North River Forest and Watershed Awareness

June 2006

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With
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Cities of Peabody and Salem
and
Massachusetts Department of Conservation and Recreation
Urban and Community Forestry Program
North River Forest and Watershed Awareness

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Urban and Community Forestry Program

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1 Summary

In 2006, Salem Sound Coastwatch received an Urban and Community Forestry Grant to

- communicate the importance of trees and forests for healthy watersheds to decision-makers in Peabody and Salem,
- encourage the Peabody and Salem communities to engage in forest protection, restoration, and stewardship especially around the North River and its tributaries, and
- improve Salem Sound watershed health through community forest stewardship.

This document describes the results of these efforts as well as providing information regarding water resources, potential priority areas, and education and outreach. The Stream Team Action Plan outlines steps to protect water resources, making the connection between activities on the land and water quality clear to the community. Appendices provide context and more detail that helped generate the Action Plan. References are also provided for further information.

Thirty years after the passage of the Clean Air and Water Acts, the EPA estimates that 40% of America's waters still fail to meet federal clean water standards. More than 75% of Americans live within 10 miles of a polluted waterway. More than 130 million Americans continue to breathe dirty, unhealthy air. Current initiatives threaten to weaken the protections established decades ago. The ability for trees, shrubs, other plants, and soil to help clean our water and air are well known by scientists and others working in the field of environmental protection. These connections are less understood by many citizens, particularly in highly urbanized areas.

Concerns with open space and water resource protection are shared by both Peabody and Salem as evidenced in their Master Plans and Open Space and Recreation Plans. These two areas are complimentary yet are threatened by heavy development pressures. Land acquisition and restoration efforts to increase recharge that has been lessened through increased impervious surfaces and the building of city sewers should be top priorities.
2 Introduction

2.1 Statement of Purpose

This project serves the citizens of Peabody and Salem, a diverse mix of people, cultures, and community character, both containing environmental justice populations. It builds on previous work done under a DCR grant received in 2005 to complete a Salem Sound Watershed analysis. This project identified potential priority areas for stormwater management, conservation, and restoration and laid the groundwork for forest stewardship in the watershed.

The populations of Peabody and Salem are similar at approximately 48,000 and 40,000 respectively. They are projected to grow to populations of 55,000 and 45,500 by 2030. The pressures of population growth and development will increase water demand as well as increasing threats to the air and water quality. Protecting key parcels and working to use low impact development techniques to protect and restore the natural resources of Peabody and Salem should be key components of the Cities’ open space and master planning efforts.

Both cities are a mix of longtime and new residents as well as being home to many businesses. Environmental education and awareness in these communities must continue to expand with open communication among the citizens and leaders. This project lays the groundwork for long-term protection and management of community trees and forests for more livable communities through expanding public outreach and building communication between municipal officials and the citizens of each city.

2.2 Process and Public Participation

Salem Sound Coastwatch (SSCW) provided information gathered during the mapping project completed under a previous grant as well as the results of an Adopt-A-Stream Project for the North River and Peabody Tributaries.

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1 U.S. Bureau of the Census, 2000
2 Metropolitan Area Planning Council, 2006
completed in 1998. Massachusetts Riverways assisted SSCW in training and conducting two meetings to assist in community education and generating involvement through the re-establishment of Stream Teams for the North River and its tributaries. Graduate students from the Tufts University Department of Urban and Environmental Policy and Planning presented their research and prepared the document: "Nurturing the Recovery of the North River: A Practical Vision". Whitney Associates assisted with evaluating potential priority areas, coordination and advocacy, events held during the course of this project and writing this final report. The project team also included the following members:

Adam Serafin, Peabody City Planner
Blair Haney, Peabody City Planner
Brendan Callahan, Peabody Conservation Agent
Frank Taormina, Salem Staff Planner/Conservation Agent

All of the deliverables for this project were completed and included:

- Grant Receipt Announcement: Notified all Key Cooperators and built awareness of project through local newspapers and Salem Sound Coastwatch’s newsletter and website.
- Purchased a new computer and upgraded GIS software.
- Evaluation of Potential Priority Areas in the North River system: Surveyed the areas designated by the watershed analysis to determine the potential for conservation or restoration projects.
- Coordination and Advocacy: Worked with local boards, commissions, municipal officials, and other community groups to advocate for implementation of tree and forest protection, restoration and/or remediation projects, provide technical assistance, and grant writing support where possible.
- Education and Restoration Event Planning: Hired a North River coordinator and planned events with key stakeholders, including community groups and volunteers. Sought donations of trees for spring planting by the community.
- Produce Educational Materials: Worked with graphic designer to develop and print brochure and advertisements for upcoming events.
- Develop Educational Programs: Worked with municipalities and community groups, as well as volunteers, to develop educational programs for North River Awareness Week.
- Promote North River Awareness Week: Placed advertisements in local newspapers and sent press release to Salem Evening News, Salem Gazette,
Peabody Weekly News, and other local papers. Distributed flyers to schools, libraries, YMCAs, community centers, etc.

- North River Awareness Week!: Conducted events throughout the week
- Community Watershed Walks: Continued to have walks and engage the public and local officials throughout May and June.
- Wrote Final Report.

Many of the actions in this report were first identified in the Shoreline Surveys that were done in 1998. Some 1998 actions have since been addressed and the stream conditions in general were good. There is still much to do in coordination of planning between Peabody and Salem, as well as in generating more interest and involvement from the residents of Peabody.
3 Natural Resources

Summary Peabody and Salem lie within the watershed of the North River Basin, a subwatershed of Salem Sound. Surface water from 4 named streams flows into the North River which then joins the Danvers River before entering the Sound.

3.1 Surficial Hydrology

3.1.1 Watershed

Peabody and Salem are located within the North River Basin, which flows into the Danvers River before emptying into Salem Sound. SSCW’s vision for Salem Sound includes environmental health as well as re-establishing the connection between the people who live there and the natural resources and beauty of the streams and harbors.

The history of the streams in the North River watershed has been one of industrial use that caused environmental degradation and a relationship with the water resources based on using them as a conduit to flush pollutants and waste out to sea. The cities turned their backs on this dirty water, channelizing and burying it to cover up and speed the flow away from their residents and businesses. SSCW GIS analysis performed under a DCR grant received in 2005 determined the percent impervious surface in Peabody to be 44 while the percent forested was 16.9 comprised of 1,708.6 acres. Salem had 47.2 percent impervious surface while the percent forested was 15 comprised of 1,632.6 acres. Impervious surface coverage is a measurable indicator of stream and overall watershed health. Coverage that exceeds 10 to 15 percent can stress streams impairing ecosystem health and biodiversity.

At its Annual Meeting in 2004, SSCW said its “Top 5 Tasks” for Salem Sound Watershed were to:

- increase efforts to reduce contaminated stormwater discharge,
- increase protection of local coastal habitat,
- detect and quantify marine invasive species in local waters,
- promote environmental literacy and watershed awareness, and
- help empower the region’s municipalities to implement effective solutions.
Realizing the connections between land use and the issues of water quality, habitat protection, and invasive species requires some environmental literacy and watershed awareness. Coordination and cooperation between municipalities that are making land use decisions within their political boundaries is also necessary to support a healthy connection between land use, water, and habitats. Urban and community forests are key constituents of this network of land, water and people. Therefore it is important to identify where they exist and the opportunities for restoration along the North River and its tributaries.

3.1.2 Proctor Brook
Proctor Brook flows through a mix of residential and commercial land use from the Rt. 1/I 95 interchange in Peabody along the southern side of Lowell Street crossing to the north side of Lowell Street just before Interchange 26 on Rt. 128 and then disappearing underground just before it reaches Peabody Square. It flows along a continuum from natural shoreline with adjacent vernal pools, through wetlands, to channelized embankments and underground culverts as it reaches the more densely developed area of the downtown Peabody.

3.1.3 Goldthwaite Brook
Goldthwaite Brook flows from a pumping station on Lynnfield Road through residential, commercial, and industrial land uses before it too becomes channelized and seems to disappear underground at Foster Street as it heads towards Peabody Square. Most of its shoreline is developed either flowing through people's backyards, beside parking lots, through the Eastman Gelatine site, and commercial properties that line up along Lynnfield and Washington Streets. There is a large wetland along this route between Summit Street and Allens Lane.

3.1.4 Tapley Brook
Tapley Brook flows from a pumping station at Spring Pond through Cedar Grove Cemetery and into a wetland before reaching Sidneys Pond and then continuing in a channel and culvert crossing under Washington Street into the wetland between Summit Street and Allens Lane. Most of its shoreline is natural with a small section flowing through people's backyards.

3.1.5 Strongwater Brook
Strongwater Brook is the only tributary of the North River that begins in Salem before entering Peabody where it is also channelized and culverted underground as it nears the densely developed area of Peabody Square. Before that, however, most of its reach is currently open space as it flows north from land around Peabody Reservoir and through the Municipal Golf Course and wetlands adjacent to the ball field of the Welch School.
3.1.6 North River

The North River seems to appear out of nowhere below an abandoned commercial building on Wallis Street near the Post Office in Peabody. It passes through empty lots and behind commercial properties along a rail line used once weekly belonging to Guilford Rail. The most natural area of the North River can be found along Harmony Grove Road between the Harmony Grove Cemetery and the large parking lot of Stop & Shop. The river becomes tidal at the Peabody/Salem line and Rainbow Smelt (*Osmorus mordax*) have spawned in this reach since 2001. The North River, like its tributaries, is then channelized the rest of its way until crossing under Rt. 114 where it widens into its mouth and then joins the Danvers River.

3.1.7 Wetlands

As development encroaches on wetlands as buildable lots become scarce, the cities of Peabody and Salem will face increasing pressures to grant permits and variances. Initially the costs of doing so may not be quantifiable in economic terms. Over the long term, however, they will be manifested in higher water and health costs as the natural systems that provide the benefits of clean water and a healthy environment are given over to development.

Wetlands are defined by the fact that water determines the nature of their soil, plant, and animal communities. These communities are adapted for life in saturated soil conditions. Types of wetlands in New England include wet meadows, bogs, fens, scrub-shrub, forested (hardwood or coniferous), and marshes (tidal, non-tidal, and saltwater or freshwater).

Each of the North Rivers tributaries flows through wetlands and some scattered ponds. Historic maps show that the wetlands, streams, and rivers in Peabody and Salem were once larger and entirely connected.
Wetlands are important because they:

- act as natural filtration systems for clean water and air;
- are a rich habitat and nursery for many species including migrating song birds, fish, and water loving plants;
- provide scenic areas for us to enjoy; and
- provide flood storage.

Wetlands play a critical role in the health of the environment and ultimately in our own health.
3.1.8 Rare and Endangered Species

The observations of Rare Species are based on records maintained by the Massachusetts Natural Heritage and Endangered Species Program (NHESP).

There are a number of listed rare, threatened or endangered species in Peabody and Salem. The Eastern Box Turtle (*Terrapene carolina*) was found in Peabody in 1995. In 2002, the Blue Spotted and Four-toed Salamanders (*Ambystoma laterale*, *Hemidactylium scutatum*) were both reported to the NHESP.

The most recent observations of rare and endangered species in Salem were the American and Least Bitterns (*Botaurus lentiginosus*, *Ixobrychus exilis*) in 1990 and the Common Tern (*Sternula hirundo*) and Spotted Turtle (*Clemmys guttata*) in 2001. The Wood Turtle (*Clemmys insculpta*) was last observed in Salem in 1858. Three vernal pools have been certified in Salem and thirteen in Peabody.

The Massachusetts Division of Marine Fisheries is concerned with protection and enhancement of the state’s marine fisheries resources. They have made observations of American Eel (*Anguilla rostrata*) and Rainbow Smelt (*Osmerus mordax*) in the North River. A multi-year project to restore a healthy population of Rainbow Smelt is being conducted in the North River as a model for statewide restoration of other anadromous fish runs.
4 Protection and Restoration

Summary  Peabody and Salem’s growth patterns throughout are consistent with mature urban/suburban communities. Although population growth is projected to slow in coming years, the desire for additional development to boost the cities’ economies will further strain what’s left of the natural resources if they are not protected.

4.1 Potential Priority Areas

4.1.1 Proctor Brook
City-owned parcels along Lowell Street between Raylan Ave. and Downing Road subdivisions. The plans for a rail trail bike path here should be revised to reflect new Mass Highway Design Guidelines for natural areas. The current plan calls for 10-foot wide asphalt with 2-foot wide gravel shoulders. There is also some city-owned land near a substation adjacent to Warren Street that could present opportunities for reforestation and flood storage.

4.1.2 Goldthwaite Brook
City-owned parcels near the pumping station off of Lynnfield and off of Allens Lane at the Higgens Middle School. It may be possible to work with the Eastman Gelatine-owned parcel. There is also potential to turn Peabody’s Riverwalk into more of a greenway with a more environmentally-friendly design than the one specified in the plan and evidenced at Foster Street.

4.1.3 Tapley Brook
Land near the Spring Pond Pumping Station, Cedar Grove Cemetery, and adjacent land (not owned by the city). A developer’s plan for 30 units uphill from the pumping station could negatively affect the quality of this resource.

4.1.4 Strongwater Brook
Land around Peabody Reservoir (in Salem), the Meadows Municipal Golf Course and the Welch School (in Peabody). The Welch School is a small parcel but near where the Strongwater disappears underground, there could be an opportunity for wetlands restoration, education and outreach.
4.1.5 North River

Vacant lots near where the river emerges from underground, off Wallis Street, entire Guilford Rail corridor, Azorian Brotherhood parcel, Leslie’s Retreat Park, Mass Highway project with proposed bike path to commuter rail station, and Furlong Park. Along this reach, several schools also offer opportunities for education and outreach (Witchcraft, Endicott, St. Joseph’s, and Carlton).

4.1.6 Flood Plains

Flood Insurance Rate Maps (FIRM) for Peabody and Salem show flood elevation boundaries (see Appendix A). Hundred-year-flood zones are Special Flood Hazard Areas (SFHA), with a 1% annual chance of flooding. Most of the land area extending from the mouth of the North River into Peabody Square is at sea level.

There have been several floods of varying damage in Peabody and Salem over the years. In the spring of 2004 Essex, Middlesex, Norfolk, Suffolk, and Worcester counties were all declared federal disaster areas due to flooding. In May 2006 there was another disastrous flood. Many communities suffered damage, including Peabody and Salem as the tributaries and rivers severely overflowed their banks.

Knowing the extent of the flood plain is important for reconciling land-use decisions with natural processes. Federal law requires flood insurance for all structures located in SFHAs that carry a mortgage loan backed by a federally regulated lender or servicer. Structures in SFHA’s have a 26% chance of suffering flood damage during the term of a 30-year mortgage. A community can reduce insurance rates through the National Flood Insurance Program’s Community Rating System which provides credits of up to 45% based on certain activities such as preserving open space and relocation.

In addition to clogging rivers and reducing scenic and recreation values, sediments from erosion and trash from illegal dumping exacerbate flooding
and can contaminate water with nutrients, pesticides, and other chemicals. Erosion, flooding, and contamination are worsened with less protection from plant cover as a result of construction during development and the generally increased impervious surfaces afterwards. Low impact development (LID) used in new construction and LID retrofits along with increasing storage capacity upstream through lake, pond, and wetland restoration could help alleviate the severity of future floods.
5 Stewardship

Summary Lack of communication and coordination between the cities of Salem and Peabody as well as a disconnect between public awareness and understanding of the North River and its tributaries as natural amenities to their quality of life combine to impair the level of stewardship of these resources. People’s willingness to follow SSCW’s lead has jump started talks between the cities and citizen involvement.

5.1 Municipal

5.1.1 Peabody

The City of Peabody has a new Conservation Agent as well as new Planners in the Office of Community Development. They will play a role through implementing the City’s Master Plan, Bikeway and Riverwalk plans, and through weighing in on development projects that affect the efforts to protect and restore urban forestry in Peabody. The City also runs Brooksby Farm which is not far from Proctor Brook. The environmental adventure programs currently run there could be expanded to include team building and ecology studies of Peabody’s own natural resources. The Parks & Recreation Department’s work within the community including Arbor Day events offer an opportunity to do tree plantings at schools on the North River tributaries and the passing out of native tree species rather than the Blue Spruce that all school children received this year. The Mayor’s Office runs Pride in Peabody Day with the Chamber of Commerce and the Public Services Department. Announcements about North River Awareness Week and a program to Adopt-A-Brook in addition to Adopt-An-Island and Adopt-A-Planter programs could be included in this citywide event. This would require contacting the Mayor’s office sometime in February to make sure that an announcement is included in the flyers sent to all schools, agencies, and libraries in Peabody.

A major flood during the course of this project brought great attention to the City’s plan for controlling flooding in Peabody Square. The Flood Control Study of April 2003 recommends an engineered solution based on no stream flow data and essentially no consideration of LID techniques and wetlands restoration that could help to reduce peak runoff to the North River. It would also destroy habitat and the restoration efforts of the Department of Marine Fisheries’ multi-year Rainbow Smelt Project on the North River.
5.1.2 Salem

The City of Salem will be getting a new Conservation Agent and has Staff Planners that will be involved in the Mass. Highway Project currently being constructed along the North River, which is to include a Bike Path to the commuter rail station. Planting riparian buffers to filter runoff from the new road should be a part of this work. Both the Conservation Agent and the Parks & Recreation Department support a proposed SSCW project to use Leslie’s Retreat Park as an opportunity to design and plant riparian buffers, helping to educate the public about their many benefits. The ward councilor for this neighborhood, the City Engineer, and Planners are all concerned with coordination of the many projects in process along the North River, including plans for a Dog Park, Mass. Highway road construction, and a new Courthouse complex.

Peabody’s flood control plans further upstream have not been addressed by the City of Salem as of yet. Coordination between the two cities and the many proposals and projects that affect this corridor is crucial for good stewardship of one of the few fairly natural reaches of this urban river.

5.2 Public

5.2.1 Stream Teams

The Massachusetts Riverways Program was instrumental in helping to re-establish stream teams for the North River and its tributaries during this project. The training and kick-off for the teams took place during North River Awareness week. There were some problems with teams being able to get out and do shoreline surveys due to the heavy rains that followed, but in general the motivation and participation was high. Unfortunately, there was low participation by the residents of Peabody. However, the volunteers from Salem looked upon this as an adventure to explore sections of Peabody they had never seen. An action planning meeting generated many ideas and discussion as well as a desire to continue the work by meeting again as a group in July. With this new enthusiasm and support from citizen volunteers the prospects for increasing the health and stewardship of Peabody and Salem’s urban ecosystems are good.

Black-Crowned Night Heron, Howley Street, Peabody

5.2.2 North River Awareness Week

The fourth annual North River Awareness Week included five opportunities for people to learn about and explore the North River and its tributaries.
The fish sampling and smelt count brought out an entire class from the nearby Witchcraft School and culminated in the discovery of the first yearling rainbow smelt to have returned to this area since the restoration project began. Forty Rainbow Smelt were counted this season. An ad hoc streamside clean-up by the inspired group was an added bonus to this event. Many of the people that attended the smelt count also joined in the stream team training and kick-off held later that same day. Two North River Awareness walks were held. One explored the Proctor Brook along the section of a proposed rail trail conversion and the other followed along the North River Canal in Leslie’s Retreat Park. The final event of the week was a presentation by Tufts graduate students from the Department of Urban and Environmental Policy and Planning. Their vision for nurturing the recovery of the North River generated good questions and discussion by the audience, who included a cross-section of community members and State Representative John Keenan. Their report is available at [http://www.salemsound.org/trees.htm](http://www.salemsound.org/trees.htm).

Events were publicized in local papers, on the SSCW web site, on flyers distributed to Peabody and Salem libraries, city halls, coffee shops, and other local bulletin boards. The Farm Direct Co-op put an announcement in their April Newsletter along with a request for volunteers and plant donations. (See Appendix B).

### 5.2.3 North River Clean-ups

In April ten people from the Branwen day rehabilitation program cleaned up the section of woods along Harmony Grove Road. On June 5th, thirty six students and teachers from Salem’s St. Joseph School cleaned up Leslie’s Retreat Park, Commercial Way, and Harmony Grove Road. Employees of Dominion’s Salem Harbor Station volunteered for a clean-up on June 20th. Using a 30-ton crane they removed debris from the North River at the bridge at Flint Street.
6 Shoreline Surveys

Summary  Plans, goals, and recommendations are only as effective as the commitment to specific actions by individuals within certain timeframes. Otherwise they collect dust on a shelf or only become implemented in reaction to negative extremes. In recognition of the development pressures faced by the cities of Peabody and Salem, SSCW is taking a proactive approach to ensure the future health of the watershed.

6.1 Action Plan

North River Stream Team recommendations for action were based on May 2006 Shoreline Surveys. At the same time permission was received from the Salem Conservation Agent to implement a future project in the fall that would involve restoration of riparian buffers in Leslie’s Retreat Park. A local Plant Nursery, Corliss Brothers in Ipswich, offered to donate plant materials at the end of the season for fall planting. Existing conditions of the site were analyzed to determine a list of native plants that would be appropriate for this location (see Appendix C). Any plantings will need to be coordinated with Salem’s Parks and Recreation Department.

The mission of the North River Stream Teams is to raise awareness in the Peabody and Salem communities, identify and report problems, and take action to protect and restore the North River and its tributaries.

6.1.1 Water Quality

Goal: Restore the River and adjacent land so that it becomes a natural amenity that improves the quality of life for residents of Peabody and Salem.

Reporting/Short Term Action
Share information about problems with city officials and support actions to solve these problems.
DPW Reporting:
1. Abandoned foot bridge between Howley Street and Grove Street in Salem crossing the North River is dangerous.
2. Investigate pipe with hole at Flint Street.

Conservation Commission:
1. Clearcut area along Strongwater Brook at Aborn Street, Peabody.
2. Illegal dumping of yard waste in wetlands, particularly along Goldthwaite Brook, Peabody.
3. Flea market building, next to Howley Street, is discharging water into the North River, Peabody.
4. Peeling siding that is falling into the river from the remaining tannery building across from Leslie’s Retreat Park, Salem near the Flint Street. Also, this building when in operation omits a sewer-like odor. Are their wastes being properly disposed?
5. Intrusion from adjacent property owners at Furlong Park, Salem.
6. Rail road ties in the North River between Howley Street and Grove Street in Salem.
7. Old oil booms in North River at Howley St. Peabody, Flint St. and North St., Salem
8. Oil drums along the bank- are these in the flood plain and can they be removed?
9. Outfall discharge from MBTA – commuter rail parking lot directly into North River east of North Street.
10. Appears to be a discharge pipe into the middle of an emerging salt marsh near March St. Salem.

Short Term Action
1. Work with Witchcraft Heights School and St. Joseph School in Salem on continuing river projects, including monitoring, cleanups and additional surveys. Help them to get an Outdoor Classroom grant to continue work.
2. Get new storm drain stencils so that the schools can stencil next fall.
3. Learn the status of the Wallis Street area in Peabody. Are they classified as brownfield areas? Is there any potential to clean up and create flood storage?
4. Establish a North River Technical Team to advise SSCW on more complicated pollution issues.

Long Term Action
1. Work with Peabody in their efforts to cleanup and redevelop brownfields while working on solutions for the downtown flooding issue.
2. Culvert maintenance on Proctor Brook- work with the city to improve culverts as they need repair.
3. Work with both cities to have yearly Hazardous Waste Days in an effort to reduce illegal dumping.
4. Develop a rapid response protocol, team and funding to monitor water quality when emergencies arise.
5. Work for a stormwater ordinance and utility in Peabody and Salem.
6. Support the conservation commissions to protect more of the stream buffers in both cities.
7. Provide commission, boards and city councilors with information about Low Impact Development and stormwater ordinances and utility fees.

6.1.2 Education and Outreach

Goal: Educate and raise awareness about the North River and its tributaries in the Peabody and Salem communities

Short Term Action
1. Reach out to Peabody residents to be involved with the North River and its tributaries.
2. Resurvey Strongwater Brook with local students and neighbors.
3. Promote the North River and tributaries as important resources through local and regional newspaper articles.
4. Install Kiosks with educational postings and perhaps wildlife sightings, at frequented spots such as the T, golf course and city parks.
5. National Arbor Day - work with the schools to promote more river sensitive, fast growing native trees for distribution, such as willows.
6. Work to educate adults through their children.
7. Extend planted areas along the North River in Leslies’ Retreat Park as a demonstration of vegetated buffers of appropriate natural plantings. Have an informational kiosk.

Long Term Action
1. Construct better functioning wetlands at the Welch School, Strongwater Brook, Peabody, and then use the wetland as an outdoor classroom.
2. Develop a program where businesses and organizations Adopt-a-Brook, particularly in Peabody.
4. Educate commissions and boards on LID and Smart Growth.

6.1.3 Recreation and Access

Goal: Promote the river’s recreational value and provide for better access.

Short Term Action
1. Discuss potential for recreation with Salem and Peabody. Work with the cities to partner on recreational planning efforts.
2. Bike Path - work with MassHighway and Peabody to improve plans to take a more ecologically sensitive approach to the bike path in areas where the current condition is more natural.

3. Riverwalk – work with Peabody to improve plans to take a more ecologically sensitive approach

**Long Term Action**

1. Complete a study and plan recreational potential and public access along tidal area of the North River.
   a. Seek grant funding to develop recreational plan.
   b. Ensure public input in plan.
   c. Potential new community park and waterfront area between the MBTA station and Burnham’s.
   d. Examine ways to improve Furlong Park.

2. Work with the state Fishing and Boating Access (Dept. of Fish and Game) on potential access sites.

3. Incorporate history into parks and ecological restoration work. Highlight historical sites and areas with information kiosks

4. Leslie’s Retreat is of historical significance that could be developed at the North River waterfront. Kiosks.

5. Bike Path along Proctor Brook - work with Mass Highway and the city to make sure the path reflects multiple uses and is designed to minimally impact the river and wildlife.

6. Furlong Park - Work with city planner to determine what planning has already been done with the master plan and what would be the next steps. Improvement and restoration of the park could include:
   a. Cleanup trash and dumped items
   b. Restore and stabilization of bank where eroded to create a more natural transition from the park to the shore
   c. Possibly install public water access site

7. Work with partners on funding sources including an Urban Self Grant for parks improvement.

**6.1.4 Stream Restoration and Habitat**

Goal: Improve stream buffers and reduce nonpoint source pollution.

**Short Term Action**

1. Educate homeowners about better ways to manage lawns, improve buffers in backyards. Particularly noted along Goldthwaite Brook.

2. Educate the community about the importance of leaving natural debris in streams. Promote the idea that “rivers should be naturally messy.”

3. Host neighborhood meetings to educate stream abutters around ideas of natural lawn care, rivers, etc. (Bertha might be willing to host along Strongwater Brook)
4. Investigate quality of the wetlands and salt marshes. Who is monitoring the salt marsh along the Bridge Street bypass highway and can we get the report? Speak with the Salem Conservation agent.

**Long Term Action**
1. Partner with Peabody and Salem to protect at a minimum a 25 foot buffer along all brooks and rivers.
2. Work with Peabody and Salem to redevelop with LID techniques such as plantings and stormwater retention.
3. Buffer plantings and rain gardens- possible grant to raise funds for community buffer plantings, rain gardens and education effort.
4. Investigate to see if there is a possible salt marsh restoration at North Street?
5. Welch School, Strongwater Brook, and Peabody - restore degraded wetland as part of a partnership with the students.
6. Assist Salem wherever possible in developing a new Open Space and Recreation Plan.

**6.1.5 Clean-ups**

Goal: Engage the community in actively cleaning the river.

**Short Term Action**
1. Cedar Grove Cemetery, Tapley Brook - discarded pots and flowers are ending up in the river. Work with the cemetery managers to fix the problem.
2. Hold cleanups and work with landowners to focus on hot spots:
   a. Stop and Shop retention pond is full of trash
   b. Guilford Rail, Peabody and Salem DPWs between Wallis Street, Peabody and Grove Street, Salem
   c. Commuter Rail Station
7 References

City of Salem. Master Plan. 1996
City of Salem. North River Canal Corridor Plan
City of Salem. Open Space and Recreation Plan. 1996.
Havey, Bill. Director, Brooksby Farm. Interview. April 2006.