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March 8, 2006

Dear Friends of the SuAsCo River Watershed:

It is with great pleasure that I present you with the 5-Year Watershed Action Plan for the SuAsCo River Watershed. The plan will be used to guide local and state environmental efforts within the SuAsCo River Watershed over the next five years. The plan expresses some of the overall goals of the Executive Office of Environmental Affairs, such as improving water quality, restoring natural flows to rivers, protecting and restoring biodiversity and habitats, improving public access and balanced resource use, improving local capacity, and promoting a shared responsibility for watershed protection and management.

The SuAsCo River Watershed Action Plan was developed with input from a steering committee including the former SuAsCo River Watershed Team, and multiple stakeholders including watershed groups, state and federal agencies, municipal officials, Regional Planning Agencies and, of course, the general public from across the Watershed. We appreciate the opportunity to engage such a wide group of expertise and experience as it allows the state to focus on the issues and challenges that might otherwise not be easily characterized. From your input we have identified the following priorities that apply to all the subwatersheds:

- Growth and Development
- Water Quality
- Water Quantity
- Land Protection / Open Space
- Habitat / Biodiversity
- Outreach and Education
- Recreational Opportunities

I commend everyone involved in this endeavor. Thank you for your dedication and expertise. If you are not currently a participant, I strongly encourage you to become active in the SuAsCo River Watershed's restoration and protection efforts.

Sincerely,

A handwritten signature in cursive script that reads "Stephen R. Pritchard".

Stephen R. Pritchard  
Secretary

# SUDBURY-ASSABET-CONCORD RIVER WATERSHED ACTION PLAN

Prepared in Conjunction with the 5-Year Watershed Assessment Report

Prepared for the Massachusetts Executive Office of Environmental Affairs



Prepared By:

Ambient Engineering



SuAsCo Watershed Community Council



June 30, 2005

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## 1 Introduction

The Sudbury-Assabet-Concord Watershed, located in the metro-west area of the state, encompasses a large network of tributaries that ultimately flow into the Merrimack River. The watershed has a total drainage area of approximately 377 square miles. The Assabet River flows north for 30 miles from its headwaters in Westborough, through the now densely developed urban centers of Northborough, Hudson, and Maynard, to its confluence with the Sudbury River at historic Egg Rock in Concord. The Sudbury River also has its beginnings in Westborough, flowing eastward from the Great Cedar Swamp toward Framingham. It then proceeds north to Concord a total of 29 miles from Westborough to its confluence with the Assabet River at Egg Rock. The Sudbury and Assabet Rivers join together at Egg Rock to form the Concord River which flows north for 15.5 miles to join the Merrimack River in Lowell.<sup>1</sup>

The SuAsCo encompasses all or part of 36 municipalities and supports a population of 365,000 people. Acton, Carlisle, Framingham, Hudson, Marlborough, Maynard, Northborough, Southborough, Stow, and Sudbury all lie completely within the Watershed. Ashland, Bedford, Berlin, Billerica, Bolton, Boxborough, Boylston, Chelmsford, Clinton, Concord, Grafton, Harvard, Holliston, Hopkinton, Lincoln, Littleton, Lowell, Natick, Sherborn, Shrewsbury, Tewksbury, Upton, Wayland, Westborough, Westford, and Weston are partially within the Watershed.<sup>2</sup>

Forest covers about 71% of the Watershed land area which also contains many wetlands, lakes and ponds. There are a total of 121 lakes and ponds, 75 of which have an area of 10 acres or more. Whitehall Reservoir in Hopkinton, Lake Cochituate in Framingham, Natick and Wayland, and the Sudbury Reservoir in Marlborough and Southborough are the largest lakes in the Watershed at 601, 594, and 1292 acres respectively.<sup>3</sup>

As of April 9, 1999, seventeen miles of the Sudbury River, four miles of the Assabet River, and eight miles of the Concord River were federally designated “wild and scenic rivers” based on their free-flowing condition and outstanding scenic, recreational, wildlife, cultural, literary, and historic values. The SuAsCo Watershed also encompasses two National Wildlife Refuges (NWRs) - the Great Meadows NWR, located in Billerica, Bedford, Carlisle, Concord, Lincoln, Sudbury, and Wayland, and the Assabet NWR, located in Hudson, Maynard, Stow and Sudbury. The SuAsCo Watershed also has the Commonwealth's first designated Area of Critical Environmental Concern (ACEC) - the Great Cedar Swamp located in Westborough. The Great Meadows NWR and the Great Cedar Swamp represent two of the largest wetlands in Central Massachusetts.<sup>4</sup>

The SuAsCo Watershed boasts historic sites of national significance. One is the Old North Bridge which has been prominently featured in the works of the 19th century authors Hawthorne, Emerson, and Thoreau. In close proximity to metropolitan Boston, the Sudbury, Assabet, and Concord Rivers and their watershed provide a popular area for canoeing, fishing, hiking, biking, bird watching and other recreational activities. The lower (northern) portion of the Concord River drops over 50 feet and is the location of the first mill city in America: Lowell.

Retaining the natural beauty and rural character of the SuAsCo Watershed is challenged by growth and development, as this area is one of the most rapidly growing in Massachusetts and, as such, is facing severe resource challenges. Rapid growth and development have placed land prices at a premium, making open space and habitat protection ever more difficult. Many stretches of the Sudbury, Assabet, and Concord Rivers routinely fail their water quality standard for nutrient enrichment and experience both severe flooding and low flow concerns. Water shortages are evidenced as many towns post water bans during the summer. The rivers' assimilative capacity to handle nutrients is severely stressed by non-point sources (storm water) and wastewater treatment plant discharges. Throughout much of the Sudbury River downstream into the Concord River, fish consumption is banned due to mercury-laden sediments from the Nyanza Superfund Site. Invasive aquatic plant species compromise the river habitat for native species, and impair the recreational experience for boaters and anglers.<sup>5</sup> Figure 1.1 shows the Watershed.

### **1.1 Ecological Niches**

There is significant biodiversity in the SuAsCo watershed because past stakeholders worked hard to preserve the area. Over 21,500 acres are permanently protected. The Great Meadows National Wildlife Refuge (GMNWR) is a nationally significant resource. The floodplain forests and marshes are critical habitat for many rare birds, including bitterns, and species more commonly here, including great blue heron, wood ducks, and marsh wrens. The GMNWR protects the habitat of the rare Blanding's turtle and Britton's violet. The forests of Estabrook Woods in Concord and Carlisle provide seclusion for interior-forest birds, such as hermit thrush and Louisiana waterthrush. Unusual bogs with carnivorous plants exist in Walden Woods. Cedar Swamp in Westborough has rare Atlantic white cedar groves and associated state-listed rare species. Though not necessarily wilderness or pristine habitats, they are large and support a variety of plant communities and animals.

Though the western part of the watershed has few large areas set aside for habitat protection, it has resources unique to the watershed, such as extensive dry oak forests with seeps, coldwater trout streams, vernal pool clusters, nesting goshawks, marbled salamanders, and bobcats. There are large field complexes with bobolinks, meadowlarks, and kestrels.

Threats to preserved habitats include invasion by exotic species (e.g., purple loosestrife, water chestnut, and phragmites) that overwhelm the marshes, waterways, wetlands, fields, and forests, and change the nature of the natural communities.<sup>6</sup>

Additional common species indigenous to the Watershed include white-tailed deer, coyote, red tail fox, beaver, woodchuck, raccoon, skunk, gray squirrel, chipmunk, red squirrel, bats, porcupine, fisher, and the cottontail rabbit. The Watershed is also home to a wide array of bird species: cardinal, mourning, downy woodpecker, nuthatch, tufted titmouse, English sparrow, house wren, Baltimore oriole, owls, osprey, heron, barred and barn owls, chickadee, mockingbird, purple finch, robin, goldfinch, flicker blue jay, wild turkey, grouse, pheasant, woodcock, wood ducks, oven bird, cat bird and cuckoo. Warblers migrate through the area in their spring migration north. Redtail and broadwing hawks are common. Focal species found in this area include beaver, otters, spotted turtles, and blue heron.<sup>7</sup>

## **1.2 Social and Economic Settings**

A unique aspect of the SuAsCo Watershed is the population growth it has seen in the last 5 years. The Interstate-495 corridor region, comprising all or part of 20 of the Watershed's 36 communities, was the fastest growing region in the state in the last decade. Population in the 5 upper Assabet communities rose from approximately 73,000 in 1980 to over 87,000 in 2000. Population: between 1990 and 2000, population of Maynard, Sudbury, Hudson, and Stow grew from 47,244 to 51,289, 8.6%.

In the 20 towns of the Assabet River Basin, alone, population grew by 15 percent between 1990 and 2000, almost three times the average growth rate throughout the Commonwealth for the same period. In some individual towns, population growth during this 10-year period was more than 30 percent.<sup>8</sup>

This growth pressure has created a heavy demand for water and sewer services, and developable land. Commercial development, with larger associated impervious areas, has increased significantly within the Watershed as well. These settings continue to impact water quantity, water quality, and habitat within the Watershed.

**Figure 1.1 SuAsCo Watershed – MassGIS ½ Meter Orthophotos**



### 1.3 Tributary Watersheds

The SuAsCo Watershed contains 25 tributary watershed sub-basins, as shown on Figure 1.2. They are listed in Table 1.1 by river, in alphabetical order.

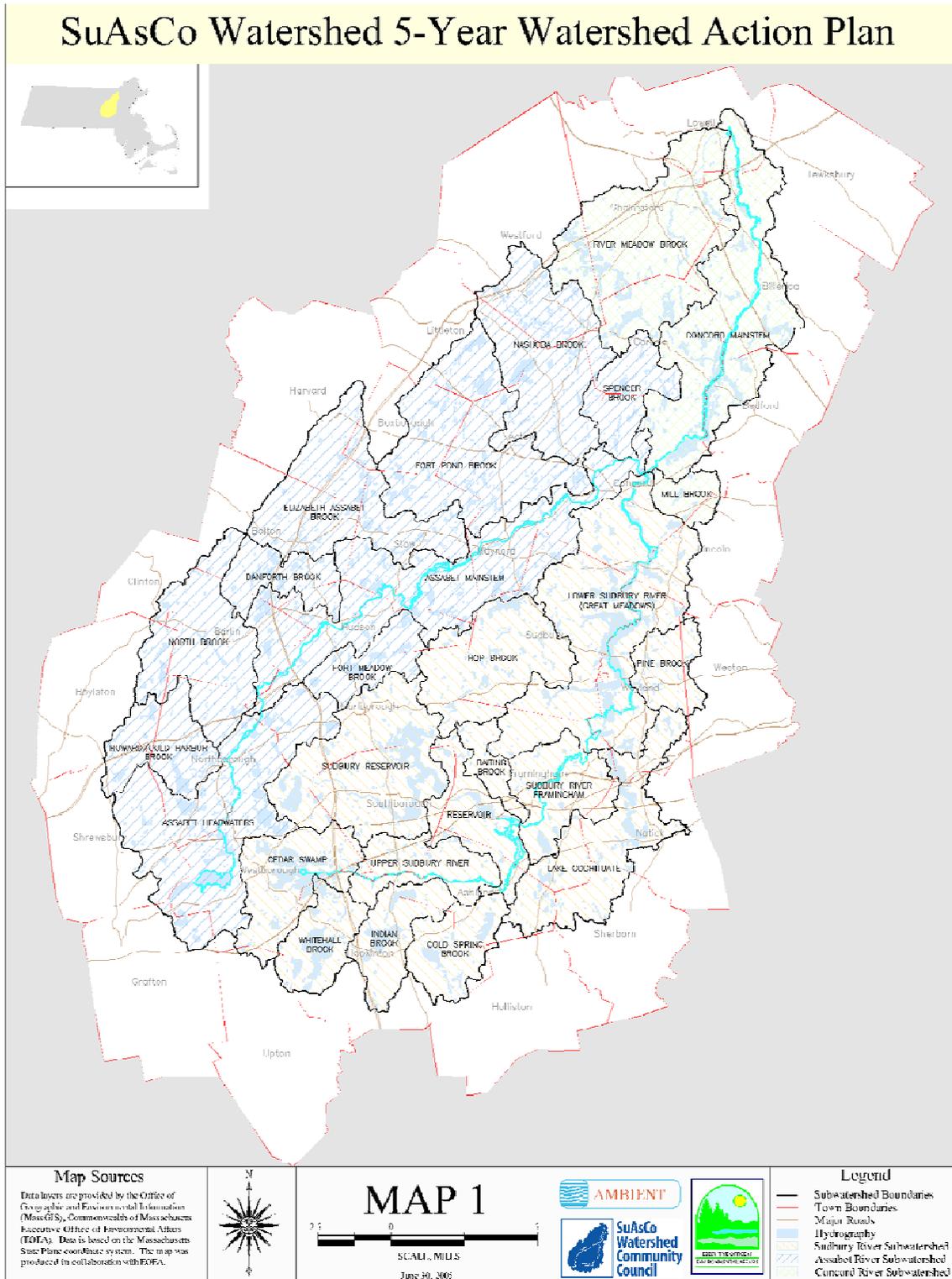
<b>Table 1.1 Tributary Watershed Sub-Basins</b>		
<b>Sudbury River</b>	<b>Assabet River</b>	<b>Concord River</b>
Bathing Brook	Assabet Headwater	Concord Mainstem
Cedar Swamp	Assabet Mainstem	Mill Brook
Cold Spring Brook	Danforth Brook	River Meadow Brook
Hop Brook	Elizabeth/Assabet Brook	
Indian Brook	Fort Meadow Brook	
Lake Cochituate	Fort Pond Brook	
Lower Sudbury River (Great Meadows)	Howard/Cold Harbor Brook	
Pine Brook	Nashoba Brook	
Reservoir 1-3	North Brook	
Sudbury Reservoir	Spencer Brook	
Sudbury River Framingham		
Upper Sudbury River		
Whitehall Brook		

### 1.4 Executive Office of Environmental Affairs Watershed Priorities

As of 2003, the Executive Office of Environmental Affairs had published, through the former Massachusetts Water Initiative, four watershed priorities for the SuAsCo Watershed. They are to:

- Gather water quality data to determine the areas most affected by point source and nonpoint source pollution;
- Obtain a better understanding of the watershed hydrology to aid in decisions concerning the Inter-Basin Transfer Act and Water Management Act permit requests;
- Maintain a healthy and seasonal variability of stream flow to sustain aquatic and terrestrial biodiversity; and
- Decrease impervious surface area and local water consumption.

**Figure 1.2 SuAsCo Watershed – Tributary Watersheds**



### **1.5 Massachusetts Watershed Initiative**

The Massachusetts Watershed Initiative was a broad partnership of state and federal agencies, conservation organizations, businesses, municipal officials and individuals and was the original implementation mechanism for the Watershed Assessment Report and Action Plan program. Begun in 1996 by the Massachusetts Executive Office of Environmental Affairs, the MWI was an innovative, results-oriented program that protects and restores natural resources and ecosystems on a watershed basis by:

- Finding the sources of pollution and taking cooperative action to clean them up;
- Teaching and helping groups and communities to protect and restore their local waters;
- Expanding communication among local, private and public partners so everyone works together to solve water resource problems;
- Improving coordination among government agencies; and,
- Directing resources to critical needs so our limited dollars go further to resolving the most important problems.

Watershed teams, made up of representatives of governmental agencies and community partners (non-profit organizations, municipal boards, and businesses), coordinated the watershed protection efforts in each of the 27 major watersheds of Massachusetts. Between 1998 and 2003, each team has had a full-time leader employed by EOEA.

The primary goals of the Watershed Initiative are to:

- Improve water quality;
- Restore natural flows to rivers;
- Protect and restore habitats;
- Improve public access and balanced resource use;
- Improve local capacity to protect water resources; and,
- Promote shared responsibility for watershed protection and management.

The Watershed Initiative was ended in 2003. However, many of its components, such as Stream Teams and five year planning through the Watershed Assessment Report and Action Plan, are still in place.

In the SuAsCo Watershed, the Watershed Initiative developed ongoing organizations. The SuAsCo Watershed Community Council was established in 1998 and provides a unique, collaborative role in the Watershed by bringing together industry, environmental organizations, municipalities, and federal, state, and regional agencies. In addition, many stream teams were established that are still active today.

## 1.6 Watershed Successes

There are many successes in the Watershed due to past and current efforts. They include river clean ups, Watershed studies, stenciling, TMDL and habitat studies, invasive species harvesting and removal, land acquisitions, and assessment and cleanup of Superfund and 21E sites. Specifically, the following achievements have occurred in the last 10 years:

- Growth and Development
  - The Greenways Plan for the SuAsCo Watershed, completed in 2000, proposed greenways to link together many of the parks, wildlife refuges, and other protected lands of the Watershed.
- Water Quality
  - Stream teams were developed and include Acton Stream Teams, Concord River Environmental Stream Team, Mill Brook Task Force, Nashoba Brook Stream Team, Ashland Stream Team. These teams help maintain a grassroots presence in the watershed. The results of their surveys will help lay the groundwork for non-point source pollution remediation and future grant targeting. They have conducted surveys in Maynard, Acton, Framingham, Concord, Billerica, Northborough, Sudbury, and other communities. . Stream Team Action Plans exist for Hop Brook, 1995, Maynard/Assabet Initiative, 1996, Framingham Advocates, 1997, Mill Ponds & Canal, Assabet River – Maynard and OAR, 1998, Acton Stream Teams in cooperation with OAR, 1998, SWAMP, 1998, CREST, 1999; Mill Brook, Concord, 2000; Hopkinton, 2002, Ashland, 2002, and Northborough 2002
  - Alewife spawning occurred in the Concord River for the first time since the early 19th Century. The Middleborough-Lakeville Herring Fisheries Commission provided 7,500 alewives for reintroduction this year and plans to introduce 7,500 more alewives in each of the next two years.<sup>9</sup>
  - The Organization for the Assabet River (OAR) tests water quality at 15 mainstem sites distributed from the headwaters of the Assabet River in Westborough to the end of the Concord River in Lowell. Water quality data and reports are available below and on the [StreamWatch](http://www.assabriver.org/streamwatch/index.html) ([www.assabriver.org/streamwatch/index.html](http://www.assabriver.org/streamwatch/index.html)) page (for each tributary stream). Water quality reports include measurements of flow; water temperature, pH, and conductivity; dissolved oxygen; nutrients and suspended solids; and stream health index readings
  - In 2005 MA DEP finalized the SuAsCo Watershed 2001 Water Quality Assessment Report. The assessment report presents a summary of current water quality data and information used to assess the status of three designated uses as defined in the Massachusetts Surface Water Quality Standards for the SuAsCo Watershed. These uses include aquatic life, fish consumption, and primary and secondary contact recreation and aesthetics.
- Water Quantity

- In 2005 USGS prepared a fact sheet giving an accounting of the inflows, outflows, and uses of water in the Assabet River basin.
- Land Protection/Open Space
  - The SuAsCo Watershed Greenprint for Growth, completed in 2001, provides a foundation for innovation and cooperation in the communities of the SuAsCo watershed.
  - Over 21,000 acres, or approximately 9%, of the Watershed are permanently protected from development
- Biodiversity/Habitat
  - The SuAsCo Biodiversity Protection and Stewardship Plan, completed in 2000, provides recommendations to help conserve and restore natural biodiversity in the watershed by protecting and managing natural communities and focal species habitat and by motivating and involving land trusts, conservation commissions, conservation organizations, and concerned citizens in accomplishing this goal.
- Recreation
  - 29 miles of the Sudbury, Assabet, and Concord Rivers are designated part of the National Wildlife Scenic River System, one of only six such designations in New England.
- Outreach and Education
  - The SuAsCo Watershed Community Council Stormwater Community Assistance Program, a collaboration of environmental groups, state agencies, municipal officials, and private consultants, provides a NPDES Phase II Community Assistance program to two-thirds of the Watershed communities.
  - There have been 8 River Vision Forums and 3 Wild & Scenic River Fest celebrations.

### **1.7 Assessment Report Document and Personnel Research**

As part of the report approximately 60 towns, cities, regional planning organizations, environmental organizations, and individuals were contacted to request plans, studies, reports, and maps identifying issues within the Watershed that might be relevant to future actions and goals for improvement. Initially 43 towns, cities, and environmental organizations were contacted, and as the project progressed approximately 17 more agencies and organizations provided material and feedback. Approximately 130 documents were received, logged, and periodically referenced as background for this report. A list of those documents is included in the report for further reference.

The project team (Ambient Engineering, Inc. and SuAsCo Watershed Community Council) collected a range of current studies, plans, maps, and reports related to water quantity; water quality; biological data/habitat; open space, land use, and growth; recreation; and outreach and education. In addition, the team interviewed select individuals with unique knowledge

of the Watershed. A list of organizations contacted is in Appendix A. A list of documents collected and reviewed is in Appendix B. Copies of most of these documents are on file with the SuAsCo Watershed Community Council.

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<sup>1</sup> SuAsCo Watershed Community Council Web Site, [www.suasco.org](http://www.suasco.org)

<sup>2</sup> SuAsCo Watershed Community Council Web Site, [www.suasco.org](http://www.suasco.org)

<sup>3</sup> USGS Web site, <http://ma.water.usgs.gov/basins/concordsfw.htm>

<sup>4</sup> EOE A Web Site, <http://www.mass.gov/envir/water/suasco/suasco.htm>

<sup>5</sup> SuAsCo Watershed Community Council Web Site, [www.suasco.org](http://www.suasco.org)

<sup>6</sup> SuAsCo Biodiversity Protection and Stewardship Plan

<sup>7</sup> Upper Assabet Riverway Plan

<sup>8</sup> USGS Fact Sheet FS-2005-3034

<sup>9</sup> MA EOE A, <http://www.mass.gov/envir/water/suasco/suasco.htm>

## **2 Description of Public Process on Watershed Action Plan**

The development of the SuAsCo Watershed Action Plan went through a rigorous public process, including public input, documentation review, priority balloting, and support-building for the Plan.

### **2.1 Description of Public Input Process**

Public input on the prioritization of issues and actions in the Watershed Action Plan (WAP) was principally facilitated by the SuAsCo Watershed Community Council with assistance from Ambient Engineering. Substantial public input was garnered. However, continuing dialogue and modification of the plan over the five-year period will be important in order to continue to incorporate diverse public opinion and to be responsive to changes over time.

Public input was assimilated through five major vehicles:

- public input from the past as previously gathered by the Community Council and by the now-defunct Watershed Team,
- the SuAsCo Watershed Assessment Report, which significantly helped to inform the public input process,
- four meetings of the SuAsCo Watershed Community Council Steering Committee,
- four public forums, and
- comments submitted by individuals and organizations throughout the process.

### **2.2 Documentation Review**

Documentation was reviewed to identify public input recorded from past forums and action strategies that had been facilitated by the Community Council and by the now-defunct Watershed Team. At the same time, the SuAsCo Watershed Assessment Report helped identify the major issues in the SuAsCo Watershed, providing supporting documentation and data as it was collected. A draft list of issues and actions was developed from this existing documentation as a starting point for the Watershed Action Plan public process. The documentation reviewed included:

- SuAsCo Watershed Team Annual Work Plans,
- SuAsCo Watershed Community Council Mission Statement (1998),
- SuAsCo Watershed Policy Resolutions (approved at River Visions II, April 1999),
- SuAsCo Watershed Community Council Action Plans,
- SuAsCo Watershed Assessment Report.

### **2.3 Public Process Meetings**

The SuAsCo Watershed Community Council Steering Committee steered the Watershed Action Planning process. The Steering Committee consisted of 56 representatives representing both the geographic and interest-based diversity of the SuAsCo Watershed (see

Appendices for list of Steering Committee representatives). In order to maximize participation, the Steering Committee meetings were spread geographically across the watershed and were each held on a different weekday evening. The Steering Committee met four times as follows:

- Monday, March 21 at the Framingham Town Hall from 7:30 to 9:30 PM,
- Thursday, April 7 at the Lincoln Town Hall from 7:30 to 9:30 PM
- Wednesday, April 20 at the Westborough Forbes Municipal Building from 7:30 to 9:30 PM
- Tuesday, May 17 at the Concord Natural Resources Building from 7:30 to 9:30 PM.

Guests were also welcome to attend the Steering Committee meetings. See the Appendices for the agenda and attendance of each meeting.

Four public forums were held on the Watershed Action Plan. As with the Steering Committee meetings, the public forums were spread geographically across the watershed and were each held on a different weekday evening. The public forums were held as follows:

- Monday, March 28 in Southborough at Cordaville Hall, 9 Cordaville Road from 7:30-9:30 PM,
- Tuesday, April 12 in Maynard at Clock Tower Place, Main Street, Building 2 from 7:30 - 9:30 PM,
- Thursday, April 28 in Billerica at the Middlesex Canal Museum, 71 Faulkner Street from 7:30 - 9:30 PM, and
- Wednesday, May 11 in Hudson at Intel as River Visions 2005: “The State of the Watershed and Our Future: An Interactive Forum on the SuAsCo” from 5:00 to 9:30 PM.

See the Appendices for the agenda and attendance of each meeting.

The watershed public was informed about the WAP and encouraged to participate in the public process. The WAP public input process was explained and advertised through a multitude of venues such as the SuAsCo e-mail calendar which is sent to over 250 recipients, the SuAsCo Community Council website, through a press release that was picked up by the MetroWest Daily News and local papers (see Appendices), through circulation of 5,000 River Visions 2005 flyers, and by word of mouth and e-mail. The word of mouth and e-mail mechanism was extensive. For instance, invitations to the March 28 Forum were e-mailed or personally given to the: Southborough Selectmen, Southborough Planning Board, Southborough Conservation Commission, Southborough Stormwater Committee, Southborough Open Space Commission, Westborough municipal officials, the Ashland Stream Team, Cedar Swamp Conservation Trust, Friends of Lake Whitehall, Weston Nurseries Land Use Committee, and Breakneck Hill Cow Fund.

## **2.4 Iterative Process for Determining Priority Actions**

The public input process was iterative with each meeting building upon the last meeting such that a growing list of issues and actions accumulated over time. In its first meeting on March 21, the Steering Committee expanded on the list of issues and actions first drafted from the documentation research. This list was then brought to the first public forum on March 28 where the list was expanded even further. That expanded list was then brought to the April 7

Steering Committee meeting where it was decided that the list should be organized into the seven categories of: growth & development, water quality, water quantity, land protection & open space, habitat & biodiversity, outreach & education, recreational opportunities. A small WAP subcommittee of the larger Steering Committee was formed at this time to work on reorganizing the list. The reorganized list was then brought to the April 12 public forum where again more issues and actions were added to the list. The April 12 version was then brought before the Steering Committee meeting on April 20 where the list was further organized and expanded and a vision statement was drafted. This most updated list was then brought before the public forum on April 28 where again more issues and actions were added.

In addition to the meetings described above, Nancy Bryant, Executive Director of the SuAsCo Community Council, also met with several groups in the watershed to welcome their participation at the public forums and to solicit their input on watershed issues and actions. The feedback received at these meetings was added into the growing list of issues and actions. Additionally, electronic feedback was frequently submitted by individuals throughout the public input process, and this feedback was also incorporated into the growing list of issues and actions.

The list that emerged from the April 28 meeting thus was originally based on historical input to the Community Council and the Watershed Team and added to by public input received from 3 Steering Committee meetings and 3 public forums, and reformatted by a WAP subcommittee of the Steering Committee. This list is called the “**long list**” and it appears in the Appendices.

The WAP subcommittee then took the “long list” and created a “**short list**” of the top actions for the SuAsCo Watershed. These top actions were culled out of the long list by eliminating repetitive actions and identifying actions with watershed-wide applicability.

The “short list” of actions was then placed on a **ballot** in order to garner a sense of prioritization and importance for the actions from those who attended the River Visions 2005 Watershed-wide conference. All River Visions attendees received ballots in their River Visions packets. Ballot boxes were positioned around the plenary room, and attendees were asked to submit their ballots prior to their departure to workshops. A total of 72 ballots were collected. The ballot and the results are included in the Appendices.

## 2.5 River Visions Forum

The River Visions 2005 Forum was the culmination of the WAP public process. The River Visions conference is well known and highly regarded; this was the eighth annual forum. River Visions involved a large public. Of the 109 River Visions registrants, 27 were from businesses, 20 from municipal government, 19 from State, Federal and regional government, 24 from environmental organizations, and 19 from other categories. 24 of the 36 watershed communities were represented. For a complete list of registrants, see the Appendices.

River Visions 2005 focused on the Watershed Action Plan and was titled “The State of the Watershed and Our Future: An Interactive Forum on the SuAsCo”. The two-page agenda of the forum is in the Appendices. The agenda included a presentation on the importance of the Watershed Action Plan by James Stergios, Undersecretary for Policy at EOE, a discussion on the present “state of the watershed” by a panel of five experts, ballot voting on 5-year action priorities for the watershed, and in-depth discussion of those actions in workshops on growth & development, water quality, water quantity, land protection, and habitat. The workshops asked whether any priority actions were missing from the ballot list in the each category and then focused discussion on the players, money sources, timeline and tasks involved in accomplishing the priority actions for that workshop’s category. The workshops helped to already stimulate energy towards accomplishing the priority actions.

## **2.6 WAP Action Priorities**

The ballot voting results on action priorities and the input gathered in the River Visions workshops was then brought to the May 17 Steering Committee meeting. The ballot results and workshop feedback were used by the Steering Committee to create a prioritized list of top actions for the Watershed over the next five years in all seven categories. The final list of WAP Action Priorities represents significant public input and considerable discussion and vetting of action items to identify and agree upon watershed-wide priorities.

It is important to stress that the actions that are on the long list and/or the short list but that did not make the final priority list are nonetheless important to many constituents in the watershed and are deserving of support should opportunities arise to accomplish those actions.

A WAP Subcommittee from the Steering Committee completed the final work on assimilating the River Visions workshop results into a listing of the players, money sources, timeline, and tasks for each of the priority actions.

## **2.7 Vision Statement**

In several meetings with the Wild & Scenic River Stewardship Council, the seeds of the SuAsCo WAP Vision Statement were planted. The WAP Subcommittee of the Steering Committee, the Organization for the Assabet River (OAR) and the RSC contributed significantly to a draft Vision Statement. The draft Vision Statement was then vetted and edited by Steering Committee members and other interested parties and eventually approved by the Steering Committee at its meeting on May 17. The Vision Statement represents a long-term vision for the Watershed, during and beyond the five years of the WAP.

## **2.8 Watershed-Wide Support**

Support for the Vision Statement and Priority Actions was solicited from the constituencies represented by Steering Committee members and from State Legislators. Letters of support

are in the Appendices. A few organizations also sent more substantive feedback stating their organization's particular views, and these letters are also included in the Appendices.

The need for education and cooperation was stated at every public meeting and Steering Committee meeting held on the WAP for almost every issue that was discussed. Throughout the public input process, it became clear that carrying out the WAP would require collaboration and cooperation among the many interested constituencies in the Watershed. Without a Basin Team operating under the auspices of State government, the role of the Community Council becomes all the more essential in bringing together diverse interests on neutral ground. No other organization serves this role for the breadth of the constituencies, issues, and geography of the watershed. Hence, it was deemed that the SuAsCo Watershed Community Council is well suited to this task as its representatives are from a wide range of constituencies across the watershed.

The Community Council is an alliance of the range of interests in the watershed, with representatives from municipalities, businesses, environmental organizations, and federal/state/regional government. As an alliance, the Council is a collaborative entirely composed of and guided by its representative groups. Many of the constituencies who will carry out the WAP are represented on the Steering Committee of the Community Council, such as Sudbury Valley Trustees, the Organization for the Assabet River, the Wild & Scenic River Stewardship Council, stream teams, other environmental organizations, municipal, state, and federal agencies, and businesses and consultants. Hence, the Steering Committee is well positioned to facilitate the collaboration and cooperation necessary to effectively implement the WAP.

### **3 Sudbury-Assabet-Concord River Watershed Action Plan Vision Statement**

The purpose of this 5-Year Watershed Action Plan for the Sudbury-Assabet-Concord River (SuAsCo) Watershed is to identify critical natural resource problems, propose appropriate responses, and chart a course of action for working together to achieve the watershed-wide goals listed below. Although it is recognized that fulfillment of the watershed-wide goals will take longer than the five years of this Action Plan, the Plan provides an important stepping stone towards the achievement of this watershed vision.

To protect natural resources, decisions and actions must be informed by a watershed perspective. Collaboration among local, state, federal and regional government, businesses, academia, nonprofit and environmental organizations, and residents is vital in order to achieve these watershed goals.

#### **3.1 SuAsCo Watershed-Wide Problems:**

- Nutrient pollution in the waterways of the SuAsCo, particularly the Assabet River and Hop Brook in Marlborough and Sudbury
- Depletion of aquifers, wetlands, ponds, rivers and streams by groundwater withdrawal and lack of sufficient recharge
- Loss of biodiversity caused by invasive species and habitat destruction
- Habitat fragmentation such as by dams, culverts, and highways
- Loss of lands with high conservation and recreation value due to misplaced development
- Environmental contamination by toxic substances

#### **3.2 SuAsCo Watershed-Wide Goals:**

- *Management Goal:* an active, cooperative, and communicative Watershed Community where collaboration is facilitated among all stakeholders
- *Growth and Development Goal:* “smart growth” throughout the Watershed: well-planned, responsible development that results in sustainable resource use through efficiency, conservation, education, and community building
- *Water Quality Goal:* a fishable, swimmable Sudbury, Assabet, and Concord River
- *Water Quantity Goal:* ample and sustainable surface and groundwater to support river-dependent wildlife, and recreation and other human uses
- *Land Protection/Open Space Goal:* preserved natural green areas at a significant scale that have value for habitat, recreation, scenery, water recharge, ecological uses, and/or historic significance
- *Habitat/Biodiversity Goal:* healthy, diverse natural communities of native species linked by corridors that preserve ecological integrity
- *Outreach and Education Goal:* public awareness and appreciation of the SuAsCo Watershed’s valuable natural resources and the strategies to protect them
- *Recreation Goal:* opportunities for people to enjoy the SuAsCo Watershed’s natural attributes consistent with the needs of wildlife and other competing needs and uses

## 4 SuAsCo Watershed Priority Actions

### 4.3 Overall Actions

- *Implement the SuAsCo Watershed Action Plan (WAP), revisit the SuAsCo WAP regularly, revise as needed, and use as a “yardstick” for tracking watershed progress.* Doing so fulfills the original goals of the Massachusetts Watershed Initiative and ensures future successes in protecting the SuAsCo watershed and its uses.
- *Support and sustain organizations that provide facilitation, coordination, collaboration, and communication across the watershed.* The need for collaboration and communication across a watershed is inherent in successful watershed management. A model of such a collaborative effort already exists in the SuAsCo Watershed that brings municipal, business, state/federal/regional government, and environmental organizations together in a neutral venue to work cooperatively for the environmental and economic benefit of the watershed.

### 4.4 Growth and Development Actions

- *Encourage communities to adopt local Low Impact Development (LID) bylaws.* The SuAsCo Watershed has seen some of the greatest growth in the state over the last fifteen years. In many communities, a patchwork of local codes (zoning, subdivision rules and regulations, board of health regulations) may provide overlapping and sometimes conflicting regulation of stormwater discharges; a municipal stormwater bylaw such as the LID bylaw can replace this patchwork with a single set of standards, resulting in environmentally sensitive development throughout the community. The bylaw will also provide developers with more predictability, efficiency, and rapid review due to the consistency of site design standards in all permitting processes.
- *Encourage municipal boards to talk and work together within and across municipal boundaries.* As noted in the Assessment Report, municipalities, regional agencies, state agencies, and environmental organizations have written documents to address issues of growth and development in the Watershed. Most towns and cities in the Watershed have developed Open Space and Recreation Plans to help document growth and development and identify at-risk resources within the communities. Regional planning agencies, state agencies, and environmental organizations have studied various aspects of growth and development in the Watershed and created numerous documents to help plan future growth and development. This broad institutional knowledge is available for sharing among the communities in the watershed through communication and shared roles and responsibilities.
- *Encourage smart growth throughout the Watershed by requiring developers to conduct a cumulative impact study on proposed developments, assessing cumulative impacts from development projects, and creating developer incentives for doing greenway design.* The SuAsCo Watershed has experienced significant growth in the last fifteen years, with continued growth expected in the future. Most towns and cities in the Watershed have developed open space plans to address issues of growth and development. Environmental organizations have created documents such as the Greenprint for Growth to help guide development in the Watershed in an

environmentally sensitive manner. Approaches such as Smart Growth and Low Impact Development are seen as potential ways to manage growth in SuAsCo communities, but the involvement of developers is essential to the success of these tools.

#### **4.5 Water Quality Actions**

- *Explore innovative wastewater treatment technologies and seek federal funding to support such strategies in order to cost-effectively decrease wastewater effluent concentrations.* Seventy facilities (communities, schools, commercial establishments, condominiums, etc.) discharge approximately 2.6 mgd of wastewater to groundwater resources in the watershed. Another 6 large-scale wastewater treatment facilities discharge an additional 16 mgd to surface waters. Any progress made in better treating these wastewater streams with a greater share of the costs borne by the federal government will be of great benefit to communities in the watershed.
- *Create incentives for constructing septic systems and small package plants rather than large, municipal centralized systems with the goal of “keeping water local.”* One of the advantages of these on-site wastewater disposal systems is that water is treated and then recharged into the ground via a leaching field. Therefore, properly sited and constructed systems can help offset water use losses within the watershed.
- *Continue to identify all toxic waste sites in the Watershed and track their clean up.* Well over 3,000 sites present contamination concerns in the watershed. These include approximately 3,520 state 21E sites and 53 Superfund sites in the 36 communities comprising the watershed. With such a vast list of existing facilities and the likelihood of more in the future, tracking cleanup progress at these locations is an essential element of the watershed action plan.
- *Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and river regulations.* Community stream teams, such as those on Mill Brook, Nashoba Brook, Fort Pond Brook, Hop Brook and directly on the Concord River in Concord and Billerica and directly on the Sudbury River in Ashland, Southborough and Framingham, and directly on the Assabet River in Northborough and Maynard, have provided a grassroots presence for protecting the watershed by noting pollution incidents and watershed activities that lead to pollution. Their continued efforts will help isolate, report, and address observed infractions of wetlands and river regulations. Doing so will help remediate non-point source pollution, educate and involve citizens, and identify future grant opportunities.
- *Create local bylaws to minimize use of lawn fertilizers, pesticides, and herbicides, and encourage appropriate depth of loam, especially in new developments.* Stormwater is a significant source of water pollution, causing adverse effects on aquatic plant and animal life, reducing recreational activities such as boating and swimming, and exacerbating flooding conditions. Stormwater mobilizes and transports pollutants, such as fertilizers, pesticides, and herbicides to discharge points in the SuAsCo watershed. Soils and sediments in stormwater may include metals (copper, cadmium, chromium, lead, and zinc), nutrients (nitrates, phosphates, and ammonia), salt, petroleum products, toxics such as pesticides and herbicides, and

coliform bacteria. Given the predominantly suburban landscape of the SuAsCo Watershed, the control of lawn contaminants is critical to maintaining water quality in the watershed.

- *Conduct TMDL studies by tributary watershed, where necessary, and implement results of all TMDL studies.* Under the Clean Water Act, States must list polluted water bodies and set priorities for their clean up. States must develop a watershed restoration action plan called a "Total Maximum Daily Load" (TMDL) for each impaired water body. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Each TMDL represents a summation of the allowable load of a pollutant from all contributing point sources and nonpoint sources. Thus, the establishment of TMDLs is required by law and essential to improving water quality in the SuAsCo watershed. Those waterways in the SuAsCo receiving discharges from facilities permitted under the National Pollution Discharge Elimination System (NPDES) will be better managed by the continued development, refinement and application of TMDL studies.

#### **4.6 Water Quantity Actions**

- *Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed.* A USGS groundwater management modeling and assessment project is in progress for the Assabet watershed. This will provide a useful tool and recommendations for managing increasing demands on the area's groundwater resources in the future.<sup>10</sup> Although there has been some water quantity data collected for the Watershed, particularly in the Assabet River, very little research on water balance within and between subwatersheds has been conducted. How communities use their water has been shown to have a significant effect on water balances in adjacent waterways.
- *Educate about and encourage the use of landscaping options that require less water, e.g., create local bylaws to limit sprinkler use and the installation of private wells for lawn watering.* As noted in the Assessment Report, many rivers and streams across Massachusetts are being seriously degraded by low summer flows due to water withdrawals, interbasin transfers, and watershed development. The Massachusetts Water Resources Commission has identified all or portions of many major Massachusetts rivers as "stressed" by low summer flows. These include the Sudbury, Assabet, and Concord Rivers.<sup>11</sup> The recommended education programs and local bylaws can help diminish water use impacts in the watershed.
- *Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human and commercial consumption and aquatic habitat in each subbasin, i.e., manage water use, demand and source withdrawal so that human (residential and business) and ecological needs are both met.* The SuAsCo Watershed receives approximately 44 inches of precipitation annually. Yet, many stream segments exhibit low flow conditions periodically. These local conditions can be addressed through a broader regional approach to water allocation. Portions of rivers in the Watershed have run dry during the last ten years. Other portions have been fed primarily by wastewater treatment plant discharges during dry months.
- *Conduct research to determine ecological flow regimes that maintain the physical,*

*chemical and biological integrity of rivers and streams; and model natural stream flow regimes.* Such studies are already underway on the Sudbury River and Assabet River and on their incoming streams. The biota supported by a river or stream system depends on the chemical and physical properties attributed to natural high and low flows. An understanding and recognition of the importance of natural and ecological stream flow regimes will help guide wise decisions in watershed management

- . Implementation of the Massachusetts Water Policy on the local level will require education of citizens, changes in bylaws, adoption of water conservation strategies, and many other activities involving local government, businesses, and community residents. The accomplishment of these activities will require funding and technical expertise.

#### **4.7 Land Protection/Open Space Actions**

- *Increase local, state, and federal funding for land acquisition and protection.* Existing mechanisms at the local and state levels provide for the protection and expansion of open space and forest lands, and for the preservation of historic places. These mechanisms include Chapter 61 of the Massachusetts General Laws for preservation and protection of forests, Article 97 of the Massachusetts Constitution which grants people certain environmental rights, local community open space plans, and the Commonwealth's Community Preservation Initiative which allows communities to create community preservation funds through surcharges on real estate taxes, with the further advantage of access to state matching funds. For these and other initiatives to meet their potential, increases in local, state, and federal funding are encouraged.
- *Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps.* Numerous plans that have been prepared at the local and state levels, including those mentioned above, can be correlated to identify priority lands for protection across the SuAsCo watershed. This recommendation is parallel to a recommendation shown below under Habitat/Biodiversity Actions to overlay biodiversity and greenways plans with source water protection maps to isolate priority land parcels for protection.
- *Encourage municipalities to pass the Community Preservation Act (CPA).* The Community Preservation Act (CPA) allows communities to create a local Community Preservation Fund through a surcharge of up to 3% of the real estate tax levy on real property to be used for open space, historic preservation and low- and moderate-income housing. The act also creates a significant state matching fund of more than \$25 million annually, which serves as an incentive to communities to take advantage of the provisions of this legislation. The local municipalities must adopt the Act by ballot referendum to create the Community Preservation Fund for the uses mentioned above.

#### **4.8 Habitat/Biodiversity Actions**

- *Increase funding for land/habitat acquisition and increase stewardship with emphasis on biodiversity, habitat corridors, and river continuity.* The SuAsCo Biodiversity Protection and Stewardship Plan was prepared in 2000 by a number of groups

including state agencies and environmental organizations. The purpose of the project was to guide the 36 communities of the Watershed to conserve and restore natural biodiversity in the Watershed. Increased funding further empowers the communities in meeting these goals.

- *Make culverts and bridges fish- and wildlife- friendly when they are replaced.* The SuAsCo Watershed Greenways Plan proposed greenways to link together many of the parks, wildlife refuges, and other protected lands of the Watershed. Barriers to wildlife movement such as roads, bridges and culverts can be mitigated when such roads, bridges and culverts are replaced or repaired. Both wildlife and people benefit from measures that allow for unobstructed movement of wildlife in the SuAsCo watershed.
- *Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection.* Biodiversity sites are delineated by town in the SuAsCo Biodiversity Protection and Stewardship Plan. The Greenways Plan for the SuAsCo Watershed identifies proposed greenways to link together many of the parks, wildlife refuges, and other protected lands of the Watershed. This information when overlain with source water protection maps can further prioritize land parcels most in need of protection.
- *Define, assess, and control the occurrence and impact of invasive species.* Invasive species are non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic and/or environmental harm by developing self-sustaining populations that dominate and/or disrupt natural systems.
- *Install fish passages or remove dams to allow for anadromous fishery return.* In May 2000, the Concord River was stocked with 7,000 adult River Herring, or alewife; stocking has occurred ever since. Like salmon, the anadromous alewife breeds in fresh water rivers and, after a period of juvenile growth, they swim downriver and spend their adult life in the ocean. After 3 to 5 years in the ocean, the mature alewife return to the river where they were born. Thus, the goal of the alewife stocking is to try to restore the Concord River as a natural fishery.<sup>12</sup> Removing obstacles to the alewife's return upriver will help ensure this goal is met.

#### **4.9 Outreach and Education Actions**

The recommended outreach and education actions listed below largely derive from EPA's Phase II NPDES rule for stormwater discharges. Public outreach and education is the first of six listed "minimum control measures" for the reduced discharge of stormwater pollutants in the watershed. The SuAsCo Watershed Community Council's Storm Water Community Assistance Program (SWCAP) provides municipalities with assistance for outreach and education. At the time of this writing, the SWCAP program has 24 subscribing communities, including 21 SuAsCo communities, with its growth expected to continue.

- *Educate homeowners, businesses and all property owners on riparian buffers, lawn care, vegetative plantings, over watering, etc.*
- *Create a Best Management Practices Workbook on water pollution reduction, and educate communities regarding those practices*

- *Embark on a public education campaign on water conservation*
- *Embark on a public education campaign on stormwater best management practices*

#### **4.10 Recreational Opportunities Actions**

There are many locations designated as recreation areas and access points for the Watershed. However, there are still many gaps in trails, and some recreational uses have had impacts on natural resources. The following recommendations are made in recognition of these concerns.

- *Connect missing links along the Bay Circuit trail, the Concord River Corridor trail, rail trails, and trails to tributary connections with sensitivity to their context*
- *Assess and manage recreational impacts on the environment and natural resources*
- *Preserve riparian land for recreational uses such as open space, access, fishing, etc.*

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<sup>10</sup> [http://www.assabriver.org/streamwatch/water\\_d.html](http://www.assabriver.org/streamwatch/water_d.html)

<sup>11</sup> Mass Audubon Web Site, <http://www.massaudubon.org/rivers/impacts.php>

<sup>12</sup> Lowell Land Trust, [http://www.lowelllandtrust.org/Alewife\\_restoration.html](http://www.lowelllandtrust.org/Alewife_restoration.html)

## **5 SuAsCo Watershed Priority Action Details**

The Watershed priority details have been presented in matrix format to allow for easier review and comparison. Notes regarding the information in the Action Matrices:

- ❖ the list of participants is not intended to be comprehensive, and is intended to be interpreted broadly (for instance, “environmental organizations” may include watershed groups, land trusts, etc.)
- ❖ the list of participants for some actions include specific organizations or agencies when appropriate
- ❖ the list of possible funding sources are not intended to be comprehensive
- ❖ the potential tasks listed are neither comprehensive nor prioritized, but are intended as suggestions and starting points; many of the potential tasks were recommended by the public in the River Visions 2005 workshops.

**5.11 OVERALL ACTIONS**

- *Goal: an active, cooperative, and communicative Watershed Community where collaboration is facilitated among all stakeholders*

<p><b>ACTION:</b></p> <p>Implement the SuAsCo Watershed Action Plan, revisit the SuAsCo WAP regularly, revise as needed, and use as a “yardstick” for tracking watershed progress</p>	<p><b>Participants:</b></p> <p>All watershed stakeholders as outlined throughout the Plan with the SuAsCo Watershed Community Council (WCC) serving a facilitative role where possible</p>	<p><b>Possible Funding Sources:</b></p> <p>As outlined throughout the Plan</p>	<p><b>Timeline:</b></p> <p>Throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Promote coordination and communication among all watershed stakeholders; Hold collaborative meetings; Share technical assistance, model bylaws, and other information through listserves, websites, periodic meetings, workshops, etc.; Measure progress on priority actions; Lobby for and seek funding for implementation of priority actions; Form a Task Force to meet quarterly to discuss WAP progress, specifically implementation issues and funding sources</p>
<p><b>ACTION:</b></p> <p>Support and sustain organizations that provide facilitation, coordination, collaboration, and communication across the watershed</p>	<p><b>Participants:</b></p> <p>SuAsCo WCC; Municipalities; State/Federal/Regional government; Businesses; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>State; Federal; Municipal; Foundation grants; Businesses; Individual contributions</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Develop sustainable and diversified sources of funding; Maintain balanced and diverse Steering Committee representation; Lobby for dedicated source of government funding for Council, such as SEPs</p>

**5.12 GROWTH & DEVELOPMENT ACTIONS**

- *Goal: “smart growth” throughout the Watershed: well-planned, responsible development that results in sustainable resource use through efficiency, conservation, education, and community building*

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Encourage communities to adopt local Low Impact Development (LID) bylaws	Municipal Planning Boards; Conservation Commissions; Public Work Departments (DPWs); Boards of Health; Regional Planning Agencies; MA EOEALID Working Group; Regional collaborative groups such as SuAsCo WCC, MA Association of Conservation Commissions, MA Municipal Association, MetroWest Growth Management Committee, MAGIC, Wild & Scenic River Stewardship Council; Land trusts	Municipal; State operating budget and grants; Federal grants	Already underway and to continue throughout the 5-year timeframe	Identify LID guidelines and create model LID bylaws for appropriate densities and locations; Assist communities to adopt LID bylaws
Encourage municipal boards to talk and work together within and across municipal boundaries	Municipal boards and staff; Regional collaborative groups such as MAGIC, MWGMC, SuAsCo WCC, Wild & Scenic River Stewardship Council, Assabet Consortium, 495/MetroWest Corridor Partnership	Municipal; Businesses; Foundation grants	Already underway and to continue throughout the 5-year timeframe	Establish a resource of models, data, reports, etc. for communities to access and use; Use intra and inter municipal websites for distribution of information regarding development(s); Regional organizations host inter-municipal workshops

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
<p>Encourage smart growth throughout the Watershed by requiring developers to conduct a cumulative impact study on proposed developments, assessing cumulative impacts from development projects, and creating developer incentives for doing greenway design</p>	<p>Municipalities; Developers; Regional organizations</p>	<p>Municipal; State; Developers</p>	<p>Start immediately and continue as an ongoing effort</p>	<p>Create a development assessment model which includes all impacts of development including fiscal (such as cost of providing municipal services), environmental (such as water use, stormwater impacts), transportation, etc.; Developers apply model to assess cumulative impacts; Provide information and model results to abutters and municipal boards; Create greenway design incentives for developers through bylaws, planning board review, etc.</p>

**5.13 WATER QUALITY ACTIONS**

➤ *Goal: a fishable, swimmable Sudbury, Assabet, and Concord River*

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Explore innovative wastewater treatment technologies and seek federal funding to support such strategies in order to cost-effectively decrease wastewater effluent concentrations	Federal such as EPA; State such as DEP; Municipalities; Environmental organizations; Wastewater treatment engineering firms and consultants	Federal; State; Municipal; Businesses; Foundation grants	Already underway and to continue throughout the 5-year timeframe	Monitor success of CoMag demonstration and full-scale expansion in Concord; Lobby for State and Federal funding for innovative technology research and demonstration projects for wastewater treatment
Create incentives for constructing septic systems and small package plants rather than large, municipal centralized systems with the goal of “keeping water local”	State such as DEP and EOE; Municipalities; Environmental organizations; Wastewater treatment engineering firms and consultants	Federal; State; Municipal; Businesses; Foundation grants	As funding becomes available during the 5-year timeframe	Create incentives for constructing septic systems and small package plants in new developments; Draft bylaws to encourage proper maintenance of septic systems and discourage hook up to centralized systems
Continue to identify all toxic waste sites in the Watershed and track their clean up	State such as DEP; Federal such as EPA; Municipalities such as Boards of Health; Businesses; Environmental organizations; Regional organizations such as SuAsCo WCC	Federal Superfund Program; State; Municipal; Businesses; Foundation grants	Already underway and to continue throughout the 5-year timeframe	Hold public forums on clean up goals and progress on toxic waste sites in Watershed; Establish Technical Advisory Committees for each toxic waste site and establish communication channels and meetings between the committees

<p><b>ACTION:</b></p> <p>Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and river regulations</p>	<p><b>Participants:</b></p> <p>Municipalities; MA Riverways Program; Stream teams; Watershed and river organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>State grants; Foundation grants; Municipal</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Create a database of stream team survey results; Support increased funding for Riverways Program; Re-do stream team surveys that are more than 10 years old; Conduct stream team surveys on unsurveyed portions of tributaries and rivers; Require/encourage developers to help fund stream team surveys</p>
<p><b>ACTION:</b></p> <p>Create local bylaws to minimize use of lawn fertilizers, pesticides, and herbicides, and encourage appropriate depth of loam, especially in new developments</p>	<p><b>Participants:</b></p> <p>Municipalities and MACC; Landscapers; Garden centers; Environmental organizations; Regional organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>Municipal; Businesses; Foundation grants</p>	<p><b>Timeline:</b></p> <p>During the 5-year timeframe as funding becomes available</p>	<p><b>Potential Tasks:</b></p> <p>Create local bylaws to minimize use of lawn fertilizers, pesticides and herbicides, and encourage appropriate depth of loam, especially in new developments; Promote IPM techniques; Conduct research on turf grass BMPs (see Appendix for turf grass BMP research draft)</p>
<p><b>ACTION:</b></p> <p>Conduct TMDL studies by tributary watershed, where necessary, and implement results of all TMDL studies</p>	<p><b>Participants:</b></p> <p>USGS; US Army Corps of Engineers; US EPA; MA DEP; Municipalities; NPDES permit holders; Environmental consulting firms; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal; State</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Conduct TMDL studies where appropriate; Implement TMDL study results; Track implementation success and monitor for improvements in water quality</p>

**5.14 WATER QUANTITY ACTIONS**

- *Goal: ample and sustainable surface and groundwater to support river-dependent wildlife, and recreation and other human uses*

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed	USGS; MA DCR; SuAsCo WCC; MA Riverways RIFFLES Program; Municipalities; Watershed and river organizations such as OAR and SRWO	State; Federal; Foundation grants; Businesses; in-kind monitoring help from volunteers	Assabet River done already; Sudbury River in process; Need more funding for Sudbury River MESO Habitat study; Start Concord River when the Sudbury is finished	Complete USGS study on Sudbury River; Conduct USGS study on Concord River; Conduct additional scenarios on the Assabet, Sudbury and Concord Rivers; Focus additional USGS studies on sub-basin tributaries of the Sudbury, Assabet and Concord Rivers; Work with Riverways Riffles Program to assist volunteers from stream teams, watershed organizations and river groups to monitor flow on tributaries; Form a Task Force to meet quarterly to discuss implementation issues and funding sources

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
<p>Educate about and encourage the use of landscaping options that require less water, e.g., create local bylaws to limit sprinkler use and the installation of private wells for lawn watering</p>	<p>Businesses, specifically landscapers, garden centers, and developers; Municipalities including DPW, Water Departments, and Schools; Cooperative Extension Service; Environmental organizations; Cable Networks and Local Access</p>	<p>Municipal; Businesses; MA EOE; Foundation grants</p>	<p>Already underway and to continue throughout the 5-year timeframe</p>	<p>Businesses educate customers through workshops and flyers (ex: Russell’s Garden Center holds workshops and hands out flyers on water conservation); Assist local Water Departments to: enforce local water bans, and send out educational flyers on water conservation with water bills, including why wise water use is important to stream flow and tips on proper lawn watering techniques; Encourage dialogue between landscapers, Water Departments and DPWs on local water issues; Hold workshops to educate municipal employees on water issues; Use Cable network and local access to distribute water conservation information; Educate students on water conservation as part of school curriculum; Create bylaws to limit sprinkler use and to disallow the installation of private wells for lawn watering; Local Water Departments work with homeowners to retrofit all outside lawn watering systems with moisture sensors; Encourage the practice of “water harvesting” (ex: rain barrels)</p>
<p>Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human and commercial consumption and aquatic habitat in each subbasin, i.e., manage water use, demand and source withdrawal so that human (residential and business) and ecological needs are both met</p>	<p>State; Municipalities; RPAs; SuAsCo WCC; Environmental organizations; Regional organizations</p>	<p>State; Municipal; Foundation grants</p>	<p>Efforts already underway and to continue throughout the 5-year timeframe</p>	<p>Implement study results on water balance allocation through well permits and other requirements; Coordinate water management permits across municipal boundaries</p>

<p><b>ACTION:</b></p> <p>Conduct research to determine ecological flow regimes that maintain the physical, chemical and biological integrity of rivers and streams; and model natural stream flow regimes</p>	<p><b>Participants:</b></p> <p>USGS; MA DCR; SuAsCo WCC; MA Riverways; RIFFLES Program; Watershed and River Organizations such as SRWO and OAR; Municipalities</p>	<p><b>Possible Funding Sources:</b></p> <p>State; Federal; Foundation grants; Businesses; in-kind monitoring help from volunteers</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Continue research on ecological flow regimes (physical, chemical and biological characteristics) of rivers and streams in SuAsCo Watershed; Conduct modeling of natural stream flow regimes of rivers and streams in SuAsCo Watershed and compare to State standards</p>
<p><b>ACTION:</b></p> <p>Seek funding and technical assistance to aid municipalities in implementation of the Massachusetts Water Policy</p>	<p><b>Participants:</b></p> <p>Municipalities; RPAs; SuAsCo WCC; Environmental consultants; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>Municipal; State; Foundation grants</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Water Departments conduct periodic water audits; Hold workshops and conferences to help municipalities with implementation of the MA Water Policy goals; Create media outreach toolkit and hook into MA Watershed Coalition “Water Web”; SuAsCo WCC and other organizations provide technical assistance and policy feedback to municipalities</p>

**5.15 LAND PROTECTION/OPEN SPACE ACTIONS**

- *Goal: preserved natural green areas at a significant scale that have value for habitat, recreation, scenery, water recharge, ecological uses, and/or historic significance*

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Increase local, state, and federal funding for land acquisition and protection	Municipalities; State Legislature; Land trusts; Local open space and land preservation committees; Agricultural Commission; Farmers; Large landowners	State Environmental Bond; CPA; self-help grants	As funding becomes available – expected to take between 1 and 5 years to complete	Restore Bond cap for land conservation to \$50 million per year; Create a Green Budget for stewardship; Increase funding for fish and wildlife agencies; Lobby State to increase annual cap on self-help grants by 3 to 4 times; Increase and promote dialogue between municipal officials and residents about land protection; Create forums to educate and market local businesses and residents about benefits of land protection to the local economy; Develop “best practices” manual on collaborative land protection

<p><b>ACTION:</b></p> <p>Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps</p>	<p><b>Participants:</b></p> <p>Municipalities; State government; Federal government; Land trusts; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>State; Foundation grants</p>	<p><b>Timeline:</b></p> <p>As funding becomes available – expected to take one year to complete</p>	<p><b>Potential Tasks:</b></p> <p>Identify priority lands for protection using the Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps; Make priority lands information available to communities and land protection organizations; Coordinate use of land protection information</p>
<p><b>ACTION:</b></p> <p>Encourage municipalities to pass the Community Preservation Act (CPA)</p>	<p><b>Participants:</b></p> <p>Municipalities; Land Trusts; Local open space and land preservation committees; Environmental organizations; Historical organizations; Housing advocacy groups; CPA Coalition; RPAs</p>	<p><b>Possible Funding Sources:</b></p> <p>Municipal; Foundation grants</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Hold forums on benefits of CPA and municipal experiences in passing CPA (such as the Forum sponsored by MAPC, MAGIC, MWGMC and others held in Framingham on March 31, 2005); Foster a dialogue through meetings, e-mails, etc. among municipalities in the SuAsCo Watershed on CPA benefits</p>

**5.16 HABITAT/BIODIVERSITY ACTIONS**

➤ *Goal: healthy, diverse natural communities of native species linked by corridors that preserve ecological integrity*

<p><b>ACTION:</b></p> <p>Increase funding for land/habitat acquisition and increase stewardship with emphasis on biodiversity, habitat corridors, and river continuity</p>	<p><b>Participants:</b></p> <p>Municipalities; Land trusts; MA Department of Fisheries and Wildlife; MA Department of Conservation and Recreation; Federal National Park Service; Federal Fish &amp; Wildlife Service; Federal Natural Resource and Conservation Service and local soil conservation commissions; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal; State; Municipal; Foundation grants; private dollars</p>	<p><b>Timeline:</b></p> <p>Efforts already underway and to increase throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Convene a working group to compare and strengthen stewardship strategies; Lobby State and Federal government to increase funding for land/habitat acquisition; Start an education campaign on the meaning and importance of biodiversity, habitat corridors, and river continuity; Increase hosts, activities, and participants in Annual Biodiversity Days</p>
<p><b>ACTION:</b></p> <p>Make culverts and bridges fish- and wildlife- friendly when they are replaced</p>	<p><b>Participants:</b></p> <p>MA Highway Department; MA Riverways Program; Federal National Park Service; Federal Fish &amp; Wildlife Service; Municipalities; Environmental organizations; Regional organizations such as Wild &amp; Scenic River Stewardship Council</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal; State; Municipal; Foundation grants</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>River Stewardship Council continue to comment on bridge and culvert replacements within the Wild and Scenic area; Form a committee to review new bridge and culvert proposals not in the River Stewardship Council jurisdiction; Submit review comments and recommendations to municipal, state and/or federal authority overseeing the construction</p>

<p><b>ACTION:</b></p> <p>Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection</p>	<p><b>Participants:</b></p> <p>Land trusts; Municipalities; State; Environmental organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>State; Municipal; Foundation grants</p>	<p><b>Timeline:</b></p> <p>As funding becomes available</p>	<p><b>Potential Tasks:</b></p> <p>Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection; Make priority parcel list available to communities and land protection organizations</p>
<p><b>ACTION:</b></p> <p>Define, assess, and control the occurrence and impact of invasive species</p>	<p><b>Participants:</b></p> <p>Regional organizations such as Wild &amp; Scenic River Stewardship Council; Municipalities such as Conservation Commissions; State; Land trusts; New England Wildflower Society; New England Invasive Plant Group; MA Invasive Plant Advisory Group; Garden centers; Environmental organizations such as HBPA</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal; State; Municipal; Foundation grants</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Lobby for legislation and/or bylaws to make it illegal to distribute invasive species; Study distribution and density of invasive species in SuAsCo habitats; Hold weed harvesting, hand pulling, and other invasive eradication activities; Coordinate resource-sharing, mapping and publicity on a watershed scale</p>
<p><b>ACTION:</b></p> <p>Install fish passages or remove dams to allow for anadromous fishery return</p>	<p><b>Participants:</b></p> <p>US Fish &amp; Wildlife Service; MA Fish &amp; Wildlife Service; MA Riverways Program; Municipalities; RPAs; Businesses; Dam owners; Environmental organizations; Historical organizations</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal; State; Businesses; Foundation grants; private dollars</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Continue stocking of anadromous fishery; Continue volunteer monitoring of stocking success; Evaluate need and explore physical and fiscal feasibility of fish passage installation at specific dams; Encourage dialogue on pros and cons of dam removal where appropriate</p>

**5.17 OUTREACH & EDUCATION ACTIONS**

- *Goal: public awareness and appreciation of the SuAsCo Watershed’s valuable natural resources and the strategies to protect them*

<p><b>ACTION:</b></p> <p>Educate homeowners, businesses and all property owners on riparian buffers, lawn care, vegetative plantings, over watering, etc.</p>	<p><b>Participants:</b></p> <p>Local Conservation Commissions; MA and Local Park and Recreation Departments, Ecological Landscaping Association; Garden centers; Federal Natural Resource and Conservation Service and local soil conservation commissions; EOEA; Green gardening and lawn care professionals; UMASS Extension; SuAsCo WCC; New England Wildflower Society; MA Audubon; Wild &amp; Scenic River Stewardship Council</p>	<p><b>Possible Funding Sources:</b></p> <p>Foundation grants</p>	<p><b>Timeline:</b></p> <p>Already underway and to continue throughout the 5-year timeframe</p>	<p><b>Potential Tasks:</b></p> <p>Hold workshops for homeowners, businesses and all property owners on riparian buffers, lawn care, vegetative plantings, over watering, etc.; Apply IPM Best Management Practices; Distribute educational information on turf grass best management practices (see Appendix for research draft as an informational source)</p>
<p><b>ACTION:</b></p> <p>Create a Best Management Practices Workbook on water pollution reduction, and educate communities regarding those practices</p>	<p><b>Participants:</b></p> <p>SuAsCo WCC; RPAs; Other regional collaborative groups – designated players should work in collaboration on this project</p>	<p><b>Possible Funding Sources:</b></p> <p>Federal grants; State grants; Foundation grants</p>	<p><b>Timeline:</b></p> <p>As funding becomes available</p>	<p><b>Potential Tasks:</b></p> <p>Create a Best Management Practices Workbook on water pollution reduction; Distribute workbook and hold workshops on BMPs</p>

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Embark on a public education campaign on water conservation	Municipalities; Environmental organizations such as OAR and SRWO; Regional organizations such as SuAsCo WCC and Wild & Scenic River Stewardship Council	State grants; Municipal; Foundation grants	As funding becomes available	Hold a media campaign on water supply limitations and water conservation strategies; Hold workshops on the “how to” and “reasons for” water conservation; Focus environmental organization annual meetings and events such as River Visions and River Fest on water conservation education; Encourage municipalities to price water so as to encourage conservation
Embark on a public education campaign on stormwater best management practices	SuAsCo WCC; Municipalities	Municipal	Already underway and to continue throughout the 5-year timeframe	Continue SuAsCo WCC Stormwater Community Assistance Program development of annual stormwater education and participation tools; Expand SuAsCo WCC Stormwater Community Assistance Program to more municipalities

**5.18 RECREATIONAL OPPORTUNITIES ACTIONS**

- *Goal: opportunities for people to enjoy the SuAsCo Watershed’s natural attributes consistent with the needs of wildlife and other competing needs and uses*

<b>ACTION:</b>	<b>Participants:</b>	<b>Possible Funding Sources:</b>	<b>Timeline:</b>	<b>Potential Tasks:</b>
Connect missing links along the Bay Circuit trail, the Concord River Corridor trail, rail trails, and trails to tributary connections with sensitivity to their context	Municipalities; Land trusts; Trail advocacy groups	Federal grants; State grants; Foundation grants; Municipal; private dollars	Already underway and to continue throughout the 5-year timeframe	Acquire land to connect missing links in trail systems; Expand trail systems with sensitivity to use, habitat, abutters, etc.
Assess and manage recreational impacts on the environment and natural resources	Municipalities; Land trusts; MA Department of Conservation & Recreation; MA Fish & Wildlife; National Park Service; US Fish & Wildlife Service; environmental organizations	Federal operating budget and grants; State operating budget and grants; Municipal; Foundation grants	Already underway and to continue throughout the 5-year timeframe	Conduct study to identify environmental and natural resource impact criteria; Conduct study to assess environmental and natural resource impacts on recreational lands; Manage recreational lands in response to study results and public input
Preserve riparian land for recreational uses such as open space, access, fishing, etc.	Municipal; State; Federal; Land trusts	Federal operating budget and grants; State operating budget and grants; Municipal; Foundation grants; private dollars	Already underway and to continue throughout the 5-year timeframe	Seek funding for riparian land acquisition; Prioritize preservation of riparian land that provides uses such as open space, access, and fishing

## 6 Watershed Action Plan Word of Wisdom (WOWs)

Throughout the public input process of the SuAsCo Watershed Action Plan, a few themes consistently emerged, which were coined as “WAP words of wisdom” or “WAP WOWs”. The following are some WAP WOWs for the SuAsCo Watershed.

***Act as a region*** – natural resource management and decision-making must be executed from a watershed perspective as decisions upstream will impact users downstream and vice versa – for example, upstream influences on downstream uses include water quantity, wastewater assimilation, and drinking water quality; downstream influences on upstream uses include alewife restoration and dam management

***Keep water local*** – this slogan has been recognized in the Charles River Watershed and all across the Commonwealth and is promulgated in regulations such as those under the InterBasin Transfer Act – the need to restore water to local aquifers, to take, use and return water within a subbasin, is becoming increasingly well recognized – water stress is apparent in situations such as the “puddling” observed on the upstream reaches of the Sudbury River, and the water bans posted by many municipalities in order to conserve their water supplies

***New development should strive to use low impact development (LID) technology and green building technology*** – given the high rate of growth and development in the SuAsCo Watershed, the application of LID and green building technology appears to be essential to the sustainability of the Watershed’s natural resources – LID techniques show great promise for better stormwater management, a necessity as development leads to more paving and rooftops; and green building technology has been demonstrated to reduce water and fuel consumption, resources that are projected to become more limited in the future

***We must work together*** – the future sustainability of the SuAsCo Watershed’s natural resources and strong economy will depend on the watershed community’s ability to collaborate and cooperate – creative and effective solutions to the resource challenges of the SuAsCo Watershed can best be found and implemented by working together

***Education is a key to everything*** – better resource management and effective pollution control depends upon the education of residents, decision-makers, developers, and virtually all stakeholders – education may take the form of sharing “best management practices” on water conservation strategies and low impact development bylaws or establishing school curriculums on the SuAsCo Watershed or ... the topics are endless – the bottom line is that widespread outreach and education will be instrumental to the success of every action in this Watershed Action Plan

**APPENDIX A**

**LIST OF ALL ACTIONS RECOMMENDED OVER DURATION OF WAP PROCESS**

## **List of All Actions Recommended over Duration of WAP Process**

### **Growth and Development Actions**

1. Encourage communities to coordinate and work together through compacts
2. Study European approaches to over-development
3. Change review process to look at cumulative impacts from subdivisions and development projects
4. Create developer incentives for doing greenway design
5. Establish developer insurance fund for water problems after the fact
6. Require developers to provide a contingency bond in case of environmental damage
7. Require developers to conduct a cumulative impact study on proposed developments
8. Encourage municipal boards to talk and work together within and across municipal boundaries
9. Rewrite Community Preservation Act to put transfer fee on real estate industry rather than homeowner
10. Create a Watershed Authority
11. Encourage/require new construction to use Low Impact Development design
12. Encourage joint board reviews within a municipality
13. Encourage development review process to consider community character and historical values
14. Assist communities to adopt Low Impact Development bylaws

### **Water Quality Actions**

1. Conduct TMDL studies by tributary watershed and implement results
2. Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and rivers regulations
3. Research adequate effluent limitations for phosphorus in groundwater discharges
4. Decrease wastewater effluent concentrations and costs by using innovative technologies and seeking federal funding to support such strategies
5. Create local bylaws to minimize use of lawn fertilizers and herbicides and encourage appropriate depth of loam, especially in new developments
6. Make sure current agricultural practices are consistent with water quality issues
7. Create incentives for septic systems and small package plants rather than large, municipal centralized systems
8. Apply Low Impact Development BMP's (such as turf swales for drainage) and other stormwater BMPs on municipal level under Stormwater Phase II
9. Require new developments to separate gray from black water
10. Set up a committee to study and identify sources of mercury pollution and to work for legislation to reduce sources of mercury
11. Identify all toxic waste sites in the watershed and track their clean up
12. Lobby for legislation to remove phosphorus from household machine dishwashing detergents
13. Conduct more water quality and sediment quality monitoring
14. Hold more river and stream cleanups

15. Lobby State and Federal legislators for more attention to Superfund and toxic waste site cleanups
16. Remediate Sudbury River of mercury in sediments
17. Develop new technologies to clean up Superfund and toxic waste sites

### **Water Quantity Actions**

1. Create a "Water Conservation Guidebook" to be distributed through schools and other venues
2. Include aquatic health as an indicator of sustainability
3. Help municipalities adopt Low Impact Development bylaws on a watershed basis
4. Share "best practices" water conservation strategies among municipalities
5. Encourage municipalities to conduct local water surveys and audits of residences and businesses
6. Create local bylaws to limit sprinkler use and the installation of private wells for lawn watering
7. Apply for state funding for water balance BMP's based on studies
8. Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed
9. Provide funding and technical assistance to municipalities to implement Massachusetts water policy guidelines
10. Conduct a survey and feasibility study on removing dams
11. Reduce water use in all communities through water conservation by 10% with an incentive provided by the DEP so communities aren't penalized by higher water rates for using less water while water supply costs continue to rise
12. Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human/commercial consumption and aquatic habitat
13. Encourage formation of municipal water committees to implement Massachusetts' water policies
14. Educate about and encourage the use of "Smart Water Application Technology" (developed by Irrigation Association of America to water lawns only as needed)
15. Educate about and encourage the use of landscaping options that require less water (seed types, soil depth, etc.)
16. Encourage use of underground rain barrel/cisterns with pump systems for commercial and large residential developments (to reduce water resource use, manage stormwater, and enhance recharge)
17. Conduct research to determine ecological flow regimes that maintain physical, chemical and biological integrity of rivers and streams
18. Model natural stream flow regimes

### **Land Protection/Open Space Actions**

1. Increase local, state, and federal funding for land acquisition
2. Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer

- recharge area maps
- 3. Work collaboratively and creatively to protect land by all available mechanisms (e.g., conservation restrictions, etc.)
- 4. Encourage municipalities to pass the Community Preservation Act
- 5. Encourage municipalities to acquire river front property
- 6. Extend Wild and Scenic River designated area
- 7. Pass legislation to discourage conversion of conservation land under Article 97

### **Habitat/Biodiversity Actions**

- 1. Support anadromous fishery restoration
- 2. Increase funding for land/habitat acquisition with emphasis on biodiversity, habitat corridors, and river continuity
- 3. Overlay biodiversity and greenways plan and plans created by environmental and planning organizations for the Suasco Watershed over source water protection maps to identify priority parcels for protection
- 4. Conserve land using the Biodiversity Plan, Greenprint for Growth, plans created by environmental and planning organizations for the Suasco Watershed, etc.
- 5. Make culverts and bridges fish- and wildlife- friendly when they are replaced
- 6. Install fish passages or remove dams to allow for anadromous fishery return
- 7. Maintain and restore habitat for fluvial species (volume, flow, temperature, etc.)
- 8. Assess the scenic and historic values of dams
- 9. Make it illegal to distribute invasive species
- 10. Assess and control the occurrence and impact of invasive species
- 11. Require State properties to remove ornamental plantings of invasive species

### **Outreach and Education Actions**

- 1. Link web sites for educational outreach
- 2. Get watershed concepts into the Massachusetts Frameworks so that it is taught in school
- 3. Educate homeowners on riparian buffers, lawn care, vegetative plantings, over watering, etc.
- 4. Embark on a public education campaign focusing on public officials, students, homeowners, businesses, etc. on stormwater best management practices
- 5. Embark on a public education campaign focusing on public officials, students, homeowners, businesses, etc. on water conservation
- 6. Expand educational outreach to diverse age/ethnic/cultural communities in SuAsCo Watershed
- 7. Expand the SuAsCo Watershed Community Council's Stormwater Community Assistance Program

### **Outreach and Education Actions (continued)**

- 8. Develop a Watershed Environmental Education Center
- 9. Set up SuAsCo educational kiosks for education (e.g., Gillette stadium, Wrentham

Outlets, etc.)

10. Develop and install SuAsCo signage throughout the Watershed
11. Support the sustainability of the SuAsCo Watershed Community Council
12. Update the SuAsCo Watershed Action Plan in the near future
13. Conduct storm drain stenciling
14. Develop a compendium of municipal bylaws that work, if it doesn't already exist, with regional planning agencies a sources of information
15. Develop model watershed-wide bylaws for environmental protection by subject area (e.g., protecting water quantity)
16. Keep track of and lobby for environmental legislation
17. Increase funding for environmental budgets
18. Strengthen environmental enforcement
19. Create a Best Management Practices workbook on water pollution reduction and educate communities regarding those practices
20. Awaken broader political constituency
21. Create metrics for measuring Watershed progress
22. Encourage citizen input into hydropower relicensing on SuAsCo dams in order to improve ecological restoration, portage, access, etc.
23. Educate homeowners about how to properly dispose of left over fertilizers, herbicides, and pesticides
24. "Twin" SuAsCo Watershed with a watershed in another country for learning and exchange opportunities

### **Recreational Opportunities Actions**

1. Assess recreational impacts on the environment
2. Enforce boat speed limits on the rivers
3. Preserve riparian land for recreational uses such as open space, access, fishing, etc.
4. Employ conservation restrictions to improve recreational capacity of riparian property
5. Recognize and accommodate the multiple purposes of recreational land
6. Upgrade recreational access areas to ADA standards
7. Enhance portage opportunities around dams
8. Connect missing links along the Bay Circuit trail, the river trail on the Concord River, rail trails, and trails to tributary connections
9. Identify recreational opportunities and mitigate recreational impacts from bridge/roadway design
10. Hold more events like RiverFest and River Visions to celebrate and educate about the rivers

**APPENDIX B**

**BALLOT**

## SuAsCo Watershed Actions Ballot

*Directions: Under each category, circle the top 3 actions that you think we should collectively strive to achieve in the SuAsCo Watershed over the next 5 years. (please note that items are listed below in no particular order)*

### Growth and Development Actions

1. Assess cumulative impacts from development projects
2. Encourage development review process to consider community character and historical values
3. Create developer incentives for doing greenway design
4. Require developers to provide a contingency bond in case of environmental damage
5. Require developers to conduct a cumulative impact study on proposed developments
6. Encourage municipal boards to talk and work together within and across municipal boundaries
7. Encourage communities to adopt Low Impact Development bylaws

### Water Quality Actions

1. Conduct TMDL studies by tributary watershed and implement results
2. Conduct more water quality and sediment quality monitoring
3. Decrease wastewater effluent concentrations and treatment costs by using innovative technologies and seeking federal funding to support such strategies
4. Research adequate effluent limitations for phosphorus in groundwater discharges
5. Create incentives for constructing septic systems and small package plants rather than large, municipal centralized systems
6. Require new developments to separate gray from black water
7. Create local bylaws to minimize use of lawn fertilizers and herbicides and encourage appropriate depth of loam, especially in new developments
8. Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and river regulations
9. Set up a committee to study and identify sources of mercury pollution and to work for legislation to reduce sources of mercury
10. Identify all toxic waste sites in the watershed and track their clean up
11. Lobby for legislation to remove phosphorus from household machine dishwashing detergents
12. Hold more river and stream cleanups

### Water Quantity Actions

1. Create a "Water Conservation Guidebook" to be distributed through schools and other venues
2. Encourage municipalities to conduct local water surveys and audits of residences and businesses
3. Create local bylaws to limit sprinkler use and the installation of private wells for lawn watering
4. Educate about and encourage the use of landscaping options that require less water
5. Provide funding and technical assistance to municipalities to implement Massachusetts water policy guidelines
6. Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed
7. Conduct research to determine ecological flow regimes that maintain physical, chemical and biological integrity of rivers and streams
8. Model natural stream flow regimes
9. Conduct a survey and feasibility study on removing dams
10. Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human/commercial consumption and aquatic habitat

**Land Protection/Open Space Actions**

1. Increase local, state, and federal funding for land acquisition
2. Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps
3. Work collaboratively and creatively to protect land
4. Encourage municipalities to acquire river front property
5. Pass legislation to discourage conversion of conservation land under Article 97
6. Encourage municipalities to pass the Community Preservation Act
7. Extend Wild and Scenic River designated area

**Habitat/Biodiversity Actions**

1. Make culverts and bridges fish- and wildlife- friendly when they are replaced
2. Install fish passages or remove dams to allow for anadromous fishery return
3. Maintain and restore habitat for fluvial species
4. Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection
5. Increase funding for land/habitat acquisition with emphasis on biodiversity, habitat corridors, and river continuity
6. Assess the scenic and historic values of dams
7. Make it illegal to distribute invasive species
8. Assess and control the occurrence and impact of invasive species
9. Require State properties to remove ornamental plantings of invasive species

**Outreach and Education Actions**

1. Educate homeowners on riparian buffers, lawn care, vegetative plantings, over watering, etc.
2. Embark on a public education campaign on stormwater best management practices
3. Embark on a public education campaign on water conservation
4. Expand educational outreach to diverse age/ethnic/cultural communities in SuAsCo Watershed
5. Develop a Watershed Environmental Education Center
6. Develop and install SuAsCo signage throughout the Watershed
7. Conduct storm drain stenciling
8. Develop model watershed-wide bylaws for environmental protection
9. Create a Best Management Practices workbook on water pollution reduction and educate communities regarding those practices
10. Create metrics for measuring Watershed progress
11. Keep track of and lobby for environmental legislation
12. "Twin" SuAsCo Watershed with a watershed in another country for learning and exchange opportunities

**Recreational Opportunities Actions**

1. Assess recreational impacts on the environment
2. Preserve riparian land for recreational uses such as open space, access, fishing, etc.
3. Employ conservation restrictions to improve recreational capacity of riparian property
4. Upgrade recreational access areas to ADA standards
5. Enhance portage opportunities around dams
6. Enforce boat speed limits on the rivers
7. Connect missing links along the Bay Circuit trail, the river trail on the Concord River, rail trails, and trails to tributary connections
8. Identify recreational opportunities and mitigate recreational impacts from bridge/roadway design
9. Hold more events like RiverFest and River Visions to celebrate and educate about the rivers

**APPENDIX C**  
**BALLOT RESULTS**

## **SuAsCo Watershed Actions Ballot Results fix numbering**

*Ballots were distributed to participants at the River Visions Forum (05/11/05), and to Steering Committee representatives. The action item receiving the most votes (#) is placed first, etc. Voting directions were: "under each category, circle the top 3 actions that you think we should collectively strive to achieve in the SuAsCo Watershed over the next 5 years" (please note that items were listed in no particular order on the ballot). The results below reflect the responses given on 72 ballots. Missing reflects info added by workshops.*

### **Growth and Development Actions**

15. Encourage communities to adopt Low Impact Development bylaws **(44)**
16. Encourage municipal boards to talk and work together within and across municipal boundaries **(32)**
17. Assess cumulative impacts from development projects **(31)**
18. Create developer incentives for doing greenway design **(30)**
19. Require developers to conduct a cumulative impact study on proposed developments **(29)**
20. Require developers to provide a contingency bond in case of environmental damage **(23)**
21. Encourage development review process to consider community character and historical values **(15)**
22. *missing: update build-out analyses*
23. *missing: more language on "smart growth"*

### **Water Quality Actions**

18. Decrease wastewater effluent concentrations and treatment costs by using innovative technologies and seeking federal funding to support such strategies **(30)**
19. Create incentives for constructing septic systems and small package plants rather than large, municipal centralized systems **(22)**
20. Identify all toxic waste sites in the watershed and track their clean up **(21)**
21. Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and river regulations **(18)**
22. Create local bylaws to minimize use of lawn fertilizers and herbicides and encourage appropriate depth of loam, especially in new developments **(18)**
23. Conduct TMDL studies by tributary watershed and implement results **(18)**
24. Lobby for legislation to remove phosphorus from household machine dishwashing detergents **(17)**
25. Require new developments to separate gray from black water **(15)**
26. Conduct more water quality and sediment quality monitoring **(15)**
27. Hold more river and stream cleanups **(13)**
28. Research adequate effluent limitations for phosphorus in groundwater discharges **(13)**
29. Set up a committee to study and identify sources of mercury pollution and to work for legislation to reduce sources of mercury **(5)**
30. *missing: develop technology to remediate Sudbury River of mercury from Nyanza Superfund Site*
31. *missing: repair I/I infrastructure where needed*
32. *missing: encourage municipalities to use sand on roads in winter instead of salt near surface waters*

### **Water Quantity Actions**

19. Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed **(32)**
20. Educate about and encourage the use of landscaping options that require less water **(29)**
21. Create local bylaws to limit sprinkler use and the installation of private wells for lawn watering **(25)**
22. Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human/commercial consumption and aquatic habitat **(24)**
23. Conduct research to determine ecological flow regimes that maintain physical, chemical and biological integrity of rivers and streams **(24)**
24. Provide funding and technical assistance to municipalities to implement Massachusetts' Water Policy

**Guidelines (24)**

25. Encourage municipalities to conduct local water surveys and audits of residences and businesses (17)
26. Create a "Water Conservation Guidebook" to be distributed through schools and other venues (17)
27. Conduct a survey and feasibility study on removing dams (11)
28. Model natural stream flow regimes (6)
29. *missing: continue to measure and track flows*
30. *missing: create local and regional bylaws to prevent building in 100-year flood plain and create additional buffers to reduce flooding in developed areas*

**Land Protection/Open Space Actions**

8. Increase local, state, and federal funding for land acquisition (47)
9. Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps (39)
10. Encourage municipalities to pass the Community Preservation Act (31)
11. Work collaboratively and creatively to protect land (29)
12. Pass legislation to discourage conversion of conservation land under Article 97 (25)
13. Encourage towns to acquire river front property (21)
14. Extend Wild and Scenic River designated area (16)

**Habitat/Biodiversity Actions**

12. Increase funding for land/habitat acquisition with emphasis on biodiversity, habitat corridors, and river continuity (38)
13. Make culverts and bridges fish- and wildlife- friendly when they are replaced (34)
14. Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection (32)
15. Make it illegal to distribute invasive species (28)
16. Assess and control the occurrence and impact of invasive species (21)
17. Install fish passages or remove dams to allow for anadromous fishery return (21)
18. Require State properties to remove ornamental plantings of invasive species (16)
19. Maintain and restore habitat for fluvial species (14)
20. Assess the scenic and historic values of dams (8)
21. *missing – promote stewardship planning for core biodiversity sites*

**Outreach and Education Actions**

25. Educate homeowners on riparian buffers, lawn care, vegetative plantings, over watering, etc. (41) – *suggested edit to “educate homeowners, businesses and all property owners on...”*
26. Create a Best Management Practices workbook on water pollution reduction and educate communities regarding those practices (27)
27. Embark on a public education campaign on water conservation (25)
28. Embark on a public education campaign on stormwater best management practices (21)
29. Develop model watershed-wide bylaws for environmental protection (18)
30. Conduct storm drain stenciling (15)
31. Keep track of and lobby for environmental legislation (13)
32. Create metrics for measuring Watershed progress (13)
33. Expand educational outreach to diverse age/ethnic/cultural communities in the SuAsCo Watershed (13)
34. Develop and install SuAsCo signage throughout the Watershed (7)
35. Develop a Watershed Environmental Education Center (7)
36. “Twin” SuAsCo Watershed with a watershed in another country for learning/exchange opportunities (6)

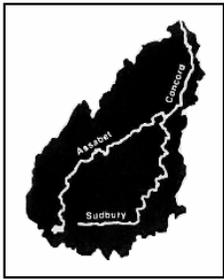
**Recreational Opportunities Actions**

11. Connect missing links along the Bay Circuit trail, the river trail on the Concord River, rail trails, and trails to tributary connections **(43)**
12. Assess recreational impacts on the environment **(33)** – *suggested edit to “assess and manage...”*
13. Preserve riparian land for recreational uses such as open space, access, fishing, etc. **(26)**
14. Employ conservation restrictions to improve recreational capacity of riparian property **(24)**
15. Hold more events like RiverFest and River Visions to celebrate and educate about the rivers **(21)**
16. Enforce boat speed limits on the rivers **(17)**
17. Identify recreational opportunities and mitigate recreational impacts from bridge/roadway design **(13)**
18. Enhance portage opportunities around dams **(12)**
19. Upgrade recreational access areas to ADA standards **(10)**

**APPENDIX D**

**STEERING COMMITTEE MEMBERS**

*Note: The Steering Committee was made up of the members identified in this section. Specific meeting attendees are identified in Appendix F.*



**SuAsCo  
Watershed  
Community  
Council**

**SuAsCo Watershed Community Council  
Steering Committee Representatives  
2004 – 2005**

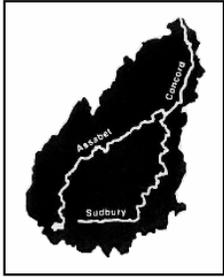
**Municipalities**

Acton Board of Health	Kim Groff
Billerica Board of Selectmen	Ellen Rawlings*
Framingham Planning Department	Kathy Bartolini*
Grafton Department of Public Works	Roger Hammond
Hudson Economic Development Committee	Christopher Tibbals
Lincoln Land Conservation Trust	Buzz Constable
Marlborough Planning Board	Al Lima
Maynard Conservation Commission	David Shute
Sherborn Groundwater Protection Committee	Linda Smith
Southborough Open Space Preservation Committee	Meme Luttrell
Stow Board of Selectmen	Kathy Farrell
Sudbury Board of Selectmen	John Drobinski
Town of Concord	Judith Sprott
Westborough Water Resources Management Committee	Kris Allen

**At Large: State/Federal/Regional Agencies and Legislature**

Dept. of Environmental Management	Mike Fleming
Dept. of Environmental Protection-NERO	Judy Barber
Dept. of Fish & Game Riverways Program	Joan Kimball
Great Meadows National Wildlife Refuge	Libby Herland
Leadership MetroWest	Helen Lemoine
MA House of Representatives	Susan Pope*
MA House of Representatives	Pat Walrath
MA Senate	Pam Resor*
Metropolitan Area Planning Council	Martin Pillsbury
MetroWest Growth Management Committee	Donna Jacobs
Middlesex Conservation District	David Williams
National Park Service	Lee Steppacher
Northern Middlesex Regional Planning Council	Bob Flynn
Wild and Scenic River Stewardship Council	Scott Cleveland

*(Note: \* indicates Executive Committee member)*



**SuAsCo  
Watershed  
Community  
Council**

**SuAsCo Watershed Community Council  
Steering Committee Representatives  
2004 – 2005**

**(continued)**

**Industry/Business**

Ambient Engineering  
BHO Associates  
Boyd Coatings Research Company  
Clock Tower Place  
Earth Tech  
Gustafson Associates  
Lombardo Associates  
MA Association of Lawn Care Professionals  
NSTAR Gas & Electric  
Raytheon Corporation  
Russell's Garden Center  
SEA Consultants  
Utility Contractors' Association of New England  
Woodard and Curran

T.J. Stevenson/David Manugian  
Barbara Offenhartz  
Don Garcia  
Joe Mullin\*  
Tom Parece  
George Gustafson  
Pio Lombardo  
Cliff Drezek/Karen Connelly  
Jeff Stevens  
Paul Ward\*  
Jack Russell  
Betsy Frederick  
Matthew Boger/Phil Jasset  
Robert Rafferty

**Environmental Organizations**

Acton Land Stewardship Committee  
Concord River Environmental Stream Team  
Earthwatch Institute  
Fort Meadow Watershed Association  
Hop Brook Protection Association  
Hop Brook Protection Association  
Lowell Parks & Conservation Trust  
Mill Brook Task Force  
Organization for the Assabet River  
River Meadow Brook Association  
SuAsCo Watershed Association  
Sudbury River Watershed Organization  
Sudbury Valley Trustees  
Walden Woods Project

Linda McElroy  
Kevin Gilligan  
John Walker  
Anne Leedham  
Ursula Lyons  
Mike Meixsell  
Jane Calvin  
Carol Gupta  
Debbie Listernick  
Tom Wilson  
Peter Burn\*  
Frederica Gillespie\*  
Ron McAdow  
Kent Curtis

*(Note: \* indicates Executive Committee member)*

**APPENDIX E**  
**RIVER VISIONS AGENDA**



**RIVER VISIONS 2005 WATERSHED FORUM**

***SUDBURY-ASSABET-CONCORD RIVER (SUASCO) WATERSHED***

***INTEL MASSACHUSETTS – MAY 11, 2005***

***FORUM AGENDA***

- 5:00 Registration, Dinner and Exhibitor Tables*
- 6:30 Welcome from Community Council: Ellen Rawlings, Executive Committee*
- 6:35 Welcome from Intel Massachusetts: Jeff Fadden, Manager of Corporate Services for Intel Massachusetts and East Coast*
- 6:40 SuAsCo Watershed Awards*
- 6:50 “River Visions”: The Role of the Community Council: Nancy Bryant, Executive Director, and Paul Starratt, Billerica Dept. of Public Works*
- 7:05 The Watershed Action Plan, James Stergios, Undersecretary for Policy, Executive Office of Environmental Affairs*
- 7:20 “State of the Watershed” Panel:*  
*Growth & Development: Martin Pillsbury, MAPC*  
*Water Quality: Alice Rojko, MA Dept. of Environmental Protection*  
*Water Quantity: Steve Garabedian, US Geological Survey*  
*Land Protection: Ron McAdow, Sudbury Valley Trustees*  
*Habitat/Biodiversity: Frances Clark, New England Wildflower Society*
- 8:20 Ballot Voting on Priority Actions*

*8:30 Concurrent Workshops (please refer to map for room location)*

*A. Growth & Development*

*B. Water Quality*

*C. Water Quantity*

*D. Land Protection*

*E. Habitat/Biodiversity*

*F. Hiking in the SuAsCo Watershed*

*G. Environmentally Friendly Lawn Care*

*9:30 Adjourn*

***River Visions 2005 Exhibitor Tables (Plenary Room):***

*Ambient Engineering*

*Friends of the Assabet River Wildlife Refuge*

*Hop Brook Protection Association*

*Lowell Parks & Conservation Trust*

*Massachusetts Association of Lawn Care Professionals*

*Metropolitan Area Planning Council*

*MetroWest Growth Management Committee*

*SuAsCo Watershed Community Council*

*Sudbury-Assabet-Concord Wild & Scenic River Stewardship Council*

*Sudbury River Watershed Organization*

*Sudbury Valley Trustees*

We hope you enjoyed the evening – please remember to turn in your yellow evaluation form and blue ballot – thank you!

***RIVER VISIONS 2005 WATERSHED FORUM  
MAY 11, 2005***

**AGENDA FOR WORKSHOPS A – E**

5 min. Questions for Panel Speaker

5 min. Review List of Actions specific to workshop topic – is anything missing?

5 min. Prioritize Order in which to Discuss Actions

45 m. For each Action discuss:

- ❖ Players – who will work on the action?
- ❖ Money sources – where will money come from to pay for the action?
- ❖ Timeline – over the next 5 years, when will the action get done?
- ❖ Tasks – list any specific tasks involved in achieving the action

As you discuss the Actions, keep in mind:

- ❖ “Think out of the box”
- ❖ Some actions may be interrelated with actions under other topics
- ❖ How important is collaboration to achieving these actions?
- ❖ How can you help to get this action done?
- ❖ Should a task force be created to shepherd these actions?

Note: keep track of discussion items that are not relevant in the moment, but still important on a separate piece of chart paper labeled “parking lot” issues

**SuAsCo Watershed Potential 5-Year Actions**  
*Please use this list for discussion in Workshops A – E*

**Workshop A: Growth and Development Actions**

1. Assess cumulative impacts from development projects
2. Encourage development review process to consider community character and historical values
3. Create developer incentives for doing greenway design
4. Require developers to provide a contingency bond in case of environmental damage
5. Require developers to conduct a cumulative impact study on proposed developments
6. Encourage municipal boards to talk and work together within and across municipal boundaries
7. Encourage communities to adopt Low Impact Development bylaws

**Workshop B: Water Quality Actions**

1. Conduct TMDL studies by tributary watershed and implement results
2. Conduct more water quality and sediment quality monitoring
3. Decrease wastewater effluent concentrations and treatment costs by using innovative technologies and seeking federal funding to support such strategies
4. Research adequate effluent limitations for phosphorus in groundwater discharges
5. Create incentives for constructing septic systems and small package plants rather than large, municipal centralized systems
6. Require new developments to separate gray from black water
7. Create local bylaws to minimize use of lawn fertilizers and herbicides and encourage appropriate depth of loam, especially in new developments
8. Perform stream team surveys and notify property owners and local conservation commissions of infractions of wetlands and river regulations
9. Set up a committee to study and identify sources of mercury pollution and to work for legislation to reduce sources of mercury
10. Identify all toxic waste sites in the watershed and track their clean up
11. Lobby for legislation to remove phosphorus from household machine dishwashing detergents
12. Hold more river and stream cleanups

**Workshop C: Water Quantity Actions**

1. Create a "Water Conservation Guidebook" to be distributed through schools and other venues
2. Encourage municipalities to conduct local water surveys and audits of residences and businesses
3. Create local bylaws to limit sprinkler use and the installation of private wells for lawn watering
4. Educate about and encourage the use of landscaping options that require less water
5. Provide funding and technical assistance to municipalities to implement Massachusetts water policy guidelines
6. Continue research studies on water balance (aquifer inflow/outflow) on all three rivers and identify smaller sub-basins that are highly stressed
7. Conduct research to determine ecological flow regimes that maintain physical, chemical and biological integrity of rivers and streams
8. Model natural stream flow regimes
9. Conduct a survey and feasibility study on removing dams
10. Regionalize the allocation of water resources so as to allot sustainable quantity to meet water requirements needed for human/commercial consumption and aquatic habitat

**Workshop D: Land Protection/Open Space Actions**

1. Increase local, state, and federal funding for land acquisition
2. Identify priority lands for protection through the use and coordination of the existing Biodiversity Plan, Greenprint for Growth, and other data sources such as aquifer recharge area maps
3. Work collaboratively and creatively to protect land
4. Encourage municipalities to acquire river front property
5. Pass legislation to discourage conversion of conservation land under Article 97
6. Encourage municipalities to pass the Community Preservation Act
7. Extend Wild and Scenic River designated area

**Workshop E: Habitat/Biodiversity Actions**

1. Make culverts and bridges fish- and wildlife- friendly when they are replaced
2. Install fish passages or remove dams to allow for anadromous fishery return
3. Maintain and restore habitat for fluvial species
4. Overlay biodiversity and greenways plans over source water protection maps to identify priority parcels for protection
5. Increase funding for land/habitat acquisition with emphasis on biodiversity, habitat corridors, and river continuity
6. Assess the scenic and historic values of dams
7. Make it illegal to distribute invasive species
8. Assess and control the occurrence and impact of invasive species
9. Require State properties to remove ornamental plantings of invasive species

**Workshop F: Outreach and Education Actions**

1. Educate homeowners on riparian buffers, lawn care, vegetative plantings, over watering, etc.
2. Embark on a public education campaign on stormwater best management practices
3. Embark on a public education campaign on water conservation
4. Expand educational outreach to diverse age/ethnic/cultural communities in SuAsCo Watershed
5. Develop a Watershed Environmental Education Center
6. Develop and install SuAsCo signage throughout the Watershed
7. Conduct storm drain stenciling
8. Develop model watershed-wide bylaws for environmental protection
9. Create a Best Management Practices workbook on water pollution reduction and educate communities regarding those practices
10. Create metrics for measuring Watershed progress
11. Keep track of and lobby for environmental legislation
12. "Twin" SuAsCo Watershed with a watershed in another country for learning and exchange opportunities

**Workshop G: Recreational Opportunities Actions**

1. Assess recreational impacts on the environment
2. Preserve riparian land for recreational uses such as open space, access, fishing, etc.
3. Employ conservation restrictions to improve recreational capacity of riparian property
4. Upgrade recreational access areas to ADA standards
5. Enhance portage opportunities around dams
6. Enforce boat speed limits on the rivers
7. Connect missing links along the Bay Circuit trail, the river trail on the Concord River, rail trails, and trails to tributary connections
8. Identify recreational opportunities and mitigate recreational impacts from bridge/roadway design
9. Hold more events like RiverFest and River Visions to celebrate and educate about the rivers

**SUASCO WATERSHED ACTION PLAN DESCRIPTION what is this?**

The MA Executive Office of Environmental Affairs has contracted with Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council to conduct the 5-Year Watershed Action Plan (WAP) for the Sudbury-Assabet-Concord River (SuAsCo) Watershed. This process usually takes 12 months, but due to EOEAs budget cycle, the process is being consolidated into less than 4 months in order to be completed by the end of June 2005.

The WAP will identify the priority issues in the SuAsCo Watershed and the top actions needed over the next 5 years to address those problems in order to improve the watershed's environmental health. The Plan is driven by existing municipal reports and research data, as well as by public opinion.

The main components of the WAP are as follows:

- Assessment Report – compilation of environmentally related reports in the SuAsCo Watershed, including GIS Maps, municipal open space plans, documents from regional agencies and organizations, etc.
- Determining Environmental Priorities and Priority Actions – as determined by the Assessment Report results and discussion by the SuAsCo Watershed Community Council Steering Committee and general public
- Public Review – four public forums to solicit public input and comment on environmental priorities and priority actions
- Publication of Recommendations

The "Priority Actions" identified in the WAP will include projects best suited for government action, as well as potential actions that could be taken by other stakeholders in the watershed. Priority Actions must be selected on the basis of public benefit. Priority Action projects should include a description of the public environmental benefit, potential advocates for the project, an estimate of cost, a timeline, and potential funding sources. The River Visions 2005 Forum will solicit prioritization feedback on potential actions through ballot voting and will solicit detailed input on priority actions in topic-specific workshops.

Once complete, the WAP will be used by the State to target where its limited environmental grant resources should be spent in the SuAsCo Watershed. The priority actions identified in the WAP will be taken into consideration by many state and federal agencies when awarding environmental grants and loans, such as SRF loans and 319 grants. The WAP will also help mobilize the watershed community to collaboratively tackle regional environmental issues. The completed WAP document will be posted on Ambient Engineering's and the Community Council's websites as mentioned below.

For more information, you can contact: Nancy Bryant, SuAsCo Watershed Community Council, [suasco@compuserve.com](mailto:suasco@compuserve.com); 978-461-0735; [www.suasco.org](http://www.suasco.org)

Or David Manugian, Ambient Engineering, [dmmanugian@ambient-engineering.com](mailto:dmmanugian@ambient-engineering.com); 978-369-8188; [www.ambient-engineering.com](http://www.ambient-engineering.com)

**APPENDIX F**  
**MEETING ATTENDEES**

**SuAsCo Watershed Community Council Steering Committee Meeting**  
**March 21, 2005 from 7:30 to 9:30 PM**  
**at the Framingham Memorial Building**  
**Agenda**

- Introductions of Attendees
- Welcome to Framingham: Kathy Bartolini
- Announcements
- SuAsCo WCC Call to Action
- Explanation of Watershed Action Plan (WAP) Process
- Comments on Assessment Report Outline
- Brainstorming on Environmental Priorities in SuAsCo
- Brainstorming on 5-year Actions
- WAP Meeting Calendar and Steering Committee role in recruiting public participation
- Comments on River Visions Format
- Any other Steering Committee Direction on WAP

**March 21, 2005 Attendees:**

Framingham Planning Department	Kathy Bartolini
Maynard Conservation Commission	David Shute
Sherborn Groundwater Protection Committee	Linda Smith
Southborough Open Space Preservation Committee	Meme Luttrell
Town of Concord	Judith Sprott
Great Meadows National Wildlife Refuge	Libby Herland
Leadership MetroWest	Helen Lemoine
MA Senate	Pam Resor
MetroWest Growth Management Committee	Donna Jacobs
Middlesex Conservation District	David Williams
Ambient Engineering	David Manugian
BHO Associates	Barbara Offenhartz
Clock Tower Place	Joe Mullin
Earth Tech	Tom Parece
MA Association of Lawn Care Professionals	Cliff Drezek
MA Association of Lawn Care Professionals	Karen Connelly
Raytheon Corporation	Paul Ward*
Utility Contractors' Association of New England	Matthew Boger
Utility Contractors' Association of New England	Phil Jasset
Concord River Environmental Stream Team	Kevin Gilligan
Fort Meadow Watershed Association	Anne Leedham
Hop Brook Protection Association	Ursula Lyons
Mill Brook Task Force	Carol Gupta
Organization for the Assabet River	Debbie Listernick
SuAsCo Watershed Association	Peter Burn
Sudbury River Watershed Organization	Frederica Gillespie
Sudbury Valley Trustees	Ron McAdow
SuAsCo Council	Nancy Bryant
Guests:	
Bill Sedewitz, Framingham Dept. of Public Works	
John Bertorelli, Framingham Dept. of Public Works	

Judy Perry, Framingham Conservation Commission  
Tom Arnold, Sudbury Valley Trustees  
Deirdre Menoyo, Wild & Scenic River Stewardship Council

**SuAsCo Watershed Community Council  
Steering Committee Meeting  
April 7, 2005  
7:30 to 9:30 PM  
at the Lincoln Town Hall  
Agenda**

- Introductions of Attendees
- Welcome to Lincoln: Buzz Constable
- Announcements
- River Visions Update
- Update on Assessment Report Progress
- Comments on Environmental Priorities in SuAsCo
- Detailing and Prioritizing 5-year Actions
- WAP Meeting Calendar and Steering Committee role in recruiting public participation

**April 7, 2005 Attendees:**

Billerica Board of Selectmen	Ellen Rawlings
Lincoln Land Conservation Trust	Buzz Constable
Sherborn Groundwater Protection Committee	Linda Smith
Town of Concord	Judith Sprott
Dept. of Environmental Protection - NERO	Judy Barber
SEA Consultants	Betsy Frederick
Mill Brook Task Force	Carol Gupta
SuAsCo Watershed Association	Peter Burn
Sudbury River Watershed Organization	Frederica Gillespie
Sudbury Valley Trustees	Ron McAdow
SuAsCo Council	Nancy Bryant

**SuAsCo Watershed Community Council  
Steering Committee Meeting  
April 20, 2005  
7:30 to 9:30 PM  
at the Westborough Forbes Municipal Building  
Agenda**

- Introductions of Attendees
- Welcome to Westborough: Kris Allen
- Announcements
- Steering Committee Representative Nominations
- River Visions Update – Distribution of Flyers, SC approval of award nominees

- Update on Assessment Report Progress by Ambient Engineering: David Manugian
- Comments on Environmental Priorities in SuAsCo
- Detailing and Prioritizing 5-year Actions
- Creation of a Subcommittee on WAP

**April 20, 2005 Attendees:**

Town of Concord	Judith Sprott
Westborough Water Resources Management Committee	Kris Allen
Ambient Engineering	David Manugian
MA Association of Lawn Care Professionals	Karen Connelly
Hop Brook Protection Association	Mike Meixsell
Mill Brook Task Force	Carol Gupta
SuAsCo Watershed Association	Peter Burn
Sudbury River Watershed Organization	Frederica Gillespie
Sudbury Valley Trustees	Ron McAdow
SuAsCo Council	Nancy Bryant
Guest:	
Patriot Resource Conservation & Development Council	Stephanie Parrish

**SuAsCo Watershed Community Council  
Steering Committee Meeting  
May 17, 2005  
7:30 to 9:30 PM  
at the Concord Planning & Land Management Building  
141 Keyes Road, Concord  
*Agenda***

- Introductions of Attendees
- Welcome to Concord: Judith Sprott and Carol Gupta
- Update on Assessment Report by Ambient Engineering: David Manugian
- Selection of WAP top priority actions
- Edit WAP Vision
- Creation of WAP Action Committee
- River Visions Debrief
- Announcements
- Steering Committee Election

**May 17, 2005 Attendees:**

Maynard Conservation Commission	David Shute
Town of Concord	Judith Sprott
Westborough Water Resources Management Committee	Kris Allen
Ambient Engineering	David Manugian
BHO Associates	Barbara Offenhartz
MA Association of Lawn Care Professionals	Karen Connelly
Earthwatch Institute	John Walker
Fort Meadow Watershed Association	Anne Leedham
Hop Brook Protection Association	Ursula Lyons

Lowell Parks & Conservation Trust  
Mill Brook Task Force  
Organization for the Assabet River  
River Meadow Brook Association  
SuAsCo Watershed Association  
Sudbury Valley Trustees  
SuAsCo Council  
Guests:  
Mill Brook Task Force

Jane Calvin  
Carol Gupta  
Debbie Listernick  
Ruth Luna  
Peter Burn  
Ron McAdow  
Nancy Bryant  
  
Alan Smith

**SUASCO WATERSHED ACTION PLAN PUBLIC FORUM**  
***SOUTHBOROUGH CORDAVILLE HALL: 3/28/05***  
**AGENDA**

Facilitators: Nancy Bryant, SuAsCo WCC and Zach Crisco, Ambient Engineering

- *Introductions of attendees*
- *Explanation of the WAP process*
- *Presentation on SuAsCo Watershed statistics*
- *Public input on watershed issues*
- *Short Break (a good opportunity to look at maps, etc.)*
- *Public input on watershed action ideas*
- *Prioritize issues and actions*

**March 28, 2005 Attendance List:**

Nancy Bryant, SuAsCo Council  
Zach Crisco, Ambient Engineering  
Beth Rosenblum, Ashland  
Mal Smart, Ashland  
Ellen Rawlings, Billerica  
Walter Bickford, Berlin  
Peter Burn, Carlisle  
Ron McAdow, Concord  
Kathy Bartolini, Framingham  
Susan Erdman, Hopkinton  
John Knowles, Hopkinton  
Terry Moser, Hopkinton  
Mavis O'Leary, Hopkinton  
Sarah Stedt, Hopkinton  
Linda Smith, Sherborn  
Jim Chance, Southborough  
Ed Estella, Southborough  
Frederica Gillespie, Southborough  
Linda Hubley, Southborough  
Matt Hubley, Southborough  
Meme Lutrell, Southborough  
Donna McDaniel, Southborough  
Barbara Offenhartz, Wellesley  
Constance Craycraft, Westborough  
John Craycraft, Westborough  
Leigh Emery, Westborough  
Paul Graham, Westborough  
Gail Clifford, Woodville (Hopkinton)  
Jeff Furber, Woodville (Hopkinton)  
Mary Pratt, Woodville (Hopkinton)

***SUASCO WATERSHED ACTION PLAN PUBLIC FORUM  
MAYNARD CLOCK TOWER PLACE: 4/12/05  
AGENDA***

Facilitators: Nancy Bryant, SuAsCo WCC and TJ Stevenson, Ambient Engineering

- *Welcome to Clock Tower Place: Joe Mullin*
- *Introductions of attendees*
- *Explanation of the WAP process*
- *Public input on watershed issues and actions*
- *Short Break (a good opportunity to look at maps, etc.)*
- *Public input on watershed issues and actions*
- *Prioritize issues and actions*

**April 12, 2005 Attendance List:**

Nancy Bryant, SuAsCo Council  
TJ Stevenson, Ambient Engineering  
Karen Connelly, MA Association of Lawn Care Professionals, Bedford  
Kevin Gilligan, Concord River Environmental Stream Team, Billerica  
Martin Pillsbury, Metropolitan Area Planning Council, Boston  
Peter Burn, SuAsCo Watershed Association, Carlisle Conservation Commission, Carlisle  
Joan Kimball, Riverways, Wild & Scenic River Stewardship Council, Lincoln  
Debbie Listernick, Organization for the Assabet River, Maynard  
Joe Mullin, Clock Tower Place, Maynard  
Priscilla Ryder, Marlborough Conservation Commission, Maynard  
Rep. Pat Walrath, MA Legislature, Stow  
Mike Meixsell, Hop Brook Protection Association, Sudbury  
Deirdre Menoyo, Wild & Scenic River Stewardship Council, Sudbury

***SUASCO WATERSHED ACTION PLAN PUBLIC FORUM  
BILLERICA MIDDLESEX CANAL MUSEUM: 4/28/05  
AGENDA***

Facilitators: Nancy Bryant, SuAsCo WCC and David Manugian, Ambient Engineering

- *Welcome to Middlesex Canal Museum*
- *Introductions of attendees*
- *Explanation of the WAP process*
- *Public input on watershed issues and actions*
- *Short Break (a good opportunity to look at maps, etc.)*
- *Public input on watershed issues and actions*
- *Prioritize issues and actions*

**April 28, 2005 Attendance List:**

Nancy Bryant, SuAsCo Council  
David Manugian, Ambient Engineering  
John Bartlett, Billerica Recreation Commission, Billerica  
Kevin Gilligan, Concord River Environmental Stream Team, Billerica  
Peggy Hannon-Rizza, Billerica Recreation Department, Billerica  
Marty Houlne, Billerica Conservation Commission, Billerica  
Sharpe Reardon, Middlesex Canal Commission, Billerica  
Carol Gupta, Mill Brook Task Force, Carlisle  
Jim Rolfe, Aquasave, Ipswich  
Robert Flynn, Northern Middlesex Regional Planning Council, Lowell  
Frederica Gillespie, Sudbury River Watershed Organization, Southborough  
Phil Reidy, Rainwater Recovery Systems, Waltham  
Barbara Offenhartz, SuAsCo Council, Wellesley  
Thomas Raphael, Middlesex Canal Commission, Winchester

**River Visions 2005 Registrants**  
**May 11, 2005 from 5:00 to 9:30 PM**  
**At Intel Massachusetts in Hudson**

***Affiliation***

Interested party - Milford  
 Interested party - Hudson  
 Interested party- Hudson  
 Interested party – Southborough  
 Interested party – Sudbury  
 Interested party – Sudbury  
 Acton Board of Health  
 Ambient Engineering  
 Ambient Engineering  
 Ashland Stream Team  
 ATCO  
 The Bhatti Group  
 BHO Associates  
 Billerica Board of Selectmen  
 Billerica Department of Public Works  
 Billerica Recreation Department  
 Boston Globe  
 Cambridge Water Technology  
 Carlisle Conservation Commission  
 Cedar Swamp Conservation Trust  
 Cedar Swamp Conservation Trust  
 Comcast – CTV8 – Hudson  
 Community Consulting Teams of Boston  
 Community Consulting Teams of Boston  
 Concord Division of Natural Resources  
 Concord River Environmental Stream Team  
 DBA Landscape Gardening  
 Earth Tech  
 Earth Tech  
 Earthwatch Institute  
 ENSR International  
 Evergreen Associates  
 Framingham Conservation Commission  
 Framingham Department of Public Works  
 Framingham Planning Department  
 Friends of Assabet River NWR  
 Friends of Lake Whitehall  
 Friends of White Pond  
 Grafton Department of Public Works  
 Hartney Greymont

***Name***

Silvio Baruzzi  
 Carrie Byrne  
 Kathleen Walker  
 Ed Estella  
 Timothy Coyne  
 Joel Singer  
 Kim Groff  
 David Manugian  
 TJ Stevenson  
 Malcolm Smart  
 Jeffrey Trust  
 Ilyas Bhatti  
 Barbara Offenhartz  
 Ellen Rawlings  
 Paul Starratt  
 Peggy Hannon-Rizza  
 Megan Woolhouse  
 Roger Borggaard  
 Charles Hamlin  
 Peter Marston  
 Suzanne Marston  
 Ken Stevens  
 Sylvia Willard  
 Constance Craycraft  
 John Craycraft  
 Lynda Chilton  
 Jason Holman  
 Beverly Volz  
 Donald MacIver  
 Kevin Gilligan  
 Charles Gaffney  
 Abby Charest  
 Abigail Thomas  
 John Walker  
 Chris Keyworth  
 James Connelly  
 Michelle Grzenda  
 Bill Sedewitz  
 Kathy Bartolini  
 Barbara Volkle  
 Paul August  
 Judith Sprott  
 Roger Hammond  
 Ted Wales

Hop Brook Protection Association	Ursula Lyons
Hop Brook Protection Association	Frank Lyons
Hop Brook Protection Association	Mike Meixsell
Hudson Conservation Commission	Martin Moran
Intel Massachusetts	Sherron Benoit
Intel Massachusetts	Jeff Fadden
Intel Massachusetts	Ann Hurd
Intel Massachusetts	Pat Papalia
Intel Massachusetts	Patrick Ward
Lake Boon Association	Adrienne Hindley
Lake Boon Association	Alex Hindley
Leadership MetroWest	Helen Lemoine
Lowell Parks & Conservation Trust	Kristin McCauley
MA Association of Lawn Care Professionals	Karen Connelly
MA DEP – CERO	Bryant Firmin
MA DEP – CERO	Liz Kotowski
MA DEP – CERO	Alice Rojko
MA DEP – NERO	Judy Barber
MA DCR	Linda Marler Hutchins
MA EOEA	Vandana Rao
MA EOEA	James Stergios
MA House of Representatives	Rep. Pat Walrath
MA Senate	Senator Pam Resor
Maynard Conservation Commission	David Shute
McColough Associates	Charles McColough
Metropolitan Area Planning Council	Martin Pillsbury
MetroWest Daily News	John Brodtkin
MetroWest Growth Management Committee	Margaret Sleeper
MetroWest Growth Management Committee	Donna Jacobs
Middlesex Conservation District	David Williams
Mill Brook Task Force	Carol Gupta
Mill Brook Task Force	Maya Gupta
National Park Service	Lee Steppacher
NE Wildflower Society	Frances Clark
Northborough Conservation Commission	Diance Guldner
Northborough Conservation Commission	Wayne Baldelli
Organization for the Assabet River	Sue Flint
Organization for the Assabet River	David Griffin
Organization for the Assabet River	Debbie Listerneck
Raytheon Company	Paul Ward
River Meadow Brook Association	Ruth Luna
Russell's Garden Center	Jack Russell
Stow Planning Board	Malcolm Fitzpatrick
SuAsCo Community Council	Nancy Bryant
SuAsCo Watershed Association	Lisa Burn
SuAsCo Watershed Association	Peter Burn
Sudbury-Assabet-Concord Wild & Scenic RSC	Scott Cleveland
Sudbury-Assabet-Concord Wild & Scenic RSC	Susan Crane
Sudbury-Assabet-Concord Wild & Scenic RSC	Deirdre Menoyo

Sudbury Earth Decade  
Sudbury River Watershed Organization  
Sudbury Valley Trustees  
Sudbury Valley Trustees  
Sudbury Valley Trustees  
Sudbury Valley Trustees  
UMASS  
Upper Ware River Watershed Association  
USDA – NRCS  
USGS  
USGS  
Utility Contractors' Association of New England  
Utility Contractors' Association of New England  
VHB, Inc.  
Westborough Water Resources Mgt. Committee  
Weston Department of Public Works

Peg Whittemore  
Frederica Gillespie  
Tom Arnold  
Jill Phelps Kern  
Laura Mattei  
Ron McAdow  
Randy Prostack  
Rachelle Pologne  
Dennis Verdi  
Steve Garabedian  
Gene Parker  
Matthew Boger  
Phil Jasset  
Paul Carter  
Kris Allen  
Mike Flynn

**RIVER VISIONS 2005 FORUM: 5/11/05: STATISTICAL SUMMARY***109 registrants:*

businesses: 27	state government: 7	academia: 2
municipal representatives: 20	federal govt.: 4	reporters: 3
environmental organizations: 24	regional "govt.": 8	foundations: 0
private citizens: 12	State legislators: 2	

*35 of the 109 registrants were "first-time attendees" of a River Visions Forum*

*69 attendees paid registration fee; others were exempt as volunteers, speakers, award recipients, press, stormwater municipal clients*

*24 of the 36 watershed towns had attendees from any affiliation:*

Acton: 1, Ashland: 1, Bedford: 3, Billerica: 5, Carlisle: 5, Chelmsford: 1, Concord: 7, Framingham: 7, Grafton: 1, Hudson: 11, Lincoln: 1, Lowell: 1, Marlborough: 1, Maynard: 4, Natick: 2, Northborough: 5, Southborough: 4, Stow: 2, Sudbury: 12, Wayland: 2, Westborough: 3, Westford: 1, Weston: 1; outside watershed: 27 (note last year there were 46 attendees from outside the watershed)

*environmental organizations:* Ashland Stream Team, Cedar Swamp Conservation Trust, CREST, Earthwatch, Friends of Assabet NWR, Friends of Lake Whitehall, Friends of White Pond, HBPA, Lake Boon Association, Lowell Parks & Conservation Trust, Mill Brook Task Force, New England Wildflower Society, OAR, River Meadow Brook Assoc., SuAsCo Watershed Association, Sudbury River Watershed Organization, SVT, Upper Ware River Watershed Association

*municipal:* Board of Health, ConCom, DPW, Earth Decade Committee, Natural Resources, Planning Dept., Recreation Dept., Selectmen, Water Resources Management Comm. from: Acton, Billerica, Carlisle, Concord, Framingham, Grafton, Hudson, Maynard, Northborough, Stow, Sudbury, Westborough, Weston

*Workshop attendance:* no workshop identified: 18; A: Growth & Development: 20; B: Water Quality: 19; C: Water Quantity: 17; D: Land Protection: 11; E: Habitat & Biodiversity: 8; F: Hiking in the SuAsCo Watershed: 7; G: Environmentally Friendly Lawn Care: 9

*gains from River Visions Forum 2005:*

- **Valuable input** from community re: SuAsCo Watershed Action Plan
- **SuAsCo Watershed visibility:** Forum flyer distribution to 5,000 people; media exposure (MetroWest Daily News, other local papers, and Hudson Cable Station)
- **Watershed unity:** large, diversified audience (diversity both geographically and interest-based) - attendees gave rave reviews on content/organization of forum
- **Energizing:** more people become involved in watershed volunteer opportunities
- Excellent **networking** opportunity for attendees
- **Educational:** "got the word out" via excellent plenary speakers, workshops, exhibitors

**APPENDIX G**  
**PRESS EXAMPLES**

## ***SUASCO WATERSHED ACTION PLAN NOTICE***

The MA Executive Office of Environmental Affairs has contracted with Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council to conduct the 5-Year Watershed Action Plan (WAP) for the SuAsCo Watershed. This process usually takes 12 months, but due to EOEAs budget cycle, the process is being consolidated into just 4 months in order to be completed by the end of June.

The WAP will identify the priority issues in the SuAsCo Watershed and the top actions needed over the next 5 years to address those problems in order to improve the watershed's environmental health. The Plan is driven by existing municipal reports and research data, as well as by public opinion.

The main components of the WAP are as follows:

- Assessment Report – compilation of environmentally-related reports in the SuAsCo Watershed, including GIS Maps, municipal open space plans, documents from regional agencies and organizations, etc.
- Determining Environmental Priorities and Priority Actions – as determined by the Assessment Report results and discussion by the SuAsCo Watershed Community Council Steering Committee and general public
- Public Review – four public forums to solicit public input and comment on environmental priorities and priority actions
- Publication of Recommendations

The “**Environmental Priorities**” will list the issues and problems currently affecting, and which may create future impact upon the environmental health of the SuAsCo Watershed. From this list, the problems that are consistently and repeatedly cited will be identified as potential priorities for attention.

The “**Priority Actions**” include projects best suited for government action, as well as potential actions that could be taken by other stakeholders in the watershed. Priority Actions must be selected on the basis of public benefit. Priority Action projects should include a description of the public environmental benefit, potential advocates for the project, an estimate of cost, a timeline, and potential funding sources.

The WAP will be used by the State to target where its limited environmental grant resources should be spent in the SuAsCo Watershed. **The priority actions identified in the WAP will be taken into consideration by many state and federal agencies when awarding environmental grants and loans, such as SRF loans and 319 grants.** The WAP will also help mobilize the watershed community to collaboratively tackle regional environmental issues. Issues that will be addressed by the WAP include open space protection, water conservation, water quality, and recreational opportunities.

The WAP's success will depend largely upon the participation of the general public. The public is encouraged to attend the following four open forums:

- 3/28**, Monday, **Southborough** Cordaville Hall, 9 Cordaville Road (Rte. 85), 7:30-9:30 PM  
**4/12**, Tuesday, **Maynard** Clock Tower Place, Main Street, Building 2, 7:30 - 9:30 PM  
**4/28**, Thursday, **Billerica** Middlesex Canal Museum, 71 Faulkner Street, 7:30 - 9:30 PM

**5/11**, Wednesday, **Hudson**, River Visions 2005: “The State of the Watershed and Our Future: An Interactive Forum on the SuAsCo” from 5:30 to 9:30 PM at Intel, (note that River Visions includes dinner, exhibitor tables, and speakers – pre-registration fee is \$25)

“The Watershed Action Plan is an important tool not only for its role in bringing the watershed community together to plan for the future, but for obtaining state dollars for action projects”, says Nancy Bryant, Executive Director of the SuAsCo Watershed Community Council. “We hope that municipal leaders, businesses, and environmental organizations will all take part in this critical planning process.”

For more information, you can contact: Nancy Bryant, SuAsCo Watershed Community Council, [suasco@compuserve.com](mailto:suasco@compuserve.com); 978-461-0735; [www.suasco.org](http://www.suasco.org)  
Or David Manugian, Ambient Engineering, [dmmanugian@ambient-engineering.com](mailto:dmmanugian@ambient-engineering.com); 978-369-8188;  
[www.ambient-engineering.com](http://www.ambient-engineering.com)

***PLEASE PARTICIPATE AND SPREAD THE WORD!  
THANK YOU!***

***PRESS RELEASE***

FOR IMMEDIATE RELEASE  
March 21, 2005

*For further information contact:  
Nancy Bryant, SuAsCo WCC at 978-461-0735  
David Manugian, Ambient at 978-369-8188*

**SuAsCo Watershed Begins Watershed Action Plan**

Ellen Roy Herzfelder, Massachusetts Secretary of Environmental Affairs, recently awarded \$30,000 in funding to Ambient Engineering of Concord and the SuAsCo Watershed Community Council based in Stow to work with local citizens and government leaders to develop a Watershed Action Plan for the Sudbury-Assabet-Concord River (SuAsCo) Watershed.

The Watershed Action Plan (Plan) will identify the priority issues in the SuAsCo Watershed and the top actions needed over the next 5 years to address those problems in order to improve the watershed's environmental health. The Plan is driven by existing municipal reports and research data, as well as by public opinion.

"The Romney Administration is committed to supporting the hard work of watershed proponents and citizens like the SuAsCo Watershed Community Council," Herzfelder said. "Developing a Watershed Action Plan is an essential step that we are thrilled to support; along with the continued involvement of the various stakeholders, the Plan will lead to establishing priorities and implementing actions that will result in measurable environmental improvements."

The Plan will be used by the State to target where its limited environmental grant resources should be spent in the SuAsCo Watershed. The priority actions identified in the Plan will be taken into consideration by many state and federal agencies when awarding environmental grants and loans, such as SRF loans and 319 grants. The Plan will also help mobilize the watershed community to collaboratively tackle regional environmental issues. Issues that will be addressed by the Plan include open space protection, water conservation, water quality, and recreational opportunities.

The challenge to the watershed community is to work quickly and efficiently. Due to the State budget cycle, the Plan must be completed by the end of June. Four public forums have been organized throughout the Watershed to solicit public participation in the Plan.

The public is encouraged to attend the open forums, scheduled as follows: March 28 in Southborough at Cordaville Hall, 9 Cordaville Road (Rte. 85), 7:30 to 9:30 PM, April 12 in Maynard at Clock Tower Place, Main Street, Building 2, 7:30 to 9:30 PM, April 28 in Billerica at the Middlesex Canal Museum, 71 Faulkner Street, 7:30 to 9:30 PM, and May 11 in Hudson for River Visions 2005: "The State of the Watershed and Our Future: An Interactive Forum on the SuAsCo" from 5:00 to 9:30 PM at Intel.

"The Watershed Action Plan is an important tool not only for its role in bringing the watershed community together to plan for the future, but for obtaining state dollars for action projects", says Nancy Bryant, Executive Director of the SuAsCo Watershed Community Council. "We hope that municipal leaders, businesses, and environmental organizations will all take part in this critical planning process."

The SuAsCo Watershed encompasses, partially or wholly, 36 Massachusetts towns including: Acton,

Ashland, Bedford, Berlin, Billerica, Bolton, Boxborough, Boylston, Carlisle, Chelmsford, Clinton, Concord, Framingham, Grafton, Harvard, Holliston, Hopkinton, Hudson, Lincoln, Littleton, Lowell, Marlborough, Maynard, Natick, Northborough, Sherborn, Shrewsbury, Southborough, Stow, Sudbury, Tewksbury, Upton, Wayland, Westborough, Westford, and Weston (see map).

\*\*\*\*\*press release end\*\*\*\*\*

*PRESS RELEASE*

FOR IMMEDIATE RELEASE  
MAY 1, 2005

*For further information contact:  
Nancy Bryant at 978-461-0735*

**EIGHTH ANNUAL RIVER VISIONS CONFERENCE  
“THE STATE OF THE WATERSHED AND OUR FUTURE:  
AN INTERACTIVE FORUM ON THE SUASCO”**

The SuAsCo Watershed Community Council announces **River Visions 2005 Eighth Annual Watershed Public Forum** on **Wednesday, May 11 from 5:00 PM to 9:30 PM** at **Intel Massachusetts in Hudson**. Everyone who lives, works, or has an interest in the Sudbury-Assabet-Concord (SuAsCo) River Watershed is encouraged to attend this dynamic and informative conference.

A full agenda is slated for **River Visions 2005**. James Stergios, Undersecretary for Policy at the MA Executive Office of Environmental Affairs will discuss how the State will use the SuAsCo Watershed Action Plan. A panel on the “State of the Watershed” will present current information about the SuAsCo region on water quality, water quantity and flow, land protection, habitat and biodiversity, and growth and development trends. Attendees may choose from seven concurrent and highly interactive workshops. Community Council Watershed Awards will be presented to an outstanding business, municipality, and volunteer. A buffet dinner will also be provided.

Attendees at the **River Visions 2005 Forum** will participate in the development of a Watershed Action Plan for the SuAsCo Watershed. The Watershed Action Plan will identify the priority issues in the SuAsCo Watershed and the top actions needed over the next 5 years to address those problems in order to improve the watershed’s environmental health.

The host for **River Visions 2005** is Intel Massachusetts. Additional Community Council sponsors include: Clock Tower Place, Colonial Spirits, Community Consulting Teams of Boston, Earth Tech, Goldberg, Harder, Adelstein & Co., IntraImage, MA Executive Office of Environmental Affairs, Middlesex Savings Bank, New Horizons Computer Learning Centers, PC House Calls, Raytheon Company, River Network, SEA Consultants, Sudbury-Assabet-Concord Wild & Scenic River Stewardship Council, THINK Marketing, Utility Contractors Association of New England, and Woodard & Curran.

Municipal officials such as selectmen, health officers, conservation commissioners, public works staff, and planning board members are encouraged to participate in this annual event. All attendees (businesses, environmental organizations, concerned citizens, municipal, state and federal agency officials) will have an opportunity to raise their concerns and help shape the SuAsCo Watershed Action Plan.

**River Visions 2005** is convened by the SuAsCo Watershed Community Council. The Council is a community-based alliance working together to promote the sustainable economic and environmental well being of the Sudbury, Assabet and Concord Rivers and the land surrounding them. The **SuAsCo Watershed Community Council** includes representatives from municipalities, state and federal

government, environmental organizations, businesses, and concerned citizens. The Council welcomes new participants.

The SuAsCo Watershed encompasses, partially or wholly, 36 Massachusetts towns including: Acton, Ashland, Bedford, Berlin, Billerica, Bolton, Boxborough, Boylston, Carlisle, Chelmsford, Clinton, Concord, Framingham, Grafton, Harvard, Holliston, Hopkinton, Hudson, Lincoln, Littleton, Lowell, Marlborough, Maynard, Natick, Northborough, Sherborn, Shrewsbury, Southborough, Stow, Sudbury, Tewksbury, Upton, Wayland, Westborough, Westford, and Weston.

The **River Visions 2005 Forum** has an early registration fee (postmarked by May 6) of \$25, and a late or on-site registration fee of \$30. For more information, contact Nancy Bryant, Executive Director for the SuAsCo Watershed Community Council at 978-461-0735 or visit the Council's website at [www.suasco.org](http://www.suasco.org).

\*\*\*\*\*press release end\*\*\*\*\*

# Study plans a better future for watershed

By Jon Broitkin  
STAFF WRITER

The future of the Sudbury, Assabet and Concord rivers is coming under close scrutiny as a coalition of environmental groups, business and government leaders begins to develop a five-year action plan for the watershed.

State officials, who are funding the \$30,000 plan, say the plan will be used to determine what projects receive grants. But some doubt the report will lead to any real benefit.

"One of the questions we have is how is it going to be used? There's already been so much planning on this watershed," said Julia Blatt, executive director of the organization for the Assabet River. "I see (state officials) want planning but I don't think they are that committed to implementation."

Ron McAdow, executive director of the Sudbury Valley Trustees, said he's also a skeptic about whether developing an action plan will net the region any grants. But he said the process is good in that it will help educate the public and get people together to discuss problems in the watershed.

The challenge, he said, is to find regional solutions when individual towns tend to act on their own.

"It's difficult for us with our very home-rule centered way of political life to act regionally, and yet we know that we have to find ways to do that," McAdow said.

The new plan is being developed under state contract by Ambient Engineering of Concord and the SuAsCo Watershed Community Council, an alliance of environmental groups, state, federal and municipal officials and business executives. It is part of a state-wide program in which 19 of Massachusetts' 27 watersheds have either developed or are drafting action plans.

The council has developed a two-page list of issues the plan should address, including water quantity and quality, habitat protection, preserving open space, lack of affordable housing,

traffic congestion, recreational access to the rivers and public outreach and education.

One pressing problem in the Assabet River has been eutrophication, or excess plant growth, caused by nutrients poured into the river by municipal wastewater treatment plants.

Blatt's group has been working for years on the problem, and has made progress with new state and federal limits on the plants' discharges of phosphorus and other nutrients.

"It's actually been really exciting, because we're making progress. We've been at it for a long time," Blatt said.

Another problem is ensuring enough water flows into the ground and, ultimately, into streams, tributaries and rivers, said Nancy Bryant, executive director of the SuAsCo council. Paved surfaces often prevent that from happening, she said.

The upper headwaters of the Sudbury River have run dry at times, making water conservation and better stormwater management important goals, Bryant said.

Low flow wasn't a problem last week as the Sudbury and Assabet rivers reached near-flood levels after heavy rain. But flooding itself, which is made worse by impervious surfaces, such as asphalt, that increase water runoff, is a problem that will likely be explored in the five-year plan, Bryant said.

"A certain amount of flooding is very normal," Bryant said. "What mankind has to learn to do is not exacerbate it by not having so many impervious surfaces and not building in areas that are supposed to be flood plains."

Protecting undeveloped land for recreation and maintaining habitat and migration corridors for wildlife will also figure into the plan, she said.

The plan, scheduled to be completed by the end of June, includes several components, said David Manuaglan, project manager for Ambient Engineering. One is compiling and assessing existing documents on the watershed. Another is gathering feedback, which is being done



STAFF PHOTO BY ALLAN JUNG  
The Assabet River is full from recent rains. An action plan, now being developed, aims to protect the future of the river.

in four public forums. The final piece is listing proposed actions.

The public feedback process and plan development typically takes a year, but the SuAsCo watershed plan must be done in four months because the state money recently became available and the plan must be finished by the end of the state's fiscal year.

The watershed action plans originated with the 1993 implementation of the state Watershed Initiative, said Karl Honkonen, director of water policy for the state Executive Office of Environmental Affairs. The initiative coordinated local, state and federal governments, and business groups, residents and watershed associations to find regional solutions to problems of pollution, water sup-

ply and habitat degradation.

The Romney administration has scrapped the program, but the planning component survives, Honkonen said. Projects listed in the plans, like river cleanups, still receive priority status for state funding.

Bob Zimmerman, executive director of the Charles River Watershed Association, said grants originating from the plans have primarily been for municipal water infrastructure projects.

The Charles River group itself hasn't received any money because of the completion of the Charles watershed action plan, he said.

"We've gotten a lot of grants, but we haven't gotten them as a consequence of a state-mandated watershed action

plan," he said.

Gov. Mitt Romney's elimination of the Watershed Initiative contributes to the skepticism surrounding the watershed plan's usefulness. Blatt said without the initiative there is no longer a clear commitment from the state to implement the priorities in the watershed plans.

But taking a broad look at the needs of a watershed is still a valuable exercise, said Nancy Goodnium, vice president for policy at the Environmental League of Massachusetts.

"I'm sure it would still be valuable to have something comprehensive that looks at water quality and water quantity and future needs of the watershed," Goodnium said.

**APPENDIX H**

**TURF GRASS BEST MANAGEMENT PRACTICE RESEARCH**

## **Turfgrass Best Management Practices for Protection of Water Resources by Karen Connelly**

### **Goals of this Report**

The purpose of this manual is to provide information and guidance on turfgrass management practices to minimize adverse impacts on the water resources of Massachusetts. These activities cover establishment of turf, nutrient management, pest management, irrigation, and construction activities. This manual is designed as guidance mainly for private applicators. The manual does not contain specific recommendations about which management tools may be appropriate for specific applications. Turf managers should use this manual as general guidance, but specific situations may require more specific measures to protect high-risk surface and ground water sites.

Management techniques recommended in this manual are designed to minimize impact on water resources. Many studies conducted on watersheds containing residential and commercial use of lawn care chemicals suggest that when properly used, turfgrass products have little impact on surface water.

### **Introduction**

The protection of water resources is accomplished through the use of turf care practices that make the best use of technology developed through research and practical experience of turf care professionals. Some specific concerns are protection of water resources from non point source pollution as a result of pesticides and nutrients entering the ground water and surface water. The potential for leaching of fertilizer focuses on the amount of leachable nutrients present, soil type, the amount of water moving through the soil, and the management of cultural inputs into such a soil - plant - water system and disposal methods. Movement of fertilizers or pesticides either off site or downward to the groundwater in response to irrigation, rainfall, misuse or irresponsible disposal techniques may create environmental problems. While many university studies have shown that turfgrass is not a great contributor to non-point source pollution, the potential must be considered. These possibilities can be reduced by developing low risk irrigation, fertilizer and pesticide programs, and ensuring that these programs are administered on a day-to-day basis by a qualified turf manager or knowledgeable homeowner.

The goals of Turfgrass Best Management Practices (BMPs) are to reduce non-point source pollution as follows:

- Reduce off-site transport of sediment, nutrients and pesticides,
- Use appropriate rates, methods and types of product being applied,
- Adopt Integrated Pest Management,
- Determine thresholds for weeds and insects,
- Determine alternate pest control and fertility options,
- Adopt good cultural practices, and
- Use proper disposal.

### **Background**

#### *Maintaining Healthy Turf*

A healthy and vigorous turf with good plant density provides many benefits. Healthy turf is beneficial to humans and the environment in many ways. Turfgrass provides natural air conditioning, air purification via CO<sub>2</sub> sequestration and emission of Oxygen, erosion control, natural water purification, safe recreation areas and positive mental health. Turfgrasses can play a significant role in reducing water

runoff. Dense turf reduces the velocity of runoff by allowing greater infiltration into both the thatch and root zone, where microbes can begin breaking down the water contaminants.

The turfgrass root zone is a unique soil system. A healthy turfgrass root zone will:

- Help improve soil structure and reduce soil compaction, allowing greater infiltration of rain or irrigation water,
- Help improve soil processes that facilitate the biodegradation (breakdown) of various types of organic pollutants, air contaminants and pesticides used in lawn care, and
- Encourage soil-building processes through decomposition of organic matter and formation of humus and contribute to easier lawn care with fewer weeds and insects and less diseases.

### *Cultural Practices for Healthy Turf*

After weather, cultural practices are the single biggest factor in dictating the severity of pests. The most important cultural practices are mowing, fertility management and watering practices.

Mowing height greatly influences the severity of weed and disease pests. This is because mowing height impacts root length. Lowering the height of turf increases weed and disease pressure by causing turf stress and decreasing competition. In Massachusetts, most grasses should be cut at between 2.5 and 3 inches. The mower blade should be sharp to achieve a clean cut. Only a third of the grass should be mowed off at any mowing.

Inadequate fertilization results in thin, weak turf that is more susceptible to weeds and diseases. Once weeds are present, they may be pulled out, treated with organic options such as vinegar or lemons if conditions are amenable or several herbicide treatments may be necessary to alleviate problems that would not have been as prevalent under a proper fertilization program. Unique diseases can occur in turf maintained under low fertilization levels. Diseases such as red thread and dollar spot are examples of this.

Supplemental irrigation may be necessary for turf survival during periods of severe moisture deficiency. Grey water or water collected in cisterns may be used for this purpose. Excessive or overwatering, however, may enhance weed and disease pressure as well as waste a precious resource. For example, overwatering during periods favorable for brown patch may enhance its spread and development. Dormancy is a natural state for turf in hot dry weather. Raise your mower height to 3 or 3.5 inches during a dry summer to assist the turf in coping.

Pest outbreaks are encouraged by the lack of plant diversity in a stand of turfgrass. The best way to reduce pesticide use in turf is to integrate genetic, cultural and biological management practices into a program that discourages pest development. It is easier to control a pest when conditions exist that discourage its development. Some people choose to pull out their weeds, but this is not always an attractive achievable option for busy people. Some try organic options, such as aflatoxin, botulin toxin, cobra venom and acetic acid, which are more toxic than the synthetic products they are trying to avoid. Some try biological controls, such as Milky Spore, which at best works erratically in Massachusetts. Milky Spore is a registered pesticide. When it does work, it controls only Japanese Beetle grubs, none of the other grub species which infest eastern to central Massachusetts. One nematode is known to work in MA on grubs. This is *Heterhabditus Bacterifora*. It is very difficult to locate. During the summer of 2004 one area garden center had it for three days. Most places not at all.

Some cultural practices to reduce grub damage are: Establish Tall Fescue in a new lawn. This variety has superior drought resistance, shade tolerance and insect/ disease resistance. Irrigate during drought

conditions in August and September. Use moderate nitrogen fertilization. Keep summer mowing height to 3 to 3.5 inches to help withstand summer stress.

Several factors are involved in making a particular site vulnerable to pesticide contamination of ground water. The pesticide's solubility, sorption properties and persistence within the soil must be considered. The physical properties of the soils must also be considered. Sandy soils and soils that are low in organic matter and do not have measurable clay components are most vulnerable to potential problems. The Cape Cod Study conducted on Cape Cod golf courses in the 1980's as a first of its kind study indicated that there was "no cause for concern about use of these currently registered pesticides." It also showed that for those areas where a high concentration of Nitrate-N was found, the numbers decreased in response to lower application rates and the use of slow release fertilizer. The Penn State study done later showed that under conditions of 6 inches per hour on areas of healthy turf little to no runoff was detected. Research, product development and advances in technology and cultural practices continue so that two decades later knowledge, awareness and techniques are constantly evolving and improving.

The site itself must be considered. If the soil has a very shallow profile, a high water table, extensive irrigation is practiced and/or located in karst terrain, the site is more vulnerable. The best defense against movement of pesticides and fertilizer nutrients off site or through soil is a thick vigorously growing stand of turf. BMP's to protect water quality can be affordable, easily implemented and effective in reducing off site transport of sediment, nutrients and pesticides.

#### *Integrated Pest Management*

Integrated Pest Management is a philosophy for managing pests that has been in existence for almost five decades. It was developed in response to concerns over pesticide resistance and environmental contamination. IPM in turf is as follows. Agricultural thresholds for crops that focus on the economics of acceptable damage do not apply in turfgrass. Despite the many benefits of healthy turf to humans and the environment, turf is mainly viewed for its aesthetic qualities. Components of IPM are genetic, cultural, biological and chemical management. The genetic component consists of selecting turfgrass cultivars that are resistant to major problems. More options are becoming available to turf managers as well as homeowners in this area.

One scientific aspect of IPM is the judicious use of a pesticide in an effort to slow the development of pest resistance to a particular pesticide. Fungicide resistance can be slowed through fungicide use strategies such as rotation, and by reducing the number of applications. Reduction of pesticide applications, through the incorporation of proper genetic and cultural programs reduces the risk of pesticide resistance.

Pest monitoring is a key element of a successful IPM program. Understanding the life cycle of a pest is elemental. Knowing which turfgrass community the pest may prefer is also key. By monitoring insect and disease populations and knowing when a pest is most likely to occur, a turf professional or homeowner can target control practices for specific pests in specific locations. Maintaining records of pest populations in specific areas can help the turf manager or homeowner forecast or anticipate pest occurrence. Pesticides can then be applied judiciously when needed. In certain situations, there may be a need for more extensive preventative measures. For example, poison ivy infestation, clover serving as an attraction for bees (major concern to those allergic to bees). Such preventative measures as eliminating these the poison ivy and clover should lead to a lessening need for future pesticide use as healthy turf fills in the formerly weedy area.

#### *Commonly Used BMP's for Turf Management*

**Grass Species Selection:** This is a critical step. The customer or homeowner should assess the use of the area needing turf. Is it a high traffic area? A play area? An attractive front yard? Is it in the shade, or full sun? All these questions must be answered, then proper selection of the turf undertaken. Purchase quality seed of the correct variety for your lawn area. Shade areas require shade varieties, while sunny areas need sun varieties. High traffic areas use different varieties than low use areas. Is your property wet or more arid? Make educated choices to assist in your success. Your fertilizer program can depend upon your setting.

**Soil Testing:** Have your soil tested every one to three years to determine its particular needs.

**Soil Preparation:** Roots are one of the most important components in the effort to achieve healthy grass. The soil in which they live is elemental. It is recommended that lawns should be established in 6 inches of loam or other good soil. The Living Lawn (an example of an organic lawn) has a gravel base beneath 10 inches of composted loam. This is an ideal situation. Trying to establish turf in 2 inches of poor soil with pebbles and debris is the impossible situation, though closer to the situation confronting many homeowners. It will take years and effort to build up your soil to the point where it will be viable for turf growth. Compost is not the same in turf as it is in gardens. Improper layering of compost can kill turf, but there are techniques that do allow compost to assist in soil enhancement and turf growth.

**Timing and Placement of Fertilizers:** Time your fertilizer treatments for maximum plant utilization. Some types of grass may only need one or two applications of fertilizer each year, while others require three or four applications for optimum health and growth.

**Measure Your Yard Properly:** Accurately measure the size of your grass space.

**Fertilizer Application:** Apply complete fertilizers paying attention to the ratio of nitrogen, phosphorous and potassium. Each has a specific function and purpose. Apply fertilizer at the proper time depending upon grass growth development and environmental conditions.

Use spreaders with sidebars when fertilizing near roadways or walkways. Always sweep any excess back onto the lawn. Do not fertilize close to waterways. Abide by Zone II laws.

**Fertilizer Rates:** Water Soluble Nitrogen fertilizers provide a rapid release. Water Insoluble Nitrogen or slow release fertilizer is slowly available to turfgrass for a longer period of time. One can maintain acceptable turf quality without concern about leaching by either using light rates of Water Soluble Nitrogen or heavier rates of Water Insoluble Nitrogen.

Be sure your spreader or sprayer is properly calibrated or that you properly mix liquid fertilizer.

**Organic Fertilizer:** Organic fertilizers are all unique, sometimes serving different purposes than synthetic fertilizers. The grass plant is nourished in the same way by both organic and synthetic varieties. Organic fertilizers must be applied with the same care as synthetics, because they have the same potential to leach. Many are still in the testing stages or have not yet reached that point. Properly calibrate your spreader, use the correct amount for your yard size. Remember that organic fertilizers are much more sensitive to temperature than are synthetics. Organic fertilizers do not yet come in slow release formulations. Know your product.

Preparation: Fill fertilizer spreaders on a hard surface where spills can be cleaned up easily. NEVER wash fertilizer spills into the street or other hard surface areas where fertilizer can enter storm drains, sewers and ultimately surface water.

Mix liquid fertilizers over a holding container or on your grass area.

Phosphorous Management: Phosphorous plays a significant role in turfgrass establishment, rooting and root branching, maturation and seed head production. Phosphorous has been implicated in causing increased algae growth in surface water impoundments, however, fertilizer containing phosphorous is necessary for the development and growth of turfgrass. The goal of phosphorous management is to apply the correct amount for the desired result.

Phosphorous has a low leaching potential and is a minimal threat to groundwater contamination because phosphorous is removed from the soil solution and immobilized in the soil. Soil erosion from unvegetated and thin turf areas can lead to off site transport of phosphorous to surface waters. One of the most important aspects of phosphorous management is the reduction of erosion. Since phosphorous can be a significant contributor to pond and lake eutrophication, proper management of phosphorous on turf is just as important as the proper management of nitrogen. Consider these suggestions when using phosphorous fertilizers to help protect our surface water quality:

- Base your phosphorous additions upon reliable soil tests;
- Avoid soil erosion. Phosphorous is immobile in the soil, but when sediment is transported from a site, some phosphorous will be carried with it; and
- Add some phosphorous in new turf establishments. Phosphorous is important in seedling establishment and can reduce erosion from bare soil sites.

Water Management: The rate, amount and timing of irrigation or water application must be accurately determined and controlled to adequately water turf and minimize soil erosion, runoff and pesticide movement. The irrigation system should be well designed using the latest technology. Do not manually over rule the settings. More often than not such overrules result in use of more water than is necessary. Water or irrigate lightly following fertilization to move nutrients into the soil, but not off site. About 1 inch per week of water is recommended. Grass may go dormant during hot summer conditions, but will return, though perhaps in a less vigorous state. If you are using sprinklers and your town utilizes the odd even water days, do not water simply because it is your day. Only water when necessary.

Pest Control: The most effective weed control is a dense healthy turf. With proper turfgrass management, most serious weed infestations can be minimized, however, there are times when undesirable plants will appear in even the best-managed turf. Pesticides do not eliminate the need for good turf management, they should be considered as a tool in your total management program. The use of pesticides remains the primary way to deal with pests.

Disease Control: Diseases come about when weather or cultural conditions favor the disease-causing agent, but do not favor growth and vigor. Poor cultural conditions that cause diseases are close mowing, inadequate or excessive nitrogen, light, improper irrigation, excessive thatch, poor surface drainage and shade. Good cultural control should eliminate these. Proper use of fungicides according to label instructions can help as well.

Insect Controls: White grubs are the most prevalent insects. They are the larvae of several insect species. Grubs feed on turf roots and actively damage turf in August, September and October. They also do some minor damage to turf the following spring if they are not controlled in the fall. If grubs were a problem

the previous year, a residual insecticide should be applied in June or July, or a short residual product may be applied in August or early September if grubs are present. To determine if you have grubs, you must lift up the turf and look.

**Biological Controls:** The search for more biological controls continues. If some effectively control pests in your area, incorporate them into your turf programs. Be advised, some biological controls, such as Milky Spore, are registered pesticides. Many biological controls work if the climatological conditions are right. In MA, Milky Spore is erratic, at best. To know if it has worked, you must lift up the turf and look for white powder residue.

Acidic-based products, such as BurnOut work on some weeds if the conditions are dry, sunny and hot. Watch acid levels in your soil.

**Selection of Pesticides:** Select those pesticides that are less toxic, less water soluble and less volatile. Use judiciously according to label instructions. "Labels are legal documents." Never dispose of pesticides by pouring them down the drain or pouring them outside near water. Use properly on a different location or dispose at the Toxic Waste Disposal Day in your town. For weeds, monitor the growth stage and be aware of non-target species.

**Correct Application of Pesticides:** Spray when conditions for drift are minimal. Follow label instructions. "Labels are legal documents." Some pesticides must be watered in, others must not. Use spreaders with sidebars when you are close to a waterway, so that granular applications do not spread into the water. Be sure that your spreader or sprayer is properly calibrated. Sweep up pellets that land on pavement and put back onto the lawn. Avoid storm drains. Do not allow pellets to collect in pockets on bare soil areas. Apply pesticide at the correct time. Spot treat when necessary. Follow any ground water advisories on the label.

**APPENDIX I**

**SUPPORT LETTERS AND COMMENTS FROM OTHER GROUPS**

**SUPPORT LETTERS**

1. Lowell Parks & Conservation Trust
2. Sudbury Valley Trustees
3. Organization for the Assabet River
4. Commonwealth of Massachusetts, Geoffrey D. Hall
5. Commonwealth of Massachusetts, Deborah D. Blumer
6. Commonwealth of Massachusetts, Patricia A. Walrath , (Assistant Majority Whip)
7. Commonwealth of Massachusetts, William G. Green, Jr. (Mass. General Court)
8. Metropolitan Area Planning Council
9. Hop Brook Association
10. Town of Westborough
11. MetroWest Growth Management Committee
12. Town of Grafton
13. BHO Associates
14. C.R.E.S.T. (Concord River Environmental Stream Team)
15. M.A.L.C.P. (Mass. Assoc. of Lawn Care Professionals)
16. The Patriot Resource Conservation & Development (RC & D) Area Council, Inc.
17. SuAsCo River Stewardship Council



Lowell Parks &

Conservation Trust

June 27, 2005



Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Attn: MA Executive Office of Environmental Affairs

We are writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.



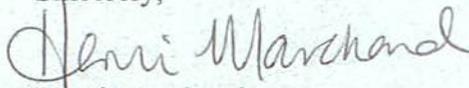
In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.



We urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

We embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

  
Henri Marchand  
President 



**“Working to protect Lowell’s green space.”**

P.O. Box 7162 • Lowell, Massachusetts 01852 • 978-934-0030  
[www.lowelllandtrust.org](http://www.lowelllandtrust.org)



SUDBURY  
VALLEY  
TRUSTEES

*Protecting the natural resources of the Sudbury, Assabet and Concord River Valleys since 1953*

June 27, 2005

Vandana Rao  
Project Manager  
Executive office of Environmental Affairs  
100 Cambridge Street, 9th Floor  
Boston, MA 02114

Dear Ms. Rao,

I write to express my appreciation for the work of Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council who worked together to create the Watershed Action Plan for the Sudbury, Assabet, and Concord.

Sudbury Valley Trustees is a local conservation organization with over 3200 members. We have participated in the Watershed Action Plan process through the Wild and Scenic River Stewardship Council, through the Steering Committee of the Community Council, and at public forums.

We are grateful for the opportunity provided by this process to clarify the natural resource problems facing our region, and to consider what remedies ought to be taken. Because we emphasize land protection and stewardship in the towns of the Concord River basin, we naturally like to point out that land conservation helps protect other natural resources. We look forward to working with others as we meet the challenges ahead.

Sincerely,

Ron McAdow  
Executive Director

# O.A.R.



Organization for the Assabet River  
Damonmill Square, Concord, Massachusetts 01742

## Board of Directors

Elizabeth Stokey  
*President  
Concord*

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*Vice-president  
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*Treasurer  
Acton*

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Paul Goldman  
*Marlborough*

Dave Griffin  
*Maynard*

Marguerite Kosovsky  
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Martin J. Moran  
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Lawrence Roy  
*Marlborough*

Melissa C. Saalfield  
*Concord*

David Williams  
*Marlborough*

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*Executive Director*

Suzanne Flint  
*Staff Scientist*

Julia Khorana  
*Development Coordinator*

Dorothy MacKeen  
*Office Manager*

Membership Coordinator

Devra Feshbach-Meriney  
*Bookkeeper*

June 28, 2005

Vandana Rao

Executive Office of Environmental Affairs

100 Cambridge Street

9<sup>th</sup> Floor, Suite 900

Boston, MA 02114

Attn: MA Executive Office of Environmental Affairs

Dear Ms. Rao:

On behalf of the Organization for the Assabet River, thank you for the opportunity to offer an additional contribution to the 2005 SuAsCo Watershed Action Plan. OAR is a private non-profit watershed organization established in 1986 to protect, preserve, and enhance the natural and recreational features of the Assabet River, its tributaries and watershed. OAR currently has over 1,000 members and operates a successful EPA-approved volunteer water quality and stream flow monitoring program, a large-scale volunteer annual river clean-up, and a variety of educational workshops, canoe trips and other activities designed to foster enjoyment and good stewardship of the river. OAR often works collaboratively with other organizations seeking to protect the Sudbury River and its tributaries, and has recently extended its monitoring program to include the streams in the Concord watershed.

We are pleased to offer the following contribution to the WAP, adapted from our 2002 Strategic Plan.

Our vision for water:

1. The Sudbury, Assabet, and Concord Rivers and their tributaries should meet Class B water quality standards throughout the watershed.
2. River flow should be sufficient to assimilate wastewater discharges and support indigenous fish populations.
3. Water withdrawals should be mitigated; groundwater recharge should occur close to the source.
4. Discharge from wastewater treatment plants should not degrade the rivers or streams.
5. Commercial pollutants of the rivers and tributaries should be eliminated at their source.
6. The rivers should be free-flowing; sediment buildup in impoundments should be removed.

Our goals for water:

- I. Continue to develop scientific understanding of the rivers, their tributaries, and watershed.
- II. Use scientific information to protect the watershed in legal and regulatory arenas.
- III. Restore the watershed's natural hydrological cycle.

(978) 369-3956

fax: (978) 318-0094

oar@assabriver.org

www.assabriver.org

Our vision for habitat:

1. The river corridors should support significant populations of native species matching the habitat.
2. Wildlife should be able to migrate along a protected river corridor for the length of the three rivers.
3. The body chemistry of the fauna in the rivers should be "normal," that is, with no heavy metal or organic contaminants. Fish could in the rivers and tributaries should be safe to eat.
4. Invasive species of flora and fauna should be reduced and eventually eliminated from the watershed.

Our goal for habitat:

- I. Protect and restore habitat and native species.

Our vision for recreation:

1. The water in the Sudbury, Assabet, Concord, and their tributaries should be clean enough for swimming and wading.
2. The rivers should be navigable by canoes and kayaks.
3. Boat access to the rivers should be signed and have appropriate parking areas.
4. A system of trails should allow hikers, fishermen, naturalists, and picnickers to have access to river banks and surrounding lands.
5. The rivers should be free of tires, bottles, and other debris.

Our goal for recreation:

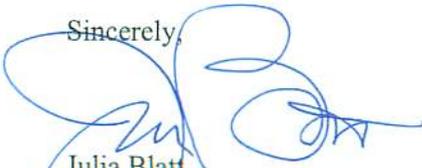
- I. Enhance and develop recreational access to the rivers and their tributaries.
- II. Promote enjoyment of the rivers and their watershed.

An additional goal, for education, is:

- I. Promote good stewardship of the rivers, tributaries, and their watershed.

We were pleased to see many of our goals and priorities reflected in the WAP, and would like to commend Nancy Bryant for her hard work in putting this document together.

Sincerely,



Julia Blatt  
Executive Director



*The Commonwealth of Massachusetts*  
*House of Representatives*  
*State House, Boston 02133-1054*

**GEOFFREY D. HALL**  
**STATE REPRESENTATIVE**  
2ND MIDDLESEX DISTRICT  
CHELMSFORD - PRECINCTS 3, 5, 7  
LITTLETON, WESTFORD

Chairman  
Committee on Post Audit and Oversight

June 27, 2005

ROOM 146, STATE HOUSE  
TEL. (617) 722-2575  
FAX (617) 722-2238

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Dear Ms. Rao

I am writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

We, collectively, urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

I endorse the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

A handwritten signature in black ink, appearing to read "G. D. Hall", written over a horizontal line.

GEOFFREY D. HALL

Chairman  
Committee on Post Audit & Oversight



The Commonwealth of Massachusetts  
House of Representatives  
State House, Boston 02133-1054

**DEBORAH D. BLUMER**  
STATE REPRESENTATIVE  
6TH MIDDLESEX DISTRICT  
FRAMINGHAM  
STATE HOUSE, ROOM 134  
TEL (617) 722-2400  
Deborah.Blumer@state.ma.us

DAVID BILLINGS  
LEGISLATIVE AIDE

Committees:  
Local Affairs  
Post Audit and Oversight  
Personnel and Administration

**DISTRICT OFFICE**  
7 LEDGEWOOD ROAD  
FRAMINGHAM, MA 01701  
TEL (508) 879-0658

June 30, 2005

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Dear Ms. Rao:

I write in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

Ambient and the Council worked within a greatly consolidated time period in conducting the Watershed Action Plan. Through the use of municipal reports, research, and public opinion, the Action Plan will define the priorities of the SuAsCo Watershed over the next five years in an effort to improve and protect its environmental health and resources.

I support and encourage the action priorities of the SuAsCo Watershed Action Plan and embrace the vision of its achievement.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Deborah D. Blumer".

Deborah D. Blumer



*The Commonwealth of Massachusetts*

HOUSE OF REPRESENTATIVES  
STATE HOUSE, BOSTON 02133-1054

REP. PATRICIA A. WALRATH

3RD MIDDLESEX DISTRICT

BOLTON - HUDSON

MAYNARD - STOW

DISTRICT OFFICE:

TEL. (978) 897-9088

Assistant  
Majority Whip  
Floor Division  
Leader

ROOM 481, STATE HOUSE

TEL. (617) 722-2180

June 27, 2005

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Dear Vandana Rao:

I am writing to voice my support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

Ambient and the Council worked within an aggressive timeframe in conducting the Action Plan, and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are a detailed compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

I urge the Commonwealth to provide the technical and fiscal assistance to help the SuAsCo Watershed in achieving its goals. The SuAsCo Watershed is committed to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

I strongly support the action priorities and vision of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

A handwritten signature in blue ink that reads "Pat Walrath".

PATRICIA A. WALRATH

State Representative



*The Commonwealth of Massachusetts*

House of Representatives  
Massachusetts General Court  
State House, Rm 477, Boston 02133-1054  
(617) 722-2210

William G. Greene, Jr.  
22<sup>nd</sup> Middlesex

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

June 27, 2005

Attn: MA Executive Office of Environmental Affairs

I am writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

I urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

I embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Cordially,

A handwritten signature in black ink, appearing to read "William G. Greene, Jr.", written in a cursive style.

William G. Greene, Jr.  
State Representative



# Metropolitan Area Planning Council

60 Temple Place, Boston, Massachusetts 02111 617-451-2770 fax 617-482-7185 www.mapc.org

*Serving 101 cities and towns in metropolitan Boston*

June 30, 2005

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Dear Ms. Rao,

I am writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by the SuAsCo Watershed Community Council and Ambient Engineering of Concord, MA.

The Council and its consultant Ambient are to be commended for developing a plan that clearly outlines the major issues in the SuAsCo watershed, and lays out an action plan that includes both short term and long term recommendations to protect the critical resources of the watershed. In addition to the solid technical work that went into the plan, MAPC is pleased that it was produced with significant input from diverse stakeholders throughout the SuAsCo watershed. This helps to ensure that the plan reflects a broad spectrum of issues and concerns across the watershed.

As a member of the SuAsCo Watershed Community Council's Steering Committee, and one of the founding members of the Council, MAPC is pleased to support the plan, and we urge EOEa to incorporate the plan's recommendations into the agency's policies and priorities, including the provision of technical and financial assistance to implement the plan. For its part, MAPC will continue to participate in and support the efforts of the Council to implement the plan and modify it as needed in the future. I look forward to working collaboratively with EOEa and all of the SuAsCo stakeholders on the achievement the plan's goals.

Sincerely,

Marc D. Draisen  
Executive Director

cc: Nancy Bryant, SuAsCo Community Council  
Sen. Pam Resor  
Rep. Susan Pope  
Rep. Pat Walrath



## Hop Brook Protection Association

P.O. Box 707  
Sudbury, MA 01776

15 July 2005

David Manujian  
Ambient Engineering  
100 Main Street, Suite 330  
Concord, MA 01742

Dear David:

I trust that the instructions I received from my wife, Ursula, as to whom this letter should be addressed are correct and that you are the correct recipient. If this is not the case, please forward this letter to the intended recipient.

I am writing in support of the Sudbury-Assabet-Concord River Watershed Action Plan (WAP). I am doing so on behalf of the Hop Brook Protection Association. We consider ourselves a major stakeholder in dealing with the problems in the Hop Brook watershed with Hop Brook being the largest tributary to the Sudbury River.

I have reviewed the WAP Vision Statement and Watershed Wide Goals and they are consistent with our vision and goals for our "piece of the puzzle". We believe that the WAP has potential to have a substantial positive impact on the well being of the SUASCO watershed and should be supported by all who care about our environment.

As you know our support has gone beyond this letter and we have provided you with information from our files which we hope you have found useful.

We wish you success in the completion of the study and if there is anything additional I can do to help, please let me know.

Sincerely,

A handwritten signature in cursive script that reads "Francis T. Lyons".

Francis T. Lyons  
President HBPA



# TOWN OF WESTBOROUGH MASSACHUSETTS

01581

June 28, 2005

Ms. Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street, 9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

RE: SuAsCo Watershed Five-Year Action Plan

I fully support of the Five-Year SuAsCo Watershed Action Plan, which Ambient Engineering of Concord, Massachusetts and the SuAsCo Watershed Community Council. submitted to your office.

To complete the plan in a timely and effective fashion, Council members and Ambient called for the input of the many organizations and concerned citizens within the SuAsCo Watershed. Their results create a comprehensive picture of the SuAsCO Watershed's current environmental status and the actions needed to further protect and restore our environmental resources. Through an extensive outreach to watershed stakeholders, they developed an Action Plan that incorporated insights from the diverse representatives on the Council's Steering Committee as well as public forums from different geographic regions in the Watershed.

It is critical that the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals. Of course, future discussions will be undertaken to modify the Action Plan as needed. I strongly support the vision and priorities of the SuAsCo Watershed Action Plan and know that the SuAsCo Watershed Community Council and watershed stakeholders will work diligently to realize its goals.

Sincerely,

Kristina N. Allen, chair  
Westborough Water Resources Management Committee



Growth Management Committee

20 Main Street, Suite 205  
Natick, MA 01760  
[www.metrowestgrowth.org](http://www.metrowestgrowth.org)

Doug Gillespie, Chairman (Weston Board of Selectmen)  
John Stasik, Vice-Chairman (Framingham Board of Selectmen)  
Ken Soderholm, Clerk (Natick Planning Board)  
Bill Christensen, Past Board Member (Southborough Board of Selectmen)  
David Teller, Member-At-Large (Ashland Board of Selectmen)  
Charlie Gaffney, Member-At-Large (Southborough Planning Board)  
Donna Jacobs, Director

508.907.6740  
508.651.0085  
508.907.6743 fax

June 27, 2005

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114  
Attn: MA Executive Office of Environmental Affairs

Dear Vandana Rao:

I am writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

In developing the Action Plan, Ambient Engineering and the Community Council drew upon many organizations and concerned citizens within the SuAsCo Watershed to complete the work within the aggressive timeframe. The resulting Watershed Action Plan is an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. Significant public input was provided through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

I urge the State to provide fiscal and technical assistance to assist the SuAsCo Watershed in achieving our goals and, as a member of the SuAsCo Watershed Steering Committee, I commit to participating in ongoing discussions about the Action Plan to update the document as needed over time. I embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

Donna M. Jacobs, Director



# Town of Grafton

Department of Public Works  
Roger Hammond, Director  
30 Providence Road  
Grafton, Massachusetts 01519



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Fax: 508-839-4602

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

June 27, 2005

Attn: MA Executive Office of Environmental Affairs

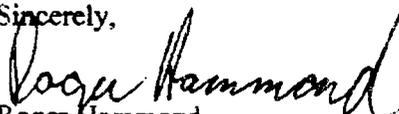
We are writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

We urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

We embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

  
Roger Hammond  
Director of Public Works

**BHO Associates**  
Environmental Consultants

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

June 27, 2005

Attn: MA Executive Office of Environmental Affairs

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We embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,



Barbara H. Offenhartz, PhD  
President BHO Associates

cc: David Manugian, Ambient Engineering; Nancy Bryant, SuAsCo WCC

*BHO Associates, 9 Smith Street, Wellesley, MA 02482; Telephone 781-237-7695  
E-mail [podo@att.net](mailto:podo@att.net).*

**C.R.E.S.T.**  
**Concord River Environmental Stream Team**

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KCGILLIGAN@EARTHLINK.NET -- 978-667-8692 -- 44 ELSIE AVENUE, BILLERICA, MA 01921  
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Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street, Suite 900  
Boston, MA 02114

June 25, 2005

Attn: MA Executive Office of Environmental Affairs

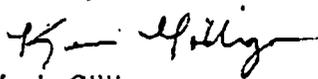
I am writing you to endorse the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, Massachusetts and the SuAsCo Watershed Community Council.

In preparing the Action Plan, Ambient and the Council initiated an expedited planning process, at the State's behest, drawing upon the expertise and dedication of many organizations and informed citizens throughout the SuAsCo Watershed. The Action Plan has been developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of public forums, and extensive outreach to watershed stakeholders. Drawing upon a broad spectrum of environmental data and analysis, the Plan delineates and prioritizes the actions needed to further protect and restore our watershed's natural resources.

I urge the State to commit to participating in ongoing discussions with the Council on the Action Plan in order to modify it as needed over time, and to provide the fiscal and technical assistance necessary to help us in achieving our goals for the SuAsCo Watershed.

Having taken part in the four-month process of formulating the SuAsCo Action Plan, I look forward now to collaborating with colleagues from all quarters for the benefit of all members of our watershed's natural and civic communities.

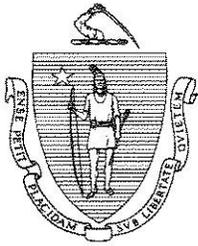
Sincerely,



Kevin Gilligan

- Concord River Environmental Stream Team Coordinator
- SuAsCo Watershed Community Council Steering Committee
- SuAsCo Wild and Scenic Rivers' Riverfest Festival Planning Committee

**rivers connect us**



COMMONWEALTH OF MASSACHUSETTS  
MASSACHUSETTS SENATE

STATE HOUSE, BOSTON 02133-1053

DISTRICT OFFICE:  
P.O. Box 1110  
MARLBOROUGH, MA 01752  
TEL. (508) 786-3040  
FAX. (508) 786-1969

COMMITTEES:  
ENVIRONMENT, NATURAL RESOURCES  
AND AGRICULTURE (CHAIR)  
WAYS AND MEANS  
LABOR AND WORKFORCE DEVELOPMENT, (VICE-CHAIR)  
EDUCATION  
CHILDREN & FAMILIES  
TOURISM, ARTS AND CULTURAL DEVELOPMENT

SENATOR PAMELA P. RESOR  
MIDDLESEX AND WORCESTER  
DISTRICT  
ROOM 410  
TEL. (617) 722-1120  
FAX. (617) 722-1089

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

October 13, 2005

Attn: MA Executive Office of Environmental Affairs

We are writing in support of the 5-year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

We urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

We embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,

  
Pamela P. Resor

**The Patriot Resource Conservation & Development (RC&D) Area Council, Inc.**  
Serving Essex, Middlesex, Norfolk, Suffolk & Worcester Counties  
319 Littleton Road, Suite 302, Westford, MA 01886 \* 978-692-1904 x108 (tel) \* 978-692-8349 (fax)



July 27, 2005

Vandana Rao  
Executive Office of Environmental Affairs  
100 Cambridge Street  
9<sup>th</sup> Floor, Suite 900  
Boston, MA 02114

Attn: MA Executive Office of Environmental Affairs

We are writing in support of the 5-Year SuAsCo Watershed Action Plan submitted to your office by Ambient Engineering of Concord, MA and the SuAsCo Watershed Community Council.

The SuAsCo Council is a member of our Resource Conservation and Development Council and plays an active role in identifying the needs in our five-county area in central and northeastern Massachusetts. They are very familiar with the environmental challenges in this area. In conducting the Action Plan, Ambient and the Council worked within an aggressive timeframe and drew upon the many organizations and concerned citizens within the SuAsCo Watershed. The results are an impressive compilation of the watershed's current environmental status and the actions needed to further protect and restore our environmental resources. The Action Plan was developed with significant public input through the diverse representation on the Council's Steering Committee, the geographic distribution of the public forums, and extensive outreach to watershed stakeholders.

We urge the State to provide fiscal and technical assistance to help the SuAsCo Watershed in achieving our goals and we commit to participating in ongoing discussions on the Action Plan in order to modify it as needed over time.

We embrace the vision and action priorities of the SuAsCo Watershed Action Plan and look forward to working collaboratively on the achievement of its goals.

Sincerely,  
  
Joseph Lawless  
Acting President



June 29, 2005

Vandana Rao  
Project Manager  
Executive Office of Environmental Affairs  
100 Cambridge Street, 9<sup>th</sup> Floor  
Boston, MA 02114

Dear Ms. Rao,

The Sudbury Assabet and Concord Wild and Scenic River Stewardship Council (RSC) is very interested and committed to the development of a meaningful Watershed Action Plan (WAP). RSC members have participated on the SuAsCo Watershed Community Council (WCC) Steering Committee as well as in many of the public forums organized to solicit comments on the WAP. Many of the issues raised at the public forums have been discussed within the RSC.

Twenty nine miles of the Sudbury, Assabet and Concord Rivers were designated in 1999 as part of the national Wild and Scenic river system because of their 'outstandingly remarkable' resource values. The five resource values noted within the designation include outstanding recreational opportunities, scenery, ecology, historical and literary significance. The RSC was established as part of the authorizing legislation and is comprised of 8 members from the eight communities fronting the designated river segment (Framingham, Sudbury, Lincoln, Wayland, Concord, Bedford, Carlisle, and Billerica), the two representatives from the Commonwealth, and one each from the U.S. Fish and Wildlife Service, National Park Service, Sudbury Valley Trustees, and Organization for the Assabet River. The RSC is charged with the task of working with the National Park Service in an advisory capacity to administer the Wild and Scenic designation and to ensure protection of the rivers' resources. We believe that the work of the RSC dovetails very closely with the outline of SuAsCo Watershed Issues and Actions outlined in this Plan.

15 STATE STREET • BOSTON, MA 02109 • 617-223-5191

BEDFORD • BILLERICA • CARLISLE • COMMONWEALTH OF MASSACHUSETTS • CONCORD  
FRAMINGHAM • LINCOLN • NATIONAL PARK SERVICE • ORGANIZATION FOR THE ASSABET RIVER • SUDBURY  
SUDBURY VALLEY TRUSTEES • U.S. FISH AND WILDLIFE SERVICE • WAYLAND

The Wild and Scenic segment comprises over one third of the river miles in the watershed. While the RSC has a particular interest in these 29 miles, it recognizes the absolute need to address issues on a watershed basis in order to ensure a healthy river system.

The purpose of creating this watershed action plan is to identify critical problems affecting or threatening our natural resources and to propose practical responses that we can work together to implement. With this in mind, the RSC believes the most urgent challenges are as follows:

- The watershed's most critical water quality problem is nutrient pollution of surface waters, particularly of the Assabet River and Hop Brook.
- The watershed's most critical water quantity problem is depletion of wetlands and streamflow.
- The watershed's most critical problems affecting biodiversity and habitat are:
  - Development of land that has high conservation value
  - Aggressive invasive species
  - Fragmentation of habitat by highways, dams and culverts
- The watershed's most critical problem affecting recreational opportunities are the potential for conflicts between users, as well as between users and wildlife.

In order to most effectively address the important issues facing this watershed, the RSC believes that a commitment to open communication and cooperation is essential. Towns must begin to communicate between themselves, because the issues they face and the impacts of the actions they make do not fall within political boundaries. As importantly, organizations within each town also must share information and knowledge. The issues discussed within this action plan are multifaceted and effective responses require the expertise and action of many – conservation commissions, public works, selectmen, planning boards etc.

The following comments offer a list of the RSC highest priority goals, issues and actions. While every issue on the SUASCO Watershed Issue and Action list is important, we believe by focusing our issues there is a better possibility of addressing them.

#### **A. Water Quantity**

Goal: Ample surface and groundwater to support river-dependent wildlife and recreation, and sustainable human use.

Highest Priority Issue: Stream Flow

Highest Priority Actions:

1. Maintain streamflow regimes that maintain physical, chemical and biological integrity.
  - a. Determine natural streamflow regimes – where possible use USGS modeling as a basis.
  - b. Determine ecological flow regimes that will maintain physical, chemical and biological integrity
    - Fund USGS studies and develop sub-watershed hydrologic budgets
    - Fund studies to identify the amount of aquatic habitat necessary to sustain aquatic communities (e.g. meso-habitat modeling)
  - c. Manage water resources to ensure protection of ecological flow regimes
    - Support DEP's implementation of Water Management Act policy for new and existing withdrawals
    - Support implementation of EOEA's water policy
    - Reduce seasonal demand for water
    - Support alternative on-site or cluster wastewater treatment technologies to reduce wastewater and maintain hydrologic balance in subwatersheds.
    - Reduce water use in all communities by encouraging/requiring a medley of conservation methods. Towns should report annually as part of a water conservation 'progress report' on their efforts and successes to decrease water use ( RSC is considering working on this issue, in some yet to be determined manner).
  - d. Plan on a watershed basis to protect rivers and streams. Communities should recognize that towns are part of the watershed and what each does affects the others.

**B. Water Quality**

Goal: A fishable, swimmable Sudbury, Assabet and Concord River

Highest Priority Issue: Water quality impairments, particularly in the Assabet River and Hop Brook, due to excessive nutrient pollution

Highest Priority Actions:

1. Complete TMDL and work to implement it because it gives a target.
2. Decrease nutrient inputs to the rivers by strongly implementing the NPDES program. Utilize innovative technologies, take advantage of federal funding to decrease costs to municipalities.
3. Reclassify all discharges into Wild and Scenic segment as 'major' permits, ensure permits are reviewed on a 5 year cycle.

4. Promote local and individual responsibility to reduce nonpoint sources of nutrient pollution. Create municipal programs, implement stormwater regulations, enhance education efforts to homeowners.
5. Explore stormwater utility creation to guarantee consistent funding to address nonpoint source pollution.
6. Look at sediment quality in the Sudbury, Assabet and Concord Rivers, particularly behind dams and consider dam removal where appropriate and effective.
7. Assess and evaluate actions to address the effects of toxic contamination in the rivers by both site specific and nonpoint sources on environmental and human health.

### **C. Biodiversity/Habitat**

Goal: Healthy, thriving, biodiverse natural communities in the watershed.

#### Highest Priority Issues:

1. Restoration and protection of habitat corridors, including river continuity
2. Management of invasive species

#### Highest Priority Actions:

1. Increase funding for land/habitat acquisition with emphasis on biodiversity and habitat corridors on the rivers and tributaries. See SuAsCo Biodiversity Plan by Francis Clark for guidance.
2. Minimize impediments to movement of wildlife along and across/under roadways. Increase use of citizen surveys to help identify road crossings that are impeding movement of wildlife. Educate and encourage local conservation commissions and DPWs to improve wildlife movement. Coordinate with local DPW, MHD.
3. Assess extent of invasive species and management responses in the watershed as a starting point to create and implement a management plan.  
(RSC is hiring an intern for the summer to gather information on the activities taking place along the wild and scenic segment and bring interested individuals together to discuss how to work together).

### **D. Open Space/Land Use**

Goal: Preserved natural green corridors that have value for habitat, recreation, scenery, water recharge, other ecological reasons or historical significance.

#### Highest Priority Issues:

1. Funding for open space protection
2. Prevention of conversion of conservation land to other municipal uses under Article 97

#### Highest Priority Actions

1. Increase funding for land acquisition. See SVT Greenways Plan for guidance.
2. Encourage all municipalities to pass CPA in their community.
3. Pass legislation to discourage conversion of conservation land under Article 97.

#### **D. Recreational Opportunities**

Goal: Opportunities for people to interact with and enjoy our watershed's natural attributes, consistent with the needs of wildlife and other competing needs and uses.

#### Highest Priority Issues:

1. Managing recreational uses so users have a good experience and conflicts are minimized (between different users, between users and wildlife, between users and land protection e.g. erosion, habitat issues)

#### Highest Priority Actions:

1. Develop and implement a recreational management plan that includes an assessment of current conditions and needs – by river segment. Use this to help determine if and where access should be increase, where to improve existing access, where to restrict access etc.

(RSC has undertaken an informal assessment and data gathering effort at access points along the wild and scenic river. This will be followed up with an educational effort (kiosks) to inform users of habitat issues, speed limits).

#### **E. Growth and Development**

Goal: Sustainable resource use through efficiency, education and community building

#### Highest Priority Issue:

1. Reducing cumulative impacts of new land being developed on the natural environment (air, water, land, habitat)

#### Highest Priority Actions:

1. Encourage communities to adopt Low Impact Development design.
2. Assess cumulative impacts from development projects.
3. Encourage sensitive to community character, including historical resources, when reviewing development projects.

#### **F. Outreach/Education/Policy**

Goal: Good stewardship of our watershed's natural resources

Most Outreach and Education actions should be folded into one of the six focus areas as a way to implement the goals of that section. For example, kiosks should be included within Recreational Opportunities, materials and support for local boards should be included in Growth and Development as well as Open Space /Land Use etc.

Promote a greater awareness of the historical significance of the rivers and the importance of protecting these unique resources.

Thank you for the opportunity to comment on this watershed action plan. We look forward to working with the Commonwealth and other partners in the watershed to continue to implement this plan, and to protect our watershed into the future.

Sincerely,



John C. Drobinski, Chair  
Sudbury, Assabet and Concord Wild and Scenic River Stewardship Council

**APPENDIX J**

**SUASCO WATERSHED POLICY RESOLUTIONS (1999)**

***SuAsCo Watershed Policy Resolutions – passed at River Visions II,  
April 10, 1999***

*Whereas, we, the SuAsCo Watershed Community, recognize that it is imperative that we improve, maintain, and restore:*

- *clean water,*
- *seasonal river flow fluctuations,*
- *adequate water supply,*
- *diverse wildlife habitats and open space,*
- *recreational, cultural and historical opportunities, and*
- *healthy local and regional economies.*

*Therefore, be it resolved that we, the SuAsCo Watershed Community pledge to support these goals by:*

- *demanding adequate water quality/flow monitoring programs,*
- *fostering economic growth within the limits of our natural resources,*
- *applying better technologies for industrial and municipal wastewater treatment and stormwater management,*
- *developing creative solutions that reduce water consumption and increase efficiency of water use,*
- *coordinating land conservation and development within and across municipal boundaries, and*
- *increasing understanding, awareness and support of our watershed through education.*

**APPENDIX K**

**SUASCO WATERSHED COMMUNITY COUNCIL MISSION STATEMENT**

**SuAsCo Watershed Community Council  
Mission Statement:**

“To build a community-based alliance that promotes the sustainable economic and environmental well-being of the Sudbury-Assabet-Concord River (SuAsCo) Watershed.

The alliance is working together to:

- protect the natural resources of the SuAsCo Watershed,
- restore water quality and flow,
- coordinate land use and water resource planning across community boundaries,
- encourage stewardship of the recreational and historic character of the watershed,
- foster cooperation among divergent interest groups,
- promote education on watershed challenges, assets, and opportunities, and
- channel financial and technical assistance to creatively solve identified problems.”

**APPENDIX L**

**POSSIBLE FUNDING SOURCES SAMPLE LIST**

## *Possible Funding Sources Sample List*

### **FEDERAL**

EPA Environmental Education Grant Program

<http://www.epa.gov/enviroed/grants.html>

Supports environmental education projects that enhance the public's awareness, knowledge, and skills to make informed decisions that affect environmental quality

EPA Targeted Watershed Grants

Nominations must be submitted by a governor or tribal leader. EOEA will coordinate the MA application process. Grant awards range from \$600,000 to \$900,000, and a 25% non-federal match is required.

<http://www.epa.gov/owow/watershed/initiative/2005/2005grantsolicit.html>

EPA New England's Healthy Urban Communities Grant

Supports projects that will improve the quality of life for New Englanders living in the region's urban areas.

<http://www.epa.gov/region01/grants/healthyurban.html>

Office of Water (OW), Office of Science and Technology (OST), Health and Ecological Criteria Division (HECD), Ecological and Health Processes Branch (EHPB) - Nutrient Criteria Program. Funds available under Statutory Authority of Section 104(b)(3) of the Clean Water Act, which authorizes federal assistance agreements for conducting or promoting the coordination and acceleration of research, investigations, experiments, surveys and studies relating to the cause, effects, extent, prevention and elimination of nutrient related pollution.

[www.fedgrants.gov/Applicants/EPA/OGD/GAD/EPA-GRANTS-050505-001/Grant.html](http://www.fedgrants.gov/Applicants/EPA/OGD/GAD/EPA-GRANTS-050505-001/Grant.html)

and <http://epa.gov/waterscience/criteria/nutrient/rfp.pdf>

### **MASSACHUSETTS**

State Revolving Fund (SRF) Loans – low interest loans for municipalities to address environmental pollutants - administered by MA Department of Environmental Protection (DEP)

<http://www.mass.gov/dep/brp/mf/files/srfhowto.htm>

Massachusetts Environmental Trust

<http://www.agmconnect.org/maenvtr7.html>

Supports innovative approaches that can protect and restore our natural resources, with a special focus on water and related resources of the Commonwealth.

Riverways Small Grants Program

<http://www.state.ma.us/dfwele/river/pdf/Rivsmallgrantp.pdf>

Supports stream teams to build capacity, complete projects from their Action Plans and enable them to provide opportunities for river protection, restoration and recreation.

Riverways at 617-626-1549 or 617-626-1548

### Executive Office of Environmental Affairs (EOEA) Fiscal Year 2006 Conservation Partnership Program

Application Deadline: Wednesday, October 5, 2005

The goal of the Conservation Partnership Program is to assist not-for-profit corporations in acquiring interests in lands that are suitable for conservation or recreation. Conservation Partnership grants are for the reimbursement of eligible costs for projects approved by EOEA. Each award will have a maximum reimbursement amount of up to \$35,000 and the reimbursement amount may not exceed 50% of the total cost of the approved project. The application deadline is October 5, 2005.

### EOEA Watershed Improvement Grant

<http://www.comm-pass.com/processPublicSolSummView.do?action=soltypeCd&docStatus=OPEN&docViewType=OPEN&docUserId=201600&doValidateToken=false&docId=102161&soltypeCd=UNIVERSAL>

This grant is intended to provide funds to qualified organizations to complete environmental improvement projects that are designed to produce positive and measurable environmental impact. Under this RFP, EOEA will enter into contracts with qualified organizations, as grantees, to complete projects designed to achieve the restoration and preservation of water and/or land resources. Proposals are sought only for those watersheds which have an EOEA published Watershed Action Plan and projects must be cited by or consistent with the Watershed Priorities in those Watershed Action Plans. Project proposals must demonstrate an ability to achieve environmental restoration (such as environmental and recreational improvements to public property). Though the primary focus of this RFR is environmental restoration, responses must also include a plan for promoting public awareness designed to prevent future recurrences of the problem addressed. The maximum award for any one project will be up to \$50,000 of funds from EOEA. EOEA also requires a non-state match (cash or in-kind) of at least 50% of the funds sought from EOEA.

Smart Growth Technical Assistance Grants Program - EOEA is soliciting proposals from municipalities and Regional Planning Agencies to support efforts to implement Massachusetts Sustainable Development Principles. These grants will help communities with implementation of sustainable development/smart growth practices. To view the RFR and specific criteria, visit the Comm-PASS website at <http://www.comm-pass.com/> and search for document number "RFR ENV 06 POL 01."

EOEA FY06 Drinking Water Supply Protection Grant Program provides funds to municipalities and other eligible entities to protect and actively maintain key parcels of land believed critical to protecting current and future drinking water supplies. Potential projects may include the protection of land in and around groundwater aquifers and recharge areas, surface water supplies and watershed areas, and surface or underground lands adjacent to those resources. Eligible entities include those recognized by a legislative act of the Commonwealth of Massachusetts, which were created to provide drinking water infrastructure and services to the public. Such entities include but are not limited to Water Districts and Fire Districts. All applicants must have a current Source Water Assessment Report on file with the Massachusetts Department of Environmental Protection to be eligible for grant funding. All parcels for which assistance is provided through this grant must be open to the general public for appropriate recreational use while consistent with 310 CMR 22.00 and must be protected open space under Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts. Drinking Water Supply Protection grants are awarded on a competitive basis. Projects that demonstrate financial or corporative efforts among partners, augment

or connect existing conservation lands, or lie within identified priority conservation or recreation land, will receive greater consideration for funding. Requests for grant funding cannot exceed 50% of the total project cost, with a maximum request of \$500,000. Application deadline September 28, 2005.

Visit Comm-PASS website (<http://www.comm-pass.com/>) for the FY06 Drinking Water Supply Protection Request for Response (RFR) (click on "Search for Solicitations, then type ENV 06 POL 02 into the "Search" box).

**Coastal Nonpoint Source Pollution Grants Program** - The NPS program provides funding to Massachusetts public and non-profit organizations (cities and towns, regional planning agencies, watershed organizations, and public schools, etc.) for the assessment and characterization of nonpoint source pollution (NPS), development of transferable management tools for NPS control, and implementation of unique demonstration projects that utilize NPS best management practices. All applicants are subject to the Commonwealth Capital (ComCap) criteria. For more ComCap information, go to <http://www.mass.gov/ocd/comcap/htm>. To view the RFR, visit the Comm-PASS website at <http://www.comm-pass.com/> and search for document number "ENV 06 CZM 02."

**Coastal Pollutant Remediation Grants Program** - The CPR program provides funding to municipalities located in the Greater Massachusetts Coastal Watershed for the assessment and remediation of stormwater pollution from paved surfaces, and the installation of boat pumpout facilities. All applicants are subject to the Commonwealth Capital (ComCap) criteria. Go to <http://www.mass.gov/ocd/comcap/htm> for more ComCap information. Visit the Comm-PASS website at <http://www.comm-pass.com/> to view the RFR, and search for document number "ENV 06 CZM 03."

**Urban and Community Forestry Planning and Education Grants:**

The Massachusetts Department of Conservation and Recreation (DCR) Urban and Community Forestry Program seeks proposals from municipalities and non-profit groups in Massachusetts communities of all sizes for Urban and Community Forestry Planning and Education projects and programs. Contact Paul Jahnige at [paul.jahnige@state.ma.us](mailto:paul.jahnige@state.ma.us) or Eric Seaborn at [eric.seaborn@state.ma.us](mailto:eric.seaborn@state.ma.us)

**Forest Stewardship for Watershed Health Planning and Education Grants:**

The DCR Urban and Community Forestry Program supports planning and education projects that promote forest stewardship for watershed health. Matching grants of up to \$5,000 will be awarded to successful municipalities, planning agencies, watershed associations, and other non-profits. Contact Paul Jahnige at [paul.jahnige@state.ma.us](mailto:paul.jahnige@state.ma.us) or Eric Seaborn at [eric.seaborn@state.ma.us](mailto:eric.seaborn@state.ma.us)

Massachusetts Department of Environmental Protection  
Drinking Water Program  
Source Water Protection  
Technical Assistance/Land Management Grant Program

## **FEDERAL/STATE**

Massachusetts Department of Environmental Protection (DEP) Fiscal Year 2005 §604(b) non-point source pollution watershed assessment grants program (see <http://www.comm-pass.com/processPublicSolSummView.do?action=soltypeCd&docStatus=OPEN&docUserId=200120&docViewType=OPEN&docId=100622&doValidateToken=false&soltypeCd=ITP>). The focus of

the FY2005 grants was for watershed or subwatershed-based non-point source assessment activities that support DEP's assessment efforts including: Massachusetts Estuaries Project, TMDL development, water supply source protection planning, or data needs that are identified in the EOEAs watershed action plans (see <http://www.mass.gov/envir/water/default.htm>). Respondents, however, are encouraged to propose other suitable water quality assessment/planning projects. Priority or target watersheds for FY05 include the Farmington, Westfield, SuAsCo, South Coastal, Taunton, Hudson, Housatonic, Charles, Ten Mile, and North Coastal basins.

319 Grant Program: Projects funded through 319 grants, on a reimbursement basis, must implement measures to prevent or abate nonpoint source pollution (NPS). Types of eligible 319 projects include: subwatershed projects that address all major identified nonpoint sources affecting water quality; demonstration projects that accelerate the transfer and adoption of new or innovative BMP technologies or institutional approaches to controlling NPS pollution; groundwater projects that target high priority statewide NPS groundwater problems; in-lake projects that address the control of NPS pollution from lake watersheds; and watershed resource restoration projects that restore vegetated wetlands, lakes, rivers, streams, estuaries, shorelines, riparian areas, sea grass beds and other aquatic habitats. Contact Jane Peirce at 508-767-2792 at [jane.peirce@state.ma.us](mailto:jane.peirce@state.ma.us)

USDA Forest Service Forestry Innovation Grants:

States are limited to number of proposals submitted. Contact Eric Seaborn at [eric.seaborn@state.ma.us](mailto:eric.seaborn@state.ma.us)

## **OTHER ORGANIZATIONS**

American Rivers-NOAA Community-Based Restoration Program Partnership River Restoration Grants

American Rivers seeks proposals for community-based river restoration grants as part of its partnership with the National Oceanic and Atmospheric Administration (NOAA) Community-Based Restoration Program. These grants are designed to provide support for local communities that are utilizing dam removal or fish passage to restore and protect the ecological integrity of their rivers and improve freshwater habitats important to migratory (anadromous) fish.

American Rivers web site: <http://www.amrivers.org>

NOAA Community-Based Restoration Program and its partners:

<http://www.nmfs.noaa.gov/habitat/restoration/community/index.html>

The American Sportfishing Association's FishAmerica Foundation

<http://www.fishamerica.org>

and the National Oceanic and Atmospheric Administration (NOAA) Restoration Program Center

[http://www.nmfs.noaa.gov/habitat/restoration/projects\\_programs/crp/index.html](http://www.nmfs.noaa.gov/habitat/restoration/projects_programs/crp/index.html)

Supports grassroots projects across the coastal United States to restore marine, estuarine and riparian habitats, including salt marshes, mangrove forests, and freshwater habitats important to anadromous fish species. Community-based nonprofit organizations, such as local sporting clubs and conservation associations, as well as state and local agencies are encouraged to submit proposals.

Projects must result in on-the-ground habitat restoration, clearly demonstrate significant benefits to marine, estuarine or anadromous fisheries resources, particularly sportfish, and must involve community participation through an educational or volunteer component tied to the restoration

BoatU.S. Foundation

The BoatU.S. Foundation for Boating Safety and Clean Water seeks nonprofit groups to help educate mariners about good environmental habits with grants of up to \$4,000 for clean boating projects. Clean Water grants are designed to educate boaters on issues such as petroleum pollution prevention, pumpout education, and littering prevention, reducing the spread of aquatic nuisance species.

<http://www.BoatUS.com/Cleanwater/grants>

Bay State Gas and Northern Utilities NiSource Environmental Challenge Fund Community and environmental 501(c)(3) or other non-profit organizations located in areas served by Bay State Gas Company (Massachusetts) or Northern Utilities, Inc. (New Hampshire and Maine) are encouraged to apply for grants of between \$500 and \$5,000 (with special grants occasionally awarded up to \$10,000) from the Environmental Challenge Fund.

NiSource web site: [www.nisource.com/enviro/ecf.asp](http://www.nisource.com/enviro/ecf.asp)

Toxics Use Reduction Institute Toxics Use Reduction Networking (TURN) Community Grant Program. The maximum award amount can be up to \$10,000.

<http://community.turi.org/TURNetworking.shtml>

New England Grassroots Environment Fund. This small grants program is designed to foster and give voice to grassroots environmental initiatives in the six New England states. Grants of up to \$2500 are provided to fuel civic engagement, local activism, and social change.

<http://www.grassrootsfund.org>

Cheryl King Fischer, Executive Director, 802-223-4622

River Network - online Directory to Funding Sources. Listing of over 300 private, corporate and federal funding sources for river and watershed groups. Find it at:

<http://www.rivernetwork.org/library/libfundir.cfm>

## **LOCAL FOUNDATIONS**

Greater Lowell Community Foundation  
David Kronberg, Executive Director, 978-970-1600

[www.glcfoundation.org](http://www.glcfoundation.org)

Crossroads Community Foundation  
Ashley Allison, Executive Director, 508-647-2260

[www.cfdn.org](http://www.cfdn.org)

Sudbury Foundation  
Derry Tanner, Executive Director, 978-443-0849

[www.sudburyfoundation.org](http://www.sudburyfoundation.org)

**APPENDIX M**

**GLOSSARY**

## Glossary

**Aquifer** – an underground permeable geological formation capable of storing and yielding groundwater to wells and springs.

**Best management practices (BMPs)** - devices and/or management practices designed to slow the speed of stormwater runoff and to temporarily store and/or to treat stormwater runoff in order to mitigate flooding and reduce pollution to receiving waters. BMPs include activities or structural improvements that help reduce the quantity and improve the quality of stormwater runoff. Examples of BMPs include hay bales, silt fencing, vegetative buffers, infiltration beds, riprap (crushed rock), detention basins, grass channels, and street sweeping.

**Catch basin** - a device that collects stormwater and traps some material before the stormwater flows into a stormwater drainage system.

**Culvert** - a drain or conduit under a road or embankment.

**Drainage basin** – see “watershed”.

**Erosion** - the process by which a material is worn away by water or air.

**Evaporation** - the process of liquid water becoming water vapor, including vaporization from water surfaces and land surfaces.

**Evapotranspiration** – the production and release of water vapor by living plants.

**Fertilizer** - any organic or inorganic material of natural or synthetic origin that is added to soil to supply elements essential to plant growth.

**Groundwater** - water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper layer of the saturated zone is called the water table.

**Herbicide** – a chemical or mix of chemicals used to kill weeds or particular plants

**Hydrologic cycle** – see “water cycle”.

**Impervious** - the property of a material that does not allow, or allows with great difficulty, the movement or passage of water. Pavement, rock, and clay are examples of impervious substances.

**Non-point source pollution** – water pollution coming from many diffuse sources, such as stormwater.

**Nutrients** - any substance that is taken in by organisms and promotes growth. For example, phosphorus, nitrogen, and potassium are essential to plant growth and are therefore referred to as “nutrients”.

**Outfall** - the outlet or structure where a stormwater drainage system or effluent pipe discharges to a receiving water body.

**Percolation** - the movement of water through the openings in rock and soil.

**Pervious** – the property of a material that allows the passage of water. Gravel and sand are examples of pervious substances.

**Pesticide** – a chemical or mix of chemicals used to kill pests or particular insects

**Pet waste** - waste from pets, particularly dogs and cats.

**Point-source pollution** - water pollution coming from a single point, such as a sewage outflow pipe.

**Pollution** – the degradation or impairment of a natural resource.

**Precipitation** - rain, snow, hail, sleet, dew, fog and frost.

**Recharge** - water absorbed into an aquifer. Rainfall seeping or percolating into the ground is an example of recharge.

**Reservoir** - a place where water is collected and stored for use.

**Runoff** – precipitation or snow melt that does not percolate into the ground but instead flows over the ground directly into streams, lakes or other water bodies or flows indirectly into such water bodies through a storm drainage system.

**Sediment** – a material that is suspended in water or deposited from suspension on the bottom surface of a water body.

**Storm drain** - a drain, grated cover or curb opening that carries stormwater away from the land into the underground piping of a storm drain system.

**Storm drain system** – a system that collects, conveys, channels, holds, inhibits, retains, detains, infiltrates and/or diverts stormwater.

**Stormwater** – the runoff water after it rains or snows.

**Surface water** - water that is visible from the land surface (for example: streams, rivers, lakes, ponds, wetlands).

**Water body** – a stream, river, lake, pond, wetland, ocean or other body of water.

**Water cycle** - the cyclical transfer of water from the Earth's surface via evaporation and evapotranspiration into the atmosphere, from the atmosphere via precipitation back to earth. Once on the earth, water may recharge into the groundwater ultimately feeding streams, rivers and lakes or water may runoff directly into streams, rivers, lakes and ultimately into the oceans. Also called the “hydrologic cycle”.

**Water quality** - the chemical, physical, and biological characteristics of water.

**Watershed** - the land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevation between two areas on a map, often along a ridge. Large watersheds, like the Mississippi River Watershed, contain thousands of smaller watersheds. Also called a “drainage basin”.

**Well** - an artificial excavation for withdrawing water from an aquifer.

**Wetlands** - areas characterized by saturated soils most of the year that form an interface between land-based and aquatic environments; including freshwater marshes around ponds and streams.

**APPENDIX N**  
**ACRONYM LIST**

## **Acronym List**

**ADA:** Americans with Disabilities Act

**BMP:** Best Management Practice

**CPA:** Community Preservation Act

**CREST:** Concord River Environmental Stream Team

**DEP:** MA Department of Environmental Protection

**DCR:** MA Department of Conservation and Recreation

**DPW:** Department of Public Works

**EOEA:** MA Executive Office of Environmental Affairs

**EPA:** U.S. Environmental Protection Agency

**GIS:** Geographic Information System

**GMNWR:** Great Meadows National Wildlife Refuge

**HBPA:** Hop Brook Protection Association

**LID:** Low Impact Development

**MACC:** MA Association of Conservation Commissions

**MAGIC:** Minuteman Advisory Group on Interlocal Coordination

**MAPC:** Metropolitan Area Planning Council

**MWGMC:** MetroWest Growth Management Committee

**NGO:** Non-Governmental Organization

**NPDES:** National Pollutant Discharge Elimination System

**OAR:** Organization for the Assabet River

**RPA:** Regional Planning Agency

**RSC:** Wild & Scenic River Stewardship Council

**SRF:** State Revolving Fund

**SRWO:** Sudbury River Watershed Organization

**SuAsCo:** Sudbury-Assabet-Concord Rivers

**SVT:** Sudbury Valley Trustees

**TMDL:** Total Maximum Daily Load

**USGS:** United States Geological Survey

**WAP:** Watershed Action Plan

**WCC:** Watershed Community Council