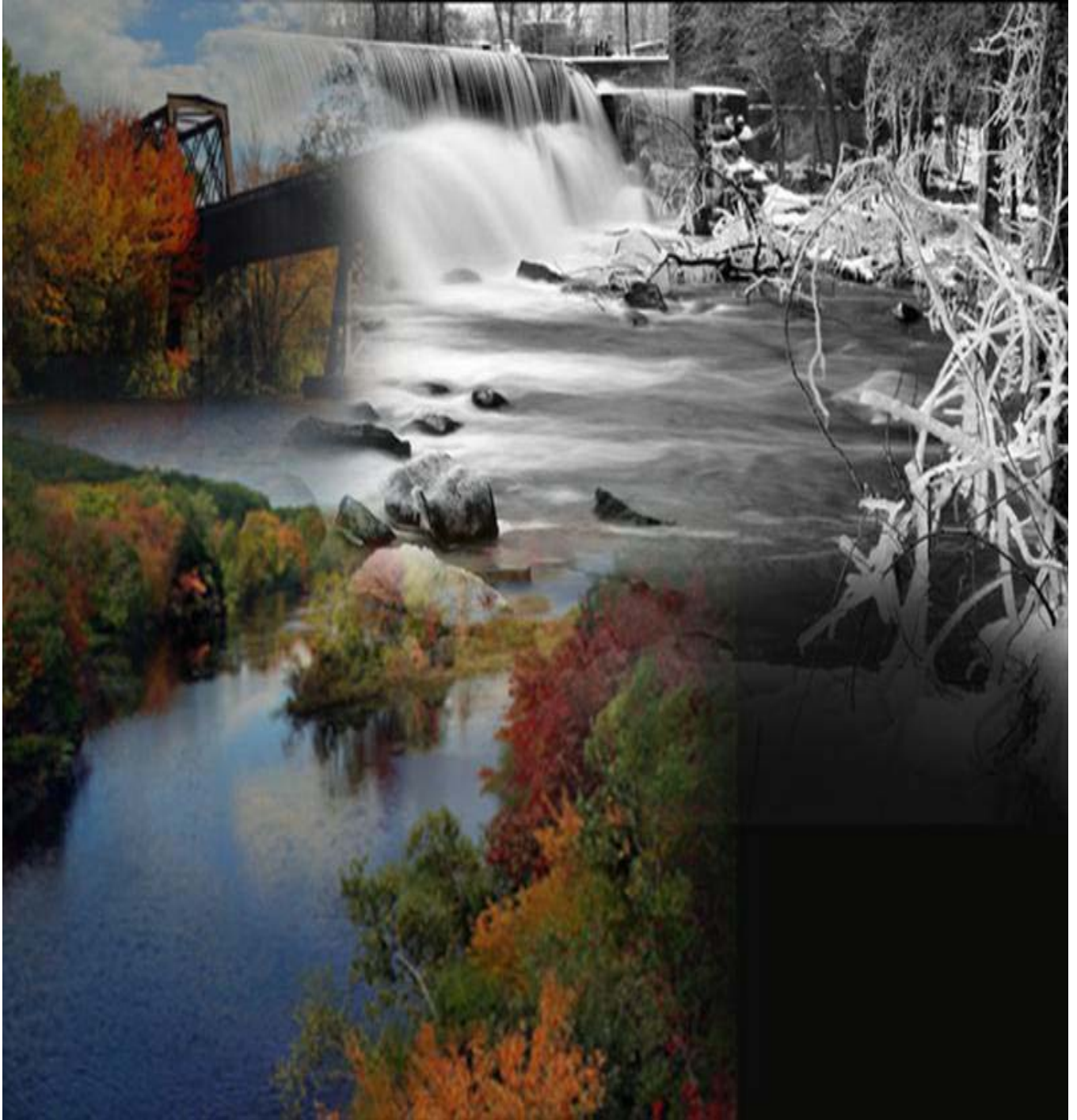


THE FRENCH RIVER BLUEWAY STUDY



Department of Landscape Architecture and Regional Planning
University of Massachusetts, Amherst
Fall 2006

The French River Blueway Study

State of Massachusetts

Prepared for

The Town of Oxford Open Space Committee,

French River Connection

BY

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The final report was edited by Vandita Mudgal and supervised by Prof. Robert Ryan.

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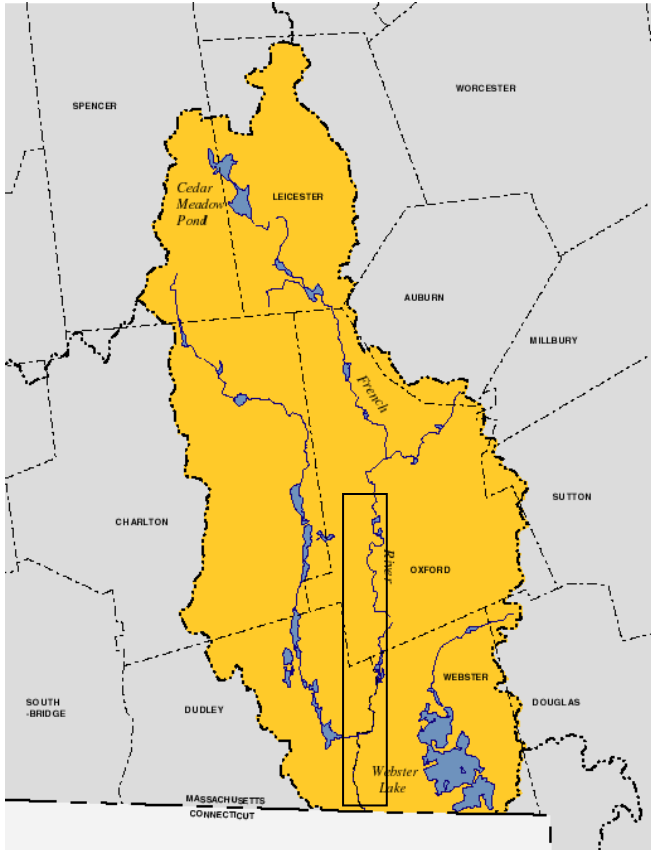
The Department of Landscape Architecture and Regional Planning at the University of Massachusetts-Amherst, in conjunction with the French River Connection and the town of Oxford, Massachusetts have produced the following report to assist in the development of a passive recreational system along a nine mile section of the French River which begins at the base of Hodges Village Dam in Oxford, Massachusetts and travels south to form the border between the towns of Webster and Dudley, to the Connecticut line. Currently, there is only one legal public access point to the river and limited visibility. There is a need for determining accessibility, location and utility for several passive recreational areas in relation to the French River. This project is an assessment for river access and connections to the regional green network. This will allow for planned recreational development of the region, while preserving the tri-towns' unique cultural and ecological resources.

The clients for the following report were the French River Connection and the Massachusetts towns of Oxford, Dudley, and Webster. This report continues from previous studies conducted by the Department of Landscape Architecture and Regional Planning at the University of Massachusetts-Amherst, the University of Connecticut's Landscape Architecture and Regional Planning Department, the Green Valley Institute and the French River Connection.

In the fall semester of 2006, the French River Connection commissioned Professor Robert Ryan of the Department of Landscape Architecture and Regional Planning at the University of Massachusetts to perform this study. The studio team attended meetings with the French River Connection and the Town of Oxford Open Space Committee and presented a first draft report in October 2006, which was distributed to the members for review. The second draft report were prepared by Robert Dizel (Regional Planner) in December, 2006. Under the direction of Prof. Robert Ryan, Vandita Mudgal has made revisions and edits as directed by the French River Connection and the town of Oxford Open Space Committees and compiled the final draft of the report.

I. INTRODUCTION

FRENCH RIVER DESCRIPTION



The French River extends 26 miles from its source in Leicester, Massachusetts to its convergence with the Quinebaug River in Thompson, Connecticut. At the point of study, the river passes through the Army Corps Hodges Village project (dry bed flood control reservoir) in Oxford, Massachusetts, and begins a long, secluded, narrow stretch. After several miles, the French River then enters a broad, wild area bordered by marshes and coves, providing significant wildlife habitat. Farther south, the river encounters the first of three historic mill dams and the historically significant Webster North Village. After leaving Oxford, the French River becomes the border of Dudley, a primarily rural and residential community, and Webster, the original American mill town founded by Samuel Slater. Here the river is channelized and bordered by industrial complexes. South of the Webster town center, the river again enters a wooded corridor, encounters the picturesque Perryville area with its

granite block dam, and exits the state. (French River Revitalization Concept 2006-
http://frenchriverconnection.homestead.com/files/French_River_Revitalization_Concepts.pdf)

The French River is within the Thames River Watershed. After joining the Quinebaug in Thompson Ct. its waters eventually reach Long Island Sound at New London. Most of the French River also lies within the Quinebaug Shetucket National Heritage Corridor. The watersheds encompass approximately 1,474 square miles of land area, 251 of which occur in Massachusetts, and include all or part of 13 Massachusetts municipalities. The region comprises the "Last Green Valley" in the stretch from Boston, Massachusetts to Washington, DC. The Quinebaug Shetucket River Valley National Heritage Corridor was initiated by the U.S. National Park Service to preserve and enhance the region's unique natural and cultural features, and to encourage appropriate and compatible economic development, such as tourism and recreation. It is the mission of the Quinebaug Shetucket Heritage Corridor, Inc. to conserve, celebrate and enhance the significant historical, cultural, natural and scenic resources of The Last Green Valley while promoting quality of life based on a strong, healthy economy compatible with the region's character.

II GOALS AND OBJECTIVES

GOALS

Goal of this study was to develop an assessment of the French River corridor that highlights key areas and issues for developing a blueway trail, and to create a blueway plan and guide that serve as a basis for future planning and marketing efforts.

OBJECTIVES

- 1) To identify issues related to planning blueways and water trails.
- 2) To identify car-top boat launch sites along the French River.
- 3) To develop conceptual plans for three access points in the tri-town area of Oxford, Webster and Dudley, based upon identified criteria.
- 4) To develop a blueway plan and guide.

METHODS

The study required a combination of research, field observations and interviews to direct the project. Information from open space plans, GIS data layers, case studies and four client meetings were used in order to guide the report. Research was conducted in the context of the area at three specific scales: regional (surrounding greenways), local (the French River Corridor) and site specific (potential car-top boat launch sites). A study of parcels and parcel owners adjacent to French River was used to identify the viability of potential areas for the access points. A set of criteria was developed to determine the potential of each site. The criteria included items such as: river adjacency, parcel configuration, pedestrian and vehicular access, ownership of land, wildlife habitat, scenic value and potential connectivity to other forms of recreation. Three car-top boat launch sites were selected based on the developed criteria and matrices. The sites were studied in greater detail, including basic conceptual site designs, and proposals were put forth for site related issues. Lastly, recommendations were made on how to further direct the project during future efforts.

The development of the blueway plan and guide required the use of other blueway plans and guides which have been developed in the area. These were presented to the client in order to gain a general idea of what they were trying to accomplish through this process. This information was utilized during the plan and guide design process.

III. PROJECT CONTEXT

QUINEBAUG - SHETUCKET NATIONAL HERITAGE CORRIDOR

The Quinebaug and Shetucket Rivers are located in northeastern Connecticut and south-central Massachusetts. The French River is a tributary of the Quinebaug. The region comprises the "Last Green Valley" in the area from Boston, Massachusetts to Washington, DC. The green fields and forests of this expanse confirm the rural character of the 1,085 square-mile area defined by the Quinebaug and Shetucket river systems and the rugged hills that surround them.

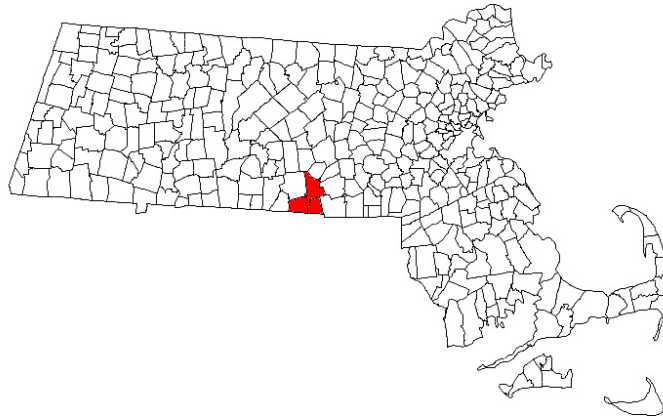
The Last Green Valley is half the size of Grand Canyon National Park and more than ten times that of Acadia, the largest national park in the northeast. Forest and farmland make up more than 70% of its 695,000 acres, yet it lies only an hour from three of New England's largest urban areas. Its 300,000 inhabitants reside only 2 1/2 hours from 25 million people. This relatively undeveloped rural island in the midst of the most urbanized region in the nation makes it a resource of local, regional, and national importance.

The great strength of the Quinebaug-Shetucket National Heritage Corridor is the richness and abundance of its resources: natural, historical, cultural and scenic. Throughout the region there are historically and architecturally significant structures and neighborhoods, National Historic Landmarks, National Historic Districts, and a plethora of state and local designations. Picturesque views are plentiful on National Scenic Byway Route 169, one of the first highways so designated in the country. The natural environment remains largely intact, valuable not only for recreational opportunities, but also as context and integrity for historical and cultural resources. Special designations include National Natural Landmark status for Pachaug Great Meadows (Pachaug State Forest), and the listing of the Quinebaug River on American Rivers Outstanding Rivers list. The area also includes more than 80 ponds and lakes with exceptional water qualities and habitats and six state forests, 16 state wildlife management areas, five state parks and more than 130 miles of trails, including the East Coast Greenway, a National Millennium Trail. The forests of The Last Green Valley provide oxygen for 8.3 million people, exceeding the needs of its population by more than 27 times. The Valley also has an abundance of clean water, including the largest aquifer in Connecticut (2,600 acres). (www.thelastgreenvalley.org, 2006)

In 1994, Congress designated the Quinebaug-Shetucket National Heritage Corridor, recognizing the region as a unique national resource. In 1999, Congress enlarged the Corridor to include towns in both Massachusetts and Connecticut, now numbering 35 in all.

FRENCH RIVER COMMUNITIES

The three French River Communities of Oxford, Webster, and Dudley are located in southern Worcester County near the Connecticut border.



Town of Dudley, Oxford and Webster
Source: Authors

OXFORD

Oxford was first settled in 1687 and was officially incorporated in 1713. Among the earliest settlers of the Oxford area were immigrants who had left France in the late 1600s to escape religious persecution. English colonists made their way here in 1713 and established a permanent settlement. In later decades, the community boasted a thriving industrial base as textile mills, including a Slater spinning mill, provided employment for a growing population. The textile industry continued into the 20th century. (CMRPC-Oxford 2006)

Oxford is often described as a bedroom community due to its location on I-395. Oxford's Main Street bisects the town, surrounding it by rocky hills. The town has a distinctive rural village character, complete with rolling hills, farm tracts and forestland. There are numerous historic properties and structures throughout the town and along the river. Residents travel to Auburn and Webster for goods and services. Recreation facilities at the US Army Corps of Engineers Buffumville and Hodges Village flood control projects are used by residents and visitors to the area. (CMRPC-Oxford 2006)

As of the census of 2000, there were 13,352 people in 5,058 households. The median income for a household in the town was \$52,233. 7.8% of the population and 5.5% of families were below the poverty line. (US Census 2000)

Among goals articulated in the town's 2006 Open Space and Recreation Plan is: "Improve access to and enjoyment of the French River and work to bring about improved water quality."

WEBSTER

Webster was first settled in 1713 and was officially incorporated on 1832, out of the surrounding communities. The primary founder was celebrated manufacturer Samuel Slater, who came to the area in 1812 and founded the mill village system, utilizing water power from the French River and Mill Brook, the outflow of Webster Lake. The industrial economy of Webster thrived for well over a century. (CMRPC-Webster 2002)

Webster is the most urbanized of the three communities, with a downtown area in need of revitalization, and many multifamily residences typical of a mill town. It is home to a number of industries as well as a large insurance company. It is also the location of Webster Lake, the largest natural freshwater lake in Massachusetts. The area around the lake includes both dense middle class residential neighborhoods and largely undeveloped tracts of land. Memorial Beach Park at the lake is home to numerous events that draw both residents and visitors from throughout the region. (CMRPC-Webster 2002)

As of the census of 2000, there were 16,415 people in 6,905 households residing in Webster. The median income for a household in the town was \$38,169. About 8.1% of families and 11.0% of the population were below the poverty line. (US Census 2000)

Among objectives listed in the town's Open Space and Recreation Plan is: "Implement the French River Greenway Plan to promote inter-town cooperation, public access, and water resource protection."

DUDLEY

Dudley was first settled in 1714 and was populous enough to be incorporated in 1731. Dudley was an agricultural community, growing hay, grains and vegetables and producing sheep and cattle. The French and Quinebaug rivers and a large number of ponds and reservoirs created in the 19th century provided ample water power for significant textile, manufacturing, and industrial development. The introduction of woolen mills made Dudley an industrial force; the town's economy was dominated by the textile industry until the 20th century. (MWC-Dudley 2003)

Modern Dudley is a rural and bedroom community with productive farms still in operation. Much of the area is rolling hills with attractive vistas. It is the only one of the three communities not located on I-395. Dudley is the home of Nichols College, a 4-year private business school, with a 200-acre campus. Dudley lacks a town center; businesses are arrayed along one street. The town has many historic assets, including unused mill buildings in good condition. (MWC-Dudley 2003)

As of the census of 2000, there were 10,036 people in 3,737 households residing in Dudley. The median income for a household in the town was \$48,602. 3.1% of families and 5.6% of the population were below the poverty line. (US Census 2000)

The Dudley Open Space and Recreation Plan does not set forth goals specifically related to the French River, but lists the river and its riparian corridor as an asset.

SURROUNDING GREENWAYS

It is also useful to consider the study area in relation to the surrounding regions. This includes not only the aforementioned Heritage Corridor, but all other New England green ways systems. By definition, greenways are open space corridors of various widths, linked together in a network in much the same way as networks of highways and railroads have been linked. The major difference is that greenways often follow natural corridors that already exist.

The current vision for New England's greenways would be linking the six states together with trail systems such as the East Coast Greenway, the Midstate Trail and the Grand Trunk Trail. See New England Greenway Vision Plan project. (www.umass.edu/greenway)

The French River Greenway was first proposed in 1990 by a committee of citizens from Webster, Oxford, and Dudley and was revisited in 2001 in a study performed by the Central Massachusetts Regional Planning Commission. The context for this greenway, and the connections it affords, are shown on the map below. This greenway is in the conceptual planning stage, and funds for further planning have been identified in the Massachusetts Community Investment Capital Program.



Adjacent Greenways

Source: www.frechrivergreenway.homestead.com/index.html

The proposed route of the French River Greenway, much of which is on a railbed, is in close proximity to the river at many points, some of which has been suggested for enhancement as parks with boat launches in *The French River Revitalization Concepts Study Report* published in

2006 by the French River Connection. Thus the greenway and blueway are complementary projects.

SUMMARY

The towns of Oxford, Webster, and Dudley, although somewhat different today, share a rich history of prosperous settlement followed by an industrial era powered by the water of the French River. All are faced with coming to terms with economic changes, population growth, and the maintenance of quality of life and preservation of a valuable natural and cultural heritage, in a time of scarce resources. Many communities in this situation have turned to their abandoned rivers, the source of previous prosperity, to find an organizing principal for revitalizing their economies and reinvigorating their communities, without sacrificing other resources that the community may have. This is an opportunity within the grasp of three French River towns, of which the development of a blueway is a straightforward and relatively inexpensive part.

IV. WATERTRAIL AND BLUEWAYS

Water trails (blueways) apply typical hiking trail concepts to waterways. They provide recreational boating opportunities along a river, lake, canal or coastline; most water trails are managed in public-private partnership with the philosophies of environmental stewardship, environmental education, and accessibility for all users. Water trails can encompass white or flat water, salt or fresh water lakes, rivers, streams, intertidal sounds, bays, or the ocean shoreline. Waterways are an integral part of the infrastructure of North America. They have been used for transportation for centuries and recreation for many generations.

A blueway is similar to a hiking trail for paddlers. Physical and geo-positioned markers guide trail users through the waterways. Written materials are available with information on water conditions, the natural environment, and points of interest. An ideal blueway also includes an abundance of scenery and wildlife as well as easy canoe access. According to officials from the Massachusetts Department of Economic Development and Tourism, blueways provide a boon to local tourism. A blueway designation is highly regarded throughout the nation as it alone attracts visiting paddlers to an area. Blueways also feature surroundings such as launch areas, nearby restaurants and businesses, sites of historic significance, hiking trails, and annual events near the water trail and parks.

Table 1: Illustrates the popularity of passive recreational water activities throughout the United States. The majority of participation occurred in a freshwater resource.

PERCENT AND NUMBER OF PEOPLE 16 YEARS AND OLDER IN THE U.S PARTICIPATING IN WATER RESOURCE-BASED OUTDOOR ACTIVITIES, 1999-2000			
Type of Activity	Participation Rate (%)	Number in Millions	Freshwater Participation Rate (%)
Canoeing	9.71	20,027,169	9.07
Kayaking	3.26	6,723,240	2.23
Rowing	4.48	9,234,883	4.08
Bird Watching	30.15	62,168,196	16.84
Wildlife Viewing	22.42	46,233,771	20.20
Viewing Scenery	37.00	76,283,314	24.76

Table 1. Source: NSRE 2000

Table 2: Indicative of the stability of water trail recreation and participation levels

TEN YEAR HISTORY OF WATER-BASED SPORT PARTICIPATION (IN MILLIONS)						
Sport	1991	1993	1995	1997	1999	2001
Kayaking/ Rafting	2.0	2.1	3.5	2.9	3.0	3.5
Canoeing	8.7	6.5	8.7	7.1	7.3	6.8

Table 2. Source: NSGA 2002

According to the National Sporting Goods Association 2001 Participation Survey, 6.8 million Americans (over 7 years of age) participated in canoeing more than once in 2000.

Water trail development can also aid local towns in achieving goals of economic diversification and improved quality of life. They are an effective approach to rural economic development and recreational access while enhancing natural and cultural qualities of a community. Since travel and tourism is one of the largest industries in many state economies, water trails are a rapidly growing element of the marine recreation and tourism industry. Innovative communities managing water trails within a dynamic local economy will be rewarded. In case studies, community trends indicate paddlers will spend between \$27 and \$63 per day. A destination paddler on a multiple day water trail trip will spend about \$88 in a community. Eating and drinking establishments, lodging and camping businesses, retail sales and recreational service industries will see direct economic impacts from water trail paddlers (Johnson 2002).

Since there are no current water trails recognized in the state of Massachusetts, creating the French River Blueway would bring attention to the resource, thus allowing preservation and enhancement to the river's unique natural and cultural features, and encourage appropriate and compatible economic development, such as tourism and recreation.

The main reasons for this analysis of water trail development in the Northeast region and Massachusetts is to summarize and compare existing water trails and develop methods that will be suitable for developing the French River Project.

For the analysis we used the eight guiding principles of water trails in North America; they provide a framework for the creation of water trails. The document that consists of eight "Guiding Principles" was developed under a cooperative agreement with the National Park Service's Rivers, Trails and Conservation Assistance program and the North American Water Trail.

According to this document there are eight successful Water trail principles that should be considered in blueway planning:

1. Partnership

Successful water trail is the result of partnerships between governmental and non-governmental structures. Partnership process involves government land managing agencies, private property owners, government regulatory agencies, user groups, and local businesses. With partnership and support, people can create and maintain a successful water trail.

2. Stewardship

The water trail is a result of locally organized stewardship system for managing and maintaining the Trail. These stewards are local groups and individuals who manage sections of the trail – working with landowners, planning routes and upgrades, installing and maintaining signs, developing portages, access points, campsites and privies.

3. Volunteerism

Mainly water trails are created and maintained by local citizens, that work individually or involving community. Community involvement through volunteerism is the key to developing trail stewardship, promoting the trail within the community, stimulating interest for the trail's natural and cultural heritage and guarantying that local governments support the trail.

4. Education

Through trail guides, maps, signage, public outreach, and informative classes, water trail organizations stimulate understanding of the natural, cultural, and historical values of the trail. Water trails are like outdoor classrooms that teach through experiencing nature.

5. Conservation

Water trail activities support the conservation of the aquatic ecosystem and neighborhood lands. Trail builders and activists are supporting resource protection and participating in resource restoration.

6. Community Vitality

A water trail is a network of recreational and educational opportunities. Hiking trails, bikeways, greenways, museums, historic sites, parks and preserves are connected by water trails creating places for exploration and experience of nature. The connections build a sense of place and bring citizens to explore the history and environment of their community. Water trails bring together families through work and experience on the trail.

6. Diversity

Water trails are open to anybody. Use of the trail is broad and benefits people of all ages and abilities.

7. Wellness and Wellbeing

Water trails bring fitness and health to trail users. Successful water trail users need reliable and good safety information and training. Education and skills training in health and safety promote the wellness and wellbeing of all water trail users. (Getchell, 2002) Using these eight principles for our analysis we want to identify the most successful water trails in New England. See Appendix D for discussion of these water trails.

Liability

The purpose of this section is not to make definitive statements about the role of liability but to identify some of the potential liability issues which may be experienced in the future. The issue of liability comes into play while considering the development of a blueway when access points are selected and designed. These access points, even if very well designed, do present the opportunity for possible injuries on the site, and when accessing the water. When considering access points the French River Connection should consider the different liability issues that come with different types of access point ownership. The site could be owned by the town, a non-profit, or a government organization such as the U.S. Fish and Wildlife Service.

Funding

The development of a blueway can be supported by many sources, including government organization, private organizations, citizen initiatives and outdoor outfitting organizations. Unlike Greenways, blueways do not require extensive funds to construct a trail and purchase lands or land easements. Blueways do, however, require funds to pay for planning activities, to purchase land to provide access for public launches, and to pay for launch construction. Blueways are eligible for a wide variety of funding sources due to the diversity of functions which they provide. These sources provide a variety of resources for the development of blueway plans. Some sources provide small grants along with technical assistance to determine goals, assess resources, and explore other planning efforts. Other sources provide direct funding for purchasing property and property easements to access the water and for the design and construction of water access sites. For funding sources please refer to Appendix C.

Maintenance

Most blueway and water trails are maintained by a combined effort of a local river organization and volunteers. Thankfully, the maintenance work related to most blueways is usually minimal. The majority of blueways reviewed were maintained by local river groups and volunteers. In the case of the French River, maintenance will consist of clearing large downed trees across the river, and the annually maintenance of boat launch sites. This type of maintenance can be handled by the French River Connection, its members and other volunteers.

Economic opportunities

Water trail development can also aid local towns in achieving goals of economic diversification and improved quality of life. Paddle trails are an effective approach to rural

economic development and recreational access while enhancing natural and cultural qualities of a community. Since travel and tourism is one of the largest industries in many state economies, water trails are a rapidly growing element of the marine recreation and tourism industry. Innovative communities managing water trails within a dynamic local economy will be rewarded. Case study community trends indicate paddlers will spend between \$27 and \$63 per day. A destination paddler on a multiple day water trail trip will spend about \$88 in a community. Eating and drinking establishments, lodging and camping businesses, retail sales and recreational service industries will see direct economic impacts from water trail paddlers (Johnson 2002).

V: FRENCH RIVER ANALYSIS AND ASSESSMENT

SITE ASSESSMENT

The process of specific site selection for the French River Blueway occurred through the application of diverse criteria at a variety of scales. The methodology of the study required examining the regional context, the specifics of the three towns and an in-depth assessment of the river corridor and the preferred sites.

The contextual assessment of the area began by evaluating the surrounding region. At a regional scale, it was important to take into consideration the adjacent greenway networks, the impact of the Quinebaug Shetucket Rivers Valley National Heritage Corridor, as well as the specific watershed. As the study moved to examining the three towns individually and as a whole, it was necessary to highlight historical, cultural and ecological characteristics. This involved the analysis of land use maps as well as environmental mapping techniques that focused on priority habitat. It is important to mention at this juncture that the majority of the French River corridor has been identified as an area of concern by the Commonwealth of Massachusetts National Heritage and Endangered Species Program. The program recognizes areas of Priority Habitat for Rare Species, Biocore Habitat, as well as certified vernal pools. Access points within these areas will most likely require undergoing an environmental permitting process. However, it will also bring awareness to the region and hopefully result in further environmental protection policies.

There are a total of eight rivers, streams, and brooks assessed in the 2001 Massachusetts DEP Assessment of the French River Watershed. These include: the French and Little Rivers; Town Meadow, Burncoat, Bartons, Wellington and Mill Brooks; and an unnamed tributary of Wellington Brook. These assessments represent 46% of the 15 named streams and approximately 93% (32.3 miles) of the estimated total of 34.6 “named” river miles in the basin. The one unnamed tributary to Wellington Brook adds another 1.5 miles to the total river length assessed by the DEP. The remaining streams are small and/or unnamed and currently not assessed.

In 2001, the DEP did not assess “secondary contact” that is, the suitability of the river for boating activities. “Aesthetics” and “Aquatic Life” were assessed as “partially supported” as a result of objectionable deposits, odor, and/or turbidity resulting from urban runoff, illegal dumping and municipal point source discharges. Below North Village Dam, the river is on the 1998 303(d) (Clean Water Act) list of impaired waters for pathogens and other habitat alterations. Nevertheless life has returned to much of the river, with healthy plant growth, fish populations, and an abundance of wildlife in the river corridor. Illegal dump sites have been cleaned and continue to be monitored. The river is undergoing a natural process in which many decades of deposits are being capped on the bottom, and a water quality monitoring program has been instituted.

The study then narrowed to analyze the specifics of the French River corridor. The analysis studied the river in relation to the proposed trail network, local roads and town amenities, which included residential and commercial clusters, historic features and the proximity of potential users. The assessment determined that only four major roads came within reasonable proximity to the river. In regard to potential users, the study focused on town centers, school locations and other public use facilities including recreational fields and Webster Lake.

This methodology assisted in the first level of analysis for site specific selection. All lands adjacent to the river were evaluated based on versatility and location to the river, transportation networks and town amenities. After eliminating sites which do not satisfy the basic criteria, a second level of analysis was applied that evaluates the intrinsic qualities and attributes of the remaining site areas. The primary criteria in this regard relates to the resource potential of each site location. The developmental potential is also considered as a secondary component of this level of analysis. The third and final level of the site selection process is the application of recreation use/management criteria to those sites that ranked highest in resource potential. This resulted in the selection of the preferred car-top boat launch sites.

The site selection process that was used in this study consisted of a process of elimination. Sites were evaluated using increasingly specific criteria to narrow the range of candidate sites. This section of the report will discuss the selection criteria, the three tiered process of evaluation and the preferred site selections.

The beginning steps in identifying appropriate car-top boat launch sites were to map all land parcels adjacent to the French River, within the towns of Oxford, Webster and Dudley. Four basic elements were used to exclude land areas that were not realistic sites. This was done through an overlay mapping technique, typically used in the land planning profession. These criteria included:

1. **River adjacency:** Only land parcels immediately fronting the river were considered, as developing a blueway was the focus of the study.
2. **River access:** The parcels chosen were required to be accessible as car-top boat launch sites; therefore the topography, water velocity, wildlife habitat and wetland restrictions had to allow for conceptual site configuration.
3. **Land ownership:** Only land that was currently town owned or available for purchase/easements were considered as feasible.
4. **Road access:** Potential parcels required proximity to existing public roads.

The application of these four factors allowed the land area being considered for the French River Blueway to be reduced to a more manageable and realistic level. For nine miles of the French River, twelve sites were identified as either potential portage or car-top boat launch sites.

POTENTIAL CAR-TOP BOAT LAUNCH SITE DESCRIPTIONS

Dudley Road Property

The first potential car-top boat launch access point along this nine mile section of the French River is at the intersection of the river and Dudley Road. The site is close to the proposed French River Greenway trail and is immediately adjacent to Dudley Road. This is a very attractive area with dense vegetation and is not impacted by the presence of a roadway. This site has a pre-existing, unofficial access point and road pull-off area which could be developed to provide a more formal parking location. The land is currently in private ownership. Since it is not feasible to develop the site for housing due to setback restrictions, there is a possibility for the town to acquire it. However, the site does lie within an area of priority habitat and would require undergoing an environmental permitting process to ensure construction.

French River Circle, Matthew Circle, Holly Circle

These three potential car-top boat launch sites have been grouped together due to their relative similarities in location, advantages and disadvantages. The three sites are all along the French River, within a large residential area. These sites would provide excellent access for the local public, as well as the neighboring residents. This area of the river also has excellent visual qualities as it is facing a large area of marshland. Although each of these sites has significant positive qualities, they are all privately owned and have no connections to the proposed greenway trail. They are also located within the largest area of priority habitat along this section of the French River.

Oxford Dog Pound

The first potential car-top boat launch access point in this lower section of the French River is the dog pound site, directly adjacent to Old Webster Road. This property is owned by the town and was previously used as the town dog pound. An existing gravel drive and parking area is already provided. There is also direct access to the proposed French River Greenway and the existing vegetation includes a beautiful pine grove. The river is immediately adjacent to the site and the water's velocity is calm. However, it will require a significant amount of grading down to the water, as the riverbank is approximately five to ten feet above the water's surface. Although the site is located directly along a road there is no visual access from the street.

Collins Cove

Collins Cove is the largest of the river's coves and is formed by a hooked landform which encloses the south end. This area has exceptional visual quality. From land, there is an excellent view across the river. While on the water, the cove is visible, as is the historic bridge immediately to the south. The proposed French River Greenway is immediately adjacent to the Collins Cove site and there is also easy access to a main roadway. Unfortunately this land is in private property, although there is discussion that it could be obtained by the town in the future. Although this is the only site not located within priority habitat, it abuts a certified wetland. This marsh does not affect the design of the access point, but may eliminate the possibility for parking and a safe entry drive from the local road.

Downtown Webster

There is one access point within proximity to downtown Webster. The site would provide excellent connection to downtown as well as a link to a proposed trail network. This area is adjacent to a property which has been proposed as a future city park. It is also near a future restaurant. Although this area could one day be revitalized, it is currently very urbanized and the visual quality needs enhancement. However, the site is within close walking distance of the historic downtown, which provides views of great cultural and historical architecture features.

Because large sections of vegetation have been cleared from the banks in this area, the character of the landscape is barren. It will take a while for the vegetation to become reestablished and visually improved. However, the topography of the site is relatively flat and the water is calm, which allows for easy river access.

Property Opposite Ethan Allen Mill

This potential access point offers an excellent connection to the river. It is owned by the town and is located opposite Ethan Allen Mill, an old industrial complex with a unique character. This car-top boat launch access point would be located among a large stand of mature oak trees which significantly adds to the character of the site. Although this is an excellent access area as far as aesthetics and access to the water are concerned, there may be an issue with the topography on the site. The site could be connected to a nearby road; however a significant amount of grading would be necessary to do so. This may adversely affect the character of the location and its existing habitat. The water level at this site is also not consistent throughout the year, thus making the site unusable during dry periods.

Ethan Allen Mill

The site located on the Ethan Allen Mill property would be a prime location for a boat launch, due to the gradual slope of the land to the waters edge, the possibility for parking areas, and the attractive forest stands and old stone walls. The site also has excellent connection to the French River Greenway. Although this access point seems excellent, there are land ownership issues. It may someday be possible for this site to be purchased by the town or donated, but this has not yet been arranged. The town could obtain an easement to

access the water. However, the Public Access Board has made it clear that they can not fund projects sited within easements. This location also deals with varying water level issues throughout the year.

Perryville Dam

There is one remaining potential car-top boat launch access point located at the southern terminus of this study area. This access point is located in a small cove, within an area that provides ecological, historical and cultural resources. It provides an excellent bird watching location and there is a historic granite stepped dam from the 1880s. The Perryville Dam site was once the location of the Dudley Woolen Mills and a granary from the 1870s is adjacent to the site. This location should be highly valued due to its historical qualities. The site also easily joins the Perryville Trail Loop to connect to the French River Greenway and the Quinebaug Trail. Although the location of the access point is on town owned land, it would be necessary to cross private land to connect to the road. This land is owned by the Webster Dudley Realty Company of Montclair, NJ and is currently in tax title. It may be obtained by the town, but this is yet to be determined.

Specific criteria

A number of specific criteria were developed to measure each site's suitability for use on the French River Blueway. The criteria were grouped into resource, development, river recreation/day use facility potential. The resource related potential related to the site's intrinsic environmental, historical and cultural character while development factors evaluated the construction potential. The river recreation/use potential provides a measure of suitability for use. It determines the type of activities feasible for the specific location. The versatility of each location should be as close to maximum as possible. The analysis is not all encompassing but provides a measure of each site's potential. A definition of each criterion is provided.

1. Resource potential

- a. *Visual quality*: scenic quality of the land area adjacent to the river as seen from the river
- b. *Topography*: elevation changes within the site and particularly the approach to the river's shore
- c. *Forest cover*: amount of wooded area within the site
- d. *Wildlife habitat*: existing habitat and species conditions and the potential to attract wildlife
- e. *Historical/cultural resource*: presence or proximity to significant historic resources
- f. *Trail connections*: proximity of trails/greenways to the site

2. Development potential

- a. *Road access*: public road access to the site
- b. *Visual access*: is the site visible from a public road





























- c. *Adjacency to other resources*: proximity to designated easements which augment views from the site
- d. *Traffic safety*: site location creates hazardous conditions for pedestrian or vehicular traffic
- e. *Developmental threats*: adjacent areas with development potential changing the scenic value





























3. River use/recreation potential













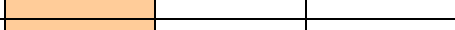
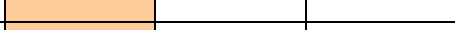










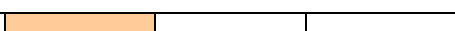



- a. *River frontage*: ease of entry and exit from the river
- b. *Canoe or kayak potential*: conducive river current, water level
- c. *Proposed greenway connections*: proximity to greenway
- d. *Diversity of use*: other activities amenable to the site
- e. *Economic potential*: additional business opportunities due to the presence of a water trail
- f. *Picnicking*: potential for this type of activity
- g. *Hiking*: potential opportunity at site
- h. *Fishing*: conducive water and river breadth at site
- i. *Biking*: bike access to and on site
- j. *Passive boating activity*: pass by site or linger in the area



































The matrix used throughout the study arrays the specific criteria in conjunction with a point/rating system. Each site's fulfillment of the criteria was rated either excellent, good or fair, resulting in a point scale of 3-1, respectively. The matrix illustrates the assessment's results with the highest rating for the Oxford dog pound, downtown Webster, and the Perryville Dam locations.

Site Specific Criteria Analysis Charts





















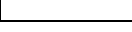




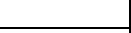









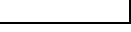




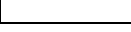
DUDLEY ROAD PROPERTY				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Private				
Total				
				30
				18
				3





















































































OXFORD DOG POUND				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Public				
Total				
				45
				9
				4

COLLINS COVE				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Private				
Total				
				27
				16
				4

PROPERTY OPPOSITE ETHAN ALLEN MILL				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Public				
Totals				
				42
				12
				2

ETHAN ALLEN MILL				
Key				
Excellent				
Good				
Fair				
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Private				
Total				
				33
				16
				3

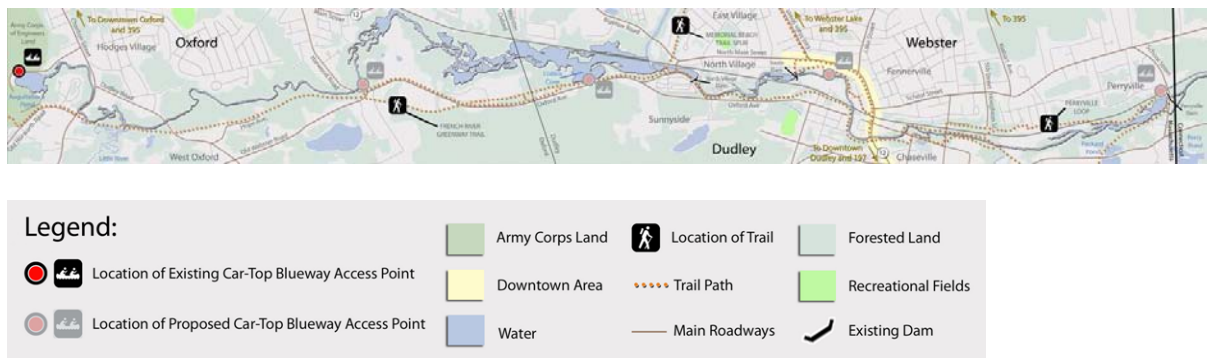
PERRYVILLE DAM				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Private and Public				
Totals				
				39
				12
				3

SOUTH DAM PORTAGE				
Key				
Excellent				3
Good				2
Fair				1
Resource Potential				
Visual Quality of River				
Topography				
Forest Cover				
Wildlife Habitat				
Historic/Cultural Resource				
Connection to Trails				
Developmental Potential				
Road Access				
Visual Access				
Adjacent to Other Resources				
Traffic Safety				
Developmental Threats				
River Recreation Potential				
River Frontage				
Canoe/Kayak Potential				
Connections to Proposed Greenway				
Diversity of Use				
Economic Potential				
Picnicking				
Hiking				
Fishing				
Biking				
Passive Boating Activity				
Ownership				
Private and Public				
Total				
				21
				22
				3

VI. PLAN RECOMMENDATIONS FOR FOCUS AREAS

INDIVIDUAL SITE SECTIONS

Before making final site selections, the entire land area, road access and river access were extensively field checked to evaluate their development potential. Meetings with the clients and a kayak trip through the nine mile study area provided further confirmation that these three locations, namely the Oxford dog pound, Downtown Webster and Perryville Dam were indeed the best properties to further explore with conceptual site designs. The sites have significant passive river recreation potential, due to the river's frontage, topography and velocity. There is also versatility within each site to further develop park areas, hiking/biking connections, fishing, educational value and parking facilities.



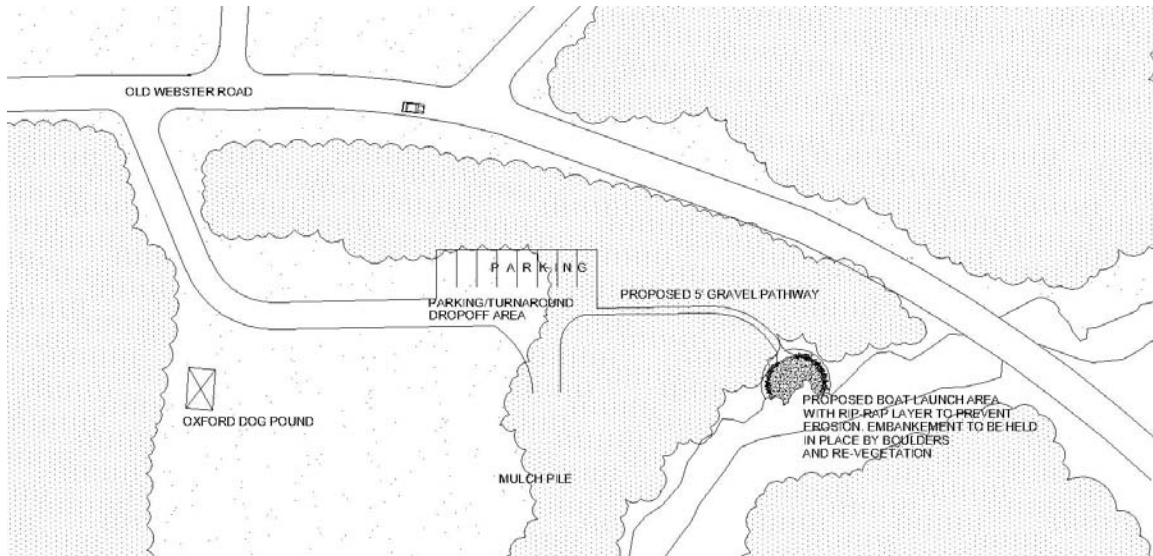
9 mile stretch of French river
Source: Authors

Oxford Dog Pound



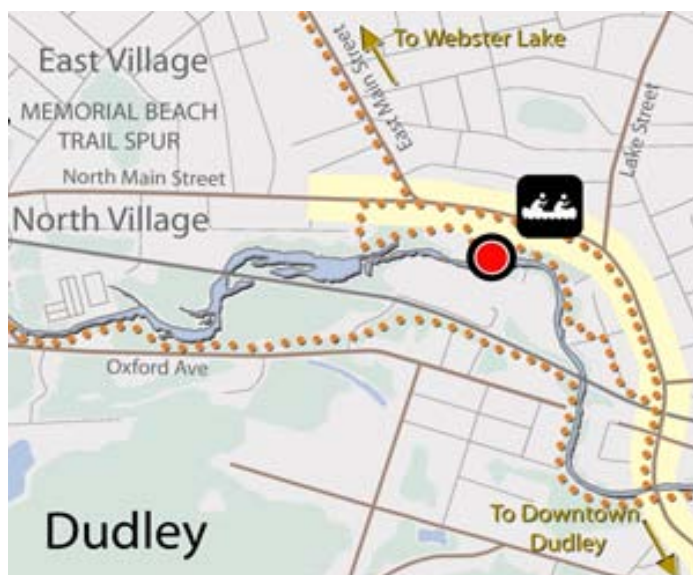
As previously stated, the Oxford dog pound is publicly owned land, and easily accessed by the local Webster Road. An existing gravel drive and parking area is already provided. There currently exists a beautiful pine grove stand. The water velocity is calm and allows for easy river access. The site's location will provide an easy paddle in a one-way section from Agutteback Pond, located north of the area. The site also is within short walking distance to the proposed French River Greenway.

In the conceptual design, the existing stand of pines provides a sound buffer for woodland park and river access areas. Preservation of existing vegetation is important to the river views and wildlife habitats. The ten car parking lot and driveway are gravel surfaces for permeability. Adjacent to the parking area is a service building and viewing deck for visitors of the French River Blueway. Potential businesses on site might be canoe and kayak rentals, a café, a general store and a shuttle service for boat rental customers or hikers as well as restrooms. On the river's shore, prefabricated concrete mats with gravel fillers were used to help mitigate erosion and do not require bank grading for installation. The existing gentle slopes of the shore provide an ease in exit and entry of the river.



Schematic layout for Oxford Dog Pound
Source: Authors

Downtown Webster



Source: Authors

The site located in downtown Webster is proposed on privately owned land that is to be donated to the town. It is adjacent to local parking and the business center of town. There is enough land acreage and existing green space to foresee the development of a local park. The topography of the site is relatively flat and the water is calm, which allows for easy river access. According to the clients, the adjacent business owners are interested in the development of the site as a car-top boat launch site and park facility. The site is within close walking distance of the historic downtown,

providing views of great cultural and historical architecture pieces. The location to nearby downtown also ensures that the site will be used often by the local public, and supports the possibility of spin-off businesses.

The conceptual design shows an urban park nestled in the heart of downtown Webster, which will attract the residents and visitors to the town. The riverside location relates to the town's industrial history and connects to the Quinebaug Trail. Next to the park's car-top access site, there is a 16 car parking lot, picnic areas and an off-site restaurant and a privately owned gym. The steeple of town hall can be seen from the park site. Expansion of the park in future years could provide a riverside commerce area for the park, emulating earlier town designs.

Perryville Dam



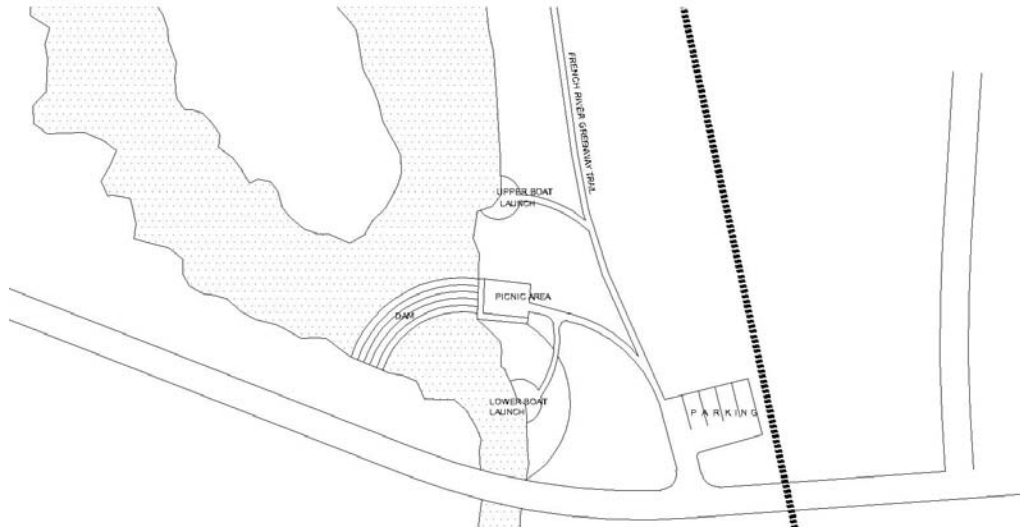
Source: Authors

The Perryville Dam site was once the location of the Dudley Woolen Mills, thus giving the site a variety of historic and cultural context. The site boasts a beautiful granite step dam dating from the 1880s, as well as several mills, houses and a granary from the 1870s. The dam is a site of ecological importance, and provides a location for bird watching. The site would encompass two land parcels. Currently, the parcel adjacent to Perryville Road is in tax title and owned by the Webster Dudley Realty Company of Montclair, NJ. The second parcel is town owned, donated to

Dudley (although the land is in the town of Webster) specifically for the use as a car-top boat

launch site. The site is located on the proposed Perryville Loop Trail, in conjunction with the proposed French River Greenway. This location would serve as a good transition to the Connecticut portion of the French River, as well as a take out point for the upstream river activity.

The conceptual design of a scenic park on Perryville Road includes a combination of car-top access, portage, scenic views, picnic areas, birding and connections to the Quinebaug Trail. The primary visual focus of this design is the historic 1880s granite step dam. An 1870s granary building adjacent to the site adds to the historic character and might be opened as a museum and gift shop. The park's access-portage point is located by existing oak trees and huge river rocks. A restaurant, canoe/kayak rental, shuttle service and parking could add to the visitor's experience at this location.



Schematic layout for Perryville Dam
Source: Authors

VII FRENCH RIVER BLUEWAY PLAN AND GUIDE

The purpose of developing a blueway plan and guide for the French River is to emphasize the importance of the region. The goal for this portion of the project was to provide a graphic which would serve a multitude of purposes. The first step was to develop a clear and understandable map with the most critical pieces of information. This map is meant to clearly show the river form, the forested spaces nearby, recreational lands, trails, major roadways, the location of downtown areas, the town and village names, names of surrounding water features, connections to major highways, the location of existing and proposed access points and location and names of dams and portage areas. This information provided the foundation for both the plan and the guide. All of this information is available as separate pieces so the French River Connection can use the produced graphics for other marketing purposes.

The second step was to develop an assessment of the river character. The basis for this assessment was developed during the first half of the semester. Working with the clients we were able to develop an assessment of each distinct section of the river. As part of this analysis we identified the various landscape characteristics in each section. This assessment can be used to form an identity for each section of the river. If the names of these areas are used, it may help reinforce a connection to specific sections of the river.

The next step was to identify important cultural, historical and natural elements. The French River Corridor is home to many significant scenic elements. Identifying and interpreting these elements for the users will help to develop a sense of place and a connection to the area. These elements include historic arched bridges, stepped dams, industrial remnants, as well as landscapes of natural aesthetic value such as marshlands, dense forested areas, and other unique landforms such as Collins Cove. This assessment represents the analysis of one group of people. It would be useful in the future to involve citizen participation in order to identify landscapes, vistas, and historic landscape elements which members of the town consider to be important. Involving citizens in this process could increase the support for the blueway plan and increase the volunteer base.

These assessments were combined to form the blueway plan and guide. The plan can be used on the French River Connection website to educate the public about the valuable asset in their backyard. It provides an assessment of the river character, as well as the location of many of the interesting elements and landscapes along the river corridor. It also hints at the wide variety of resident wildlife which resides within the river corridor.

The French River blueway guide is meant to include the elements of the blueway plan but also more practical paddling information. On one side of the guide it briefly describes the upper, middle and lower sections of the river, utilizing the river character assessment. It also highlights the main interesting aspects of each of the sections while illustrating one of the scenic views. For practical purposes it shows one way and two way paddling routes, with mileage and typical trip times. This side of the guide also includes fish species which can be expected in each section of the river, provided by the French River Connection.

The back side of the guide is dedicated to more practical paddling information, as well as a brief historical context for each of the towns through which the river flows. It

provides directions to each of the existing and proposed access points, water safety information, including a water level gauge, and link to boating safety regulations, as well as emergency contact information for each one of the towns and web links for more information. Refer to Appendix A.

VIII CONCLUSION

The blueway plan and guide should serve as a starting point for the development of the French River Blueway. The plan and guide can be used and distributed by the French River Connection to pursue grants, gain public support, increase volunteerism and, hopefully, aid in developing a lasting blueway. This nine mile section of the French River is a significant resource within the three towns of Oxford, Webster and Dudley. The French River is located within a Natural Heritage Corridor and is in an excellent location to connect to several regional greenways. The development of a blueway plan will help to increase awareness of the region and the river corridor. In each of the Towns open space plans, the French river has been identified as an underutilized resource and any effort to educate the public about its assets is a valuable process. The open space plans of each of the towns also highlight the wish of the residents to increase the recreational opportunities in the area. The French River could provide an excellent location for active recreation. Interpreting the cultural, natural and historical assets of the French river, will help increase support for both the blueway and greenway projects and will help to develop a sense of community and connection to the area.

References

America's water trails official web site. accessed on 7 December, 2006 On-line. Available from the internet at <http://americaswatertrails.org/>

Assabet River Trail official web site. accessed on 12 December, 2006 On-line. Available from the internet at: <http://www.assabriver.org/index.html>.

Commonwealth of Massachusetts Riverways Program accessed on 8 December, 2006 On-line. Available from the internet at: <http://www.mass.gov/dfwele/river/programs/index.htm>.

Cordell, Ken. 1999. *Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends*. USDA Forest Service. Sagamore Publishing. Athens, GA

Duncan, Jeff. 2001. Blueway Sourcebook

Getchell, Dave. 2002 *Keys to A Successful Water Trail*, North American Water Trails, Inc. Washington, D.C.

Getchell, Dave. 2000 *A guide to establishing and maintaining recreational waterways on fresh and salt water*. Publication of North American Water Trails Inc. Washington, D.C.

Housatonic Valley River Trail web site accessed on 11 December, 2006. On-line. Available from the internet at: <http://hvceo.org/rivertrail.php>

Loomis John, 1997, *Recreation Economic Decisions: Comparing Costs and Benefits*. Second Edition. Venture Publishing, State College, PA.

National Park Service official web site accessed on 8 December, 2006. On-line. Available from the internet at: <http://www.nps.gov/ncrc/portals/rivers/projpg/watertrails.htm#examples>

Northern Forest Canoe Trail official web site accessed on 11 December, 2006. On-line. Available from the internet at: <http://northernforestcanoetrail.org/>

Northern Forest Canoe Trail. 2004. *Fulton Chain of Lakes to Long Lake* by Northern Forest Canoe Trail Government publication; (Maine)

Settina, Nita, 2001, *Water Trails Parks and Recreation*. 36(9). P.94.

Taunton river official web site. accessed on 11 December, 2006. On-line. Available from the internet at: <http://www.tauntonriver.org/homepage.htm>

The National Sporting Goods Association official web site accessed on 7 December, 2006 On-line. Available from the internet at: <http://www.nsga.org/public/pages/index.cfm?pageid=149>

American Canoe Association. 13 October 2006 www.acanet.org.

Central Massachusetts Regional Planning Commission. 2006, *Town of Oxford, Open Space and Recreation Plan*.

Central Massachusetts Regional Planning Commission. May 1997-2002, *Town of Webster, Open Space and Recreation Plan*.

Commonwealth of Massachusetts Metropolitan District Commission. October 1998, *Upper Charles River Reservation Master Plan*.

Commonwealth of Virginia Department of Conservation and Historic Resources. March 1986, *Shenandoah River State Park Feasibility Study*.

Executive Office of Environmental Affairs (EOEA). 2001, *BioMap: Guiding Land Conservation for Biodiversity in Massachusetts*. Boston, MA.

French River Connection. September-October 2006, www.frenchriverconnection.homestead.com. Accessed.

French River Connection. December 2005, *Water Quality Monitoring Report*.

French River Connection and the University of Connecticut. April 2006, *French River Revitalization Concepts*.

Green Valley Institute. Accessed: September-October, 2006 www.thelastgreenvalley.org/gvi.

Johnson, Lindsay. September 2002 *Case Studies of Water Trail Impacts on Rural Communities*. University of Oregon.

Massachusetts Department of Environmental Management (DEM). 2002, *Commonwealth Connections: A Greenway Vision for Massachusetts*. Northampton, MA.

Massachusetts Department of Environmental Protection (MA-DEP). March 2002, *French and Quinebaug River Watersheds 2001 Water Quality Assessment Report*. No. 41/42-AC-1.

MassGIS. Accessed: September-October, 2006, www.mass.gov/mgis/massgis.

Massachusetts Watershed Coalition. October, 2003, *Town of Dudley, Open Space and Recreation Plan*.

National Park Service. Accessed: 11 October 2006 www.nps.gov/ncrc/portals/rivers/projpg/watertrails.

National Park Service. 2004 *Logical Lasting Launches, Design Guidance for Canoe and Kayak Launches*.

National Sporting Goods Association (NSGA). Accessed: 11 October, 2006, *Sports Participation*. www.nsga.org.

National Survey on Recreation and the Environment (NSRE 2000). Accessed: 11 October 2006, www.srs.fs.usda.gov/trends/nsre.

PA Department of Environmental Resources-Bureau of Resource Management, August 2003, *Schuylkill River Design Guide*.

Rails-to-Trails Conservancy. September, 1998. *A Vision for Southeast Michigan Greenways*.

Town of Dudley. Accessed: September-October, 2006 www.dudleyma.gov.

Town of Oxford. Accessed: September-October, 2006 www.town.oxford.ma.us.

Town of Webster. Accessed: September-October, 2006 www.webster-ma.gov.

University of Massachusetts Amherst Department of Landscape Architecture and Regional Planning. 2001, *A Landscape Planning Study of Webster, Massachusetts*. Amherst, MA.

University of Massachusetts Department of Landscape Architecture and Regional Planning. 2001, *Sturbridge Greenway Initiative. A Recreational Outlook*. Amherst, MA.

U.S. Census Bureau. Accessed: 28 September 2006, www.census.gov.

Appendices:

A: Guide Plan and Poster

Figure 1: Back of Blueway Guide

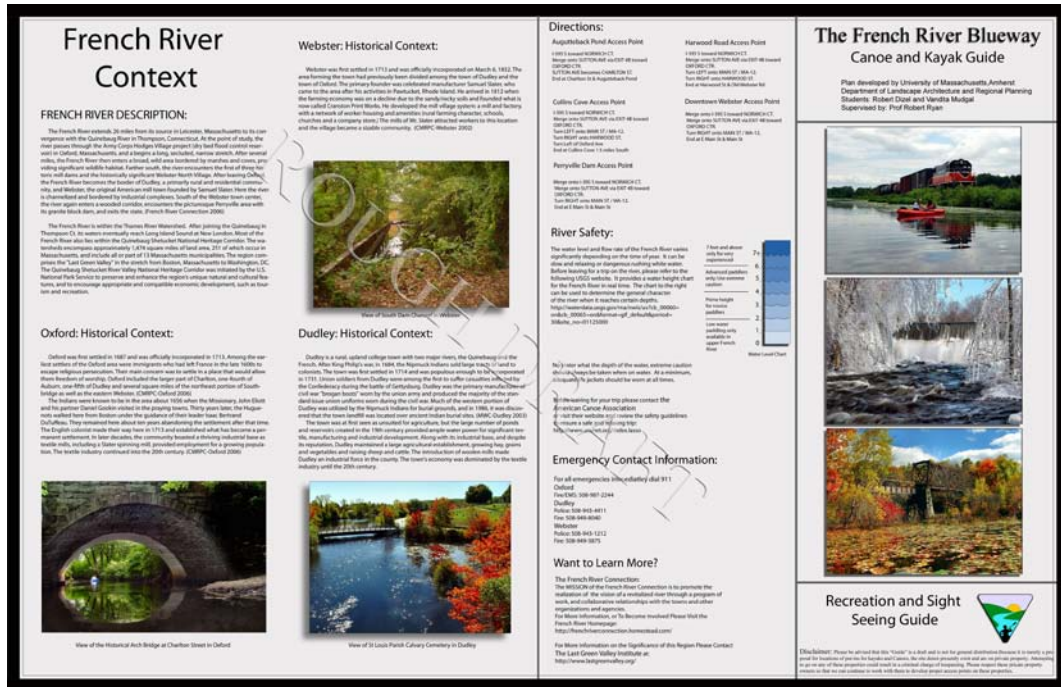


Figure 2: Front of Blueway Guide

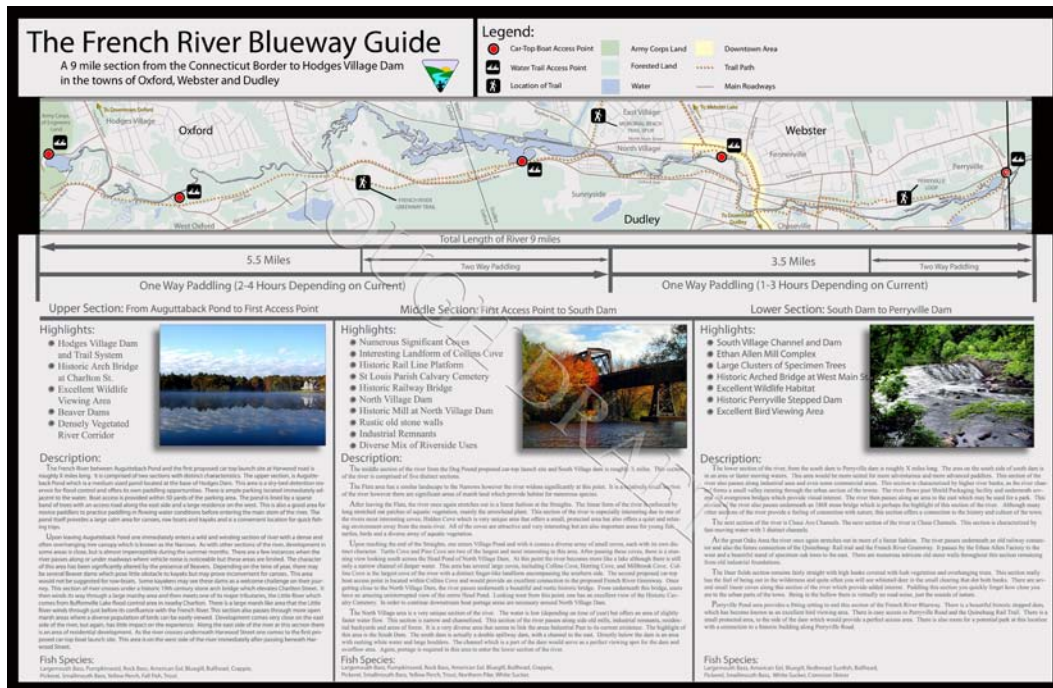
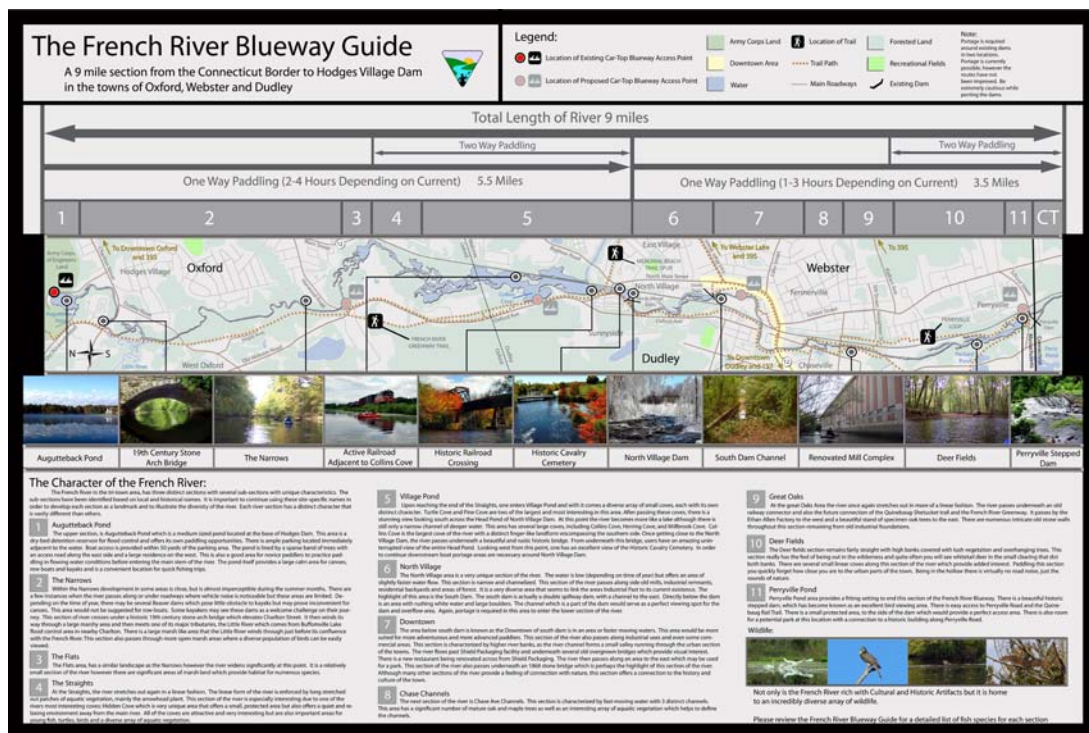
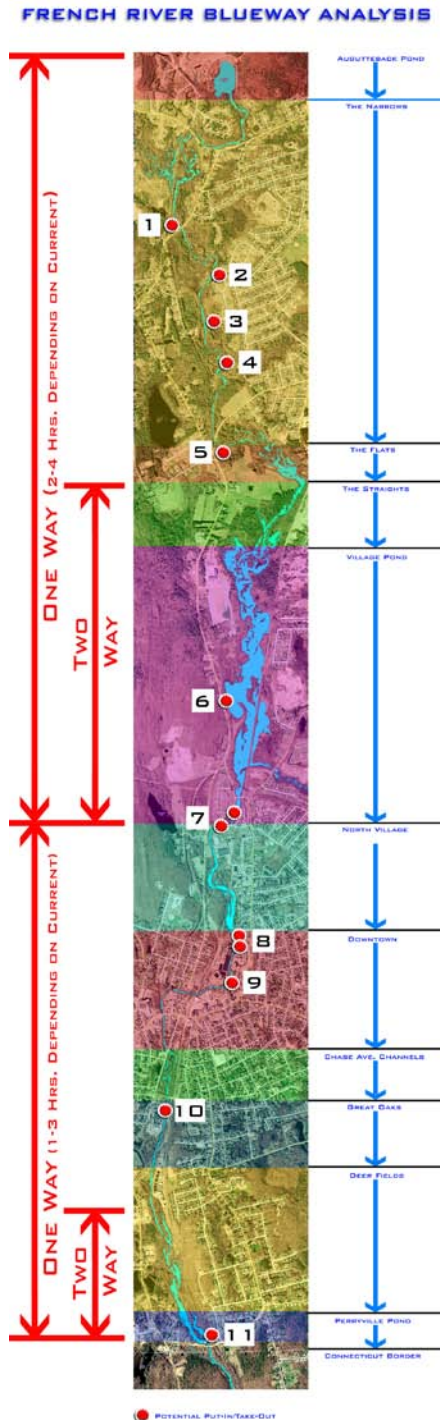


Figure 3: Blueway Plan Poster



B. FRENCH RIVER BLUEWAY CHARACTER ANALYSIS



The French River in the tri-town area has three distinct sections with several sub-sections with unique characteristics. The sub-sections have been identified based on local and historical names. It is important to continue using these site-specific names in order to develop each section as a landmark and to illustrate the diversity of the river. Each river section has a distinct character that is vastly different than others. An impressive characteristic is the sheer diversity of landscapes and ecosystems which exists in a relatively small area. The sections described in this part of the report refer to sections of the river illustrated in Figure 1.

NORTHERN SECTION (ROUGHLY 6 MILES)

Augutteback Pond

Augutteback Pond is a medium sized pond located at the base of Hodges Dam. This area is a dry-bed detention reservoir for flood control and offers its own paddling opportunities. There is ample parking located immediately adjacent to the water. Boat access is provided within 50 yards of the parking area. The pond is lined by a sparse band of trees with an access road along the east side and a large residence on the west. To the left of the residence is where the dam's trailrace enters the pond and is aesthetically pleasing with its large stone covered bottom and fast moving water. This is also a good area for novice paddlers to practice paddling in flowing water conditions before entering the main stem of the river. Behind the residence is a brook which connects to the pond and provides an additional area of interest. The pond itself provides a large calm area for canoes, row boats and kayaks and is a convenient location for quick fishing trips. The area is owned by the federal government and is maintained by the Army Corps of Engineers. The area above and around the dam provides area for hiking, biking and ATV use amid the fifteen miles of trails.

The Narrows

Upon leaving Augutteback Pond one immediately enters a wild and winding section of river with a dense and often overhanging tree canopy. As with other sections of the river, development in some areas is close, but is almost imperceptible during the summer months. There are a few instances where the river passes along or under roadways where vehicle noise is noticeable but these areas are limited. The character of this area has been significantly altered by the presence of beavers. Depending on the time of year, there may be several beaver dams which pose little obstacle to kayaks but may prove inconvenient for canoes. This area would not be suggested for row-boats. Some kayakers may see these dams as a welcome challenge on their journey. There are many large specimen trees in the area however many of them have been damaged or destroyed by the beavers. Tree fencing should take place in order to protect many of the large specimen trees. This section of river crosses under a historic 19th century stone arch bridge which elevates Charlton Street. It then winds its way through a large marshy area and then meets one of its major tributaries, the Little River, which comes from the Buffomville Lake flood control area in nearby Charlton.

At this point the proposed French River Greenway trail passes right along the French River and crosses the Little River. Although the bridge that once crossed Little River is gone, the foundation for the structure remains and offers the potential for a new and interesting bridge design. The area at the end of Little Stream has a significant amount of marsh land. There is a large marsh like area that the Little River winds through just before its confluence with the French River. This area may be a prime location for an offshoot of the French River Greenway in the form of a low impact board-walk. Adjacent to the marsh area is an old sand pit which has begun to revegetate and attract an interesting array of wildlife. This area could provide an area for wildlife viewing.

As the river crosses under Dudley Road there is an existing access point. This point provides good access to the water as well as a pull-off area from Dudley Road where parking could be placed. This section also passes through more open marsh areas where a diverse population of birds can be easily viewed. Development comes very close on the east side of the river, but again, has little impact on the experience. Along the east side of the river at this section there is an area of residential development. There is a forested section with unofficial trails leading to the water. This could be a potential access point for the neighborhood.

The Flats

The Flats area has a similar landscape as the Narrows however the river widens significantly at this point. It is a relatively small section of the river; however, there are significant areas of marsh land which provide habitat for numerous species. There is one section of land in the flats which could provide access to the river. As the river crosses under Harwood Street it passes a section of town land which was previously used as the town dog pound. There is ample area for parking and a boat access area could be designed. There is roughly a ten foot grade change to the water on the edge of the property along Harwood Street. Roughly 100 yards south down the river the grade change is limited to 3-5 feet. A boat launch area would be easier to design in this area but would be much farther from potential parking.

The Straights

After leaving the Flats, the river once again stretches out in a linear fashion. The linear form of the river is enforced by long stretched out patches of aquatic vegetation, mainly the arrowhead plant. This section of the river is especially interesting due to one of the rivers most interesting coves; Hidden Cove. This cove is relatively small and protected. Hidden Cove is a very unique area which not only offers a small, protected area but also offers a quiet and relaxing environment away from the main river. All of the coves are attractive and very interesting but are also important areas for young fish, turtles, birds and a diverse array of aquatic vegetation.

Village Pond

Upon reaching the end of the Straights, one enters Village Pond and with it comes a diverse array of small coves, each with its own distinct character. Turtle Cove and Pine Cove are two of the largest and most interesting in this area. After passing these coves, there is a stunning view looking south across the Head Pond of North Village Dam. At this point the river becomes more like a lake although there is still only a narrow channel of deeper water. The narrow channel is usually around 8-10 feet deep (depending on time of year) and the remainder is only 2-3 feet deep. Despite the limited deep area, this area has the potential to be the centerpiece of the French River Greenway. This area has several large coves, including Collins Cove, Herring Cove, and Millbrook Cove, a large isolated cove cut off from the main river by the P & W Railroad. Collins Cove is the largest cove of the river with a distinct finger-like landform encompassing the southern side. As long as water levels remain steady Collins Cove could offer an excellent water access point immediately adjacent to the French River Greenway. There is also immediate road access here and an area with the potential for parking. There is a small sliver of wetland/road drainage area that may be a concern in this area. Once getting close to the North Village Dam, the river passes underneath a beautiful and rustic historic bridge. This bridge has the potential to be refurbished and used as an excellent crossing for the French River Greenway Trail. From this bridge, users would have an amazing uninterrupted view of the entire Head Pond.

In order to continue downstream boat portage areas are necessary around North Village Dam. The east bank of the river here is not suitable because of business along the bank. One would have to carry their boats a long distance before being able to enter downstream again. Fortunately there is enough land on the west bank between the river and the road to construct portage ramps. There is potential parking across the road on a grassy section between the road and the Cavalry Cemetery's stone walls.

MIDDLE SECTION (ROUGHLY ¾ MILE)

North Village

The Industrial Heritage section of the river is the second distinct section of the river. The water is low (depending on time of year) but offers an area of slightly faster water flow. This

section is narrow and channelized. This section of the river passes along side old mills, residential backyards and areas of forest. It is a very diverse area that seems to link the area's Industrial Past to its current existence. The river passes underneath an old railroad bridge and passes by overgrown industrial remnants. These items add to the interest and character of the trip. The highlight of this area is the South Dam. The south dam is actually a double spillway dam, with a channel to the east. Directly below the dam is an area with rushing white water and large boulders. The channel which is a part of the dam would serve as an excellent access point for boats as well as a perfect viewing spot for the dam and overflow area. There is potential for a park area along the channel and a connection to nearby neighborhoods is already in place.

LOWER SECTION (ROUGHLY 2.5 MILES)

Downtown

The put-in on the south side of south dam would be in an area of faster moving waters. This area would be more suited for more adventurous and more advanced paddlers. This section of the river also passes along industrial uses and even some commercial areas. This section is characterized by higher river banks, as the river channel forms a small valley running through the urban section of the towns. The river flows past the Shield Packaging facility and underneath several old overgrown bridges which provide visual interest. There is a new restaurant being renovated across from Shield Packaging. The river then passes along an area to the east which may be used for a park. This section of the river also passes underneath an 1868 stone bridge which is perhaps the highlight of this section of the river. Although many other sections of the river provide a feeling of connection with nature, this section offers a connection to the history and culture of the town.

Chase Channels

The next section of the river is the Chase Ave Channels. This section is characterized by fast-moving water with 3 distinct channels. This area has a significant number of mature oak and maple trees as well as an interesting array of aquatic vegetation which helps to define the channels.

Great Oaks

This area of the river once again stretches out in more of a linear fashion. The river passes underneath an old railway connector and also the future connection of the Quinebaug-Shetucket trail and the French River Greenway. It passes by the Ethan Allen Factory to the west and a beautiful stand of specimen oak trees to the east. There are numerous intricate old stone walls throughout this section remaining from old industrial foundations.

Deer Fields

After passing Webster's waste treatment plant the river remains fairly straight with high banks covered with lush vegetation and hanging trees. This section really has the feel of

being out in the wilderness and quite often you will see whitetail deer in the small clearings that dot both banks. There are several small linear coves along this section of the river which provide added interest. Paddling this section you quickly forget how close you are to the urban parts of the town. Being in the hollow there is virtually no road noise, just the sounds of nature.

Perryville Pond

Perryville Dam provides a fitting setting to end this section of the French River Blueway. There is a beautiful historic stepped dam, which has become known as an excellent bird viewing area. There is easy access to Perryville Road and the Quinebaug Rail Trail. There is a small protected area, to the side of the dam which would provide a perfect access area. There is also room for a potential park at this location with a connection to a historic building along Perryville Road.

C. SOURCES OF TECHNICAL SUPPORT AND FUNDING

Government Agencies:

1. National Park Service:

Rivers and Conservation Assistance Program

Resources Provided:

- technical assistance for one year
- assistance building partnerships
- determination of goals
- assessment of resources
- development of concept plans
- engaging public participation
- identifying potential sources of funding

Does not provide direct funding

<http://www.nps.gov/rtca/>

2. Massachusetts Office of Fish and Game:

Office of Fishing and Boating Access

Resources Provided:

- Site investigations to determine feasibility of boat access sites
- Acquisition of property and easements for purpose of providing water access
- designs, constructs, manages and improves facilities statewide
- Facilities include-boat ramps, car top launch sites, parking areas and approach roads

Direct Funding provided by state bond appropriations, and federal reimbursement for some projects.

<http://www.mass.gov/dfwele/pab/index.htm>

3. Commonwealth of Massachusetts Riverways Program:

Resources Provided:

Technical support for:

- Dam removal
- Culvert replacement and retrofits
- Stream bank stabilization
- Aquatic habitat improvement
- stream day lighting

Direct Funding provided by Small Grants Program:

Seed money to promote the restoration and protection of the ecological integrity of Commonwealth's rivers.

<http://www.mass.gov/dfwele/river/programs/index.htm>

4. Massachusetts Executive Office of Energy and Environmental Affairs, Division of Conservation Services

Massachusetts Self-Help Program

Resources Provided:

- provides percentage of reimbursement for the purchase of land for conservation and passive recreation purposes.
- can provide funding for regional projects (multiple communities can combine their funding to cover a larger land purchase.)

Maximum Funding of \$250,000

5. National Park Service:

Federal Land and Water Conservation Fund

Resources Provided:

- Provides percentage of reimbursement (up to 50%) towards the cost of acquisition or improvement of recreation land, including the development of active recreation facilities.

6. Massachusetts Department of Environmental Management:

The National Recreational Trails Act

Resource Provided:

- provides funds for trail projects
- Trail construction
- Land/easement acquisition
- Handicapped accessibility
- Interpretive areas/facilities
- No limit on funds but a 50% local match is required

Maximum Funding of \$30,000

Greenways and Trails Demonstration Grant Program

Resource Provided:

- planning, research, mapping, public education, community outreach, ecological assessment, and trail construction

Maximum Funding of \$5,000

Private Organizations:

1. American Canoe Association:

Contact: <http://www.acanet.org/welcome.htm>

2. Center for Watershed Protection:

Contact: <http://www.cwp.org/>

3. Clean Water Network

Contact: <http://www.cwn.org>

4. Environmental Support Center

Contact: <http://www.envsc.org/>

5. The Grantsmanship Center

Contact: <http://www.tgci.com/>

6. River Network

Contact: <http://www.rivernetwork.org/>

7. Waterkeeper Alliance

Contact: <http://www.waterkeeper.org/>

8. America Outdoors

Contact: <http://www.americaoutdoors.org>

9. American Rivers

Contact: <http://www.amrivers.org>

10. The Conservation Fund

Contact: <http://www.conservationfund.org/>

11. The Inland Sea Society

Contact: <http://www.inlandsea.org/index.php>

12. Land Trust Alliance

Contact: <http://www.lta.org/>

13. National Water Center

Contact: <http://www.nationalwatercenter.org/>

14. North American Water Trails, Inc.

Contact: <http://www.watertrails.org>

Although this list is a good source for direct funding and technical assistance, there are many other potential contributors. It is important to remember that there are many routes to explore for funding and many of these programs will help to identify potential supporters. Many blueways, like the Northern Forest Water Trail utilize private organizations like outdoor outfitters to supplement their organization and fund cleanup and awareness activities. Corporate Contributors can be identified in the local area, and can offer significant monetary support for planning and design of a blueway, but more usually are involved in organizing fundraising events and recreational events. Outdoor outfitters such as Timberland, L.L. Bean, EMS and Thule, as well as smaller local stores, can provide these opportunities.

D. CASE STUDIES

Case studies are a useful way to review other similar projects and determine what methods are used to develop blueway trails. They present information relates to the development of blueways, highlighting how blueways have been started, funded and organized. The following case studies were selected based on various aspects. All these areas are situated in Northeast New England; they have already been implemented and are easily accessible in terms of gathering project information.

Four water trails were selected from the region in order to understand the ways in which they were developed and to analyze their characteristics. The case study water trails include the Northern Forest canoe trail, Assabet River trail, Housatonic Valley River trail and Taunton River trail. The case study is based on internet and literature research; no staff employees or volunteers connected with any of these four water trails were interviewed. We will describe the need to do interviews in future research in the conclusion of these case studies.

The Northern Forest Canoe Trail

The canoe trail is a 740-mile water trail that follows Native American travel routes from Old Forge, New York, across Vermont, Québec and New Hampshire, to Fort Kent, Maine. Water trail passes through 22 rivers and streams, 56 lakes and ponds, 3 National Wildlife Refuges and 45 towns. The Campsite Interval is usually 10-15 miles.

The Northern Forest Canoe Trail is a non-profit organization, the result of a partnership between governmental entities, non-governmental structures and local communities. The Trail received funds for its start through the National Park Service-administered federal grants. The funding base was broadened to involve state-level and foundation grants, corporate contributions, individual contributions, memberships and maps sales.

It created a locally organized stewardship system for managing and maintaining the Trail. These stewards are local groups and individuals who manage sections of the trail – working with landowners, planning routes and upgrades, installing and maintaining signs and developing portages, access points, campsites and toilets.

Local communities along the Trail get involved by assisting the development of the trail and providing volunteers. Each section of the Northern Canoe Trail has a host organization in charge of the Trail. The host organization works with local communities and volunteers who provide support for the Trail.

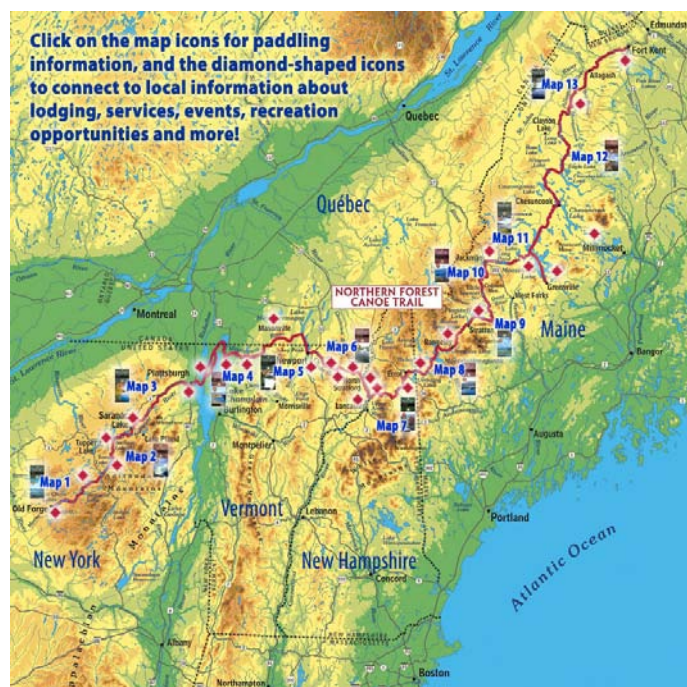
The Northern Forest Canoe Trail is involved in various projects for the restoration and conservation of the river, its branches, and for its clean, healthy conditions.

The members of a canoe club, the “Wild Women of the Wilderness” in Old Forge, NY, in July, 2006 cleaned up paddlers’ campsites along the trail on the Fulton Chain of Lakes. This year the Northern Forest Canoe Trail is selecting interns for a six week Waterway

Stewardship Internship in June and July, 2007. The organization will provide a \$1200 stipend. The interns will help to build and maintain the Northern Forest Canoe Trail, and will also have opportunities to work with professionals in the fields of natural resource management, ecotourism, recreation, outdoor education, and environmental policy.

One of the features of the Northern Forest Canoe Trail is receiving access for campsites and portages by getting landowner permission, rather than through outright land protection. Easy accessible trails flow through both developed areas and wilderness. The Trail gives the opportunity to learn and experience the human and natural heritage of the region and gives support to community-based services and local arts, education and environmental programs that educate both visitors and residents. The Trail visitors who are new to paddling or to a particular area can hire a guide or enroll in a class to learn more about paddling and skills on the trail.

The trail has a well maintained and designed web site, which provides good and necessary information for travelers about different sections, stewardship and volunteer opportunities and maps (in spring 2006, 13 maps for all trail sections were completed).



Source: Northern Forest Canoe Trail official web site.

<http://northernforestcanoetrail.org/pages/chambermapnfct.html>

Assabet River Trails

The Assabet River starts in Westborough and ends in Concord - dropping 320 feet over the course of nearly 32 miles. The watershed encloses 177 square miles and contains nine branches. Over 170,000 people live in the watershed.

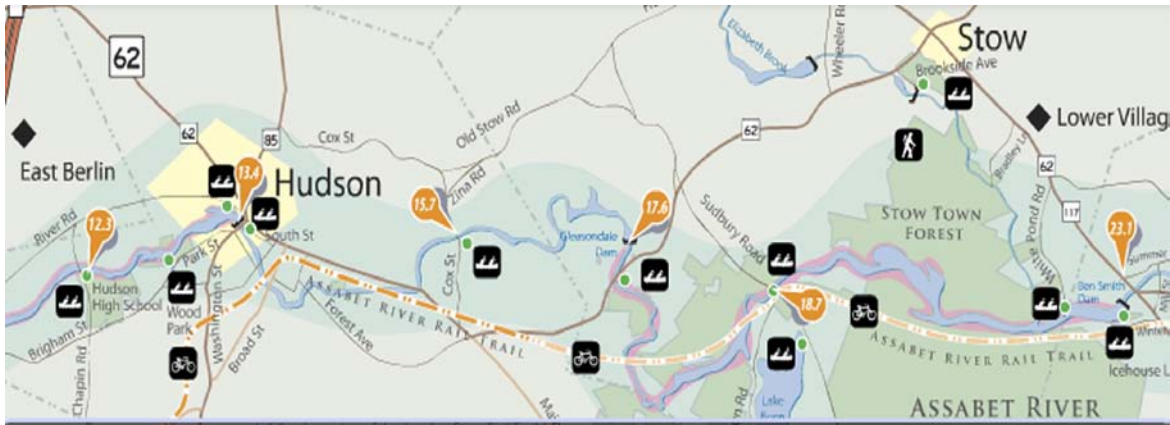
The organization for the Assabet River (OAR) was founded in 1986. The organization involves a broad range of governmental and non governmental entities, from local communities along the river to state and federal level agencies .

The organization for the Assabet River works with the six communities, state, and federal agencies, regulatory agencies and municipalities to protect the river and maintain trails. Located along the Assabet River, the local communities have a growing interest in both river conservation and river protection. We can see good examples of regional cooperation between groups of volunteers and staff from local communities, the Organization for the Assabet River and the Sudbury Valley Trustees staff. The cooperative efforts are directed towards river conservation and recreation. The Upper Assabet Riverway Plan was created in 2003 to help municipal governments, planning agencies, town volunteers and conservation organizations implement river conservation and recreation. The Plan contains chapters on the river corridor's biodiversity, recreation, health, the regulatory environment, and general recommendations. Chapters in Westborough, Northborough, Marlborough, Berlin, and Hudson provide community-specific information, including high priority lands for conservation. The Plan provides bylaw comparisons for the upper Assabet communities, a series of maps showing protected and high priority lands, and recommendations to help communities take advantage of recreational opportunities and strengthen environmental protection, thus supporting a strong conservation impact.

The Plan has already implemented one project with the communities on an Upper Assabet Habitat Survey to learn how river recreation is managed with a minimum impact on wildlife habitat.

The Organization for the Assabet River provides educational, and recreational programs which include: canoe and kayak trips, volunteer-based shoreline surveys and water quality monitoring, educational workshops, two meetings a year with featured speakers, a nutrient awareness project and summer solstice and Earthday celebrations. The Organization for the Assabet River staff and volunteers also organize discussions with invited speakers at conferences, civic organization's meetings, and schools. The Organization publishes a newsletter three times a year. The organization also implements an annual river cleanup and accepts gifts of land along the river. In 1999, the Organization for the Assabet River partnered with the Middlesex Conservation District and started to offer the watershed towns educational workshops about wastewater treatment plant technologies.

The trail visitors who are new to paddling or to a particular area can hire a guide or enroll in a class to learn more about paddling and skills on the trail. The Assabet River Trail has good interactive recreational map.



Source: Assabet River Trail

Official web site <http://www.assabetriver.org/emap/interactive.html>

Housatonic Valley River Trail

The Housatonic Valley river trail starts in Danbury, CT and goes north on the Still River through Brookfield, CT to the Housatonic River in New Milford, CT, then south on the Housatonic past Newtown to Monroe.

The situation with the Housatonic Valley river trail is complicated. While some parts of the river have sections for paddlers, these are not continuous and have limited access points. Since its beginning in 2001 the purpose of the planning process of the Housatonic Valley River Trail was to promote canoe and kayak use on the Still and Housatonic Rivers. The main effort aimed at improving water based recreation, nature education, tourism and the overall environmental experience.

Until 2005, planning development was inactive. In 2005, the Housatonic Valley Association (HVA) and Housatonic Valley Council of Elected Officials (HVCEO) got involved in developing a water trail and conservation efforts. The River Trail Management Plan was adopted in 2006 by the Housatonic Valley Council of Elected Officials. The main goal of the Housatonic Valley River Trail Management Plan was to offer coordination of the complex process of development. Also the Management Plan proposed the creation of a River Trail Advisory Committee.

There are two regional recreation features for which Housatonic Valley Council of Elected Officials play a direct role:

- Provide permanent web site hosting for the Housatonic Valley River Trail
- Annual funding for its part time River Trail Manager
- Permanent web site hosting for the River Trail Greenway.

The Housatonic Valley Association (HVA) published "A Guide to the Housatonic River Estuary, its Wildlife, History, Activities, Water Quality" that describes the river. The guide was prepared in cooperation with the Connecticut Department of Environmental Protection. The Housatonic Valley Association is helping many local groups in various projects along the river as part of the Housatonic River Belt Greenway, a program to improve public use of the river. The river conservation and protection projects are maintained mainly by the Housatonic Valley Association.

Housatonic river trail sections have Community-Based Stewardship. The Housatonic Valley paddle club brings together paddlers of all skill levels and helps them to explore existing waterways of the Housatonic Valley and surrounding areas. Members of the Paddle Club are involved with many volunteer programs.

The planned Housatonic Valley River trail will have the kayak and canoe trail and the two pedestrian Greenways parallel each other. The Greenways will also provide access for annual River Trail clean-ups and access for emergency responders to paddlers. The water trail guides and maps are still not well developed, although the existing website offers some topographic maps and has a link to the Google map.

Taunton River Trail

The Taunton River in Southeastern Massachusetts is a little known river but rich in history and environmental resources. The River provides many recreational activities from camping and canoeing to snowshoeing and bird watching. The Taunton River is situated 30 miles south from Boston and within easy reach from the cities of Taunton, Fall River and New Bedford.

The Taunton River Trail is a great place to canoe and kayak, with over 40 miles of river. Visitors can plan a trip from two to eight hours, and overnight trips of two or three days.

The Taunton River is the longest undammed coastal river in New England. The river trail has well developed and maintained put-in and take-out locations, usually next to bridges. Water quality is very good, and the surrounding environment is very wild and scenic. The Taunton River Trail provides good recreational opportunities for everyone to enjoy; the land along the Taunton River is largely undeveloped, and the drop in elevation is very small.

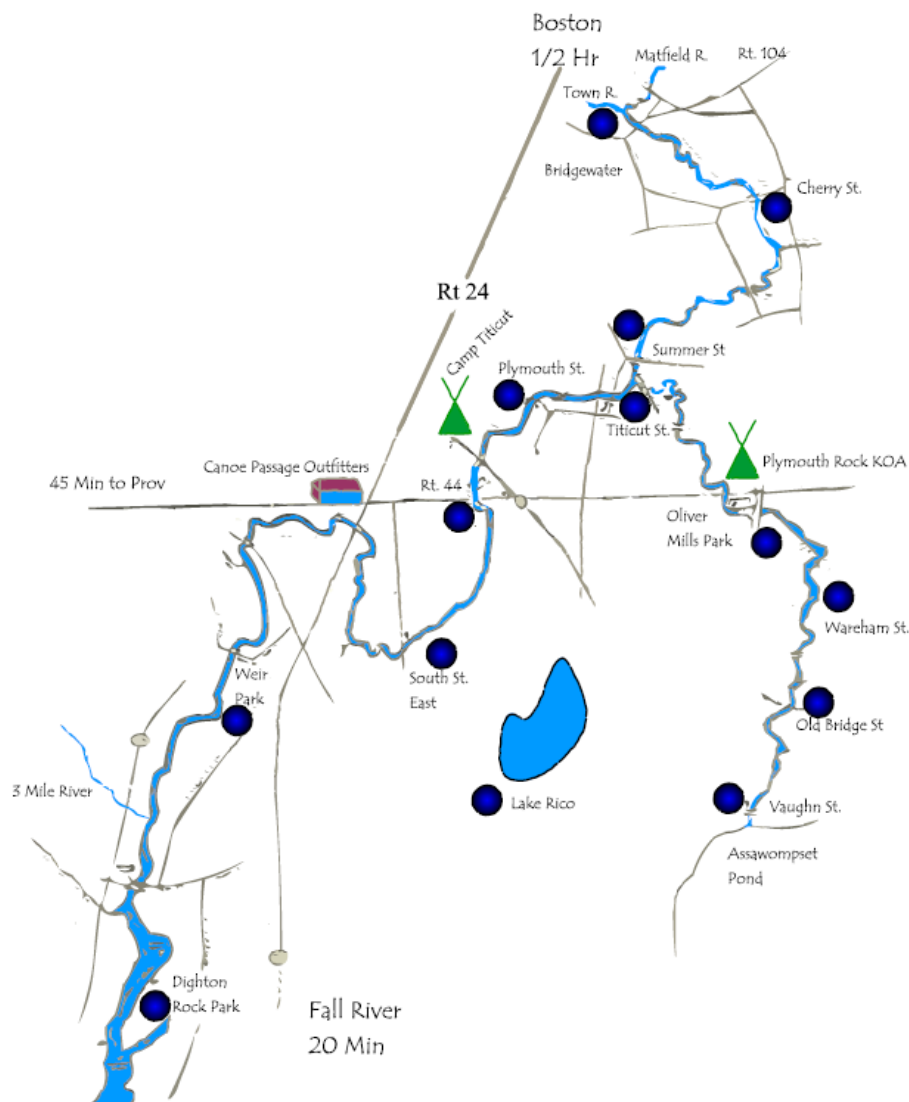
The Taunton River Trail has a historical connection to the Native American water trails. The state-named Wampanoag Commemorative Canoe Passage is the ancient Native People's waterway from Massachusetts Bay in the east, to Mount Hope and Buzzards Bays in the south Wampanucket.

The Taunton River has a Comprehensive Stewardship plan that was initiated in July, 2005. The Taunton River Stewardship Program focuses on protecting land along the upper Taunton River and its branches. The Taunton River Stewardship Program was formed in 1996. The

Stewardship Program is a collaborative and involves riverfront landowners, local citizens, business people, and community planners, elected representatives, conservation agents and land trust professionals. The Taunton River Stewardship Program works with local communities to coordinate and encourage collaborative preservation of riverfront lands and maintains river trail.

The Taunton River Trail has a well-maintained web site and good maps for paddlers. As we have not done an interview as part of the case study with staff of the trail, it's unclear from the studied materials how the organizational structure of the trail works, and we do not have examples of relevant partnerships in organizing and maintaining the trail. Also it is unclear if the Taunton River Trail is involved in river conservation and protection.

The Taunton and Nemasket Rivers



Source: Taunton river official web site
<http://www.tauntonriver.org/homepage.htm>

Summary

These case studies show us that in terms of responding to the eight guiding principles, the most successful water trail are the Assabet River Trail and the Northern Forest Canoe Trail. They were organized according to the eight guiding principles and we can see that these principles work well on a big scale with the Northern Forest Canoe Trail and on a smaller scale with Assabet River Trail.

The Housatonic Valley River Trail and Taunton River Trail respond to some of the eight guiding principles . For example, the Housatonic Valley River Trail still needs to be developed.

We can see in the reviewed examples that water trails can be a successful component of communities. Communities which manage water trails benefit from them in various ways, including improvement of river conditions and local economy, and developing stewardship. Water trails are a growing component of the river recreation and tourism industry in the region.

Water trails discussed in the case studies have implemented good web sites and paddle profiles. They also show that partnerships at regional and state levels and the local support (strong volunteer groups) have great impact on water trail development. All the reviewed trails have paddle clubs, one of the important ways in which to provide great opportunity for volunteering and learning.

The development process of water trails also involves other community-based projects that support river protection and conservation. The quality of the natural environment is an important part of a good water trail development. We can see that all organizations and local communities regularly organize river clean ups, and are involved in developing plans for wildlife protection.

The reviewed water trails serve as a network of recreational and educational opportunities. Hiking and biking trails, greenways, museums, historic sites, parks and preserves are connected by water trails. Trail organizations use comprehensive trail guides, signage, and public outreach to encourage awareness of the natural, cultural, and historical attributes of the trail.

The case studies show that water trails strengthen the link between residents and the natural environment through direct interaction and education. The result of this is evident in volunteer support of water trails. The water trails effectively provide recreational opportunities; promote access to the water and develop stewardship.

Recommendations from what we learned

Outreach :

1. A dedicated group of volunteers is key to water trail success. Dedicated local support for a goal-oriented project will sustain local water trail benefits.
2. Early outreach to the community is the important part of the project. It will allow community members to see the proposed blueway for themselves.
3. Good partnership opportunities and possibilities for grants and offers of assistance. Successful water trails are the result of a cooperative effort between local officials, government agencies, businesses and active citizen groups.
4. Good access to parking at river put-ins, clear maps. Information and access are two big issues to improve trail system usage. River experience, the exploration of natural environment and uncrowded conditions are important to paddlers.

Planning:

Clear planning, leadership and goals.

Publicity:

1. Host events to advertise the trail, build support and bring new volunteers. Important events such as water trail grand openings and annual paddling festivals provide an excellent opportunity to make contact with the community, present current information and generate positive attention.
2. Label and clearly sign legal access points and public land at possible intervals.
3. The history of the waterway and history and environment of the communities along the trail are a good way to promote trails and interpret these stories to paddlers in creative ways.

Activity:

It is important to offer a variety of accessible activities. Paddlers are often interested in easy access to downtown, restaurants, campgrounds and bed and breakfasts, in other outdoor recreation experiences and learning about local history and culture. Successful paddle destinations offer diverse activities with a wide variety of opportunities.