Executive Office of Environmental Affairs

MERRIMACK RIVER

5 - Year Watershed Action Plan
2002-2007

Communities Connected by Water

MASSACHUSETTS Watershed INITIATIVE

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs
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June 2002

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Dear Friends of the Merrimack River Watershed:

I am pleased to present the Watershed Action Plan for the Merrimack River Watershed. The plan will guide state and local environmental actions within the Merrimack River Watershed over the next five years, and implement the goals of the Massachusetts Watershed Initiative including: 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 EOEA Merrimack River Watershed Team has developed this Watershed Action Plan with extensive participation from state and federal agencies, Regional Planning Agencies, watershed groups, team members, and extensive public involvement throughout the watershed. The Watershed Initiative is unique because it focuses on the problems and challenges that are identified with stakeholders and local community partners in each watershed, rather than deciding these priorities solely at the state level. The Merrimack River Watershed Team developed a mission statement that will guide their activities and goals: "Develop and implement a watershed management plan that will restore and maintain the physical, chemical, and biological integrity of the river and its watershed to meet existing and future multiple uses and to protect its natural resources." The priority issues and action strategies identified in the plan that support this mission include:

- Improved water quality in the mainstem and tributaries
- Sustainable water supply to support predicted future population increases
- Preventing future flooding in known flood-prone areas
- Managed growth that reduces sprawl and protects critical open space, habitats, and water resources
- Improved recreational access and regional open space protection for all watershed residents

I commend all of those involved with the Merrimack River Watershed effort. Thank you for your dedication, perseverance, and commitment. The watershed team approach is the best way for government and community partners to make significant progress in addressing the environmental challenges of the 21st Century. If you are not currently involved, I strongly encourage you to contact William Dunn, the Merrimack River Watershed Team Leader, at (508) 792-7716, Ext. 151, and become active in the Merrimack River Watershed restoration and protection efforts.

Very truly yours,

Bob Durand

Bob Durand

MERRIMACK RIVER

Five-year Watershed Action Plan

June 2002

Prepared by

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The Merrimack River Watershed Action Plan is being distributed to public libraries and the city or town hall of each watershed community. Copies are available upon request from William Dunn, EOEA Merrimack Watershed Team Leader. The Action Plan can also be downloaded from the team's website by setting your browser at *http://www.state.ma.us/envir/mwi/merrimack.htm*.

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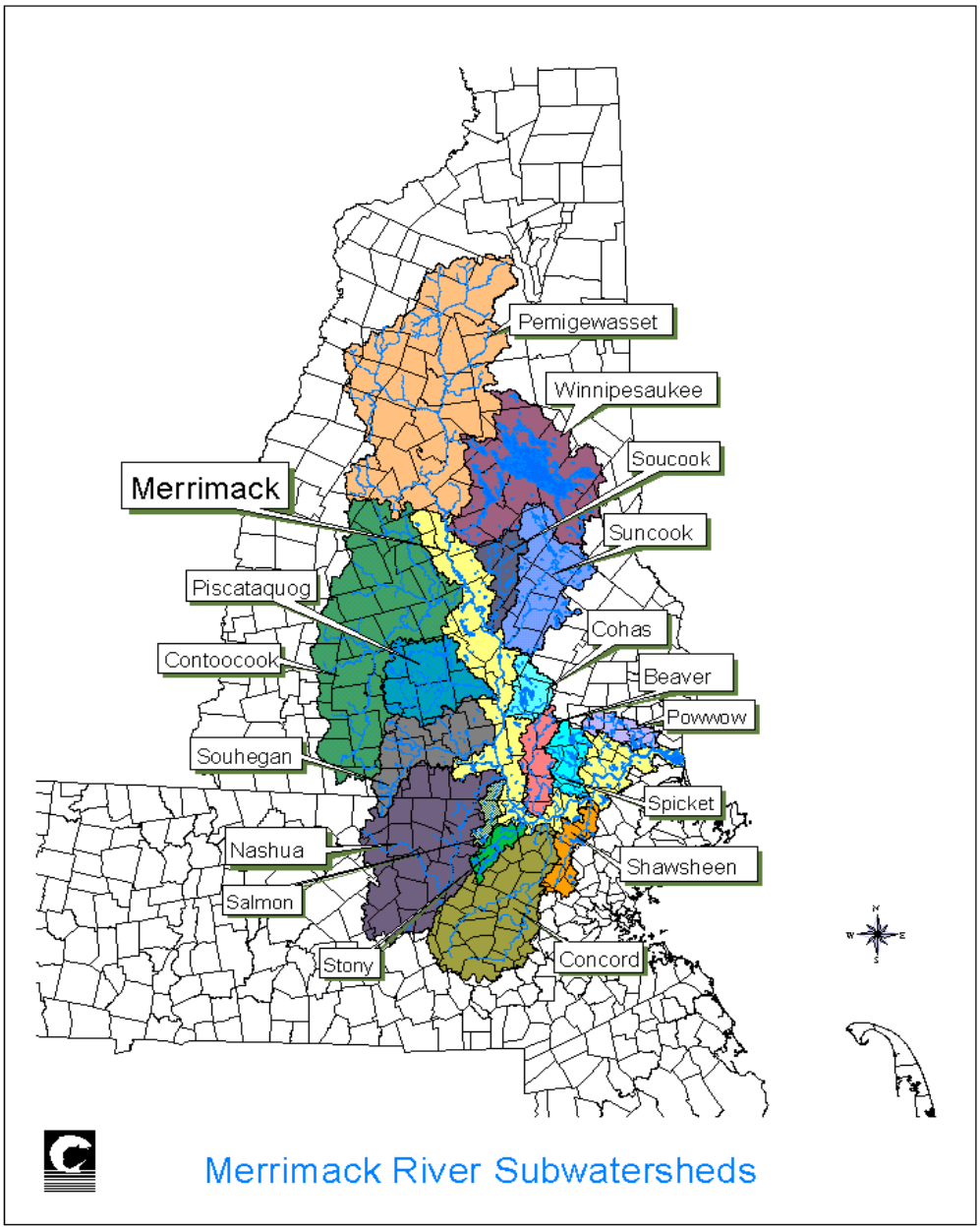


Figure 1: Merrimack River Subwatersheds

Chapter 1: Introduction

Structure of the Plan

This Merrimack River 5-Year Watershed Action Plan was developed by members of the Merrimack Watershed Team (MWT) with input from stakeholders from all sections of the watershed. In 1998, a mission statement was developed by a group of 18 representatives from state and federal agencies, regional planning organizations, watershed groups, local communities and individual citizens. The MWT through these representatives and an extensive public input process continued to identify, assess and prioritize the main environmental issues that affect the Merrimack. Chapter 2 briefly highlights recommendations from this Assessment study.

Chapter 3 covers the background work of the Merrimack Team in 1999 and 2000 that established the five priorities for the Merrimack Watershed. This effort was followed by a refinement of the priorities into action matrices (Chapter 4). The matrix details objectives, strategies, principal players, and measures of success for each goal established for the Merrimack River Watershed. Once the matrices were completed, five specific action projects (Chapter 5) were developed, to guide the MWT's principal work in each priority over the next five years.

The Massachusetts Watershed Initiative

The Massachusetts Watershed Initiative (MWI) is a broad partnership of state and federal agencies, conservation organizations, businesses, municipal officials and individuals. Initiated in 1993 by community partners and the Massachusetts Executive Office of Environmental Affairs (EOEA), the MWI is 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 government agencies and community partners (non-profit organizations, municipal boards, and businesses), coordinate the watershed protection efforts in each of the 27 major watersheds of Massachusetts. Since 1998, each team has had a full-time watershed team leader employed by EOEA.

Watershed Teams focus on an innovative five-year management process that is designed to collect and share resources and information; target and assess both existing and potential impacts to natural resources; and develop and implement activities to protect and improve the Commonwealth's land and water resources. The five-year process is sequenced such that each year builds on the work of the previous year. Annual Work Plans are developed with active team involvement and serve as a guide for coordinating Team efforts. The Annual Work Plans are the building blocks of the more comprehensive Five Year Watershed Action Plan (WAP). WAPs help prioritize which projects receive state and federal grants and loans, regulatory decision-making, and educational/technical assistance programs to solve the most important environmental problems affecting communities.

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

Each Watershed Team incorporates these broad goals into its own set of watershed-level goals, the "Five Watershed Priorities".

Merrimack River Watershed

The Merrimack River Watershed encompasses approximately 5010 square miles within the states of New Hampshire and Massachusetts (Figure 1). It is the fourth largest watershed in New England. The Merrimack River is formed by the confluence of two major rivers, the Pemigewasset and Winnipesaukee, in Franklin, NH. From here, it flows for 115 miles to the Atlantic Ocean in Salisbury, MA. The watershed includes all or parts of approximately 200 communities with a total population of two million people.

Massachusetts defines the Merrimack River Watershed more narrowly-. It does not include the Nashua, SuAsCo, or Shawsheen River Watersheds or any of the NH watersheds and, with an area of 275 square miles, is much smaller (Figure 1). It includes 50 miles of the Merrimack River from the NH border at Tyngsborough to the Atlantic Ocean at Newburyport and Salisbury and encompasses all or parts of 25 communities in Essex and Middlesex counties. Lowell, Lawrence, and Haverhill are its three major cities. Elevations in the watershed range from sea level at the coast to about 300 feet at some of the inland hills.

In Massachusetts, the Merrimack River is designated a Class B (inland) water from the NH border to Haverhill at Creek Brook, while the 22-mile tidal section from Haverhill to the ocean is designated a Class SB (coastal and marine) water. The river must meet minimum water quality criteria for primary (swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Within the Merrimack River Watershed (MA definition), there are several smaller subwatersheds, including the Powow River, Little River, Spicket River, Beaver Brook, Stony Brook, and Salmon Brook (Figures 2-7). Several smaller tributaries also drain directly to the Merrimack River. The major subwatersheds are described more fully below.

Powow River Subwatershed

The Powow River subwatershed lies at the eastern end of the Merrimack River watershed (Figure 2). It is 58 square miles and encompasses 12 municipalities in New Hampshire and Massachusetts. Towns in Massachusetts include Merrimac, Amesbury, and a very small portion of Salisbury. Towns in New Hampshire include Sandown, Hampstead, Danville, Kingston, Newton, East Kingston, South Hampton, Kensington, and Seabrook. The watershed is primarily rural and suburban with more intense development downstream in Amesbury. The river begins in Danville at Long Pond and flows for several miles before joining the Merrimack River at Amesbury.

While there are still many large tracts of open land bordering the river, development has intensified in the region threatening the integrity of the river and its watershed. The watershed is the main water supply source for all of the communities. Amesbury withdraws directly from the Powow River, while many of the other communities rely on groundwater wells located throughout the watershed. The river is dammed

Figure 3: Powow River Subwatershed

at three locations in New Hampshire and three more in Massachusetts. As a result, the river has become a series of ponds and lakes linked by shorter river corridors. The river is tidal in the lower segment, for almost one and a half miles upstream from the Merrimack River.

It is a Class A water (designated public water supply) from the Tuxbury Pond outlet to the Lake Gardner inlet. It is a Class B water from the Lake Gardner outlet to the tidal portion (mile 1.3) and Class SB in the tidal portion (mile 1.3 to 0.0). It must meet standards for primary (swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Other waterbodies and waterways associated with the Powow River in Massachusetts include the Back River (2), Lake Attitash, Meadowbrook Pond, Tuxbury Pond, Lake Gardner, and Clarks Pond.

Little River Subwatershed

The Little River subwatershed is a 30 square mile area encompassing two states and six municipalities (Figure 3). The towns in New Hampshire are Atkinson, Plaistow, Hampstead, Newton, and Kingston. In Massachusetts, the city of Haverhill, is part of this subwatershed. The Little River flows for approximately 11 miles, beginning at Bayberry Pond in Plaistow and ending at the Merrimack River in Haverhill.

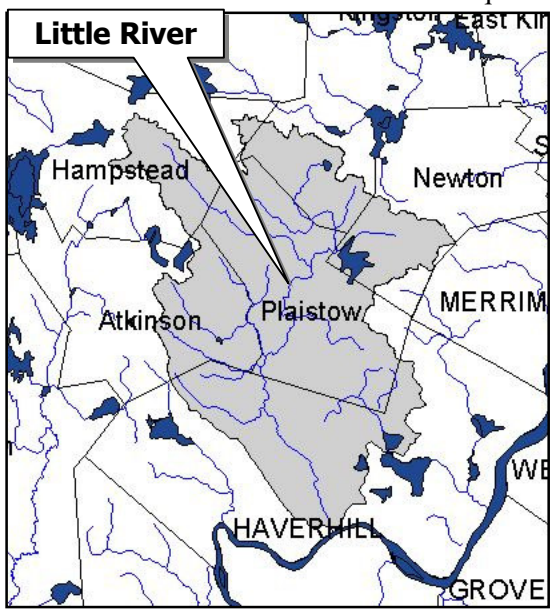


Figure 3: Little River Subwatershed

The river corridor and its watershed are relatively undeveloped upstream, but become very urbanized in Haverhill. The Cash Energy/Beede Waste Oil Superfund site is located in Plaistow and is a potential water quality threat to the Little River.

At its terminus, the river flows through a culverted section underneath the city and out to the Merrimack River. In this segment, there are water quality impacts from CSO (combine sewer overflow) discharges. Development pressures are increasing throughout the watershed, especially in the New Hampshire communities. There is one dam on the river in downtown Haverhill. The Little River is a Class B water and must meet standards for primary (swimming) and secondary (fishing and boating) contact recreation as established by the Clean Water Act. Other waterbodies associated with the Little River in Massachusetts include Snow Brook, Fishin Brook, Camp Brook, and Foote Brook.

Spicket River Subwatershed

The Spicket River subwatershed is a 74.5 square mile area encompassing two states and nine municipalities (Figure 4). Six communities are located in New Hampshire and include Derry, Hampstead, Atkinson, Salem, Windham, and Pelham. The remaining three communities are located in Massachusetts and include Haverhill, Methuen, and Lawrence. The river originates at Big Island Pond, spanning the towns of Derry and Hampstead, and flows for approximately 15 miles to its confluence with the Merrimack River in Lawrence.

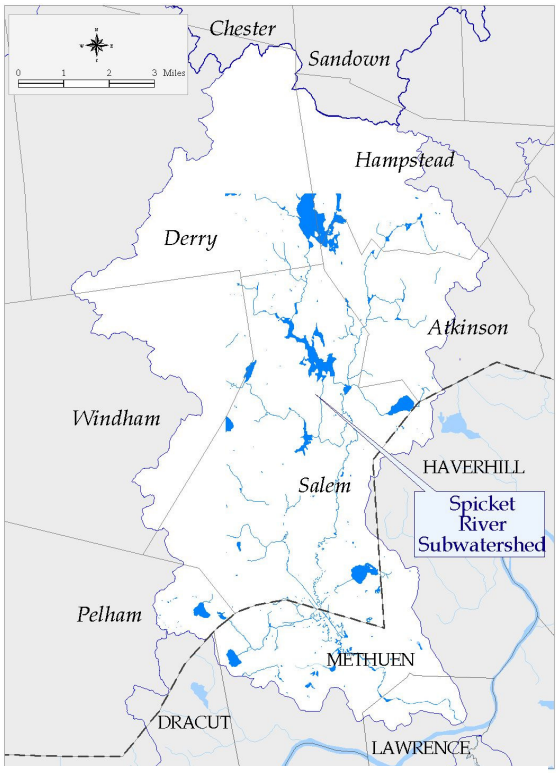


Figure 4: Spicket River Subwatershed

Much of the lower watershed is urbanized and densely developed and has led to substantial flooding problems in Salem, NH and Methuen and Lawrence, MA. Additionally, development pressures are rapidly increasing in the upstream communities. There are four dams on the river, two in New Hampshire and two in Massachusetts. It is a Class B water and must meet standards for primary (swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Other waterbodies associated with the Spicket River in Massachusetts are Harris Brook and Forest Lake.

Beaver Brook Subwatershed

The Beaver Brook subwatershed is a 96 square mile area encompassing two states and eleven municipalities (Figure 5). The majority of this subwatershed is located in New Hampshire and consists of all or part of eight communities including Auburn, Chester, Derry, Londonderry, Windham, Hudson, Salem, and Pelham. The remaining three communities are located in Massachusetts and include Dracut, Tyngsborough, and Lowell. The brook itself originates in Auburn from a series of small lakes and tributaries and flows for several miles to its confluence with the Merrimack River in Lowell.

Much of the watershed is rural or suburban but becomes very urbanized and developed in Lowell. Development has increased dramatically in most of the communities threatening the integrity of the brook and watershed. In Massachusetts, there are a total of three dams on the brook. It is a Class B water and must meet standards for primary

Figure 5: Beaver Brook Subwatershed

(swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Other waterbodies associated with Beaver Brook in Massachusetts include Long Pond, Peppermint Brook, and Double Brook.

Stony Brook Subwatershed

The Stony Brook Watershed is a 45 square mile area located in the southwest corner of the Merrimack River watershed (Figure 6). It is located entirely within the state of Massachusetts and encompasses all or parts of eight towns including Boxborough, Harvard, Littleton, Ayer, Groton, Westford, Tyngsborough, and Chelmsford. The brook originates at Wolf Swamp in Boxborough and flows for 22 miles to its confluence with the Merrimack River in Chelmsford. The stream is known as Beaver Brook from Wolf Swamp to Forge Pond in Westford. Upon exiting Forge Pond, it becomes Stony Brook and remains so to its terminus at the Merrimack River.

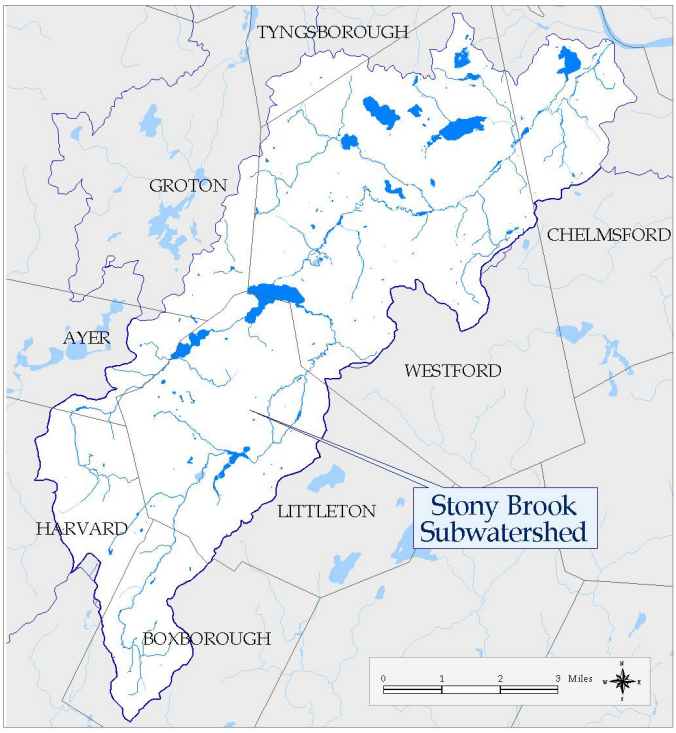


Figure 6: Stony Brook Subwatershed

Communities in this watershed are primarily rural to suburban but are growing rapidly given their proximity to Routes 3 and 495. Residential and commercial development threatens the sensitive and highly productive aquifers in the region. Stony Brook and Beaver Brook are Class B waters and must meet standards for primary (swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Other waterbodies associated with Stony Brook in Massachusetts include Bennetts Brook, Gilson Brook, Black Pond, Spectacle Pond, Mill Pond, Forge Pond, Boutwell Brook, Snake Meadow Brook, Keyes Pond, Keyes Brook, Burgess Pond, Long Sought for Pond, Flushing Pond, Blue Brook, Nabnassett Pond, Tadmuck Brook, Crooked Springs Brook, Cold Spring Brook, and Newfield Pond (Freeman Lake).

Salmon Brook Subwatershed

The Salmon Brook Subwatershed is a 31 square mile area located on the western edge of the Merrimack watershed (Figure 7). It encompasses four municipalities in two states. Three communities are located in Massachusetts and include Groton, Dunstable, and Tyngsborough. The fourth community, Nashua, is located in New Hampshire. The brook originates at Martin's Pond in Groton, passes through a series of lakes and ponds in both Groton and Dunstable, and, after flowing 17 miles, meets the Merrimack River in Nashua, NH.

With the exception of the city of Nashua, much of the watershed can be characterized as rural with many tracts of undeveloped land bordering the brook and its ponds. However, all of the communities are facing increasing development pressures as suburban sprawl moves up the Route 3 and 495 corridors. The brook is a Class B water and must meet standards for primary (swimming) and secondary (fishing and boating) contact recreation as established under the Clean Water Act. Other waterbodies associated with Salmon Brook in Massachusetts include Martin's Pond, Martin's Pond Brook, Lost Lake/Knopps Pond, Duck Pond, Whitney Pond, Baddacook Pond/Brook, Cow Pond Brook, Massapoag Pond, Black Brook, Hauk Brook, and Joint Grass Brook.

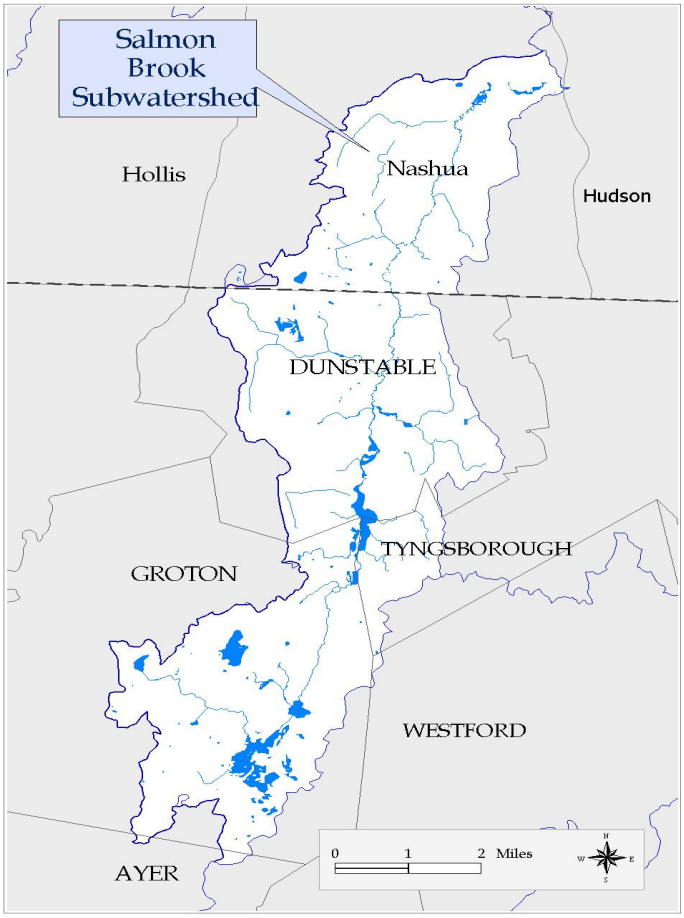


Figure 7: Salmon Brook Subwatershed

The remaining portions of the Merrimack watershed (MA definition) are drained by several smaller tributaries that flow directly to the Merrimack River. Typically, these tributaries lie within only one or two municipalities. They include Town Creek, Shad Creek, Black Rocks Creek, Plumbush Creek, Artichoke River, Indian River, Cobbler's Brook, East Meadow River, Johnson's Creek, Creek Brook, Baremeadow Brook, Fish Brook, Trull Brook, Bartlett Brook, Trout/Richardson Brook, Black Brook, Lawrence Brook, Deep Brook, and Limit Brook (see Attachment D for a complete list of rivers and streams in the watershed).

REGIONAL SUB-DIVISIONS

From a geographical standpoint, what emerged from the 1999 issues seminars is a division of the Watershed, (based upon local application of issues, and resident involvement) into seven sub-watersheds within the Massachusetts Merrimack Watershed:

1. Mainstem Merrimack
2. Salmon Brook – Groton Lakes
3. Stony Brook – Beaver Brook –Littleton Mill Ponds
4. Spicket River
5. Haverhill Lakes – Little River
6. Powow River – Lake Attitash
7. Estuary Area

Additionally, the Team has identified four additional sub-regional areas within the watershed, based on one or more of the five issues (with resident involvement):

1. Lawrence Brook
2. Beaver Brook
3. Cobbler Brook
4. Trull Brook

During Calendar year 2000 and 2001 the Team prioritized MWI funded rapid-assessment in Salmon Brook, Stony Brook, and the Powow River sub-watersheds, with shoreline surveys and water quality monitoring work in Lawrence Brook, Stony Brook, Cobbler Brook sub-watersheds. Additionally, the team prioritized FY '01 funds to develop a water budget-modeling project for the Massachusetts Mainstem Merrimack, and obtained outside funding to extend this analysis into New Hampshire's portion of the Merrimack. Another project utilizing FY'01 funds is a recreational resource survey of the Massachusetts Merrimack watershed area. FY'02 MWI funds will conduct a water budget-modeling project in the Stony Brook sub-watershed and an impervious surfaces demonstration pilot project in each of the Stony Brook and Powow River Sub-watersheds.

INTERSTATE COORDINATION

It is apparent that coordination with the state of New Hampshire is crucial in order to protect many of the major subwatersheds of the Merrimack River watershed (MA definition), and ultimately the Merrimack River, since a greater part of these subwatersheds lies in New Hampshire. The 1999 issues seminars, and Team involvement since then, have highlighted this very concern. For instance, resolving water quality and/or flow and flooding problems in Salmon Brook, Powow River, Spicket River or Little River Sub-Watersheds MUST involve efforts in the New Hampshire portions of these regions. Efforts of the Team to engage the State of New Hampshire, Department of Environmental Services (DES) has resulted in that agency obtaining funding to support a full-time coordinator to work on issues pertaining to the southern portion of the Merrimack Watershed in New Hampshire, from Manchester to the Massachusetts Border. Additionally, funds from New Hampshire DES have been raised to support the rapid-assessment work on the New Hampshire portions of the Salmon Brook and Powow River Sub-Watershed.

Chapter 2: Assessment Recommendations

The Team conducted a Watershed Assessment Study during 2000 in four major environmental aspects:

1. Water Quality
2. Water Quantity and Supply
3. Open Space
4. Habitat

This assessment will serve as one of the principal bases for defining Team program and project priorities in the 5 year WAP. The following recommendations emerge from the Assessment.

WATER QUALITY

Water quality needs for the watershed include:

- Up-to-date water quality data for the 303(d) listed waterbodies
- Assessment of current condition and water quality status for waterbodies not on the 303(d) list
- Sediment sampling to determine extent of contamination in river, stream, and lake sediments
- Chronic microtoxicity testing to evaluate extent and impacts of contaminants from major NPDES dischargers
- Increased biomonitoring in the watershed
- Assessment of bioaccumulation of contaminants in aquatic species relative to the biological health of the system
- Relative effects of CSOs vs. stormwater on water quality in the mainstem
- More stormwater sampling on mainstem and tributaries
- TMDLs for impaired waterbodies, i.e. assessment of maximum amount of pollution a waterbody can accommodate before water quality standards are violated
- Standardization with New Hampshire sampling protocols, i.e. the use of *E. coli* as an indicator
- Additional fixed water quality monitoring stations on the mainstem
- Stricter enforcement of NPDES discharges to reduce pollution inputs, particularly metals and organic chemicals
- MA DEP acceptance of volunteer monitoring data through a formal MOU
- Development of a QAPP template for streamlined use by volunteer monitoring groups

WATER QUANTITY and SUPPLY

Existing needs for water quantity information include:

- Water use by small (< 100,000 gallons/day) community systems (i.e. condos, shopping plazas, restaurants, campgrounds, etc.) and their locations within the watershed
- Documentation of private well use in the watershed, including contamination problems and conservation practices, and recommendations for better oversight (i.e. regulation) of private well use
- Identification of the prime recharge areas and aquifers in the watershed as well as their level of protection and threats to their integrity (i.e. when can we say that a particular area is crucial for recharge and should be permanently protected?)
- Identification/location of remaining potential groundwater sources (if any)
- Water use/demand projections for the watershed and by community (in progress)
- Identification of the minimum in-stream flows required in both the mainstem and tributaries to support aquatic habitat needs
- Assessment of flow conditions on the mainstem and possibly major tributaries, like the Spicket and Powow, with the installation of additional flow gauges
- Quantification of the extent of flooding and base flow problems in the watershed and recommendations for mitigation

- Revision and updating of federal flood maps to reflect current conditions
- Review of water conservation policies and programs used by both public water suppliers and other small water users in the watershed and recommendations for improvement to protect future water supply
- Evaluation of the impacts of over-pumping groundwater sources on a *daily* basis as permitted by DEP
- Review of current WMA regulations and identification of policy changes and improvements that could be made to better protect surface and ground water supplies

OPEN SPACE

Needs for open space and recreation in the watershed include:

- Regional Open Space Plan on a watershed or subwatershed level
- Evaluation of existing open space lands in each community and their adequacy in protecting watershed functions and wildlife habitat
- Recreational Management Plan for the Merrimack River to address problems associated with increasing recreational use
- Assessment of existing and potential recreational impacts on the river, particularly as it relates to streambank conditions and erosion problems
- Re-assessment of the feasibility for a Merrimack River Trail extending from Tyngsborough to the ocean and identification of lands appropriate for acquisition or easements
- Assessment of connectivity of existing open space lands and identification of links that can be made through trails or other land purchases
- Prioritization of prime agricultural lands (i.e. soils) for permanent protection from development
- Determine the ability of existing open space and recreation lands to meet recreational needs of the watershed population as established by national recreation standards
- Increased federal and state financial support for land acquisition in the watershed
- Acquisition of lands to provide improved visual and physical access to the river

HABITAT

Existing needs and priorities for habitat information and data include:

- Extent and condition of wetlands in the watershed
- Up-to-date inventory of aquatic plants and animals as recommended by Jerome et al. 1965 to assess improvements in the water quality of the Merrimack River as clean-up efforts have moved forward
- Condition of aquatic habitat (i.e. eelgrass beds, salt marsh extent) as well as the types, locations, and movements patterns of important fish species
- Inventory of aquatic plants and animals in major tributaries of the Merrimack River
- Inventory of all dams and their impacts on upstream or downstream fish passage and the feasibility of dam removal to restore aquatic habitat
- Condition of the forested areas and contiguous lands within the watershed and their suitability for wildlife habitat
- Complete and up-to-date survey of plant and animals species throughout the watershed and documentation of rare or unique natural communities
- Identification of prime wildlife habitat in the watershed, in particular migratory waterfowl habitat
- Inventory and assessment of non-native species, particularly plants, and their impacts on native species and natural communities
- Up-to-date assessment of shellfish restoration potential and development of a working recovery and management plan

Chapter 3: Action Plan

5-year Watershed Action Plan Development and Planning Process

The Merrimack River Watershed Team was first assembled in May of 1998 at the Merrimack River Watershed Council's office in Lawrence. A group of approximately 18 people from State and Federal agencies, Regional Planning Agencies, communities, watershed groups, and interested citizens staged several meetings between June and August to develop a mission statement and strategies to begin organizing a Merrimack Watershed Team Program. The group adopted the Team's mission statement: "*Develop and implement a watershed management plan that will restore and maintain the physical, chemical, and biological integrity of the river and its watershed to meet existing and future multiple uses and to protect its natural resources*".

Based upon this mission and available funding opportunities in the State fiscal year 1999, the group developed plans for three projects to begin the program:

1. Comprehensive Merrimack tributary stream team organizational development, and shoreline surveys program
2. Municipal and business outreach strategy implementation
3. Team constituency building through identification and involvement of stakeholder issues and groups.

The projects accomplished the following:

1. To identify and integrate with the Team over 40 newly identified stakeholder individuals and groups;
2. Clearly identify five priority issues, as well as identifying seven subwatersheds/sub-regions where constituencies and issues meshed. The issues and sub-regions emerged from the results of a watershed-wide workshop in Haverhill, and then three follow-up workshops in Chelmsford, Methuen, and Amesbury during 1999. The issues are,

   - Water Based Issues
     - Water Supply
     - Water Quality
     - Flooding
   - Land Based Issues
     - Growth Management
     - Access to the River and Open Space

The Team continues to work on these issues by developing and submitting project proposals, for MWI funding, in the areas of water supply, water quality, growth management, and recreation assessment. Projects approved for funding include:

1. FY 2000: Water flow analysis – Mainstem River; Rapid assessment studies in subwatersheds with corrective measures to rectify problems.
2. FY 2001: Salmon Brook open space planning; assessment of passive/active recreational facilities in the watershed.
3. FY 2002: Impervious surface pilot projects – Stony Brook and Powow River; Stony Brook water budget and supply analysis.

Priority Issues in Upper Basin, Middle Basin, and Lower Basin

For more effective management of the Merrimack River basin and better outreach to the communities, the river was divided into smaller more manageable units – the Upper Basin, Middle Basin and the Lower Basin (Figure 8).

WATER SUPPLY

Upper Basin

(Chelmsford, Dunstable, Groton, Littleton, Harvard, Tyngsborough and Westford)

Municipalities in the upper section of the watershed (west of Lowell) depend heavily on wells for water supply. Many are in the Stony Brook subwatershed, which has experienced significant development and land use change in recent years. Municipalities question how long Stony Brook wells will be able to sustain

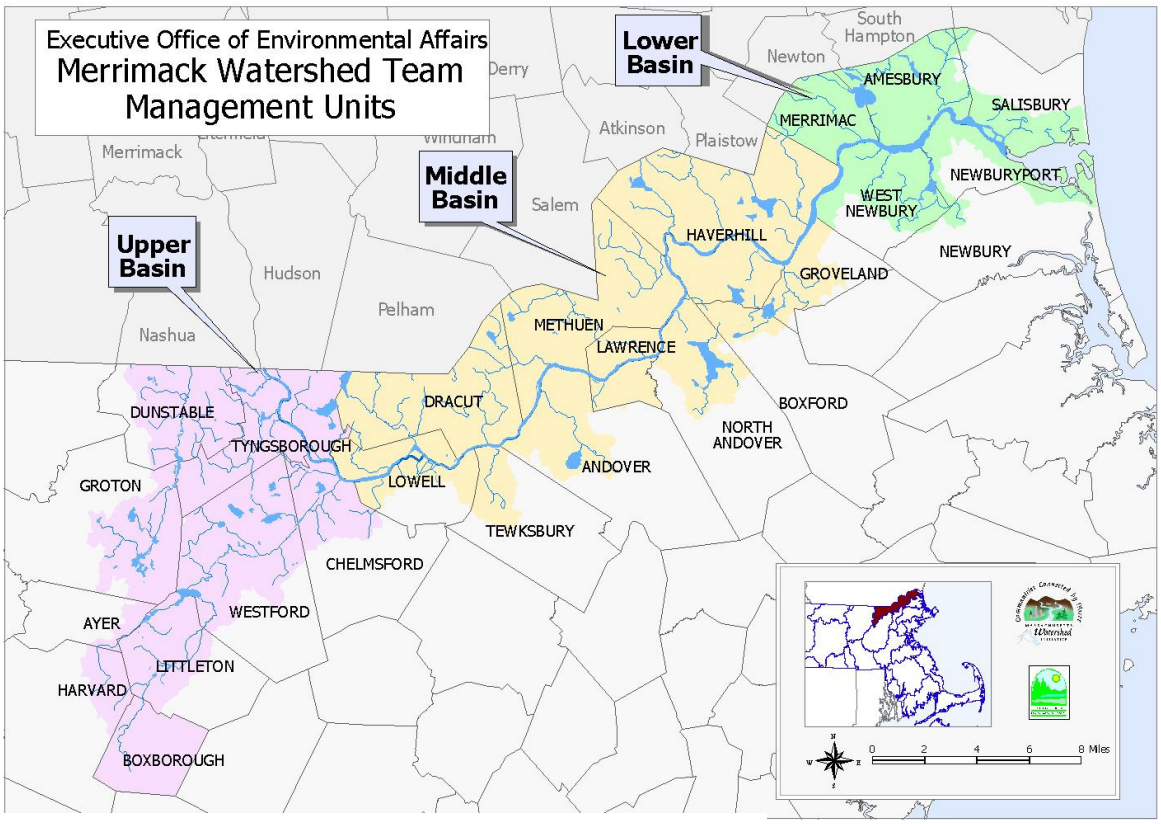


Figure 8: Merrimack River Management Units

this demand. Increased water consumption by a growing human population is compounded by a large increase in per capita consumption. Chelmsford water suppliers estimate that irrigation of home landscaping accounts for 25% of summer water demand. There is concern that adding additional wells will encourage more development, stress the capacity and quality of existing wells, and hasten the day when alternative sources, such as the Merrimack River will have to be sought.

Opportunities for the Merrimack Watershed Team (MWT)

The Team could assess the Stony Brook watershed relative to current and long-term water supply and demand projections. Analysis of existing studies combined with a rapid assessment of current watershed conditions would generate water supply management guidance for all affected municipalities. This process should involve both current and potential water suppliers who depend on the Stony Brook watershed.

Middle Basin

(Dracut, Lowell, Lawrence, Methuen, Haverhill, N. Andover and Tewksbury)

Municipalities in the middle section of the watershed (Lowell to Haverhill) depend heavily on the Merrimack River as their source of water. The suppliers are municipal water utilities that tend to work independently to satisfy user demands. The MWT found no evidence that regional, or watershed, assessment of cumulative water withdrawals has been done to help suppliers understand long-term supply and demand scenarios.

Water suppliers are concerned about residential and commercial growth and related increases in demands for water. Some municipal suppliers are reducing service to neighboring municipalities so they can retain more for their primary users. In spite of these situations suppliers appear to place more emphasis on finding ways to satisfy the growing demand than on implementing incentives that encourage users to reduce consumption.

Opportunities for MWT

The MWT is well positioned to stimulate communication among water suppliers that depend on the Merrimack mainstem and work with them to develop short and long-term projections of the river as a water source. This process should involve both current and potential water suppliers who depend on the Merrimack River from Manchester, NH, downstream to Newburyport. Projections should address subjects such as river flow, water budgets, water quality, related permitting processes, and opportunities for water conservation.

Lower Basin

(Amesbury, Groveland, Merrimac, Newbury, Newburyport and Salisbury)

Municipalities downstream from Haverhill obtain their water from wells, reservoirs, lakes, tributary streams or a combination of these sources. None draw water from the Merrimack River because it is tidally influenced and desalinization is not cost-effective. Water suppliers are concerned that increases in residential and commercial growth stress their ability to meet demand during dry periods. Suppliers appear to place more emphasis on finding ways to satisfy the growing demand than on implementing incentives that encourage users to reduce consumption. There is little evidence that regional or watershed assessments of cumulative water withdrawals have been done to help suppliers understand long-term supply and demand scenarios.

Water quality and quantity in several towns on the north shore of the Merrimack River are influenced by the land and water uses that occur in upstream watershed areas of New Hampshire. There has been little effort to communicate and interact with NH towns and seek ways to control watershed impacts on downstream water resources. Water suppliers operate treatment facilities to remove contaminants but little effort has been made to reduce sources of contamination.

Opportunities for MWT

The Merrimack Watershed Team has the opportunity to help towns understand:

1. connections between water supplies and watersheds
2. long and short-term relationship between water supply and water demand
3. opportunities for implementing watershed actions that can sustain water supplies (including water conservation)

WATER QUALITY

Upper Basin

(Chelmsford, Dunstable, Groton, Littleton, Harvard, Tyngsborough, Westford)

Stony Brook apparently has high coliform bacteria counts, and upper watershed municipalities can play a greater role in alleviating stream contamination. The municipalities are concerned about lake and pond water quality and heavy growth of aquatic weeds and invasive species. There is guarded optimism that water quality will improve in lakes and ponds where watersheds are being sewered. Well contamination from excessive withdrawal and infiltration of contaminants such as road salt and agricultural runoff is a concern of water suppliers. The two towns that front the Merrimack mainstem, Chelmsford and Tyngsborough, use the river as a recreational asset. They are concerned about sources of upstream contamination and endorse calls for a Total Maximum Daily Load (TMDL) assessment to document relative contributions of multiple contaminant sources.

Opportunities for MWT

The MWT could evaluate earlier Stony Brook watershed studies and conduct an assessment to determine current and projected water quality scenarios. Results would be shared with towns along with guidance for control measures leading to good watershed stewardship. The MWT can also be the catalyst that brings stakeholders together to stimulate the dialogue needed to quantify the relative contributions of Merrimack River mainstem pollution sources. The widespread problem of weed and invasive plant proliferation could be addressed by the MWT through technical assistance, and transfer of information through education and outreach.

Middle Basin

(Dracut, Lowell, Lawrence, Methuen, Haverhill, N. Andover, Tewksbury)

Combined sewer overflows (CSOs) dominate discussions of water quality in the mid-section of the watershed (Lowell, Lawrence, and Haverhill) CSO problems in Nashua and Manchester, NH also enter into this discussion. People close to this issue feel very strongly about:

1. the anticipated $50 to $100 million cost for each municipality to fix its CSOs;
2. how the scarcity of funding sources will place heavy financial burdens on rate payers;
3. lack of attention given to equally, if not more, serious impediments to water quality such as storm water, agricultural runoff, and atmospheric deposition.

They advocate that a Total Maximum Daily Load (TMDL) assessment of all contaminant sources be completed before spending large sums to correct CSO problems. They argue that CSO removal, in the absence of other action, may not significantly improve the river's water quality.

Opportunities for MWT

The MWT can be a catalyst that brings stakeholders together and stimulates the dialogue needed to quantify the relative contributions of CSOs and other pollution sources from Manchester downstream.

Lower Basin

(Amesbury, Groveland, Merrimac, Newbury, Newburyport and Salisbury)

Upstream pollution sources such as storm water runoff, combined sewer overflows and agricultural runoff degrade lower mainstem river water quality. However, the relative contributions of these sources have not been documented. In the estuary area Division of Marines Fisheries bacteria monitoring during the summer over the past ten years indicates gradual improvements. However, levels in shellfish are not sufficiently low enough to reopen any shellfish beds. High bacteria and nutrient levels in Lake Attitash-Powow River sub-basin continues to be of concern.

Opportunities for MWT

The MWT can assess subwatersheds to determine how their current conditions influence water quality. Using results of such assessments the Team can then offer recommendations and technical assistance to

1. prevent further watershed and water quality degradation;
2. reverse the effect of previous abuses that currently contribute to water quality degradation. This process should begin with opportunities to bring stakeholders together in forums where they can learn about watershed connections. This step will be most important for municipalities that share watershed areas with neighboring New Hampshire towns.

FLOODING

Upper Basin

(Chelmsford, Dunstable, Groton, Littleton, Harvard, Tyngsborough, Westford)

Flooding is not a major problem in this watershed area, but localized incidents caused by beaver activity are prevalent sources of complaints. The Merrimack River shoreline in Chelmsford and Tyngsborough is occasionally subject to erosion due to operation of the Pawtucket Dam, which can generate water level fluctuation.

Opportunities for MWT

There is little opportunity for the MWT to become involved in flooding issues in this area

Middle Basin

(Dracut, Lowell, Lawrence, Methuen, Haverhill, N. Andover, Tewksbury)

Flooding is a problem in some sub-watersheds such as the Spicket and Shawsheen but is not a great concern to mainstem municipalities. The problem increases in sub-watersheds as more open space in converted to impervious surface. Most municipalities require that development site plans provide for no increase in rates of runoff during normal storm events. In spite of these efforts, the high volume of land use alterations most likely accelerates runoff. In addition, there is an apparent lack of post project follow up to assure that runoff is adequately controlled. This situation, in combination with accelerated runoff

from developments installed prior to current regulations, suggests that flooding in small watersheds will most likely increase.

Opportunities for MWT

The MWT is beginning to assess multiple facets of sub-watersheds that include assessment of local land and water use decision-making processes. Local land use decisions greatly influence surface water runoff which presents opportunities for the Team to work cooperatively with boards and officials and help them become better informed about techniques for reducing flood potential. The MWT is currently participating in planning flood control projects in the Spicket River watershed and can be active in similar work for other flood prone areas.

Lower Basin

(Amesbury, Groveland, Merrimac, Newbury, Newburyport and Salisbury)

Flooding is a problem in the lower reaches of the Powow River watershed, especially in Amesbury. Most upstream land and water uses occur in New Hampshire and there appears to be little communication and interaction between Massachusetts and New Hampshire towns that share the watershed.

Opportunities for MWT

The MWT is well positioned to begin dialogue among all Powow River Watershed Municipalities. Dialogue should stimulate a multi-faceted assessment of the watershed and local land and water use decision-making processes. The fact that local land-use decisions influence surface water runoff presents opportunities for the MWT to work with boards and officials and help them become better informed about reducing flood potential. Recommendations and technical assistance for reducing flood potential could be provided by the MWT.

LAND RELATED ISSUES

Growth Management Communities in Upper, Middle and Lower Basins

The concept of growth management is to balance development impacts with social, economic and environmental needs. From a watershed perspective this means fostering development that does not degrade water quality or alter rates of storm water runoff. Decisions and actions that influence this balance are made at the municipal level. Most municipal officials and volunteer boards and commissions in the Merrimack watershed are working hard to respond to heavy development pressures. However, some are not adequately staffed or equipped to foster good growth management and none have the luxury to proactively anticipate growth management from a watershed perspective.

Opportunities for MWT

All municipalities that participated in MWT work sessions expressed the need for better understanding of development controls that have been proven effective. The MWT could respond to this need by presenting and encouraging the use of innovative and watershed sensitive development techniques that strike a desired balance. The MWT can analyze and package control measures that have been successful in other areas and communicate them to Merrimack watershed municipalities.

EOEA launched a major effort with anticipated impact on land-use in 2000 - The Community Preservation Program, the Build-Out Analysis and follow-up funding for each community under Executive Order 418. The Team can draw on resources under these new state initiatives to help give communities the tools they need for better future land-use planning and controls.

ACCESS to the River and OPEN SPACE

Upper Basin

(Chelmsford, Dunstable, Groton, Littleton, Harvard, Tyngsborough, Westford)

Most municipalities in the upper section of the watershed have up-to-date open space protection plans and have protected numerous parcels of land. They realize the value of open space in rural, suburban, and urban environments. They also note that municipalities seldom coordinate with their neighbors while planning for open space protection or when action is taken to implement these plans. Also, use of the tools in the Community Preservation Act would provide communities the resources to expand open space priorities.

Opportunities for MWT

The concept of using open space protection as a watershed protection strategy is seldom used in the upper section of the watershed. However, during the work session interest in exploring the concept of forming a watershed-based land trust was expressed. The MWT would be a logical organization to explore this opportunity.

Middle Basin and Lower Basin

(Dracut, Lowell, Lawrence, Methuen, Haverhill, N. Andover, Tewksbury Amesbury, Groveland, Merrimac, Newbury, Newburyport, Salisbury)

Municipalities in the mid and lower sections of the Merrimack watershed are alarmed at the loss of open space in recent years and the threat of greater loss in the future. They realize the value of open space in rural, suburban, and urban areas and note that most municipalities have good open space protection plans. However, they also note a disconnect between what their open space protection plans say and how land-use decisions are made. Municipalities seldom coordinate with their neighbors while planning for open space protection or when action is taken to implement these plans.

More access points to the river and open space are desired but concern has been expressed that they require surveillance by town law enforcement. Also, historic resource protection can be combined with open space protection opportunities.

Opportunities for MWT

The concept of using open space protection as a watershed protection strategy is seldom used in the Merrimack River watershed. However, during the work session interest in exploring this innovative concept through formation of watershed-based land trusts was expressed. The technique of adapting tax structure to favor open space protection has also been raised. The MWT could explore this opportunity. The Community Preservation Act could provide communities with funding to expand historic and open space project opportunities.

Chapter 4: Action Matrix

Following the series of basinwide workshops in 1999, the MWT continued to refine the four environmental aspects delineated from the workshops, namely: water quality; water quantity and supply; habitat; and open space. The Team's Assessment Report was prepared during Calendar 2000, stressing the four environmental aspects. As a result of the work put into this report, the outreach work assessing issues in 1999, and the massive EOEA effort in 2000 and 2001 to develop and present GIS buildout future projections data for each municipality, the Team strongly felt that a fifth important aspect, particularly apropos to the Merrimack Watershed, was emerging in a developmental sense, namely: Growth/Sprawl, and the land management aspects needed to control its effects. Since the Team was anxious to publish and distribute the already prepared assessment report, and the Buildout Data for each municipality was readily available already through GIS maps, this newly formed growth/Sprawl aspect was not included in the report.

Recommended action items were suggested at the end of each of the four Chapters of the Assessment Report. From these lists, the Team formulated five major goals that should serve as the focus for the Team over the next five years. The goals are as follows:

1. Improved water quality in the mainstem and tributaries
2. Sustainable water supply to support predicted future population increases
3. Preventing future flooding in known flood-prone areas
4. Managed growth that reduces sprawl and protects critical open space, habitats, and water resources
5. Improved recreational access and regional open space protection for all watershed residents

The four major aspects from the 1999-2000 work were reoriented concept-wise into action oriented goal statements with frameworks. The team could then identify objectives (actions) to lead toward achieving these goals. A list of strategies to achieve the objectives were developed, key agency and partner players that would be involved were identified, and measures of success of the objectives and strategies were addressed. The Team's Executive Committee, with other interested team members staged a series of meetings during summer 2001 to arrive at a decision as to the final goals, and the best format to present the plan. What was agreed upon are matrix charts for each goal, with listed objectives, strategies as to how the objectives would be achieved, players to be assigned the tasks and achieve the objectives, and measures of defined success in the future.

Discussion that ensued after the five matrices (for the five goals) were formed, realized that these matrices were still too theoretical or hypothetical, and needed to be refined into action projects, directly related, to the five broad goals. Public outreach and understanding of just how the team proposed to accomplish the goals, dictated the need to outline action projects. These were not for just one year, but were for a longer time period of action. The group then decided that as needed in the future, other action projects might be proposed and presented to the whole team. The five action projects determined by the group include:

1. Merrimack Team Municipal Stormwater Pollution Reduction Program
2. Merrimack Watershed Annual Conference
3. Open Space Priorities Related to Buildout Results
4. River Recreation Management Plan and Access Development
5. Impacts of the Cumulative Water Use on Merrimack River Flow

With a yearly limit of $100,000 as the Massachusetts Watershed Initiative's Roundtable funding for Team project priorities, it was determined that the FY'03 project priority list could not work on all five action projects; priorities from the five would have to be selected.

The full Watershed Team was presented the Management Plan Matrices and the recommended Action Projects at the quarterly meeting in September 2001. Consensus was reached that scopes of work would be developed to begin work on action projects (1), (2), (3), and (5). Since priority project work in FY 2000 on a recreational assessment had been late in getting started, it was decided that work on the Recreational Management Plan and Access Development project would be delayed until at least the FY'04 funding cycle. The detailed work scopes of priority action projects (1), (2), (3), (5), are available in the Teams Fy'03 Annual Report, which will be made available on the EOEA MWI website.

GOAL 1: Improved water quality in the mainstem and tributaries

Objectives	Strategies	Key Players	Measure of Success
◆ Collect more data, particularly on the mainstem and on tributaries that have never been monitored.	⇨Add more fixed water quality monitoring stations on the mainstem and largest tributaries	DEP	2-3 fixed monitoring stations Water quality data for mainstem, major tributaries, and smaller streams
	⇨Prioritize monitoring sites based on 303(d) List	NGOs, RPAs, Riverways Adopt-a-Stream	Prioritized list of sites
	⇨Increase number of Stream Teams and volunteers sampling on the tributaries	MWT, DEP	Network of monitoring volunteers throughout watershed
	⇨Get DEP acceptance of volunteer data through MOU		DEP MOU
	⇨Develop a DEP-approved QAPP template to be used by watershed monitoring volunteer groups		QAPP Template
	⇨Continue TAG group to track WQ data		Active TAG Group
◆ Complete TMDLs for all 303(d) waterbodies within 10 years	⇨Develop recommendations for priorities for TMDL development	MWT	TMDL priority list (high, med, low)
	⇨Maintain contact and advise DEP on TMDL process	MWT	TMDL Progress Reports TMDL and Implementation Plans
◆ Reduce or eliminate CSO impacts in the watershed	⇨Support the Army Corps CSO Impact Study	MWT	Quantification of CSO impacts
	⇨Use the Team as a forum for data review and sharing	MWT	Public data sharing
	⇨Team Leader participate on study committee to represent Team interests	Team Leader	Study committee meetings
	⇨Apply CSO study results to LTCPs/abatement plans		Approved and implemented LTCPs relevant to CSO study
	⇨Review and comment on CSO communities' LTCPs	RPAs, NGOs, DEP	
	⇨Conduct follow-up monitoring once abatement projects implemented		

Objectives	Strategies	Key Players	Measure of Success
◆ Reduce NPS impacts on water quality	⇨Increase NPS Education in the watershed using flyers, brochures, posters, workshops, and other outreach tools	NGOs, RPAs, NEIWPCC	Publication and dissemination of NPS info throughout the watershed
	⇨Research and disseminate BMP information to specific NPS generators/audiences	NGOs, RPAs, NEIWPCC	BMP manual
◆ Reduce air pollution impacts (i.e. incinerators, power plants, etc.) on water quality	⇨Lobby for increased recycling programs and conservation versus the creation of new waste or power facilities	MWT, NGOs	Recycling over 50% in all watershed communities
	⇨Monitor and comment on new permits and renewals for waste or power facilities	MWT, NGOs, DEP	
	⇨Increase vigilant monitoring of facilities for compliance with regulations	DEP	Decrease in violations on permits
	⇨Transform DEP technical studies (i.e. mercury studies) into user friendly fact sheets to educate watershed stakeholders on the connection to water quality	NGOs, MWT, NEIWPCC	Fact Sheets

CPA: Community Preservation Act
ConComms: Conservation Commissions
DEM: Department of Environmental Management
DEP: Department of Environmental Protection
EPA: Environmental Protection Agency
MAFW: Mass Division of Fisheries, Wildlife, and Law Enforcement
MEMA: Massachusetts Emergency Management Agency
MWT: Merrimack Watershed Team
NEIWPCC: New England Interstate Water Pollution Control Commission
NGOs: Non-Governmental Organizations
NPS: Non-point Source
PWS: Public Water Suppliers
RPAs: Regional Planning Agencies

GOAL 2: Sustainable water supply to support predicted future population increases

Objectives	Strategies	Key Players	Measure of Success
◆ Determine water budget for watershed, minimum flow necessary to support river uses, and demands on system based on future growth	⇨Conduct hydrologic studies and flow modeling for the watershed (MA & NH) or by major subwatershed	DEP, DEM, MWT	Water budget Minimum flow requirements Demand projections through 2050
	⇨Evaluate and address flaws in the Water Management Act regulations	MWT, DEP	Review/revision of WMA regulations
◆ Determine and demonstrate the true cost of water	⇨Develop an economic assessment of water supply in the watershed	MWT	Cost estimates for water supply/use in the watershed
	⇨Disseminate information to public with user-friendly outreach tools		Outreach materials
◆ Promote water conservation at all levels especially public water suppliers	⇨Demonstrate feasible and cost-effective alternatives to turf landscapes (i.e. xeriscaping) by establishing demonstration sites in several parts of the watershed	MWT, PWS	Demo sites at all PWS facilities in the watershed
	⇨Develop a "model water conservation plan" that PWS can implement locally	MWT, NGOs	Model water conservation plan
	⇨Develop a water conservation report card	MWT, NGOs	Water conservation report card
	⇨Use hydrologic modeling to show different levels of water use and their effect on water supply and the water bill	DEP, DEM	Hydro modeling results, implications and BMP recommendations
	⇨Promote greywater use as an alternative to outdoor/irrigation uses	MWT, NGOs	Established guidelines and models for greywater use
	⇨Implement by-laws that conserve water, i.e. automatic sprinkler restrictions, rain sensor devices		
◆ Identify all current and potential NPS risks to water supply	⇨Conduct GIS land use analysis for all public or community water suppliers	MWT, NGOs	Land use analyses for all public water supplies
	⇨Conduct public education on NPS risks and solutions		

GOAL 3: Decreased flooding in the affected tributaries and prevention of future flooding problems

Objectives	Strategies	Key Players	Measure of Success
◆ Identify and mitigate flood prone areas in watershed	⇨Prioritize flood prone areas for mitigation based on severity and frequency ⇨Develop watershed-wide mitigation plans for flood prone areas	MWT, NGOs, DEM, MEMA	Prioritized list of flood prone areas Mitigation plans
◆ Determine recharge deficiencies and potential in subwatersheds where flooding problems exist and are recurrent	⇨Conduct flow modeling studies (see Goal #2)	MWT, NGOs, DEP, DEM	Current recharge deficiencies in subwatershed and recommended BMPs to increase recharge
◆ Evaluate the feasibility of dam removal or rehabilitation to address flooding issues in major subwatersheds	⇨Work with River Restore Program ⇨Pursue flood management or mitigation grants ⇨Build local constituency through public outreach for support of dam removal or maintenance	MWT, Riverways DEM, MEMA NGOs	Assessment of all dams in watershed for removal or repair activities
◆ Reduce the use of impervious surface in the landscape	⇨Initiate Impervious Surface Pilot project ⇨Demonstrate feasible pervious alternatives ⇨Demonstrate quantifiable negative effects of increasing impervious surfaces on flooding through modeling	MWT, RPAs, NGOs RPAs RPAs	Impervious Surface estimates in pilot communities Use of pervious technologies Estimates of water quality and flow changes with increase in impervious surface Decreasing impervious surface % in new development
◆ Encourage increased use of "green" flood control structures vs. man-made structures	⇨Identify green alternatives ⇨Compare practical and cost benefits of green vs. man-made structures	MWT, DEM	↑ use of green flood control vs. structural
◆ Address beaver/people conflicts with innovative solutions as it relates to flooding	⇨Disseminate information using brochures and manuals on beaver benefits and viable alternatives to dam breaching or beaver removal ⇨Evaluate the effectiveness of current technologies in reducing beaver flooding	DEP, MAFW, Pioneer Valley Wetlands Volunteers	More communities using beaver flow devices in place of other drastic measures Decreased flooding and conflicts due to beaver dams

GOAL 4: Managed growth that reduces sprawl and protects critical open space, habitats, and water resources

Objectives	Strategies	Key Players	Measure of Success
◆ Increase the number of updated Master Plans in the watershed communities	⇨Promote EO 418 to communities ⇨Promote other funding sources available to communities for master plan processes ⇨Use EOEA buildout data	RPAs, EOEA	Updated Master Plans
◆ Develop a regional growth management plan(s) with watershed goals in mind	⇨Promote EO 418 to communities ⇨Use EOEA buildout data	RPAs, EOEA	Regional growth management plan Implementation Projects
◆ Encourage better open space planning in land development	⇨Promote the "Green Neighborhoods" concept ⇨Investigate the feasibility and success rate of TDR programs ⇨Promote CPA, EO 418	RPAs Land Trusts	"Green Neighborhoods" accepted and used by communities Higher % of O/S protected in developments CPA passed by communities
◆ Revise zoning by-laws to reflect watershed conditions	⇨Provide model zoning by-laws that protect watershed resources (i.e. watershed district overlays, erosion by-laws, floodplain by-laws, etc.) ⇨Incorporate Imp. Surface Project recommendations	RPAs	By-laws implemented in watershed communities
◆ Increase acceptance for higher density development and urban living	⇨Hold community workshops to demonstrate the threats of sprawl and benefits of compact living	RPAs	Community workshops
◆ Revitalize and reuse existing infrastructure in major urban centers	⇨Identify regions/sites in the watershed that are eligible for Brownfields money ⇨Encourage partnerships among communities, businesses, etc. to support revitalization	RPAs, municipalities, EPA MWT, EPA	Redeveloped/reused Brownfields
◆ Develop watershed population growth projections for next 20 yrs	⇨Use EOEA buildout data	MWT, RPAs	Population growth projections

GOAL 5: Improved river recreational access and regional open space protection for all watershed residents

Objectives	Strategies	Key Players	Measure of Success
◆ Increase public use and appreciation of river access	⇨Conduct a river recreation survey and conference ⇨Produce a Merrimack River Canoe and Recreation guide	NGOs NGOs	Canoe guide requests/sales Communities coordinate on recreational activities Increased use of river and rec. facilities
◆ Provide linkages between open space across the watershed for wildlife habitat, watershed protection, greenway development	⇨Develop a watershed or sub-watershed wide open space protection plan focusing on regional connections	RPAs, NGOs	Acceptance and implementation of regional O/S plan by communities
◆ Increase the support for and extent of the Merrimack River Trail	⇨Develop an updated map showing the current location of the trail and potential linkages ⇨Build local support for finishing the trail through local trails committees ⇨Identify increased funding sources for this project and disseminate information	NGOs, DEM	Extension of Merrimack River Trail from existing locations
◆ Maintain the environmental integrity of river and banks as recreational use increases	⇨Develop a regional river recreation management plan	MWT, DEM	Rec. Mgmt. Plan accepted and used by river communities
◆ Create a Merrimack River Watershed Refuge	⇨Lobby for political support/legislative act ⇨Build local support for the concept ⇨Conduct an opinion survey	NGOs	Legislation enacted establishing a Merrimack Refuge
◆ Encourage better protection for riverfront lands	⇨Develop model riverfront zoning by-laws ⇨Educate communities on RPA	DEP, MWT, ConComms	Communities adopt riverfront zoning

Chapter 5: Action Projects

ACTION PROJECT # 1

Merrimack Team Municipal Stormwater Pollution Reduction Program

Project Description

The EPA has issued new regulations to control the negative effects of pollution from stormwater. These regulations known as the NPDES Phase II Stormwater Regulations aim to reduce pollution from municipal separate small sewer systems (MS4s) and small construction site activities (1-5 acres). These regulations will also affect municipally operated or owned industrial facilities, like gravel pits or Department of Public Works (DPW) yards, if a stormwater discharge exists. The Phase I program, instituted in 1992, had already regulated medium and large cities with separate sewer systems and large construction sites (5 acres or greater). Municipalities and other MS4s are required to implement a stormwater program and obtain a permit by March 2003. Components of the stormwater program include public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention and good housekeeping. Seventeen communities in the Merrimack watershed are affected by these regulations and have received either full or partial designation as an urbanized area (UA).

Over 70% of the watershed is covered under the Phase II Program Requirements. However, stormwater pollution problems are also apropos to the remaining 30% of the watershed, even though these area lands are more rural.

The project proposes to fund a consultant who will represent EOEA/the Merrimack Team in developing and operating an outreach and education program targeted at municipalities, to assist them in putting into effect Best Management Practices (BMP's) that will actually reduce stormwater related pollution, and show measured improvements in water quality. The consultant will work with Municipal DPW's, Conservation Commissions, Boards of Health, Engineering Departments, etc., to help put these pollution prevention and control practices into effect. These efforts will stress instituting practices that look at pollution reduction effects, not only on a community-by-community basis, but also on a watershed basis.

Time Frame

Two plus years

Estimated Cost

$60K over 2 years

ACTION PROJECT #2

Merrimack Watershed Annual Conference

Project Description

The Merrimack Watershed Team proposes environmental projects in the watershed annually that are dependent on Roundtable funding. In addition, there are other agencies and organizations that are members of the Team who are coordinating or sponsoring projects. In 1999, the Team held conferences and workshops to hear from stakeholders in the watershed as to what their priority concerns and needs were related to environmental conditions in the watershed. The Team has responded to those concerns with the implementation of several watershed projects. However, since that time the Team has not met with stakeholders to apprise them of their major activities and progress in the watershed. The Team has been producing a quarterly newsletter that highlights some of their activities but not in any great detail. The Team currently has no mechanism in place to keep watershed stakeholders informed of positive progress to clean-up the river and protect the watershed. This project proposes to establish an annual watershed conference to meet with stakeholders and present significant findings from environmental research as well as results from ongoing watershed projects.

Strategy

The Team will hold an annual conference, most likely in the fall or spring, at a central location in the watershed. The Northern Essex Community College campus in Haverhill has been used for past watershed meetings and is a logical choice. The Team will invite all watershed stakeholders to the conference including municipal officials and department heads, businesses, local environmental groups and organizations, relevant state agencies and representatives, as well as interested individuals. The conference will consist of a key-note speaker, mini-presentations, question and answer panels, as well as informal poster displays. The Team might consider inviting local environmental businesses and organizations to publicize and display their products, mission or activities using booths in a central location of the facility. Food will be provided in the form of a continental breakfast and/or light lunch. Depending on logistics and scheduling, the Team will offer a half day or whole day conference. A whole day conference, if set up informally with poster presentations and speakers/workshops that are staggered, may allow a broader group of people to attend and learn about the watershed.

Timeframe

Annual

Estimated Cost

$5-10K

ACTION PROJECT #3

Open Space Priorities Related to Build-out Results

Project Description

EOEA has sponsored build-outs throughout the state to allow municipalities to plan for future growth and potential impacts to community character and environmental resources. These build-outs have identified current build-able land land, and the outcome of this growth in terms of number of new houses and residents, water demands, and, the potential growth that could occur on this other infrastructure costs. One obvious result of future growth in the Merrimack Watershed communities is the loss of open space. According to the build-outs, there is still a substantial amount of available open space throughout the watershed. The preservation of open space has value in terms of protecting sensitive aquifer, recharge or water supply areas, reducing the potential for flooding, providing critical wildlife habitat and corridors, and providing a place of recreation and refuge for urban and suburban residents. The Team proposes to use build-out results to identify remaining open space in the watershed that may be developed if growth continues at its current rapid pace and identify those parcels that are critical for protecting watershed functions.

Strategy

EOEA through the Team will work with watershed communities to evaluate their build-out results and maps and identify those parcels of open land that are important to protecting watershed functions. The concept of a "watershed function" can be translated into meaningful language for communities by relating it to the protection of water supply, either quality or quantity, or reduction of current or future flooding. With input from the watershed communities, remaining open space parcels will be identified, prioritized and ranked by subwatershed according to their ability to protect watershed functions. These priority areas will be represented on GIS maps. This project will use a method similar to MassGIS and EPA's "Resource Identification Project" to identify open space parcels that protect the greatest number of watershed functions and, therefore, have the most value. However, it will be critical to work with communities and employ some sort of ground-truthing method to arrive at the most accurate prioritized list. This project will also identify the best mechanisms through which this priority open space can be protected and/or acquired as well as necessary partnerships that should be formed.

Timeframe

1 year

Estimated Cost

$50K

ACTION PROJECT #4

River Recreation Management Plan and Access Development

Project Description

The Team received funding from the Roundtable in FY01 to conduct a survey of recreational facilities along the Merrimack from Franklin, NH to Newburyport, MA. The aim of this survey is to find out what recreational opportunities and access points currently exist along the river, where more facilities are needed, and what problems recreational managers face in managing and maintaining their facilities. The project also will sponsor a recreation conference to bring recreational managers together to discuss opportunities and needs for river recreation. The Team would like to follow this project with implementation of another project that responds to river recreation needs that are uncovered in the survey and conference. Preliminary evidence indicates that there is an increasing need for river access along the Merrimack as its quality has improved and communities (and the number of recreationalists) continue to grow. As interest in recreation on and along the river continues to grow, it will also be important to ensure that its environmental integrity and biological health remain intact. Already impacts from boating are being felt up and down the river. The best way to achieve a healthy balance between river health and recreation is to draft and implement a management plan that addresses the concerns and needs of all river users against the needs of the river. Based on the existing evidence, the Team proposes to develop a river recreation management plan and to identify further opportunities for access along the river. The identification of river access opportunities could be incorporated as part of the management plan.

Strategy

The Team will use results from the recreation survey and conference to address river recreation needs in the Merrimack watershed. With guidance from these results the Team will draft a management plan that addresses all river user needs versus river needs (i.e. environmental health). The Team will reach out to all river users for input into the management plan since many of these users may not be targeted in the initial Recreation Survey project. The opportunities for river access will be identified, mapped, and prioritized based on existing information on available open space, type of landowner, and feedback from local conservation or park officials. These opportunities will be incorporated into a draft management plan. The draft plan will be made available for public review and comment through public meetings and a comment period. A final management plan will follow with incorporation of public feedback as appropriate. In addition to the identification of potential river access, the plan should outline realistic ways to achieve the goal of more river access.

Timeframe

1-2 years

Estimated Cost

$50-75K

ACTION PROJECT #5

Impacts of the Cumulative Water Use on Merrimack River Flow

Project Description

Historically, the Merrimack River has endured a lot of use and abuse. The entire lower watershed in New Hampshire and Massachusetts is facing rapidly spreading suburban growth. Notably, the rapid development in southern New Hampshire and the suburban growth in northwest of the Boston metropolitan area are striking threats to this watershed. There are debates and discussions regarding whether the Merrimack River can bear the development pressure and supply water to the needs of future generations while safeguarding in-stream uses and values.

Little or no scientific effort has been made to answer the question whether the Merrimack River will meet its future demand without damaging its ecosystem. Finding an answer is the prime focus of this study. The study can include, but not limited to, the following tasks.

Strategy

1. Performing a water demand analysis along the mainstem Merrimack. It involves understanding the effect of current and future water withdrawals, including collecting water withdrawal, water use, and water discharge data and projecting future demand under several scenarios. On-going (Completion 03/2002).

2. Performing a water demand analysis on tributaries. This task begins with tributaries under the coverage of the Merrimack River Watershed Team such as Stony Brook, Spicket, Beaver and Powow. It also includes coordinating and advocating water demand analysis on tributaries beyond the coverage of the Merrimack River Watershed Team such as SuAsCo and Nashua River. Time line 2002-2004.

3. Developing a water flow model simulating spatial (along the river) and temporal flow according to identified water withdrawals and discharges. Time line 2003 – 2005.

4. Identifying river segments and tributaries potential to deficit in water supply to meet future demand. Time line 2004 – 2006.

5. Developing and implementing plans to mitigate the future water deficit issues, including conservation approaches and legislative measures. Time line 2004 – 2006.

Timeframe

Five years

Estimated Costs

$350K - $400K over 5 years

Chapter 6: Conclusion

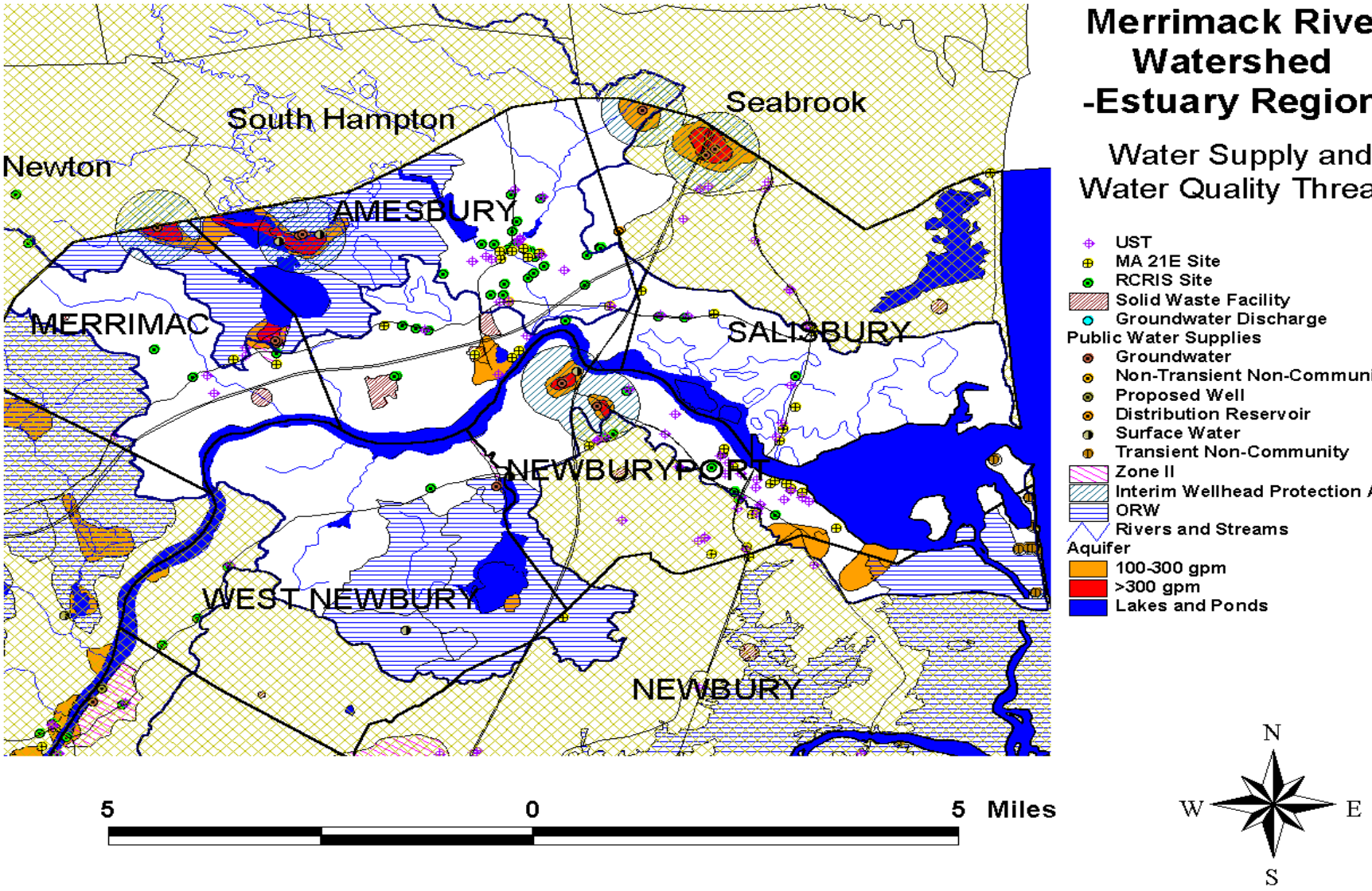
The five specific Action Projects describe the outline the team envisions in accomplishing the goals, objectives and strategies in each of the five matrices. The reader can more easily see specific actions and activities that occur in the action projects. These attempt to achieve the measures in each of the matrices. The action projects represent a plan of combined work over the next five years.

In the MWT's planning phase before each fiscal year proposal for MWI funding, it will review the five action projects, and determine if changes are necessary in light of work already completed and/or changes in priorities and situations the Team feels is relevant at that point in time. The Team may also want to add or delete a project depending on changes in overall priorities and situations in the watershed. In other words, the Team maintains flexibility in the specifics of the work it proposes each year by being able to retool the contents of any of the five action projects, completing a project and/or proposing a new action project based upon the Five overall Goals. The Team will revisit the five goals for possible revision during the next planning part of the five-year MWI cycle in calendar 2006.

Appendix A

Merrimack Watershed Maps showing Water Resources and land Resources

Produced by the Merrimack Watershed Team
Using MassGIS Data


Merrimack River Watershed
-Estuary Region-
Water Supply and Water Quality Threats
South Hampton
Seabrook
Newton
AMESBURY
MERRIMAC
SALISBURY
NEWBURYPORT
WEST NEWBURY
NEWBURY
UST
MA 21E Site
RCRIS Site
Solid Waste Facility
Groundwater Discharge
Public Water Supplies
Groundwater
Non-Transient Non-Community
Proposed Well
Distribution Reservoir
Surface Water
Transient Non-Community
Zone II
Interim Wellhead Protection Area
ORW
Rivers and Streams
Aquifer
100-300 gpm
>300 gpm
Lakes and Ponds
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5 Miles
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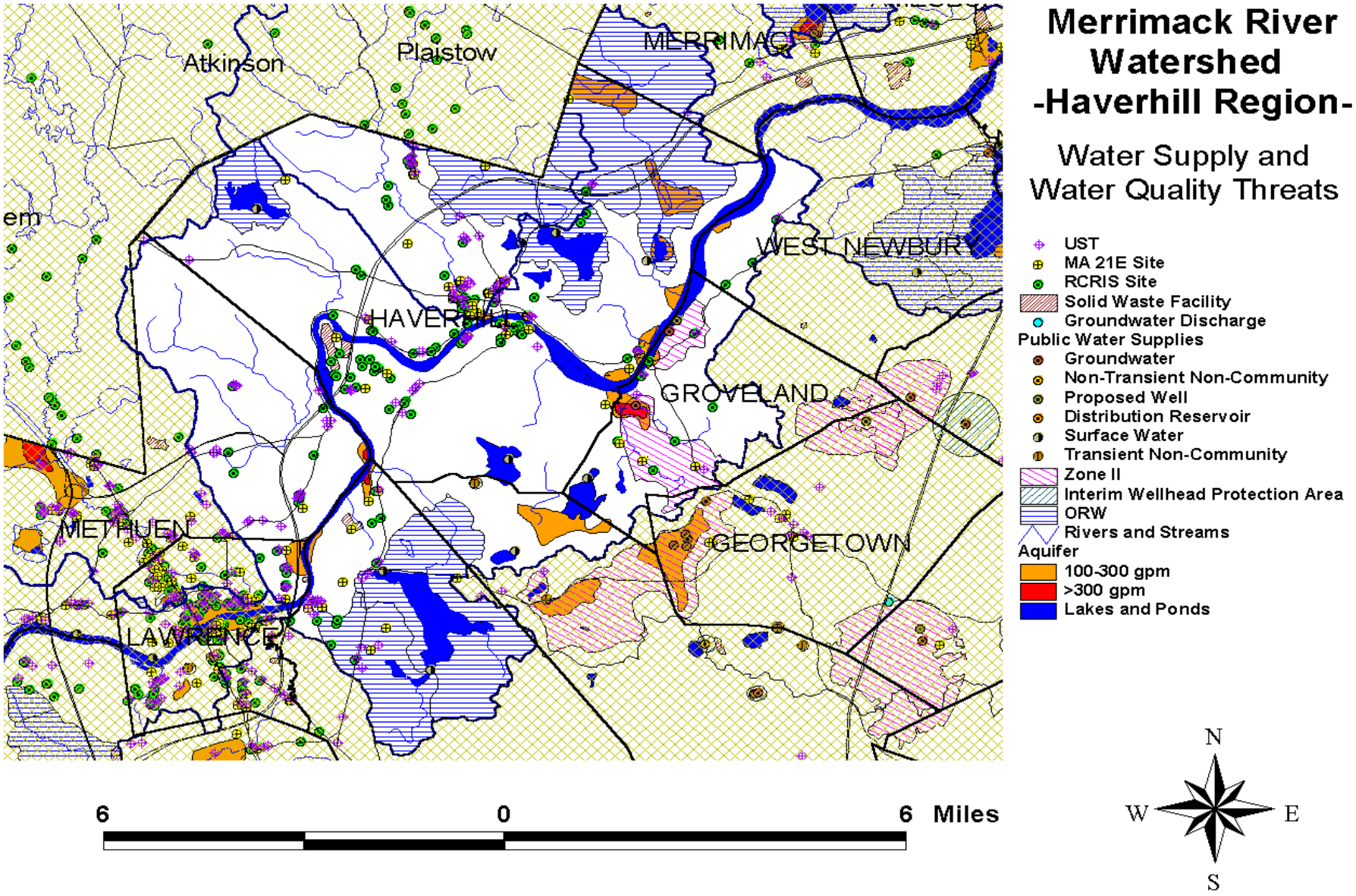
Merrimack River Watershed
-Haverhill Region-
Water Supply and Water Quality Threats
Atkinson
Plaistow
MERRIMAC
em
WEST NEWBURY
HAVERHILL
GROVELAND
METHUEN
GEORGETOWN
LAWRENCE
UST
MA 21E Site
RCRIS Site
Solid Waste Facility
Groundwater Discharge
Public Water Supplies
Groundwater
Non-Transient Non-Community
Proposed Well
Distribution Reservoir
Surface Water
Transient Non-Community
Zone II
Interim Wellhead Protection Area
ORW
Rivers and Streams
Aquifer
100-300 gpm
>300 gpm
Lakes and Ponds
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6 Miles
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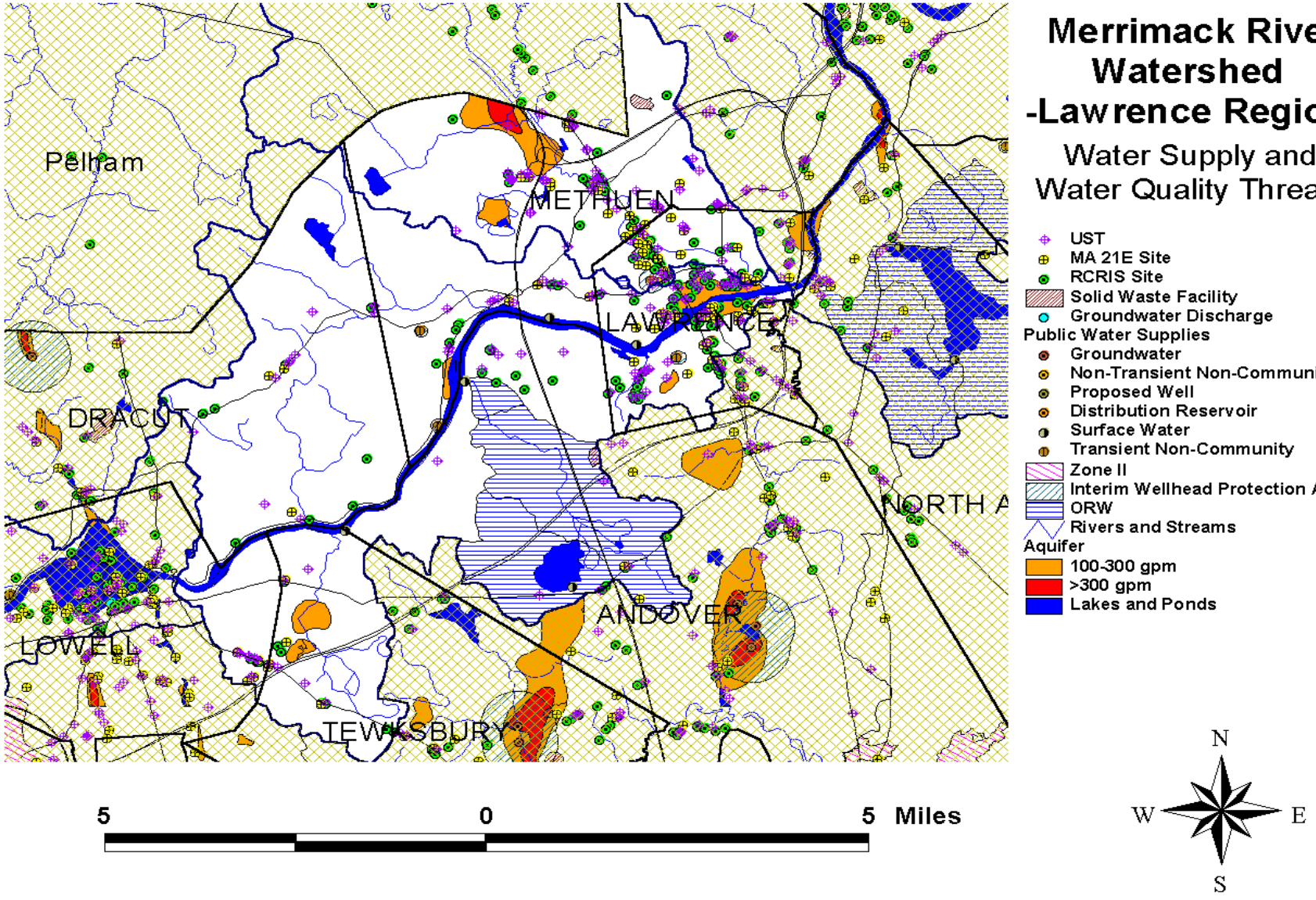
Merrimack River Watershed
-Lawrence Region-
Water Supply and Water Quality Threats
Pelham
METHUEN
LAWRENCE
DRACUT
NORTH A
ANDOVER
LOWELL
TEWKSBURY
UST
MA 21E Site
RCRIS Site
Solid Waste Facility
Groundwater Discharge
Public Water Supplies
Groundwater
Non-Transient Non-Community
Proposed Well
Distribution Reservoir
Surface Water
Transient Non-Community
Zone II
Interim Wellhead Protection Area
ORW
Rivers and Streams
Aquifer
100-300 gpm
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Lakes and Ponds
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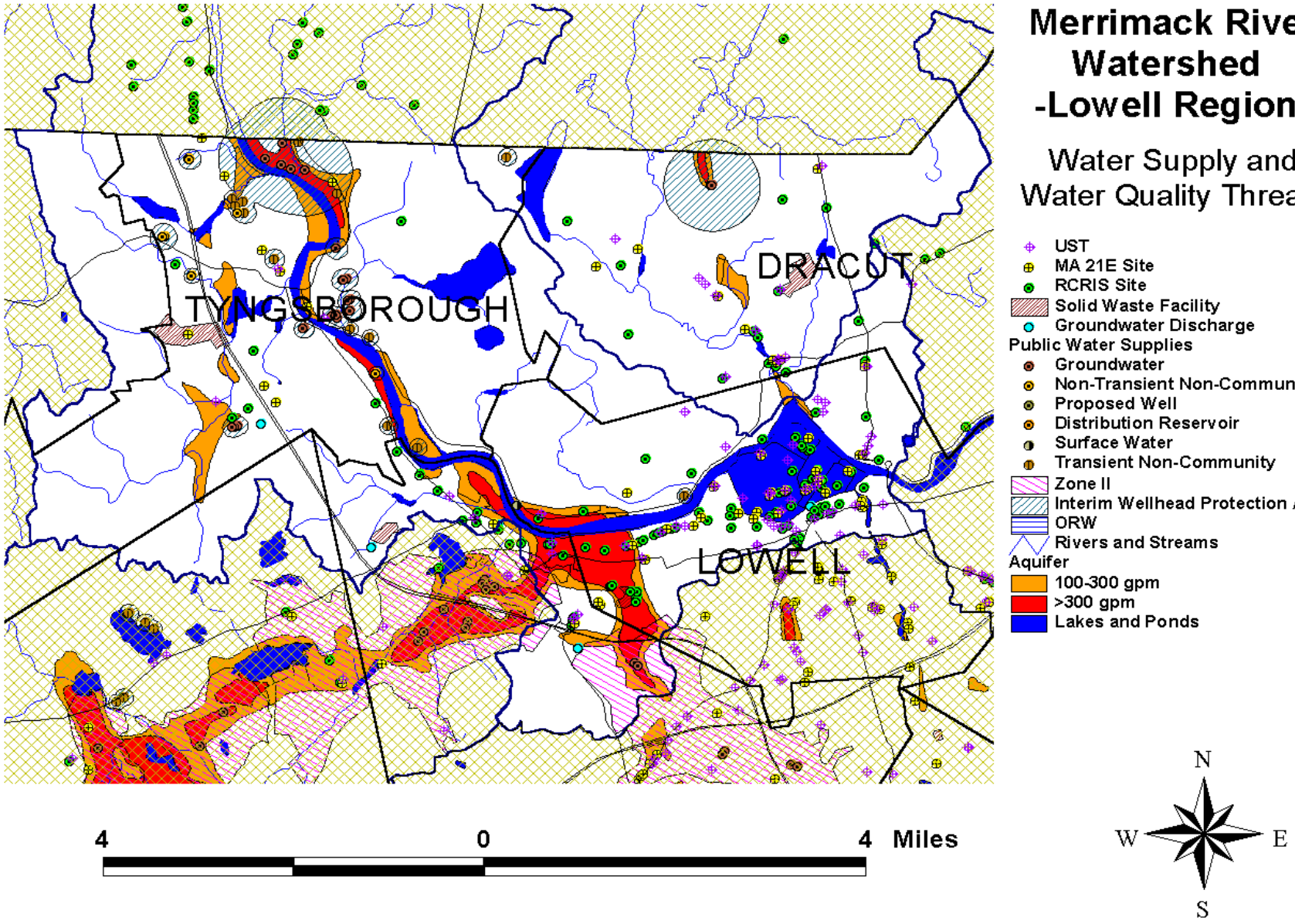
Merrimack River Watershed
-Lowell Region-
Water Supply and Water Quality Threats
TYNGSBOROUGH
DRACUT
LOWELL
UST
MA 21E Site
RCRIS Site
Solid Waste Facility
Groundwater Discharge
Public Water Supplies
Groundwater
Non-Transient Non-Community
Proposed Well
Distribution Reservoir
Surface Water
Transient Non-Community
Zone II
Interim Wellhead Protection Area
ORW
Rivers and Streams
Aquifer
100-300 gpm
>300 gpm
Lakes and Ponds
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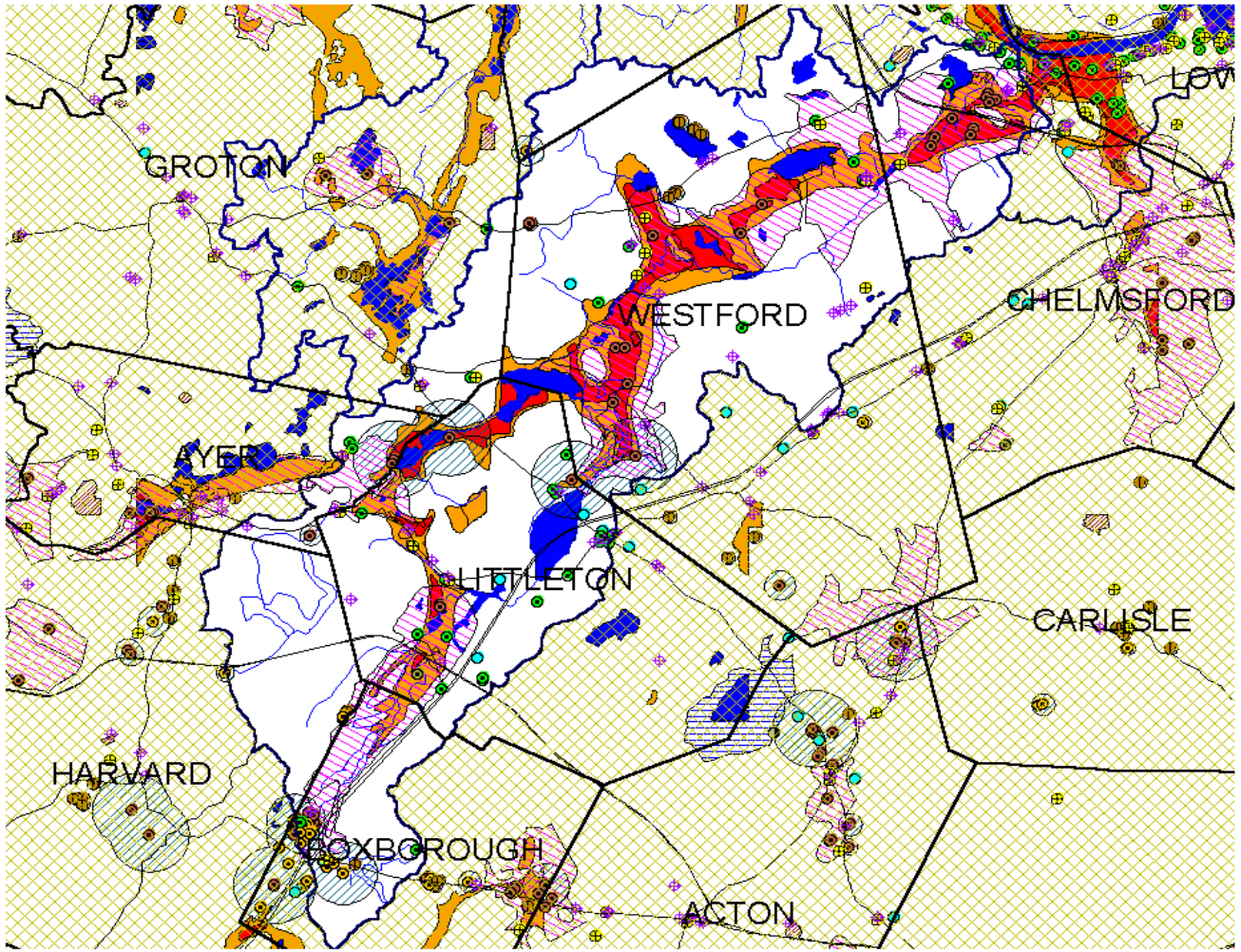


Merrimack River Watershed -Stony Brook-

Water Supply and Water Quality Threats

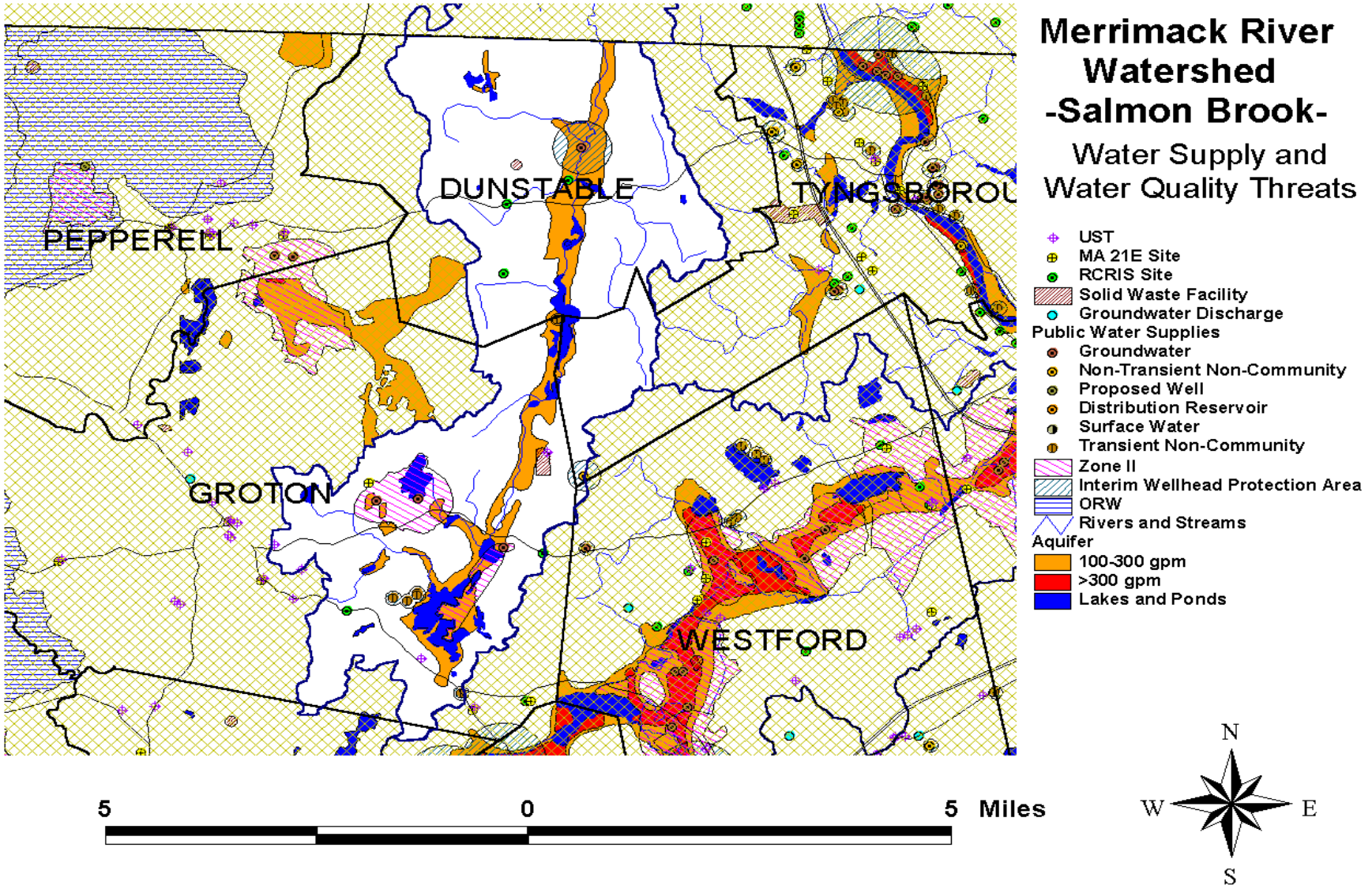
- UST
- MA 21E Site
- RCRIS Site
- Solid Waste Facility
- Groundwater Discharge

Public Water Supplies

- Groundwater
- Non-Transient Non-Community
- Proposed Well
- Distribution Reservoir
- Surface Water
- Transient Non-Community
- Zone II
- Interim Wellhead Protection Area
- ORW
- Rivers and Streams

Aquifer

- 100-300 gpm
- >300 gpm
- Lakes and Ponds


Merrimack River Watershed
-Salmon Brook-
Water Supply and Water Quality Threats
DUNSTABLE
TYNGSBOROU
PEPPERELL
GROTON
WESTFORD
UST
MA 21E Site
RCRIS Site
Solid Waste Facility
Groundwater Discharge
Public Water Supplies
Groundwater
Non-Transient Non-Community
Proposed Well
Distribution Reservoir
Surface Water
Transient Non-Community
Zone II
Interim Wellhead Protection Area
ORW
Rivers and Streams
Aquifer
100-300 gpm
>300 gpm
Lakes and Ponds
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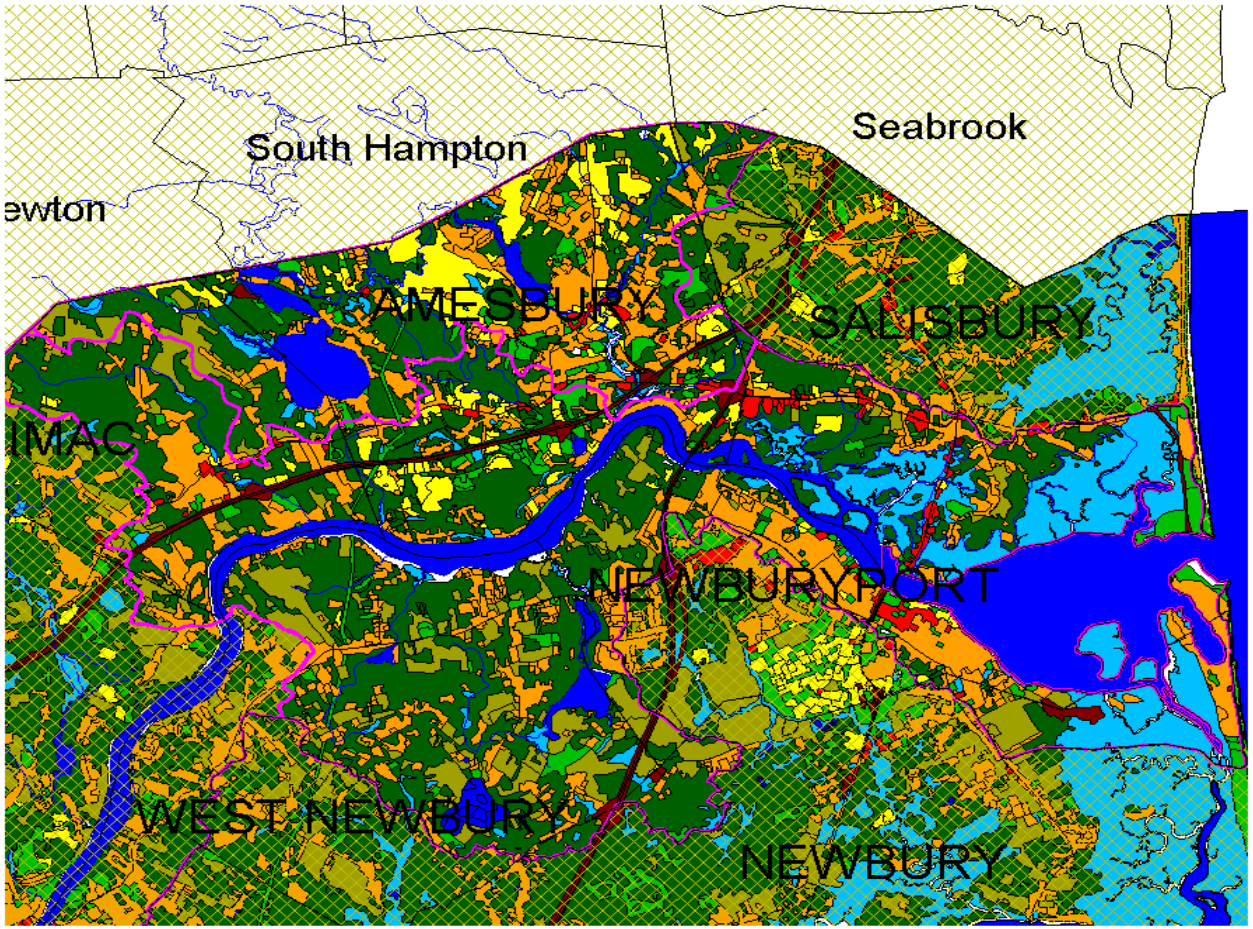


Merrimack River Watershed -Estuary Region-

Land Use*

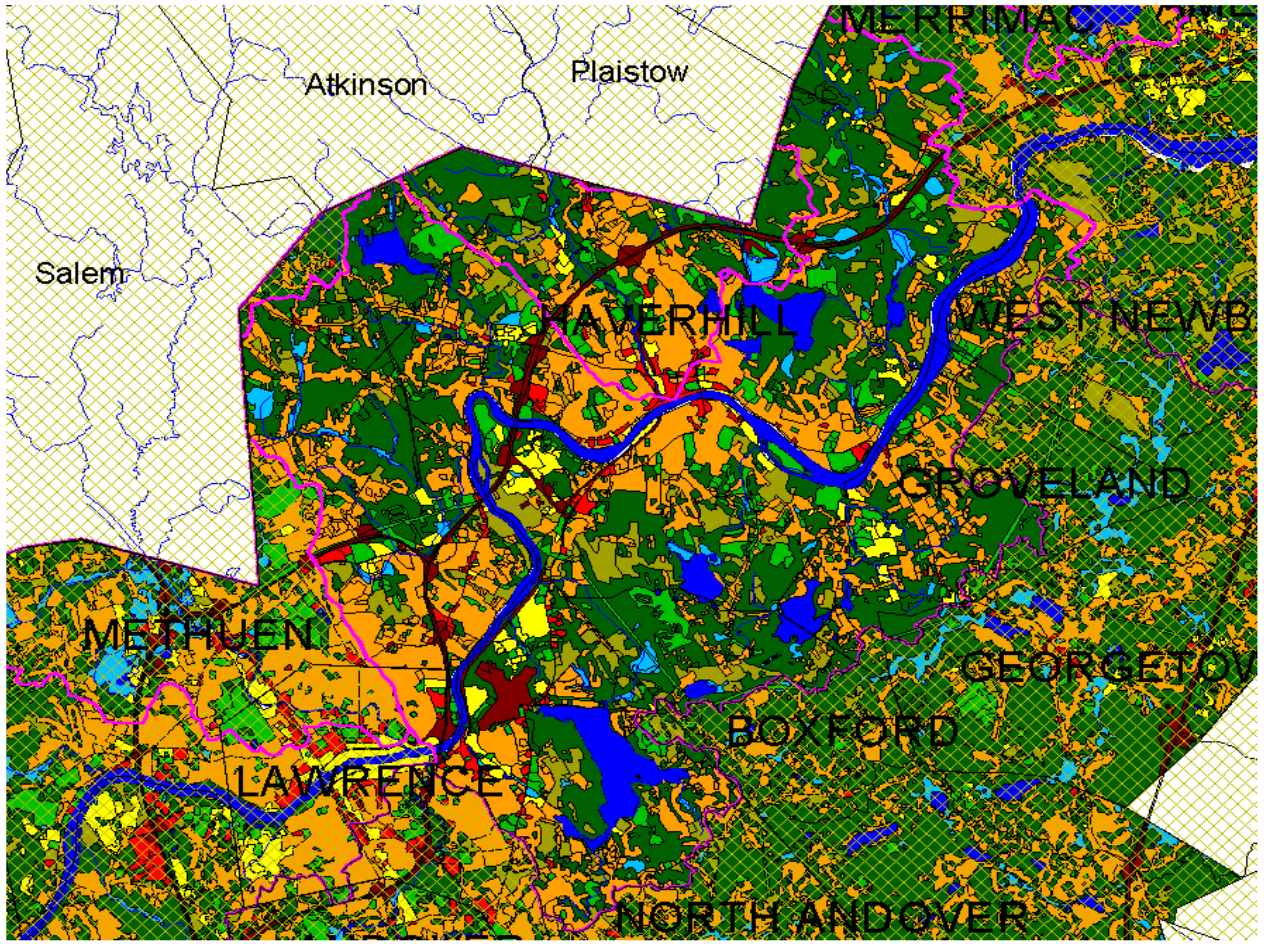
Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

3 0 3 6 Miles

N W E S

*Based on interpretation of 1999 1:25,000 color infrared photography



Merrimack River Watershed -Haverhill Region-

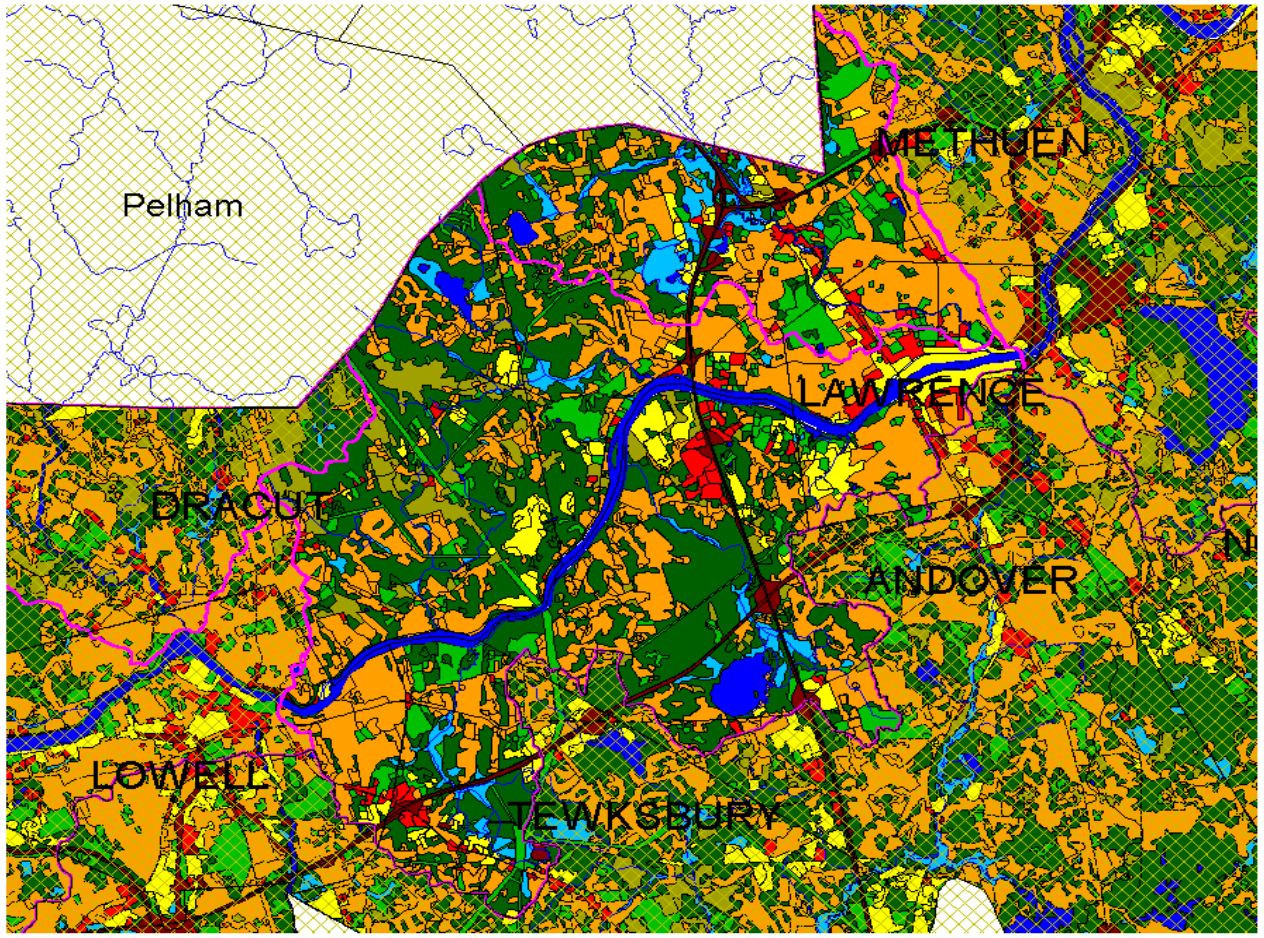
Land Use*

Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

N
W E
S

*Based on interpretation of 1999 1:25,000 color infrared photography



Merrimack River Watershed -Lawrence Region-

Land Use*

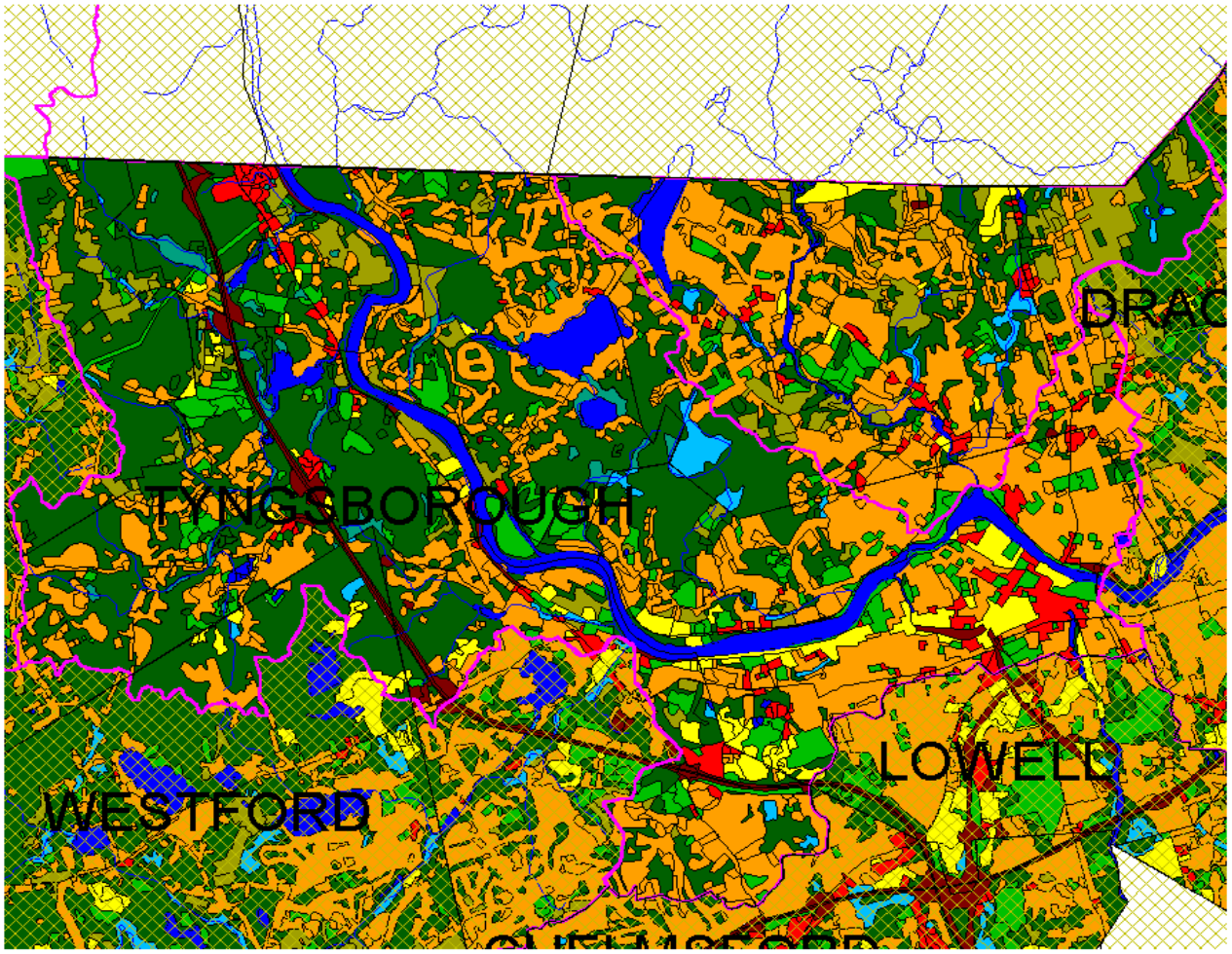
Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

4 0 4 8 Miles

N
W E
S

*Based on interpretation of 1999 1:25,000 color infrared photography



Merrimack River Watershed -Lowell Region-

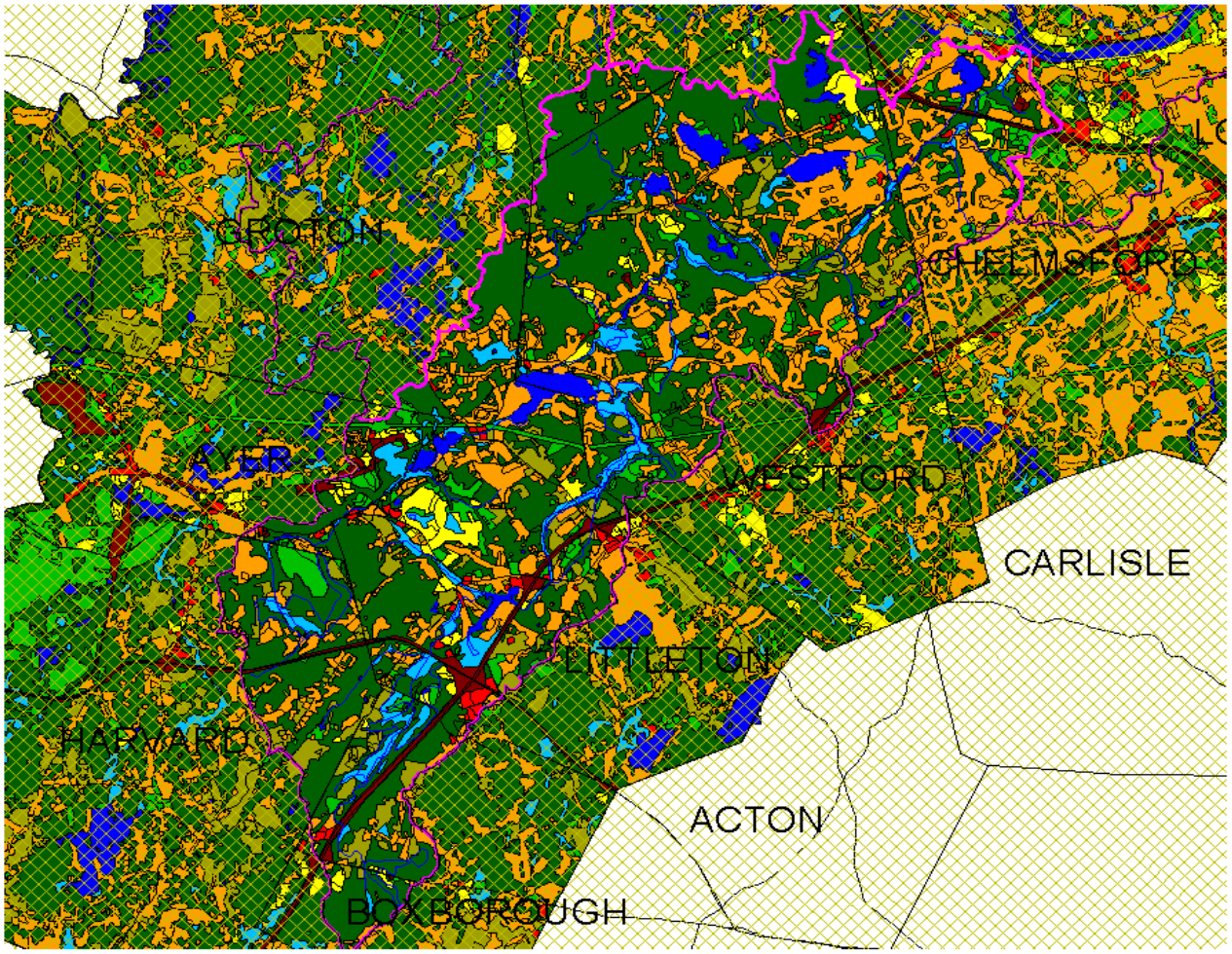
Land Use*

Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

N
W E
S

*Based on interpretation of 1999 1:25,000 color infrared photography



Merrimack River Watershed -Stony Brook-

Land Use*

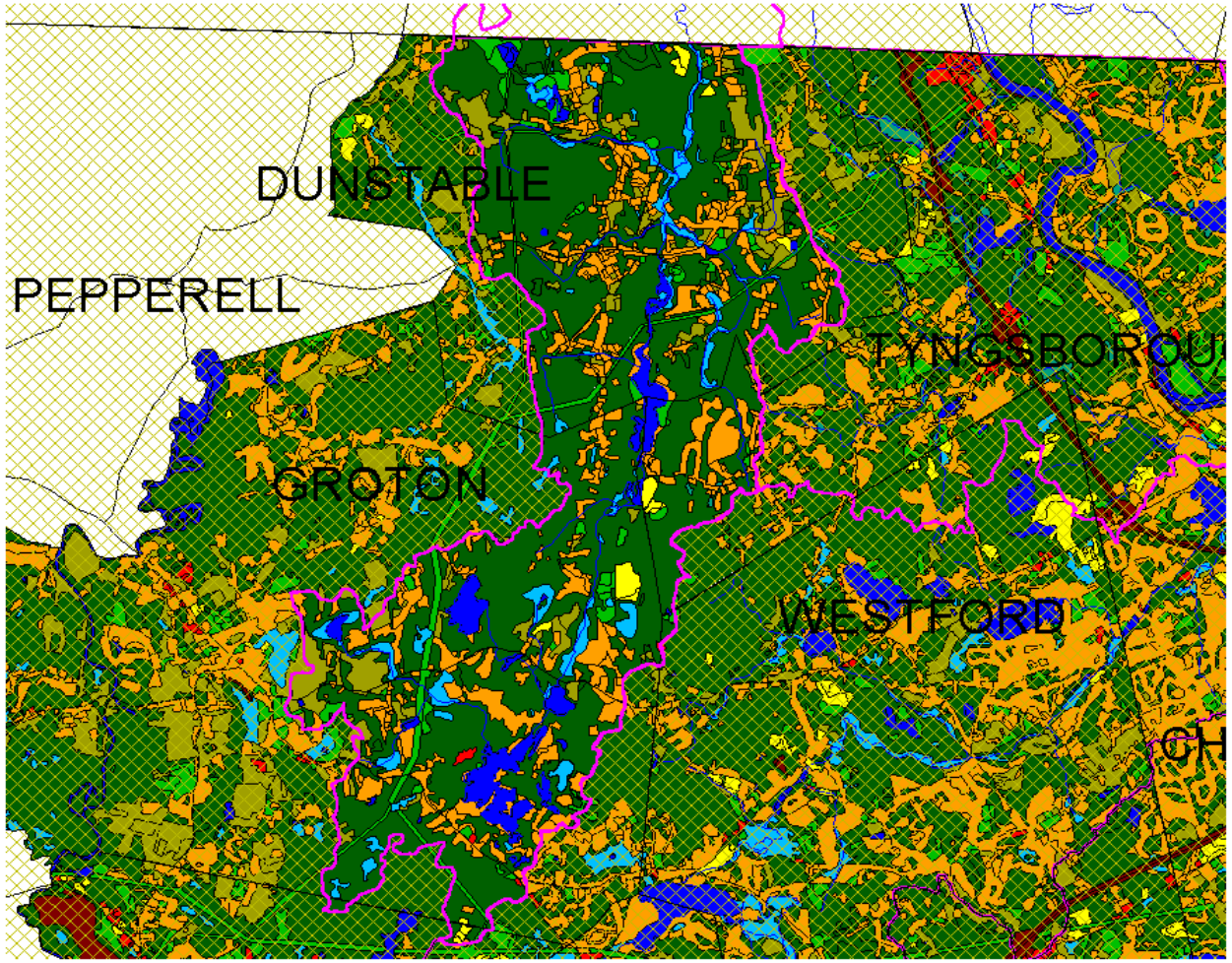
Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

4 0 4 8 Miles

N
W E
S

*Based on interpretation of 1999 1:25,000 color infrared photography



Merrimack River Watershed -Salmon Brook-

Land Use*

Key

- Agriculture
- Commercial
- Forest
- Industrial
- Residential
- Transportation
- Open Land
- Water
- Wetland

3 0 3 6 Miles

N
W E
S

*Based on interpretation of 1999 1:25,000 color infrared photography

Appendix B: Active Members of the Merrimack Watershed Team

FIRST NAME	LAST NAME	COMPANY
Richard	Bizzozero	EOEA
Barbara	Blumeris	ACOE
David	Boyer	Haverhill Water Division
Larissa	Brown	NMCOG
Rachel	Calabro	DF&WLE Riverways
Todd	Callaghan	CZM
Mark	Casella	MA DEP
George	Crombie	Nashua, NH Public Works
Andrea	Cooper	MA CZM
Harold	Costa	Lowell WWTP
William	Dunn	EOEA
William	Easte	DF&WLE
Glen	Edwards	Town Hall Annex
Robert	Flynn	NMCOG
Jamie	Fosburgh	National Park Service
Trish	Garrigan	US EPA
Joe	Giarrusso	Haverhill Conservation Dept.
David	Gray	US EPA
Jonathan	Higgins	Lake Attitash, Powow R. Association
Richard	Hogan	GLSD
Carolyn	Jenkins	NEIWPCC
Linda	King	City of Lowell
Curt	Laffin	MRWC
Dan	Lenthall	NRCS
Alan	Macintosh	MVPC
Nanette	Masi	Friends of Powow River
Steve	Landry	NH D.E.S.
Paul	Lenz	DEM
Andrew	Magee	Epsilon Association
Carl	Melberg	US F&W
Robert	Moore	Haverhill Env. Health Tech
Donna	Nelson	DEM/Food Hazard Mgmt.
Brendon	O'Regan	Newburyport Sewer Dept
Oscar	Pancorbo	DEP
William	Paul	Haverhill WWTP
David	Roach	MA DMF
Keith	Robinson	USGS
Libby	Robinson	DF&WLE
Myra	Schwartz	US EPA
Tham	Saravanapavan	MRWC
Andrew	Sheehan	Chelmsford Comm. Develop.
Linda	Silka	UMass Lowell
Colleen	Spero	GLSD
Sean	Sullivan	Office of Planning and Co
Carol	Tucker	EPA-Brownfields
Jack	Van Loan	Newburyport
Ted	Van Nahl	Amesbury Town Hall
Robert	Ward	DEP
Mike	Wurm	Lowell National Historic Park
Mark	Young	Lowell Water Treatment

Appendix C

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1997 Lawrence Open Space and Recreation Plan

1996 Littleton Open Space and Recreation Plan

1994 Lowell Open Space and Recreation Plan

Draft Merrimac Open Space and Recreation Plan

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Attachment D

MERRIMACK RIVERS and STREAMS

Allen Creek
Artichoke River
Back River (2)
Baddacook Brook
Bare Meadow Brook
Bartlett Brook
Beaver Brook (2)
Bennetts Brook
Black Brook
Black Rock Creek
Blue Brook
Boutwell Brook
Bridge Meadow Brook
Camp Brook
Claypit Brook
Cobbler's Brook
Cold Springs Brook
Cow Pond Brook
Creek Brook
Crooked Springs Brook
Deep Brook
Double Brook
East Meadow River
Fish Brook
Fishin Brook
Foote Brook
Gilson Brook
Gilson Brook
Goodwin Creek
Griffin Brook
Harris Brook
Hauk Brook
Hawkes Brook
Indian River
Jericho Creek
Johnson Creek
Joint Grass Brook
Keyes Brook
Lawrence Brook
Limit Brook
Little Pine
Little River
Lucy Brook
Martins Pond Brook
Merrimack River
Morrill Creek
Nickel Mine Brook
Peppermint Brook
Pine Island Creek
Plum Island River
Plumbush Creek
Powow River
Reed Brook
Richardson Brook
Salmon Brook
Sawmill Brook
Sawyer Brook
Scarlet Brook
Shad Creek
Snake Meadow Brook
Snows Brook
Souhegan River
Spicket River
Stony Brook
Tadmuck Brook
Town Creek
Trout Brook
Trull Brook
West Meadow Brook
World End Brook

COMMUNITY DEVELOPMENT DEPARTMENT

ANDREW J. SHEEHAN
COMMUNITY DEVELOPMENT
COORDINATOR

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TOWN OFFICES
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CHELMSFORD, MA 01824

PLANNING
CONSERVATION COMMUNITY
DEVELOPMENT BOARD OF
APPEALS

May 6, 2002

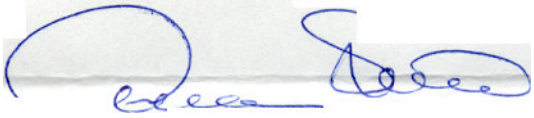
William J. Dunn
Basin Team Leader
Department of Environmental Management 131
Barnum Street
Devens, MA 01432

Dear Bill,

Please allow this letter to acknowledge the support of the Merrimack River Team for the Five-Year Merrimack River Watershed Action Plan. Through a series of discussions over the past several years, the Team has agreed on the priorities of the Watershed. The Plan takes into consideration the input of municipal and State agencies, sub-watershed groups, lake and pond associations, non-profits, and others concerned with the health of the watershed. Implementation of the action projects outlined in the Five- Year Plan will go far in raising public awareness of the watershed and improving its health.

Please feel free to contact me if I can provide further information in this regard.

Very truly yours,



Andrew Sheehan
Community Development Coordinator

CITY **OF HAVERHILL** MASSACHUSETTS 01830-5882

CONSERVATION COMMISSION
City Hall, 4 Summer Street
Room 205

Tel: (978) 374-2334 Fax: (978) 374-2315

May 31,2002

William J. Dunn. Jr .
EOEA- Massachusetts Watershed Initiative
c/o Department of Environmental Management
131 Barnum Road, Building 3701
Devens, Massachusetts 01432

RE: Merrimack River 5- Year Action Plan

Dear Bill:

I recently reviewed the Action Plan you prepared for the Merrimack River watershed and was very pleased to see so many of the issues discussed at the Watershed Team's meets detailed in the Plan; One issue that particularly hits home is the un-quantified effects of CSO's on the Merrimack's water quality. Additionally, the protection of open space and river access are issues that see continuous discussion herein Haverhi1l.

I believe the development of this Plan represents the consensus view of the Team on bow best to protect and improve the Merrimack River. I am glad to have the opportunity to participate on the Team and truly appreciate your efforts to represent the Team's views in this Action Plan.

Sincerely,

Robert E. Moore, Jr.
Environmental Health Technician

cc: Commissioner Cheryl Accardi, Chairperson (by e-mail) File

Merrimack River Watershed Council

-for the enjoyment of people, the benefit of its communities and the health of the ecosystem

May 6, 2002

Mr. William J. Dunn, Jr.
Merrimack River Watershed Team Leader
EOEA- Mass Watershed Initiative
C/o MA DEM
131 Barnum Road, Building 3701
Devens, MA 01432

Dear Bill,

The Merrimack River Watershed Council strongly supports the Merrimack River 5- Year Action Plan.

As you well know the Council has been intimately involved in the planning and assessment activities of the Merrimack Team including the development of the 5- Year Action Plan. The plan is very carefully crafted and reflects much hard work of numerous stakeholder groups and organizations. We believe that it accurately reflects the views and concerns of the towns, water departments, civic groups, water users, recreation interests, and numerous federal, state and local government agencies who were involved in crafting this comprehensive, well-thought-out plan.

We are deeply grateful for the hard work that went into the preparation and writing of the plan.

We eagerly look forward to working as a key partner in implementing the Merrimack River 5-Year Action Plan with the Merrimack River Team and its many stakeholder groups.

Year Action

Sincerely,

Matthew Donahue, President of the Board, Merrimack River Watershed Council

181 Canal St., P.O. Box 1377, Lawrence MA 01842-2577 Phone: (978) 681-5777
1000 Elm St., P.O. Box 1418, Manchester, NH 03105-1418 Phone: (603) 626-8828 www.merrimack.org

MERRIMACK
VALLEY
PLANNING
COMMISSION

June 3, 2002

William J. Dunn
Merrimack Watershed Team Leader
Clo Department of Environmental Management
131 Barnum Street
Devens, MA 01432

RE: MVPC Support for Draft 5-Year Merrimack Watershed Team Action Plan

Dear Mr. Dunn

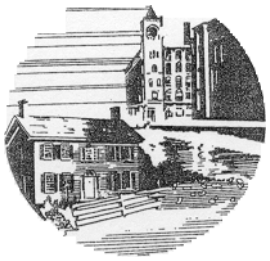
The Merrimack Valley Planning Commission, an active member of the Merrimack Watershed Team since its inception, supports the MWT's Draft 5-Year Action Plan and special watershed projects as presented to the Team in March 2002. The environmental assessment, planning, and enhancement activities described in the Action Plan reflect the collaborative thinking and efforts of multiple partnering organizations, including state, federal, and municipal governments, Regional Planning Agencies, private nonprofits, and citizens. These activities address a series of critical watershed needs, including "smart" growth and stormwater pollution mitigation, and are important to the present and future health of the land and water resources of the Merrimack River watershed. Their implementation over the next five years will expand and improve watershed planning beyond traditional town boundaries, and will foster a greater sense of resource "ownership" and stewardship among the Valley's residents and businesses.

MVPC commends the Watershed Team for its cooperative vision and planning, and we pledge our continued involvement and assistance to help make the Action Plan a reality.

Sincerely,

Alan Macintosh
Assistant Director/Environmental Program Manager

160 Main Street
Haverhill, MA 01830
Tel. (978) 374-0519
Fax. (978) 372-4890
www.mvpc.org
info@mvpc.org



NMCOG

Northern Middlesex Council of Governments

May 16, 2002

A **Multi-Purpose**

Regional Planning

District Serving:

Billerica
Chelmsford
Dracut
Dunstable
Lowell Pepperell
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Tyngsborough
Westford

Ellen D. Rawlings
Chair

Robert W. Flynn
Executive Director

William J. Dunn
Department of Environmental Management
131 Barnum Street
Devens, MA 01432

RE: Draft Five -Year Merrimack Watershed Team Action Plan

Dear Mr. Dunn:

The Merrimack Watershed Team, of which the Northern Middlesex Council of Governments is a member, voted to support the Draft Five- Year Action Plan with the special projects as presented to the Team in March 2002.

The watershed and sub-watersheds as delineated in the Action Plan are important to the all of NMCOG's nine member communities, as well as to the region as a whole.

The Five- Year Action Plan represents input from municipalities and non- profit organizations as well as regional and state organizations for both Massachusetts and New Hampshire. The MWT's goals reflect the regional impact of watershed planning and NMCOG looks forwarding to continuing its involvement with the Team.

Very truly yours,

Robert W. Flynn
Executive Director

PM:cas
[npec-rce.b]

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Lowell, MA
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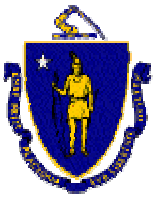

Jane Swift
Governor

Bob Durand
Secretary

Executive Office of Environmental Affairs
Merrimack River Watershed Team
131 Barnum Road, Building 3701
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