking area, which is a contiguous, yet somewhat isolated portion of the Town owned land, located behind the former Ames Mill building. The Town has along historic of waterfront activity and has many public amenities along the waterfront area and continues to seek ways to improve the facilities. Richmond is fortunate to have this river access offering a variety of commercial, educational and recreational opportunities within the community and with water access to municipalities to the north, and to Merrymeeting Bay and to other salt water destinations.

### **Community Goals**

The Town of Richmond has recently identified several improvements for the waterfront area in the Downtown Revitalization plan completed in 2002 by Wright-Pierce and Kent Associates. As noted in that plan, "*The park brings people and activities to the waterfront. It has great recreational, scenic, economic, and community value.*" While the park does offer a great space and value to the community, several enhancements are proposed by the Town which would further elevate the value of this resource to the town and the community. The Waterfront Committee has further develop both short and long range planning goals, specific to this project area. This planning effort was directed to consider the following design goals:

- Feasibility of replacement of portable toilets with a permanent structure that ties into the Town's existing sewer and water service systems;
- Identification of shoreline erosion issues and riverbank stabilization solutions;
- Expansion of existing floating dock system both with and without accommodations for boat slips, specifically facilitating overnight berthing opportunities;
- Creation of adequate boat trailer spaces within the existing gravel area located behind the former Ames Mill building. It is desired that the parking be constructed of pervious measures to improve stormwater quality were feasible; and
- Mooring field evaluation to better address current and future mooring needs

### **General Waterfront Improvement Planning Considerations**

This waterfront improvement project for the Town of Richmond has the opportunity to enhance the overall Downtown Revitalization of Richmond and to service a variety of user groups. The following is a list of design and planning considerations that are further elaborated on in this report:

- Implementing these project specific goals with the overall downtown revitalization efforts are key to developing a waterfront that best fits the surrounding community and that will provide opportunities to creatively combine project construction efforts that can often establish valuable means of cost savings opportunities. One of the best examples that is immediately application is the opportunity to use recent CDBG Downtown Revitalization grant funds to install site amenities like bike racks, landscaping and lighting improvements in the park, just to name a few;
- Waterfront developments are heavily regulated by local, state and federal agencies. The Town has recently established a new zoning ordinance to better facilitate the improvement goals for this project. Recent work has also been done with regards to aspects of the project that involved the Town's submerged lands lease with the MDOC and an expansion of these components should be relatively clear to communicate. The U.S. Coast Guard and the Army Corps of Engineers have little past regulatory control of the area by means of federal navigable ways and development under their review as it relates to the various project goals will be determined on a case by case basis.



- The Maine Department of Environmental Protection can get involved with the improvements on a couple of possible levels, including the Natural Resource Protection Act (NRPA) and Stormwater Law. It is unlikely enough new impervious area has been created at the waterfront area since 1975 to trip the threshold for a permit under the Site Location of Development Act. The NRPA process typically requires permit acquisition for disturbance of soil material within 75 feet of a surface water. In this case, stabilization of the shoreline and installation of any new drainage structures would trigger the need for a NRPA approval. Because the stabilization of the site may allow us to do the work in a way that doesn't create the potential for discharge of sediment into the Kennebec River, we may be able to meet this need through the Permit-By-Rule (PBR) process. We suggest a meeting at the site with a DEP representative to confirm the level of permitting that will be required. The approval timeline varies from 2 weeks for a PBR to several months for a "full" NRPA permit.
- Construction of the new parking area for the vehicles and boat trailers may impact greater than 1 acre of land. With any disturbance of 1 acre or more, a Maine Construction General Permit (MCGP) will need to be filed with the DEP outlining the erosion and sedimentation controls to be utilized during construction. Approval of the MCGP is typically received within 2 weeks from filing.
- Work within the Kennebec River will require review and approval by the US Army Corps of Engineers under Section 10 of the Rivers and Harbors Act. Work associated with re-organization and expansion of the moorings and the work associated with expansion of the floating dock facilities will trigger review by the Corps.
- While not a permit per se, the use of funding for the CDBG program typically requires the agency to issue a Categorical Exclusion (CE) or a Finding of No Significant Impact (FONSI) for the work. It is possible that an amendment of the existing FONSI can be filed. Note that review of the design by staff at FEMA Region 1 may be required by the SPO/Office of Floodplain Management under President's Executive Order 11988.
- The Submerged Lands program is administered through the Bureau of Parks and Recreation under the Department of Conservation. While re-organization of the moorings will not require a Submerged Land Lease, modifications of the floating dock system would require a permit under this program for construction. The size and nature of the proposed expansion would need to be reviewed to determine if an annual easement fee would be required.

## **PART II - IMPROVEMENT AREA PLANS**

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### **Restroom Facilities**

#### **Project Issues**

There are currently two portable restrooms located adjacent to the boat pump out facility along the waterfront. These are located on the concrete pad immediately adjacent to the top of the bank. The Town has explored various options to construct a permanent restroom facility at its waterfront.

Utility connections needed for the permanent restroom in the waterfront park include water and sewer connections, and electricity. The existing boat pump out facility has a manhole and force main connection that was intended to be utilized as a connection for the public restroom facility. Most potential locations within the park area would require installation of a wastewater pump station and force main to serve the facility. Gravity sewer service is available in the Front Street area. Water service is readily available as is power for lighting the facility.

Composting facilities are also a possibility. These would not have to tie into the existing sewer but would require frequent cleanout during periods of high user occupancy in the park. They are often used in remote park locations or individual camp sites where usage is at a minimum and the composting process has time to work. These systems also require underground disposal tanks. Due to the 100-year flood plain, this underground structure would have to be flood-proofed and thus would be more cost prohibitive than a conventional system with no subgrade functional space requirement. These systems also require electricity to service a fan exhaust system that can have undesirable odor impacts on the surround park environs.

Several regulatory issues will need to be addressed as part of developing a permanent restroom facility, including shoreland zoning, 100-year floodplain, and setbacks from property lines. The 100-year floodplain as depicted by the Flood Insurance Hazard Mapping (FIRM), covers a majority of the waterfront site. Ideally, a restroom facility would be located outside of this boundary. For this portion of the Kennebec River, the flood elevation is approximately 12.5.

In addition to the regulatory and utility constraints, the location of the facility should be carefully thought out with the overall function of the waterfront park. The gazebo and its associated green space lies outside of the 100-year floodplain boundary, however, the aesthetics of locating a public restroom close to the gazebo needs to be discussed with the Town. A more likely location is the area to the north of the boat ramp at the base of the embankment. A possible development site for the restrooms is located to the north of the stairs to Main Street towards the Richmond Utility District property line. While this area is located within the

floodplain, the space would involve some filling such the finished floor of the restroom would be one-foot above the 100-year flood elevation. Other locations would either obstruct the view from Main and Front Streets to the waterfront front or introduce additional regulatory hurdles.

One of the primary regulatory issues to be considered as part of the planning efforts for the restroom facilities is the impact of Flood hazard regulations on planned elements of construction. As noted above, a significant portion of the site lies within the 100-year floodplain as shown on the Flood Insurance Rate Maps (FIRM) as developed by the Federal Emergency Management Agency (FEMA).

In the case of Richmond, construction within the 100 year floodplain, or Special Flood Hazard Area (SFHA), is regulated by the Town's Floodplain Ordinance, consistent with the requirements of the Maine Floodplain Management Program. The Maine State Planning Office administers the Maine Floodplain Management Program and provides assistance to communities taking part in the National Flood Insurance program (NFIP). FEMA Region 1 provides additional technical support to the Maine Floodplain Management Program on an as-requested basis.

Physical improvements proposed within the area designated as floodway must be reviewed to establish that the work will not have any adverse effect on flood levels (i.e. increase the risk of damage to other facilities in the area).

A separate, but related restriction can be tied to the source of monies paying for the improvements. Use of funding which originates with the federal government, such as Infrastructure Grants from the Maine Department of Economic and Community Development, must comply with the president's Executive Order 11988. This generally requires an assessment of alternatives and mitigative actions for work that falls within a SFHA or other floodplain.

One of the locations contemplated for the restroom facility was near the existing portable toilets. As shown on Figure 2, this location falls within the floodway of the river. A new structure in this area would need to be floodproofed. When dealing with new structures or improvements to existing structures, floodproofing can take several forms. *Dry floodproofing* is defined to mean making the building watertight and sufficiently structurally sound to resist hydrostatic pressure, hydrodynamic forces and wetting associated with a 100 year flood. *Wet floodproofing* allows the floodwaters to inundate the lower portion of the building. This requirement would add some significant project costs to the proposed restroom facility.

### **Design Solutions**

The proposed location for the restroom facility is outside of the floodway but within the 100-year floodplain. Since this location is close to the existing embankment it was felt that additional fill could be placed within the restroom footprint to raise

the structure one-foot above the 100-year flood elevation. This would allow a wood framed building that matches the current units (1 female and 1 male). The approximate dimensions of facility would be 10-feet by 16-feet. Depending on the desires of the Town, additional uses can be incorporated into the proposed building such as place for storage or a small office for the harbor master.

Based on our discussions with the Town, we envision a facility serving both female and male visitors which is handicapped accessible. The location of the new public restroom should address both utility connection and regulatory issues. A location close to the floating docks would require extensive permitting as well as pumping facilities for sanitary sewer service.

It appears the best location for the restroom within Town lands along the waterfront would be the area to the north of the boat ramp and adjacent to the Richmond Utility District Building. This location may require a waiver of the side yard setback or an agreement or easement with the Utility District to partially locate the building on District land. This location would still require a pump station to provide sanitary service to the facility. The pump station's force main could discharge either to the pump station to the north of the District's office or connect to the gravity sewer in Front Street. In addition, the guy wire for the utility pole on Front Street would need to be reconfigured to provide better access to the facility. It does not appear from the topography of the area that a gravity sewer connection can be established from the proposed restroom site to the existing pump station.

The materials of construction and aesthetics of the restroom facility will need to be flushed out with the Town, depending on the Town's desires for construction materials, and other potential uses of a structure within the waterfront area.

**Cost Estimates**

For the purposes of developing a projected cost estimate for the proposed restroom area, we have assumed the structure would be a wood framed building with clapboard siding. Utility connections are readily available in Front Street for both water and sewer service. A small submersible pump station would also be needed to service the facility. The following cost estimate reflects the cost of planning level design as recommended in this report. The unit prices are based on similar projects that have been bid in Maine within the past year. Wright-Pierce recognizes that market prices can fluctuate from year to year and we have carried a contingency of 10%.

**Town of Richmond, Maine**

**Water Front Improvements - Restroom Facilities  
Planning Level Cost Estimate - July 11, 2008  
WP Project # 11268A**

	<b>DESCRIPTION</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>UNIT PRICE</b>	<b>COST</b>
1	Restroom Facility	320	SF	\$175.00	\$56,000
2	Submersible Pump Station	1	LS	\$15,000.00	\$15,000
3	Water Service	60	LF	\$40.00	\$2,400
4	Sewer Service	15	LF	\$60.00	\$900
5	Sewer Force Main	100	LF	\$50.00	\$5,000
6	Relocate Guy Wire	1	LS	\$1,200.00	\$1,200
7	Walkways	500	SF	\$20.00	\$10,000
8	Restoration	1	LS	\$750.00	\$750
9	Common Fill	75	CY	\$12.00	\$900
10	Erosion & Sedimentation Controls	1	LS	\$500.00	\$500
				<b>Subtotal:</b>	<b>\$92,650</b>

<b>SUBTOTAL:</b>	<b>\$92,650</b>
<b>10% CONTINGENCY</b>	<b>\$9,265</b>
<b>TOWN TOTAL:</b>	<b>\$101,915</b>

## Shoreline Stabilization

### Project Issues

Most of the areas adjacent to the waterfront are well stabilized. Some erosion has started in certain areas along the waterfront and started to erode the top of the embankment. The area at the interface of the riprap protection and vegetated green space is most susceptible to erosive action from both runoff from the park, and river currents during high water events. There are, however, several areas at the top of the bank exhibit some degree of erosion due to a combination of these forces, such as the around the slab for the pump out equipment and portable toilets.

There are a couple of areas adjacent to the existing concrete slab for the portable toilets and the gangway to the floating dock system that have eroded due to runoff from the parking area. The grade difference from Front Street to the start of the gangways is substantial. Runoff from this area has a high velocity during certain storm events which contributes to erosion of the shoreline. Installation of three catch basins and curbing in this section of the parking lot would collect runoff from the parking area before it discharges over the embankment and causes erosion (See Figure F-5).

There are several regulatory hurdles that must be cleared before work within the shoreline can be undertaken. They include the local shoreland zoning, the Natural Resource Protection Act (NRPA), administered through the Maine Department of Environmental Protection (MEDEP), and the Army Corps of Engineers (ACOE). Where most the erosion areas can be remediated through repairs to the existing riprap embankment, the regulatory approvals through the MEDEP can be granted under the Permit-by-Rule Standards under NRPA. In this case the conditions for activities "4 - Replacement of Structures", and "8 - Shoreline Stabilization" must be met. Further site specific discussions will be needed with the ACOE to address permitting under their standards.

### Design Solutions

It appears that a combination of measures will be able to address the erosion issues at the waterfront. This is likely to include installation of stormwater handling structures, repair of existing riprap blankets, and re-establishing vegetative growth immediately adjacent to the riprap blanket.

Stormwater Management Improvements - Portions of the existing shoreline have shown signs of erosion at the top of the bank adjacent to riprap areas. This erosion is quite prevalent near the ramps to access the floating dock system, where runoff from the parking area has washed out portions of the top of the embankment. Erosion in this area has also contributed to the void left under the existing slab for

the portable toilets and boat pump out facilities. As noted above, this area would benefit from installation of three catch basins, some curbing, and a new stormwater outfall to the river.

Riprap Stabilization - In other areas, placement of additional riprap is warranted to fill in any holes left from erosive forces. This effort will also require some loaming and seeding of disturbed areas. These areas can be easily accomplished utilizing Town crews to make the needed repairs.

Portions of the shoreline to the south have not been stabilized with riprap and have remnants of timber cribwork. If these areas are identified for future improvements such as expanding the floating dock system the shoreline should also be addressed at the same time.

Vegetative Stabilization - At the top of the bank where the park lawn area meets the riprapped bank is where a significant portion of the projects bank erosion is occurring. This appears to be caused by stormwater flows that erode exposed soils that were moved to short and to close to the top of the bank. Re-establishment of the lawn. We recommend a meadow grass for a minimum distance of at least 10 feet from the top of the shoreline embankment. Vegetative choices should be coordinated with the MDEP. This buffer area would likely only be mowed once a year.

### **Cost Estimates**

To address the immediate erosion issues at the waterfront the following cost estimate was prepared. This estimate includes addressing the drainage from the parking lot and making spot repairs to the existing riprap. New sections of riprap embankment have not been included at this time. The following cost estimate reflects the cost of planning level design as recommended in this report. The unit prices are based on similar projects that have been bid in Maine within the past year. Wright-Pierce recognizes that market prices can fluctuate from year to year and we have carried a contingency of 10%.

Town of Richmond, Maine

Water Front Improvements - Shoreline Stabilization  
Planning Level Cost Estimate - July 11, 2008  
WP Project # 11268A

Riprap

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	Excavation - Demolition	1	LS	\$20,000.00	\$20,000
2	Loam and Seed Disturbed Areas	100	SY	\$6.00	\$600
3	Erosion Control	1	LS	\$500.00	\$500
4	Riprap	10	EA	\$750.00	\$7,500
5	Catch Basin	3	EA	\$3,000.00	\$9,000
6	Curbing	25	LF	\$6.00	\$150
7	Storm Drain	100	LF	\$60.00	\$6,000
8	Riprap Restoration	1	LS	\$500.00	\$500
9	Flowable Fill under slab	1	LS	\$1,200.00	\$1,200
10	Pavement Restoration	3	SY	\$750.00	\$2,250
11	Dig Safe	1	LS	\$500.00	\$500
12	Mobilization	1	LS	\$2,500.00	\$2,500
				<b>Subtotal:</b>	<b>\$50,700</b>

<b>SUBTOTAL:</b>	<b>\$50,700</b>
<b>10% CONTINGENCY</b>	<b>\$5,070</b>
<b>TOWN TOTAL:</b>	<b>\$55,770</b>



## **Floating Docks**

### **Project Issues**

Richmond has two floating dock systems along its waterfront. One is located adjacent to the boat landing facility and the other is located off the waterfront parking area to the south of the boat landing. The boat landing is primarily used for launching and loading operations. There appears to be ample space at this dock system to serve its intended use. The floating dock system to the south of the boat launch has three gangways, nine full sized floats and one half size float, and space for up to 10 to 12 boats depending on lengths. This system has boat pump out facilities that is connected to the sanitary sewer system, and is equipped with some park benches. This dock system allows boaters on the Kennebec River a chance to stop and visit downtown Richmond. It should also be noted that the Dow Yacht Club has private docking facilities in the area as well located to the south of the primary floating dock system.

Expansion of the primary floating dock system is desired by the Town to allow more boaters to make stops in Richmond along their journey on the Kennebec River. Two options were looked at in terms of expanding the docking space to allow more access to the Waterfront Park and downtown Richmond. These included establishing a second floating dock system to the south in the area of the Dow Yacht Club facilities, and expanding the existing floating dock system further into the river which creates additional boat slip space.

Regulatory approvals would be needed from the Army Corps of Engineers, and the Bureau of Public Lands for submerged lands prior to undertaking any expansion of the floating dock system. Information from the ACOE indicates the dock system can not exceed 25% of the total width of the river.

### **Design Solutions**

#### **INSTALLATION OF ADDITIONAL FLOATING DOCKS**

The Town has expressed a desire to expand the capacity of the floating dock system. As noted above, one of the options to expand the floating dock system is to create a new system further south on the river in the vicinity of the Dow Yacht Club. A floating dock system in this area could duplicate the existing system with three new aluminum gangways, nine floating dock sections, and associated support systems. The area adjacent to the proposed boat trailer parking area has sufficient shore length to expand on the number of docking spaces available with the existing configuration. For purposes of this report and establishing costs for this option, we have assumed the existing floating dock system would be duplicated in this new area. Coordination with the Dow Yacht Club would be needed before any of these proposed improvements were undertaken. A possible configuration of a new floating dock system in this area is shown in Figure 4. As with the current floating

dock configuration, this system will have space for 10 to 12 boats depending on length. The existing shoreline in this area would need to be investigated further to determine if additional shoreline stabilization measures are necessary.

Another possible means to increase the boat tie up capacity of the dock system is to extend the current system further into the river with two new gangways and new floating dock sections. Under this scenario, the existing system would remain in its current configuration, and new gangways would be installed from the existing floats to approximately six new float sections. The new float sections would be anchored in place by new concrete mooring anchors at the river bottom. A similar expansion was recent completed in the City of Bangor along its riverfront. Three floats would be secured to each gangway which allows an opening between the two sections for boats to access the interior of the dock system. This system is illustrated in Figure 5. Under this scenario, we have assumed the existing struts and cable stays would need to be upgraded due to the additional weight and configuration of the system.

Some of the existing docking spaces in this scenario are lost due to the addition of the new gangways. Space is gained at the new floats on both the inside and outside of the floats. This option would require a modification to the navigable channel and possibly re-arranging some of the moorings in the vicinity of the proposed floating dock expansion.

Any expansion of the floating dock space will require an update to the existing Submerged Lands Lease. The ACOE will also have input on any improvements within the river. Based on the preliminary layout, the slip system would not exceed the 25% width requirement of the ACOE. New walkways to service an expanded float system to the south of the existing system will likely require approval from the MDEP through the Natural Resource Protection Act.

### **Cost Estimates**

Cost estimates have been developed for each of the alternatives mentioned above. While the costs for the expansion of the docking systems are similar, it should be noted that installation of additional floating docks to the south of the current system provides the most docking spaces at the waterfront. This configuration would provide space for about 20 to 24 boats while the slip arrangement would provide space for between 16 and 18 boats. The following cost estimate reflects the cost of planning level design as recommended in this report. The unit prices are based on similar projects that have been bid in Maine within the past year. Wright-Pierce recognizes that market prices can fluctuate from year to year and we have carried a contingency of 10%.

**Town of Richmond, Maine**

**Water Front Improvements - Floating Docks  
 Planning Level Cost Estimate - July 11, 2008  
 WP Project # 11268A**

**Expansion of Floating Dock Space to South**

	<b>DESCRIPTION</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>UNIT PRICE</b>	<b>COST</b>
1	6 FT x 16 FT Floating Dock	10	EA	\$4,000.00	\$40,000
2	Marina Access Platform	3	EA	\$12,500.00	\$37,500
3	Aluminum Gangways	3	EA	\$30,000.00	\$90,000
4	Concrete Mooring Block	7	EA	\$4,500.00	\$31,500
5	Struts, Cable Stays, Misc Hardware	1	LS	\$20,000.00	\$20,000
6	Bituminous Walkways	670	SY	\$15.00	\$10,050
7	Erosion Control	1	LS	\$3,500.00	\$3,500
8	Signage	1	LS	\$500.00	\$500
9	Mobilization	1	LS	\$2,500.00	\$2,500
				<b>Subtotal:</b>	<b>\$235,550</b>

<b>SUBTOTAL:</b>	<b>\$235,550</b>
<b>10% CONTINGENCY</b>	<b>\$23,555</b>
<b>TOWN TOTAL:</b>	<b>\$259,105</b>

**Town of Richmond, Maine**

**Water Front Improvements - Floating Docks - With Slips  
 Planning Level Cost Estimate - July 11, 2008  
 WP Project # 11268A**

**Expansion of Floating Dock Space with Slips**

	<b>DESCRIPTION</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>UNIT PRICE</b>	<b>COST</b>
1	6 FT x 16 FT Floating Dock	6	EA	\$4,000.00	\$24,000
2	Aluminum Gangways	2	EA	\$30,000.00	\$60,000
3	Replace Existing Mooring Blocks	6	EA	\$5,500.00	\$33,000
4	Upgrade Struts and Cable Stays	6	EA	\$7,500.00	\$45,000
5	Relocate Boat Pump Out Station	1	EA	\$1,500.00	\$1,500
6	Relocate Bench	1	EA	\$500.00	\$500
7	New Submerged Concrete Mooring Block	8	EA	\$4,500.00	\$36,000
8	Skid plates, Cable Stays, Misc Hardware	1	LS	\$25,000.00	\$25,000

9	Signage	1	LS	\$500.00	\$500
10	Mobilization	1	LS	\$5,000.00	<u>\$5,000</u>
				<b>Subtotal:</b>	<b>\$230,500</b>

<b>SUBTOTAL:</b>	<b>\$230,500</b>
<b>10% CONTINGENCY</b>	<b><u>\$23,050</u></b>
<b>TOWN TOTAL:</b>	<b>\$253,550</b>

## **Boat Trailer Parking**

### **Project Issues**

The Fort Richmond Park is actively used by a variety of waterfront interest groups. An existing bituminous parking lot is located near the former Ames Mill building that provides 21 parking spaces. One of these parking spaces is designated as a van accessible handicapped space which meets the Americans with Disabilities Act requirements. 12 of these existing spaces are striped for standard personal vehicles and 9 of these parking spaces are striped at 10 foot width by 25 foot depths to attempt to accommodate boat trailer parking. These spaces do not meet the new Commercial Fisheries/Maritime Activities District zoning spatial dimension standards of 10 foot width by 40 foot depth. Often times boaters with a trailer attached to their vehicles end up parking along the east side of Front Street, boarding the park and taking up several on street parking spaces.

An existing gravel area exists behind the former Ames Mill building. This site is considered to be under utilized and the Town hopes to redevelop this area as a designated place for boat trailer parking, allowing all of the existing striped spaces to be available for the former Ames Mill building employees and general park visitors with standard vehicle parking. Coordination with the Ames Mill building is likely as the existing gravel area appears to overlap onto private property.

Stormwater quality and quantity of runoff into the Kennebec River is of concern both to the Town and the MDEP. The existing pervious parking surfaces are already within the 25 foot shoreland setback and the community wishes to improve stormwater impacts on the river while still meeting their parking needs.

The Maine Department of Environmental Protection can get involved with the improvements on a couple of possible levels, including the Natural Resource Protection Act (NRPA) and Stormwater Law. It is unlikely enough new impervious area has been created at the waterfront area since 1975 to trip the threshold for a permit under the Site Location of Development Act. The NRPA process typically requires permit acquisition for disturbance of soil material within 75 feet of a surface water. In this case, stabilization of the shoreline and installation of any new drainage structures would trigger the need for a NRPA approval.

### **Design Solutions**

Designated boat trailer parking behind the former Ames Mill building within the CFMA district will require local planning board approval and likely a NRPA permit-by-rule through the MDEP. Figure F-5 shows a layout that meets the Town's boat trailer parking spaces standards while staying largely within the existing gravel area, providing 9 boat trailer parking spaces.

This area encompasses approximately 2,000 square yards of area that could be improved from a stormwater quality standpoint by creating a net reduction in impervious surface by means of a vegetated permeable paver system. Should the Town chose to go with a conventional pervious treatment Wright-Pierce recommends installing deep sump catch basins in this area with a discharge outfall into the river to improve stormwater quality and reduce erosion impacts to the river bank.

To provide safety to this relatively isolated area additional lighting should be installed in a manner that is consistent with the existing lighting system throughout the rest of the park.

There is also an opportunity to install additional trees along the riverbank and within the parking lot to improve the overall environmental quality of the area, most importantly by adding stabilization to the river bank.

**Cost Estimates**

The following cost estimate reflects the cost of planning level design as recommended in this report. The unit prices are based on similar projects that have been recently constructed in Maine. Wright-Pierce recognizes that market prices can fluctuate from year to year and we have carried a contingency of 10%.

**Town of Richmond, Maine**

**Water Front Improvements - Boat Trailer Parking  
 Planning Level Cost Estimate - July 11, 2008  
 WP Project # 11268A**

**Parking Lot with Pervious Pavement**

	<b>DESCRIPTION</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>UNIT PRICE</b>	<b>COST</b>
1	Excavation - Demolition	1	LS	\$5,000.00	\$5,000
2	12" Aggregate Sub-base	650	CY	\$25.00	\$16,250
3	6" Aggregate Base	375	CY	\$35.00	\$13,125
4	4" Course Aggregate	225	CY	\$45.00	\$10,125
5	Pervious Pavement	2,000	SY	\$15.00	\$30,000
6	2" Binder Course Pavement	30	TON	\$110.00	\$3,300
7	1-1/2"Wearing Course Pavement	22	TON	\$100.00	\$2,200
8	Granite Curbing	450	LF	\$40.00	\$18,000
9	Light Poles with Concrete Base	5	EA	\$2,500.00	\$12,500
10	Electrical Supply and Controls	1	LS	\$10,000.00	\$10,000
11	Trees	4	EA	\$750.00	\$3,000
12	Loam and Seed Disturbed Areas	3,800	SY	\$6.00	\$22,800
13	Erosion Control	1	LS	\$500.00	\$500
14	Dig Safe	1	LS	\$500.00	\$500

15	Mobilization	1	LS	\$2,500.00	<u>\$2,500</u>
				<b>Subtotal:</b>	<b>\$149,800</b>

<b>SUBTOTAL:</b>	<b>\$149,800</b>
<b>10% CONTINGENCY</b>	<b>\$14,980</b>
<b>TOWN TOTAL:</b>	<b>\$164,780</b>

**Parking Lot with Bituminous Asphalt**

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	Excavation - Demolition	1	LS	\$5,000.00	\$5,000
2	Aggregate Sub-base	175	CY	\$25.00	\$4,375
3	6" Aggregate Base	350	CY	\$35.00	\$12,250
5	2" Binder Course Pavement	220	TON	\$110.00	\$24,200
	1-1/2" Wearing Course Pavement	165	TON	\$100.00	\$16,500
6	Granite Curbing	100	LF	\$40.00	\$4,000
7	Lighting	5	EA	\$2,500.00	\$12,500
8	Electrical Supply and Controls	1	LS	\$10,000.00	\$10,000
9	Trees	4	EA	\$750.00	\$3,000
10	Storm Drainage Improvements	1	LS	\$25,000.00	\$25,000
11	Loam and Seed Disturbed Areas	100	SY	\$6.00	\$600
12	Erosion Control	1	LS	\$500.00	\$500
13	Dig Safe	1	LS	\$500.00	\$500
14	Mobilization	1	LS	\$5,000.00	\$5,000
				<b>Subtotal:</b>	<b>\$123,425</b>

<b>SUBTOTAL:</b>	<b>\$123,425</b>
<b>10% CONTINGENCY</b>	<b>\$12,343</b>
<b>TOWN TOTAL:</b>	<b>\$135,768</b>

## **Mooring Fields**

### **Project Issues**

As part of its waterfront planning, the Town wishes to expand the area available for moorings. Existing system is unorganized and spread out along several areas. The maximum boat length that is currently moored in the Kennebec River is approximately 35-feet. Expansion of the mooring capacity of the riverfront area is restricted by a utility corridor (water, telephone, electric) to Swan Island, and maintaining a navigable channel through the area.

Boat moorings need to be spaced in such a manner that allows for movement of the boats in all tide and weather conditions. As such the chain length from the anchor to the mooring ball can be as much as 3 times the water depth. For a maximum boat length of 35-feet with a 9-foot pendant rope this means a radius of up to 78-feet from its anchor point would be required. For boats up to 20-feet in shallower water the radius can be reduced to approximately 60-feet. It appears from the spacing of the existing moorings that roughly a 50-foot radius has been utilized.

Four channel buoys have been placed to the north of the boat landing in Richmond. These buoys establish a channel of approximately 100-feet or greater entering the harbor area. In addition, a slow zone marker is placed closer to the Inland Fisheries and Wildlife facility and public boat launch. Further to the south in Bowdoinham, a 100-foot channel has been established.

Establishment of moorings within the river will require regulatory approvals from the Army Corps of Engineers (ACOE). Further demarcation of the channel to the south of the waterfront area should also be coordinated with the ACOE and the Coast Guard, and to match that provided in Bowdoinham. Information from the Coast Guard suggests that they are only primarily concerned with the river channel on the east side of Swan Island.

### **Design Solutions**

Solutions to expanding mooring capacity for the Town of Richmond focused on maximization of single moorings with the river, and expanding to the existing dock system to include single boat slips with the potential for multiple hook-ups. Each option is discussed further below.

A final piece of the proposed waterfront improvements involves re-organization of the moorings placed in the river. Several mooring areas are presently used which provides space for up to approximately 21 moorings, as shown in Figure 6. The locations of these moorings are approximate and based on visual evidence and aerial mapping. We understand the Town intends to locate the existing moorings via gps points. Most of the moorings are clustered to the south of the public boat



launch towards the east side of the channel. Four moorings are located to the north and west of the channel and one is located to the north and east of the channel closer to Swan Island.

A tour of the waterfront area recognized that the mooring field should be organized such that access to the boat launch and dock spaces is efficient as possible. Moorings should also be located such that there is a minimum of three to four feet of water available at low tides. One of the existing moorings was located within the navigable channel and should be relocated to provide better access to the public docking facilities.

Reorganization of the moorings to provide spaces for boats up to 20-feet in length and for boats from 20-feet to 35-feet in length was considered in developing adjustments to the present mooring field. Using the criteria noted above for fluctuation in tides and weather conditions, boats up to 20-feet will require a circle with a 55-foot radius and boats from 20-feet to 35-feet will require a circle with a 70-foot radius. To maintain access to the public docking facility, the area between the navigable channel and the boat launch/docking area was kept free of moorings. This mooring free area was also extended to the Inland Fisheries and Wildlife landing at Swan Island, which includes the utility corridor to the island.

As illustrated in Figure 7, reorganization of the mooring field from the Nash Marina area north to the public docking facility can result in space for approximately five moorings for boats up to 35-feet and twelve boats up to 25-feet. In addition, the areas to the north of the utility corridor to Swan Island can be expanded to approximately three moorings for boats lengths up to 35-feet, and fourteen moorings for boats up to 25-feet. In this configuration, a maximum of 34 boats can be moored along Richmond's waterfront area. Future mooring spaces could also be developed between the Richmond Channel Buoy 3 and Buoy 1 or the Buoy 4 and Buoy 2 areas. This layout also provides a navigable channel width of 100-feet through the study area.

## **PART III FUNDING**

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### **General Funding Overview**

There are a considerable number of tasks and suggested improvements contained in the Waterfront Improvements Plan, and many of the tasks have costs associated with them. There is no one funding mechanism that provides a "silver bullet" in terms of covering the costs for implementation of all the recommended improvements, and a significant portion of the costs must often be met with some local funding. In order to bring down local costs, a variety of funding mechanisms will need to be bundled to achieve desired results. The following is an overview of potential funding sources to support the implementation of Richmond's Waterfront Improvement efforts. Included in this overview are:

- Riverfront Community Development Bond;
- Small Harbor Improvement Program;
- Boat Facilities Grant Program;
- Community Development Block Grants;
- Municipal Investment Trust Fund;
- Project Canopy Assistance Grants;
- Tax Increment Financing?; and
- Public/Private Collaboration

### **Funding Sources**

Riverfront Community Development Bond (RCDB) is a state funded program administered by the Maine Department of Economic and Community Development (DECD). The purpose of this program is to assist and encourage communities along the State's rivers to revitalize their riverfronts in an environmentally sustainable manner and to promote river-oriented community development and enhancement projects. The DECD administers the program in conjunction with the Maine Municipal Bond Bank (MMBB) to provide funding for the rehabilitation, revitalization and enhancement of riverfront communities and river ecosystems in Maine. To be eligible the waterfront site must be municipally owned and the site must be secured by a minimum 75 year lease for a public use, unless otherwise expressly covered under and existing state statute. These funds may not be beneficial to multi-jurisdictions. There is also a required 2 to 1 match require, of which, at least 75% of the matching funds must be in new, readily available cash commitments. 25% of the matching funds can be from firmly documented commitments expended on the project in the past 12 months. All of the matching funds can be provided by state, federal, local or private sector sources.

The Town has already procured CDBG Downtown Revitalization funds that can be used as a match for some of the riverfront park amenities.

The following waterfront related activities are potentially eligible for the RCDB program:

- Development of public access sites for boating and fishing; and
- Creation of riverfront parks, walking trails and other recreational amenities

Applications for funds are expected to be available in the Fall of 2008 through the DECD. Details on the RCDB program are available at: <http://www.meocd.org/> Applications are expected to be due in the fall of 2008. This new program is currently in the final review stages. The Town should keep in close contact with the DECD to obtain the latest scheduling deadlines for this fund.

Small Harbor Improvement Program (SHIP) is a state funded program administered by the Maine Department of Transportation (MDOT). The purpose of this program is to promote public access, economic development and commit to preserving infrastructure along the coast, helping municipalities make improvements to public wharves, landings and boat ramps. These funds require a local cash match of between 25% to %75 of the total project cost.

The Town has had recent success in obtaining and implementing SHIP funds for recent waterfront improvements including boat launch upgrades and waterfront utility improvements.

The following waterfront related activities are potentially eligible for the SHIP program:

- Development of public access sites for boating and fishing; and
- Creation of riverfront parks, walking trails and other recreational amenities.

SHIP funding details information through the MDOT are available at: <http://www.state.me.us/mdot/projects-grant-applications/qcp/index.htm>

At this time the SHIP program is not an annual funded state program although Funds have been release in six "rounds" since the program began in 1995 and the program remains in existence as funds were allocated as recently as the spring of 2008. Richmond should be prepared to submit an application for SHIP as soon as funds are available and in the short-term, Richmond officials should work through their local legislative delegation to monitor changes to the program and funding at the state level.

Boat Facilities Grant Program (BFG) is a state funded program administered by the Maine Department of Conservation (MDOC). The purpose of this program is to fund access sites to the waters of Maine for public recreational boating. The BFG Program, administered by the Department's Bureau of Parks and Lands (BPL), assists towns, cities, districts and other

public and private agencies in the acquisition, development, enhancement, or rehabilitation of boat launching facilities available to the general public.

Sites on both tidal and non-tidal waters are eligible. Funding is available to assist in the development of hand-carry as well as trailered boat launching facilities. However, since the Fund derives its revenue from a portion of the gasoline taxes generated by recreational motor boaters, priority is given to funding launching facilities that can be used by both motor and non-motorized watercraft. The fund is not intended to provide non-boating water access, e.g., opportunities for bank fishing, sight-seeing, picnicking, where boat launching does not take place.

Grants may be monetary or in the form of materials, e.g., floats and concrete planking for ramps.

The applicant must have right, title or interest in the land to be acquired and/or developed and legally assure that the site will be available to the general public.

The following waterfront related activities are potentially eligible for the BFG program:

- Improvements to boat launches and dock systems

Generally, the recreational component of facilities found to be of statewide significance will be funded with a match requirement of up to 25%; regionally significant facilities with a 25% to 50% match requirement; and locally significant facilities with a 50% to 75% match requirement.

BFG funding details information through the MDOC are available at: <http://www.maine.gov/doc/parks/programs/boating/grants.html>

The BFG program derives its revenue from a portion of the gasoline taxes generated by recreational motor boaters. Richmond should be prepared to submit an application for BFF as soon as funds are available and in the short-term, Richmond officials should work through their local legislative delegation to monitor changes to the program and funding at the state level.

Community Development Block Grants (CDBG) program is a federally funded program administered by the DECD. The purpose of the program is to provide grants to local communities to support economic and community development that primarily benefits low and moderate income persons. Federal funding for the program is provided through the U.S. Department of Housing and Urban Development (HUD).

The CDBG program consists of several grant programs for economic and community development. The Town of Richmond has a recent history of success in securing funds

under several project types in Richmond's designated slum and blight area which includes the Fort Richmond Park parcel. The recently awarded Downtown Revitalization Grant can address some of the park amenity and parking lot improvement aspects of this plan immediately and can be used as a potential match source for the RCDB program mentioned above.

The following waterfront related activities are potentially eligible for the CDBG program:

- Site amenities like benches, lighting and trash receptacles;
- Parking infrastructure;
- Pedestrian Improvements; and
- Landscaping

To be eligible for additional CDBG funds, a community must have completed a comprehensive downtown strategic plan or update to an existing plan within in the past five years. Also, Communities applying for funds must provide a direct cash match of at least 25% of the total CDBG grant award.

Applications and funds are available annually from the DECD. Details on the CDBG program are available at: <http://www.meocd.org/> Applications are due in the first month of the calendar year.

The Municipal Investment Trust Fund (MITF) is a state of Maine program under the DECD that provides funding for local public infrastructure and downtown improvements. Projects are awarded on a competitive basis and are designed to support local programs that:

- Fit within long-range, community strategies;
- Minimize sprawl;
- Support revitalization of downtowns;
- Foster partnerships between groups of municipalities, state and federal agencies;
- public and private entities; and
- Improve deteriorated business districts

At this time the MTIF program is not an annual funded state program. At the time of this publication, no monies were available; although the program remains in existence as funds were allocated as recently as the spring of 2008. Richmond should be prepared to submit an application for MTIF as soon as funds are available and in the short-term, Richmond officials should work through their local legislative delegation to monitor changes to the program and funding at the state level.

Project Canopy Grants (PCG) Tree Planting and Maintenance grant program is a state funded program administered by the Maine Department of Conservation's (MDOC) Maine State Forest Service in cooperation with the Pine Tree State Arboretum.

The following waterfront related activities are potentially eligible for the BFG program:

- Tree installation throughout the park

Communities applying for funds must provide a direct cash match of at least 50% of the total \$8,000 available grant. Applications and funds are available annually from the MDOC. Details on the PCG program are available at:

<http://mainegovimages.informe.org/doc/mfs/projectcanopy/>

### **Local Sources**

Most of the financing programs listed above require private investment and in the end, the stimulation of private investment for the development of a vibrant downtown is the ultimate goal. The sustained success of Richmond's waterfront is an integral component of achieving this goal. The Town and its resident, and its businesses must embrace a public-private partnership model to economic and downtown development. Local property owners and or business owners must all be involved in the process.

The diverse mix of local interests represented on the Richmond Waterfront Committee is a strong source of community input to move the project forward. Additionally, the Town has the opportunity to work with the Richmond Utility District and the former Ames Mill building occupants to collaborate on various aspects of this plan including:

- Restroom facilities;
- Parking Lot Improvements; and
- Site lighting and landscaping amenities

## **FIGURES**

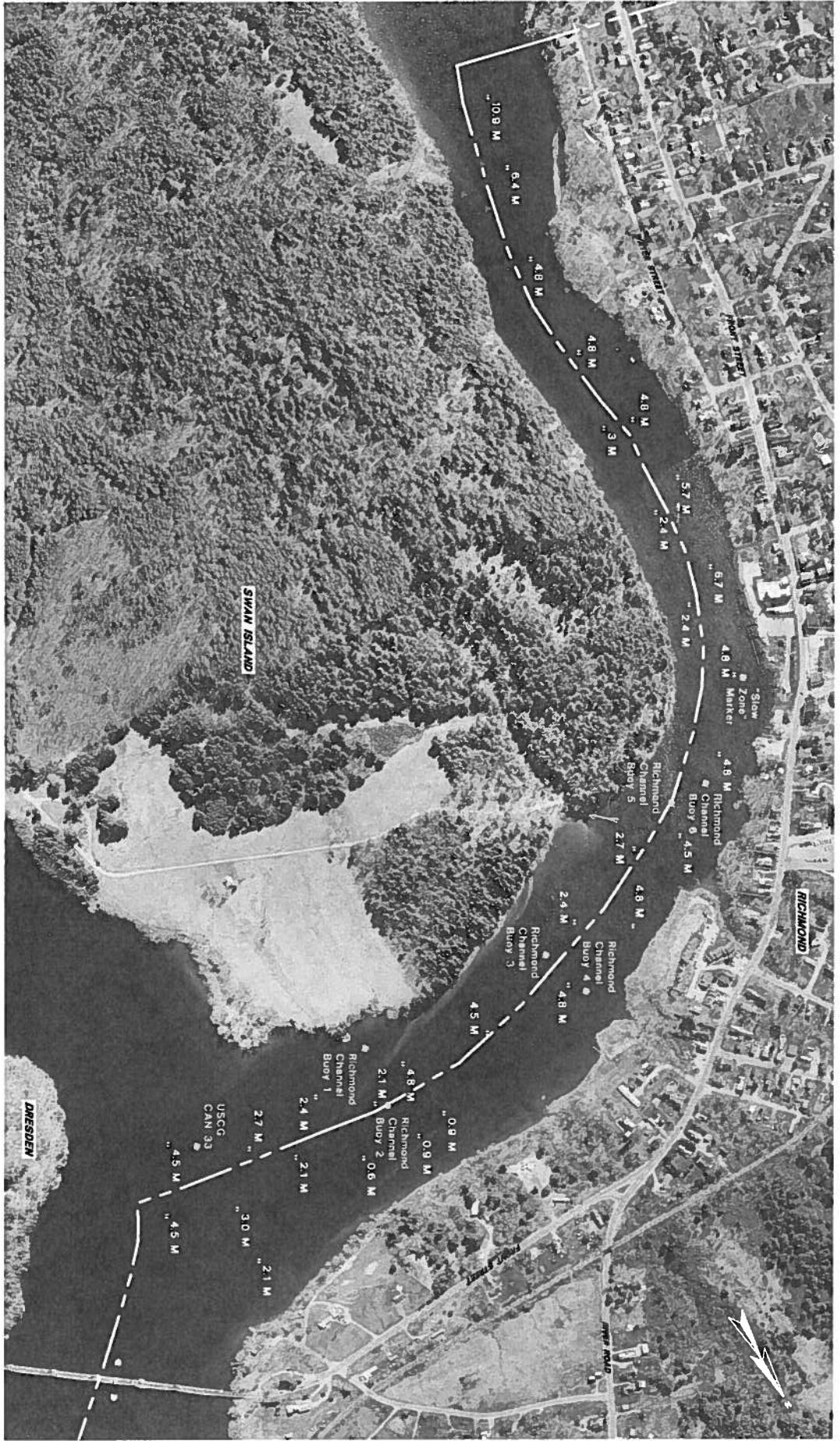
**GRAPHIC SCALE**  
 1" = 100' (1:1250)  
 1" = 200' (1:2500)

**LEGEND**

- FOOT MARKING PAVER MARKETS
- IDEAL DEPTH INDICATOR
- CHANNEL MARKERS
- USCG CAN 39
- USCG CAN 38
- USCG CAN 37
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# RICHMOND WATERFRONT IMPROVEMENTS PROJECT LOCATION MAP

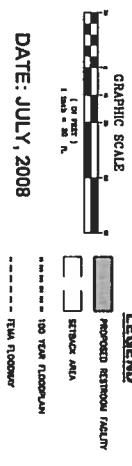
RICHMOND, MAINE



**FIGURE - 1**

**WRIGHT-PIERCE**  
 Engineering a Better Environment





DATE: JULY, 2008

# RICHMOND WATERFRONT IMPROVEMENTS RESTROOM PLAN RICHMOND, MAINE

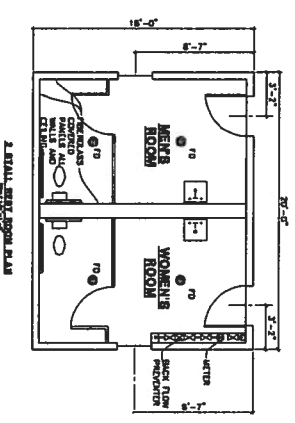
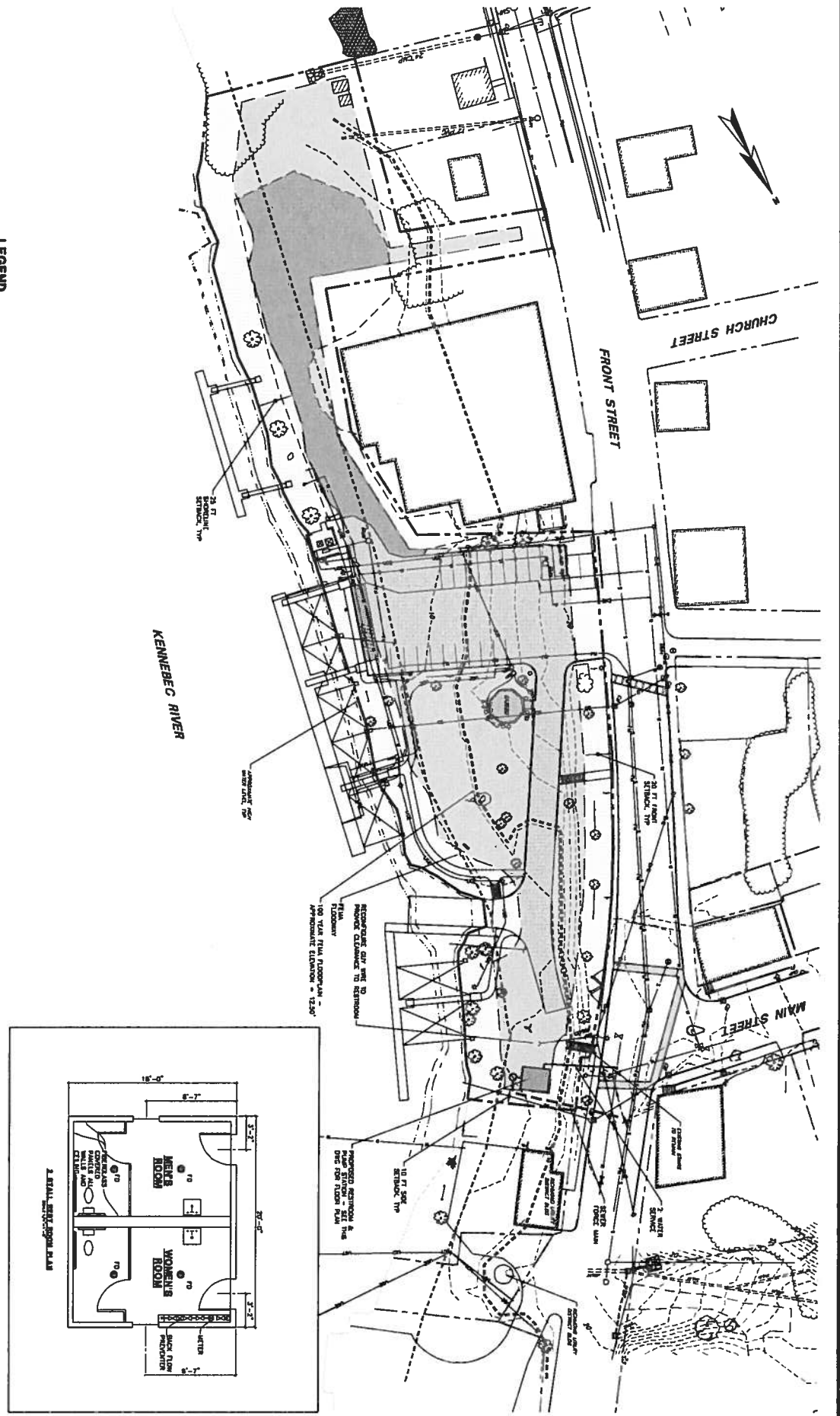
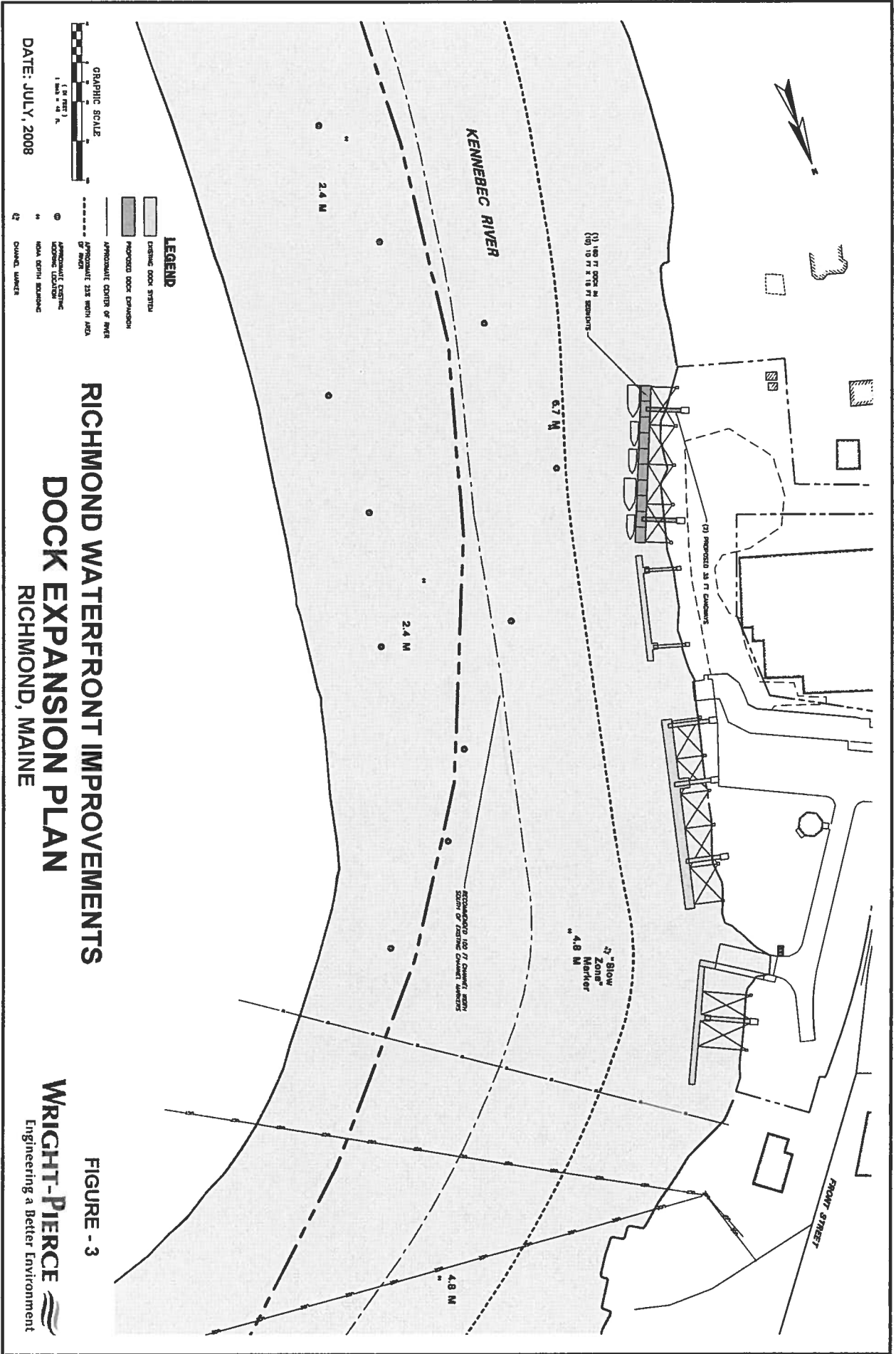
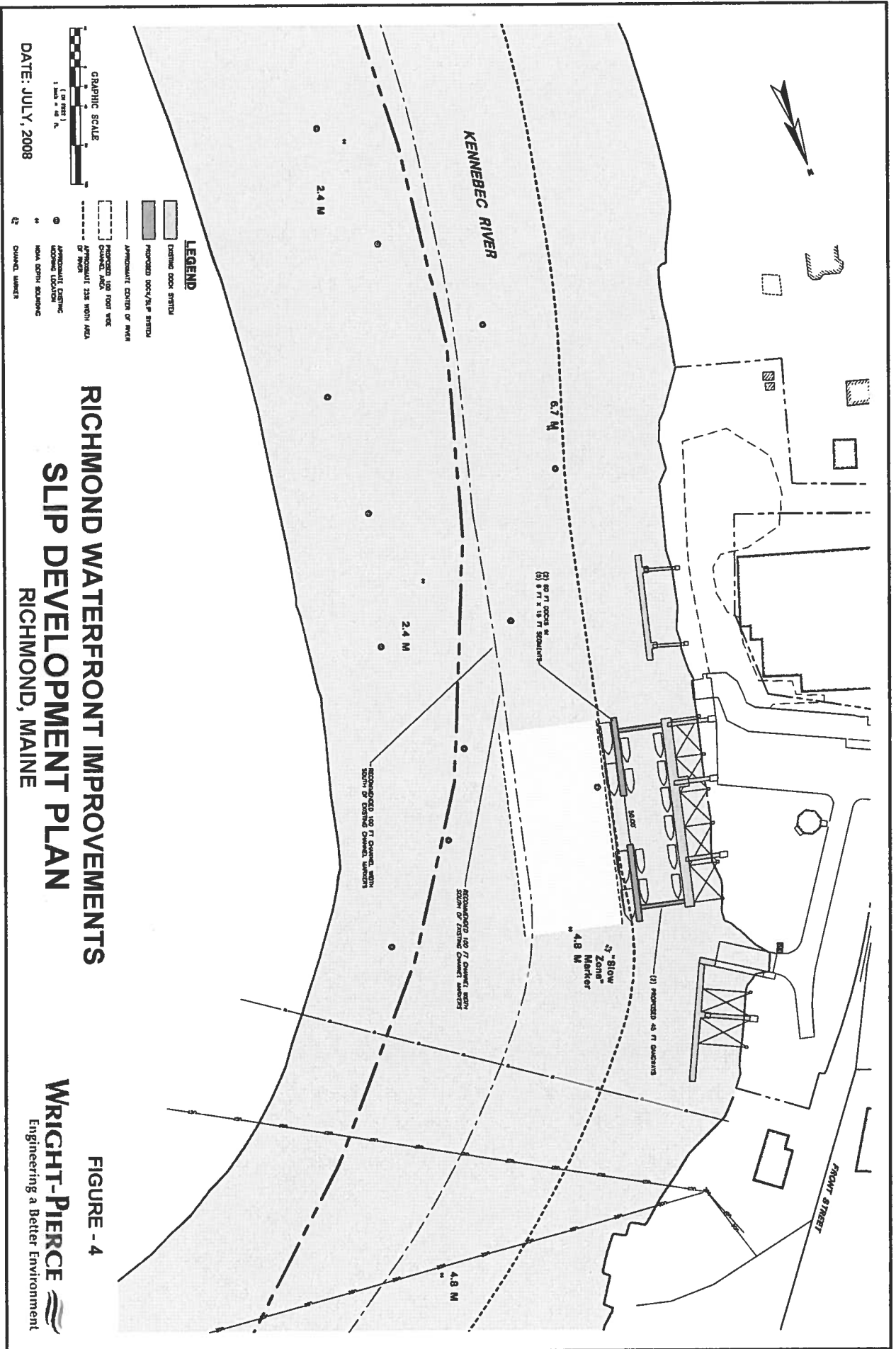
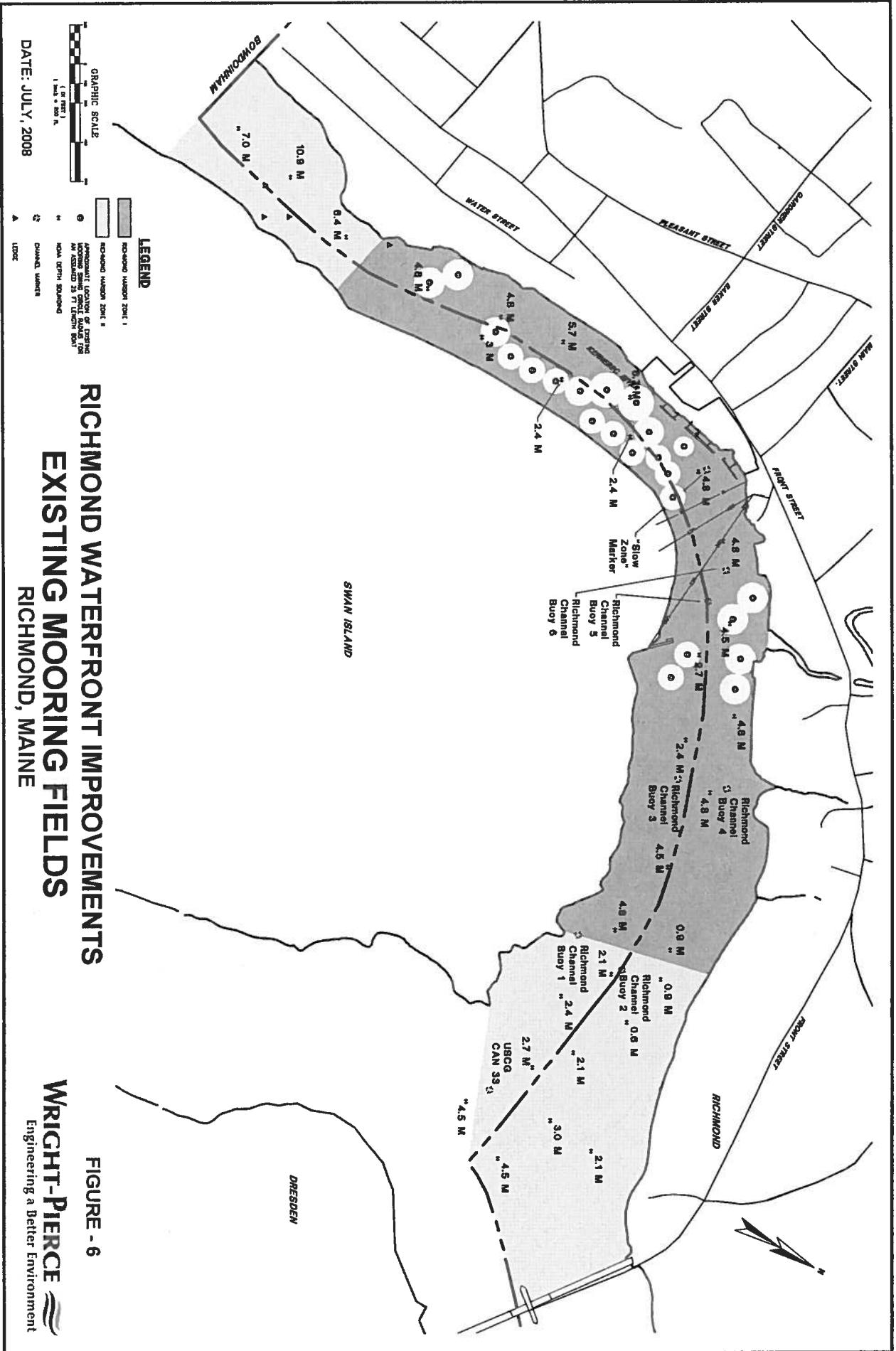


FIGURE - 2

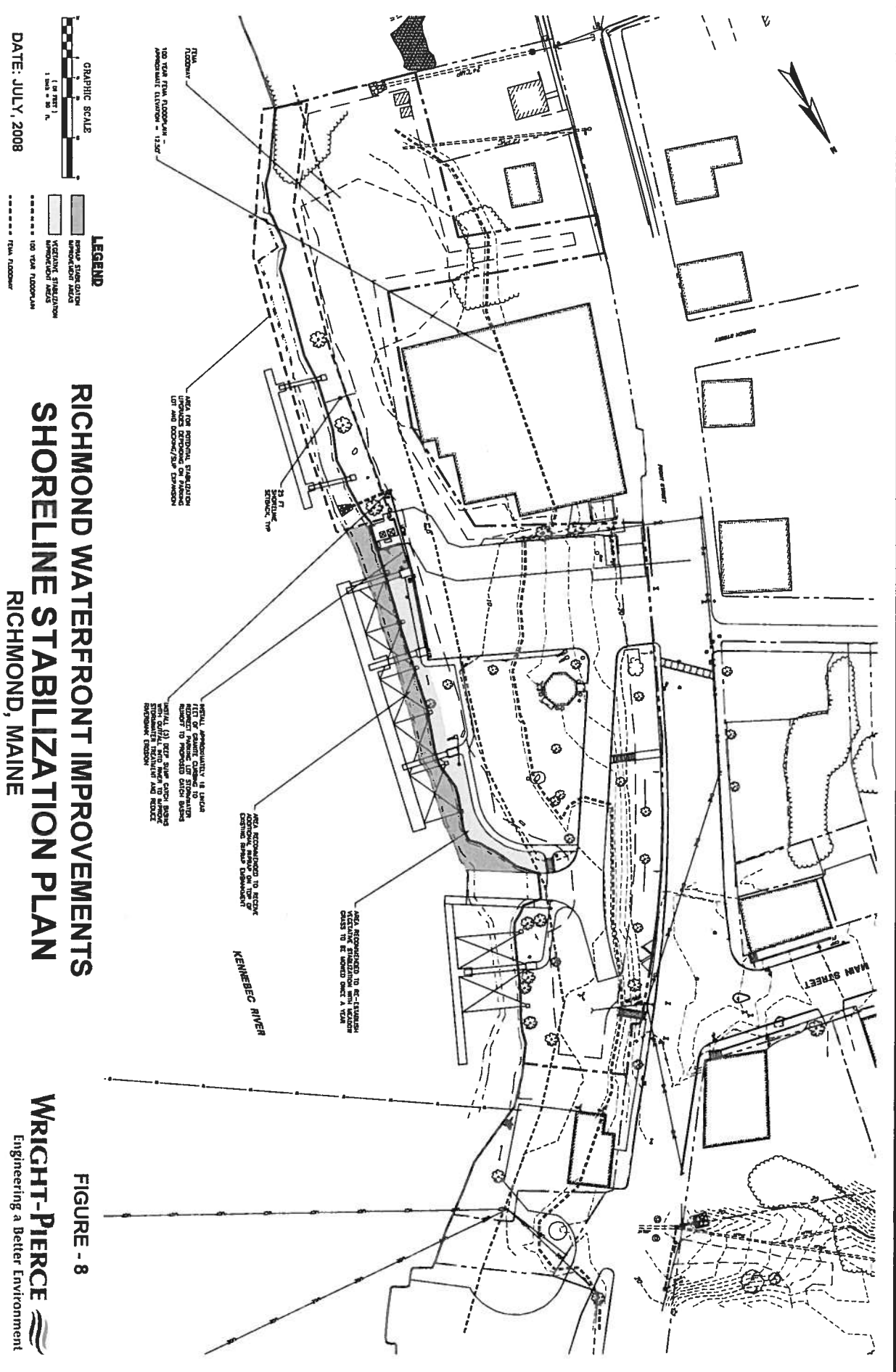












**APPENDIX A-1**  
**Public Participation**



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TO: Richmond Waterfront Committee, DATE: June 2<sup>nd</sup>, 2008  
Thomas Fortier and Darryl Sterling

FROM: Travis Pryor PROJECT NO.: 11268A

SUBJECT: Richmond Waterfront Committee Meeting Summary

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The following is Wright-Pierce's account of the June 2<sup>nd</sup> meeting with the Richmond Waterfront to introduce Wright-Pierce and discuss the Waterfront Improvements Project in general:

In Attendance:

Richmond Waterfront Committee -  
Burt Batty (Committee Chair), Laurisa Loon (Secretary);  
John McMullen (Harbor Master);  
Darryl Sterling (Community & Economic Development Director); and  
Travis Pryor (Wright-Pierce)

General Discussion:

- New ordinance approved for rezoning of Fort Richmond Park from Shore Land Zone to Commercial Fisheries/Maritime Activities District
- Considerations for a single tie-up float for multiple boats versus mooring fields. A helix system was suggested but it is believed this is not feasible due to shallow ledge in the river.
- Water fountains should be vandal proofed
- There has been infrequent usage of overnight town owned guest mooring this far.
- Bicycles on the docks are a nuisance and potential hazard. Bike racks are desired
- Signage for park rules are desired
- The Town's ordinance does not allow swimming off the docks but it frequently happens and there is a limited attendant role provided by the Harbor Master from Wednesdays to Sundays
- The committee wants to consider adding slips near the former Ames Mill building for overnight and weekend use
- The yachting clubs dock system is located in the river behind the former Ames Mill building and the system is stored in the gravel parking lot, also behind the former Ames Mill building
- The Nash Marina slips filled right away after relatively recent establishment of facility
- Can the concrete pad @ the "pump out" have a shelter on it
- Turn the port-a-potty doors towards the parking lot
- There are floodplain issues associated with the restrooms
- Richmond Utility District parcel is open for discussion in these planning efforts

Memo to: Richmond Waterfront Committee  
06-02-08  
Page 2

- The project area is from the "Green Can" near the route 24 bridge at the north end of Swan Island, from east shore to west shore of the river south to Nash's Marina
- There are three general areas in the harbor where existing boats are moored
- Boating seems to be diminishing over the past few years as evidenced by increasingly unoccupied moorings in the river
- There is currently one Town mooring and one that has been recently given to the Town and its use is yet to be determined
- The location of the restroom facility in a previous professional design effort was considered unfeasible and inappropriate with the scale of the park
- Parking lot improvements should consider pervious versus impervious treatments
- No anchoring in the Harbor I zone will be allowed under the new ordinance language
- Swan Island has seen an increase of visitors by canoe and kayak
- Most of the park's use has historically not been by boaters
- Trailer parking is desired behind the former Ames Mill building
- Ames Mill building employees have rights to some parking nearby
- Existing parking will be for small vehicles and handicapped spaces
- Look at shoreline bulk head versus ripraped slopes versus a boardwalk
- Erosion near concrete deadmen is a concern. Consider pylon w/ steel bars and cables instead
- Town will provide Wright-Pierce with a harbor tour at low tide
- The shoreline evaluation is from the IF&W landing to the area behind the former Ames Mill building
- The boat launch ramp recently reconstructed as part of a ship grant is not long enough to accommodate sail boats at low tide. Most use occurs at high tide for sail boat users.
- The committee consists of a variety of Town officials, local residents and commercial interest groups
- The committee's primary function is the day to day maintenance of the park as necessary and the long term planning considerations

Inclusions:

Fort Richmond Waterfront Committee Meeting "Tentative Agenda" for Monday June 2, 2008

**APPENDIX A-2**  
**Federal Correspondence**

**APPENDIX A-3**  
**State Correspondence**

**APPENDIX A-4**  
**Local Zoning Regulations**

**KEY FEATURES OF SHORELAND AND CF/MA ZONING  
FOR THE FORT RICHMOND WATERFRONT PARK**

<i>Zone Feature</i>	<i>Shore Land Zone</i>	<i>Commercial Fisheries Maritime Activities District</i>
Tax Lot	#19	#19
Lot Size	2.3 acres	2.3 acres
Shoreline Frontage	770 feet	770 feet
Land feature	Land area located within 250' horizontal distance of the normal high water line	Includes areas where the existing predominant pattern of development (activities) is marine fisheries and/or marine activities including water dependant uses.
Paved parking lot	Yes, max lot coverage for impervious surface is 20%	Yes, set back at least 25' horizontal distance from the shoreline and maximum lot impervious surface is 70%
Clearing of vegetation	Yes, but not within 75' of shoreline	Yes, not within 75' except for approved uses ->(25' setback)
Parking area requirements	Planning Board Permit required, 75' setback	Parking area shall be sided to allow each vehicle and boat trailer 10' wide by 40' deep. The area shall be designed to prevent storm water runoff from flowing directly into a body of water or wetland and where feasible to retain all runoff on-site. Planning Board Permit required, 25' setback
Build additional piers Temporary Permanent	CEO CEO & Planning Board	CEO CEO & Planning Board
Build permanent restroom	Planning Board Permit	Planning Board Permit
Reinforce shoreline	YES	Yes
Cutback vegetation at shoreline	NO	NO
State/Federal Permits Req.	Yes	Yes
Ability to apply for special federal or state funds to implement parking/paving, shoreline improvement, restroom, brush removal	No	Yes

### 3. Dimensional Standards in Shoreland District

<b>Minimum Lot Area</b>	
Within the Shoreland Zone Adjacent to Tidal Area	30,000 sq. ft.
Within the Shoreland Zone Adjacent to Non-Tidal Area	40,000 sq. ft.
<b>Minimum Shore Frontage</b>	
Within the Shoreland Zone Adjacent to Tidal Area	150 ft.
Within Shoreland Zone Adjacent to Non-Tidal Area	200 ft.
<b>Minimum Setbacks</b>	
All new principal and accessory structures	
From Normal High water line of great ponds-Pleasant Pond- and rivers that flow to great ponds	100 ft.
From normal high water line or other water bodies, tributary streams or the upland edge of a wetland	75 ft.
On the Kennebec River in the Village	25 ft.
Structures which require direct access to the water as piers, docks and retaining walls, or other functionally water-dependent uses	None
<b>Maximum Height</b>	35 ft or 2 1/2 stories
<b>Maximum Lot Coverage</b>	20%

1. The applicant shall prove that all structures and fill do not encroach on the area of special flood hazard.

#### Principal and Accessory Structures

Please see Dimensional Standards in the Shoreland Zone above.

- a. The water body or wetland setback provision shall neither apply to structures which require direct access to the water as an operational necessity, such as piers, docks and retaining walls, nor to other functionally water-dependent uses.
- b. The first floor elevation or openings of all buildings and structures including basements shall be elevated at least one foot above the elevation of the 100 year flood, the flood of record, or in the absence of these, the flood as defined by soil types identified as recent flood plain soils.
- c. Notwithstanding the requirements stated above, stairways or similar structures may be allowed with a permit from Code Enforcement Officer, to provide shoreline access in areas of steep slopes or unstable soils provided; that the structure is limited to a maximum of four (4) feet in width; that the structure does not extend below or over the normal high-water line of a water body or upland edge of wetland, (unless permitted by the Department of Environmental Protection pursuant to the Natural Resources Protection Act, Title 38, Section 480-C); and that the

Applicant demonstrates that no reasonable access alternative exists on the property.

### 3. Boathouses

Boathouses may be located within a shore lot, but shall be set back a minimum of one hundred (100) feet from the normal high-water elevation of a lake, pond, river, or stream, or seventy-five (75) feet from the mean high tide mark; shall not exceed one (1) boathouse on the premises for each shore lot; shall not exceed a height of fifteen (15) feet; shall not exceed three hundred (300) square feet in horizontal area covered: and shall be at least fifteen (15) feet from any side lot line. All distances shall be measured horizontally.

### 13. Parking Areas

- a. Parking areas shall meet the shoreline setback requirements for structures for the district in which such areas are located. The setback requirement for parking areas serving public boat launching facilities may be reduced to no less than fifty (50) feet from the normal high-water line or upland edge of a wetland if the Planning Board finds that no other reasonable alternative exists.
- b. Parking areas shall be adequately sized for the proposed use and shall be designed to prevent stormwater runoff from flowing directly into a water body, and where feasible, to retain all runoff on-site.
- c. In determining the appropriate size of proposed parking facilities, the following shall apply:
  - i. Typical parking space: Approximately ten (10) feet wide and twenty (20) feet long, except that parking spaces for a vehicle and boat trailer shall be forty (40) feet long.
  - ii Internal travel aisles: Approximately twenty (20) feet wide.



# Shoreland Zoning Section of the Ordinance 2008 edition

## Keys to Tables:

- Y Yes, permitted without any permit
- Y<sup>PS</sup> Yes, subject to Performance Standard in Article 5
- Y<sup>SPS</sup> Yes subject to Special Performance Standard in Article 5
- CEO Requires a building permit or review by Code Enforcement Officer
- DR Requires Development Review and Permit according to Article 8
- N Prohibited Use

## District Abbreviations

- RP – Resource Protection District
- V – Village District
- SH – Shoreland District
- R – Residential District
- AG – Agricultural District
- CI – Commercial Industrial District
- HC – Highway Commercial District

CATEGORY OF USES	ZONES							
	RP	SH	AG	V	R	CI	HC	
1. Rural								
Agriculture	Y <sup>SPS</sup> (1)	Y <sup>SPS</sup>	Y	N	Y	Y	Y	

Timber Harvesting	Y <sup>SPS</sup>	Y <sup>SPS</sup>	Y	N	Y	Y	Y
Sale of Produce raised on Premises	Y	Y	Y	Y	Y	Y	Y
Seasonal Produce/Plants not raised on Premises	N	DR	Y	DR	Y	Y	Y
Campgrounds	N (2)	DR Y <sup>SPS</sup>	DR	DR	DR	DR	DR
Accessory Uses & Structures	DR (3)	DR	DR	Y	Y	Y (1)	Y (1)
Uses which are similar to above uses	DR	DR	DR	DR	DR	Y (2)	Y (2)
Public or Private Outdoor Recreation Facility	DR	DR	DR	DR	Y	Y	Y
Individual Private Camp-Sites	CEO	CEO	Y	Y	Y	Y	N
Filling and Earth Moving <100 cubic yards	< 10 Cub.Yd. CEO	CEO	Y	Y	Y	Y	Y
Filling and Earth Moving >100 cubic yards	>10 Cub.Yd. DR	CEO	CEO	CEO	CEO	CEO	CEO

Notes: to table on previous page

- (1) Performance Standard for Agriculture are found under Special Performance Standards under the Shoreland Zone District Section G ,4 of this Article
- (2) Except when area is zoned for Resource Protection due to flood plain criteria in which case a permit is required from the Planning Board
- (3) Provided that a variance from the set back requirements is obtained from the Board of Appeals.

**Keys to Tables:**

- Y Yes, permitted without any permit
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- CEO Requires a building permit or review by Code Enforcement Officer
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CATEGORY OF USES	ZONES
------------------	-------

2. Residential	RP	SH	AG	V	R	CI	HC
One and two family residential	N SE (1)	CEO	CEO Y	CEO	CEO	CEO	CEO
Manufactured Housing	N	N	Y <sup>PS</sup>	Y (2)	Y <sup>PS</sup>	Y <sup>PS</sup> (3)	Y <sup>PS</sup>
New location of Older Mobile Homes (4)	N	N	N	N	N	N	N
Conversion from seasonal to year around	CEO	CEO	CEO	CEO	CEO	CEO	CEO
Multi-family Dwelling	N	N	N	DR Y <sup>PS</sup>	DR Y <sup>PS</sup>	DR Y <sup>PS</sup>	N
Planned Unit or Cluster Development	N	N	DR	NO	DR	N	N
Mobile Home Park	N	N	N	N	DR	N	N
Accessory Uses & Structures	N	N	Y	DR	DR	DR	DR Y
Home Occupations	N	CEO	Y	CEO	Y	Y	Y
Similar Uses as Above	CEO	CEO	CEO	CEO	CEO	CEO	CEO

**Notes Keys to Tables:**

Y Yes, permitted without any permit

Y<sup>PS</sup> Yes, subject to Performance Standard in Article 5

Y<sup>SPS</sup> Yes subject to Special Performance Standard in Article 5

CEO Requires a building permit or review by Code Enforcement Officer

DR Requires Development Review and Permit according to Article 8

N Prohibited Use

### District Abbreviations

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CATEGORY OF USES	ZONES						
	RP	SH	AG	V	R	CI	HC
3. Commercial & Industrial							
Automobile Graveyards and Junk Yards	N	N	DR	N	N	DR	DR
Facilities & Activities which are functionally Water Dependant	DR	DR	NA	DR	NA	NA	NA
Commercial Uses Less	N	DR	DR	DR	DR	DR	DR

than 1,000 sq. ft.	(1)						
Conversion of Existing Residential Structures to Commercial Uses	N	N	DR	DR	N	DR Y <sup>SPS</sup>	DR
Bed and Breakfasts	N	DR	DR	DR	DR	DR	DR
Hotels, Motels and Inns	N	N	N	N	N	DR	DR
Other Commercial & Industrial Uses	N	N	DR	DR	DR	DR	DR
Filling and Earth Moving <100 cubic yards	< 10 Cub.Yd. CEO	CEO	Y <sup>PS</sup>	Y <sup>PS</sup>	Y <sup>PS</sup>	Y <sup>PS</sup>	Y <sup>PS</sup>
Filling and earth moving >100 cubic yards	> 10 Cub.Yd. DR	CEO	CEO	CEO	CEO	CEO	CEO
Accessory Uses & Structures	N	N	DR	DR	DR	DR	DR

Notes: *to table on previous page*

- (1) The following commercial uses are explicitly prohibited in the Resource Protection District: Auto washing facilities, auto or other vehicle service and/or repair operations, including body shops, chemical and bacteriological laboratories; storage of chemicals, including herbicides, pesticides or fertilizers other than amounts normally associated with individual households or farms; commercial painting, wood preserving and furniture stripping; dry cleaning establishments; electronic circuit assembly, Laundromats, unless connected to a sanitary sewer; metal plating, finishing, or polishing Petroleum or petroleum product storage and/or sale except storage on same property a use occurs and except for storage and sales associated with marinas; photographic processing ; printing.

#### **Keys to Tables:**

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CATEGORY OF USES	ZONES						
	RP	SH	AG	V	R	CI	HC
<b>4. Public, semipublic &amp; institution</b>							
Church, or Parish House, Rectory, etc.	N	N	DR	DR	DR	N	N
Public, Private & Parochial Schools	N	N	DR	DR	DR	N	N
Public Buildings: Libraries, museums, etc.	N	N	N	DR	DR	N	N
Recreation or Community Building	DR	DR	N	DR	DR	N	N
Cemeteries	N	N	DR	N	DR	N	N
Utilities: incl. Sewage Treatment	N	N	DR	N	N	DR	DR
Waste Processing other than Sewage	N	N	DR	N	N	DR	DR
Electric & Telephone Trans. Facilities	DR	DR	DR	DR	DR	DR	DR
Public Pipeline Facilities	DR	DR	DR	DR	DR	DR	DR
Accessory Uses & Structures	DR	DR	DR	DR	DR	DR	DR



Disturbance incidental to Rights of Way	CEO	CEO	CEO	CEO	CEO	CEO	CEO
Extractive Activities: gravel, quarries, mines	N	N	Y <sup>PS</sup>	N	N	Y <sup>PS</sup>	Y <sup>PS</sup>

\*\*\*\*NOTE: Uses which are not listed shall require Development Review

**Keys to Tables:**

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CATEGORY OF USES	ZONES						
	RP	SH	AG	V	R	CI	HC
5. Other Uses							
Removal or fill of materials <5cc yard, incidental to the building project	CEO	Y	Y	Y	Y	Y	Y
Signs	CEO	CEO	CEO	CEO	CEO	CEO	CEO
Boathouses	N	DR	NA	DR	NA	NA	NA
Piers and Docks	CEO	CEO	NA	CEO	NA	NA	NA
Temporary	Y <sup>SPS</sup>	Y <sup>SPS</sup>		Y <sup>SPS</sup>			
Permanent	DR	DR		DR			

***F. Resource Protection District***

All uses in the district shall conform to the applicable performance standards of Article 5.

**1. Purpose**

- a. To further the maintenance of safe and healthful conditions and the general welfare; prevent and control water pollution; protect spawning grounds, fish, aquatic life, bird and other wildlife habitat; control building sites, placement

of structures and land uses; and conserve shore cover, visual as well as actual points of access to inland and coastal waters and natural beauty.

- b. To control the use of shore-land and other areas to provide maximum protection to the land and water resources so that:
  - i. The processes of eutrophication, sedimentation, and pollution, leading to the ultimate degradation or destruction of the water body, will be eliminated or delayed as long as possible;
  - ii. The process of accelerated nutrient enrichment of water bodies, which almost always accompanies shore-land development, will be kept to a minimum; and
  - iii. Water bodies, particularly those with public access, will be maintained in a condition fit for the present and future use and enjoyment of the public.
- c. To provide minimum standards, as a stopgap measure, until such time as research establishes precisely the susceptibility of various water bodies to degradation process.
- d. To enhance the enjoyment and use of water bodies through the protection of fish and aquatic life from destruction that results from advanced stages of man-induced eutrophication.
- e. To protect the most vulnerable shore-land areas of all water bodies and other areas in which land uses would adversely affect water quality, productive habitat, biological systems, or scenic and natural values, and to discourage development in unsafe or unhealthful areas. Such areas include, but are not limited to:
  - i. Wetlands, swamps, marshes and bogs.
  - ii. Significant wildlife habitats.

## **2. *Location of Resource Protection District***

Notwithstanding the delineation of Resource Protection Districts shown on the Official Zoning Map, the following areas shall be zoned

Resource Protection:

- a. Floodplains along rivers and floodplains along artificially formed great ponds as defined by the 100 year floodplain as designated on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or Flood Hazard Boundary Maps.
- b. Areas within the State defined shore land area which:
  - i. Consist of two or more contiguous acres with sustained slopes of 20% or greater, or
  - ii. Consist of two or more contiguous acres which support wetland vegetation and have hydria soils and which are not part of a freshwater or coastal wetland.

c. All areas lying within the area enclosed by a line located two hundred fifty (250) feet uphill of the upland edge of the following high and moderate value wetlands as designated by the Department of Inland Fisheries and Wildlife and shown on the Map of Potential and Known Essential and Significant Wildlife Habitats dated September 1990 as currently provided and as it may be subsequently amended from time to time which are not within the mapped Resource Protection District shall be included in the Resource Protection District:

- i. Wetland 1-W2 (MDIFW #0701-06a) located on Rolling Dam Brook.
- ii. Wetland 2-W2 (MDIFW #0600-31) located at the north end of the Abagadasset River.
- iii. Wetland 3-W2 (MDIFW #0600-30) located along the Abbagadasset River
- iv. Wetland 4-W3 (MDIFW #0600-27) the Umberhind Marsh.
- v. Wetland 5-W3 (MDIFW #0600-26) located east of the Reed Cemetery.
- vi. Wetland 7-W3 (MDIFW #0600-41) located between the Plummer Road and I-295.
- vii. Wetland 10-W3 (MDIFW #0600-42) located north of Richmond Corner.
- viii. Wetland 13-W3 (MDIFW #0600-40) located along Denham Stream.

d. All stream-associated floodplain wetlands

Land areas along rivers subject to severe bank erosion, undercutting, or riverbed movement and lands adjacent to tidal waters which are subject to severe erosion or mass movement, such as steep coastal bluffs.

Areas within the mapped Resource Protection District not meeting one of these factors shall be considered to be in the Shoreland Zoning District rather than the Resource Protection District if they are within the area designated by the State as covered by Shoreland Zoning. Areas outside of the designated shoreland area

shall be considered to be part of the adjacent district and governed by its regulations.

When there is any question as to the location of the boundary of the Resource Protection District, including the accuracy of mapped wetlands or mapped floodplains; the location shall be established by field determination. When a field determination of the boundary has been made by the Town, this determination shall supersede any mapped or written description of the boundary. Any property owner may submit evidence (from a professional qualified to identify the resource in question) to assist the Town in determining the appropriate location for the boundary. The costs for obtaining such evidence shall be borne by the property owner.

Any permitted use in this district or change in a nonconforming use which is subject to the provision of Section 6.8 (Development Review) of this Ordinance shall be required to obtain approval from the Planning Board prior to the issuance of a building permit, the use of a parcel of land or the commencement of any alteration or improvement of the site including grubbing or grading.

**3. Dimensional Standards for Resource Protection District**

<b>Minimum Lot Area</b>	
Within the Shoreland Zone Adjacent to Tidal Area	30,000 sq. ft.
Within the Shoreland Zone Adjacent to Non-Tidal Area	40,000 sq. ft.
<b>Minimum Shore Frontage</b>	
Within the Shoreland Zone Adjacent to Tidal Area	150 ft.

Within Shoreland Zone Adjacent to Non-Tidal Area	200 ft.
<b>Minimum Setbacks</b>	
All new principal and accessory structures	
From Normal High water line of great ponds-Pleasant Pond- and rivers that flow to great ponds	100 ft.
From normal high water line or other water bodies, tributary streams or the upland edge of a wetland	75 ft.
On the Kennebec River in the Village	25 ft.
Structures which require direct access to the water as piers, docks and retaining walls, or other functionally water-dependent uses	None
<b>Maximum Height</b>	25 ft.
<b>Maximum Lot Coverage</b>	20%

No portion of any lot created after the effective date of adoption or amendment of this Ordinance and lying within the Resource Protection District may be used to meet the

dimensional requirements of the Town's minimum lot size ordinance. Where a residential structure is in existence on the effective date of adoption or amendment of this Ordinance, no lot containing such structure shall be created which does not meet the dimensional requirements of the Town's Minimum lot size Ordinance.

#### **4. Special-Performance Standards for Resource Protection District**

Unless a use is listed here, all activities in the Shoreland Zone shall follow the Special Standards for Shoreland Zone and if not covered, performance standards in Article 5.

- a. Roads and Driveways-New roads and driveways are prohibited in a Resource Protection District except to provide access to permitted uses within the district, or as approved by the Planning Board upon finding that no reasonable alternative route or location is available outside the district, in which case the road and/or driveway shall be set back as far as practicable from the normal high water line of a water body, tributary stream or upland edge of a wetland.
- b. Timber harvesting in a shoreland area zoned for resource protection abutting a great pond, timber harvesting shall be limited to the following:

Within the strip of land extending 75 feet inland from the normal high-water line timber harvesting may be conducted when the following conditions are met:

- i. The ground is frozen
  - ii. There is no resultant soil disturbance
  - iii. The removal of trees is accomplished using a cable or boom and there is no entry of tracked or wheeled vehicles into the 75 foot strip of land;
  - iv. There is no cutting of trees less than 6 inches in diameter; no more than 30% of the trees 6 inches or more in diameter, measured at 4 ½ feet above ground level, are cut in any 10 year period; and a well-distributed stand of trees and other natural vegetation remains; and
  - v. A licensed professional forester has marked the trees to be harvested prior to a permit being issued by the municipality.
- c. Clearing of Vegetation for Development- Within a shoreland area zoned for Resource Protection abutting a great pond, there shall be no cutting of vegetation within the strip of land extending 75 feet, horizontal distance, and inland from the normal high-water line, except to remove safety hazards.

Elsewhere in any Resource Protection District the clearing of vegetation shall be limited to that which is necessary for uses expressly authorized in that district.

## **G. Shoreland District**

All uses in the district shall conform to the applicable performance standards of Article 5.

### **1. Purpose**

- a. To further the maintenance of safe and healthful conditions and the general welfare; prevent and control water pollution; protect spawning grounds, fish, aquatic life, bird and other wildlife habitat; control building sites, placement of structures and land uses; and conserve shore cover, visual as well as actual points of access to inland and coastal waters and natural beauty.
- b. To control the use and development of undeveloped shore-land areas, and to provide maximum protection to the land and water resources so that:
  - i. The processes of eutrophication, sedimentation, and pollution, leading to the ultimate degradation or destruction of the water body, will be eliminated or delayed as long as possible;
  - ii. The process of accelerated nutrient enrichment of water bodies, which almost always accompanies shore-land development, will be kept to a minimum; and
  - iii. Water bodies, particularly those with public access, will be maintained in a condition fit for the present and future use and enjoyment of the public.
- c. To provide minimum standards, as a stopgap measure, until such time as research establishes precisely the susceptibility of various water bodies to degradation and the exact nature of the effects of shore-land development on that degradation process.
- d. To enhance the enjoyment and use of water bodies through the protection of fish and aquatic life from destruction that results from advanced stages of man-induced eutrophication.
  - e. To minimize expenditures of public monies for flood control projects.
  - f. To minimize rescue and relief efforts undertaken at the expense of the general public.
  - g. To minimize flood damage to public facilities such as water mains, sewer lines, streets and bridges.
  - h. To protect the storage capacity of floodplains and assure retention of sufficient floodway area to convey flood flow which reasonably can be expected to occur.
  - i. To encourage open space uses such as agriculture and recreation.
  - j. To control building sites.

### **2. Location of District**

This district includes all land areas within 250 feet, horizontal distance, of the normal high-water line of any great pond, river; within 250 feet, horizontal distance, of the upland edge of a freshwater wetland and within 75 feet of the normal high-water line of a stream, except it does not include The Resource Protection district which is fully described above, in section F of this article.

This ordinance also applies to any structure built on, over or abutting a dock, wharf or pier, or other structure extending or located beyond the normal high-water line of water body or within a wetland.





### 3. Dimensional Standards in Shoreland District

<b>Minimum Lot Area</b>	
Within the Shoreland Zone Adjacent to Tidal Area	30,000 sq. ft.
Within the Shoreland Zone Adjacent to Non-Tidal Area	40,000 sq. ft.
<b>Minimum Shore Frontage</b>	
Within the Shoreland Zone Adjacent to Tidal Area	150 ft.
Within Shoreland Zone Adjacent to Non-Tidal Area	200 ft.
<b>Minimum Setbacks</b>	
All new principal and accessory structures	
From Normal High water line of great ponds-Pleasant Pond- and rivers that flow to great ponds	100 ft.
From normal high water line or other water bodies, tributary streams or the upland edge of a wetland	75 ft.
On the Kennebec River in the Village	25 ft.
Structures which require direct access to the water as piers, docks and retaining walls, or other functionally water-	None

dependent uses	
<b>Maximum Height</b>	35 ft or 2 1/2 stories
<b>Maximum Lot Coverage</b>	20%

1. The applicant shall prove that all structures and fill do not encroach on the area of special flood hazard.

#### 4. Special Performance Standards for the Shoreland Zone

##### 1. Agricultural

- a. All spreading or disposal of manure shall be accomplished in conformance with the Maine Guidelines for Manure and Manure Sludge Disposal on Land published by the University of Maine and Maine Soil and Water Conservation Commission in July 1972,
- b. Manure shall not be stored or stockpiled within the shoreland zone.
- c. Agricultural activities involving tillage of soil greater than forty thousand (40,000) square feet in surface area shall require a Soil and Water Conservation Plan to be filed with the Planning Board. Nonconformance with the provisions of said plan shall be considered to be a violation of this Ordinance.
- d. There shall be no tilling of soil within 100 feet, horizontal distance, of the great pond, or within 75 feet, horizontal distance, from other water bodies, or within 25 feet, horizontal distance, of the upland edge of a wetland or tributary stream. Existing uses as of the effective date of this Ordinance may be maintained.
- e. Newly established livestock grazing areas shall not be permitted within one hundred (100) feet, horizontal distance, of the normal high-water line of Pleasant Pond; within seventy-five (75) feet, horizontal distance of other water bodies; nor within twenty-five (25) feet, horizontal distance, of tributary streams, and wetlands. Livestock grazing associated with ongoing farm activities, and which are not in conformance with the above setback provisions may continue, provided that such grazing is conducted in accordance with a Soil and Water Conservation Plan.

##### 2. Accessory Structures

Accessory structures shall be permitted provided that:

- The proposed structure is related and necessary to a Permitted Use
  - The proposed structure will involve:
    - No danger to the public health and safety;
    - No significant interference degradation of air and water quality;

- No alteration of wetlands;
- No significant increase in sedimentation ; and
- No significant interference with the natural, scenic and historic value of those areas designated by Federal, State, or municipal agencies

3. Boathouses

Boathouses may be located within a shore lot, but shall be set back a minimum of one hundred (100) feet from the normal high-water elevation of a lake, pond, river, or stream, or seventy-five (75) feet from the mean high tide mark; shall not exceed one (1) boathouse on the premises for each shore lot; shall not exceed a height of fifteen (15) feet; shall not exceed three hundred (300) square feet in horizontal area covered: and shall be at least fifteen (15) feet from any side lot line. All distances shall be measured horizontally.

4. Clearing of Vegetation for Development

- (1). In areas other than the Resource Protection District, within a strip of land extending 100 feet inland from the normal high-water line of a great pond or river flowing to a great pond, and 75 feet from any other water body or tributary stream or upland edge of a wetland, a buffer strip of vegetation shall be preserved as follows:
- a. There shall be no cleared opening or openings greater than two hundred fifty (250) square feet in the forest canopy as measured from the outer limits of the tree crown. However, a footpath not to exceed ten (10) feet in width and measured from trunk to trunk and created such that a cleared line of sight to the water is not created, is permitted. Adjacent to a great pond, or stream or river flowing to a great pond, the width of the footpath shall be limited to six (6) feet in width.
  - b. There shall be permitted in any ten (10) year period selective cutting of no more than forty (40) percent of the total volume of trees four (4) inches or more in diameter, measured at four and a half (4½) feet above ground level, provided that a well-distributed stand of trees and a crown canopy of at least seventy (70) percent is maintained.
  - c. Selective cutting of trees within the buffer strip is permitted provided that a well distributed stand of trees and other vegetation is maintained. For the purposes of this section a "well-distributed stand of trees and other vegetation" adjacent to a great pond classified GPA or a river or stream flowing to a great pond classified GPA, shall be defined as maintaining a rating score of 12 or more in any 25-foot by 25-foot square (625 square feet) area as determined by the following rating system.

Diameter of Tree at 4 ½ feet above ground level (inches)	Points
2-4 inches	1
> 4-12 inches	2
> 12 inches	4

Adjacent to other water bodies, tributary streams, and wetlands, a "well-distributed stand of trees and other vegetation" is defined as maintaining a minimum rating score of 8 per 25-foot square area.

NOTE: As an example, adjacent to a great pond, if a 25-foot x 25-foot plot contains three (3) trees between 2 and 4 inches in diameter, three trees between 4 and 12 inches in diameter, and three trees over 12 inches in diameter, the rating score is:

$$(3 \times 1) + (3 \times 2) + (3 \times 4) = 21 \text{ points}$$

Thus, the 25-foot by 25-foot plot contains trees worth 21 points. Trees totaling 9 points

(21 - 12 = 9) may be removed provided that no cleared openings are created.

- d. Existing vegetation less than three (3) feet in height and other ground cover shall not be removed, and a well distributed stand of other natural vegetation, including trees under four (4) inches in diameter, shall remain.
  - e. Pruning of tree branches on the bottom 1/3 of the tree is permitted.
  - f. In order to maintain a buffer strip of vegetation, when the removal of storm-damaged, diseased unsafe, or dead trees results in the creation of cleared openings, these openings shall be replanted with native tree species unless existing new tree growth is present.
- (2). The above provisions shall not apply to the development of permitted uses, provided that clearing shall be limited to the minimum area necessary.
  - (3). At distances greater than 100 feet,, but still within the Shoreland Zone there shall be permitted on any lot, in any ten (10) year period, selective cutting of no more than forty (40) percent of the volume of trees four (4) inches or more in diameter, measured four and a half (4½) feet above ground level, provided that a well-distributed stand of trees and other natural vegetation remains.
  - (4.) In no event shall cleared openings for development, including but not limited to, principal and accessory structures, driveways and sewage disposal areas, exceed in the aggregate, twenty-five (25) percent of the lot area or ten thousand (10,000) square feet, whichever is greater, including land previously developed. .

- (5.) Cleared openings in existence on the effective date of this Ordinance may be maintained, but they shall not be enlarged, except as permitted by this Ordinance.

5. Piers, Docks, and Other Shoreland Construction

- a. Access from shore shall be developed on soils appropriate for such use and constructed so as to control erosion.
- b. The location shall not interfere with existing developed or natural beach areas.
- c. The facility shall be located so as to minimize adverse effects on fisheries.
- d. The facility shall be no larger in dimension than necessary to carry on the activity and be consistent with existing conditions, use, and character of the area.
- e. No new structure shall be built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland unless the structure requires direct access to the water as an operational necessity.
- f. No existing structures built on, over or abutting a pier, dock, wharf or other structure extending beyond the normal high-water line of a water body or within a wetland shall be converted to residential dwelling units in any district.
- g. Except in the Village District, structures built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland shall not exceed twenty (20) feet in height above the pier, wharf, dock or other structure.

6. Campgrounds

Campgrounds shall conform to the minimum requirements imposed under State licensing procedures and the following:

- a. Campgrounds shall contain a minimum of five thousand (5,000) square feet of land, not including roads and driveways, for each site. Land supporting wetland vegetation, and land below the normal high-water line of a water body shall not be included in calculating land area per site.
- b. The areas intended for placement of a recreational vehicle, tent or shelter, and utility and service buildings shall be set back a minimum of one hundred (100) feet from the normal high-water line of Pleasant Pond or a river flowing to a Pleasant Pond, and seventy-five (75) feet from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland.

7. Individual-Private Campsites. Individual, private campsites not associated with campgrounds are permitted provided the following conditions are met: