



Final Report: Upton Open Space Project

September, 2007

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A project of the Upton Open Space Committee

Funded through the Community Preservation Act

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Table of Contents

Introduction	1
Base Mapping	6
Open Space	8
Inventory of Ecological Resources and Biodiversity	10
Water Resource Inventory	12
Natural Resource Priorities	14
Inventory of Cultural Resources	16
Cultural Resource Priorities	18
Inventory of Recreational Resources	20
Recreational Resource Priorities	22
Composite Resource Priorities	24
Development Constraints	26
Action Plan	28
Map of Large, Undeveloped Parcels	30
Action Strategies	32

Introduction

The town of Upton is blessed with a remarkably diverse landscape, a landscape shaped by the forces of nature and human culture over thousands of years. Its basic form is rooted in the geology of the region, shaped by the glaciers of the last ice age, and molded since by the action of wind, water, and communities of plants and animals. From the wooded hills in the north end of town, Warren and Center Brooks drain a series of narrow valleys, and merge to form the West River as it flows south to the Blackstone. Rich wetland areas spread across valleys where topography slows drainage. Large areas of forest remain, some of it protected as part of the Upton State Forest, but most is available for future development.

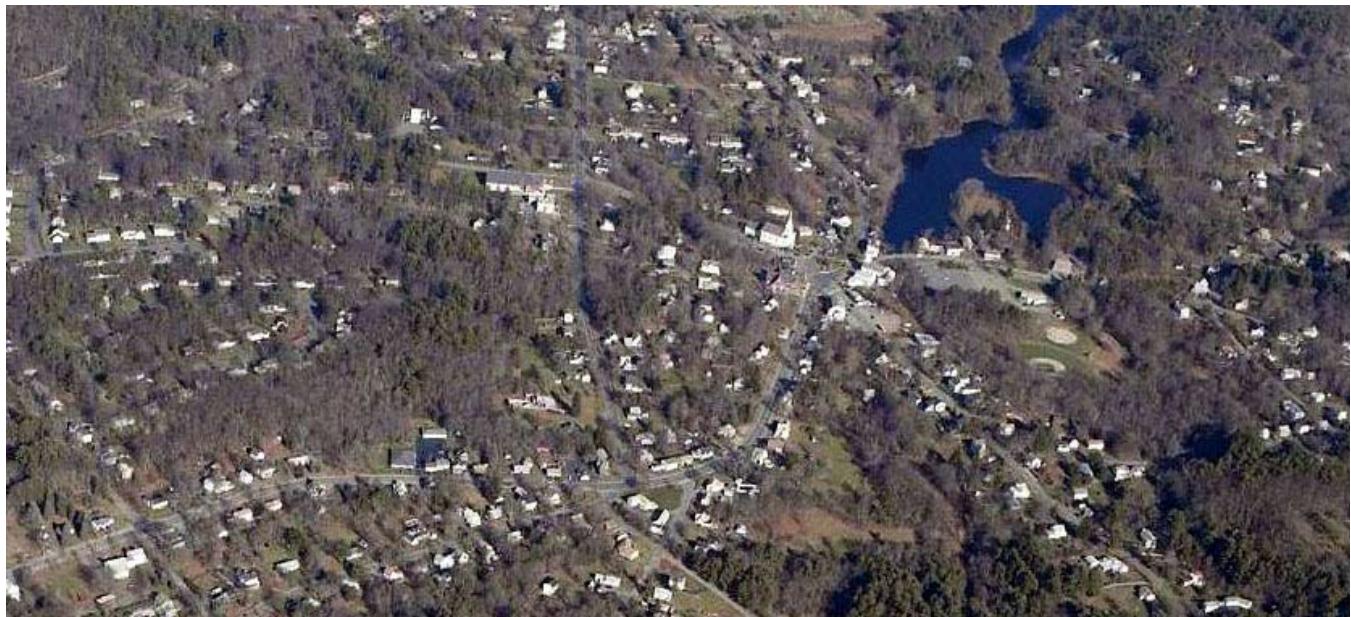
Overlaid with this natural landscape is a cultural landscape of farms, wood lots and villages that evolved in an intimate relationship with the land in three centuries since European settlement and previous millennia of use by Native Americans. Traditional land uses and settlement patterns were based on local resources of farmland, timber, and water power. The natural systems that underlie these human settlement patterns were not wholly erased, but rather incorporated into a larger composition that is both functionally stable and beautiful to look at. What was passed down to current residents of the town is thus a rich landscape heritage, one that offers a balance of clean water, a healthy environment, scenic resources, and plentiful outdoor recreation -- all of which adds up to a high quality of life.

While many of Upton's natural and cultural resources remain, the accelerating pace of change threatens to replace this diverse landscape with a suburban style of development that sees little difference between rural and urban areas, or between quiet country roads and busy state highways. New development, no matter where it is located, tends to follow the same monotonous patterns, reducing everything to a simple formula repeated over and over. While the rate of growth has been fairly modest, the scattered and uncoordinated pattern of that development, as well as the ease of developing frontage lots, tends to maximize its visual impact.



While close to 1500 acres were assembled into the Upton State Forest in the 1920's and '30's, more recent conservation efforts have been somewhat scattered and opportunistic. The town has been able to assemble significant conservation areas along Warren Brook and Peppercorn Hill, but opportunities to expand and link these areas are increasingly limited by residential development. As Upton prospers and grows it will only be harder to preserve the swaths of undeveloped land that have played such an important role in protecting the town's water supply, wildlife habitat, and rural character.

In recent years, Upton's Conservation Commission and Open Space Committee have been working to plan more proactively for conservation of Upton's most important open space resources before the opportunity is lost forever. Fundamental to this process is developing a better understanding of where these resources are and how they function. This project, made possible with town support through the Community Preservation fund, was designed to support this effort through a state of the art process of mapping and analysis, with input from town boards and committees and the general public. The result is a strong foundation of data, maps and planning strategies that will support all of the town's boards as they make decisions about conservation and development.



Upton Center

Open Space Planning Process

The method used for the Upton Open Space Project followed a traditional landscape planning model. First, data about different types of resources were compiled, starting with the information that is available on the Massachusetts Geographic Information System (MassGIS), a central depository of maps and data that is maintained by the Massachusetts Office of Energy and Environmental Affairs. Supplemented with information provided by local volunteers, inventory maps were prepared showing the location and patterns of these resources. Finally, these inventory maps were overlaid with each other to identify those areas and connecting corridors with multiple resource values.

In order to better understand the significance of these resources and why they are found where they are, all the available information was separated into three themes – natural, cultural, and recreational resources. Likewise, the planning process revolved around separate workshops for each theme: the first, convened by the Upton Historical Commission, focused on cultural resources; the second, looking at natural resources, was held by the conservation commission; finally, the recreation commission

facilitated a meeting to examine opportunities for a townwide system of recreational trails. Following this first round of meetings, a town-wide workshop was held to discuss the resulting maps and evaluate potential conservation strategies. While enjoying locally-made ice cream, residents heard a presentation of the natural, cultural and recreational inventory maps and draft priority maps for each type of resource. After the presentation participants were divided into small groups to discuss a series of questions:

- Are we missing any important resources or opportunities?
- Are these the correct conclusions regarding the priorities?
- If you had a million dollars, what are the first six projects or properties you would spend it on?

Each group then presented its conclusions about the maps and recommended priorities and focus areas for conservation. Reviewed and supplemented by the Open Space Committee and the consultant in a series of public meetings, the results were shaped into an action plan which can be found at the end of this report.

As shown in a series of maps that appear in the next section, the project brought together a wealth of information about Upton's diverse landscape. Organized into the three themes of natural, cultural and recreational resources, each map supplemented available data with the knowledge of local volunteers:

Natural resources were mapped primarily using the most current data available from the Massachusetts Geographic Information System (MassGIS). One of the most important natural resources is **water supply**, which was mapped using data for wells and wellhead protection areas, surface water supply protection areas and aquifers. **Surface water systems** – including rivers, streams, ponds and wetlands – protect water supply and provide the framework for supporting local ecosystems. The Massachusetts DEP Title 5 buffer around these surface waters was shown to indicate the area that is most critical to protect both wildlife habitat and water quality. Overlaid with these water resources were important wildlife habitats identified by the Massachusetts Natural Heritage & Endangered Species Program (NHESP). These include documented occurrences of rare species as well as surrounding areas that are critical to their ongoing survival. For example, the presence of large tracts of undeveloped forest – especially when connected to river and stream corridors – is very important to maintaining viable populations of wild plants and animals. Lacking an existing data layer for these areas, the consultant team used the 2003 aerial photographs from MassGIS to create a new digital map of **large forested areas**.

While natural resources evolved and continue to grow without human influence, **cultural resources** generally include anything that people have made, or that people care about. These include historic sites, scenic areas, working agricultural landscapes, mill villages, and other historic neighborhoods. This



Streams and their associated wetland systems perform critical ecological functions: slowing flood waters, purifying drinking water and supporting wildlife.



Many of Upton's historic structures have been documented by the Historic Commission.

was traditionally connected functionally to the structure or site, and which continues to be important to maintaining its visual character. Many old New England homesteads have been protected, for example, while the fields and woodlots that surround them were developed, destroying the historic landscape resource itself, but as importantly diminishing the value of the structure at its center. For our purposes, then, the task was to identify those historic sites and surrounding landscapes that still exist, drawing a boundary on the maps to mark the minimum area that should be protected or managed to protect that cultural landscape. These areas, which include agricultural landscapes, mill sites, and historic village centers, are identified as **heritage areas**.

The focus of the **recreational resource** analysis was opportunities for active recreation, especially trails and other recreational routes. Three types of trails were identified in the inventories, which located both existing trails and potential future trails. Existing **hiking trails** were identified by local residents and members of the conservation

includes both specific historic sites such as the homes of important local figures, as well as larger districts and road corridors that are important to the town's rural character and quality of life. Like natural resources, the study of cultural resources can engender a long list of potential factors; in order to fit the analysis into the time that was available we identified three key groups of cultural resources: historic sites, cultural corridors and scenic views.

The inventory of historic resources began with **historic and archaeological sites** that have been identified at a statewide level and mapped as part of MassGIS. Because this is limited to those that have been listed, or are candidates to be listed on the National Register of Historic Places, many locally important historic sites were not identified. The best source for additional information is a series of Historic and Architectural reports prepared by the Upton Historical Commission. Each of these reports contains an inventory of many local sites, which were digitized as a new geographic data set.

These sources, however, usually focus on a specific structure or group of buildings, without mapping the landscape context. By this we mean that area which



Upton's history is also found in the fast-disappearing landscape of small farms and country roads beyond the town center.

commission. Potential future trails were identified based on aerial photographs and USGS maps, with a combination of local knowledge of informal trails and expert opinion about what might be possible using a combination of public roads, utility corridors, overgrown woods roads, etc.

Likewise, **riding trails** were identified with the help of local volunteers, who expanded on the limited system of public trails with their knowledge of the best routes for horses on existing roads and private properties. Of all the possible routes, the emphasis was placed on those which offered a combination of natural and cultural landscape experience, scenic value, and logical destination points. Lastly, potential **multi-use trails** were mapped. These include the potential Grafton and Upton Rail Trail, the Blackstone Bike Trail in Neighboring Grafton and Northbridge, and potential connectors between the two.

As the inventory maps were completed, the consultant and the Open Space Committee evaluated the results and worked to establish **conservation priorities** for each theme. These tend to reflect a concentration of important resource values in a particular place or along a corridor. For example, stream networks, together with associated wetlands and adjacent forests, tend to be the most important areas for protection of water quality, drinking water wells, and wildlife habitat. With priorities mapped out for each theme, the next step was to overlay the three priority maps to identify areas of overlap. This **composite priorities map** helps to highlight the most diverse places in town, while also showing areas where many kinds of resources could be protected through the conservation of a single area or corridor.

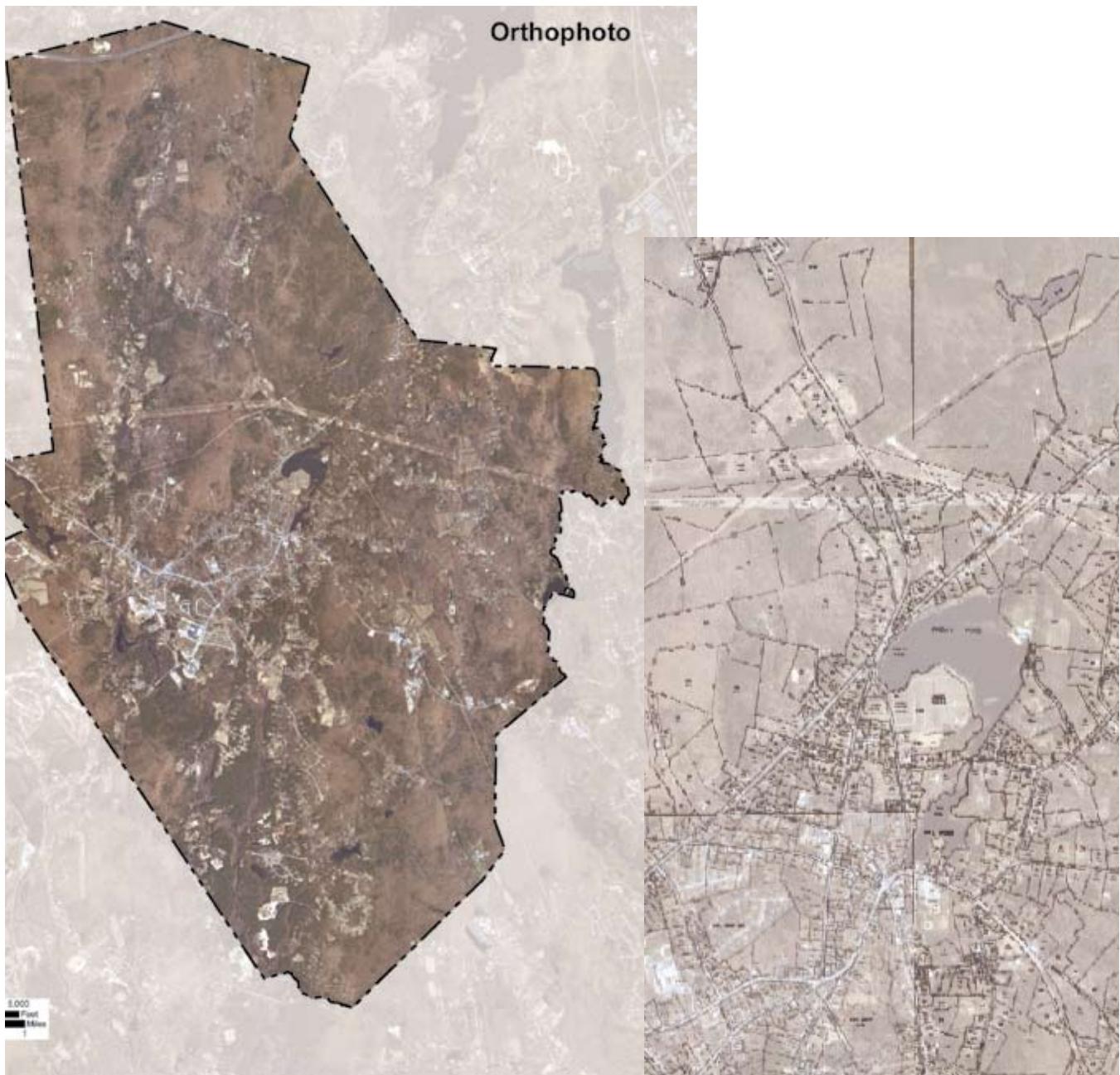
Identifying priority areas and corridors is important, but does not by itself allow the town to make effective decisions about conservation strategy. To get to the next level, the project continued with an analysis of where development would be most likely and which areas should be the focus of town action. The first step was to create a map of **development constraints**. This shows all the areas that are unlikely to be further developed because they are either already **protected**, fully **developed**, or **undevelopable** due to regulatory or physical constraints. By overlaying these constraints with the map of composite priorities, the project identified the areas where important decisions remain about conservation and/or development. The resulting map is the basis of an action plan which concludes this report.



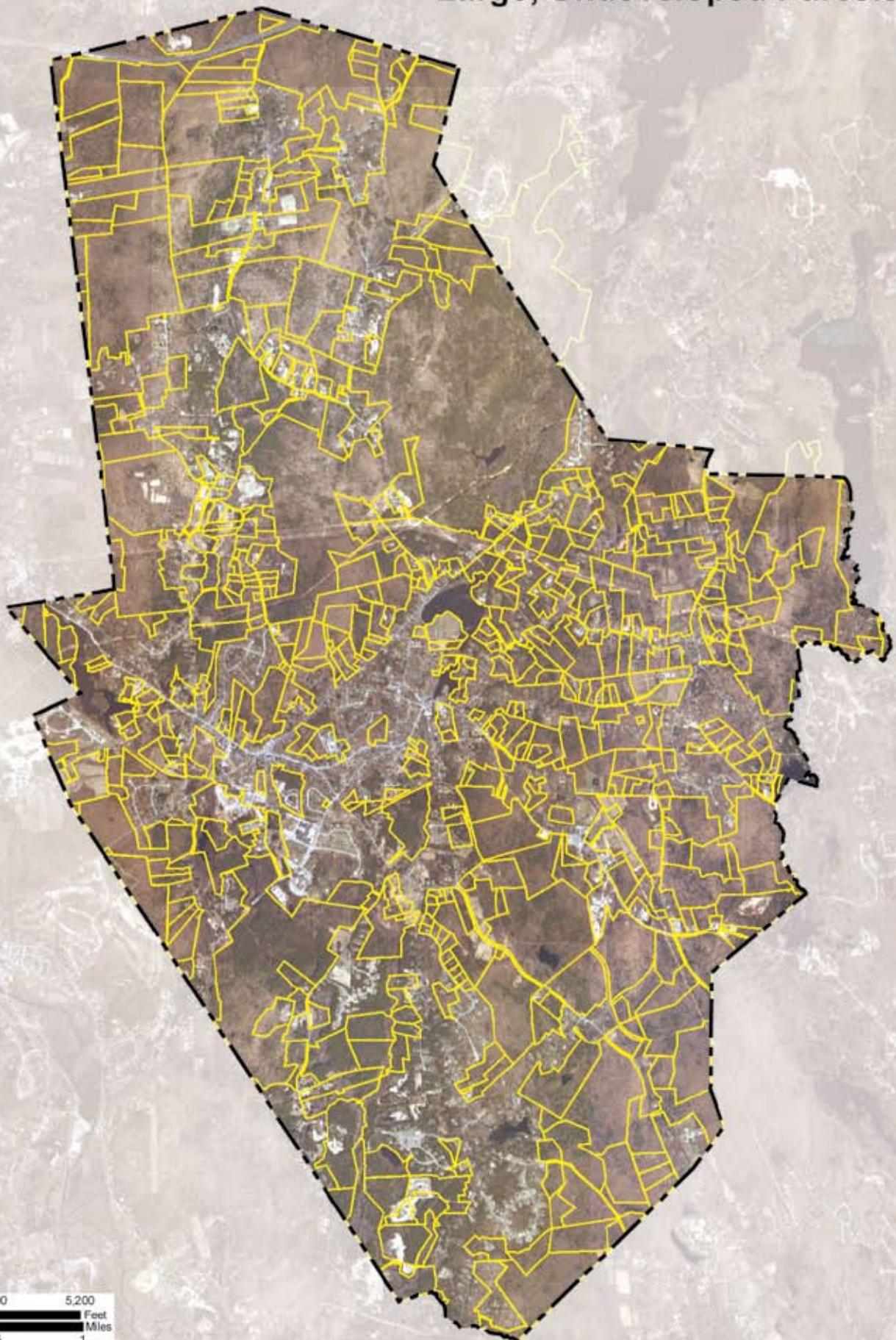
The bed of the former Grafton and Upton Railroad offers a potential route for a multi-use trail that could connect many of Upton's residential and civic uses..

Base Mapping

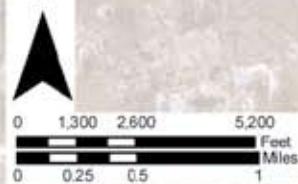
All of the maps for the Upton Open Space Project were prepared using ArcMap 9.1, and are available as ArcMap files. All the associated data files are also available as shapefiles. Much of the information used for the Open Space Project is available through the Massachusetts Geographic Information System (MassGIS). Information on roads, rivers, waterbodies, town boundaries and many other features was downloaded from the MassGIS web site. However, individual property boundaries within the Town, which have not been previously mapped in digital format, were also needed to create maps for this project. The consultants created a parcel layer by having the Upton Assessor's paper maps scanned. These scanned images were aligned with MassGIS 2005 orthophotos (below, left) and town boundary layer in ArcMap. This map (below, right) was used to identify open space not included in the State's GIS data layers. Using this digital overlay as a guide, boundaries of protected open space parcels, as well as most of the larger undeveloped parcels in Upton, were digitized (opposite).



Large, Undeveloped Parcels



N



Open Space

For the purpose of this map, open space includes any land that has some measure of protection from development. This includes temporary protection through Chapter 61, a state program allowing tax abatements for landowners who agree to keep their land undeveloped for a period of time. The map also shows land which is owned by the town, but not necessarily protected, such as school properties, town facilities, and other land which the town could sell or develop for public use. The base for this map was compiled from MassGIS data layers for roads, rivers, water bodies, and town boundaries. The Utility and Railroad Corridors, and the United States Army Corps of Engineers Flowage Easement were mapped based on the scanned town parcel maps and information provided by the Army Corps.

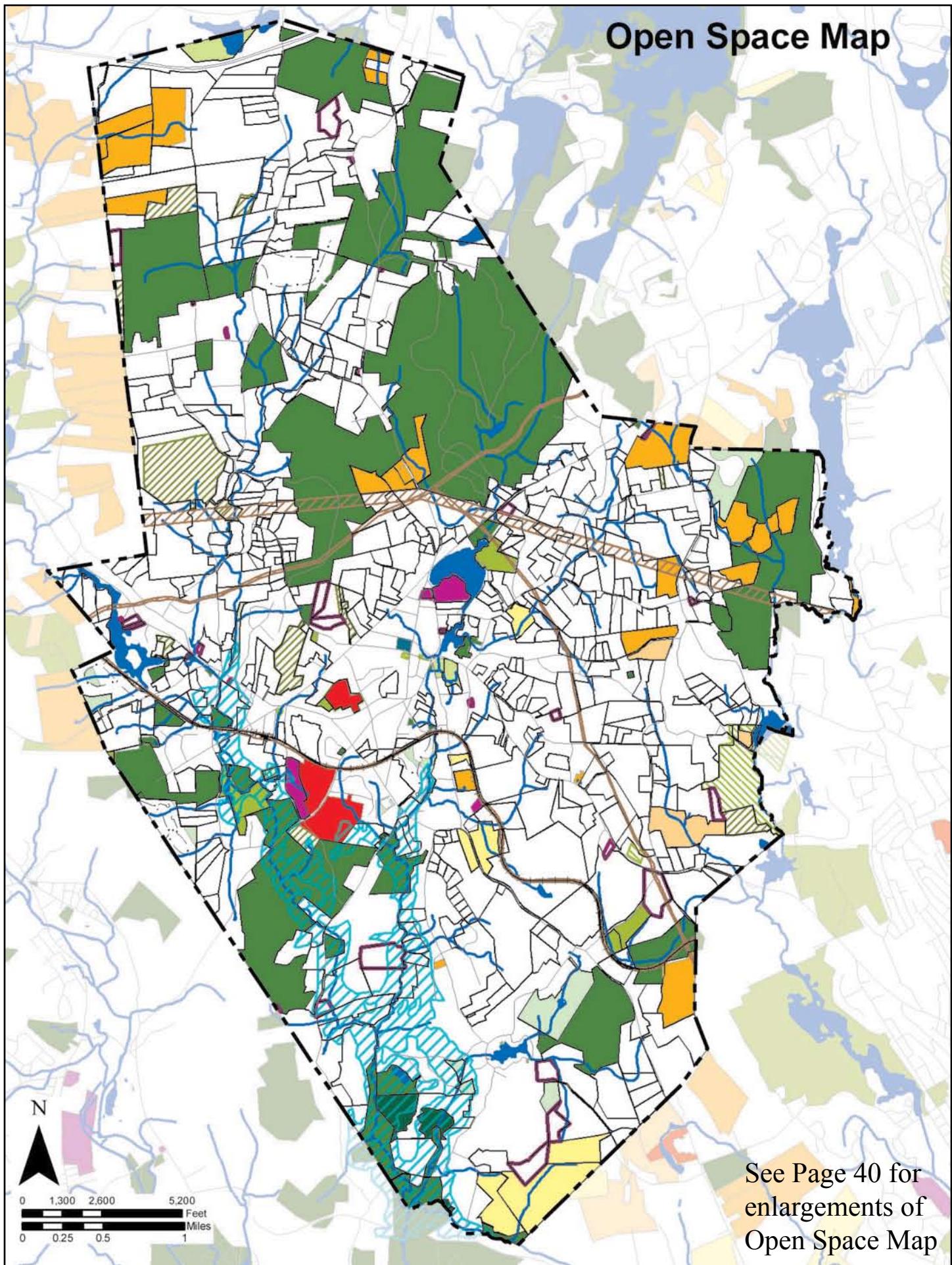
Open space protected in perpetuity is shown in green, and includes various state forest and wildlife management areas, Town of Upton conservation lands, local parks and recreation properties. Chapter 61 Land is shown with agriculture in dark orange, recreation land in light orange and forestry in yellow. Also shown are schools (red), cemeteries (purple) and public facilities (dark blue). These lands were identified based on MASSGIS data, and supplemented with research by the Open Space Committee and the Assessors Office.

Legend

- Upton Town Boundaries
- Large, Undeveloped Parcels
- Roads
- New Subdivisions
- Proposed Roads
- Water
- River/Stream
- Flowage Easement-USACE
- Utility Easements/Railroad

Open Space	School
■ Protection in Perpetuity - Federal Land	Cemetery
■ Protection in Perpetuity - Public Ownership	Public Facilities
■ Protection in Perpetuity - Private Ownership	Owner Unknown
■ Limited Protection - Public Ownership	Chapter 61 Land
■ Limited Protection - Private Ownership	61A-Agriculture
■ No Protection - Public Ownership	61B-Recreation
■ No Protection - Private Ownership	61-Forestry

Open Space Map



Inventory of Natural Resources

Natural resources of the greatest interest were identified initially using the data available from MassGIS. The relative value of these resources to local residents was assessed by participants in the Natural Resource workshop. Several categories of natural resources emerged as having the most importance to Upton residents. The first revolved around ecological systems and the plants and animals they support. The second category centers on water supply resources. These are perhaps most important to continued human use of this landscape.

Inventory of Ecological Resources and Biodiversity

Biodiversity refers to naturally-occurring, interdependent communities of plants and animals and the landscape that supports them. In mapping biodiversity, the project sought to identify both the areas containing important species and the network of forest, wetlands, waterbodies and streams that provides them food and shelter – in short, the ecosystems which must be preserved if these natural communities are to survive.

Critical biodiversity resources were identified by mapping lakes and ponds, rivers and streams, large forest blocks, and wetlands. Information concerning rare species habitats, including vernal pools, was provided by the Massachusetts Natural Heritage & Endangered Species Program (NHESP). Large forest blocks (green) were digitized from the MassGIS 2003 orthophoto set, based on areas of continuous canopy generally larger than five acres. Wetlands (blue dot screen) are as mapped by MassGIS. Several assessments of ecological value prepared by the state were also included in the overlays. These include the BioMap program, which mapped out “core habitat” and “supporting natural landscape” areas; as well as the designated Area of Critical Environmental Concern, the Upton portion of which includes the entire north end of the town, above the red line shown on the map.

Legend

 Upton Town Boundaries

— Roads

++ Railroad

* NHESP 2003 Massachusetts Certified Vernal Pools

* NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools

 NHESP BioMap Core Habitat

 Forested Areas

 NHESP Natural Communities, 2006 edition

 NHESP BioMap Supporting Natural Landscape

 NHESP 2003 Priority Habitats for State-Protected Rare Species

 Areas of Critical Environmental Concern

 Water

 River/Stream

 DEP Wetlands

Protected Lands

 in Perpetuity

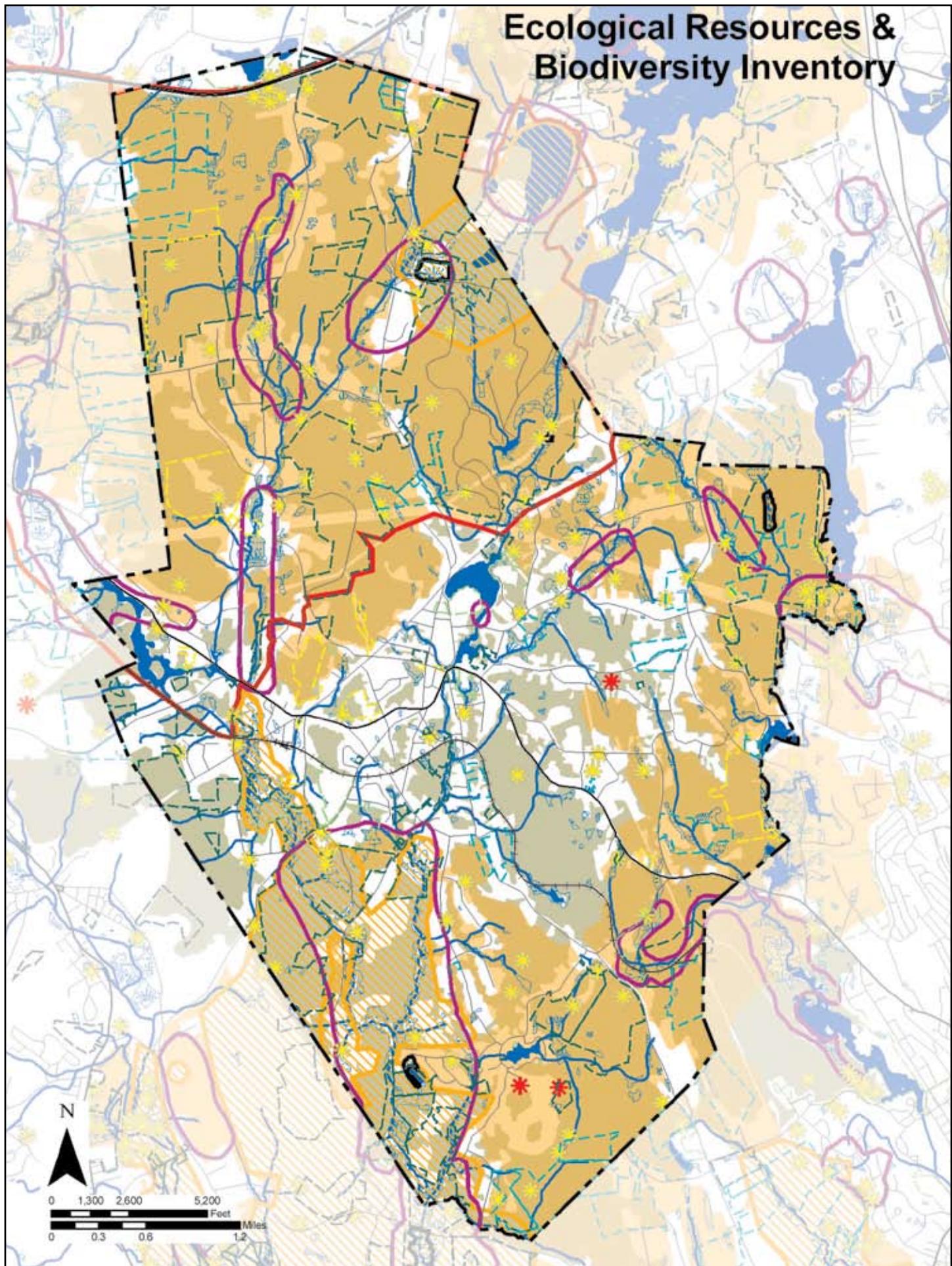
 Limited

 No protection

 Unknown

 Chapter 61 Lands

Ecological Resources & Biodiversity Inventory

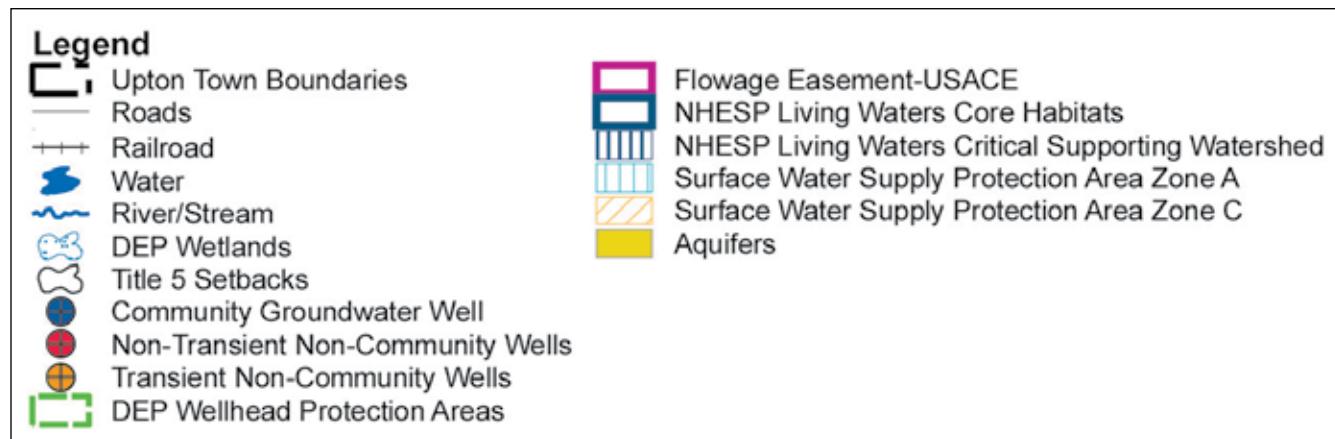


Water Resource Inventory

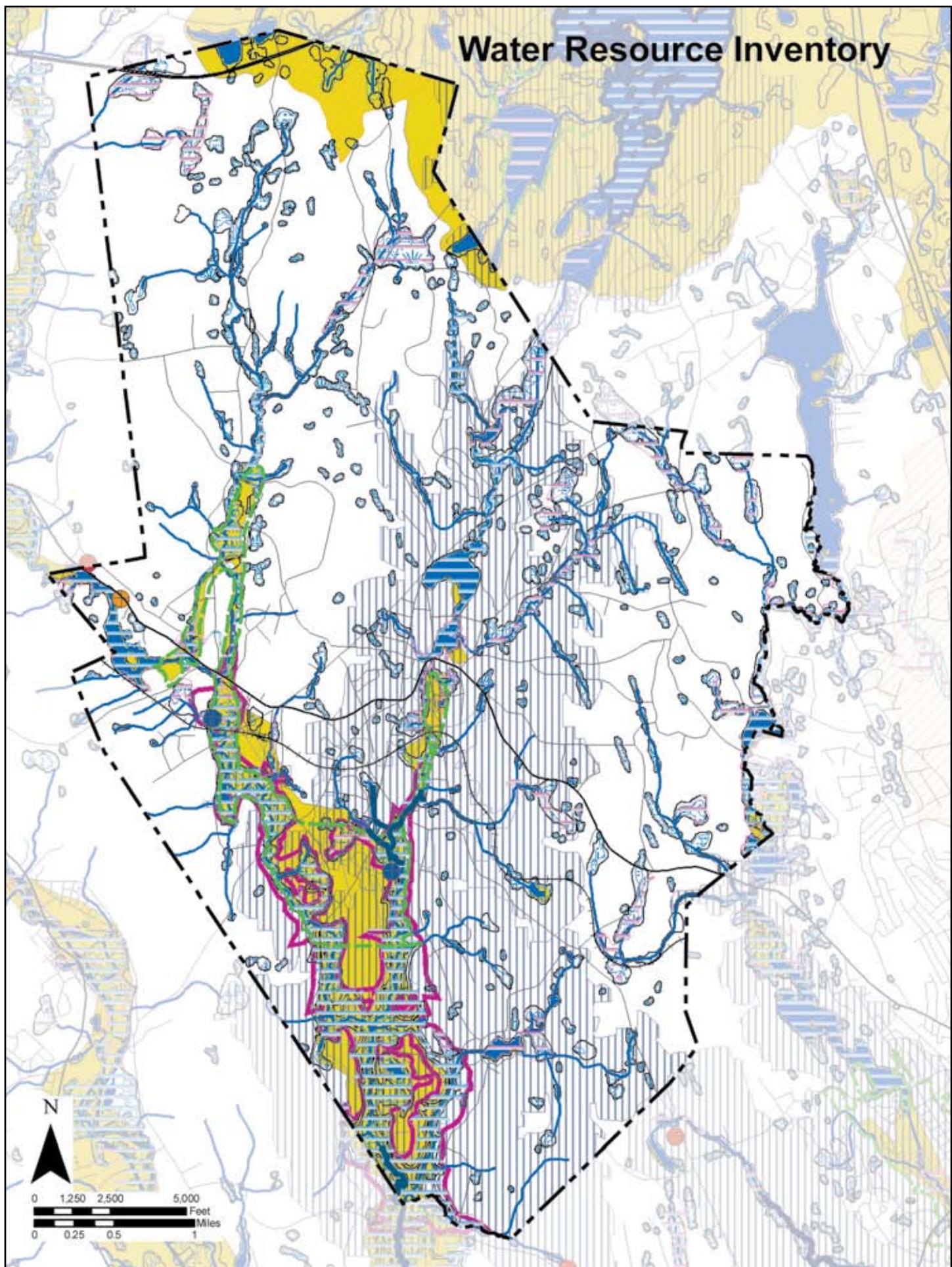
Water resources include both the surface water bodies and wetlands that support Upton's ecosystems, as well as the subsurface resources and wells from which the town gets its drinking water. State-designated surface water protection areas are found at the north end of Upton (blue and orange cross-hatchings), though it should be noted that there are no surface water supplies within the Town itself. Subsurface water supplies identified by the State appear as aquifers (yellow) from MassGIS.

Wells (red, orange and blue circles) and wellhead protection areas (green dash) were also taken from MassGIS. The State categorizes these as "community groundwater wells," which serve at least 25 residents or 15 service connections year-round; "non-transient non-community wells," which serve at least 25 persons for a minimum of four days a week, 180 days of the year; and "transient non-community wells" which serve water to at least 25 different persons at least 60 days out of the year. In all cases, the well head protection area represents that area around a public well considered critical for the protection of the source water supply.

The complexity of the biodiversity and water supply maps demonstrates the richness of natural resources throughout Upon, as well as the difficulty of making decisions based on this information at this scale. The following map demonstrates an approach to simplifying this information to better understand the pattern of natural resources across the watershed.



Water Resource Inventory



Natural Resource Priorities

While virtually any location in Upton has some existing or potential natural resource value, in order to make decisions for conservation and management it is necessary to group these resources according to their relative value. While each town, state agency, and private conservation group has its own standards for setting priorities, this map shows one approach to defining relative values based on features shown on the previous map. It assumes that protection of both biodiversity and water supply is a shared goal of most Upton residents. It therefore places a higher value on areas with many different kinds of natural resources than on those that contain fewer important features.

Thus, the dark green areas on the map identify primary natural resource zones. For the most part, these are relatively narrow corridors that follow the river and stream systems, and link up large areas of forested wetlands and unfragmented upland. These forested riparian corridors and adjacent areas are critical, not only as habitat for many species of animals, but also for protection of water supply. They filter and absorb stormwater runoff, preventing flooding and recharging groundwater aquifers. During dry periods, groundwater flows back into the rivers and streams, maintaining a steady flow of water.

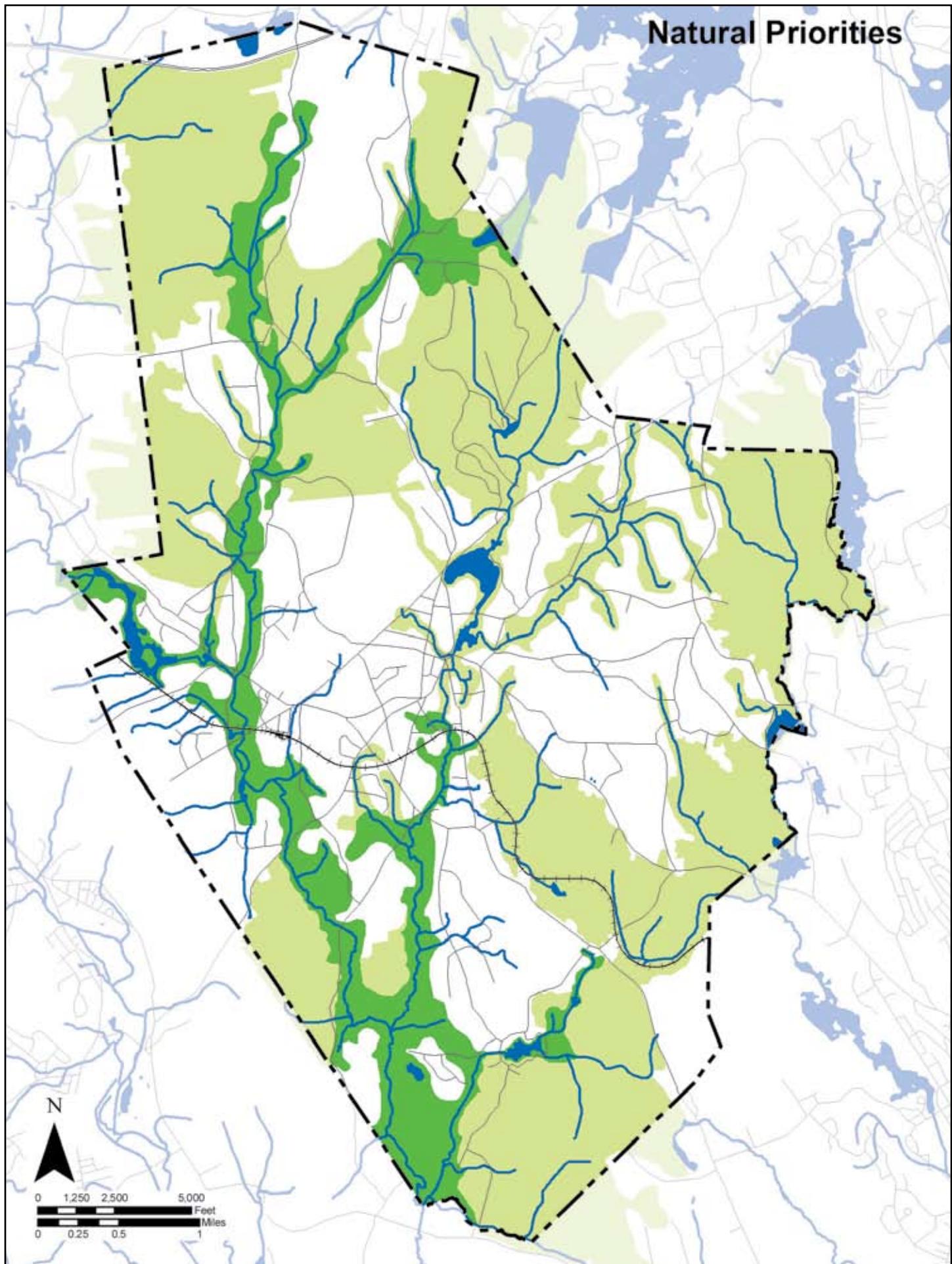
Disturbance of the primary natural resource zones is of particular concern because these areas represent the connective tissue of the Town's ecosystem. If a parcel of land within these areas is lost to development, filled for a parking lot or clear cut, it affects not only that parcel, but to some extent everything up and down stream. If plants and animals can no longer travel across the site, or if they lose an area they need for feeding or nesting, the entire corridor may lose an important species.

Areas with a lower concentration of natural resources have been placed in the category of secondary natural priorities (lighter green). These areas generally fall outside of the principal riparian corridors, but include some minor streams and wetlands. They are typically the larger remaining forested areas, but may be somewhat fragmented by development of roads and house lots, logging, or other active uses. Typically, further loss of these areas to development would have a gradual cumulative effect on the health of the regional ecosystem, but would not immediately sever an important connection. Likewise, disturbance of the secondary natural resource zones will have a gradual impact on the quantity and quality of the region's water supplies, but will not have an immediate effect.

Legend

-  Upton Town Boundaries
-  Roads
-  Water
-  River/Stream
-  Primary Natural Priorities
-  Secondary Natural Priorities

Natural Priorities



Inventory of Cultural Resources

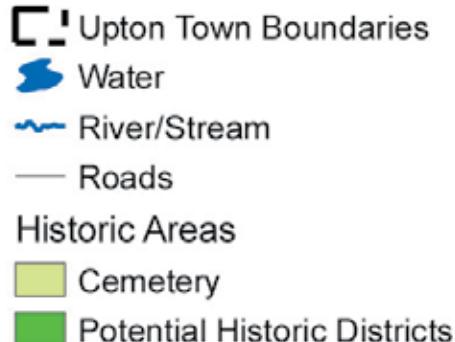
While the natural resource maps identify features that were created for the most part without human influence, cultural resources include everything that people have made through history, as well as the places that people care about most.

The historic sites data was created using several different sources. MassGIS data includes registered historic sites, but many of the locally-important historic features have never been mapped digitally. Excellent local inventories of historic and architectural resources were prepared by the Upton Historical Commission in the 1980's and 90's, but only written inventory sheets were available. Participants in the community reviewed these paper inventories and helped the consultants digitally map over 100 specific sites. Historic town maps from 1735, 1798 and 1851 were also used to chart historic sites; some of which no longer exist, but these points are able to help us identify historic development patterns.

Also shown on this map are scenic areas (green arrows). Scenic resources are important in their own right as a shared resource; they also include many of the specific roadside views and vista points that allow the public to enjoy features that are important for other reasons. Without this visual access, towns can lose the shared sense of identity that is so important in building a sense of community among residents.

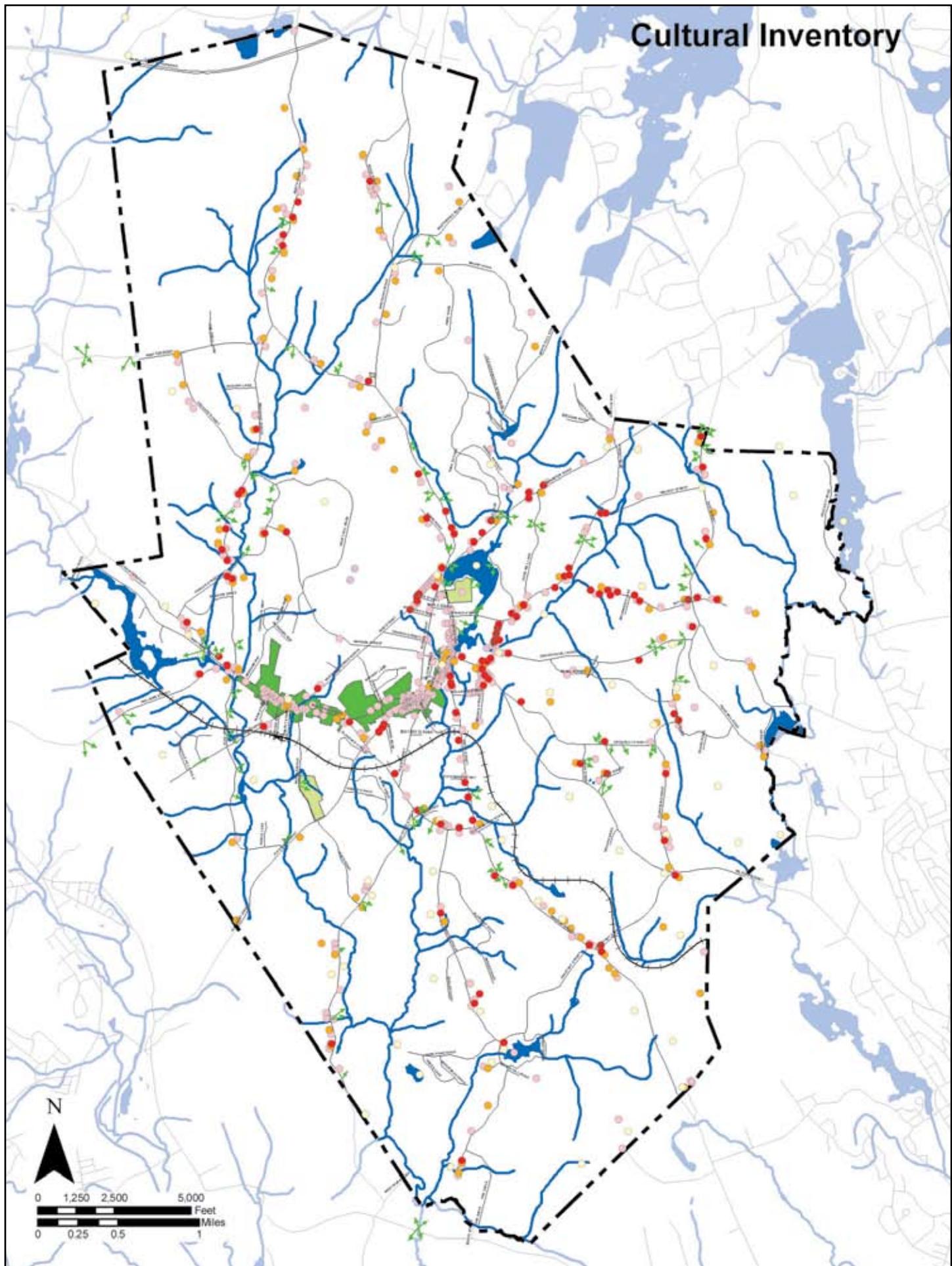
Across Upton, few of these cultural resource areas are permanently protected. Many of the features that define the character of this community could be lost to inappropriate development or simple neglect.

Legend



- Views
 - Existing Historic Sites (red dot)
 - Historic Sites from 1851 Map (pink dot)
 - Historic Sites from 1798 Map (orange dot)
 - Historic Sites from 1735 Map (yellow dot)
 - Other Historic Sites (Dates Unknown) (purple dot)

Cultural Inventory



Cultural Resource Priorities

Based on the initial inventory of cultural resources, areas with a high concentration of valuable elements were grouped into “heritage areas.” Each of these areas represents a special combination of cultural resources: traditional agricultural landscapes and scenic corridors through rural areas; historic agricultural hamlets; and historic town centers and mill villages. Each of them is more than the sum of its parts -- they typically include a number of recognized historic structures, along with that part of the surrounding landscape which is important to understanding the story of that place. It is not enough to save a historic homestead, for example, if the farmland and woodlots that originally supported the family are developed. Likewise, if one or two buildings along a historic city street are preserved and the rest are torn down for parking lots, their value is diminished considerably.

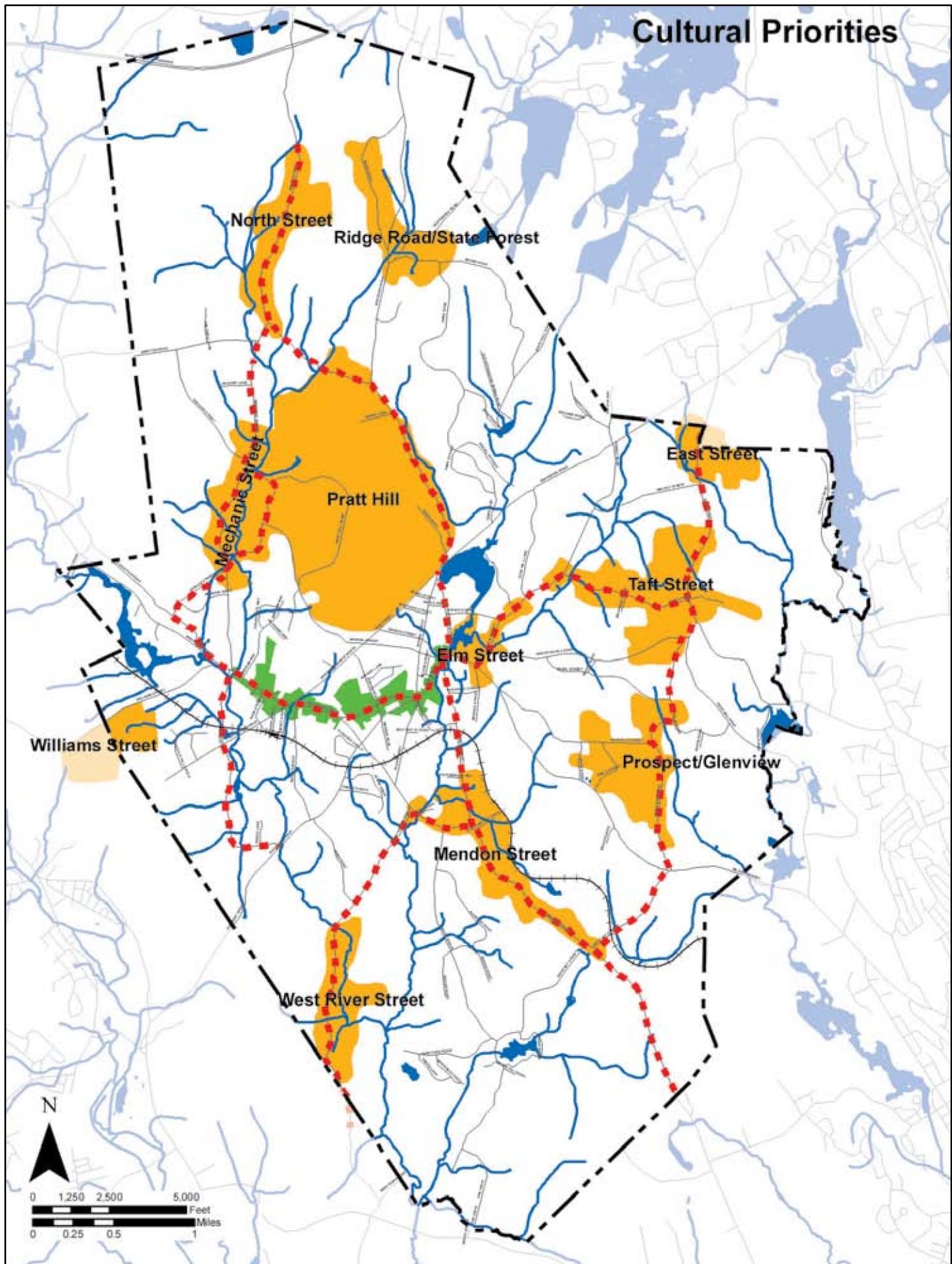
As shown on this map of Cultural Resource Priorities, these resources tend to follow other landscape elements, which might be natural features such as river valleys or hilltops, or cultural features like historic roads. These corridors are indicated with red dashed lines. The pattern that results illustrates the historic transportation network that linked Upton’s various neighborhoods together. Looking at cultural resources this way is based on the idea of a cultural ecosystem, analogous to a natural ecosystem, which must be preserved as an intact whole if each part is to survive.

What this map suggests is that the most important cultural resources, while distributed throughout the town, take up only a small percentage of the total land area. By protecting a relatively limited number of key areas and historic corridors, we can preserve the cultural landscapes that give Upton its unique visual character and quality of life. With a focus on protecting the context of these sites as well as individual structures, we can also preserve the essential story of this landscape and its residents for future generations.

Legend

-  Upton Town Boundaries
-  Roads
-  Water
-  River/Stream
-  Cultural Corridor
-  Heritage Areas
-  Potential Historic Districts

Cultural Priorities



Inventory of Recreational Resources

The recreational resources inventory was compiled by the Open Space Committee and local residents, supplemented with data from the John H. Chafee Blackstone River Valley National Heritage Corridor Commission (JHCBRVNHCC) for regional trail systems. For the purpose of this study, the inventory focused on trail corridors, and grouped these linear connections into three main groups: hiking trails, horse riding trails and multi-use trails. Some trails were digitized based on sketches or paper maps supplied by participants. Where possible, locations were verified using aerial photographs.

Existing hiking trails are shown with a dashed green line, while riding trails are dashed orange. These include trails within some of the state forests and municipal lands, as well as some trails on private lands that are commonly used by the public. They also include trails established in the town of Grafton, some of which already connect across the border to Upton. **Note: existing and potential trails are shown on this map for planning purposes only. Other than those on public lands, it should be assumed that these trails are not open to the public.**

Multi-use trails were identified with the help of a prior study done with the JHCBRVNHCC and supplemented by the knowledge of volunteers. The study divided these routes into existing and proposed multi-use trails and includes the route of the planned Blackstone Bike Trail (solid purple line) running through Northbridge and potential connections from Upton. An important trail opportunity is the potential rail trail along the Grafton and Upton Railroad, which is already used informally by hikers and mountain bikers.

This map makes it clear that a regional recreational network is a very real possibility. In planning for such a system, it is important to know not only where the trails are but where people would likely want to go using those trails. As trails and bike routes are planned to bring people out to enjoy the natural and cultural resources identified in the study, it will be important to also identify locations for parking, restrooms and other visitor services.

Legend

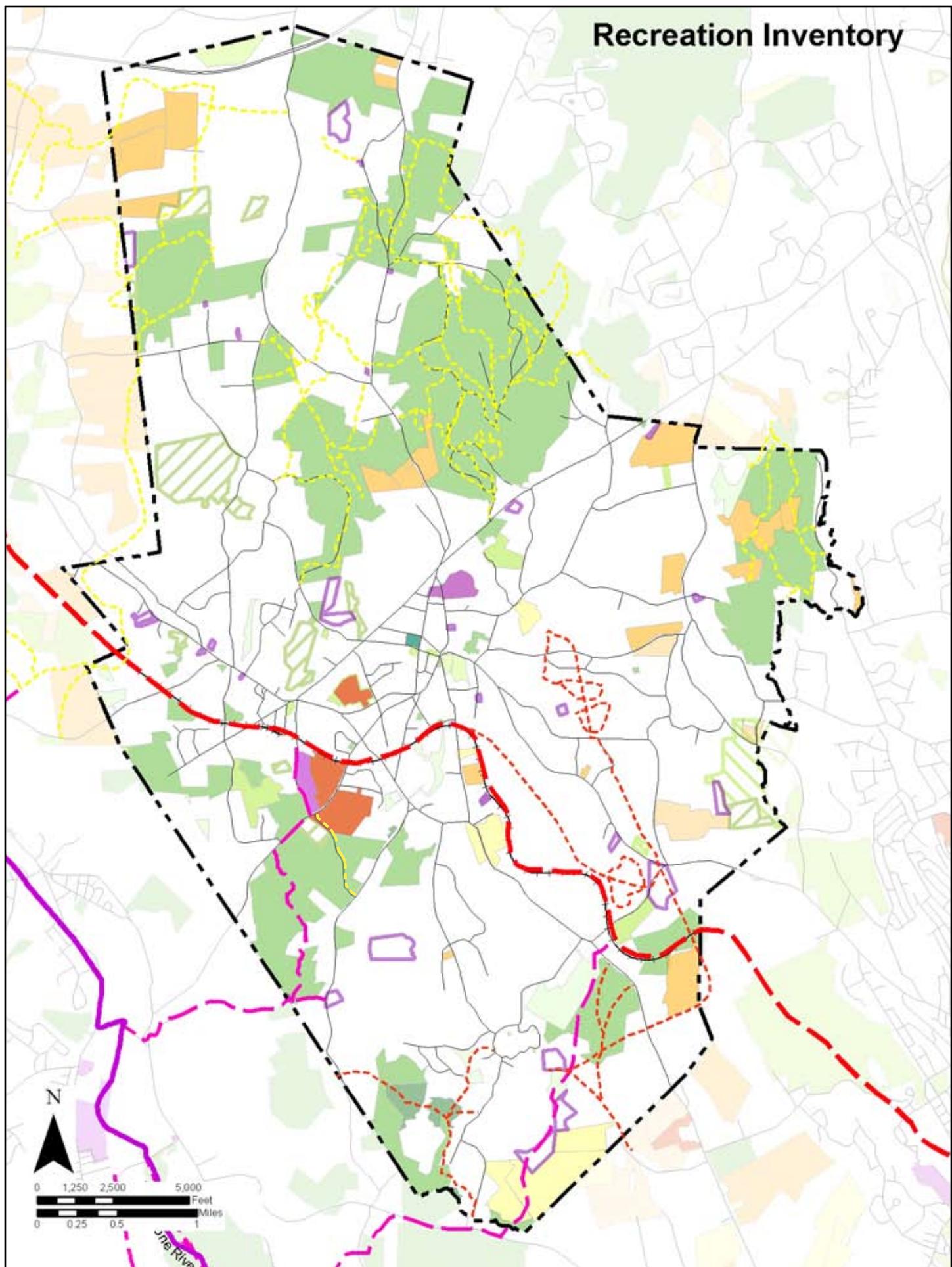
- Upton Town Boundaries**
 - Roads
 - Existing Hiking Trails
 - Approximate Riding Trails
 - Proposed Blackstone Bikeway
 - Proposed Multi-Use Trails
 - Grafton and Upton Rail Trail

Open Space

- Protection in Perpetuity - Federal Land
- Protection in Perpetuity - Public Ownership
- Protection in Perpetuity - Private Ownership
- Limited Protection - Public Ownership
- Limited Protection - Private Ownership
- No Protection - Public Ownership
- No Protection - Private Ownership

- 61A-Agriculture
- 61B-Recreation
- 61-Forestry
- School
- Cemetery
- Public Facilities
- Owner Unknown

Recreation Inventory



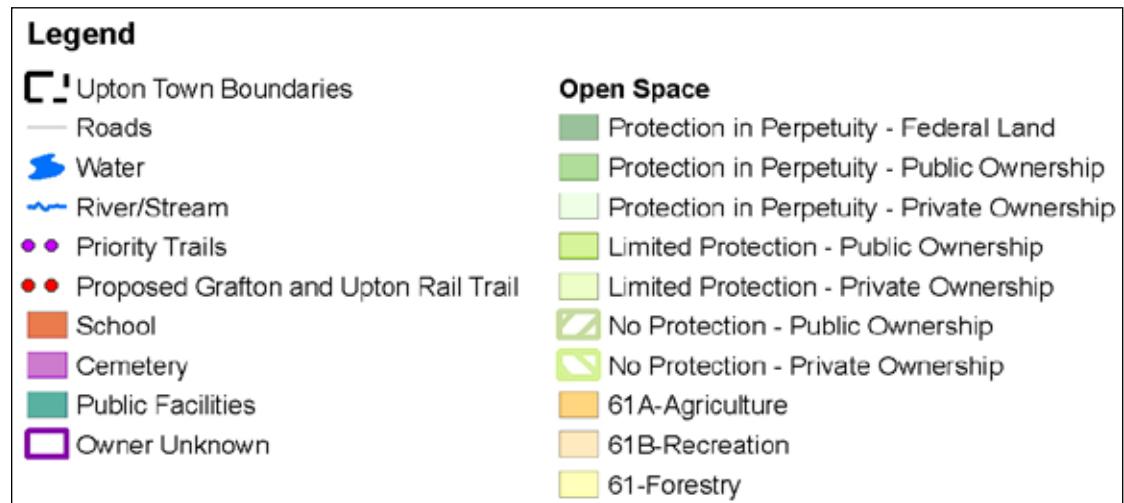
Recreational Resource Priorities

Recreational trail priorities were selected in consultation with attendees at the workshops. From the compilation of all possibilities shown on the previous page, townwide routes were selected that connect and extend existing trail systems, and provide the best access to natural and cultural resource areas and key destination points. Priority trails, shown in a purple dotted line, were selected to connect each neighborhood in Upton with a townwide trail network. These trails would be an important part of a potential pedestrian system that could, for example, connect The Upton State Forest to the center of Town, and continue down the West River valley to the Blackstone.

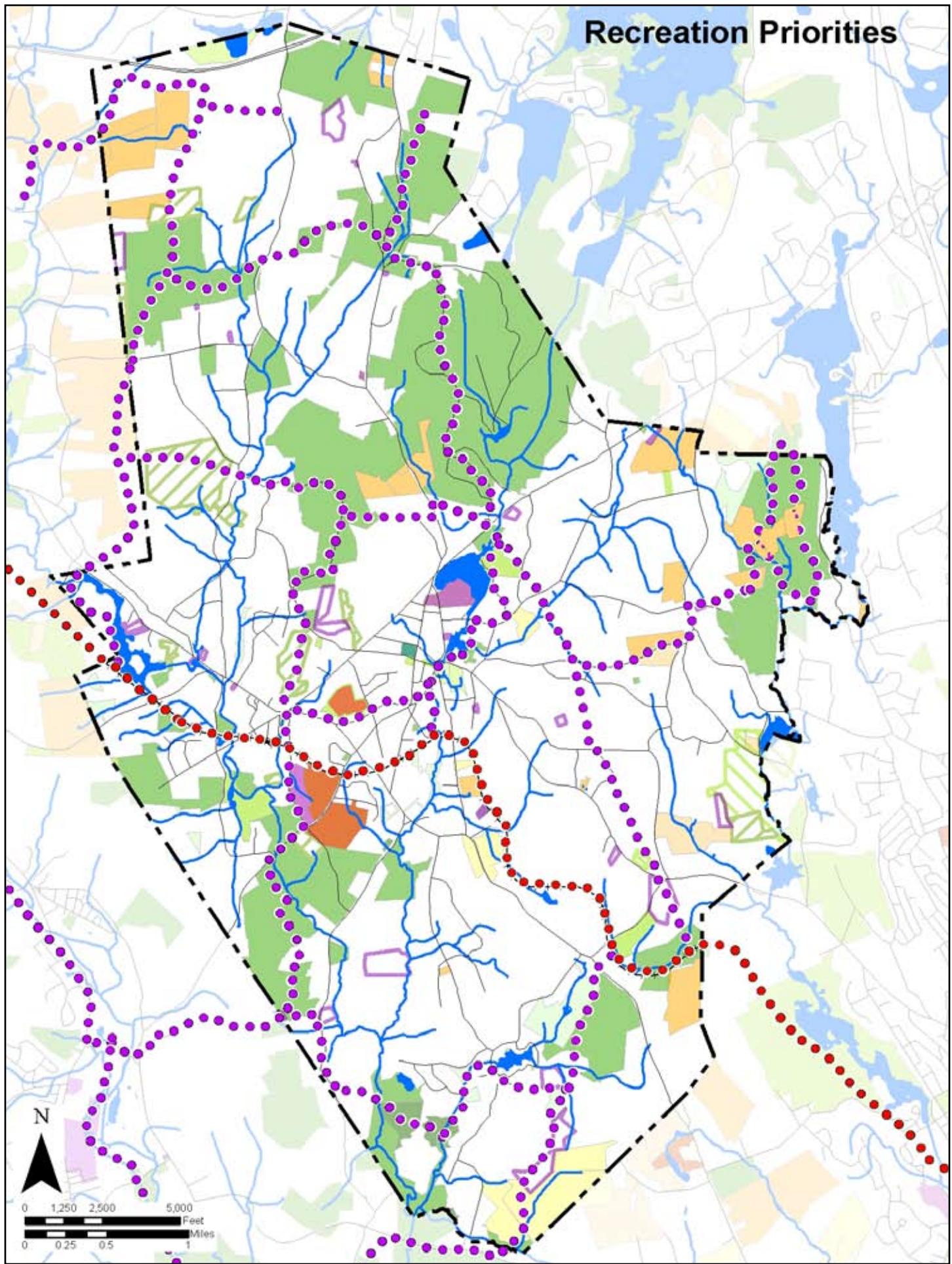
While most of the existing trails are on public parks or conservation land, filling the gaps in the proposed network would require additional easements across private lands, acquisition of important parcels, and coordination of access and parking lot development. In addition, some elements of the trail system could be developed in conjunction with preservation efforts for natural or cultural resources.

A major opportunity for the town is to acquire the right-of-way of the Grafton and Upton Railroad for a rail trail. This could easily be converted to a bike path that would connect Upton and West Upton with the Hassanamesit Praying Indian Village and Grafton Center to the West, and the Draper Mill Complex in Hopedale to the East. The Rail Trail could connect scenic natural areas with several centers of community life -- the Senior center and senior housing, Blackstone Valley Tech, First Cemetery, the proposed Upton Village, and the planned Trask Athletic Complex on Chestnut Street.

Another exciting connection is with the growing Blackstone Bikeway, which has been completed for some distance through Worcester and Millbury, and will eventually extend south past Upton in Northbridge. In the short term, on-road routes can be laid out to connect Upton center to the Blackstone. This is the strategy taken by a Rhode Island-based group called the East Coast Greenway, which is coordinating plans for a bike route from Florida to Maine. (www.greenway.org) By combining finished bike paths with on-road routes they will quickly establish what will gradually develop into a nearly continuous off-road bike path. In the meantime, signage, user guides and management of on-road routes will allow the trail to be used and to develop a constituency.



Recreation Priorities



Composite Resource Priorities

While Upton's various boards and committees will continue to make decisions based on their particular mission, one of the goals of this project is to look for areas where Natural, Cultural, and Recreational resources converge. The map at right shows these concentrations of multiple resource types. In dark green are the Primary Natural Priorities, with Secondary Priorities in light green. Cultural Priorities are overlaid in orange, the Potential Historic District in yellow and the Cultural Corridors in red. Finally, priority trails are depicted in purple.

This map highlights areas and corridors with an unusual concentration of different open space resources: because of the value of these areas to the visual character and quality of life in the town, they should be studied closely as part of what might be called a "heritage landscape preservation plan." Some of these areas, such as the Upton State Forest, have already been recognized and preserved. Many others have not.

To some extent this is understandable. Traditional conservation efforts tend to focus on large tracts of undeveloped land, and are commonly funded by state agencies that are most interested in natural resources. These heritage landscapes, however, are by definition complex combinations of natural and cultural features: in fact it is the braiding together of the two that often makes them such interesting and beautiful places to visit.

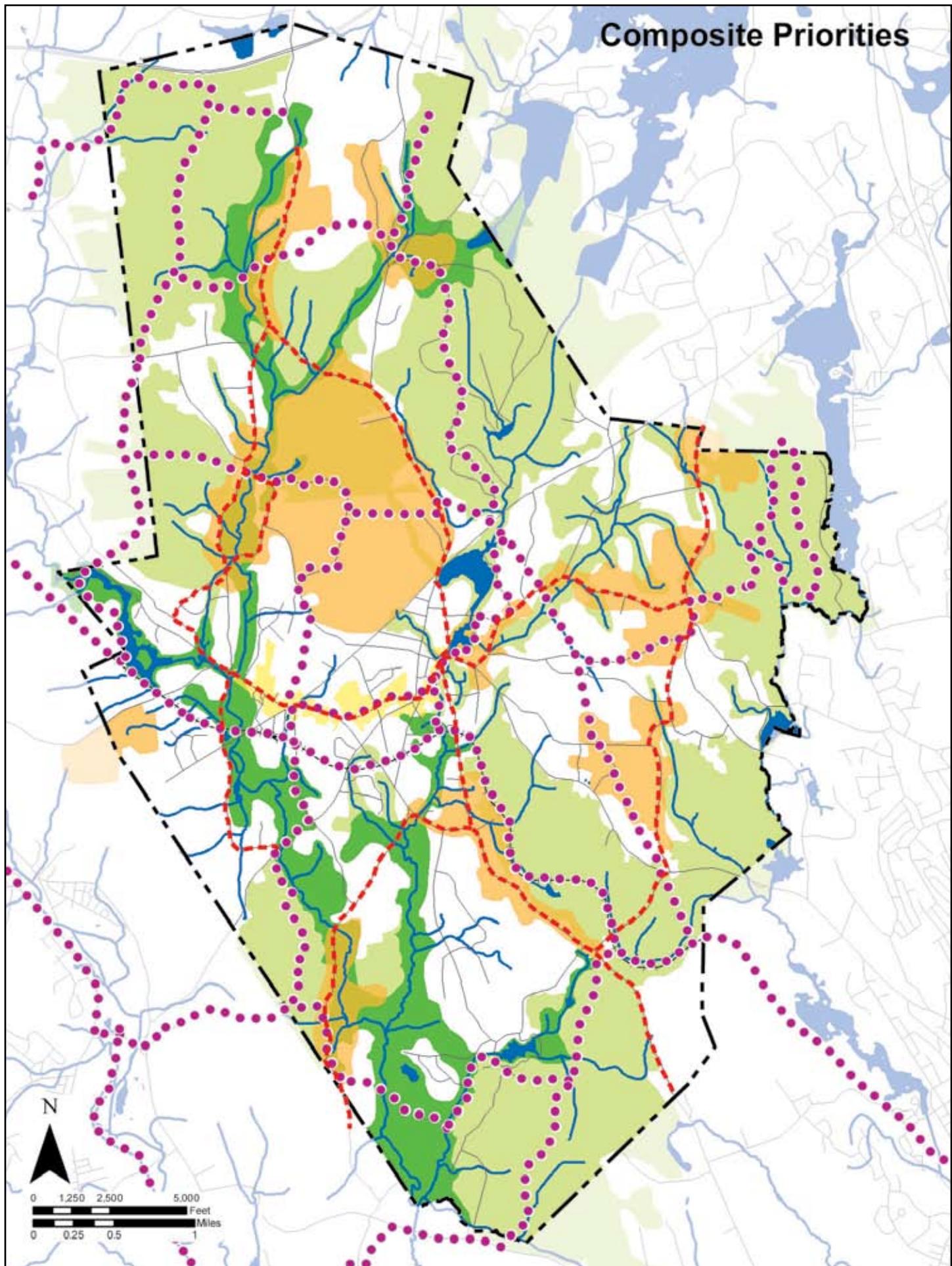
This includes many areas that may have been overlooked in previous conservation efforts: the scenic area around North Street, the agricultural complex along Taft Street and Christian Hill Road, and the Mendon Street corridor. These "hidden gems" include urban landscapes as well, including the historic district from Elm Street to West Upton and the West River District. In each of these places, there may not be any one feature of particular importance -- instead it is the combination of resources, together with recreational opportunities, that provides the value that makes these special places worth preserving.

As shown on the following page, using this analysis, the areas with the highest value for multiple resources and recreational opportunities can be readily identified. Some may be so special or sensitive to development that they need to be protected outright. Most however, can be largely preserved with a combination of acquisition, private management, and careful development that respects the existing character of each site and its context. As described in the next section, there are many tools that towns can use to implement this approach. The process of Open Space mapping and analysis shown here, however, is a critical step in identifying which tools are most appropriate to any given area or parcel of land.

Legend

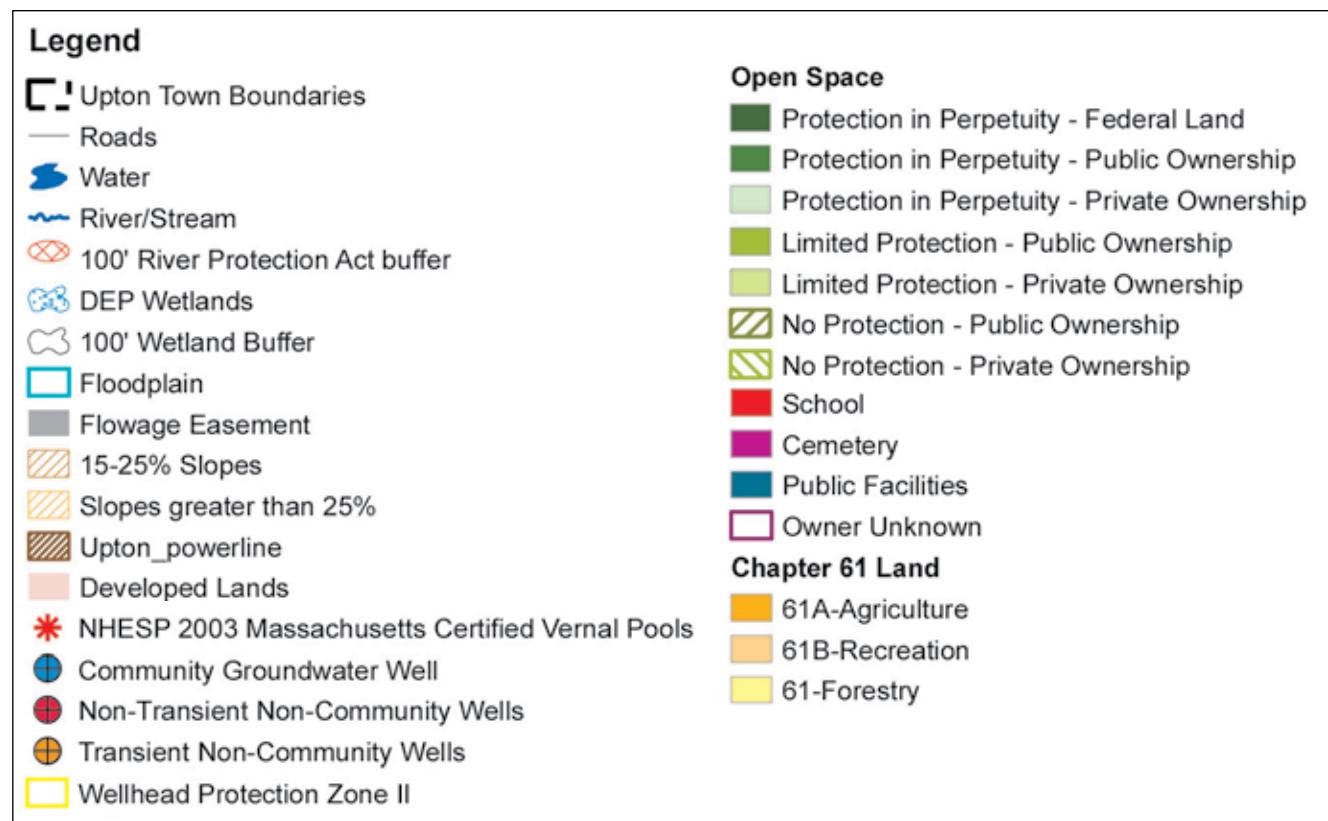
 Upton Town Boundaries	 Cultural Corridor
 Roads	 Heritage Areas
 Water	 Potential Historic Districts
 River/Stream	 Primary Natural Priorities
 Priority Trails	 Secondary Natural Priorities

Composite Priorities

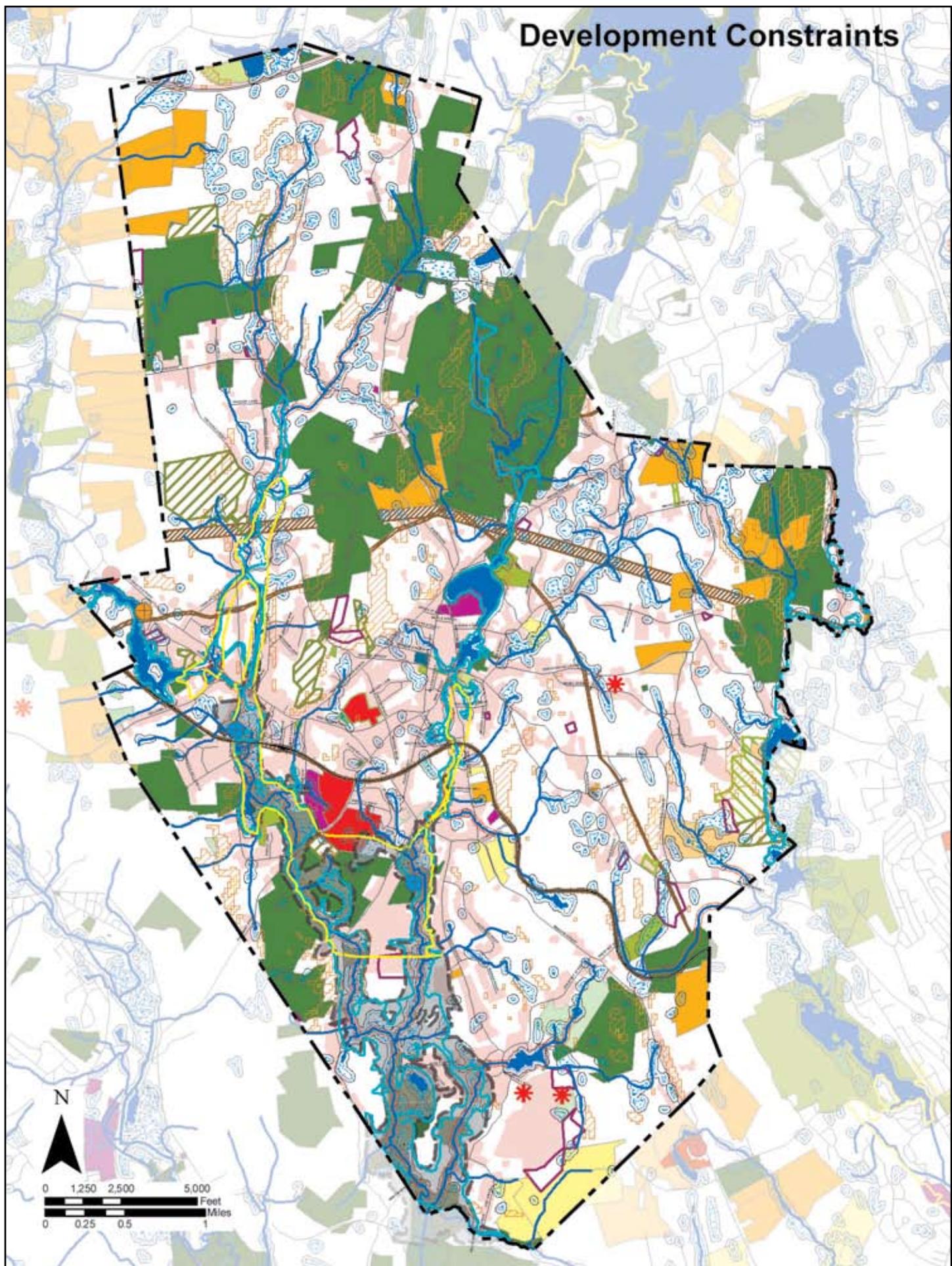


Development Constraints

The resource analysis for natural, cultural and recreational priorities was prepared without considering which parcels have already been protected. The purpose of this approach is to highlight the ecosystems and cultural landscapes that otherwise might be difficult to understand as continuous landscape systems. In order to start making decisions about potential action strategies, the next step is to identify parcels and areas which will not be subject to further development. This includes all the land which is already protected to some extent, as identified on the map of open space. The constraints map also shows, in pink, parcels which are already developed. Constraints of land use include utility and highway corridors, schools and other public facilities. Large areas are constrained by the restrictions of the wetlands protection act, the river protection act, floodplain regulations and the Army Corps flowage easements along the West River. Finally, there are physical constraints such as slopes above 25% and areas of permanent open water.



Development Constraints



Action Plan

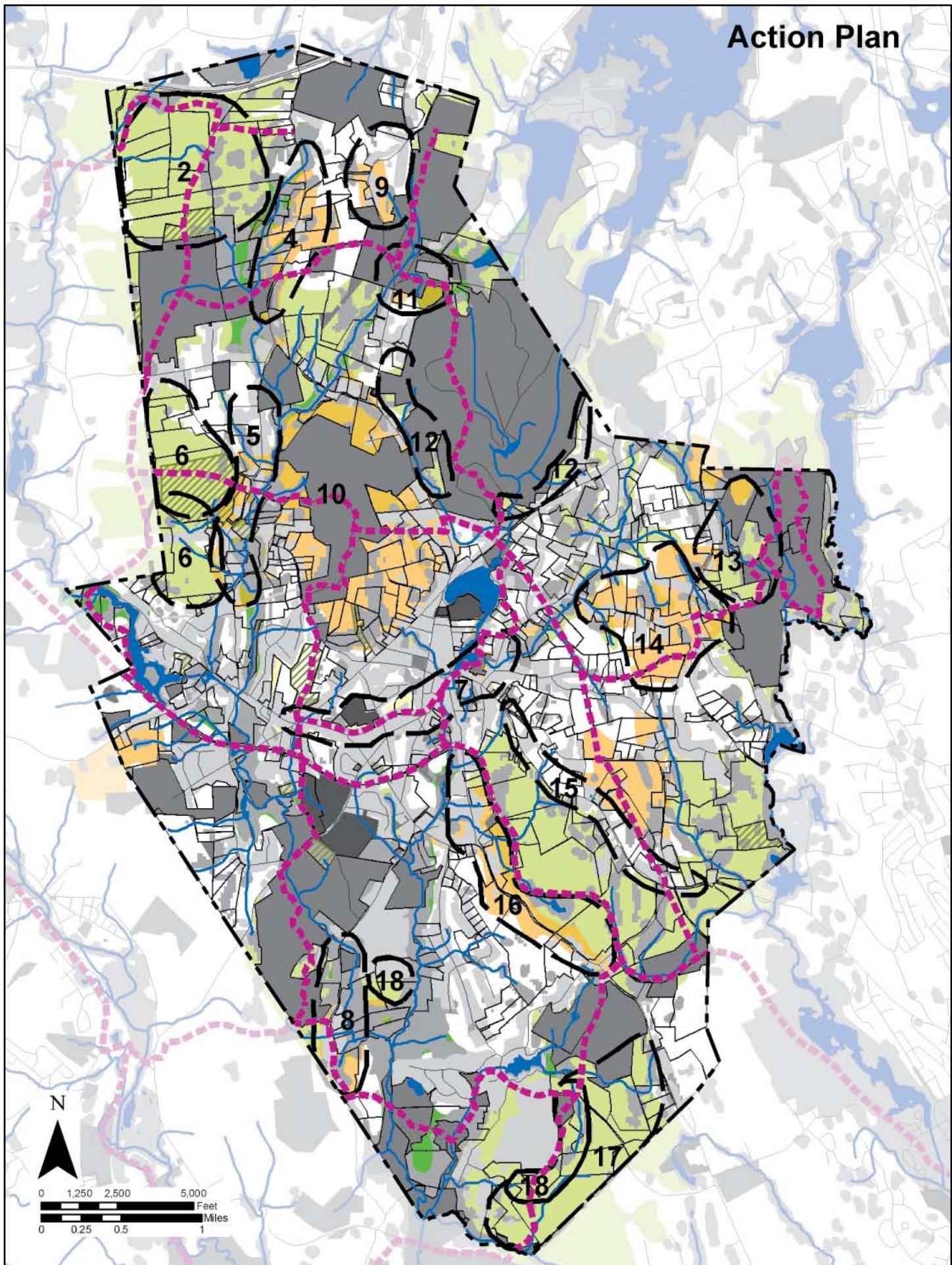
As a final step in the process, all the constraints were colored in shades of gray and overlaid with the composite resource priorities map. What remains, shining through the gray in shades of green and orange, are the areas with the highest resource value which are available for development and not constrained by site conditions. Areas in white represent developable areas that do not contain priority resources. Based on this map, the committee and the consultant identified focus areas, outlined with a black dashed line. These focus areas represent the most important resource areas where there is a likelihood of future development. Based on this map, the committee established 18 action steps, which are described in detail in the final section of this report:

1. Protect Area of Critical Environmental Concern. Keep impervious surfaces below 15%.
2. Expand Warren Brook Conservation Area Northward.
3. Protect Stone Walls and Special Trees (Townwide).
4. Protect scenic North Street.
5. Protect Warren Brook Corridor along Mechanic Street.
6. Designate Stefens Property as conservation area and protect adjacent properties.
7. Protect historic district from Elm Street to West Upton.
8. Protect West River District (cave, scenic road & historic sites)
9. Protect Ridge Road and State Forest Area.
10. Develop a Town wide loop trail.
11. Preserve CCC Buildings in Upton State Forest.
12. Protect Land Abutting State forest along Westboro and Hopkinton Roads.
13. Fill in Peppercorn inholdings.
14. Protect scenic Taft Street & Christian Hill Road Fields. Link Chapter 61 properties.
15. Clean up Milford Street. Consider scenic byway and design review.
16. Protect Mendon Street/Grove Street corridor & woods along railroad.
17. Link protected lands in Southeast Upton.
18. Pursue conservation of “Owner Unknown” properties throughout the Town.

Legend

 Upton Town Boundaries	 Primary Natural Priorities
 Roads	 Secondary Natural Priorities
 Water	 Heritage Areas
 River/Stream	 Potential Historic Districts
 Large, Undeveloped Parcels	Development Constraints
 Focus Areas	 Built Out Areas
 Priority Trails	 Environmental Constraints
 No Protection - Public Ownership	 Open Space-Protection in Perpetuity
	 Public Facilities

Action Plan



Map of Large, Undeveloped Parcels

In order to better understand the distribution and ownership of developable parcels, this map categorizes the largest undeveloped lots by size, at 1,5, 10, 20 and 25 acre increments. The numbers range the thirty largest unprotected parcels according to size.

Legend

 Upton Town Boundaries

— Roads

 Water

 River/Stream

 Protection in Perpetuity

Large, Undeveloped Parcels

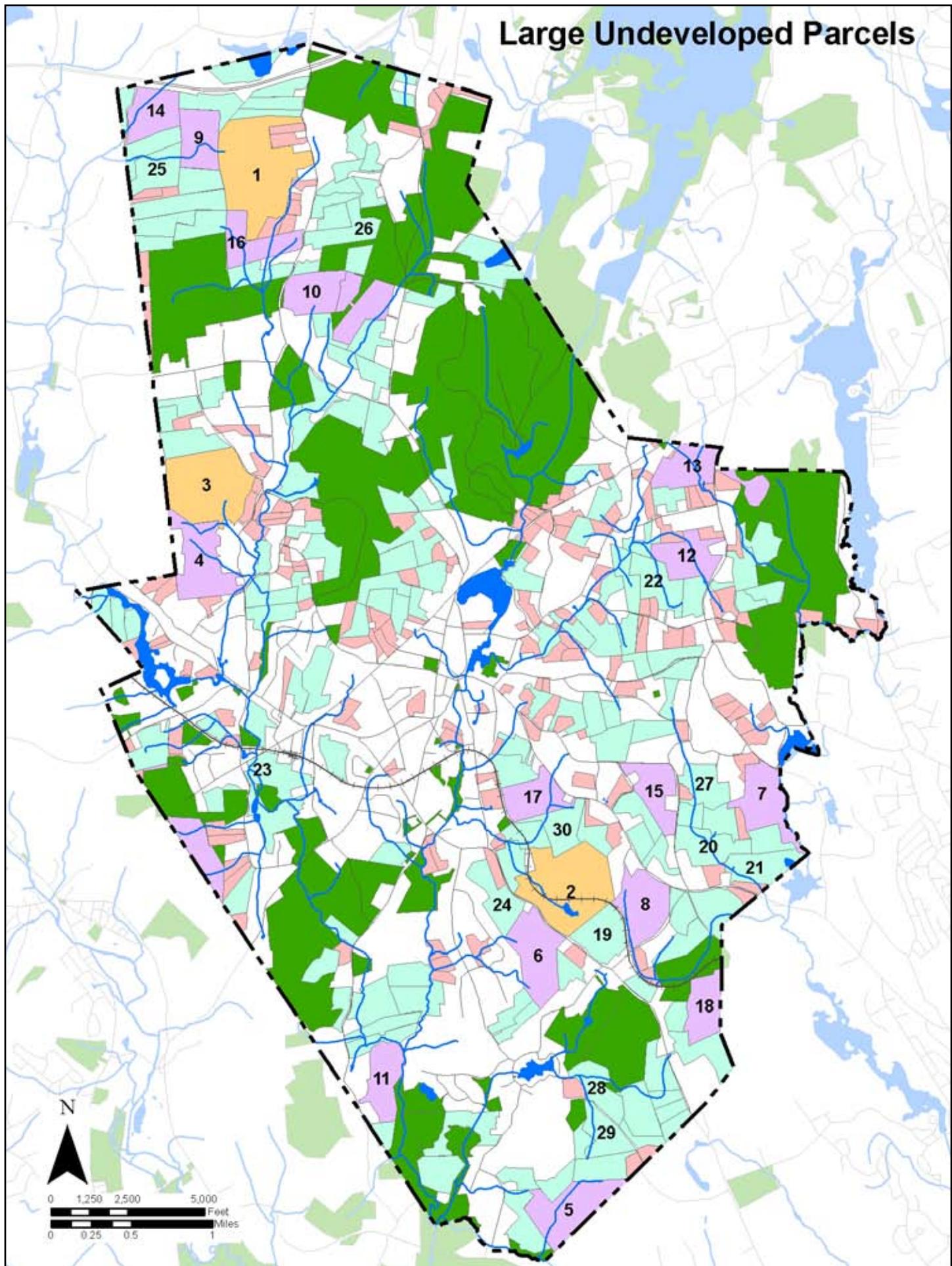
 Under 10 Acres

 10-49.99 Acres

 50-99.99 Acres

 100-199.99 Acres

Large Undeveloped Parcels



Action Strategies

1. Protect Area of Critical Environmental Concern. Keep impervious surfaces below 15%.

The Miscoe, Warren and Whitehall Watersheds ACEC was designated in 2000 by the Commonwealth of Massachusetts, and contains portions of five sub-watersheds in Grafton, Upton and Hopkinton. As described in the state website: “The distinguishing characteristics of these sub-watersheds are that they are located at the headwaters of their respective watersheds; provide crucial inputs of high quality surface water to downstream waters and communities; and share a large expanse of unfragmented and diverse wildlife habitat and public and private open space extending across drainage divides and municipal borders. The area provides important surface water and ground water inputs to public drinking water supplies. Rare species habitats for five state-listed species are located throughout the ACEC... Agriculture and forestry are important components of the overall resource complex. The area contains unique and highly significant archaeological and historical resources. A large portion of the ACEC in Grafton is included in the 1982 Massachusetts Scenic Landscape Inventory.”

As growth continues in the North end of Upton, the values described in this designation – one of only 28 in the state – will continue to be degraded. Because of the difficulty in choosing which particular place or parcel in this area is most important to protect, the idea of limiting impervious surface coverage is a useful one. The sum total of roads, driveways, patios, roofs, etc., impervious surfaces by definition do not allow stormwater to soak into the ground. Stormwater runoff increases in both volume and speed, carrying with it any contaminants present on a given surface. Studies comparing the health of streams and waterbodies to the level of imperviousness within a watershed have demonstrated that at 10% impervious cover, noticeable changes occur, while at 15%, water quality begins to degrade. These levels thus serve as useful benchmarks in managing the health of an entire watershed.

Implementation Strategies:

- Identify and acquire for conservation key parcels along riparian corridors and water bodies.
- Work with landowners to establish riparian buffers through private conservation easements.
- Provide education to homeowners, farmers, and businesses on Best Management Practices (BMPs) for stormwater management.
- Require enhanced stormwater BMPs for all new development.
- Work with the Upton DPW to plan and install BMPs along town roads, and modify maintenance practices to reduce contaminants.



Forested wetlands in the headwaters of Warren Brook

2. Expand Warren Brook Conservation Area Northward.

The Warren Brook Conservation Area already protects 260 acres of forest in the upper reaches of the watershed. These pristine streams are threatened, however, by potential subdivision development just to the North of the conservation area. Adjacent to hundreds of acres of undeveloped forest in Grafton, conservation of the area would consolidate the headwaters of Warren Brook and offer permanent protection to water quality and wildlife habitat.

Implementation Strategies

- Purchase key parcels as town conservation land, or acquire conservation easements from private landowners.
- Encourage temporary protection of open space through Chapter 61 tax abatements.
- Promote conservation through the use of Open Space Residential Development.

3. Protect Stone Walls and Special Trees (Townwide).

With such a high percentage of forested land, the Upton's visual character is largely shaped by relatively narrow corridors along winding roads, lined with stone walls and shaded by overarching trees. As roads are widened and new roads and driveways cut in, the roads are straightened and trees and stone walls removed. At some point, enough of these features will be lost that Upton's country roads will only be a memory.

Implementation Strategies

- Inventory roadside walls and trees throughout the town.
- Work with Upton DPW and landowners to maintain walls and follow approved arboricultural standards in care of roadside trees.
- Amend zoning and subdivision regulations. This could range from a formal tree protection bylaw to simple criteria applied in the review of building permits and subdivision applications.
- Designate scenic roads, with input from neighborhood residents.
- Establish town program to replant roadside trees.



4. Protect scenic North Street.

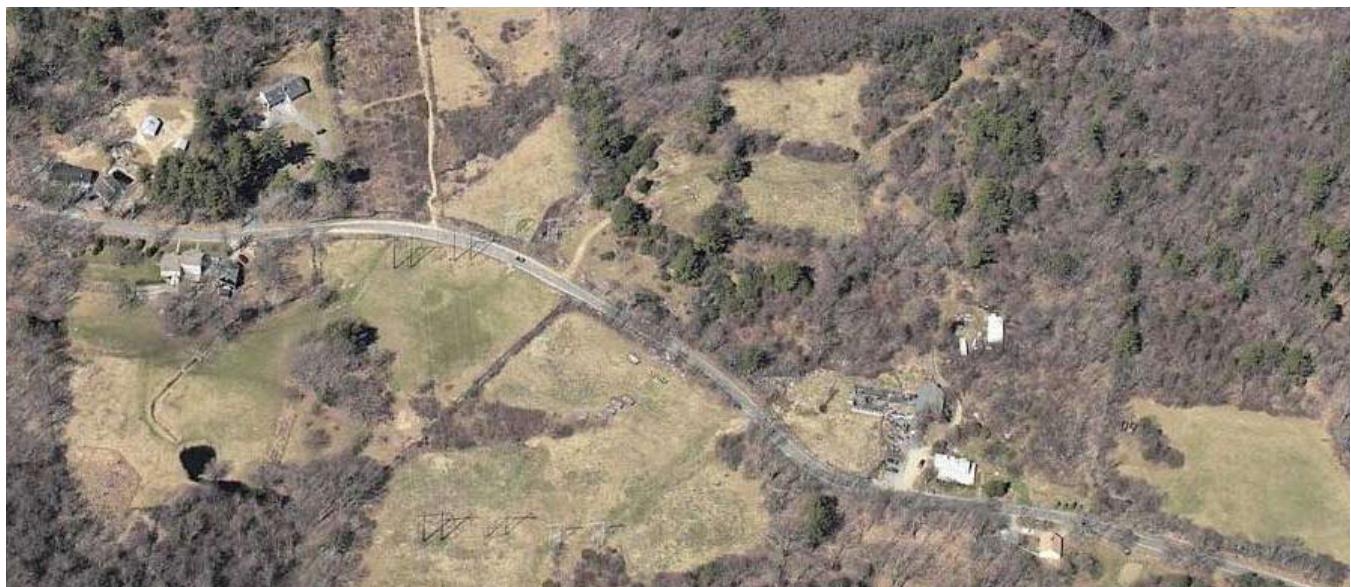
North Street retains much of the historic pattern of scattered farmsteads, roadside trees, stonewalls, and alternating forest and meadow that characterizes rural Upton. Loss of any part of this

Roadside walls and trees are a fundamental element of Upton's rural character.

composition erodes the quality of the whole corridor. Careful planning will allow growth to continue while protecting the scenic and environmental resources of the area.

Implementation Strategies

- Designate North Street as a scenic road.
- Work with landowners to create a cooperative management plan focusing on areas close to the road.
- Purchase key parcels or acquire conservation easements to protect the most sensitive features; parcels to be considered include the Dallamora property and Sweet William Farm.
- Work with landowners and the Upton DPW to establish design standards so that improvements to the roadway, driveways or subdivision entrances are sensitive to the character of the corridor, and protect trees and stone walls.



The Warren Brook valley offers a wonderful combination of natural areas, scenic vistas and historic farms.

5. Protect Warren Brook Corridor along Mechanic Street.

The undeveloped headwaters of the Warren Brook provide a largely pristine source of water to the stream as it flows into the developed areas along Mechanic Street. Protecting the quality of the water can and should be joined with protection of historic sites and scenic resources to preserve the character of the neighborhood. With protected lands to the east and west, the corridor has a relatively small amount of development, and many of the structures are historic.

Implementation Strategies

- Prepare detailed inventory of important resources, and work with neighborhood residents to develop a management plan
- Acquire conservation land or easements on private property buffering the stream corridor and linking existing conservation areas.
- Work with landowners and builders to design new homes on frontage lots to avoid impacts on

sensitive resources.

- Use Open Space Residential Development to minimize the impact of new subdivisions.

6. Designate Stefens Property as conservation area and protect adjacent properties.

Part of a potential greenbelt along the western border of the town, the Stefens property forms an important natural edge to the mechanic street corridor. By extending protection to equally large properties to the north and south, the value of the Stefens property for wildlife habitat and recreation would be greatly enhanced. Lacking such protection, development of these adjacent properties will continue to fragment the area and negate many of the benefits the town bought the Stefens property to preserve.

Implementation Strategies

- Purchase important parcels or acquire conservation easements.
- Use Open Space Residential Development to allow for new homes while preserving additional open space around the Stefens Property.
- Prepare a management plan for limited development and ecological restoration.

7. Protect historic district from Elm Street to West Upton.

The potential historic district mapped out by the Upton Historical Commission stands as a living museum of Upton's continuing evolution from agricultural settlement to mill town to 21st Century residential community. Preservation of important structures as well as their larger context is needed if this legacy is to remain for future generations.



Upton Center incorporates architectural styles that span the last 250 years..

Implementation Strategies

- Pursue designation as local, state or national register historic district.
- Prepare detailed GIS mapping of historic sites to complement the historic inventory forms that have already been completed.
- Seek grants for streetscape improvements: sidewalks, tree planting, landscaping, lighting, and street furnishings.

- Work with Upton DPW and MassHighways to plan for historically-sensitive traffic improvements to the road corridor.
- Adjust zoning to promote restoration and adaptive reuse of historic structures.
- Celebrate the historic district with tours, interpretive maps and outreach to residents and the general public.



The West River valley is a largely hidden tapestry of thick forests, floodplains, old farms and historic structures.

8. Protect West River District (cave, scenic road & historic sites)

Like many other outlying districts in Upton, the West River area is valuable for the diversity of its resources more than the outstanding quality of any single feature. By protecting the core of this natural and cultural composition, development can continue in the area while preserving its essential character.

Implementation Strategies

- Work with neighborhood residents to map out important natural and cultural resources.
- Preserve key features through purchase or acquisition of easements on private land.
- Buffer the West River riparian corridor by preserving selected parcels.
- Use design review and Open Space Residential Development to fit new homes, roads and driveways around important features.

9. Protect Ridge Road and State Forest Area.

The Ridge Road corridor and the upper end of the Upton state forest have changed little of the past decades, but are increasingly threatened by frontage development and new subdivisions. Incorporating both important natural and cultural resources as well as the more subtle sense of small-town Upton, the area can accommodate considerable new growth if care is taken in how it is laid out.

Implementation Strategies

- Work with Massachusetts Dept. of Conservation and Recreation to purchase key parcels abutting the state forest.
- Work with neighborhood residents to establish a greenway corridor from the state forest west to North Street.
- Use Open Space Residential Development to adjust the design of new subdivisions to better fit the landscape and preserve open space corridors.

10. Develop a Town-wide Loop Trail.

Interconnected trail networks, unlike isolated trail segments in separate conservation areas, have both a functional and conceptual value. They provide a physical connection, allowing residents of each neighborhood uninterrupted access to a larger open space system, and encourage walking and biking to various activities rather than driving. Just as importantly, they reinforce the concept of a permanent network of townwide greenways and greenspaces; even though few people will actually use the entire network, its existence shapes the way people think about the town. This can help to preserve the sense of continuous open space that gives Upton its rural character.



As leisure time shrinks and waistlines expand, it becomes more important to increase recreational opportunities close to home.

Implementation Strategies

- Charge the Upton Trails Committee with the task of mapping out a masterplan for a town-wide trail system.
- Prepare a detailed inventory of existing trails and potential trail sites.
- Seek easements and permission to cross private land with public trails.
- Build user groups to build and maintain trails for hiking, biking and horseback riding.
- Publish maps and create signage to guide people to trails and educate them about proper trail use.
- Improve trailheads with interpretive signage and parking.
- Pursue development of the Grafton and Upton Rail Trail.
- Seek help from trail planners at Mass DCR, the National Park Service, and the Blackstone River National Heritage Corridor Commission in designing and building the trail network.

11. Preserve CCC Buildings in Upton State Forest.

The structures built by the Civilian Conservation Corps in the 1930's serve as a unique record of that era, and represent three out of only five remaining in the state. In 2005, the buildings were listed by Preservation Mass as one of the "Ten most endangered historic resources in Massachusetts." With limited funds available for such purposes, the Commonwealth's Dept. of Conservation and Recreation continues to struggle to provide adequate maintenance.

Implementation Strategies

- Follow up with Mass DCR and state representatives on efforts to secure funding for maintenance and restoration of the CCC buildings and surrounding context.
- Work with Friends of Upton State Forest to continue publicizing the history of the State Forest, including the CCC era.
- Seek aid of the National Park Service and the Blackstone Valley Natural Heritage Corridor Commission in providing research, planning, outreach and management of these resources.



The CCC complex provides a unique look at an era in which many of Massachusetts parks and state forests were established and improved for recreational use and conservation of natural resources.

12. Protect Land Abutting State forest along Westboro and Hopkinton Roads.

While over a thousand acres of forest has been protected within the Upton State Forest, the area where the state land comes down to Westboro and Hopkinton Roads is fragmented by private inholdings. These areas are valuable as wildlife habitat buffers to the interior forest land, but just as importantly provide a wild and scenic view from the road. This scenic character could be lost if frontage lots are developed and the view of the forest is interrupted with new homes.

Implementation Strategies

- Work with Massachusetts Dept. of Conservation and Recreation to purchase key parcels abutting the state forest.
- For less important properties, acquire conservation easements and work with private landowners to protect wildlife habitat.
- Important parcels of interest include the Brown property.

13. Fill in Peppercorn Inholdings.

Peppercorn hill represents one of the larger intact blocks of forest in Upton, much of which has been protected as town conservation land. The future value of the area as wildlife habitat, however, is threatened by the potential development of parcels adjacent to or surrounded by the existing conservation area. With the expense of developing these inholdings, there is an opportunity to conserve them as open space.

Implementation Strategies

- Purchase land or acquire conservation easements on the most sensitive parcels.
- Use Open Space Residential Development to cluster new homes away from sensitive areas and provide open space buffers to extend existing conservation land.
- Work with landowners who have parcels in Chapter 61 to manage land to protect its open space value.
- Important parcels of interest include the Kelly Chapter 61 properties.

14. Protect scenic Taft Street & Christian Hill Road Fields. Link Chapter 61 properties.

This area includes one of the larger complexes of intact agricultural lands in Upton. With multiple properties and their associated farmsteads, barns and outbuildings, it retains a sense of what Upton was like in earlier times. While multiple ownership complicates the conservation planning process, it likewise reduces the speed at which the area will be developed. The complex mix of roads, forest, agricultural land, and rolling topography offers many opportunities to tuck new development into the landscape while preserving its rural character.



The uplands of Eastern Upton contain a beautiful combination of old farms and building clusters that retains much of its 19th century charm.

Implementation Strategies

- Work with landowners and farmers to identify strategies to support farming and recreational use.
- Support use of Chapter 61 tax abatements to provide temporary protection of open space.
- Acquire ownership or conservation easements on the most sensitive areas.
- Use Open Space Residential Development bylaw to accommodate new development while setting aside the most important natural and cultural resource areas.
- Work with landowners to plan carefully for frontage development, using common driveways and other design techniques to minimize impacts on scenic roadsides.

- Work with landowners and Upton DPW to preserve and maintain narrow roads, stone walls, trees and fences.
- Important parcels of interest include the Nipmuc Rod & Gun Club Chapter 61 property and the DiCarlo Ch.61 property.

15. Clean up Milford Street. Consider scenic byway and design review.

It is not much use to pursue conservation of Upton's rural districts while letting the central commercial spine decline into a commercial strip. One way to encourage the development of more homes and businesses in the center of town is to promote redevelopment of a more attractive and functional commercial core. This will help to draw development pressure away from more rural areas.

Implementation Strategies

- Work with landowners, businesses and other stakeholders to create a masterplan for the area identifying opportunities for redevelopment and shared economic development strategies.
- Revise zoning to promote a comprehensive redevelopment of the area, with design guidelines to influence the location and design of buildings, parking, landscaping and other elements.
- Work with Upton DPW and MassHighways to plan for improvement of the public right-of-way.
- Plan for targeted public investment in the streetscape to promote private investment in redevelopment.

16. Protect Mendon Street/Grove Street corridor & woods along railroad.

This road corridor is one of the last areas in Upton that retains its historic pattern of roadside meadows, historic farmsteads, and undisturbed forest. The result is a unique and beautiful composition of



An aerial view of Mendon Street, looking South.

landscape elements. At the same time, ample road frontage and large lots make the area a likely spot for multiple subdivisions over the next ten years. The solution is to protect the most scenic land and historic structures along the roadside, while developing new homes beyond the edge of the woods. The presence of the former Grafton and Upton rail line through the back of these properties offers the opportunity to connect new neighborhoods to Upton center and points east and west with a multi-use trail.

Implementation Strategies

- Work with landowners and the Upton DPW to manage trees, walls and other roadside resources.
- Develop a specific plan for future roads and access points to development areas.
- Change zoning to provide incentives for conservation of roadside meadows, with design guidelines for new roads and neighborhoods.
- Parcels of interest include the Trask Chapter 61 property and the Fafard property.



As old farms along Mendon Street convert to purely residential use, it becomes harder to preserve the rich legacy of centuries of agriculture..

17. Link protected lands in Southeast Upton.

While there is a large amount of undeveloped land in Southeast Upton, relatively little has been placed in conservation. Existing conservation land in the area is disconnected, and water bodies and streams could be degraded by inappropriate development. While development of the area has been slowed by difficulties in access and the presence of wetlands and streams, this will change as the value of building lots increases. This may be the last chance to assemble large conservation areas in this part of Upton.

Implementation Strategies

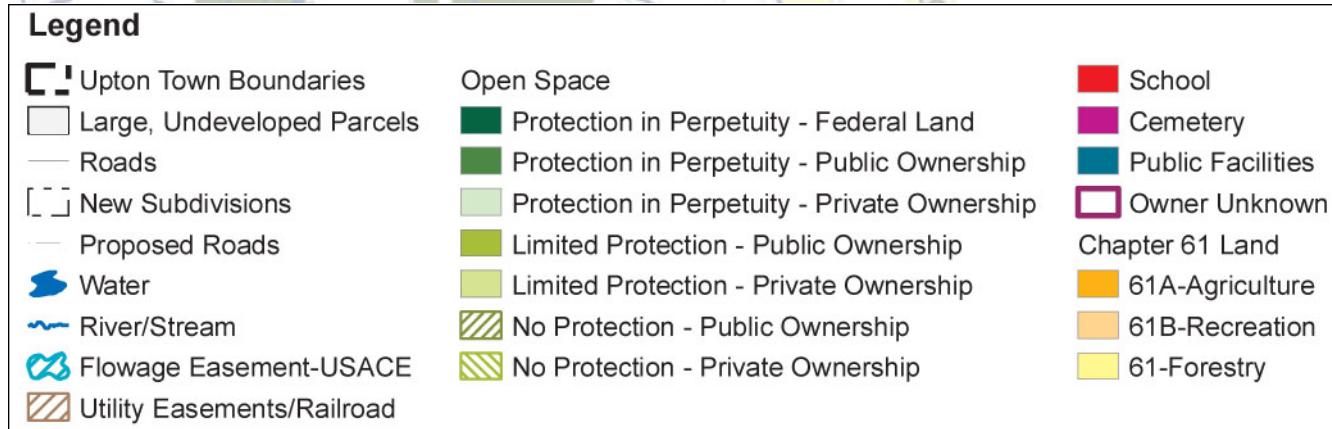
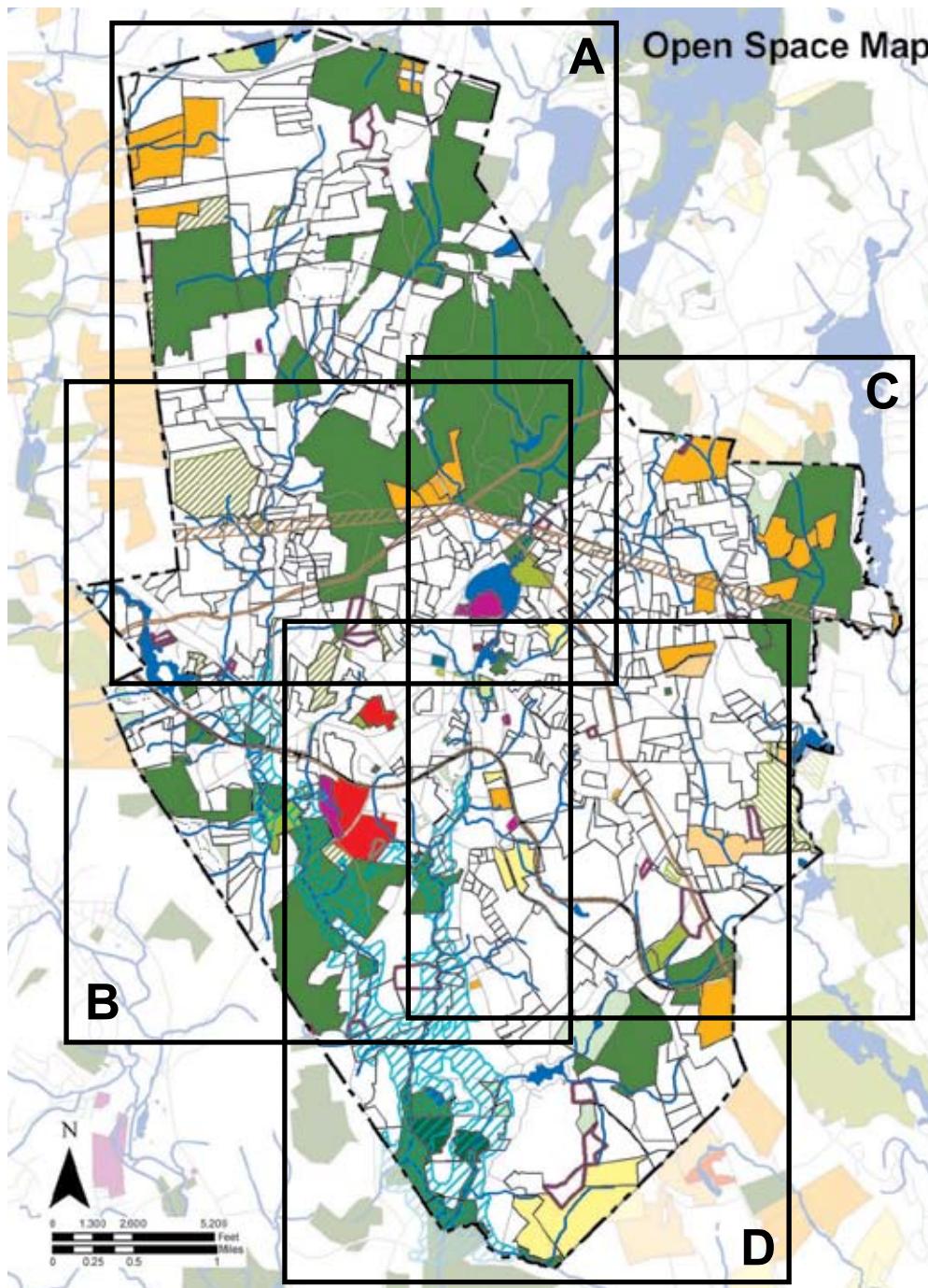
- Work with landowners to develop a management plan for the area describing important greenway connections and shared development opportunities.
- Encourage use of the Open Space Residential Development bylaw to set aside open space as part of development proposals.
- Acquire key parcels or conservation easements protecting areas along riparian corridors or linking existing protected lands.

18. Pursue conservation of “Owner Unknown” properties throughout the Town.

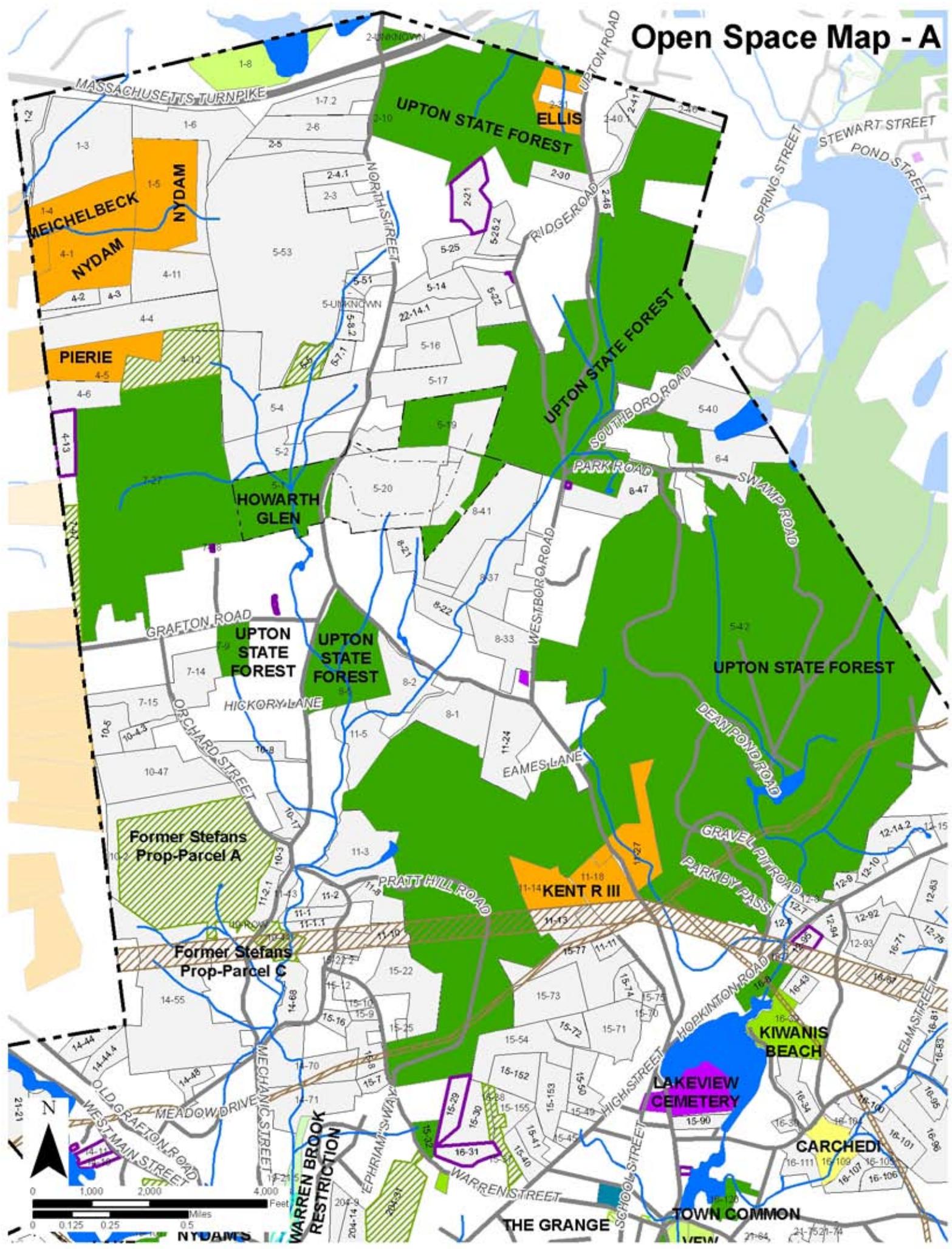
There are a number of parcels whose owners are unknown located in areas that lend themselves to conservation purposes. While the town enjoys their current use as open space without any public outlay, lack of oversight makes them vulnerable to damage. While requiring a fair amount of research and legal work to verify their status and acquire for conservation or other public purpose, this is a relatively easy way to protect some important areas.

Implementation Strategies

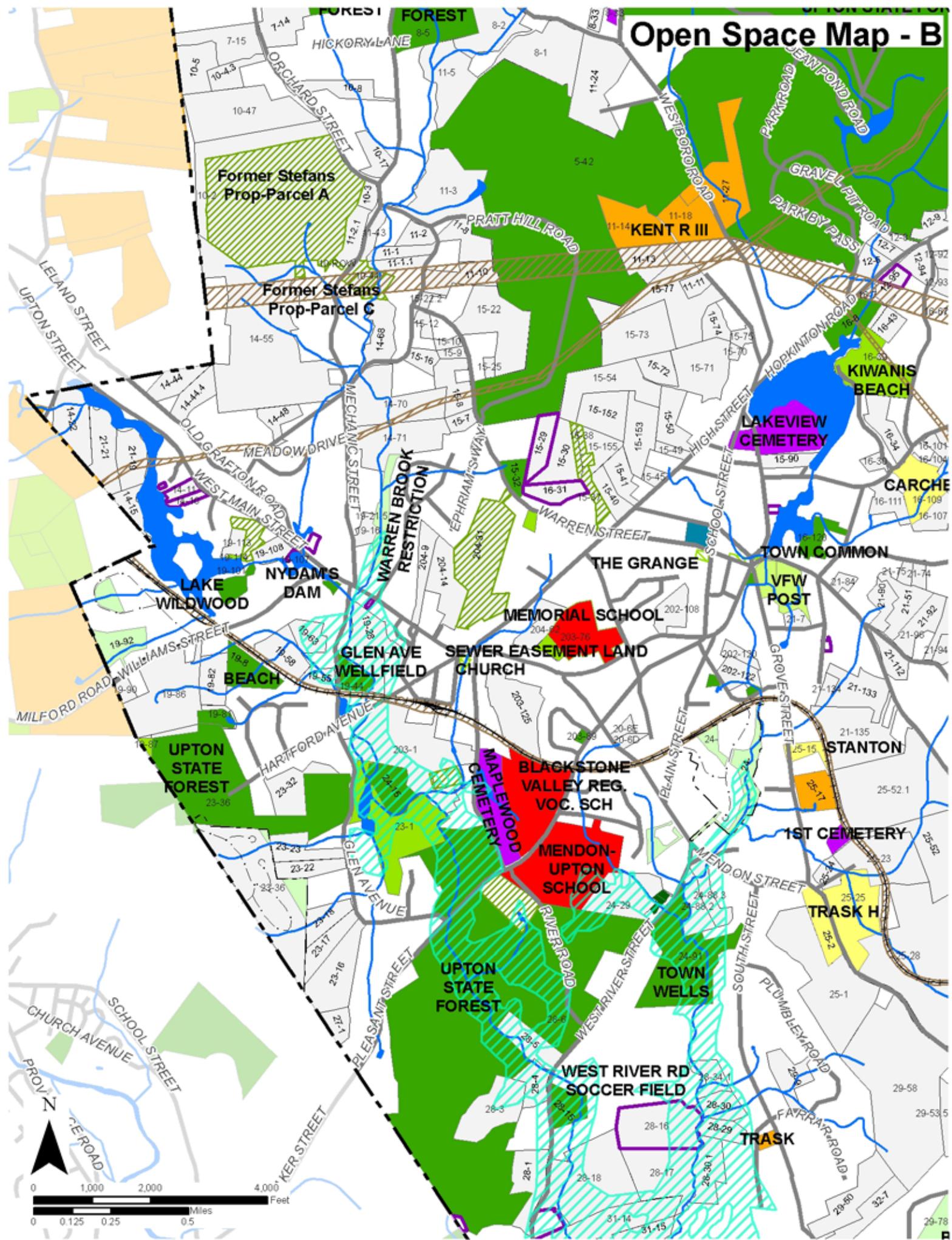
- Inventory parcels identified as “owner unknown” by the Upton assessors.
- Conduct a field survey of owner unknown properties to note existing conditions.
- Initiate town action to acquire ownership of key owner unknown parcels through eminent domain or other means.



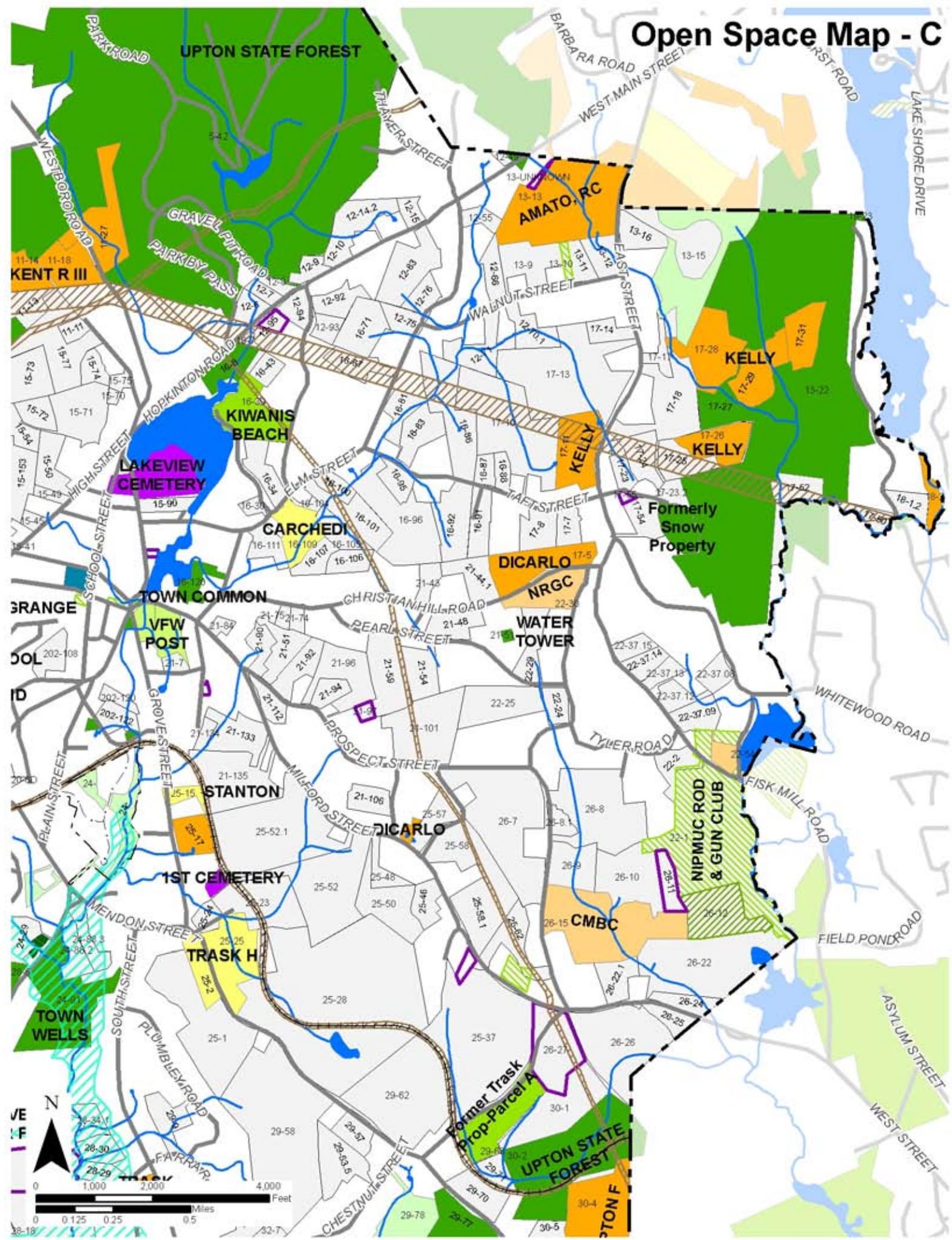
Open Space Map - A



Open Space Map - B



Open Space Map - C



Open Space Map - D

Property

