**WOONASQUATUCKET RIVER GREENWAY PROJECT**
**LAND USE AND ZONING IMPLEMENTATION PLAN**
**Providence, Rhode Island**

*Prepared For:*

**Rhode Island Department of Environmental Management**
235 Promenade Street
Providence, Rhode Island 02903

Prepared By:

**ESS Group, Inc.**
401 Wampanoag Trail, Suite 400
East Providence, Rhode Island 02915

**ESS Project No. R315-000.5**

**September 30, 2004**

ESS Group, Inc. © 2004 – This document or any part may not be reproduced or transmitted in any form or by any means, electronic, or mechanical, including photocopying, microfilming, and recording without the express written consent of ESS Group, Inc. All rights reserved.

## TABLE OF CONTENTS

**SECTION** **PAGE**


EXECUTIVE SUMMARY ..... 1

1.0 INTRODUCTION ..... 1

2.0 URBAN REDEVELOPMENT DESIGN PRACTICES ..... 2

3.0 CITY OF PROVIDENCE LAND USE AND ZONING REGULATIONS ..... 3
- 3.1 Existing Zoning ..... 3
- 3.2 Existing Land Use ..... 4

4.0 RIVER PROTECTION RECOMMENDATIONS ..... 4
- 4.1 Vegetated Buffers ..... 4
  - 4.1.1 Recommendations ..... 4
- 4.2 Setbacks ..... 6
  - 4.2.1 Recommendations ..... 6
- 4.3 River Access ..... 6
  - 4.3.1 Recommendations ..... 7
- 4.4 Stormwater and Erosion Control ..... 7
  - 4.4.1 Recommendations ..... 7
- 4.5 Landscaping, Fencing and Aesthetics ..... 9
  - 4.5.1 Recommendations ..... 10
  - 4.5.2 Landscaping for River Access ..... 12
- 4.6 Parking ..... 12
  - 4.6.1 Recommendations ..... 13
- 4.7 Auto Salvage ..... 14
  - 4.7.1 Recommendations ..... 14
- 4.8 Drive-Thru Establishments ..... 14
  - 4.8.1 Recommendation ..... 14
- 4.9 Development Review ..... 15
  - 4.9.1 Recommendations ..... 15
- 4.10 Maintenance of the River Corridor ..... 15
  - 4.10.1 Recommendations ..... 16
- 4.11 Miscellaneous Recommendations ..... 16

5.0 RECOMMENDED DENSITY THRESHOLDS ..... 16
- 5.1 Descriptions ..... 17
- 5.2 Mitigation Tradeoffs for Building Density ..... 18

6.0 BROWNFIELD RECOMMENDATIONS AND IDENTIFICATION ..... 19
- 6.1 Issues/Concerns for Redeveloping Brownfields Sites ..... 19
- 6.2 Financial Assistance ..... 21

7.0 LITERATURE CITED ..... 21

## TABLE OF CONTENTS (CONTINUED)

### TABLES

Table 1 Zoning Classifications
Table 2 Land Use Classifications
Table 3 List of Suggested Plantings for Use in a Riparian Buffer Zone

### FIGURES

Figure 1 Study Area
Figure 2 Zoning Classifications
Figure 3 Land Use Classifications
Figure 4 Public Access Potential Locations
Figure 5 Recommended Densities

### APPENDICES

Appendix A Comments from Final Public Meeting

Copyright © ESS Group, Inc., 2004

## EXECUTIVE SUMMARY

The State of Rhode Island Department of Environmental Management (RIDEM) received a Smart Growth Grant from the United States Environmental Protection Agency (EPA) in 2003 to create a plan which successfully integrates existing neighborhood planning documents (Only in Olneyville, Smith Hill Now, the Woonasquatucket River Greenway Plan, and the Woonasquatucket River Greenspace Strategy) into a single proposal which addresses Brownfields, vacant lots, and the integration of residential neighborhoods with the river corridor. The goal of the project is to reconnect the neighborhoods to the river and other neighborhoods while promoting appropriate economic development and protection/restoration of natural resources for the benefit of urban residents.

The Woonasquatucket River Watershed Council (WRWC) facilitated a series of Task Force workshops to maximize stakeholder input and involvement.

The Project was completed between February 2004 and September 2004. Recommendations were identified through review of existing City documents, internet and academic research, personal communication, and interactive stakeholder review.

The Task Force recommendations are based on business owners, residents, and property developer's experience living and doing business in the Woonasquatucket River corridor. The recommendations aim to improve the environment of the river – water quality, fish and wildlife habitats; and the quality of life for the residents in the community – parking, land uses, public access, etc. These recommendations were presented at two public meetings. Comments from the final public meeting are included in Appendix A.

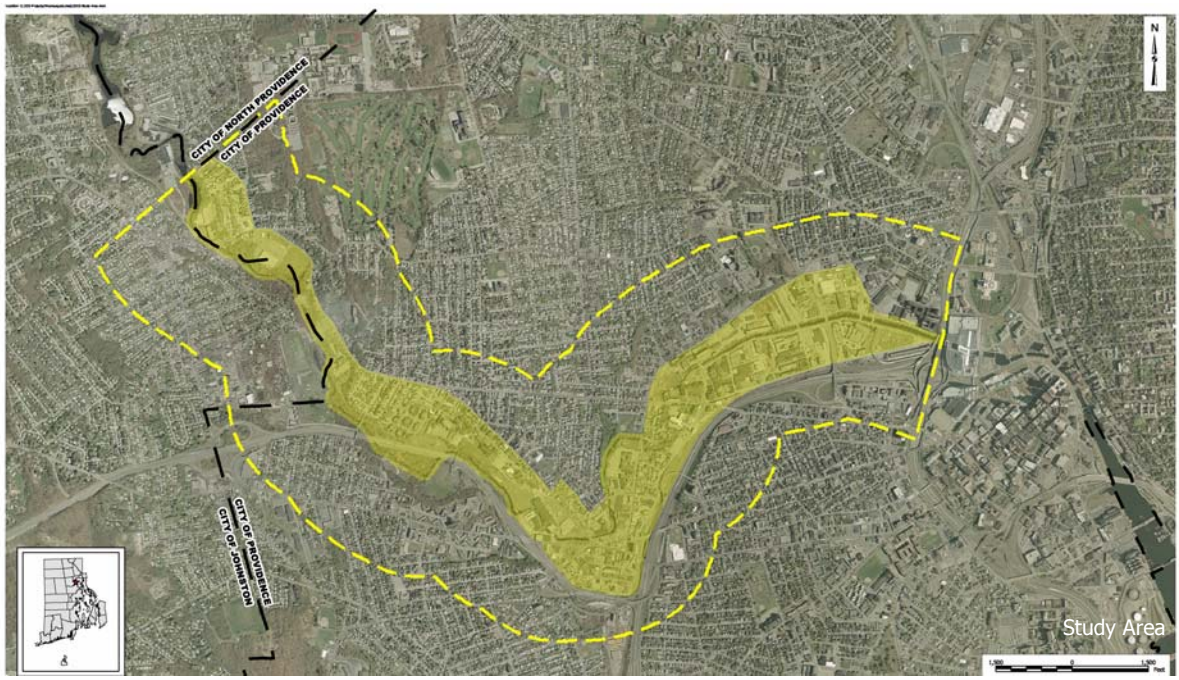
Although all of the recommendations are key areas of concern for the Task Force, land use densities and dimensional requirements, parking regulations and availability, Brownfield property development, public access and maintenance of the river were re-occurring topics. Landuse in the corridor is changing from an historically industrial use to more residential and resident supported commercial. As a result, the zoning classifications are not consistent with the land uses in many areas, and the direction development is heading. The ultimate objective for the recommendations in this report are 1) the City amend both the Development Review Regulations and the Zoning Ordinance to reflect the needs of the people living and working in the area, while maintaining economically viable neighborhoods for the City; and 2) RIDEM and its sister agencies amend the Brownfield remediation and development regulations to better facilitate the review process. Although the City may not be able to adopt all of these recommendations initially, the Task Force is presenting them in this document to guide land use planning now and as the City moves forward with urban river planning efforts.

Recommendations presented here are a consensus from Task Force meetings and don't necessarily represent RIDEM or EPA policies.

Copyright © ESS Group, Inc., 2004

## 1.0 INTRODUCTION

The Woonasquatucket River is located on the west side of the City of Providence, Rhode Island. The river enters Providence at the Providence/Johnston line and terminates just beyond Waterplace Park in downtown Providence where it merges with the Moshassuck River to form the Providence River. The Woonasquatucket links the neighborhoods of Manton, Hartford, Valley, Olneyville, and Smith Hill. The Land Use and Zoning Implementation Plan (Plan) is intended to ensure that the vision and comprehensive planning efforts of the Providence neighborhoods and the City of Providence (City) are developed into a single proposal to address Brownfields, vacant lots, and integration of residential neighborhoods within the river corridor. The project has two geographic focus areas – to look generally at existing land use, zoning classifications and Brownfields properties within a 4,000-foot corridor along the River (2,000 feet on each side of the river), and to look more closely at river protection initiatives and zoning regulations within a 200-foot study area (100 feet on each side of the river) (Figure 1).[1]




ESS Group, Inc. (ESS) worked with a project task force (Task Force) composed of the City, the Rhode Island Department of Environmental Management (RIDEM) Sustainable Watersheds Office, Woonasquatucket River Watershed Council (WRWC), Smith Hill Development Corporation, Olneyville Housing Corporation, City Council members, residents, business owners, and community members. A total of nine Task Force meetings were held to prepare recommendations for the project and develop this report. At the Task Force meetings, ESS presented river protection initiatives, Brownfields location data and regulatory process and background on the land development review process in the City. A subcommittee facilitated by the WRWC and composed of Task Force members looked more closely at density thresholds and dimensional requirements.

[1] The original project area was modified by the Task Force to include certain streets within the river corridor, as a result, the study area is not 100 feet along the river in all areas.

The following report provides specific recommendations to the City for changes to the zoning ordinance and land use development regulations; and to RIDEM for Brownfields property remediation. The Task Force focused on the following areas: River Protection Initiatives, Density Thresholds, Dimensional Requirements, and Brownfields Development. The Task Force recommendations are supported with resources and technical input from the US Environmental Protection Agency (US EPA) Office of Policy, Economics and Innovation and RIDEM Sustainable Watershed Office.

## 2.0 URBAN REDEVELOPMENT DESIGN PRACTICES

The Woonasquatucket River Greenway Land Use and Zoning Implementation Plan and the recommendations in this report are a reflection of planning and better site design efforts for urban redevelopment taking place throughout the country. These efforts can provide further documentation and guidance to the City as they begin to incorporate better site design methods into their zoning and land use regulations.

The Center for Watershed Protection convened a group of national and local stakeholders in 2001 to participate in a process to develop land development practices specifically for redevelopment and infill sites. The group developed a "Redevelopment Roundtable Consensus Agreement" which identifies eleven practices to help reduce pollutants and improve the environmental quality of development sites in highly urban watersheds (Center for Watershed Protection 2001). Smart Site Practices are site planning practices designed with the developer in mind that can be used to mitigate watershed impacts in highly urban watersheds (Center for Watershed Protection 2001).

The redevelopment site practices were developed by stakeholders that included municipal and private sector parties so that the issues would represent both sides of the development review process.

Several of the site practices support the recommendations included in this report. For instance, designing sites to utilize impervious cover efficiently and to minimize stormwater runoff (Practice #2); preserving naturally vegetated areas, encouraging revegetation, and soil restoration and including mechanisms to guarantee long-term management and maintenance of vegetated buffers (Practices #3 and #4); minimizing parking areas (Practice #6) and designing sites to maximize transportation choices in order to reduce pollution and improve air and water quality (Practice #11).

The Center for Watershed Protection also developed principles for better site design to reduce stormwater runoff that include maximum parking ratios, reduction of parking requirements where mass transit is available, reduction of overall imperviousness through pervious material use, compact car spaces and parking space size reduction (Center for Watershed Protection 1998).

The US EPA's recent publication "Protecting Water Resources with Smart Growth" presents policies that can be adopted at the local level to link zoning and land use regulations to the quality and quantity of stormwater. Many of the policies focus on increasing development density and providing tradeoffs for best management practices to reduce stormwater runoff to waterbodies.

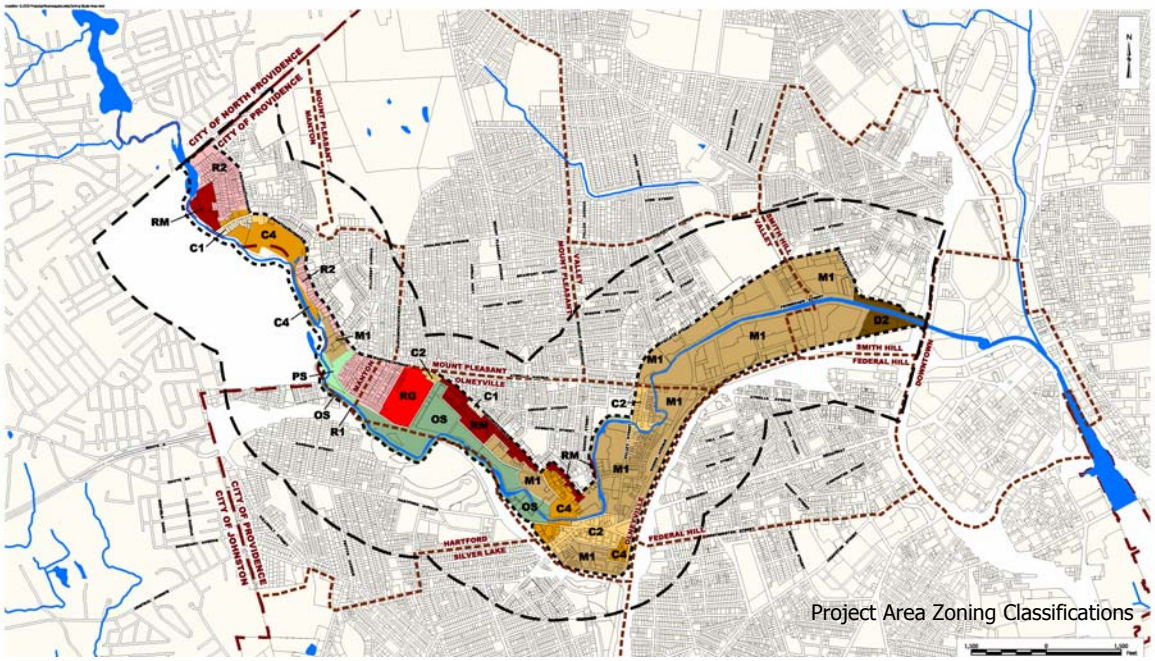
## 3.0 CITY OF PROVIDENCE LAND USE AND ZONING REGULATIONS

The City regulates development through the Zoning Ordinance and the Development Review Regulations. The Development Review Regulations establish procedural provisions for the development and subdivision of land and are consistent with the City Comprehensive Plan and the Zoning Ordinance (City of Providence 1996). Parcels of land that contain at least 40,000 square feet are reviewed as either a minor or major land development project or as a subdivision. The Zoning Ordinance provides for a number of health, safety, and development needs including providing for the orderly growth and development of the City (City of Providence 1994). Properties less than 40,000 square feet do not go through the land development review process, however, the zoning ordinance regulations still apply.

### 3.1 Existing Zoning

City of Providence zoning classifications within the 4,000-foot river corridor (river corridor) include primarily industrial, commercial and residentially zoned property (Table 1). Within the 200-foot study area, there are 870 parcels, 65 percent of which are zoned industrial, 12 percent zoned commercial, 7 percent residential, and 14 percent open and public space (Figure 2) (City of Providence 2003).

Land use is inconsistent with zoning classifications for many parcels within the river corridor. For instance, many of the areas that are zoned industrial have residential land uses (two to five multi-family) interspersed with existing industrial properties that may or may not be occupied.



Project Area Zoning Classifications

### 3.2 Existing Land Use

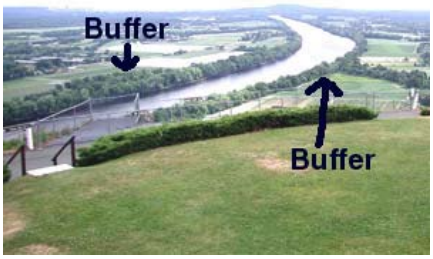
Existing land use within the 4,000-foot river corridor includes multi-family residential, commercial and industrial properties. Land uses based on the City of Providence Geographic Information System (GIS) database are listed in Table 2.

Land surrounding the river is highly urbanized as it goes through the City of Providence. Within the 4,000-foot corridor the majority of the land use is two to five multi-family residential (40 percent), followed by single family residential (18 percent), residential vacant land (14 percent), and commercial (5 percent). The remaining land uses are listed in Table 2 and shown in Figure 3. Within the study area, the majority of the land use is vacant land (23 percent), two to five multi-family residential (20 percent), industrial (23 percent) and commercial (16 percent) (Table 2, Figure 3).

## 4.0 RIVER PROTECTION RECOMMENDATIONS

River protection recommendations were identified through review of existing City documents, internet and academic research, personal communication, and an interactive stakeholder review process. The Task Force considered Best Management Practices (BMPs) from other urban areas including the City of Baltimore, Critical Area Management Program, City of Pawtucket Riverfront Zoning, and the City of Brockton stream maintenance program. BMPs were also included from the RIDEM Urban Environmental Design Manual (2004). This research resulted in recommendations for the study area (Figure 1) in several different categories as detailed in the following sections.

### 4.1 Vegetated Buffers




Riparian buffers are one element for implementing an overall urban watershed protection strategy for a river corridor. A buffer network functions as an integral part of the river ecosystem and adds to the quality of the river and the surrounding community. Stream buffers also add to the quality of the stream visually and provide benefits such as erosion/flood control and pollutant removal. The City currently requires a 20 foot wide vegetated buffer adjacent to water bodies. The buffer includes trees and plant material for stormwater filtration. No parking or buildings are permitted within the buffer but it may be used to provide a walking and/or bike path.

#### 4.1.1 Recommendations

The vegetated buffer requirement should be increased to 25 feet from the rivers edge (50 feet in public and open space zones where no parking/buildings are permitted). The City should extend the buffer in areas that include any threatened/endangered species habitat and any wetland area. If the buffer area is to be used for public access and recreational opportunities, a minimum of 10 feet of vegetation needs to be maintained along the waters edge as part of the larger buffer. Buffer maintenance should be the responsibility of the property owner and the City

should provide guidance for native vegetative cover within the buffer zone. A list of suggested plantings for use in a riparian buffer zone is included in Table 3, many of these species are tolerant of the stresses typical of urban areas. Other sources of information for planning and design of vegetated buffers include the Natural Resources Conservation Service, Conservation Practice General Specification for Riparian Forest Buffer (NRCS 2001). If the property is sold, the obligation to maintain the vegetated buffer should be assumed by subsequent owners.

In areas where the City has designated the potential for urban riverwalks (recommendation also in this report) or their appropriateness based on land use, developers should be required to show that environmental impacts to the vegetated buffer are mitigated and there is a net environmental benefit to water quality from the project. It should be the burden of the developer to provide this information to the City.

For developments that will directly impact the buffer, an exaction fee should be required for restoration activities. An exaction fee would be related to the specific development proposed. However, the City Charter currently requires that fees go into a general fund (i.e., they cannot be set aside for specific uses). The Task Force recommends that the City establish a separate account under the authority of the City Council. The City could also establish third party reviews for construction projects. Using this mechanism, the City would charge the developer/applicant a fee for an outside consultant to review the development proposal (See Section 4.9.1 for more detail on third party review).

Construction standards for vegetated buffers are an important protection measure for existing buffers. The following measures should be required as part of a construction plan:

- Buffer delineations shall be required on every drawing within every set of construction plans including, but not limited to, clearing and grading plans and sediment control plans.
- Buffer delineations and limits of disturbance should be staked out in the field prior to any construction activity.
- Limits of disturbance should be marked with silt or snow fence barriers with accompanying signs to prevent storage of construction materials and intrusion of vehicles.
- A pre-construction walkthrough should be performed with the City and the consultant who was responsible for delineating the resource areas.

An easement could also be used to protect the buffer area in perpetuity. Terms of the easement could specify uses and maintenance that would be required of the property owner. Protecting existing established vegetation along the river after construction is also important. Landscaping on a site containing an existing vegetated buffer should use only plant and tree varieties specifically cited as native species in Sustainable Trees and Shrubs for Southern New England, prepared by the University of Rhode Island, University of Massachusetts, and the United States Department of Agriculture, 1993 or in another credible scientific document that specifically lists any proposed planting (genus and species) as being indigenous to the region. The Rhode Island

Wild Plant Society also publishes lists of native species along with nurseries that can readily supply native species for landscaping.

## 4.2 Setbacks

Setback requirements along the river's edge will promote a continuous linkage throughout the river corridor. The setback area will provide public access, recreation, and natural benefits. The setback requirement will also ensure that existing and proposed pedestrian access points across the river are protected and not encroached upon. The setback requirement shall apply to all development along the rivers edge. Development is defined as buildings, accessory structures and parking areas. Exceptions within the setback area should include allowing for bike path development and access to the river for recreational purposes. Trees, shrubs, groundcover, and perennial plantings should be planted in the setback area unless access is provided. The City's 20 foot wide vegetated buffer currently does not allow parking or buildings within the buffer.

### 4.2.1 Recommendations

A 35 foot setback requirement should be promoted along the riverfront. However, this requirement needs to allow for some flexibility for smaller parcels where it would create a hardship. If parking areas need to encroach on the setback, the City should recommend that pervious materials be used in the portion of the parking area covering the setback.

## 4.3 River Access

In some areas of the City, waterfront access is promoted through the waterfront district zones (W-1, W-2 or W-3). One intent of the waterfront zone is to enhance and create public access to the waterfront as a public resource (City of Providence 1994). However, the waterfront zoning designation currently does not apply to the Woonasquatucket riverfront area. Physical access can be provided along the riverfront in the form of walkways, bike paths, and canoe/kayak launch sites. Transverse access to the river should be created by establishing pedestrian walkways and should include the potential for establishing pedestrian bridges at various intervals along the river. This physical access requirement should be allowed within the setback/buffer area noted above. Potential river access points within the study area were identified by the Task Force and are shown on Figure 4.

### 4.3.1 Recommendations

Existing view corridors and visual access to the river should be protected through the City's review process. Any impact to existing public access areas should be mitigated with comparable access provisions or by the payment of an exaction fee, which could be used for setback/buffer area restoration. The Task Force recommends that the City establish a separate account under the authority of the City Council.

## 4.4 Stormwater and Erosion Control

Stormwater runoff has the potential to pick up debris, chemicals, dirt, and other contaminants and discharge directly into the river. The City currently requires development projects to provide provisions for collecting and discharging stormwater, and measures to control erosion and sedimentation through its Development Review Regulations. These regulations apply to projects that are at least 40,000 square feet. The City also has developed a stormwater management program plan to address the requirements of RIDEM's Rhode Island Pollutant Discharge Elimination System (RIPDES) Regulations which requires the City to reduce pollutants in any stormwater runoff from construction activities that result in a land disturbance of greater than or equal to 1 acre and for construction sites which are smaller than 1 acre, but are part of a plan that alters a total area of greater than 1 acre, such as a subdivision (Fuss & O'Neill 2003).

### 4.4.1 Recommendations

In order to ensure proper control over all development projects within the study area, the City should require applicable Sediment Erosion Control Plans and Stormwater Management Plans to show BMPs for any new projects within this area, including properties less than 1 acre. There is allowance for requiring review of properties less than 1 acre under the RIPDES regulations if the activity contributes to a violation of water quality standards, or for significant contribution of pollutants, such as Total Suspended Solids, to any surface water, or as determined by the Director of RIDEM (Fuss & O'Neill 2003 and RIDEM 2004). These plans should comply with the most recent RI Soil Erosion and Sediment Control Handbook and the most recent Stormwater Design and Installation Standards manual.

The City should limit the amount of impervious surface coverage within the study area by the establishment of setbacks and buffer areas mentioned above. Impervious surface coverage limits also need to be established based on the following:

- In low-density residential zones, limit impervious surface coverage to a maximum of 65 percent of the parcel being developed.
- In higher density residential, neighborhood commercial, and light industrial areas, limit impervious surface coverage to a maximum of 80 percent of the parcel being developed.
- For development in higher density commercial/industrial areas, limit impervious surface cover to a maximum of 85 percent of the parcel or lot being developed.

If a project cannot meet the impervious surface coverage limit established by the City, the developer should prove the project cannot meet the requirement, than propose an alternative strategy that will result in no increase in stormwater runoff. The City should consider offering flexibility in special situations when the impervious limit criteria cannot be met – for instance green roofs or easements to allow for more green space in other areas as long as any critical resource are not placed at risk. The burden of proof and net environmental benefit should be the responsibility of the developer.

Development standards for vegetated buffers can provide mitigation for stormwater impacts. Following are criteria to apply to vegetated buffers to mitigate for stormwater impacts:

- Where newly established buffer slopes are equal to or exceed 5 percent, these areas shall be planted with thick grasses to best dissipate the energy of stormwater flow and filter pollutants.
- The velocity of stormwater sheet flow directed to buffer areas shall not exceed 5 feet per second under two-year storm frequency conditions.
- No channelized stormwater flow from swales, pipes, overflows or other similar conveyance system shall be discharged to buffer zones without proper energy dissipation to prevent erosion. Energy dissipation measures can include but shall not be limited to riprap, flow splitters, and forebays.
- A drainage plan shall demonstrate that no sheet flow runoff to the buffer area shall travel in an uninterrupted fashion for over 150 feet before reaching the buffer.
- A maintenance plan for all existing and proposed buffer areas shall be included with the development proposal.

In urban redevelopment situations like the Woonasquatucket River corridor it is often impossible to reduce existing impervious cover through typical design measures like reduced parking areas because of the historical uses of the properties which did not require as much area for parking and the zoning requirements of the municipality. The City should revisit the parking and loading regulations and/or allow for flexibility based on the proposed use of the property. Parking ratios can be established as maximums so that excess parking does not result from a large development (Center for Watershed Protection 1998). The City can also require and/or

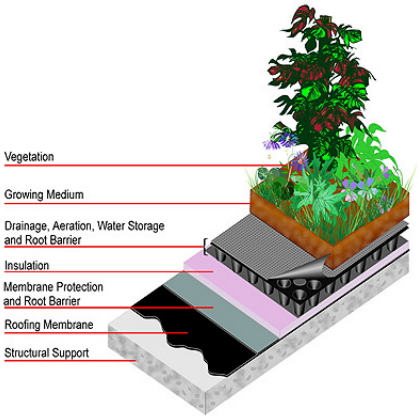
encourage the use of innovative BMPs, including green roofs, stormwater planters, pervious materials for parking areas and bioretention systems[2]. For reference, the RIDEM Urban Environmental Design Manual has details on how these BMPs can be constructed, what they look like and how much they cost (RIDEM 2004). EPA is also working with the Institute of Transportation Engineers to develop parking ratios that are more consistent with urban mixed use versus the trip generation models that are typically used for suburban sites. These ratios should be considered by the City once they are finalized.

Additionally the City may want to establish stormwater management districts as a way of providing incentives for developers to use alternative technologies. If the City establishes these management districts, typically fees would be required for all development within the district area. Incentives, such as a reduction in district fees, can be given for using pervious pavement and other alternative technologies.

## 4.5 Landscaping, Fencing and Aesthetics

Landscape treatments enhance buffer systems and the visual appearance of developments and ensure compatibility/screening of surrounding uses. The City currently allows fences, walls and hedges in all zoning districts and requires the screening of trash receptacles by a solid wall, opaque fence or compact plantings of at least 5 feet high and 5 feet from any lot lines (City of Providence 1994). The City also maintains landscaping requirements for open space lots and parking areas to reduce the impact of these areas from the public and from adjoining properties. However, there are currently many derelict and poorly maintained fences within the river corridor.

The Urban Environmental Design Manual developed for RIDEM provides landscape design guidelines that can be incorporated into the City zoning ordinances. Landscape standards are meant to create a cohesive, attractive vegetative environment within urban areas that might otherwise be hard and uninviting (RIDEM 2004). Landscape standards should apply to all new and re-use industrial and commercial development projects and multi-unit residential development projects. Three areas where landscape standards can benefit urban riverine environments include street trees, parking lots, and plantings that are drought tolerant (xeriscaping) (RIDEM 2004).




[2] A bioretention filter is a stormwater management practice which manages and treats stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression.

- Street Trees: The growing area for street trees in an urban environment is critical to their long-term health. The trees must have an adequate root zone, proper drainage, and appropriate soil mixture in order to flourish in urban conditions.
- Parking Lots: In order to mitigate the effects of heat in the summer and unattractiveness all of the time, parking lots should be landscaped with shade trees, planting beds, and bio-retention areas for runoff wherever possible. Parking lot islands and perimeters planted with trees, shrubs, and herbaceous perennials will help to alleviate the heat effects of broad expanses of paving as well as improve the aesthetic environment and manage stormwater.
- Xeriscaping: Water can be conserved in urban areas by utilizing alternative means for maintaining a suitable landscape environment. Xeriscaping involves the use of certain plant materials that are more drought tolerant and will require less water throughout a growing season.

Following are specific recommendations to implement landscaping, fencing, and aesthetic best management practices (RIDEM 2004).

### 4.5.1 Recommendations

Vegetative screening, walls, fences, landscaped areas, planting strips, and other landscaping treatments within the study area should be the responsibility of the property owner in order to ensure maintenance of the system in the long term. Vegetative screening includes utilizing trees and shrubs to hide dumpsters and equipment from sight. In addition to the aesthetic benefits of vegetative screening, it can help to reduce impervious areas.

If a property is sold, the obligation to maintain any required landscaping should be assumed by subsequent owners.

Chain link fencing should be prohibited in areas that are within public view and include locations along main streets and the riverfront. Fences and walls should be low or transparent in order to allow viewing of the surrounding landscape.

Trash receptacles (dumpsters) should be prohibited within 25 feet of the rivers edge, and should be prohibited from the side of the building facing the river. In instances where dumpster locations must be adjacent to the river, protective screening must be provided and be of sufficient height and material as to limit visibility entirely (at least 6 feet in height).

Adopt landscape standards for development projects as follows:

1. Street Trees
    a. Trees planted along a street/parkway should have a 3-inch caliper minimum.
    b. Trees should be planted approximately 25-30 feet apart depending on site conditions.
    c. Continuous planting strips should be as wide as possible with a recommended width of 6 feet. In no case should the planting strip for a tree be less than 4 feet.

d. Grates should be used only where absolutely necessary and considered as a temporary structure with a 5-10 year life span. They should only be allowed where sidewalk area is limited and pedestrian traffic is high, such as at building entrances and outdoor dining areas.

e. Trees on a continuous strip or block should be the same species and variety along the extent of the corridor.

f. Ground cover for street tree plantings should be shredded hardwood bark mulch, seasonal plantings or ground cover.

2. Parking Lots

Interior Landscaping

a. A minimum of one canopy shade tree and three shrubs for every ten parking spaces. Shrubs shall be no taller than 30 inches at maturity.

b. Required landscaping must be contained in planting beds no smaller than 9 feet by 17 feet for every 20 spaces. Alternatively, an equivalent square footage may be clustered within larger planting beds or designed as "landscape strips" that separate aisles from spaces.

c. There shall be no more than 20 spaces in a single row without an intervening planting bed. Planting beds may be utilized to delineate pedestrian and vehicular traffic flows.

Perimeter Landscaping

a. Perimeter areas of all parking lots less than 15,000 square feet shall have a minimum paving setback from the street or alleyway property line of 7 feet, except at points of ingress or egress.

b. All parking lots between 15,000 square feet and 99,999 square feet shall have a minimum paving setback of 10 feet.

c. Parking lots larger than 100,000 square feet shall have a minimum paving setback of 20 feet.

d. All parking lot perimeters shall be landscaped consisting of one canopy shade tree and three shrubs per 50 linear feet of paved parking area generally parallel to the property line. The balance of the landscape strip may consist of grass, mulch, or other vegetative cover.

Landscaped Islands and Medians

a. Provide a minimum of 6-foot-wide landscaped island at the end of every row of parking, equal in length to the length of the parking space.

b. Provide a minimum of two canopy shade trees in each island with a minimum canopy of 20 feet.

c. Place landscaped medians between every other parking bay in lots for more than 100 vehicles.

d. Wherever possible landscaped islands and medians should be designed as bio-retention areas using appropriate plantings to retain and filter stormwater runoff.

- Trees used in these areas must be able to withstand both drought and periodic flooding of their root systems and should be deep-rooted.
- Trees should not drip sap or have large messy fruit that falls on cars.
- All shrubs and perennials used under trees in bio-retention areas should be shade and salt tolerant.

Xeriscaping

a. Plant materials with low water requirements should be utilized.
b. Plants with similar water requirements should be grouped together on the same irrigation system.
c. Native plants should be utilized when applicable and for transitional zones.
d. All shrub and ground cover areas should be top-dressed with a minimum of 2-inch depth of shredded bark mulch to retain soil moisture.

### 4.5.2 Landscaping for River Access

Participants noted that it is hard to get approval from agencies to do landscaping, pruning and clearing to provide access to the river. It takes a long time to get approvals, as a number of different agencies need to be consulted.

#### 4.5.2.1 Recommendations

A more coordinated process between the City, the CRMC and RIDEM, perhaps with some activities (pruning, public access path, etc. with limited cutting) not requiring approvals would be beneficial and supportive of property owners interested in pursuing river access and landscaping projects.

## 4.6 Parking

Parking is a big concern for the study area as many of the older mill buildings in the area do not provide enough space for both parking and redevelopment within a single lot. Historically, mill employees would walk to work and consequently a majority of the existing properties within the study area do not have enough space to fulfill City parking requirements. The City currently regulates parking facilities through Section 700 of the Zoning Ordinance. The intent of the ordinance is to require minimum off-street parking facilities and discourage the excessive paving of land which would provide more than the minimum number of spaces. The minimum number of parking spaces required is outlined within the ordinance based on use. Parking areas are to be paved with bituminous concrete or equivalent surfacing. Shared parking lots may be permitted by issuance of a special use permit.

### 4.6.1 Recommendations

As current zoning requires a certain amount of parking spaces, many of the historic mill properties do not contain enough land area to comply with this provision. Therefore, innovative approaches are the only way to accommodate for parking and allow for development within these areas. The goal of these recommendations is to protect water quality and balance aesthetics with stormwater control. A flexible mechanism to determine parking requirements would help alleviate some of the parking issues within the City. This flexibility can be provided by the following:

- The Zoning code should be updated to allow for a maximum number of parking spaces versus a minimum in order to limit excess parking for larger developments (Center for Watershed Protection 1998).
- The use of compact parking spaces to fulfill requirements outlined in the City zoning ordinance.
- The use of connected lots between developments as a way of alleviating traffic congestion on main streets.
- The use of remote parking areas and/or the use of shared lots within the corridor to ease the parking situation. Different types of developments can utilize the same parking lot over different periods of time and minimize demand for new parking lots http://www.cwp.org/New%20Folder/Worcester_County_Codes_Analysis.pdf
- The use of pervious materials for parking lot cover if parking areas need to encroach on the setback area. The pervious material would need to be installed in such a manner as to prevent buckling, heaving, etc.
- The use of off-site parking.

- Existing City codes should be revised to lower parking requirements in areas where mass transit is available or where the applicant can demonstrate less parking is appropriate. http://www.cwp.org/New%20Folder/Worcester_County_Codes_Analysis.pdf
- Landscaping and lighting poles should be required throughout the parking area, and pedestrian pathways should be established in all parking lots of more than 20 spaces. Parking lots should always be pitched away from the river and into a stormwater receiving system. Stormwater runoff from parking areas must be treated onsite and result in a net environmental benefit with the developer proving this result. The City should amend their zoning regulations to include the recommendations suggested here and draft a parking design manual detailing alternative technologies, such as pervious pavements, that are acceptable within the study area.

EPA is also working with the Institute of Transportation Engineers to develop parking ratios that are more consistent with urban mixed use versus the trip generation models that are typically used for suburban sites. These ratios should be considered by the City once they are finalized.

## 4.7 Auto Salvage

All auto body shops or facilities that store vehicles and materials to be processed are regulated by Section 410 of the City Zoning Ordinance. The storage of junk vehicles and materials to be processed requires screening, adequate sloping and landscaping in order to prevent point and non-point sources of pollution from entering any water bodies.

### 4.7.1 Recommendations

For existing auto salvage and repair facilities in the river corridor the City should require the preparation of Storm Water Pollution Prevention Plans (SWPPP) and Spill Prevention Control and Countermeasure Plans (SPCC). One way the City can implement this requirement is by passing a law that requires existing facilities to submit these plans within a certain timeframe. Storage of waste tires at existing facilities should be located indoors. New auto salvage operations should not be allowed within 300 feet of the river.

## 4.8 Drive-Thru Establishments

The City currently allows drive-thru businesses in the general and heavy commercial zoning districts (C2 and C4), the downtown mill district (D2), and the industrial and heavy industrial districts (M1 and M2). Drive-thru businesses within the river corridor need to be limited by type of business as these establishments present environmental and traffic congestion concerns.

### 4.8.1 Recommendation

Drive-thrus within the river corridor should be limited by allowing only certain types of businesses (i.e., pharmacies and banks). The Task Force has recommended that the City develop design standards to maintain the character of the community and minimize impact on traffic and the environment. For example, requiring the drive-thru establishment to contain stacking lanes within property boundaries can alleviate traffic congestion on the main street.

## 4.9 Development Review

Under the existing development review process for the City, only projects that are greater than 40,000 square feet are reviewed by the City Plan Commission.

### 4.9.1 Recommendations

The City should review all development projects within the study area (including those less than 40,000 square feet) as they all contribute to the character and environmental quality of the area.

The City should produce literature and guidance documents to help applicants through the development review process.

The City should plan for vibrant "willable" commercial districts with design guidelines that foster successful infill redevelopment of commercial/retail districts with parking in the back and walkways between stores and bicycle stands.

The City should consider requiring a third party review for land development projects. Third party review would require the developer to pay for an outside consultant to review the development proposal for the City. The City Plan Commission would be able to hire review consultants within the context of Major Subdivisions and Major Land Developments. A model ordinance to establish third party review for urban areas is included in the RIDEM Urban Environmental Design Manual (2004).

The City should hold coordinated pre-application meetings with different departments and agencies to make the review process easier for developers (i.e., limit the time it takes to gain project approval). A threshold should be established for this coordinated review process and include only those projects that raise multiple environmental issues or cross several departments or agencies. The City should also require an application fee for development review projects; this fee would be applied to community planning efforts. The Task Force recommends that the City establish a separate account under the authority of the City Council.

## 4.10 Maintenance of the River Corridor

Currently no specific City department seems to be responsible for cleaning the Woonasquatucket River. The City of Providence Parks Department cleans the Capital Center river areas, but not further upstream on the Woonasquatucket River. The river has many maintenance needs including cutting and pruning of trees and overgrown brush, landscaping opportunities, trash pick up from river banks and from the river bed. Since the river is the first thing many visitors see coming off the highway, maintaining its environment was considered an important goal at the public meetings.

### 4.10.1 Recommendations

The City should expand its maintenance of the Woonasquatucket River to include areas outside of the Capital Center.

## 4.11 Miscellaneous Recommendations

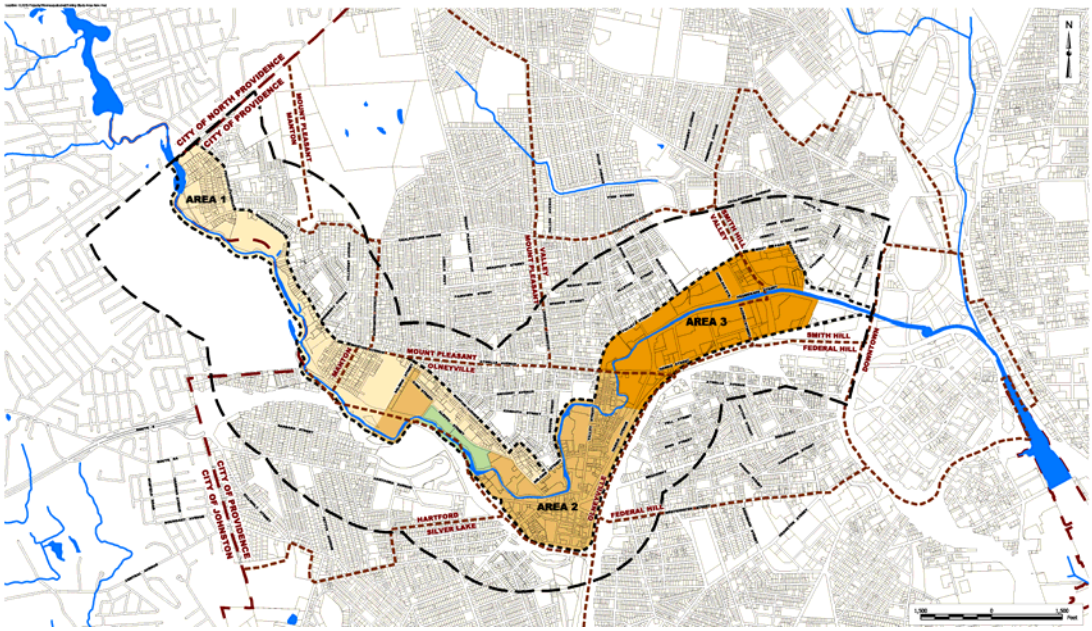
Enclosed buildings that are not inhabited by people and have no windows should be prohibited within the study area. Bricking over windows should also be prohibited.

The City should designate areas where they would like to promote an urban riverwalk or where this type of riverwalk is more feasible given existing land uses.

Substantial demolition of buildings and properties should come before the Providence City Plan Commission.

# 5.0 RECOMMENDED DENSITY THRESHOLDS

The task force has recommended that the study area be divided into three distinct sub-areas based on existing uses and the density of uses that should be promoted in the area. These three areas have been identified in Figure 5, Recommended Densities. Any boundary lines to establish these sub-areas should be drawn to the back lot line of parcels in order to preserve a balance of uses along the street. Drawing these boundaries to the back lot line (versus using a street boundary) will include parcels of property on both sides of a street so that there is consistent zoning uses (i.e., where an area is zoned commercial there will be commercial zones on both sides of the street rather than another use such as commercial on one side and residential on the other). The sub-areas and applicable density definitions are as follows:



- **Area 1**: Upper Manton and the area west of Olneyville Square through the neighborhoods of Hartford and Olneyville. This zone is intended to promote low-density residential development along the river. This low-density area should not preclude innovative approaches to development, for instance clustered development with open space easements and BMPs that minimize impervious areas.
- **Area 2**: Atwells Avenue through Olneyville Square. This zone is intended to promote a mixed use of appropriately scaled medium density residential uses, neighborhood commercial and light industrial development; to encourage development that is compatible with adjacent areas and surrounding residential neighborhoods; to protect view corridors to the river and to enhance and create public access to the waterfront as a public resource for the benefit of present and future generations.
- **Area 3**: Atwells Avenue to Bath Street. This zone is intended to promote mixed use development of light industrial, citywide commercial, and higher density residential uses to enhance development that is compatible with surrounding neighborhoods, to provide a transition from the downtown districts to residential neighborhoods, to protect view corridors to the river, and to enhance and create public access to the waterfront as a public resource.

## 5.1 Descriptions

1. Low density residential - uses include single-family detached dwellings and two-family residential units.
2. Medium density residential – allow all residential uses including: single-family detached dwellings, two-family residential units, three-family detached dwellings, multi-family detached dwellings, residential mixed use (residential occupancy in combination with a permitted commercial use), and lofts for commercial artists.
3. Neighborhood commercial - designed to promote the development of retail and commercial services that serve the local community. In Area 2, buildings up to 6,000 square feet on the ground floor are permitted for light industrial, mixed-use, and commercial purposes.
4. Light industrial - uses that are compatible with residential and commercial uses in Area 2 and Area 3. Businesses in these areas shall be limited to those which can prevent the escape of all fumes, odors, smoke, vibrations and loud, sharp or penetrating noises which are offensive or which constitute a nuisance to surrounding activities or residential units near enough to be adversely affected by them, or which interfere with the conduct of any other business within this district. No materials, products or supplies shall be stored or permitted to remain upon any part of the property outside of the buildings constructed thereon.
5. Citywide commercial - uses which serve the community as a whole, and are compatible with residential uses. In Area 3, buildings with a ground floor square footage of no more than 36,000 square feet are permitted for commercial, mixed use, and/or light industrial uses.
6. Higher density residential - these areas permit two family units, three family detached dwellings, multi-family detached dwellings, residential mixed use (residential occupancy in combination with a permitted commercial use), and lofts for commercial artists.
7. Maximum Lot Coverage: The maximum amount of building coverage of the lot area.
8. Maximum Impervious Coverage: The maximum coverage of all impervious surfaces including the greater of building footprints or roof footprints, pedestrian walkways, covered walkways, and parking lots. Impervious coverage limits do not include bike paths or the length of public access crossing the required buffer to the river.

9. Maximum Building Footprint: This defines the total square foot limit of the ground floor of all buildings on a lot.

**TABLE OF DIMENSIONAL REQUIREMENTS**

| | Area 1 | Area 2 | Area 3 |
|---|---|---|---|
| Maximum Height | 30 ft/ 2 stories | 45 ft/ 3 stories | 55 ft/4 stories |
| Minimum Lot Area | 6,000 sq. ft. | None | None |
| Minimum Lot Area Per Dwelling Unit | 1,200 sq. ft. per dwelling unit | 400 sq. ft. per dwelling unit | 250 sq. ft. per dwelling unit |
| Minimum Lot Area Per Rooming Unit | 2,500 sq. ft. | None | N/A |
| Minimum Lot Width and Frontage | 50 ft. | 50 ft. | 0 ft. |
| Minimum Front Yard | 15% lot depth, max 20 ft. | 0 ft. | 0 ft. |
| Minimum Side Yard | 30% of lot width: min 6 ft. max 30 ft. | 6 ft. | 6 ft |
| Minimum Rear Yard | 25% of Lot Depth 25 ft. max | 0 ft. | 0 ft. |
| Maximum Lot Coverage | 40% | 60% | 60% |
| Maximum Impervious Coverage | 65% | 80% | 85% |
| Maximum Build Footprint* | N/A | 6,000 sq. ft. | 36,000 sq. ft. |

* The City might want to consider floor area ratios to provide flexibility since there is such a variety of lot sizes, which may require variances.

## 5.2 Mitigation Tradeoffs for Building Density

Denser developments can benefit stormwater impacts by reducing the amount of impervious surfaces on a developed lot (EPA 2004). More compact, mixed-use developments can require less land area and result in fewer water quality impacts than conventional, lower density development (EPA 2004). The City should consider giving BMP credits (reduction in setbacks, vegetated buffers, stormwater treatment as applicable) for properties that are developed at greater densities when the overall result is a reduction in stormwater runoff. This approach can provide a financial incentive for higher-density development that will further reduce a community's overall needs for stormwater mitigation (EPA 2004).

## 6.0 BROWNFIELD RECOMMENDATIONS AND IDENTIFICATION

One of the objectives of the Land Use and Zoning Implementation Plan Project is to identify Brownfield sites and develop recommendations with the goal of promoting Brownfield redevelopment within the Woonasquatucket River corridor. The US EPA's definition of Brownfield (as it appears on the Rhode Island Brownfield website) is "Brownfields are real property where the expansion, redevelopment or reuse may be complicated by the actual or potential presence of a hazardous substance, pollutant, or contaminant".

This section identifies concerns and recommendations regarding Brownfields issues that have been developed based on Task Force discussions and ESS' understanding and experience with the Brownfields redevelopment process. Based on this definition, ESS created a map using the FirstSearch database service to compile information within the river corridor and identify properties where there may have been a release of oil or hazardous materials to the environment. These properties were selected based on the RIDEM Brownfields definition and were identified by reviewing information from the following databases.

- NPL - National Priorities List - list compiled by the US EPA pursuant to CERCLA 42 USC Section 9605(a)(8)(B) of properties with the highest priority for cleanup pursuant to US EPA's Hazard Ranking System.
- CERCLIS - Comprehensive Environmental Response Compensation and Liability Information System - The list of sites compiled and investigated by the USEPA or is currently investigating for potential hazardous substance contamination for possible inclusion on the NPL.
- ERNS - Emergency Response Notification System – US EPA's ERNS list of reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center.
- State listed disposal sites - Sites that have had releases regulated by RIDEM's Remediation Program.
- Spill sites - Sites were an actual spill has occurred that required Emergency Notification and/or Response; spill sites can also be state sites.
- LUST - Leaking underground storage tank - state lists of LUST sites.

### 6.1 Issues/Concerns for Redeveloping Brownfields Sites

RIDEM is the primary regulatory agency overseeing the investigation and review of Brownfield cleanups. RIDEM's Office of Waste Management typically fills the lead regulatory role through their Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations"). The original intent and purpose of these regulations was to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in an efficient manner. The Remediation Regulations review process has been identified as a critical issue for many developers.

Specifically, the unpredictability and lengthy duration of the review and permitting process often results in an increased risk for a developer to redevelop a Brownfield site because it can cause a developer to miss the market. Many developers and applicants have expressed an interest in streamlining the development review process by the following:

- Developers have expressed a willingness to pay application fees to expedite review.
- Property owners might be more open to site investigations by potential buyers as part of due diligence if reporting responsibilities were better understood and clarified in regulations.
- Many developers would like to see an expedited review of sites that have common and well-understood risks and an expanded list of associated presumptive remedies that can be used with little RIDEM review at such sites. For example, the Marginal Risk Sites Policy for management of sites with arsenic levels between 7 and 15 mg/kg, would facilitate redevelopment of many minimally impacted properties and in some situations under the RIDEM's Marginal Risk Site Policy, contamination can be covered with one of a number of RIDEM pre-approved caps. Currently only a limited number of sites meet all the current criteria; therefore, developers have recommended expanding the types of eligible sites that fall under Marginal Risk. The Department is currently considering expanding the scope of the Marginal Risk Policy.
- More presumptive approvals and standardized timelines where there are common site conditions would expedite the remediation regulatory process and lower the cost and uncertainty involved in redevelopment. Currently, the regulations allow for flexibility, however even with consultants knowing acceptable remediation approaches, there is no standardized approval timeline.
- Based on feedback from consultants and developers, a Licensed Site Professional (LSP) or similar program would not work well in Rhode Island due to the small amount of sites that are remediated each year and the amount of RIDEM support that would still be required in addition to a complete re-write of the Regulations. In general, increased staffing at RIDEM would be more cost efficient.
- There should be joint meetings between the developer and representatives of the key state and local agencies, and the applicable departments within each agency. This might include the City, Waste Management, Water Resources and the CRMC. This might be accomplished through the RIDEM Office of Technical & Customer Assistance Pre-Application meetings for developers when projects fall under more than one jurisdiction within the Department. For instance, a project may have site remediation, wetlands, tanks, and RIPDES issues. A representative from each of those programs would be required to attend the meetings so that the developer can know what to expect upfront.
- The public involvement and comment process for remediation should be consolidated with other such processes required during redevelopment when possible given statutory constraints.
- Undertake efforts to make the public more aware of existing resources and guidance information relating to Brownfields redevelopment. This can be accomplished by creating a consolidated fact sheet detailing where further information is available and include the following:
  - RIDEM Brownfields website
  - Smart Growth Rhode Island
  - Rhode Island Economic Development Corporation
  - US EPA Region 1

## 6.2 Financial Assistance

- Tax credits work well as incentives for cleanup, but they do not cover the cost of remediation. Additionally, money does not appear to be the most important variable for a developer deciding to invest in historic properties with Brownfield issues. It may be better to shift the focus from tax credits to putting resources elsewhere, such as increased RIDEM staffing.
- Concerns have been raised regarding the inconsistency between state and federal tax codes and credits for remediation expenses and redevelopment in urban and historic areas.
- Like the review process, the timing of state grants targeted to stimulate the redevelopment of Brownfields presents difficulties to developers. Often the time period between the submissions of applications to the actual receipt of the grant is much too long, which results in the developer missing out on market opportunities. For instance, the Brownfield Clean-up Revolving Loan Fund administered by Rhode Island Economic Development Corporation does give loans to private developers, however due to the funding source coming from US EPA the developers must adhere to many of the National Contingency Plan (NCP) requirements which may lengthen the time frame of the project.
- Government backed bridge loans to help finance the project during redevelopment would put some of the timing risks onto the state or town have been suggested.

## 7.0 LITERATURE CITED

Center for Watershed Protection. October 2001. Redevelopment Roundtable Consensus Agreement, Smart Site Practices for Redevelopment and Infill Projects. Ellicott City, Maryland.

Center for Watershed Protection. August 1998. Better Site Design: A Handbook for Changing Development Rules in Your Community. Ellicott City, Maryland.

Claytor and Schueler,1996. Design of Stormwater Filtering Systems for the Chesapeake Research Consortium. Center for Watershed Protection, Ellicott City, Maryland. 179 pp.

City of Providence Geographic Information System, 2003.

City of Providence. September 19, 1996. City of Providence Development Review Regulations. Providence City Plan Commission.

City of Providence. June 27, 1994. City of Providence Zoning Regulations, Chapter 1994-24 No. 365.

Fuss & O'Neill, Inc. February 2003. Technical Memorandum Number Draft Final Plan (Storm Water Management Program Plan). City of Providence, Providence Rhode Island.

Natural Resources Conservation Service. January 2001. Conservation Practice General Specification for Riparian Forest Buffer. NRCS Code 391.

Rhode Island Department of Environmental Management. 2004. Urban Environmental Design Manual. Rhode Island Department of Environmental Management, Sustainable Watersheds Office, Providence, Rhode Island.

Rhode Island Department of Environmental Management. December 12, 2004. General Permit Rhode Island Pollutant Discharge Elimination System, Storm Water Discharge from Small Municipal Separate Storm Sewer Systems and from Industrial Activity at Eligible Facilities Operated by Regulated Small MS4s.

Worcester County Local Site Planning Roundtable. An Analysis of the Development Codes and Ordinances of Worcester County, Maryland in the Context of the Model Development Principles through an Initiatives of the Builders for the Coastal Bays. December 1993. Accessed on-line at http://www.cwp.org/New%20Folder/Worcester_County_Codes_Analysis.pdf on February18, 2004

US Environmental Protection Agency. 2004 Protecting Water Resources with Smart Growth. USEPA Office of Policy, Economics and Innovation.