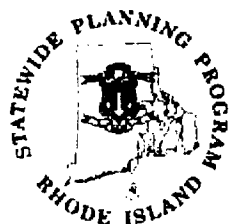


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State Guide Plan Element 162

Rivers Policy and Classification Plan

Originally adopted January 8, 1998, amended May 2004 77 pages

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Purpose

The Plan fulfills the River's Council statutory mandate to provide "an affirmative, clearly articulated program to manage and protect [the state's] rivers and watershed resources."

The Rivers Policy and Classification Plan is a guide for action to protect and enhance the quality and the use of Rhode Island's watersheds. Its approach is holistic; it endeavors to integrate water quality planning with land use planning and with planning for activities such as recreation and habitat preservation.

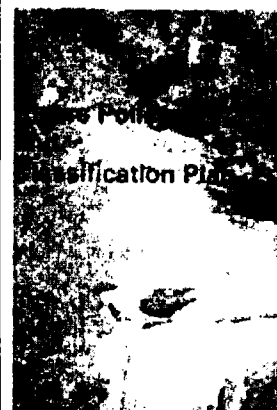
The Plan is intended to provide clear, integrated, affirmative guidance for the management and the protection of Rhode Island's water resources at the state, local and especially watershed level. Its broad objectives are to protect drinking water supplies and pristine rivers, to encourage recreational use of rivers, to foster the creation of greenways, and to provide for the clean-up of rivers.

(from section 1.1)

Availability

The full text of plan and summary of the Plan's Goals and Policies from the State Guide Plan overview is available on-line (See links at left. Note that some browsers all links to be printed at a single time.). Maps of individual watersheds provided within the plan while not available as part of the plan are available at the University of Rhode Island's on-line atlas and RI Department of Environmental Management's Watershed Partnership pages. A hard copy of the plan is also available at municipal libraries throughout the State.

State Guide Plan Element 162
Report Number 92
January 1998



Rhode Island Rivers Council

State Planning Council
State of Rhode Island and Providence

last updated: 09/20/04

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ELEMENT 162: RIVERS POLICY AND CLASSIFICATION PLAN

01 INTRODUCTION

In 1991, the General Assembly passed legislation establishing the Rhode Island Rivers Council. The Council had three basic duties: 1) to develop a rivers classification plan for Rhode Island, 2) to prepare a rivers policy, and 3) to recognize local watershed councils as bodies corporate and politic.

The Rivers Council Act calls for the *Rivers Policy and Classification Plan* to be adopted by the State Planning Council as an element of the State Guide Plan. The State Planning Council approved the Plan on January 8, 1998, as Element 162.

The *Rivers Policy and Classification Plan* is a guide for action to protect and enhance the quality and the use of Rhode Island's freshwater bodies. The Plan is intended to provide clear, integrated, affirmative guidance for the management and protection of Rhode Island's freshwater resources at the state, local, and watershed level. Its broad objectives are to protect drinking water supplies and pristine rivers, to encourage recreational use of rivers, to foster the creation of greenways, and to provide for the clean-up of rivers.

02 ISSUES ADDRESSED

In establishing the Rivers Council, it was declared to be in the public interest to:

- preserve open space, natural resources, and features,
- preserve cultural and historic landscapes and features,
- preserve opportunities for recreational use of rivers,
- encourage the establishment of greenways which link open spaces together, and
- continue the regional and comprehensive planning activities for rivers, water quality, and land use conducted by the Department of Environmental Management and the Department of Administration.

By law, the rivers policies developed by the Rhode Island Rivers Council must:

- be consistent with federal water quality requirements,
- give consideration to existing public and private development, and
- treat rivers as ecological systems.

03 POLICIES

A. *Land Use*

Policy R-1 Land use shall be managed within watersheds, and especially upstream of drinking water supplies and aquifers, and adjacent to freshwater bodies, in a manner consistent with attaining the freshwater fishable and swimmable goal.

B. *Nonpoint Sources of Pollution*

Policy R-2 The mitigation and prevention of nonpoint source pollution shall be addressed in accordance with the Rhode Island Nonpoint Source Pollution Management Plan.

C. *Clean Up and Preservation of the Quality of Rivers*

Policy R-3 Rivers and other freshwater bodies not meeting water quality classification goals shall be improved.

D. *Public Drinking Water*

Policy R-4 Land use regulation and acquisition shall be used to provide for the protection of public drinking water supply watersheds.

E. *Recreation*

Policy R-5 Rhode Island's rivers and freshwater bodies are an important recreational asset and shall be managed as such, except in instances when they are drinking water supplies, or habitat for rare or endangered species, that would be harmed by recreational use.

F. *Preservation of Open Space, Habitat, Natural Resources, and Features*

Policy R-6 In rural and undeveloped watersheds, priority shall be given to protecting large, unfragmented areas.

Policy R-7 In suburban and urban areas, priority shall be given to the preservation of habitat and the establishment of greenways that link natural, historic, and cultural communities and/or provide recreational opportunity.

G. *Preservation of Cultural and Historic Landscapes and Features*

Policy R-8 The natural, cultural, and historic features of river systems and their adjacent lands shall be preserved and protected to the maximum extent possible.

H. Water Withdrawals (Water Supply Management)

Policy R-9 Water withdrawals shall be managed comprehensively within individual watersheds in accordance with this plan's classifications.

I. Public Involvement and Local Watershed Councils

Policy R-10 As a matter of State policy, watershed organizations, citizen and recreational interest groups and associations, and volunteer monitoring programs shall be encouraged and supported.

J. Interstate Coordination

Policy R-11 As a matter of State policy, the Rivers Council and local watershed councils shall coordinate their activities on a watershed basis across state boundaries, as appropriate.

04 CLASSIFICATION PLAN

The plan classifies all of the river segments in the state into five classes: pristine, water supplies, recreational open space, recreational multiple use, and working.

ABSTRACT

TITLE: Rivers Policy and Classification Plan

SUBJECT: Planning and management of the state's watershed resources

DATE: Originally adopted January 1998; amended May 2004

**AGENCY/
SOURCE OF
COPIES:** Rhode Island Statewide Planning Program
One Capitol Hill
Providence, Rhode Island 02908-5870

SERIES NO.: Report Number 92; State Guide Plan Element 162

**NUMBER
OF PAGES:** 77

ABSTRACT: This plan establishes policies and suggested courses of action for the maintenance or the restoration of fresh and estuarine waters, and their associated watersheds, in the state. The plan also sets forth the procedures for the designation of local watershed councils or associations. Additionally, this document includes classification of waterbodies in accordance with the classification system that was legislatively required and in accordance with the classification system established by the Coastal Resources Management Council.

RHODE ISLAND RIVERS COUNCIL

Rhode Island Rivers Council Membership **July 2003**

Member	Appointed by
Ms. Elizabeth Gowell	Governor
Mr. Stephen Kearns	Governor
Ms. Jane Sherman	Governor
Mr. Dante Ionata	Lieutenant Governor
Ms. Dale Grogan	Lieutenant Governor
Ms. Meg Kerr	Lieutenant Governor
Rep. Eileen Naughton	Speaker of the House
Rep. Scott Rabideau	Speaker of the House
Sen. Elizabeth Roberts	Majority Leader of the Senate
Mr. Daniel Varin	Majority Leader of the Senate
Mr. Scott Millar	Department of Environmental Management
Mr. Kevin Cute	Coastal Resources Management Council
Mr. Kevin Nelson	Department of Administration
Ms. Diane Feather	League of Cities and Towns

STATE PLANNING COUNCIL

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Mr. Stephen Cardi, Esq., Public Member
Mr. Russell C. Dannecker, Senate Fiscal and Policy Advisor
Mr. Kevin Flynn, Designee of RI League of Cities and Towns
Ms. Lucy Garliauskas, Federal Highway Administration
Ms. Jeffrey Grabowski, Governor's Office
Mr. Robert J. Higgins, Director, Dept. of Administration [represented by Robert Griffith, PhD]
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Mr. Ralph Rizzo, US Federal Highway Administration
Mr. M. Paul Sams, RI Water Resources Board
Ms. Kristine Stuart, Public Member, North Kingstown
Mr. Thomas Willet, Local Government, Pawtucket

PREFACE

This plan addresses two basic questions: how to protect and improve resource quality in Rhode Island's rivers, streams, lakes, ponds, estuaries, and associated wetlands, and how to realize public benefit from these resources.

In establishing the Rhode Island Rivers Council in 1991, the General Assembly found that Rhode Island lacked "an affirmative, clearly articulated program to manage and protect its rivers and watershed resources" (*Section 46-28-2(a), General Laws of Rhode Island*). The Rivers Council was created to integrate the wide array of efforts in Rhode Island to protect and enhance riverine resources. The Rivers Council is not a regulatory agency; its functions are planning, coordination, and empowerment. The Rivers Council has three basic duties: 1) to develop a "rivers" classification plan for Rhode Island, 2) to prepare a rivers policy for Rhode Island, and 3) to recognize local watershed councils as bodies corporate and politic.

The Rivers Council has reviewed river protection efforts, the condition and use of rivers, and aspirations for estuary and watershed quality and use. The *Rivers Policy and Classification Plan* has been developed inductively, from the bottom-up. In the course of this work, the Rivers Council has found that there is a vibrant level of public interest in rivers. Planning for rivers and estuaries is extensive and often high quality. At the state and local levels, programs have been implemented to protect fresh and estuarine water resources from both point and nonpoint sources of pollution. The need is to make existing efforts more useful to the public.

Preparation of this plan reflects the efforts of many individuals. Statewide Planning staff involved in the preparation of the plan include Kevin J. Nelson, Principal Planner as a primary author, Christina Delage, GIS Specialist for providing maps, and John P. O'Brien, Chief, George W. Johnson, Assistant Chief, and Blanche Higgins, Supervising Planner for their supervision and oversight of the project.

While all members of the Rivers Council contributed to crafting the plan, several members deserve special thanks. Meg Kerr, Chair of the Rivers Council was not only a primary author but also a driving force in achieving consensus on many issues. Scott Millar, Vice-Chair, provided a watershed approach vision in crafting many sections of the plan. Kevin Cute of the Coastal Resources Management Council was instrumental in incorporating classifications of tidal waters into what had previously been a freshwaters plan.

The efforts of the local Watershed Councils in providing updated information for rivers classification is also greatly appreciated.

Finally, the 2003 revisions would not have been possible without the able assistance of Rob Adler from EPA Region 1. His careful craftsmanship, attention to detail, and fresh perspective were key to the success of the revision process.

Adoption

The Rivers Council Act calls for the *Rivers Policy and Classification Plan* to be adopted by the State Planning Council as an element of the State Guide Plan. With this action, the *Rivers Policy and Classification Plan* will serve formally as guidance for action at the local government level. The real keys to achieving the goals set forth in the Rhode Island Rivers Act are broad understanding of the value of fresh and estuarine water resources in the state and citizen involvement in watershed protection efforts. This report was adopted by the State Planning Council as State Guide Plan Element 162, the *Rivers Policy and Classification Plan*, on December 17, 1997. The amendments to the Plan were adopted on May 13, 2004

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PART 162-01 INTRODUCTION

01-01 PURPOSE

The Rivers Policy and Classification Plan is a guide for action to protect and enhance the quality and the use of Rhode Island's rivers and waterbodies. Under the Rhode Island Rivers Council statute (R.I.G.L. 46-28-3), rivers are defined as "a flowing body of water or estuary or a section, portion, or tributary thereof, including streams, creeks, brooks, ponds, and small lakes." The Rivers Council includes reservoirs in the definition of rivers and defines estuaries as the tidal portions of rivers and the coastal ponds.¹ Its approach is holistic; it endeavors to integrate water quality planning with land use planning and with planning for activities such as recreation and habitat preservation.

The Plan is intended to provide clear, integrated, affirmative guidance for the management and protection of Rhode Island's river and estuarine watershed resources at the state and local levels. Its broad objectives are to protect drinking water supplies and pristine rivers, to encourage recreational use of rivers, to foster the creation of greenways, and to provide for the clean-up of rivers.

Preserving and improving water quality are vital. High-quality drinking water supplies are critical to public health, and habitat areas are essential to biological diversity. As a practical matter, both drinking water supply and habitat quality depend on the maintenance of water quality at the highest possible level. Furthermore, good water quality is necessary for recreation, since contact with polluted water is a health risk.

Nonpoint sources of pollution have now replaced point source pollution from industrial and municipal wastewater treatment discharges as the major threat to Rhode Island's water resources. Significant mitigation of these nonpoint source threats can be fostered through the implementation of best management practices such as establishment of buffers and stormwater management systems, and the creation of local wastewater management programs.

Existing programs and statutes provide an array of means to preserve and improve the quality of Rhode Island's rivers, lakes, ponds, and estuaries. Implementation of such measures needs to occur at the grassroots level and be coordinated on a watershed basis. Public education is a critical component to success. The people of the community must be concerned about the quality of water resources if their general protection is to be secured. While state programs are invaluable tools, the

¹ The policies and classifications included in this document pertain to rivers as defined in this section. The words lakes, ponds and estuaries are inserted from time to time in the text for emphasis. These words do not change the broad coverage of the policies and classifications.

Rivers Policy and Classification Plan provides a means to coordinate state programs with local action.

01-02 RHODE ISLAND RIVERS AND WATERSHEDS - AN OVERVIEW

Rhode Island's rivers and their associated watersheds, including those of lakes, ponds, reservoirs, wetlands, aquifers, and estuaries are vital resources. They supply the drinking water on which the population depends. They provide critical habitat to support biological diversity. Along with adjacent land, they are greenways of open space and support diverse recreational opportunities. The quality of life in Rhode Island is dependent on its river and estuary systems.

From a global perspective, Rhode Island is a small metropolis, an urban place of approximately a million people. Although much open space exists, all land has been fragmented, developed, or impacted by human activity; there is no wilderness. Agricultural and industrial uses of rivers have declined and the principal contemporary uses of rivers are now water supply, habitat, open space, and recreation. Rhode Island's rivers no longer support a commercial fishery.

Over time, Rhode Island's rivers have changed. Through the Colonial and Federal eras they supported an anadromous fishery and provided waterpower for small mills. In the nineteenth century they supplied power for the textile industry. In the twentieth century they were developed as public drinking water supplies and became areas of natural habitat, open space, and recreation for a rapidly suburbanizing population.

To understand Rhode Island's rivers, lakes, ponds, and estuaries, it is helpful not to look at them individually, but to consider how the overall system of rivers and watersheds functions. Rhode Island's rivers and estuaries, and their watersheds, meet different, important, and in some respects competing needs. What must be improved, preserved, and better managed is the overall system.

A brief survey of the state's watersheds is instructive (see Figure 162-01(1)). The Pawtuxet River watershed contains the state's primary source of drinking water, the Scituate Reservoir. Through the Providence Water Supply system, it serves 60 percent of the state's population. The Big River offers a potential and important groundwater supply reserve.

The Wood-Pawcatuck watershed, with more than fifty miles of canoeable waterways, is a major recreational resource. It is also a sole source aquifer; the groundwater from municipal and private wells provides drinking water to much of southern Rhode Island.

The Blackstone River Valley is the birthplace of the industrial revolution in the United States. Lakes and ponds, which were created to maintain water flow for industrial

power in the western portion of the watershed, have become places of recreation. In the eastern portion they are drinking water supplies for the textile mill cities of Woonsocket, Pawtucket, and Central Falls.

The streams in the rocky uplands of western Rhode Island that drain into the Quinebaug River in Connecticut, have once again become pristine because of reforestation. The rivers in the East Bay area and the streams and ponds on the state's larger islands are important sources of water supply although limited in quantity and vulnerable for their quality.

In urban areas, rivers play an increasingly important role as corridors of open space and recreation. The recreation potential and open space value of the Pawtuxet, the Woonasquatucket, the Blackstone, the Runnins, the Ten Mile, and the Saugatucket Rivers, and their estuaries are being explored and developed in a manner that will improve the health and amenity to the communities through which they pass.

01-03 RECOMMENDED WATERSHED TERMINOLOGY

The term "watershed" can be simply defined as "the area of land² that drains to the outlet of a lake, stream, ocean, or other waterbody. All land is in one watershed or another; large watersheds can be subdivided into smaller watersheds."³ It is this aspect of subdivision, or "nesting", that can become a source of confusion because the term is used without consistent size discrimination. Use of a common terminology to describe the nested and relative sizes of successively smaller areas will help. In order to minimize confusion, maintain consistency, and establish a national Watershed Boundary Dataset, the U.S. Geological Survey (USGS) created the Hydrologic Unit Code (HUC) System that was eventually expanded upon by the Natural Resource Conservation Service (NRCS). The HUC is a simple numeric method of designating drainage basins by size. Larger drainage basins have fewer numbers in their code than smaller drainage basins. This concept is more fully explored on the following page. This is this system that forms the basis for recognizing watersheds in this Plan. The following explanation of watersheds and the HUC system is adapted from an article by Bruce P. McCammon of the USDA-Forest Service.

My spouse and I own a great set of mixing bowls that takes little room on a shelf because they all nest nicely inside each other. The problem with these bowls occurs when one of us asks the other to "hand me a bowl, please." We can quickly determine if the need is for the "biggest" or the "smallest" bowl but selecting among the others usually requires pointing and head shaking. We have no standard terminology for the range of bowls in our set. Much the same problem exists with respect to watersheds. Using the bowl method, we

² technically, watershed encompass not only the land but the waterbodies as well

³ Rhode Island Watershed Approach Framework, June 1999

can often communicate with each other adequately by simply referencing "bowl" or "watershed." Often, however, it is necessary to be more specific about the size or scale of nested "containers" in order to communicate effectively. The terminology used to reference "watersheds" is not standardized and often creates a miscommunication when people do not share the same sense of scale for a given watershed term.

Technically, a watershed is the divide separating one drainage area from another (Chow, 1964). The term "watershed" is commonly used to refer to an area; specifically, the area in which all surface waters flow to a common point. A great deal of confusion and misunderstanding is created by the inconsistent use of terms to describe the relative size of watersheds-basin, watershed, drainage, and catchment. Use of the term "watershed" to describe the area drained by the Blackstone River as well as the area drained by the Nipmuc River is technically correct - it just does not provide insight to the fact that the Nipmuc is one small tributary to the Blackstone River. One way to minimize the confusion is to use a consistent set of terms that is based on established systems for subdividing large watersheds into smaller ones. The preferred terms presented here - Region, Subregion, Basin, Subbasin, Watershed, and Subwatershed - are consistent with the common interpretation of relative watershed size.

REGION

The USGS recognizes twenty-one major geographic Regions. Each Region is assigned a two digit Hydrologic Unit numeric code. Rhode Island is located in the New England Region (HU code 01).

SUBREGION

The USGS further subdivides these Regions into Subregions. Nationally, there are 222 Subregions. The numeric code for each of the subregions is composed of four digits, two digits each for the Region and Subregion. Rhode Island is located primarily in the Massachusetts-Rhode Island Coastal Subregion (HU code 0109) along with a small area in the Connecticut Coastal Subregion (HU code 0110).

BASIN

The USGS divides Subregions into yet smaller areas, resulting in 352 nationally recognized Basins. The numeric code for each Basin is six digits long. Rhode Island is located primarily in the Massachusetts-Rhode Island Coastal Basin (HU code 010900) along with a small area in the in the Connecticut Coastal Basin (HU code 011000).

SUBBASIN

The smallest subdivision in the USGS hierarchy is the Subbasin. There are 2,149 Subbasins within the U.S. The numeric code for the subbasins is eight digits long and is composed of four two-digit fields, the first six representing the larger hydrologic units in which it rests. Rhode Island contains all, or portions of, five Subbasins: Cape Cod Subbasin (HU code 01090002), Blackstone Subbasin (HU code 01090003), Narragansett Subbasin (HU code 01090004), Wood-Pawcatuck Subbasin (HU code 01090005), and the Quinebaug Subbasin (HU code 01100001). Subbasins are included in Table 162-01(1).

WATERSHED

The USGS hierarchy does not continue subdividing or provide terms for areas smaller than the Subbasin. However, the Natural Resource Conservation Service, expanding upon the work of the USGS, continued the process of subdivision into smaller hydrologic areas. Referred to as HUC-10's from the fact that they are signified by a ten-digit code, Rhode Island contains all, or portions of, fifteen Watersheds (see Table 162-01(1)).

SUBWATERSHED

As with the previous classifications, Watersheds can be further be subdivided into smaller units called Subwatersheds. Referred to as HUC-12's from the fact that they are signified by a twelve-digit code, Rhode Island contains all, or portions of, fifty-five Subwatersheds (see Table 162-01(1)).

There is one very important caveat that the U.S. Environmental Protection Agency notes in its Definitions/Reference document entitled *Watersheds*. EPA recommends "delineating a watershed area should correspond to the purpose or the goal for its use." Accordingly, while the Rivers Council wishes to follow HUC delineations as much as possible, it reserves the right to consider other factors for the purpose of recognizing local Watershed Councils. There are portions of the state, notably its islands and coastal areas, where the actual hydrologic boundary would not be conducive to organizing local support for the watershed.

Table 162-01(1)

HYDROLOGIC UNIT TABLE FOR RHODE ISLAND

Subbasin Code / Name	Watershed Code / Name	Subwatershed Code / Name
01090002 Cape Cod Subbasin	0109000205 Rhode Island Sound – Gooseberry Neck to Sakonnet Point	010900020502 - Westport River - Noquochoke Lake to mouth 010900020503 - Rhode Island Sound - Richmond Pond to Sakonnet Point
01090003 Blackstone Subbasin	0109000302 Lower Blackstone River	010900030202 - Clear River 010900030203 - Chepachet River 010900030204 - Branch River 010900030205 - Mill River 010900030206 - West to Peters River 010900030207 - Millers River 010900030208 - Peters River to mouth
01090004 Narragansett Subbasin	0109000404 Ten Mile River	010900040401 - Ten Mile River
	0109000405 Woonasquatucket and Moshassuck	010900040501 - Woonasquatucket 010900040502 - Moshassuck
	0109000406 Pawtuxet River	010900040601 - Big River 010900040602 - Flat River Reservoir 010900040603 - South Branch 010900040604 - Regulating and Moswansicut Reservoir 010900040605 - Ponagansett and Barden Reservoirs 010900040606 - Scituate Reservoir 010900040607 - North Branch 010900040608 - Pocassett River 010900040609 - Pawtuxet River Mainstem
	0109000407 Palmer River	010900040702 - Barrington and Warren Rivers
	0109000408 Lower Taunton River	010900040802 - Assonet River 010900040803 - Quequechan River 010900040804 - Taunton River - Mill River to mouth
	0109000409 Narragansett Bay	010900040901 - Seekonk and Providence Rivers 010900040902 - Upper Narragansett Bay 010900040903 - Greenwich Bay 010900040904 - Hunt River 010900040905 - Mount Hope Bay 010900040906 - Upper West Passage 010900040907 - Upper East Passage 010900040908 - Lower West Passage 010900040910 - Sakonnet River 010900040911 - Coastal Aquidneck

Table 162-01(1)
HYDROLOGIC UNIT TABLE FOR RHODE ISLAND (con't)

Subbasin Code / Name	Watershed Code / Name	Subwatershed Code / Name
01090005 Wood-Pawcatuck Subbasin	0109000501 Wood River	010900050101 - Upper Wood River 010900050102 - Lower Wood River
	0109000502 Upper Pawcatuck River	010900050201 - Chipuxet River 010900050202 - Queen River 010900050203 - Beaver River 010900050204 - Upper Pawcatuck River 010900050205 - Pawcatuck River Mainstem
	0109000503 Lower Pawcatuck River	010900050301 - Ashaway River 010900050302 - Shunock River 010900050303 - Lower Pawcatuck River
	0109000504 Southwest Coastal Waters	010900050401 - Pettaquamscutt River 010900050402 - Saugatucket River 010900050403 - Point Judith Pond 010900050404 - Southwest Coastal Waters 010900050405 - Block Island
01100001 Quinebaug Subbasin	0110000103 Five Mile River	011000010301 - Upper Five Mile River
	0110000105 Moosup River	011000010501 - Upper Moosup River 011000010501 - Quaduck Brook 011000010501 - Lower Moosup River
	0110000106 Pachaug River	011000010601 - Upper Pachaug River

Figure 162-01(1)

Figure 162-01(2)

01-04 RHODE ISLAND RIVERS COUNCIL

The Rhode Island Rivers Council was created by law in 1991 because Rhode Island did not "have an affirmative, clearly articulated program to manage and protect its rivers and watershed resources." The legislative findings continued: "State jurisdiction over rivers, environmentally, culturally, and economically is scattered among various state agencies, and in some instances state policies and plans are conflicting" (*Section 46-28-2, General Laws of Rhode Island*).

The General Assembly also found that "many of the rivers of Rhode Island or sections thereof and related adjacent lands possess outstanding aesthetic and recreational value of present and potential benefit...." The General Assembly declared that the preservation and protection of these rivers, lakes, ponds, estuaries, and their immediate environment together with their significant recreational, natural and cultural value is...a public policy...and it is in the public interest to:

- 1) preserve open space, natural resources and features, and scenic landscapes;
- 2) preserve cultural and historic landscapes and features;
- 3) preserve opportunities for recreational use of rivers;
- 4) encourage the establishment of greenways, which link open spaces together;....

The Rivers Council was established "for the purposes of coordinating, overseeing, and reviewing efforts to improve and preserve the quality of rivers and to develop plans to increase the utilization of rivers throughout the state" (*Section 46-28-4, General Laws of Rhode Island*). The Council is a public body, an agency of state government, with an authorized membership of 15 persons.

The basic functions of the Rivers Council are to prepare a rivers policy and a classification plan for adoption as elements of the State Guide Plan and to give formal recognition to local watershed councils. Additionally, the Council has a responsibility to make recommendations to state agencies, cities, and towns regarding rivers, lakes, ponds, and estuarine issues, and "to foster public involvement in river planning and decision making processes."

In 1992, the Rivers Council assessed conditions in the state's major watersheds. From this review, the Council found that "there is a wealth of solid information about rivers in Rhode Island," that "overall the state's rivers are not severely threatened and, in some highly significant instances, water quality is improving. Yet, the state's rivers are not as well protected as they might be, especially from a watershed perspective. Gradual degradation of their quality remains all too possible." The Council concluded that additional regulatory programs were not needed, "but the challenge is the better, more effective integration of existing programs and authority" (*Rivers Council, Annual Report for 1992*).

In 1993, the Rivers Council developed draft classifications for surface fresh waters for most watersheds in the state. The draft classifications were presented at a

series of informal, regional workshops held in the spring of 1994, and revised based on comments provided by the participants. The public workshops were held in Central Falls for northern Rhode Island watersheds, in Barrington for East Bay watersheds, at the Providence Water Supply Board in Scituate for central Rhode Island watersheds, and in Richmond for South County watersheds.

In 1995, digital maps of the eighteen watersheds were prepared utilizing the Division of Planning's Geographic Information System. The maps illustrate the rivers' classifications developed by the Rivers Council. In the fall, citizens were given the opportunity to review and comment on the maps at a public workshop, as well as at a joint meeting held with the Rhode Island Greenways Council. In 2003, the 'Basins' map was revised to include all coastal watersheds previously omitted in the 1995 map and to delineate the smallest watershed areas (subwatersheds) by the Hydrologic Unit Code-12 (HUC-12) that are covered by the Rivers Policy and Classification Plan.

A subcommittee of the Rivers Council held numerous meetings in 1996 with various watershed representatives to review the river segment classifications. The meetings also provided the opportunity for the Council to define the relationship between its work and Department of Environmental Management (DEM) water quality classifications. Segment characteristics and the plan's policies were adjusted and refined in a subsequent plan revision. The plan was also formatted as an element of the State Guide Plan.

In 1998, the Rivers Council developed policies for recognizing local watershed councils and it became clear that the *fresh water watershed areas described in the 1998 Rivers Policies and Classification Plan* were incomplete. Rhode Island is a coastal state, and the tidal portions of the riverine watersheds (including estuaries) are important to local interest groups. The Council formed a Classification subcommittee who worked closely with DEM and the Rhode Island Coastal Resources Management Council (CRMC) to develop classifications for the tidal portions of the watersheds. In 2002, CRMC asked the Rivers Council to adopt their classifications for the tidal sections of the watersheds. This is reflected in these 2003 revisions.

The *Rivers Policies and Classification Plan* is a product of multiple years of effort, with extensive public involvement. Throughout its work, the Rivers Council relied on numerous parties including local citizens concerned about, and often experts with regard to, conditions in their watershed; state agencies, especially DEM and the Division of Planning; federal agencies, especially the Natural Resources Conservation Service of the Department of Agriculture; environmental organizations, riverwatch, river monitoring programs, outdoor recreation associations, and local planners. The Rivers Council has worked to synthesize existing efforts and different interests and perspectives of these various groups and disciplines.

With respect to interstate coordination, the classification of river segments at the state boundaries of Connecticut and Massachusetts was coordinated with the appropriate state agencies and/or watershed organizations. Comments were solicited in conjunction with the public hearing process undertaken by the Rivers Council and State Planning Council prior to adoption of the Plan.

PART 162-02 RIVERS POLICY

02-01 REQUIREMENT FOR A RIVERS POLICY

The Rhode Island Rivers Council is required to prepare and adopt a rivers policy for the state, which is to become an element of the State Guide Plan (*Section 46-28-7(c), General Laws of Rhode Island*). By law, the rivers policy must:

- be consistent with federal water quality requirements¹,
- give consideration to existing public and private development, and
- treat rivers, lakes, ponds, and estuaries as ecological systems.

In establishing the Rivers Council, it was declared to be in the public interest to:

- 1) preserve open space, natural resources, and features,
- 2) preserve cultural and historic landscapes and features,
- 3) preserve opportunities for recreational use of rivers and estuaries,
- 4) encourage the establishment of greenways which link open spaces together, and
- 5) continue the regional and comprehensive planning activities for water and habitat quality in rivers, lakes, ponds, and estuaries, and land use in their watersheds conducted by the Department of Environmental Management and the Department of Administration.

The Rivers Council was established to implement these policies and to "coordinate and oversee the clean up and preservation of the quality of rivers in Rhode Island" (*Section 46-28-2(c), General Laws of Rhode Island*).

02-02 FINDINGS REGARDING EXISTING STATE GUIDE PLAN ELEMENTS

The State Planning Council has been charged with maintaining a State Guide Plan (*Section 42-11-10, General Laws of Rhode Island*). The State Guide Plan is a means for centralizing and integrating long-range goals, policies, and plans with short-range project plans and implementing programs prepared by agencies responsible in each functional area. The guide plan is not a single document but a collection of elements that have been adopted since the 1960s. The Rivers Policy and Classification Plan must be considered in the context of existing Guide Plan

¹ The Clean Water Act, Title 1, Section 101, Declaration of Goals and Policies states, "(1) The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters... (2) It is the national goal that wherever attainable...water quality [standards should] provide for the protection and propagation of fish, shellfish, and wildlife, and provide for recreation in and on the water..."

elements. The relevant Guide Plan elements, as well as their respective goals, policies, and recommendations, are listed in Appendix A.

02-03 RIVERS POLICIES

A. Land Use

Policy R-1 Land use shall be managed within watersheds, and especially upstream of drinking water supplies and aquifers, and adjacent to fresh and estuarine waterbodies, in a manner consistent with attaining the water quality goals of protection and propagation of fish, shellfish, and wildlife, and providing for recreation in and on the water.

Since improper land use may be a significant contributor of nonpoint source pollution and water quality degradation, land use regulations and other local ordinances, measures, and actions shall address the prevention of problems, as identified in the *Rhode Island Nonpoint Source Pollution Management Plan* (State Guide Plan Element 731).

For rivers, lakes, ponds, and estuaries classified as either pristine, open space, or recreational, municipalities should consider utilizing the land use classification system described in Appendix B. Pristine rivers, lakes, ponds, and estuaries shall be recognized as significant natural resource areas in local comprehensive plans, and implementation programs shall contain such measures as may be necessary to achieve the purposes of the classification.

For rivers, lakes, ponds, and estuaries classified as open space or recreational, adjacent land use should be either "minimal risk," "slight risk," or "moderate risk" and mitigative measures, as described in the *Rhode Island Nonpoint Source Pollution Management Plan*, should be used. Open space and recreational rivers, lakes, ponds, and estuaries shall be recognized in the open space and recreation element of local comprehensive plans, and implementation programs shall contain such measures as may be necessary to achieve the recreational use of the rivers, lakes, ponds, and estuaries and secure their character as greenways. As a general rule, new "severe risk" land uses should not be permitted adjacent to rivers.

B. Nonpoint Sources of Pollution

Policy R-2 The mitigation and prevention of nonpoint source pollution shall be addressed in accordance with the Rhode Island Nonpoint Source Pollution Management Plan.

Nonpoint source pollution comes from nondiscrete sources such as failing or poorly functioning septic systems, erosion from construction sites and stormwater runoff that contribute pollutants to surface and groundwaters. According to DEM's 2002

State of the State's Waters, 305(b) Report, 34.5 % of the state's river miles assessed, 22% of lake acres assessed, and approximately 30% of the estuarine waters assessed are considered impaired for one or more uses. Sources of impairment include point sources (CSOs, municipal, and industrial discharges), nonpoint sources (urban runoff/storm sewers, septic systems) and natural sources (wildlife and waterfowl).

Reduction of nonpoint sources of pollution is, therefore, necessary to protect pristine rivers, lakes, ponds, and estuaries and public drinking water supplies, to preserve opportunities for recreational use of freshwater bodies and estuaries, and to preserve, protect, and enhance the quality of rivers, lakes, ponds, and estuaries in Rhode Island.

C. Clean-Up and Preservation of the Quality of Rivers, Lakes, Ponds, and Estuaries

Policy R-3 Rivers, lakes, ponds, and estuarine waterbodies not meeting water quality classification goals shall be improved.

It is important to:

- 1) treat rivers, lakes, ponds, and estuaries as ecological systems,
- 2) be consistent with state and federal water quality requirements that establish goals for the protection and propagation of fish, shellfish, and wildlife, and provision for recreation in and on the water, and
- 3) secure restoration of the natural environment of the state.

To accomplish the clean-up of rivers, lakes, ponds, and estuarine waterbodies:

- 1) point source discharges shall be regulated by the Department of Environmental Management,
- 2) nonpoint sources of pollution shall be mitigated and prevented when possible,
- 3) municipalities should adopt and implement appropriate nonpoint source pollution controls,
- 4) natural riparian corridors and tidal wetlands shall be maintained and, where appropriate, be re-established, and
- 5) when an activity is being undertaken that affects or could significantly affect contaminated sediments, those effects or potential effects shall be evaluated and, where appropriate and reasonable, remediation measures shall be included in the activity.

D. Public Drinking Water

Policy R-4 Land use regulation and acquisition shall be used to provide for the protection of public drinking water supply watersheds.

Public drinking water is vital to public health and the economic well-being of the state; therefore, priority shall be given to preserving the quality of our public drinking water supplies. The use of fresh water for public water supplies shall be considered a form of public development, and drinking water sources shall be treated as natural resources requiring compliance with safe drinking water standards and protection, as a rule, by implementing land use management practices appropriate to maintaining pristine water quality.

E. Recreation

Policy R-5 Rhode Island's rivers, lakes, ponds, and estuarine waterbodies are an important recreational asset and shall be managed as such, except in instances when they are drinking water supplies, or habitat for rare or endangered species, that would be harmed by recreational use.

Although waterbodies supply opportunities for swimming, fishing, and boating (there are about two dozen public fresh water swimming areas in the state; about 75 stocked streams, brooks, and ponds; more than 100 miles of river suitable for canoeing, and over 1000 acres of estuarine and marine beaches), the recreational value of rivers, lakes, ponds, and estuaries has not been fully achieved. Even rivers in urban areas and narrow streams have recreational value as greenways and habitat.

The recreational use of rivers, lakes, ponds, and estuaries may be regulated and limited to protect public health and habitat.

F. Preservation of Open Space, Habitat, Natural Resources, and Features

Policy R-6 In rural and undeveloped watersheds priority shall be given to protecting large unfragmented areas.

Where natural riparian corridors, tidal wetlands, and natural estuarine and marine habitats exist, they shall be preserved. If such habitats are lacking but appropriate, priority shall be given to their re-establishment and maintenance.

Policy R-7 In suburban and urban areas priority shall be given to the preservation and restoration of habitat and the establishment of greenways that link natural, historic, and cultural communities and/or provide recreational opportunity.

River greenway planning and implementation should be coordinated with the Greenways Council and local greenway efforts. Watershed associations, in concert with local officials, should pursue the protection of rivers, lakes, ponds, and estuaries and their respective watersheds by focusing acquisition efforts on identified greenspace areas. Consideration should also be given to river corridors as linking mechanisms with existing open space and greenspace areas. Notwithstanding greenway development, rivers, lakes, ponds, and estuaries shall be maintained to preserve and protect their natural habitat and biodiversity.

G. *Preservation of Cultural and Historic Landscapes and Features*

Policy R-8 The natural, cultural, and historic features of river systems and their adjacent lands shall be preserved and protected to the maximum extent possible.

Rivers, lakes, ponds, and estuaries are an important part of Rhode Island's cultural and historic heritage. In the nineteenth century, waterpower was harnessed for the textile industry. The national significance of the Blackstone Valley has been recognized through the establishment of the Blackstone River Valley National Heritage Corridor within the National Park Service. While the Blackstone Valley may be a premier historical resource from a national perspective, other Rhode Island river locations have great state and regional significance.

H. *Water Withdrawals (Water Supply Management)*

Policy R-9 Water withdrawals shall be managed comprehensively within individual watersheds in accordance with this plan's classifications.

The viability of rivers, lakes, ponds, and estuaries as ecological systems must be achieved to maintain natural, water supply, recreational, and cultural values.

I. *Public Involvement and Local Watershed Councils*

Policy R-10 As a matter of State policy, watershed organizations, citizen and recreational interest groups and associations, and volunteer monitoring programs shall be encouraged and supported.

To secure the public interest in rivers, lakes, ponds, and estuaries and to assure "the people of this generation and their descendants the opportunity to appreciate the aesthetic and utilize the recreational qualities and resources" (*Section 46-28-2(c), General Laws of Rhode Island*) of Rhode Island's rivers, streams, lakes, ponds, and estuaries, the state shall:

- 1) foster public involvement in river and watershed planning, decisionmaking, and management;
- 2) provide public education on river, lake, pond, estuary, and watershed issues; and
- 3) secure the establishment of local watershed councils.

J. *Interstate Coordination*

Policy R-11 As a matter of State policy, the Rivers Council and local watershed councils shall coordinate their activities on a watershed basis across state boundaries, as appropriate.

As stated in the designation criteria for local watershed councils: "Watershed councils must advocate for the entire river and its associated watershed."

Several watersheds in Rhode Island extend beyond the state's boundaries and in some cases, are primarily located in the adjoining state. "Coordination of efforts throughout the watershed is critical to addressing complex issues of regional concern....²"

² Susan Moore, Executive Director of the Blackstone River Valley National Heritage Corridor Commission

PART 162-03 RIVERS CLASSIFICATIONS

03-01 DEVELOPMENT OF CLASSIFICATIONS

In its endeavor to classify the rivers, lakes, ponds, and estuaries in the state, the Rivers Council's approach focused on the availability and utilization of existing resources. The classification process included a review of the existing and potential uses of rivers, lakes, ponds, and estuaries, DEM's water quality standards, CRMC's water use classifications and meetings with the public and interested parties, and especially the knowledge of local watershed organizations.

03-02 CLASSIFICATION SYSTEMS

The Federal Clean Water Act established a goal that the waters of the United States should provide for the protection and propagation of fish, shellfish, and wildlife, and provide for recreation in and on the water¹. The state's DEM has been delegated authority to regulate water resources to achieve this federally established goal. However, for a variety of reasons, actual water quality in a river, lake, pond, or estuary, may not meet the established standards.

The Rivers Council has worked to develop a classification system which will promote the establishment of river, lake, pond, estuary, and adjacent land uses that work toward the attainment of the goals of the Clean Water Act. The designations in the *Rivers Policy and Classification Plan* must be consistent with the DEM classifications so that uses are not promoted or proposed that could place public health or environmental integrity at risk. Differing from the DEM classification system, the Rivers Council attempted to classify the freshwater rivers of the state in a holistic approach by integrating water quality objectives with land uses and land use management. The classification of estuaries adopts the CRMC classifications. As such, the following classifications are based on the use and potential use of rivers, estuaries, watersheds, land use, habitat, open space values, historic and cultural values, as well as water quality. There are existing policies and procedures for commenting on and revising CRMC's water use classifications and DEM's water quality classifications. Watershed councils are encouraged to engage in reviewing the classifications of their rivers with the appropriate agency.

Rhode Island law, Section 46-28-7(d), specifies that the classification plan of the Rivers Council contain a minimum of three classes: pristine rivers, recreational rivers, and working rivers. The Council has expanded on the minimum requirement and developed five freshwater classes: pristine; water supplies; open space; recreational; and working. For estuaries, the Council has adopted CRMC's six water use categories: Type One: Conservation Areas; Type Two: Low-Intensity Use; Type

¹ Clean Water Act, Title 1, Section 101

Three: High Intensity Boating; Type Four: Multipurpose Waters; Type Five: Commercial and Recreational Harbors; Type Six: Industrial Waterfronts and Commercial Navigation Channels.

Discussed within the various classifications are the terms contact and non-contact recreational uses. Contact uses means there is prolonged contact with the waterbody. Examples of contact recreational uses are swimming, wading, and water-based fishing. Non-contact uses involve minimal contact with the water and include canoeing, boating, and land-based recreational activities. The Council followed a policy of recommending contact versus non-contact recreational uses based upon not only knowledge of bacterial levels within the water but also on known or potential toxic pollutant threats from current land-based activities. Where a river or river segment is classified as suitable for swimming and other contact recreational activities, it can be surmised that the river or river segment is also suitable for canoeing or other non-contact recreational activities. The only caveat to this logic would be if there were enough flow or water in the river segment to physically allow these activities to occur. The Council has attempted to note such low flow areas within the individual classifications.

Freshwater Classifications

Pristine Waters This category includes rivers or sections of rivers that are free of impoundments and are generally inaccessible except by trail, with watersheds or shorelines essentially undisturbed and primitive, and water relatively unpolluted. It also includes Significant Wildlife Habitat and Natural Area Rivers, which are rivers, lakes, streams, tributaries, and their associated wetlands that support communities of flora or fauna significant or unusual to Rhode Island. This includes unique critical habitat with rare or endangered species notwithstanding lower than high water quality conditions. Pristine waterbodies may include Special Resource Protection Waters (SRPWs).

Water Supplies These are public drinking water sources, which include:

- Rivers, impoundments, and lakes used for water supply purposes; and/or
- Tributaries to water supplies; and/or
- Areas officially designated as potential public drinking water supplies.

These waters may include watersheds that directly feed or replenish existing and/or potential public drinking water supplies.

Open Space Waters This category includes waterbodies that have high scenic value, have relatively undeveloped banks, provide good fish and wildlife habitat, support or could support recreational use, and are typically situated in low-density rural areas (although they may traverse historic village centers). They may function as open space corridors, natural areas, or greenways. These waters are generally

suitable for both contact recreation such as swimming and fishing, and non-contact recreation such as canoeing.

Recreational Waters This category includes waterbodies, rivers, or river segments that are readily accessible, that may have some development along their shorelines, and may have undergone some impoundment or diversion in the past. These shall include sections of rivers along mill villages, but shall not include sections where development may be characterized as urban. These waters are typically situated in suburban areas and are generally suitable for canoeing and other non-contact recreational activities. They may function as open space corridors or greenways.

Working Waters These waterbodies, rivers, or river segments are readily accessible, have development along their shorelines, have undergone impoundment or diversion, and adjoin development that may be classified as urban.

Coastal – Estuarine Water Classifications

The Coastal Resources Management Council (CRMC) was created by R.I.G.L. 46-23 in 1971. Part of CRMC's mission has been the description and classification of tidal waters and coastal ponds falling under their jurisdictional authority. Accordingly, for those areas already classified by the CRMC, the Rivers Council will adopt the existing CRMC classifications. In some instances, there is a close correlation between the CRMC definitions used for coastal waters and the definitions the Rivers Council has adopted for fresh waters. However, there are other cases where no correlation exists. CRMC includes waters outside of the purview of the Rivers Council. The following definitions are quoted from *The State of Rhode Island Coastal Resources Management Program, as amended* (a.k.a the "Red Book").

Type 1 Conservation Areas Included in this category are (1) water areas that are within or adjacent to the boundaries of designated wildlife refuges and conservation areas, (2) water areas that have retained natural habitat or maintain scenic values of unique or unusual significance, and (3) water areas that are particularly unsuitable for structures due to their exposure to severe wave action, flooding, and erosion.

Type 2 Low-Intensity Use This category includes waters in areas with high scenic value that support low-intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained.

Type 3 High-Intensity Boating This category includes intensely utilized water areas where recreational boating activities dominate and where the adjacent shorelines are developed as marinas, boatyards, and associated water-enhanced and water-dependent businesses.

Type 4 Multipurpose Waters This category includes (1) large expanses of open water in Narragansett Bay and the Sounds which support a variety of commercial

and recreational activities while maintaining good value as a fish and wildlife habitat; and (2) open waters adjacent to shorelines that could support water-dependent commercial, industrial, and/or high-intensity recreational activities.

Type 5 Commercial and Recreational Harbors These waters are adjacent to waterfront areas that support a variety of tourist, recreational, and commercial activities.

Type 6 Industrial Waterfronts and Commercial Navigation These water areas are extensively altered in order to accommodate commercial and industrial water-dependent and water-enhanced activities.

03-03 CLASSIFICATIONS BY WATERSHED

This section of the Plan describes the state's watersheds as well as their respective segments. The appropriate hydrologic unit code (HUC) is noted after the watershed name. Following the description, the segment classification is noted in parentheses.

Information regarding the classification of estuarine portions of watersheds should be obtained from the Coastal Resources Management Council. While not reprinted within this document, CRMC's classifications are adopted by the Rivers Council by reference.

03-03-01 Lower Blackstone River Watershed (HUC-10)

The Blackstone River Valley, in northern Rhode Island and Massachusetts, is the birthplace of the industrial revolution in the United States. The Valley's national, historical and cultural importance has been recognized by Congress through the creation of the Blackstone River Valley National Heritage Corridor. Not only did the America's textile industry begin along the banks of the Blackstone, but it flourished there as well. At the turn of the century, it was claimed that the Blackstone was "the hardest working river, the most thoroughly harnessed to the mill wheels of labor in the United States, probably the world...."(*Blackstone River Valley National Heritage Corridor Commission and State Planning Council, State of Rhode Island and Providence Plantations, Cultural Heritage and Land Management Plan for the Blackstone River Valley National Heritage Corridor, September 1990, p. iv*)

The Blackstone River Valley National Heritage Corridor Commission has stated, "The Blackstone River Valley is one of the Nation's richest and best preserved repositories of landscapes, structures, and sites that recall a neglected era of the American past: the Age of Industry" (*Ibid.*, p.1). Regarding the Heritage Corridor, the Commission has noted, "The Blackstone River Valley is an unusual 'park' because it is a living, human environment...."(*Ibid.*, p. 1).

There are both a proud and a sad legacy from the Age of Industry. The proud legacy is an extraordinary heritage; the sad legacy is one of industrial pollution and a period of economic decline. The Blackstone River was once principally a source of power and secondarily a way to dispose of waste; it was regarded as one of the nation's most polluted rivers. Now, the river is perceived as a cultural and environmental asset. The Blackstone Valley has a vibrant Tourism Council that offers interpreted and historical riverboat tours.

In total, the Blackstone River watershed comprises approximately 472 square miles, most of which (373 square miles) is in Massachusetts. In Rhode Island, the watershed encompasses all or a portion of the following communities: Burrillville, Central Falls, Cumberland, Glocester, Lincoln, North Smithfield, Pawtucket, Smithfield, and Woonsocket.

Interstate water pollution control is a major issue on the Blackstone. The headwaters are in Worcester, and the Upper Blackstone Water Pollution Abatement District facility in Worcester is the largest single source of pollution entering the river. Water quality degradation, however, is no longer accepted or overlooked, as exemplified by the Interstate Blackstone River Initiative being conducted by the Massachusetts Department of Environmental Protection, RIDEM, and EPA.

In Rhode Island, the rivers, streams, reservoirs, and ponds in the watershed supply public drinking water; provide recreational opportunities including swimming, boating, and fishing; provide source water for power plant cooling and other industrial purposes; power hydro-electric facilities; and serve as the receiving body for permitted wastewater discharges. This diversity of uses is the greatest of any Rhode Island watershed. This marvelous and historical diversity is also a cause of conflict as the multiple uses often compete with each other. Stresses and problems in the watershed are numerous and include: contaminated sediments; the impact of permitted wastewater discharges on downstream water quality; the presence of hazardous waste sites, old dumps, and landfills that cause nonpoint source pollution; nonpoint sources of pollution that affect habitat and water quality and threaten drinking water supplies; and water withdrawals.

Nevertheless, conditions on the Blackstone River itself are improving. Governmental and public efforts to reduce pollution and protect water resources are having an effect, and the healing processes of nature are at work. Fishing is being restored, new parks developed, and canoeing and boating increasing, even in urban areas. Expectations for the Blackstone River as a natural resource and an environmental asset are rising. The river classifications support this upward trend.

Segment Classifications in the Lower Blackstone River Watershed

1. **Wallum Lake**, located in the northwest portion of Burrillville and extending into Massachusetts, is a drinking water supply for Zambarano Hospital, but is approved for contact recreational use in Massachusetts (swimming and boating). Hunting and hiking are supported within the Buck Hill Wildlife Management Area and the Douglas State Forest in Massachusetts. Since Wallum Lake is a drinking water supply, there is a buffer zone around the Rhode Island portion of the lake; swimming and fishing from Buck Hill are not allowed. Endangered species are documented in the eastern and southern high-quality tributary streams to the Lake. *(Water Supply)*
2. The **Clear River from Wallum Lake to Wilson Reservoir** has limited recreation potential but is valued as open space and for habitat resources. A point located three-quarters of a mile downstream from Wallum Lake and one-half mile above the Wilson Reservoir is the receiving water for a permitted wastewater discharge from Zambarano Hospital. *(Open Space)*
3. The **Wilson Reservoir**, located in central Burrillville, is used for recreation and open space. Although suitable for swimming and boating, these recreational uses are threatened by the presence of failed or poorly functioning septic systems. *(Open Space)*
4. The **Clear River from Wilson Reservoir to its confluence with the Chepachet and Branch Rivers** is suitable for recreation, however use is limited by low flows. In the last mile of the river, contact recreational activities are limited due to the permitted wastewater discharge from the Burrillville Wastewater Treatment Facility. *(Open Space)*
5. The **Pascoag Reservoir**, (also known as **Echo Lake**), and the **Pascoag River and its tributaries to its confluence with the Clear River** are situated in south-central Burrillville. Valued as recreational open space, the Reservoir is also suitable for contact recreation (swimming and fishing) and has two state boat ramps. *(Open Space)*
6. The **Nipmuc River and Pond** are located in north central Burrillville and are generally inaccessible. These pristine water bodies are valued as open space. *(Pristine)*
7. **Spring Lake** is suitable for recreational swimming and boating. *(Open Space)*
8. **Smith & Sayles Reservoir** and the connected **Keech Pond** are located in Glocester and are suitable for swimming and boating, as well as fishing. Critical habitat areas are located at the northeast end of the Reservoir. *(Open Space)*

9. The **Chepachet River and its tributaries from Smith and Sayles Reservoir to its confluence with the Clear and Branch Rivers** are stocked for fishing and have open space value. (*Open Space*)
10. The **Branch River from its confluence with the Clear and Chepachet Rivers to the Slatersville Reservoir** is suitable for swimming and fishing. It has recreational open space value, and mill villages are located along its corridor. (*Open Space*)
11. The **Tarklin River and Pond** flow through Glocester and Burrillville to the Slatersville Reservoir. The pond is used for fishing; both the pond and river have recreational open space value. (*Open Space*)
12. **Slatersville Reservoir** (both upper and lower) has recreational value and is designated as swimmable and fishable. It has a state boat ramp and fishing club access. Its current condition with respect to contact recreation is, however, marginal due to coliform and metals levels that exceed state standards. The Land Resource and Recovery landfill superfund site is located near the Slatersville Reservoir. (*Open Space*)
13. The **Branch River from the Slatersville Reservoir to its confluence with the Blackstone River** at the Blackstone Gorge in North Smithfield has scenic and open space value with mill villages located along the river corridor. It is suitable for non-contact recreation. (*Recreational*)
14. The **Blackstone River from the Blackstone Gorge to the Rhode Island-Massachusetts state line** is suitable for non-contact recreation. White-water rafting is occasionally possible in this segment. The Massachusetts and Rhode Island environmental departments have purchased the riverbanks on both sides of the Gorge, where a bi-state park will be developed. (*Open Space*)
15. The **Blackstone River from the Rhode Island state line to Thundermist Falls** in Woonsocket is suitable for non-contact recreational activities. Mills with historical value are located along the river corridor. The Ocean State Power Plant, located in Burrillville, has a withdrawal pipe just upstream of the Thundermist Dam. (*Recreational*)
16. The **Blackstone River from the Thundermist Falls to Manville Dam** is a multiple use urbanized open space with significant recreational value. Primary contact recreational activities are limited immediately downstream of the permitted discharge from the Woonsocket Wastewater Treatment Facility. (*Recreational*)

17. The **Blackstone River from Manville Dam to the Valley Falls Marsh** is classified as non-contact recreational. This river segment abuts significant amounts of the Blackstone River State Park and bikepath as well as other local parks that provide open space. This section of the River traverses an area that contains historic mills but also less pleasant reminders of its industrial past including an EPA designated Superfund site and a landfill. However, its scenic beauty and linkage to the old canal system contributes to this section's active use by canoers and kayakers. (*Open Space*)
18. **Valley Falls Marsh**, identified as an important wetland system in Rhode Island, provides open space and valuable habitat in a relatively urbanized setting. Located north of the City of Central Falls in the Towns of Lincoln and Cumberland, it is the largest freshwater wetland in northern Rhode Island. From the Blackstone River, there is boat access to the marsh for fishing. (*Open Space*)
19. The **Blackstone River from the Valley Falls Marsh to the Main Street Bridge in Pawtucket** is classified for multiple use in an urbanized open space. In addition to its historic value, this segment provides the setting for local parks, as well as the Slater Mill. (*Recreational*)
20. The **Woonsocket Reservoirs and Crookfall Brook** and its tributaries are components of a public drinking water supply. The main reservoir, identified as Reservoir No. 3, is located in Smithfield and North Smithfield. Crookfall Brook conveys water from Reservoir No. 3 through Reservoir No. 2 to Reservoir No. 1, the terminal reservoir and the water treatment facility. Mill sites, historical resources, and archeological remains can be found along the Crookfall Brook corridor. (*Water Supply*)
21. **Sneech Pond** is a public drinking water supply for the Town of Cumberland. It is noted for its unique aquatic habitat value. (*Water Supply*)
22. **Diamond Hill Reservoir, Arnold Mills Reservoir, Abbott Run, and Happy Hollow Reservoir** are components of the City of Pawtucket's water supply system. The water quality in Abbott Run, which flows into Massachusetts and returns to Rhode Island, is threatened due to urban development. (*Water Supply*)

03-03-02 Woonasquatucket River Watershed (HUC-12)

Ever since Roger Williams arrived in 1636 and joined the Native Americans who lived in the region, the Woonasquatucket River valley has been settled by a wide variety of people from around the world. From the early settlers who farmed the land, to the immigrants of the 19th Century who built and worked in the mills, to the new wave of residents in the 20th century -- each group of people has left their mark on the watershed. They farmed, fished, and built industries, leaving us with a legacy of farmhouses, mills, churches, and homes that contribute to the fabric of our communities. At the mouth of the river the City of Providence grew to become the capitol of Rhode Island as well as a center for art, industry, and culture.

In 1998, the Woonasquatucket River was designated an American Heritage River, a coveted designation which honors the historic legacy of the river and the continuing value of the river as an environmental, economic, recreation, and cultural asset to the state of Rhode Island. From rural areas in northern Rhode Island to the historic industrial areas in the lower urban stretches of the river, the Woonasquatucket River continues to reflect its proud history. Richard Greenwood, RI Historical Preservation and Heritage Commission wrote:

"...the Woonasquatucket River valley retains the distinguishing features of its industrial heyday to a remarkable degree, from the placid ponds and early mill villages upstream, to the red brick complexes with towering chimneys that line its lower banks."

The Woonasquatucket River watershed covers 50 square miles and includes portions of Glocester, North Smithfield, Smithfield, Johnston, North Providence, and Providence. The river flows from North Smithfield and Smithfield for 19 miles south and east to WaterPlace Park in downtown Providence, where it joins the Moshassuck River to form the Providence River, which in turn flows into Narragansett Bay. The lower reaches of the river, up to the Rising Sun Dam near Donigian Park in Olneyville, rise and fall with the tide in Narragansett Bay. Native Americans called the river "Woonasquatucket" meaning "the place where the salt water ends" or the meeting of the river and the sea.

The upper reaches of the river, including Glocester and North Smithfield, remain pristine and rural in character, although unprotected land in this area is rapidly being taken over by suburban development. There are a number of protected wellhead areas in these communities, providing drinking water for much of the region's population. The Woonasquatucket's "Apple Valley" is named for the many farms, orchards, and nurseries that are found in the watershed from Johnston to Glocester. The center of the watershed, Smithfield, is predominately suburban. Active farming and a proactive land trust maintain substantial protected open space in Smithfield. From Greystone (a village on the Smithfield/North Providence border) to Providence,

the river is predominantly urban. The industrialized lower part of the Woonasquatucket River continues to reflect its historic legacy, with many remaining magnificent historic mill buildings that used the river for water power, industrial processing, waste disposal, and as a water source for steam power. From 1809 through the early 20th century, industry profoundly altered the character and course of the river. Today, these mill buildings contribute to the historic fabric of our communities, providing jobs, housing, and a distinct cultural landscape.

The pristine headwaters of the Woonasquatucket River are in North Smithfield's Nipsachuck Swamp, and in the Fort Wildlife Refuge owned and protected by the Audubon Society of Rhode Island. The Audubon Society of Rhode Island and local land trusts in Glocester, North Smithfield, and Smithfield have successfully purchased and preserved significant land parcels protecting the watershed, and new land trusts have been created in Johnston and North Providence. Most of the larger ponds and reservoirs in the rural and suburban watershed areas are impoundments created by industrial manufacturers to "store water for use during the dry months of summer, an experiment that was so successful that it was replicated on industrial rivers throughout the world." (Richard E. Greenwood, RI Historic Preservation and Heritage Commission). The dams along the urban stretch of the river were all built to create ponds to supply water and power to the mills.

Throughout the watershed, the once neglected Woonasquatucket River is experiencing a resurgence of interest and reuse. There are opportunities for hiking, fishing, swimming, and other recreational uses in the rural, suburban, and urban communities of the watershed. Scenic trails, already established by Conservation Commissions and the Audubon Society of Rhode Island, will soon be complemented by heritage markers in Providence and Johnston. The historic legacy of the river offers significant opportunities for heritage trails throughout the watershed.

Conservation initiatives in the northern communities are matched by restoration initiatives in the urban reaches of the river, where Johnston, North Providence, and Providence are once again utilizing the river as an environmental, recreational, and economic asset for their communities. Although approximately 8.2 miles of the river are impaired, there is great potential for restoring the river habitat and, remarkably, *wildlife, including over one hundred bird species that can be found throughout the impaired reaches of the river.* The power of the river as a catalyst for change is demonstrated in the development of the Woonasquatucket River Greenway, a project which has stimulated the ongoing restoration of 61 acres of abandoned parks and Brownfield sites, providing recreational opportunities, a bicycle path, and restored riverine habitat in Providence and Johnston.

The Rhode Island Department of Environmental Management, the University of Rhode Island, and the Environmental Protection Agency recently completed surveys that identified significant opportunities for the restoration of over 75 wetlands and 235 upland and riparian buffer sites throughout the watershed. The industrial nature of the river resulted in deterioration of the riverine habitat, with 81 percent of the

river's edges requiring restoration of vegetation. The Woonasquatucket River Watershed Council, in partnership with the above agencies, the Natural Resource Conservation Service, US Fish and Wildlife Service, NOAA, the Army Corps of Engineers (through their Urban River Restoration Initiative), and local communities and non-profit organizations, is working to systematically restore the river's habitat.

In addition to land conservation and restoration, initiatives are underway to improve the water quality of the Woonasquatucket River. The historic industrial uses of the river in the urban communities resulted in sediment contamination, which currently restrict river access to non-contact recreational uses. The Rhode Island Department of Environmental Management, the Narragansett Bay Commission, and the Environmental Protection Agency are developing long-term plans to address the remaining sources of contamination, including a Superfund site centered in North Providence and affecting the river sediment down to Lymanville Pond, and combined sewer overflows in the Providence segment of the river.

With the many efforts for restoration, the Rivers Council's hope and goal is to restore the Woonasquatucket River as a fishable and swimmable resource for its communities by 2020.

Segment Classifications in the Woonasquatucket River Watershed

1. **Headwaters of the Woonasquatucket River** are located in the Fort Wildlife Refuge in North Smithfield. This Audubon Society of Rhode Island owned and managed refuge is open to the public and includes hiking trails. **(Pristine)**
2. The **Woonasquatucket River from North Smithfield to the Smithfield town line** is suitable for recreational uses, including swimming and fishing. This stretch of the river is stocked with trout. **(Open Space)**
3. **The Blunders** is a large natural area in North Smithfield with a forest, springs, and a variety of plant species and wildlife that are threatened by development. **(Pristine)**
4. **Primrose Pond** in North Smithfield, near the head of the river, is a privately owned pond, suitable for recreational uses including boating, fishing, and swimming. A small upgradient swamp is owned and managed by the North Smithfield Land Trust. **(Open Space)**
5. **Mowry Conservation Area** is a scenic natural area owned and maintained by the Town of Smithfield with over a mile of wooded hiking trails. **(Open Space)**
6. **Stillwater and Capron Ponds** in Smithfield are privately owned and are suitable for recreational purposes. The Stillwater Scenic Trail along the east side of Stillwater Pond provides fishing access to the pond. **(Open Space)**

7. **Woonasquatucket Reservoir**, locally known as **Stump Pond or Stillwater Reservoir**, is a 304 acre pond in Smithfield owned by RIDEM with a number of public access points. It is used for fishing, swimming, and boating, and features a state-owned ramp for launching boats, although there are no public beaches. **(Open Space)**
8. **Upper Sprague Reservoir** in Smithfield is actively used for recreational purposes. Upper Sprague is owned by the Providence YMCA and used for their programs for inner city youth. Water from the Upper Sprague Reservoir flows into the Lower Sprague Reservoir. **(Open Space)**
9. **Lower Sprague Reservoir** is privately owned and actively used for recreational purposes. The outfall from Lower Sprague Reservoir enters the Stillwater River. **(Open Space)**
10. **Harris Pond** is an open space area, managed by the Smithfield Land Trust. **(Open Space)**
11. **Harris Brook**, passes through Harris Pond and flows into Georgiaville Pond. **(Open Space)**
12. **Georgiaville Pond** is owned by the town of Smithfield and actively used for swimming, boating, and fishing, and features a beach with seasonal access limited to permit holders. There is a public walking trail at the pond. **(Open Space)**
13. **Cutler Brook, Shinscot Brook, and Nine Foot Brook** originate in the westernmost part of the Woonasquatucket River watershed in Glocester. They are tributaries of the river, and flow into Waterman Reservoir and Stillwater River. **(Pristine)**
14. **Philips Farm/Cutler Brook** is a land trust property protecting Cutler Brook and providing opportunities for hiking and a scenic mix of forest, fields, and wetlands. **(Pristine)**
15. **Waterman Reservoir** is fed by Cutler, Shinscott, Nine Foot, and three unnamed brooks. Located in Glocester and Smithfield, it is privately owned and used for swimming, boating, and fishing. Use of a privately owned boat ramp is available for a fee. Waterman Reservoir is the point of origin of the Stillwater River. **(Open Space)**
16. The **Stillwater River** originates at Waterman Reservoir, passes through Mill Pond, collects the outfall from Lower Sprague Reservoir and Slack Reservoir, and flows into the south end of the Woonasquatucket Reservoir in Smithfield. **(Open Space)**

17. **Slack's Pond** in Smithfield flows into a small stream which feeds the Sti River. **(Open Space)**
18. **Reaper Brook** flows out of **Hawkins Pond** east of Slack Reservoir, passes through the **Cedar Swamp**, a unique ecosystem along Route 44, and enters **Mountindale Pond** and then flows into the Woonasquatucket/Stillwater Reservoirs. Land owned by the town of Smithfield at the north end of Cedar Swamp includes the Willow Field Recreation Area, which has a potential for the development of walking trails. **(Open Space)**
19. **Nipsachuck Swamp** is an over 100-acre area of significant wetlands on the North Smithfield/Smithfield line. It is the source of Latham Brook. **(Pristine)**
20. **Latham Brook** originates in the Nipsachuck Swamp in North Smithfield and flows into the Woonasquatucket/Stillwater Reservoirs. **(Open Space)**
21. **Powder Mill Ledges Wildlife Refuge** also serves as the headquarters of the Audubon Society of Rhode Island. The wildlife refuge features hiking trails and frequent programs offered by the Society. A pond and stream at the site flow to the **Cedar Swamp**. **(Open Space)**
22. **Hawkins Brook** originates near the Powder Mill Ledges Wildlife Refuge, flows through **Seville Pond**, and enters the Woonasquatucket River in Esmond, south of Georgiaville Pond. **(Open Space)**
23. **Slack Reservoir**, in Johnston and Smithfield, is designated recreational, suitable for swimming and boating, and has a town beach for local residents. The Smithfield Land Trust has protected some wetlands in the watershed of Slack Reservoir. **(Open Space)**
24. The **Woonasquatucket River from the Smithfield/North Providence town line to its convergence with the Moshassuck River** in downtown Providence is suitable for non-contact recreational uses, including boating and the development of greenways and walking trails. A diversity of wetlands provides habitat for urban flora and fauna with rare plant species along an adjacent railroad right-of-way. The goal for the lower Woonasquatucket River is to complete the removal of dioxin contaminated sediment and restore the river for contact recreational uses by 2020. **(Recreational)**
25. **Greystone Mill Pond, Allendale, Lymanville, and Manton Ponds** are in North Providence and Johnston on the main stem of the Woonasquatucket River, and are suitable for canoeing and other non-contact recreational activities. **(Recreational)**

26. **Assapumsett Brook** originates in wetlands in Johnston near the Smithfield line, and enters the Woonasquatucket River at Lymansville Pond. The brook flows through the property of the Clemence Irons House (1680). **(Recreational)**
27. **The Pleasant Valley Parkway Stream** originates in a wetland near LaSalle Academy in Providence, and flows into the lower Woonasquatucket River in Providence. **(Recreational)**

03-03-03 Moshassuck River Watershed (HUC-12)

The Moshassuck River has its headwaters in the Lime Rock area of Lincoln. The watershed is located in portions of the following communities: Central Falls, Lincoln, North Providence, Pawtucket, Providence, and Smithfield.

The water is very "sweet," which gives rise to habitat conditions unusual to Rhode Island. In southern Lincoln, Olney Pond, which is located in Lincoln Woods State Park, is within the watershed. This is an important public recreational resource within the greater Providence/Pawtucket urban area.

After passing through the village of Saylesville, the river becomes heavily urbanized, and its resource value is virtually obliterated as it passes through culverts adjacent to and under route I-95 in Pawtucket. Historically, this portion of the Moshassuck River was significant as part of the Blackstone Canal, and is included in the Blackstone River Valley National Heritage Corridor. The Moshassuck joins the Woonasquatucket River southeast of the State House in downtown Providence and was central to the city's recent river relocation project.

A tributary of the Moshassuck, the West River, has similar conditions. The West River has recreational value in North Providence and Lincoln, and Geneva Pond is a popular swimming area. The river, however, becomes heavily urbanized as it flows through Providence, though not so entirely obliterated as the Moshassuck.

Segment Classifications in the Moshassuck River Watershed

1. From its **headwaters in Lincoln to the intersection of Wilbur Road and Route 146, the Moshassuck River** flows through lime rock preserves and is a potential water supply at the quarry site. **(Pristine)**
2. **The Moshassuck River from the intersection of Wilbur Road and Route 146 to Barney Pond** passes through suburban areas and a golf course. This section of the river also contains **Butterfly Pond**, located in Lincoln at the intersection of Breakneck Hill Road and Great Road just upstream from the site of the historic Butterfly Mill. **(Open Space)**

3. The Moshassuck flows into **Barney Pond and Bleachery Pond**. These ponds are suitable for fishing and boating. (*Open Space*)
4. **Olney Pond**, located in Lincoln Woods State Park, is suitable for swimming but is subject to closure due to fecal counts. (*Open Space*)
5. After the **Moshassuck River** crosses Walker Street in southern Lincoln it enters an old industrial park. From here to the dam south of Moshassuck Square in Providence, the River is classified as a working river. Its quality is impaired due to combined sewer overflows as it travels from Pawtucket through Providence. Despite the impaired water quality, the river still provides habitat and offers the potential for greenways. For example, the wetland between Weeden Street and Mineral Spring Avenue in Pawtucket is a classic shrub swamp adjacent to the river, even though it is south of the uppermost sewer overflow outlet. From the Sayles Finishing Plant to the incinerator on Grotto Avenue, the canal is intact and the river corridor is suitable for development as a greenway. From the incinerator to I-95, the river has greenway value. As it merges with the West River, it retains its relatively urban character and provides habitat areas. (*Working*)
6. The **West River from its headwaters in Lincoln through Smithfield to the Wenscott Reservoir** has recreational value and is designated as an open space river. (*Open Space*)
7. The **Wenscott Reservoir** is suitable for swimming and, although in a relatively urban area, provides habitat. (*Open Space*)
8. The **West River from the Wenscott Reservoir to its confluence with the Moshassuck River** is suitable for non-contact recreational activities and may function as an open space corridor or greenway. (*Recreational*)

03-03-04 Five Mile River Watershed (HUC-10)

The Five Mile River watershed is located primarily in Connecticut. The Rhode Island portion of the watershed is located in the upland, northwestern area of the state in Burrillville and Glocester. Within Rhode Island, the Five Mile River watershed is primarily composed of ponds and reservoirs with their associated streams, and is a significant recreational resource. Water quality meets pristine classification goals.

The watershed contains substantial amounts of land in public and private conservation holdings. Public holdings include the state's George Washington Management Area, Durfee Hill, and Killingly, Management Areas.

Segment Classifications in the Five Mile River Watershed

1. **Wakefield Pond**, located in Burrillville, is suitable for swimming and fishing and has high habitat values associated with the eastern edge of the pond. (*Open Space*)
2. **Lake Washington** is located in Glocester south of Route 44 in the vicinity of the George Washington Management Area. Although suitable for swimming and fishing, the water quality of the lake is threatened by septic systems. (*Open Space*)
3. **Bowdish Reservoir** in Glocester has high habitat values and is suitable for swimming, boating, and fishing. A significant portion of the Reservoir is surrounded by the George Washington Management Area and the 226-acre Bowdish Lake Camp. The Reservoir also provides critical habitat areas that include a floating bog. (*Open Space*)
4. **Mowry Meadow Brook** in the Durfee Hill Management Area is pristine and unimpounded. The lands owned by the Factory Mutual Insurance Company provide open space and habitat area along the Brook. (*Pristine*)
5. **Killingly Pond** is designated suitable for swimming and fishing. Located adjacent to the Killingly Wildlife Management Area, it provides seasonal recreational opportunities although it is relatively inaccessible. (*Open Space*)

03-03-05 Moosup River Watershed (HUC-10)

The Moosup River watershed is located primarily in Connecticut with Rhode Island portions in Glocester, Foster, and Coventry. The watershed is situated in a sparsely populated, wooded area, has few impoundments, and contains substantial amounts of land in public and private conservation holdings. Public holdings include the Nicholas Farm Wildlife Management Areas. Water quality meets pristine classification goals.

Segment Classifications in the Moosup River Watershed

1. The **Moosup River from its headwaters in the towns of Foster and Coventry to the Rhode Island-Connecticut state line** is classified as a pristine river with wild and natural flows. Valuable for its wilderness character, it provides wildlife habitat area and a valued resource for fishing. (*Pristine*)
2. **Carbuncle Pond** is located in the Nicholas Farm Wildlife Management Area and is designated as swimmable and suitable for fishing. The area is noted for its high habitat values. (*Open Space*)

3. **Roaring Brook** is located in Coventry and flows to **Arnold, Little Grass, Great Grass, and Whitford Ponds**. Both the brook and ponds are pristine and have habitat resource values. (*Pristine*)
4. The tributary streams to the Moosup River, including **Croff Farm Brook, Keach Brook, and Mowry Brook**, are classified pristine, wild/natural. (*Pristine*)

03-03-06 Pawtuxet River Watershed (HUC-10)

The Pawtuxet River watershed is located in central-western Rhode Island. The river flows generally from west to east. Its headwaters are in the hills of rural western Rhode Island; its mouth is in historic Pawtuxet Village, between the cities of Warwick and Cranston, the state's second and third largest cities. The watershed encompasses all or portions of the following communities: Coventry, Cranston, East Greenwich, Exeter, Foster, Glocester, Johnston, Scituate, Warwick, West Greenwich, and West Warwick.

The Pawtuxet River watershed comprises the Scituate Reservoir and its tributaries, the North Branch of the Pawtuxet, the Pocasset River, the Big River and its tributaries, the Flat River Reservoir and its tributaries, the South Branch of the Pawtuxet, and the main stem of the Pawtuxet. In total, the watershed contains 64 ponds, 93 brooks, 7 tributary rivers, and 18 dams.

The watershed is heavily influenced by the development patterns of the 19th and 20th centuries. With the second largest volume of water in Rhode Island and a substantial drop in elevation from its headwaters to Narragansett Bay, the Pawtuxet River watershed became a center of textile manufacturing plants. Numerous impoundments were created along the river and its tributaries, and along the banks were a series of mills and mill villages, many of which now have historical significance. In the late 19th century, this development was so intensive that an urban area emerged in the eastern Coventry-West Warwick area. Factories and villages both discharged their effluent and waste into the river, degrading water quality in the lower portions of the watershed.

As the City of Providence's population increased through the industrial era, public health became a major concern. It was decided that the northern and western portions of the Pawtuxet River watershed should be used as the source for the City's drinking water. The Scituate Reservoir water system of the Providence Water Supply Board, completed in the 1920's, now provides drinking water to nearly two-thirds of the state's population. The Big River, a major tributary of the South Branch of the Pawtuxet, was recognized as another potential drinking water resource for the state, and land to construct a large surface water reservoir was acquired. The development of this project was dropped largely because of the loss of wetlands that would have resulted; the Big River Wildlife Management Area, however, remains

available as a potential source of public water supply. The Quidnick Reservoir Association controls the Flat River Reservoir system, as well as flows into the South Branch of the Pawtuxet River. The Pawtuxet River is also the receiving body for several wastewater treatment plant discharges. During the 1970s and 1980s, the treatment plants of Cranston, Warwick, and West Warwick were upgraded to secondary treatment facilities, and most previous difficulties with their operation have been overcome. Notwithstanding these improvements, water quality on the main stem of the Pawtuxet is problematic, and an agreement was reached by the communities and the state to provide advanced wastewater treatment. The cost of these improvements is high, possibly in the vicinity of \$100 million. In the past, industrial discharges were a major cause of water pollution; however, these sources have largely been eliminated through the decline of industry, the imposition of wastewater regulations, and connection to wastewater treatment facilities.

Through the second half of the 20th century, awareness has increased relative to water pollution from nonpoint sources. Threats occur especially from septic systems, runoff, road salt applications, and construction/development activities. The areas immediately south and west of Providence have been the direct path for post-World War II suburbanization. Interstate highways I-95 and I-295 traverse the watershed; and Route 2, from the Pocasset River in Cranston through Warwick and West Warwick, has become a commercial center of development. The gains made in reducing point source pollution can be lost to nonpoint sources.

There is a high level of interest and potential for increasing recreational opportunities associated with the riverway. The North Branch is swimmable between the Gainer Dam of the Scituate Reservoir and the village of Hope, but development in the area threatens water quality. The Flat River Reservoir system (which includes the Flat River Reservoir/Johnson's Pond, Quidnick Reservoir, and Stump Pond) is currently used for swimming, boating, and fishing. In 1987, the Pawtuxet River Authority (created to develop recreational opportunities on the North and South Branch and the main stem of the river) drafted a plan for "a series of riverwalks, canoe access sites, and significant natural areas along the Pawtuxet River." Progress toward full implementation of this plan has been incremental, impeded by a lack of funds.

The purposes of the classifications for the Pawtuxet River are, first, to protect current values and uses within the watershed, especially in the Big River, Scituate, and Flat River Reservoirs and the North Branch to Hope areas; and second, to foster the goal of making the River a major recreational resource in the intensively suburbanized central portion of the state.

Segment Classifications in the Pawtuxet River Watershed

1. The **Scituate Reservoir** and its tributaries are located in Foster, Scituate, and Glocester. Although these waters are classified as a water supply source, they are also rich in biodiversity of amphibian, plant, and bird life. (**Water Supply**)

2. The **North Branch of the Pawtuxet River and its tributaries from Gainer Dam at the Scituate Reservoir to Route 116** in the village of Hope are suitable for recreational swimming and fishing. Development in this area could impact water quality. (*Open Space*)
3. The **North Branch of the Pawtuxet River from the village of Hope to its confluence with the South Branch** is located in Scituate, Coventry, and West Warwick. This segment has been impacted by failing septic systems, and improvement needs to be maintained. Its resource values consist of open space, several historical mills and villages, two river walks, and industrial uses. At its confluence with the South Branch, at River Point, is a former municipal landfill that is being used for ballfields and a riverwalk. (*Open Space*)
4. The **Flat River Reservoir** system is part of the South Branch of the Pawtuxet River. Upstream of the Flat River Reservoir Dam, it is designated suitable for swimming and fishing. (*Open Space*)
5. The **South Branch of the Pawtuxet River from the Flat River Reservoir Dam to the Quidnick Dye Mill Dam** is suitable for contact recreational activities. This stretch also provides the best canoeing on the South Branch. (*Open Space*)
6. The **South Branch of the Pawtuxet River from the Quidnick Dye Mill Dam to its confluence with the North Branch** is classified non-contact recreational due to the permitted industrial discharge and the hydropower facility in Arctic. There are several historic industrial buildings along this stretch of the river. (*Recreational*)
7. Although heavily developed, **Tiogogue Lake**, located in Coventry, is suitable for swimming and boating. In addition to Briar Point Beach, it is considered good habitat for birds. (*Recreational*)
8. The **main stem of the Pawtuxet River from its confluence with the North and South Branches to its mouth in Pawtuxet Cove**, is designated for boating and other non-contact recreational activities and has habitat value. It is canoeable to the Natick Dam and also from Pontiac village to Pawtuxet village. Permitted discharges from three wastewater treatment facilities impact the water quality of this segment. From Elmwood Avenue to Pawtuxet village the river corridor provides an opportunity for a greenway. Mitigation of runoff from highways is a major issue. (*Recreational*)
9. The resource value of **Meshanticut Brook** is its waterfalls. From its headwaters to its confluence with the Pawtuxet River, the Brook is designated as a recreational open space river. (*Open Space*)

10. The **Big River** is classified as pristine with water supply value. In addition to its high quality waters, the Big River area contains open space, extremely high habitat values, and important wetlands. Its groundwater is a potential source of public water supply; i.e. wells for Kent County Water. **(Pristine)**
11. The **Pocasset River's** resource values consist of the falls area above Memorial Park, Snake Den State Park, high habitat value at its headwaters, and farms in Johnston. Cranston Print Works, an historic mill, as well as a mill village, are located downstream. The River, while currently having poor water quality and flowing through urban areas, is a potential amenity. **(portions Recreational; portions Open Space)**
12. **Mashapaug Pond, Spectacle Pond, and Roger Williams Park Ponds** are suitable for boating and other non-contact recreational activities. They are non-flushing waterbodies that receive nonpoint source pollutants and nutrients from parking lots and surface runoff. **(Recreational)**

03-03-07 Greenwich Bay Watershed (HUC-12)

Greenwich Bay is an embayment within Narragansett Bay whose shorelines are bounded by Warwick and East Greenwich. The freshwater watershed comprises portions of three communities: East Greenwich, Warwick, and West Warwick. Two streams, Hardig Brook and the Maskerchugg River, flow through the watershed and deposit fresh water to Greenwich Bay. Hardig Brook drains the area west of Apponaug. The Maskerchugg River is a small stream that drains southern Warwick, east of Route 2, and the downtown portion of East Greenwich. Both Hardig Brook and the Maskerchugg are in old villages surrounded by suburban development.

Greenwich Bay has experienced increased pollution levels that caused its closure to shellfishing in 1992. The City of Warwick, in cooperation with the state, prepared a *Strategic Plan for the Reclamation of Greenwich Bay* (February 1994); reduction of nonpoint pollution sources are a major element of this plan.

Hardig Brook is noted for its open space value; two ponds are used recreationally. The Maskerchugg has "backyard" open space value and feeds Bleachery Pond. Both rivers supported modest levels of mill development into the 20th century.

Segment Classifications in the Greenwich Bay Watershed

1. **Hardig Brook from its headwaters in West Warwick to Toll Gate Road** in Warwick is recreational with open space value. **(Recreational)**
2. **Hardig Brook** (and associated small ponds) **from Toll Gate Road to Gorton Pond**, are considered suitable for boating and other non-contact recreational activities, and have a resource value as urban open space, with the provision

that water quality objectives are to be consistent with the Greenwich Bay Reclamation Plan. **(Recreational)**

3. **Gorton Pond** is located in Warwick and is designated for swimming and other contact recreational activities. **(Recreational)**
4. Although the **Maskerchugg River from its headwaters to Bleachery Pond** is considered recreational, flow may not be sufficient for canoeing; the River does, however, function as an open space corridor. **(Recreational)**
5. **Bleachery Pond** is suitable for non-contact recreational activities such as boating, and has value as urban open space. **(Recreational)**
6. The **Maskerchugg River from Bleachery Pond to Greenwich Bay** is suitable for boating and other non-contact recreational activities with urban open space value. **(Recreational)**

03-03-08 Hunt River Watershed (HUC-12)

The Hunt River watershed is located in East Greenwich, northern North Kingstown, the Potowomut section of Warwick, and small sections of Coventry, Exeter, West Greenwich, and West Warwick. The Hunt River forms the town line between North Kingstown and East Greenwich. The Potowomut River separates North Kingstown and Warwick. With the exception of Sand Hill Brook in North Kingstown, the tributaries of the Hunt River flow from rocky, wooded uplands, west of Route 2. These tributaries include Scrabbletown Brook, Frenchtown Brook, Mawney Brook, and Fry Brook mostly flowing through East Greenwich. Small dams and impoundments are numerous throughout the watershed, with some dating from the colonial era. The largest impoundment is Potowomut Pond, which provides good quality habitat in the western portion.

Suburban land uses have altered this rural watershed since the second half of the 20th century. Although there are still significant conservation land holdings in the Frenchtown-Davisville area, major roadways including Route 1, Route 2, and Route 4 cross the watershed. The groundwater is a sole source aquifer with a wellfield that is a public drinking water supply for the Town of North Kingstown. A specified area around the wellheads is designated by the DEM as a wellhead protection area.

Segment Classifications in the Hunt River Watershed

1. **Sandhill Brook**, from its headwaters to its mouth, is located in a heavily suburbanized area. **(Recreational)**
2. The **Hunt River from its headwaters to Route 1** is designated recreational multiple use and part of a public water supply system. **(Recreational)**

3. The **Hunt River from Route 1 to Potowomut Pond** is a recreational river but with flows that may not be sufficient for canoeing. The river flows through a large marsh in a suburban area. This segment is also the receiving water for an industrial discharge. *(Recreational)*
4. **Fry Brook**, small and fast flowing, with its tributaries, is a recreational river that provides open space and is part of an agricultural landscape. *(Open Space)*
5. **Mawney Brook**, with its tributaries, is noted as a high quality water resource valuable for recreational fishing, as well as high habitat value. *(Open Space)*
6. **Frenchtown Brook**, with its tributaries, is a recreational open space river that accommodates fish ladders and has high habitat value. *(Open Space)*
7. **Scrabbletown Brook**, from its headwaters to its mouth, flows through East Greenwich and North Kingstown. In addition to high habitat value, the Brook is suitable for fishing; canoe landings are located along the stream. Potts Bog is part of the open space conservation area of the Audubon Society immediately east of Route 4; there is a canoe launching area and trail off Davisville Road. *(Open Space)*

03-03-09 Lower West Passage Watershed (HUC-12)

The Lower West Passage watershed is split by Narragansett Bay between the coasts of North Kingtown and Narragansett on the west and the coast of Jamestown on the east. For the purposes of classification, this section of the plan will deal only with mainland portion of the watershed; the island portion will be covered in the Conanicut Watershed found later in this chapter.

The Lower West Passage watershed is primarily coastal except for the **Annaquatucket River**. The Annaquatucket River is located in central North Kingstown, south and west of the village of Wickford. The river flows west to east and empties into Narragansett Bay at Bissel Cove in the village of Hamilton.

There are four impoundments in the western portion of the watershed, two of which (Upper and Lower Belleville Ponds) were associated with a textile mill complex that is no longer standing. Upper Belleville Pond, especially in its northern and western portions, has high habitat value. the watershed also contains public drinking water supply wells for the Town of North Kingstown. South and east of Belleville Pond are a closed landfill and an automobile salvage yard. Around Upper Belleville Pond, a substantial portion of the land is publicly owned; both ponds are used recreationally.

From the Belleville Ponds to Bissel Cove, the Annaquatucket is a slow-moving stream flowing through relatively flat terrain and wetlands in an area that is

substantially suburbanized. A second closed municipal landfill is in the watershed. Just west of Hamilton there is another mill pond. Archaeological and historically significant sites are found in this portion of the watershed. Fish ladders have been constructed on the Annaquatucket to support anadromous fish migration.

Segment Classifications in the Lower West Passage Watershed

1. The **headwaters of the Annaquatucket River** are located west of Route 4 in North Kingstown. The waters supported the colonial mill site of Lafayette. A marshy area supports wildlife habitat, and watercress is grown in the stream. The river, upstream of Belleville Pond, has high habitat value. It is also the location of a state trout hatchery. (*Open Space*)
2. **Upper Belleville Pond**, with associated wetlands, is a pristine area with important high quality habitat areas. The pristine classification is intended to protect public drinking water supply wells. The Pond functions as a pristine waterbody but experiences severe problems due to low dissolved oxygen, high nutrient inputs, and algal blooms. (*Pristine*)
3. **Lower Belleville Pond** is suitable for swimming and boating. Lower Belleville Pond is a highly nutrient-enriched pond from runoff. (*Open Space*)
4. Due to low flow conditions, the **Annaquatucket River from Belleville Pond to Bissel Cove** is not suitable for swimming or other contact recreational activities. Flow may not be sufficient for canoeing. Valued for its open space, it includes archaeologically significant areas and has an anadromous fish run. There are fish ladders at Featherbed Lane and at Mill Pond along Route 1A, as well as at Secret Lake and Belleville Pond. (*Open Space*)
5. **Secret Lake** is suitable for swimming and boating. There is a large wetland complex upstream of Secret Lake on the west side of Route 4. There is also a junk yard and former landfill in the vicinity of Secret Lake. (*Open Space*)
6. **Kettle Hole Pond** is suitable for swimming and boating. It is the site of a town well and gristmill. (*Open Space*)

03-03-10 Pettaquamscutt River Watershed (HUC-12)

The Pettaquamscutt, (also known as the **Narrow River**), watershed is located in the towns of North Kingstown, South Kingstown, and Narragansett. The fresh water portion of the watershed, known as the Mattatuxet River, and its associated ponds are found in North Kingstown.

Silver Spring Lake, which is situated west of Colonel Rodman Highway, Route 1, and Route 4, is a handicapped-accessible public fishing area with a scenic waterfall. From Silver Spring Lake, the Mattatuxet passes under Route 1 past the hamlet of Shady Lea, and into Carr Pond. This area is largely undeveloped, and habitat values are high.

From Carr Pond, the Mattatuxet flows to Gilbert Stuart's birthplace, a colonial mill and National Historical Landmark; over a dam; through a raceway; and into the Pettaquamscutt River. There are anadromous fish runs on the river.

Segment Classifications in the Pettaquamscutt River Watershed

1. **Silver Spring Lake**, with its tributaries, is notable for recreational use, primarily fishing. DEM stocks the lake with trout, which makes it a very popular spot on opening fishing day. Limited boating is possible; water quality is, however, threatened due to road runoff and development. (*Open Space*)
2. The **Mattatuxet River** from Silver Spring Lake to its mouth at Carr Pond has pristine water quality and is noted for its wildlife habitat and natural areas. (*Pristine*)
3. **Shady Lea Pond** is part of the Mattatuxet River, located one-third of the way between Silver Spring Lake and Carr Pond. It is located in a historic textile village and is suitable for recreation. (*Open Space*)
4. **Carr Pond** is designated as pristine and supports three of North Kingstown's public drinking water wells. There is also a Girl Scout camp on the south and west sides of the pond. (*Pristine*)
5. **Gilbert Stuart Stream**, from Carr Pond to the dam at the Gilbert Stuart Birthplace, has a fish ladder and is valued as a high quality habitat resource; it is, however, known to have high bacterial counts. (*Open Space*)

03-03-11 Saugatucket River Watershed (HUC-12)

The Saugatucket River watershed is located in the eastern half of South Kingstown, in the valley between Tower Hill and Kingston Hill. Its headwaters are in the very southern portion of North Kingstown, an area known as Shermantown. From there, the river flows south through the village of Peace Dale and into Wakefield, where it goes over a falls, becomes tidal, and empties into Point Judith Pond.

The watershed north of Peace Dale was once predominantly agricultural. Little active agriculture remains, although there are some relatively large parcels of open land. Also found here are sand and gravel operations and a closed municipal landfill

called Rose Hill Landfill, a Superfund site. The environs support areas of outstanding habitat in the northern portion. Indian Lake, the largest impoundment in the watershed, is swimmable and fishable.

The Saugatucket River broadens for a mile above the dam in Peace Dale, an historic mill village. The open space quality is high, and the river is canoeable.

From Peace Dale through Wakefield, the Saugatucket is part of a densely developed town. Behind the dam at Main Street, it again broadens and has recreational potential. This potential, along with that of the tidal portion, is being actively explored by the Saugatucket River Heritage Corridor Coalition.

Fresh Meadow Brook is the Saugatucket's primary tributary stream.

Segment Classifications in the Saugatucket River Watershed

1. The **Saugatucket River from its headwaters in North Kingstown to Mitchell Brook** is classified pristine with high habitat values. (*Pristine*)
2. The **Saugatucket River from Mitchell Brook to Saugatucket Road** is suitable for recreational but flow may not be sufficient for canoeing. There is still a possibility of contamination from the landfill. (*Open Space*)
3. The **Saugatucket River from Saugatucket Road to Peace Dale**, including Saugatucket Pond, is designated as suitable for canoeing and swimming although it is subject to high fecal counts during wet weather. With open spaces and landscapes associated with historic Peace Dale village the pond and adjacent land have scenic values. (*Open Space*)
4. The **Saugatucket River from Saugatucket Pond in Peace Dale to the dam at Main Street in Wakefield** has exceptional open space and recreation potential, although the water quality is threatened by nonpoint source pollution from runoff. (*Recreational*)
5. The Tri-Pond Park System, which is comprised of **Asa Pond, Rocky Brook Reservoir, and Peace Dale Reservoir**, is suitable for canoeing and other non-contact recreational activities. There is an extensive trail system in the pond area. (*Recreational*)
6. **Rocky Brook to Kersey Road in Peace Dale** is suitable for recreation and open space. (*Open Space*)
7. **Rocky Brook from Kersey Road to its confluence with the Saugatucket River** runs through historic mill villages. (*Recreational*)

8. **Indian Lake** is a recreational waterbody suitable for swimming and fishing. *(Recreational)*
9. **Indian Run Brook from Indian Lake Shores to Indian Run Reservoir**, is utilized as recreational open space. *(Recreational)*
10. **Indian Run Reservoir** is a recreational area suitable for swimming. *(Recreational)*

03-03-12 Wood-Pawcatuck Subbasin (HUC-8)

The region described here is comprised of three HUC-10 watersheds, the Wood River, the Upper Pawcatuck River, and the Lower Pawcatuck River. Although this narrative section will refer to the Wood-Pawcatuck collectively, the segment descriptions that follow will be organized by each individual watershed.

The Wood-Pawcatuck subbasin, located in the southwestern portion of the state, is Rhode Island's premier freshwater recreational resource. The Wood River watershed extends into Connecticut and includes the western sections of West Greenwich, Exeter, Richmond, and the northern portion of Hopkinton. The Lower Pawcatuck watershed is located primarily in Connecticut including only the westernmost sections of Hopkinton and Westerly. The Upper Pawcatuck watershed includes all or a portion of West Greenwich, Exeter, North Kingstown, South Kingstown, Richmond, Charlestown, and Westerly.

Because river volumes and drop in elevation are modest, the Wood-Pawcatuck was not a focus for heavy industrialization in the 19th century to the extent that the Blackstone and the Pawtuxet were. Through the middle of the 20th century, most of the land remained forested or in agricultural production. Extensive public holdings and wetlands have protected river corridors from residential encroachment.

The Wood-Pawcatuck boasts of 55 miles of canoeable rivers. The primary objective in the management of this watershed is to preserve its quality as a prime recreational resource of the state. The Wood-Pawcatuck watershed contains major critical wildlife habitat areas. A second objective for its management, closely related to the first, is to maintain habitat quality.

Population growth in the watershed has been rapid since 1950, and the people living in the region depend on groundwater for their water supply. The Wood-Pawcatuck watershed is a sole source aquifer, and a third, critical management objective is to keep groundwater quality high so that its suitability as drinking water is preserved.

A prime threat to water quality is suburbanization. With the exception of a portion of Westerly, the watershed is not served by public sewers. Proper functioning and maintenance of septic systems is therefore a critical concern. Fortunately, the region is among the leaders in the consideration and establishment of wastewater management districts. Such efforts merit being made a priority but require local endorsement and approval.

A further objective is to preserve agriculture within the watershed. Agriculture has been declining in Rhode Island for more than a century, and little is left. The Wood-Pawcatuck watershed contains active agricultural operations supporting production of sod and turf, potatoes, berries, poultry, eggs, nurseries, and truck farming. These often require irrigation to be commercially viable. The Wood-Pawcatuck is the only watershed in Rhode Island where agricultural water withdrawals from rivers are a significant issue. It is also critical that the use of pesticides and fertilizers, as well as erosion and sedimentation, be managed in a manner that minimizes adverse effects on wildlife habitat, drinking water supply, and recreational uses of water. The Farmland Preservation Act (*Chapter 42-66, General Laws of Rhode Island*) allows the state to identify and acquire development rights in order to maintain farming, productive open space, and groundwater recharge areas. The Act establishes an Agricultural Land Preservation Commission to inventory and acquire development rights of remaining farmland.

During the "energy crisis" of the 1970s, conflicting views emerged as efforts to restore mill dams for electric power were poised against the restoration of anadromous fish along the Pawcatuck River. This debate gave rise to disagreements over the effectiveness of technology for protecting fish from entrapment in water intakes; the feasibility of fish ladders to permit migrating fish to bypass dams; and the relative impacts of these two activities on historic preservation, environmental enhancement, and water-based recreation.

The watershed benefits from substantial public and private conservation efforts. The state's Arcadia, Wickaboxet, Rockville, Carolina, Great Swamp, Burlingame, and Woody Hill Wildlife Management Areas, and Burlingame State Park are within it. The Audubon Society of Rhode Island has significant holdings, as does the Narragansett Indian Tribe in addition to controlling eight-hundred feet of frontage on the Pawcatuck, and the Nature Conservancy is focusing on Wood-Pawcatuck watershed land protection, particularly along the Beaver River.

Equally important in the protection of the watershed is the private non-profit citizens group, the Wood-Pawcatuck Watershed Association. The Association conducts education and monitoring programs, promotes river stewardship, and advocates development practices that preserve water quality. The Association organizes events to increase public appreciation of the value and natural beauty of the watershed; it also publishes a map for canoeists.

For the most part, water quality throughout the watershed is good to excellent. However, there are areas where it is degraded and segments where it is threatened, especially by development. Point source discharges, while not a significant issue overall in this watershed, do limit swimming uses in specific areas in the vicinity of the discharge points.

Segment Classifications in the Wood River Watershed

1. **Parris Brook** from its headwaters at Tippecansett Pond to the Woody Hill Dawley Swamp is a pristine river. *(Pristine)*
2. The **Falls River** is a pristine river with high value for recreation; it is, in fact, overused in areas. The Falls River to its confluence with **Kelly Brook** (also pristine) is the only catch and release waters in Rhode Island. This particularly benefits native brook trout. Stepping Stone Falls is a popular and notable feature. *(Pristine)*
3. **Breakheart Brook** is a pristine natural river with high habitat value. Breakheart Brook flows through the Alton Jones campus of URI in West Greenwich. *(Pristine)*
4. **Phillips Brook and Acid Factory Brook** converge to form the **Flat River**. All are pristine natural rivers with high habitat value. *(Pristine)*
5. **Roaring Brook** feeds Boon Lake and Browning Mill Pond. Except for a few short stretches it is pristine. Water quality is, however, threatened by waterfowl and nonpoint source pollution. *(Pristine)*
6. **Boon Lake** is completely surrounded by houses, some within less than 200 feet of the banks. Many of these houses started as summer cottages which are now used all year. It is important that the houses surrounding the Lake be targeted for regular septic system inspections. *(Recreational)*
7. The **Wood River from its headwaters to Barberville** at Old Nooseneck Hill (a.k.a. Arcadia) Road is a pristine river with high habitat, scenic, and natural landscape values. It is highly used as a recreational and educational resource. *(Pristine)*
8. The **Wood River from Barberville to Route 138 in Hope Valley** is a recreational open space river suitable for swimming and fishing. *(Open Space)*
9. The **Wood River from Route 138 in Hope Valley to its confluence with Brushy Brook** is urbanized and experiences septic system failures, which are exacerbated by the geology. *(Recreational)*

10. The **Wood River from its confluence with Brushy Brook to its confluence with the Pawcatuck River**, is a very scenic stretch that is suitable for fishing and swimming. (*Open Space*)
11. **Brushy Brook from its headwaters in Exeter to Locustville Pond** is suitable for swimming and fishing. (*Open Space*)
12. **Brushy Brook, from Locustville Pond to its confluence with the Wood River**, is suitable for canoeing and other non-contact recreational activities. (*Open Space*)
13. **Locustville Pond** may be suitable for fishing and swimming but has possible problems from septic system failure. The Pond contains noxious aquatic plants that the local pond association is treating with herbicides. (*Open Space*)
14. **Yawgoog Pond** is suitable for swimming and other contact recreational activities. It is also a public drinking water supply for Camp Yawgoog. (*Water Supply*)
15. **Wincheck Pond** is suitable for swimming and fishing. (*Open Space*)
16. **Blue Pond** is pristine with high habitat value. (*Pristine*)
17. **Long Pond and Ell Pond** as well as their headwaters, are pristine waterbodies with high habitat value. The quality is threatened by acid rain. (*Pristine*)
18. **Ashville Pond** is suitable for swimming and fishing. (*Open Space*)
19. **Canonchet Brook**, from its headwaters in Hopkinton to its confluence with the Wood River, is suitable for recreation but it has been impacted by a condominium community and golf course that has denuded the brook in areas. (*Open Space*)

Segment Classifications in the Upper Pawcatuck River Watershed

1. The **Usquepaug River** from Glen Rock Reservoir to its confluence with Chickasheen Brook in the Great Swamp, is suitable for recreation and open space. Due to its location in an area of prime agricultural land, withdrawals are substantial. (*Open Space*)
2. **Locke, Fisherville, and Queens Fort Brooks**, as well as the **Queen River** are pristine with high habitat resource values. The Queen River runs through the Eppley Wildlife Refuge, which is an important Audubon Society refuge. There is a permitted wastewater discharge from the Ladd School on the Queen River. The southern portion of the River is impacted by water withdrawals for agricultural use. (*Pristine*)

3. The **Chipuxet River**, from its headwaters in Exeter and North Kingstown to Taylor's Landing at Route 138, provides wildlife habitat and is also a wellhead protection area. (*Open Space*)
4. The **Chipuxet River** from Taylor's Landing to Worden's Pond is a pristine river with high habitat values and is used for canoeing. (*Pristine*)
5. **Hundred Acre Pond** and **Thirty Acre Pond** are designated for swimming and fishing. (*Open Space*)
6. **Yawgoo** and **Barber Ponds** are both suitable for swimming and other contact recreational activities. (*Open Space*)
7. The **Pawcatuck River** from Worden's Pond to its confluence with the Usquepaug River is a natural river with high habitat values. (*Pristine*)
8. From their headwaters to their mouths, **Meadow Brook**, the **Beaver River**, and **Chickasheen Brook** provide habitat and are areas of significant water withdrawals for agriculture; water volumes may fluctuate. (*Open Space*)
9. **Tucker Pond** and **Alewife Brook**, from their headwaters to Worden Pond, are suitable for swimming and fishing, and have high habitat value. (*Open Space*)
10. **Worden's Pond** is noted as a recreational water body designated for swimming and fishing. It has high habitat value and is associated with its proximity to the Great Swamp; it is host to a variety of migratory birds and osprey. It is, however, threatened by shoreline development. (*Open Space*)
11. The **Pawcatuck River**, from the Usquepaug River to the Kenyon Piece Dyeworks wastewater outfall, is suitable for swimming and fishing. From that point to Horseshoe Dam in Shannock, the river is suitable for canoeing and other non-contact recreational activities. (*Open Space*)
12. The **Pawcatuck River**, from Shannock to Route 91 just south of the Carolina Management Area, is pristine and of exceptional habitat and natural quality. It is suitable for swimming, fishing, and canoeing. (*Pristine*)
13. The **Pawcatuck River** from Route 91 to Bradford is suitable for swimming, fishing, and canoeing; it also has high habitat value. (*Open Space*)
14. The **Pawcatuck River**, from Bradford to the dam (where it becomes tidal) upstream from the village of White Rock, is suitable for canoeing and other non-contact recreational activities. This is attributed to permitted industrial point source discharges and possibly leachate from the landfill adjacent to Chapman

Road. Bradford Bend is a high habitat area from north to south to west. (*Open Space*)

15. **Watchaug Pond** is suitable for swimming and fishing. It is located in the Burlingame Wildlife Management Area and State Park and has high habitat value as well as very high recreation usage. (*Open Space*)
16. **Poquiant Brook**, from Watchaug Pond to the Pawcatuck River, is suitable for swimming and other contact recreational activities and has high habitat value. (*Open Space*)
17. The **Tomaquag Brook** from its headwaters to its confluence with the Pawcatuck River is pristine, provides significant wildlife habitat, and is a natural area river. (*Pristine*)
18. **Chapman Pond** and **Aguntaug Brook**, to the confluence with the Pawcatuck River, are recreational with high habitat value. Due to an adjacent landfill, swimming and other contact recreational activities are not recommended. (*Open Space*)

Segment Classifications in the Lower Pawcatuck River Watershed

1. The **Ashaway River** from its headwaters to its confluence with the Pawcatuck River is pristine, provides significant wildlife habitat, and is a natural area river. (*Pristine*)

03-03-13 Ten Mile River Watershed (HUC-10)

The Ten Mile River watershed forms Rhode Island's eastern boundary with Massachusetts through the cities of Pawtucket and East Providence. The river principally drains an area that extends into North Attleboro and Attleboro, Massachusetts.

In Rhode Island, the river connects a series of ponds and reservoirs associated with open space and recreational areas including Slater Park, Pawtucket Country Club, and the Agawam Hunt Club. The cities of Pawtucket and East Providence have recognized the substantial recreational potential and open space value of the Ten Mile River. In 1993, a transportation funding application was jointly submitted by the cities to establish a greenway/bike path in the watershed.

Although the Ten Mile River watershed has good open space value, water quality is only fair as the river flows through relatively intensively developed older communities.

Segment Classifications in the Ten Mile River Watershed

1. The **Ten Mile River from the Massachusetts state line to the dam in Slater Memorial Park** contains open space areas and has recreational value although current water quality may not be sufficiently suitable for swimming and other contact recreational activities. The character of this segment's corridor varies from residential development to parks and open space including the Ten Mile River Reservation and Slater Memorial Park. This segment is canoeable and also has high habitat value. *(Open Space)*
2. The **Ten Mile River from the dam in Slater Park to Central Pond** is suitable for non-contact recreational activities; river flow may not, however, be sufficient for canoeing. The river also has good open space value. *(Open Space)*
3. **Central Pond** and the **James V. Turner Reservoir** in the City of East Providence are protected waterbodies in an urban area. These waterbodies are suitable for non-contact recreational activities. *(Recreational)*
4. The **Ten Mile River from the Turner Reservoir to Pawtucket Avenue in East Providence** is suitable for non-contact recreational activities. *(Recreational)*
5. The **Ten Mile River from Pawtucket Avenue to Omega Pond** is suitable for non-contact recreational activities and urban open space. *(Recreational)*
6. **Omega Pond** is suitable for non-contact recreational activities and provides urban open space. In addition to providing cooling water for industrial purposes, Omega Pond is a resource for shad fishing. *(Recreational)*

03-03-14 Palmer River Watershed (HUC-10)

The Palmer River watershed is divided between Rhode Island and Massachusetts with the majority located in Massachusetts. The Runnins River, which is the main stream in the Rhode Island portion of the watershed, forms part of the state boundary. The watershed through East Providence is heavily developed, and Seekonk, Massachusetts, has undergone intensive development during the last two decades. Development patterns have a major impact on the watershed and the quality of the Runnins River. The Runnins connects to the Barrington River which empties into Hundred Acre Cove in Barrington. It is rated among the largest and most productive salt marshes in Rhode Island but has been vulnerable to closure to shellfishing due to pollution.

For decades, the Runnins River was more or less out of sight and out of mind. Little attention was paid to its condition. A price was paid for this neglect. Shellfishing was banned in Hundred Acre Cove by DEM in the spring of 1993. This era of neglect, however, ended with the organization of the Pokanoket Watershed Alliance.

Local conservation commissions, planning boards, and land trusts are also active advocates of the watershed's protection. The University of Rhode Island, Graduate Curriculum in Community Planning, conducted an award-winning study of the river. The National Park Service's River and Trails Program has provided technical assistance to bring attention to watershed values and potential. The Pokanoket Watershed Alliance has set the goal of restoring and maintaining the water quality of the Runnins River.

The stresses on the watershed are substantial. Although Barrington and East Providence are sewered communities, Rehoboth and Seekonk, Massachusetts, which are not sewered, are still being developed, resulting in increased impacts from construction and major shopping plazas. Infiltration from septic systems and runoff are continuing problems; groundwater and surface water contamination from the 800 acre Mobil Oil site in East Providence is being remediated.

Segment Classifications in the Palmer River Watershed

1. The **Runnins River** from its headwaters to the Barrington River is suitable for recreation, although flow may not be sufficient for canoeing. (*Open Space*)
2. The **Barrington River** to Hundred Acre Cove is suitable for recreation. The river also has open space value, with recognition that the watershed comprises an ecologically significant salt marsh and estuary. (*Open Space*)

03-03-15 Mount Hope Bay Watershed (HUC-12)

The Mount Hope Bay watershed is located in the eastern portion of Warren and Bristol Rhode Island, with the bulk of the watershed located in Swansea, Massachusetts. The Rhode Island portion of the watershed has salt and fresh water components; the fresh water portion of the Kickemuit River is a public drinking water supply. Priorities for the fresh water segment of the watershed include protection of the public drinking water supply, agriculture, and open space. The freshwater portions of the river are highly impacted by development and runoff from agricultural sites. The salt water areas of the watershed have recreational and scenic value. The Kickemuit River area is highly scenic and agriculturally important; agricultural best management practices are being implemented.

The Warren and Swansea areas are suburbanizing. The stresses on the watershed are: agriculture, an historical use that needs to be respected and preserved; older development and its by-products, such as landfills that have been closed; and new suburban residential and commercial development. Based on citizen monitoring, there are indications that water quality is improving as a result of local efforts.

Overall, the watershed area is highly scenic and agriculturally important. The recreational and scenic value of the farms and watershed have been recognized by the Town of Warren. The community has noted that:

"....scenic views of rural areas and vistas of its waterbodies define Warren as a Town with a dual maritime and agricultural background that has retained the sense of solitude, peace, and independence that these occupations engendered." (Town of Warren, *Recreation, Conservation, and Open Space Plan*, 1990, p. 31).

Segment Classifications in the Mount Hope Bay Watershed

1. The **Warren Reservoir** and its tributaries are a public drinking water supply. Although impacted by development, it has high habitat value. (**Water Supply**)

03-03-16 Conanicut Island (Jamestown) Watershed

Conanicut Island is actually divided into two HUC-12 watersheds, one running along the western side of the island and one running along the eastern side. The Rivers Council concluded that from a practical standpoint, the island should be treated as a single entity. The watershed is transected by two of the island's main roads, Eldred Avenue and North Road. A four-lane highway (Route 138 connecting the Jamestown and Newport Bridges) was built through the watershed, which is the source of the public drinking water supply for the Town of Jamestown. Highway runoff was diverted in conjunction with the road construction.

The watershed contains historic farms and valuable wetlands. Together these constitute an exceptional cultural and scenic resource that is actively being preserved.

Segment Classifications in the Conanicut Island Watershed

1. **North Pond Reservoir** and **South Pond Reservoir** and their associated tributaries are a public drinking water supply that are threatened by runoff from roads and agricultural sites. The area has high habitat value south of the reservoir. There is also a historic farm and agricultural area. (**Water Supply**)

03-03-17 Aquidneck Island Watershed

Technically Aquidneck Island is divided into five HUC-12 watersheds. The Rivers Council concluded that from a practical standpoint, the island should be treated as a single entity.

The Newport water supply system obtains much of its source water from the ponds and brooks of the Maidford River, Lawton Valley Reservoir, and Bailey Brook. The Bailey Brook flows to Easton Pond for storage and intake to the water treatment facility. The Maidford River and Paradise Brook flow into Nelson Pond.

The DEM has found that the entire system "is either threatened or impacted by nonpoint source pollution - namely agricultural, residential, and highway run-off" (RI DEM, *Nonpoint Source Pollution Management Plan for the Newport Surface Water Supply Watersheds*, June 1993, p.13). In southern Middletown and Newport, where development is densest, conditions adversely affecting water quality are the worst.

Aquidneck Island has historically important agricultural areas. Together, the reservoirs and agriculture constitute scenic and open space resources that contribute to the character of Newport County. The Natural Resources Conservation Service's (NRCS) Eastern Conservation District is actively promoting agricultural "best management practices" within the watershed. Saint Mary's Pond is stocked with trout, and fishing from shore is permitted.

Segment Classifications in the Aquidneck Island Watershed

1. **Lawton Valley Reservoir, Sisson Pond, and St. Mary's Pond**, closely grouped together in Middletown, are elements of the Newport water system. They have scenic value, high habitat value, and provide open space. **(Water Supply)**
2. **Bailey Brook**, which flows to **Green End Pond**, and the adjacent **Easton Pond** are drinking water supplies and have scenic and open space values. There is residential and commercial development, as well as agricultural activity in the vicinity of Green End Pond. **(Water Supply)**
3. The **Maidford River** and **Paradise Brook** flow to Nelson Pond and provide drinking water supplies although stressed by nutrients. The area is agricultural, as well as the location of the Norman Bird Sanctuary. **(Water Supply)**
4. **Nelson Pond and Gardiner Pond**, are components of the Newport water system. There is residential and commercial development, as well as agricultural activity in the vicinity of Nelson Pond. **(Water Supply)**

03-03-18 Tiverton-Little Compton Watershed

The Tiverton-Little Compton watershed is actually a composite of portions of five HUC-12 watersheds that encompasses the towns of Tiverton and Little Compton. Stafford Pond is located in Tiverton. The western and northwestern portions of the watershed are predominantly undeveloped. The eastern and northeastern shorelines of the pond have been extensively developed with residential and water-related commercial development.

According to an NRCS soil assessment, most of the area around Stafford Pond has "severe" constraints for individual sewage disposal systems (ISDS) due to wetness or slow percolation rates. Although water quality remains suitable to support its use as a public drinking water supply, the potential for contamination exists due to failed septic systems, as well as agricultural, boating, and other recreational uses.

Nonquit Pond in Tiverton and Watson Reservoir in Little Compton are connected to the Newport water supply system by a pipeline that crosses the Sakonnet Passage.

Segment Classifications in the Tiverton-Little Compton Watershed

1. **Stafford Pond** is a public water supply, with recreational open space contact uses and high habitat values on the undeveloped northwest side of the pond. There is also a dairy farm in the vicinity of the pond. It appears that Stafford Pond is less protected from degradation than any other public water supply body in the state. *(Water Supply)*
2. The ponds and brooks of the **Nonquit Pond** and **H.E. Watson Reservoir** watershed are pristine public water supplies of the Newport water system. Nonquit Pond has scenic and high habitat value. Watson Reservoir also has scenic value. *(Water Supply)*

03-03-19 Block Island Watershed (HUC-12)

Block Island's watershed is composed of a number of small ponds that are part of a sole source aquifer system. The island has high-quality habitat areas and a great deal of land dedicated to conservation. The local commitment to preserve the island's unique natural resources is strong, and preservation of water quality in the ponds contributes to meeting this objective.

Segment Classifications in the Block Island Watershed

1. **Sands Pond** and **Fresh Pond** are public drinking water supplies and high quality habitat areas. *(Water Supply)*
2. The balance of the **Island's ponds** are pristine, critical habitat areas. *(Pristine)*

PART 162-04 WATERSHED MANAGEMENT

Watershed management integrates water quality and quantity objectives with land use management. While policy development, legal enabling authority, and environmental regulatory programs are developed at the state level, planning and land regulation are done at the local government level. Advocacy, however, occurs on a watershed scale and depends on people with expertise about rivers and knowledge of and concern about conditions in local watersheds. Fortunately, such people are widespread in Rhode Island. They act both individually and collectively through local government bodies such as planning boards, conservation commissions, and water supply authorities, and through environmental organizations, recreational groups, and river and pond associations.

Through its classifications and policies, the Rivers Council provides a framework for local action by such groups. Local watershed associations are encouraged to promote effective watershed management under the Rivers Council statute. They are urged to develop watershed management plans utilizing a multi-objective management approach. Watershed management provides an opportunity for the conservation and enhancement of the natural, cultural, and recreational river resources.

04-01 AUTHORITY OF LOCAL WATERSHED ASSOCIATIONS

Local watershed associations are bodies "corporate and politic, having a distinct legal existence from both the state and any municipalities" (*Section 46-28-8, General Laws of Rhode Island*). Watershed associations or councils have public education and advocacy roles but often serve land trust functions, as well. As bodies politic, watershed councils have standing "in all state and local administrative proceedings which impact on rivers and water quality" (*Section 46-28-8, General Laws of Rhode Island*). Local watershed councils provide recommendations as necessary to city and town administrators charged with revising local comprehensive plans to maintain consistency with river policies and classifications assigned by the Rivers Council through the State Guide Plan.

Watershed associations recognized by the Rivers Council have authority to:

- advise municipalities on public access;
- establish and support river watch and watershed stewardship programs;
- negotiate payments between two or more municipalities within the watershed for projects deemed necessary by the watershed council, subject to a majority vote of each city or town council;
- acquire, hold, use, lease, sell, transfer, and dispose of property;
- own, operate, and maintain property;

- sell, lease, convey, or otherwise dispose of to any of the municipalities within the watershed any property or improvements thereto;
- sue and be sued;
- adopt and order a corporate seal;
- adopt by-laws for the management and regulation of their affairs;
- borrow money;
- fix rates and collect charges;
- contract for any lawful purpose that will promote the policies of the Rivers Council;
- enter into cooperative agreements with other cities and towns to promote the policies of the Rivers Council;
- recommend land and water conservation programs to municipalities, consistent with the rivers policies;
- apply for, contract for, and expend any federal or state advances, grants, or assistance.

04-02 DESIGNATION OF LOCAL WATERSHED COUNCILS OR ASSOCIATIONS

The Rivers Council is charged with establishing and recognizing local watershed councils, which may be existing or new organizations. The Council recognizes that watershed planning and protection will only succeed with strong support at the local level. Organizations formed to promote and protect rivers, lakes, ponds, and estuaries and their watersheds will be encouraged and supported by the Rivers Council. As 2004, the Rivers Council has recognized nine local watershed councils/associations. The watershed areas represented by these councils are depicted in Figure 164-04(1).

04-02-01 Rivers Council Criteria for Designation of Watershed Councils

The Rivers Council's goal is to have the entire state of Rhode Island under the stewardship of designated local watershed councils. To achieve this goal, the Council will entertain, review, and act upon designation requests from local groups working within any of the watershed areas identified in this plan.

The recognition of local watershed councils will be based upon the following criteria:

1. Scale: Watershed councils must agree to advocate for the entire watershed area as designated by the Rivers Council. The Council will favor designations that evidence regional considerations and economies via organization of watershed advocacy groups on as large a watershed area as feasible. In that regard:
 - The Council will designate local groups representing watershed areas as small as HUC-12, but encourages, and will favor the designation of,

watershed groups representing HUC-10 units or aggregations of adjoining HUC-12 units (and portions thereof) that promote organizational and administrative efficiency, while advancing regional cooperation and advocacy. (e.g. aggregation of units on islands)

- The Council will avoid the designation of watershed areas that are nested within (i.e. are sub-watersheds of) larger watershed areas that have a current Council designation unless the currently designated organization provides its consent to such a designation.
- The Council will designate watershed areas smaller than HUC-12 units where it determines that more effective watershed advocacy and efficient organization and management would result. (e.g. units split by state lines or separated by a large waterbody)
- The Council, with the consent with the applicant, may include portions of adjoining watershed areas beyond those cited in the application if the adjoining areas are not represented by another local council, and, in the Council's judgment, they are unlikely to be represented due to their small size, limited population, and/or geographic isolation.

2. Structure:

- Watershed councils must be incorporated or chartered and should have tax exempt status, as appropriate.
- The watershed council must include a representative from each Rhode Island municipality in the watershed area on their governing body.

3. Mission: Watershed councils are to act as advocates for the goals and policies expressed in the *Rivers Policy and Classification Plan* (and other elements of the State Guide Plan as appropriate) as well as other objectives as decided by the local council itself. At a minimum, the watershed council must:

- develop a Watershed Action Plan,
- include public education as a significant part of their organization's mission, and
- demonstrate a strategy for participation in public policy deliberations affecting the watershed.

4. Organizational Sustainability and Capacity: The Rivers Council will favor designations for those organizations that can demonstrate their ability to acquire the resources necessary to fulfill their mission. In that regard:

- Watershed councils must demonstrate their ability to raise funds
- Watershed councils must demonstrate their ability to recruit and utilize volunteers.

Figure 162-04(1)

04-02-02 Procedure for Designation of Watershed Councils

The process for designating watershed councils shall consist of the following:

1. The Rivers Council will solicit applications for designation of local watershed councils, and the solicitation shall include the designation criteria. A copy of the solicitation, with an explanatory letter, will be sent to the chief executives of the communities within the watershed. There will be a 60-day deadline for response to the solicitation.
2. Following the deadline, the Rivers Council shall have 60 days to review the applications for completeness and conformity with the criteria established in Section 04-02-01 of the Rivers Plan.
3. Once qualified, the Rivers Council shall notify the applicants, as well as the chief executives of the affected communities of the status of each request for designation.
4. In accordance with the guidelines established under the Administrative Procedures Act, the Rivers Council shall hold a public hearing on the proposed designations.
5. The Rivers Council shall adopt, by rule, a list of duly designated local watershed councils.
6. Watershed council designations shall be reviewed by the Rivers Council and renewed, if appropriate, at least once every five years.

04-02-03 Submission of Annual Reports

Once designated, watershed councils will be required to submit a brief annual report to the Rivers Council. The annual report shall include the following information:

- a) organizational status, including membership;
- b) activities of the watershed council for the year;
- c) overview of the status of the watershed, including a review of river classifications and the application of river policies;
- d) financial statement;
- e) any other material additionally requested by the Council.

APPENDIX A

RELEVANT STATE GUIDE PLAN ELEMENTS

Element 110: Goals and Policies

C. Physical Development Goals and Policies

- Policy 3-1 Consider open space requirements in terms of complete ecological systems.
- Policy 8-1 Improve the coordination of local water pollution control management plans and programs and seek regional solutions to the greatest extent possible.
- Policy 8-2 Continue the close coordination of the state's water pollution control planning activities with those concerned with water resource development and land use development.

D. Facilities and Services Goals and Policies

- Policy 2-2 Assure that those surface and groundwater sources which have been identified as good potential sources for future development receive the required degree of protection and management.

Element 121: State Land Use Policies and Plan

- Policy G-5 Use open space to control and shape urban growth.
 - Policy G-12 Limit the use of land along the coastline and shores of inland water bodies to water dependent uses or to mixed-use development in which a water dependent use is combined with other uses. Classify land uses as "water dependent" and "non-water dependent" according to their characteristics and needs for a location adjoining a water body in order to perform their basic functions.
 - Policy G-16 Encourage development patterns that protect water and other natural resources.
 - Policy R-1 Create open space systems and corridors that protect complete ecological units and provide structure and character to the built environment.
-

Policy R-9 Preserve, and where possible restore, rivers and inland water bodies and their adjacent shorelines for recreational use, wildlife habitat, water supply, and the open space corridors they provide.

Element 125: *Scituate Reservoir Watershed Management Plan*

Goals: Develop more effective means to mitigate existing water quality contamination sources.

Determine compatible land uses, densities, and development controls necessary to protect water quality from future growth.

Recommendations:

- A. Existing water quality contamination sources should be controlled.
- B. Water quality protection programs should be strengthened to make them more effective.
- C. Watershed communities should use their land use controls, and adopt more innovative land use management techniques, to accommodate future development in a way that avoids degradation of water quality.
- D. Watershed communities and the Providence Water Supply Board should purchase the most critical watershed land, using less than fee-simple alternatives whenever possible. They should also encourage the formation of land trusts. RIDOT should develop criteria for scenic easements, which could be purchased along scenic highways.
- E. Infrastructure policy should support watershed protection.

Element 131: *Cultural Heritage And Land Management Plan For The Blackstone River Valley National Heritage Corridor*

Goal: To protect the Valley's historic, cultural, and natural resources in an integrated manner.

Strategies and Actions

Environmental Conservation:

- 1. Improve the water quality of the Blackstone River.
- 2. Identify natural sites that are threatened, in need of action or assistance, and/or important to the completion or enhancement of state heritage parks.

3. Protect open space within the Corridor.
4. Support state, local, private, and individual efforts to enhance the environment.

Element 152: Ocean State Outdoors: Rhode Island's Comprehensive Outdoor Recreation Plan

Goal: Rhode Island will create a statewide network of greenspaces and greenways to serve as the central organizing element for the state's 21st century growth and physical development.

Policy: River Systems and Corridors. Rhode Island will work to preserve and restore its rivers and adjacent lands for recreation, habitat, and water supply, and will foster creation of open space systems and corridors which link existing protected lands to protect complete ecological units, provide structure to the built environment, and which provide open space and recreation opportunities near population centers.

Element 155: A Greener Path...Greenspace and Greenways for Rhode Island's Future

Policy E-3 Maximize reliance upon greenspace and greenways as natural infrastructure for non-structural solutions to water management problems, including: public water supply/demand management, water quality maintenance and restoration, and stormwater runoff and flood control.

Element 721: Water Supply Policies for Rhode Island

Supply Management

Policy S-1 Improved and more consistent protection measures for both surface and groundwater should be implemented to guard against degradation of existing and potential supply sources.

Element 722: *Water Supply Plan for Rhode Island**Supply Management*

Recommendation

7. Proceed with wellhead protection plans, incorporating consideration of land use policy, nonpoint source control, and wastewater management.

Element 731: *Rhode Island Nonpoint Source Pollution Management Plan*

Goals: Maintain a balanced approach between mitigating and preventing nonpoint source pollution in high priority watersheds and aquifers.

Continue to address statewide nonpoint source pollution problems, while placing increased emphasis on watershed-based management.

Monitor and assess water quality and land use conditions and, based on this information, develop and implement specific nonpoint source pollution management strategies in high priority watersheds and aquifers.

Restore impaired aquatic habitats, beginning with high priority watersheds.

APPENDIX B

LAND USE CLASSIFICATION SYSTEM

The Land Use Classification System, presented below, is an adaptation of the system set forth in the Scituate Reservoir Watershed Management Plan (RIDOP 1990). Where appropriate, references are made to sections of the plan that provide additional information relating to the nature and implementation of specific mitigative measures.

CLASS A - MINIMAL RISK

These land uses have minimal potential to cause surface (or groundwater) contamination problems. Thus, they are the most desirable in terms of providing protection to a surface drinking water supply.

A.1 Open Space

- Lands owned and managed by a water utility for a public drinking supply (no passive recreation).
- Publicly owned open space (forest, shrub, or abandoned field cover types) with passive recreation permitted but no permanent facilities (e.g., restrooms, bath houses, etc.).
- Privately owned and managed wildlife refuges.
- Privately owned and managed forest lands.

Mitigative Measures

1. Require land-clearing operations to comply with best management practices (BMPs) as described in the R.I. Soil Erosion and Sediment Control Handbook (RIDEM 1989).
2. Maintain undisturbed vegetated buffers, at a minimum of 100 feet, between cleared areas and any body of water.
3. Prohibit below-ground fuel storage.

CLASS B - SLIGHT RISK

These land uses are potential contamination sources, but their impacts can be mitigated if development standards are instituted. Since these uses provide substantial economic returns to landowners without posing a major risk to drinking water supplies, it would be unreasonable to prohibit these uses within the entire watershed.

B.1 Low Density Residential

- Two acres or more per dwelling unit.

Mitigative Measures

1. Require undisturbed septic system setbacks from the groundwater table and all surface waters (see section 4.2 of the Scituate Plan).
2. Require vegetated buffer strips (see section 4.2 of the Scituate Plan).
3. Establish mandatory septic system maintenance programs (see WasteWater Management Districts -- A Starting Point (RIDOP 1987)).
4. Prohibit below-ground fuel storage, and require BMPs for above-ground fuel storage (see Oil Pollution Control Regulations (RIDEM 1990b)).
5. Establish erosion and stormwater runoff controls (see section 2.2.2 of the Scituate Plan).
6. Set limits for impervious areas (no greater than 10 percent).
7. Require fertilizer/pesticide BMPs (see sections 2.2.9 and 2.2.10 of the Scituate Plan).
8. Develop educational programs on hazardous materials, septic systems, irrigation, fertilizers and pesticides. (RIDEM is a good source for brochures on these topics).

B.2 Field Crops

- Permanent pasture
- Hay crops
- Turf

B.3 Utility Rights-of-Way

B.4 Golf Courses

Mitigative Measures

1. Require BMPs for mowing, vegetative cover establishment and maintenance, fertilizing, and pesticide/herbicide use. BMPs should be developed with assistance from the USDA Natural Resources Conservation Service (NRCS), URI Cooperative Extension Program, and local Conservation Districts (see section 2.2.9 of the Scituate Plan).
2. Require vegetated buffer strips and controlled outlet basins.
3. Prohibit below-ground fuel storage, and require BMPs for above-ground fuel storage (see Oil Pollution Control Regulations (RIDEM 1990b)).

B.5 Developed Recreation

- Developed active recreation sites with permanent structures (e.g., rest rooms), including public parks and playfields, but excluding golf courses.
- Rod and gun clubs and similar uses that include sanitary facilities.

Mitigative Measures

1. Require land-clearing operations to comply with BMPs as described in the R.I. Soil Erosion and Sediment Control Handbook (RIDEM 1989).
2. Maintain undisturbed vegetated buffers, at a minimum of 100 feet, between cleared areas and any body of water.
3. Require contained pump-out, composting, or waterless toilets, where appropriate.
4. Prohibit below-ground fuel storage.

CLASS C - MODERATE RISK

The contaminants generated by these land uses are similar in nature to those in Category B. However, the density and/or intensity of use can contribute greater pollutant loadings to surface (and ground) waters. These uses will therefore require regulatory oversight and strict adherence to applicable mitigative measures to prevent contamination problems.

C.1 Agricultural Production

- Livestock - dairy, poultry, beef cattle, etc.
- Nurseries and orchards.
- Corn
- Fruit and vegetable crops.

Mitigative Measures

Develop site-specific BMPs with assistance from the NRCS and URI Cooperative Extension. Require and enforce applicable BMPs (see section 2.23 of the Scituate Plan.).

C.2 Medium Density Residential

- Between one-quarter and two acres per dwelling unit.

Mitigative Measures

Prohibit new development at this density within the watershed. Existing areas should be a high priority for septic system maintenance programs and for educational programs on hazardous materials, fertilizers, pesticides, and water conservation. Lots of record should be subject to applicable mitigative measures for low density residential development (B.1).

C.3 Low Intensity Commercial and Institutional

- Churches, government offices.
- Professional office buildings.
- Restaurants.
- Food and convenience stores with parking lots less than one acre in size.
- Other such uses that would not produce wastewater discharges or stormwater runoff at a higher level than would be expected from medium density residential development.

Mitigative Measures

The primary concerns with these uses are stormwater runoff generated from parking lots and other impervious surfaces, and large-capacity septic systems. Development standards for stormwater runoff abatement and septic system setbacks and maintenance must be complied with prior to permitting this type of development (see sections 2.2.1 and 2.2.2 of the Scituate Plan). The other mitigative measures cited for Category B.1 land uses also apply.

CLASS D - HIGH RISK

Land uses within this category can pose substantial risks to a drinking water supply due to the high density and activity levels associated with them. There is always a threat of spills, leaks, or unauthorized discharges of domestic wastewater or hazardous materials associated with these uses. For example, wastewater discharges from high schools can contain toxic chemicals from laboratories or degreasing agents from automotive and shop classes. Some of these uses (D.1) provide important community services and thus may be difficult to prohibit in the watershed.

D.1 Institutional

- Schools, colleges.
- Hospitals.
- Medical offices.
- Nursing homes.

D.2 High Density Residential

- One-quarter acre or less per dwelling unit

D.3 Commercial Uses

- Shopping centers with parking lots greater than one acre in size.
- Junk and salvage yards.
- Automobile dealers.
- Appliance repair shops.
- Motels and hotels.
- Car washes.
- Sand and gravel mining.

D.4 Light Industrial

- Any process that does not require a wastewater discharge other than domestic sewage and does not use, store, or dispose of significant quantities of hazardous materials.

Mitigative Measures

1. All of these uses should be located outside of the watershed if possible.
2. Any use that must be located within the watershed should be subjected to a site plan review process to determine the most appropriate mitigative measures. The mitigative measures listed for Category B.1 land uses should be considered as a starting point.
3. Development standards such as specific stormwater runoff controls, limits on impervious surfaces, set-backs from waterbodies, and hazardous material controls need to be established for these uses. The burden to prove that any use will not contaminate surface (or ground) waters must be the responsibility of the applicant.

CLASS E - SEVERE RISK

These uses should not be permitted in the watershed since they have the highest potential to contaminate water quality. In addition, these uses generate, store, or produce hazardous materials/wastes that can be leaked, spilled, or washed into surface (or ground) waters.

E.1 Any use that would generate a wastewater discharge other than domestic sewage

- Photo processors.
- Furniture strippers.
- Laboratories.
- Dry Cleaners.
- Laundromats.

E.2 Any use that would store, use, or process a hazardous material

- Gas stations.
- Landfills.
- Oil distributors.
- Printers.
- Fertilizer, pesticide, herbicide warehouses.
- Auto body and repair shops.
- Airports.

Mitigative Measures

1. Municipal zoning ordinances should prohibit these uses in the watershed.
2. If these uses are to be allowed, the mitigative measures recommended for Category B.1 land uses should apply as a starting point. In addition, the applicant must prove that a proposed use will not impair water quality.