

Submitted to the Executive Office of Environmental Affairs,
Division of Conservation Services
on behalf of the Town of Bolton by

The Bolton Open Space Committee

In association with:

The Board of Selectmen
Conservation Commission
Advisory Committee
Planning Board
Board of Health
Historical Commission
Parks and Recreation Committee
The Town Clerk
Bolton Conservation Trust
Historical Society
and
Bolton Citizens

Cover Photograph:

View from Vaughn Hills to Mount Wachusett over Bolton Flats

By Ken Martin

The Town of Bolton is a residential and agricultural community on the uplands east of the Nashua River Valley on an historic east-west corridor. Its geography greatly shaped its history. Bolton has gently sloping hills but no major streams, so the earliest sources of power for manufacturing were not present and the town from its earliest years was primarily an agricultural community with only a small percentage of industry. But Bolton had rich forests and geological deposits of lime which combined to supplement the farming economy. The town had lime kilns and limestone quarries, and produced potash, lime and bricks.

The town was settled early by Europeans, in 1675. It consisted then of prosperous dispersed farms and its population increased very slowly after King Philip's wars. Agricultural uses grew to include orchards and dairy farming by the 19th century. Much of this rural landscape is still intact in a town that is now primarily a residential suburb for surrounding industrial communities and an exurb for the greater I-495 corridor.

(Seal supplied by community. Narrative based on information provided by the Massachusetts Historical commission)

Executive Summary

The Town of Bolton is proud to present its 1998 Open Space and Recreation Plan, an update to the 1991 Open Space Plan. Before the Town can act upon the items presented in this open space update, however, residents must first reflect on the major accomplishments over the last 5 + years. It is important to note that many people from all parts of Bolton's social fabric share credit for the successes listed below. The town owes a debt of gratitude to those community advocates.

The open space committee and the town will use these achievements as a springboard toward executing the actions stated in this 1998 Open Space and Recreation Plan in order to best plan for future development which retains Bolton's rural character and unique natural features.

Conservation Zoning

- Central Nashua River Area of Critical Environmental Concern (ACEC)
- Farmland and Open Space Restricted Development (FOSPRD) Bylaw
- Limited Recreation Zone – 575 acres of the International Golf Club

Undeveloped Land Protected

- 22.06 acres – Mentzer land preserved through FOSPRD zoning
- 42 acres – Wallie, Socalski and Leduc land purchases
- 5.5 acres – Persons gift including a cottage and land on Little Pond
- 41.2 acres – Land gifts from McGourtney, Mentzer, Partridge, Richards, Smith, Sullivan and White

Conservation Restrictions

- 104.5 acre Schultz farm – restricted through gift by ITT Corporation
- 39.12 acre Nashoba Winery Agricultural Preservation Restriction (APR)
- 85 acres – Conservation Restrictions on the Held, Hooker and Miskell properties.

Environmental Education

- Expansion of Tom Denny Nature Camp
- Expansion in the Environmental Learning for the Future (ELF) Program
- Resource Inventory and Restoration work at the Fyfeshire Conservation Area

BOLTON OPEN SPACE AND RECREATION PLAN

Section 1.

PLAN SUMMARY

Bolton is a semi-rural community of hills, orchards, and forests located on a ridge separating the Assabet and Nashua River Watersheds. The Town Center is lined with historic homes. Country roads weave amongst hills and streams mixed with trees and farms. Its rural character and relative proximity to Boston, Worcester, and I-495 has attracted "commuter families", and has increased residential home building and boosted property values and taxes. Despite the increasing growth that is transforming the town into a "bedroom community," Bolton retains many of its rural and historical qualities.

In a recent town-wide survey, the citizens of Bolton voiced concern for preserving the rural character of the town while supporting appropriate development. The open space planning process provides a framework for reviewing past planning efforts, identifying current open space and recreational opportunities and needs in town, and stating a general plan to help guide the town in future land use decision-making. The plan recommends that the town focus its efforts toward supporting and preserving farms, purchasing open space in target areas and improving access to recreational opportunities to those lands, and working to safeguard the town's groundwater which every resident depends on. These efforts will preserve the qualities that characterize the town of Bolton.

The goal of this 1998 Bolton Open Space Plan is to present an inventory of social and natural information, to formulate open space and recreation needs through a community dialogue, and to encourage the town to plan for the future as the community grows and changes into the next century.

Section 2.

INTRODUCTION

A. Statement of Purpose

The purpose of this open space and recreation plan is to help assure that future growth in Bolton is accomplished in a manner which conserves and protects the town's open spaces and natural resources and plans for adequate recreational areas for the enjoyment of all its citizens. The plan provides the basis for open space acquisition by the Town through the Conservation Commission and in consultation with other town boards and the Bolton Conservation Trust (a local non-profit organization) (see Appendix A, Support Letters from Town Boards and Groups). The plan is also the basis for recreation land acquisition and development by the Selectmen and Parks and Recreation Department. As such, the plan meets Commonwealth of Massachusetts' requirements for open space plans when financial assistance in acquisition is to be provided by the Commonwealth. The plan provides town boards and citizens with inventories, maps, and other natural resource information for use in future integrated town planning. The Plan is also an important reference source for townspeople in learning about open space, land

use, and natural resources in Bolton and how they as citizens can contribute to the planning process.

This 1998 Bolton Open Space Plan complements and continues the work of past plans. In 1980, Bolton developed its first open space plan. Subsequent updates to the first plan were completed in 1985 and 1991. Each plan has been the product of volunteer committees comprised of Bolton citizens. By reviewing the many accomplishments since the 1991 plan (see Introduction), a natural starting point for new planning is established.

The effort of the many individuals who worked to produce this plan (see Appendix B, members of the Open Space Committee; and Appendix C, meeting dates), combined with the message sent by the citizens through the town-wide land use survey, is evidence of the groundswell of support for preserving the classic small town New England character of Bolton during a period of burgeoning development.

B. Planning Process and Public Participation

The Bolton Conservation Trust initiated planning for this 1998 Bolton Open Space Plan when it issued a survey to town residents in 1994. Titled Bolton's Future: Land Use Survey (see Appendix D for copy of the survey), the four-page form asked Bolton citizens to think about the town in the mid-1990's and to consider how they would like things to change or stay the same in the future. The survey provides an excellent cross-section of opinions and views in the town regarding land protection, agriculture, residential development, commercial development, affordable housing, and the current tax burden. Perhaps most importantly, the survey provides insight into what is most appealing about the town to Bolton's citizens today and what citizens believe is worth preserving for the future.

The Trust received responses from 10% of the town's households and the results were made public to Bolton's citizens. The survey was divided into six primary categories: general land-use, conservation, residential, affordable housing, commercial, and costs/taxes. A complete breakdown of total responses and percentages for each question asked is included in Appendix E. The most relevant and convincing answers are included here to support the town's goals in this Open Space Plan.

1) Citizens were asked to consider two options for a broadly defined goal for the Town:

A) Do not protect land from development; we need more residential and commercial development **1% Agree; 95% Disagree 4% Ambivalent**

B) Remain predominantly a residential town; protect our orchards and other special places **96% Agree; 0% Disagree 4% Ambivalent**

2) When asked to rank the **most important land types** for conservation, the four categories ranked No. 1 most were:

Farmland	40%
Forests	15%
Wetlands/Wildlife	13%
Scenic Views	10%

- | | | |
|---|------------------------|----------------|
| 3) Should Bolton Increase Commercial Development? | Yes 22% | No 78% |
| 4) Would you like strip development zoning along Main St? | Yes 5% | No 95% |
| 5) When asked what was the biggest concern about expanded commercial development, the top two responses were: | Town Appearance | Traffic |

The most important message clearly stated in the responses is that the citizens of Bolton like Bolton the way it is. The way it is, in the words of one respondent, is "classic small town New England."

With the survey as a starting point, the Selectmen asked the Conservation Commission to begin an update on the town's plan in October 1996. A joint meeting was convened between the Commission and the Bolton Conservation Trust to create a core committee to direct the update. Copies of the 1991 plan were sent to the Board of Selectmen, Advisory Committee, Planning Board, Board of Health, Parks and Recreation Committee, Historical Commission, and Garden Club to solicit participation and initial comments. An article was placed in the local newspaper, The Bolton Common (see Appendix F), to solicit participation from private citizens. A committee was then established totaling twenty individuals representing many boards, organizations, and citizens.

The Committee was divided into two subcommittees with many members overlapping their participation. The first subcommittee was directed to update sections I through V of the plan, focusing on an update of the text and statistics relating to such information as demographics, bylaws, and conservation land inventory. The second subcommittee was charged with meeting on a monthly basis to update sections VI through IX which detail Goals, Objectives, and Action Items for the Town's open space planning over the next five years.

By fall of 1997, the work of the two committees and work done from the 1991 plan were pulled together into a draft update Open Space Plan. This draft was first distributed to committee members for comments. Then a notice was placed in the Bolton Common inviting the town to attend a public meeting to solicit comments on the draft update. An executive summary was provided at the meeting and future comments and a full plan made available upon request. Then meetings were set up with the Board of Selectmen, Advisory Committee, Planning Board, Board of Health, Parks and Recreation Committee, and Historical Commission to request comments and ask for their commitment to the appropriate actions in the action plan for which they were deemed responsible. Once all comments were received, copies were sent to the Metropolitan Area Planning Council (MAPC) and the Division of Conservation Services (DCS) for comment.

Section 3.

COMMUNITY SETTING

A. Regional Context

The Town of Bolton comprises nearly 20 square miles and lies within the so-called Worcester Plateau physiographic region of east-central Massachusetts. The town is bordered to the west by the towns of Clinton and Lancaster; to the north by Harvard; to

the east by Stow; and to the south by Hudson and Berlin. Interstate 495 is the major north-south route through Bolton; state numbered Route 117 is the predominant east-west artery.

Bolton's landscape is punctuated by numerous rounded hills amidst a generally rolling countryside. The vast majority of the town falls between elevations 300 and 500 feet (MSL). Several prominent hills, (Vaughn Hills, Wataquadock Hill) however, exceed 600 feet and offer exceptional views and rugged terrain. These are unique features in the regional landscape as they represent the highest points between Boston and Mount Wachusett to the west. In fact, on clear days (and most nights), Boston can be seen to the east while Mount Wachusett is clearly visible to the west. Only in the most northwest and northeast portions of Bolton, in the Nashua River valley and Great Brook valley, respectively, do elevations fall below 260 feet.

The Shrewsbury Ridge runs southwest to northeast and is formed by Wataquadock Hill and the unnamed hills between Powderhouse and the Vaughn Hills. This ridge comprises the boundary between the Nashua and Assabet Watersheds. Smaller sub watersheds flow from Bolton to each of its neighboring towns. From a regional context, Bolton recognizes that because of its location at the top of the watershed, its activities have a direct impact on the neighboring towns down stream.

Historically, Bolton has been a prominent agricultural community in central Massachusetts. Because early American commerce was dependent upon rivers for power and transportation, rivers became the focal point for growth in inland communities. The town's only major river, the Nashua, was not conducive to port development because of its extensive floodplain. These lands, however, contain extremely fertile soils that gave rise to the development of the agricultural traditions that continue in Bolton up to the present day. Townspeople turned to the productive soils, uplands and occasionally wetlands to raise crops and graze livestock. Today, about 1,000 acres of Bolton is in active agriculture with more than 1500 acres owned by farmers. Six farms totaling 550 acres are orchards and Bolton boasts of producing more apples than any other Massachusetts' community. Table 3-1 provides a breakdown of general land cover types in Bolton and changes over the last 40 years as summarized from MacConnell (1951, 1971, 1985).

Table. 3.1 Land Use/Cover Changes in Bolton (in acres)

	<u>1951</u>	<u>1971</u>	<u>1985</u>
Forest	8297	8936	8078
Agr./Open	3903	2369	2445
Wetland	500	481	477
Mining	---	51	115
Urban	73	889	1517
Recreation	---	247	238

Source MacConnell, 1951, 1971, 1985

Bolton has very few businesses and industries in town. By and large, Bolton is a bedroom community with its working population traveling to jobs as far as Boston, southern New Hampshire, Rhode Island and the Connecticut valley. Because of its proximity to many commercial centers, Bolton's open spaces and farmland continue to give way to residential development. This is also true of other towns in the region. In recent years, a large shopping mall has been built in Berlin, and an airport and an asphalt batching plant have been proposed at Fort Devens and in Lancaster respectively. Both proposals were defeated by concerned citizens. Redevelopment at Fort Devens will likely attract new businesses to the area and contribute to growth in the region.

Bolton finds itself in 1998 having emerged from the rampant growth of the '80's and '90's with a considerably increased population but retaining many of its rural, open space values. With I-495 and the growth of the high-tech industry west of Boston, Bolton has become a unique rural alternative within commuting distance of high paying jobs. The challenge going forward will be to meet the recreational demands and quality of life expectations of an increasingly young, professional populace while retaining the natural amenities and unique environmental resources which make Bolton the special place it is.

B. History of the Community

From its beginnings as part of the Nashaway Plantation and then the town of Lancaster, Bolton has been known for its natural features. For example, Whitney's History of Worcester County (1793) described Bolton as "good land, not level, nor yet has it any very high hills ... It is not very rocky, however there are stones sufficient to wall in all their farms. About half a mile from the center of town, to the west, begins the great hill known by the name of Wataquadock Hill, very high." The name Wataquadock is derived from an Indian word meaning "the place of many springs." A number of mills were constructed in the early days along some of the brooks formed by these springs, and the ruins of many of these sites can be seen today.

Two town histories have been written by late resident and town historian Esther Whitcomb: The History of Bolton (1938) and About Bolton (1988). These histories have brought together much information about the town from various sources and were published for the 200th and 250th anniversaries of the founding of the town.

Bolton has long been known for the minerals in the Rattlesnake Hill area. The History of Bolton (1938) says the area contains some 30 minerals. Lime and ochre are two examples of minerals taken from Rattlesnake Hill over the years. The remains of much of the mining activity can be seen near the Lime Kiln.

There were important early roads that passed through Bolton, often on the sites of present day roads. One of these, the Bay Path, passed over Wataquadock Hill "from which the traveler had his first view across the wooded valley to the shapely dome of Wachusett in the west and northward to the sharp cone of Monadnock" History of Bolton, 1938).

With the exception of Route I-495, the roads in Bolton have not been altered very much over time. Although physically similar to its former configuration, Route 117 has seen tremendous growth in traffic volumes during the morning and evening rush hours.

Yet Bolton remains a farming and residential community with a rural appearance that most Eastern Massachusetts towns have lost. The History of Bolton notes that:

The natural beauties of Bolton are frequently remarked on by visitors. Brooks, meadows, intervalles, and forests are to be found here. The roads are lined with shade trees and many specimen trees of noble proportions grace fields and lawns. The varying terrain invites all kinds of wildlife; birds in particular are abundant, some of rare species. Every kind of native wild flower adorns the woodlands and meadows.

The History of Bolton also described Bolton's "many large hills whose tops are plateau-like and whose slopes are expansive, the view being unsurpassed in the eastern part of the state. From these hills can be seen farms, orchards, streams, forests, valleys, and always in the background various mountain ranges."

The 1794 map of Bolton by surveyors Silas Holman and Nathan Longley show the county roads, West Pond and Hays (Little) Pond, Welsh (Welch) Pond, the Nashua and Still Rivers, two meeting houses, two saw mills, two grist mills, the Lime Kiln, a fulling mill and two "potashes". No residences or farms are shown.

Thirty-seven years later, the 1831 map by Silas Holman (provided prior to the introduction of this plan) shows substantial growth and industry. On this informative map Little Pond has become "South" Pond; woodlands, streams, "fresh meadows and intervalles", and Hog Swamp are shown, as well as the major hills - "Wataquadock", Long, "Vaughn's" and Rattlesnake. There are 51 miles of mostly unnamed roads, 188 dwelling houses, eight school houses, two meeting houses, three "burying yards or grounds", the Common, the Powder House, a "goose and fish pond" (the Wilder Pond), a "goose house", saw and grist mills, lime kiln, lime houses, two comb factories, a turning lathe, tan house, poor house, hatters shop, three stores, and one office.

Some of these features, between at least 165 and 200 years old, are now under protection or Town ownership: the Wilder Farm pond, Lime Kiln, burying grounds, the Powder House, a significant portion of Rattlesnake Hill, one of the Vaughn Hills, and parts of Welch and Little Ponds. Apart from the dwelling houses, there are visible remains of the gristmill stonework on Great Road, the gristmill dam on Forbush Mill Road, and the saw and gristmill dam and stonework on Century Mill Road.

One of Bolton's most distinguishing land use characteristics is its agricultural production, established a century ago and still viable in its local and regional distribution. The maps of 1857 and 1898 show additional topography and a growing number of residences and farms. The 1898 Map of Bolton, Mass. shows 18 farms, in addition to many smaller homesteads. Former Town Historian Dorothy Mayo, researching past land use in 1977, found that the 1898 Worcester County Atlas described many of these farms, 9 of which were over 100 acres. Most raised cattle and fruit, supplying dairy products, apples and peaches to neighboring towns and "the Boston market". Other important crops were hay, corn, and asparagus. Two of the farms boarded summer residents, who came to Bolton from city areas to enjoy the rural atmosphere and scenic vistas.

In addition to the local Historical Society, Bolton has a very active and well-informed Historical Commission. The Society works with and supports the Commission,

making resources available which include substantive progress on the inventory of town historical sites. The Historical Commission has recently worked to have the Bolton Center Historic District accepted in the National Register of Historic Places (see Figure 3-1). Several other important locations are being considered for nomination.

Recently, the Historic Commission proposed and the town accepted at Town Meeting a Demolition Delay Bylaw. The bylaw requires the Building Inspector to forward demolition permit applications for buildings older than 75 years to the Historical Commissions for review. The Historical Commission then makes a determination as to whether or not the building is potentially historically significant. If the building is potentially historically significant, a public hearing is held. If it is decided that the building is 'preferably preserved', the demolition is postponed for six months. In that time, the Commission works with the owners, local, state, and federal resources to pursue alternatives to demolition. If no viable alternatives are found, demolition proceeds after the six-month period has elapsed.

C. Population Characteristics

Bolton's population was 770 in the year 1900, 1000 in 1950, 1900 in 1970, and 2530 in the 1980 Census. The January 1985 town census showed a population of 2958, a 17% increase between '80 and '85 making it one of the fastest growing towns in central and eastern Massachusetts. In 1990 this figure had risen to 3195. Through the town's own census, population in 1994 was estimated to be 3,593, and in 1997, 3,841. Just this summer (1998), Bolton surpassed 4,000 residents.

Indeed, since 1950, the town's population has risen from just under 1000 to 3,841 in 1997. Population has increased a remarkable 88% between 1970 and 1994.

Studies by the Metropolitan Area Planning Council (MAPC) of the entire Greater Boston area and of the Route 495 area in particular show Bolton to continue its significant population growth through the year 2010. Population growth projections predict growth to moderate over the next 15 years to 3,928 in 2010 (MISER, UMASS-Amherst), a pace which is still above the state average. Yet the latest census from 1997 totals 3,841 residents, nearing the projection for more than 10 years from now.

In 1967, there were 451 dwellings in Bolton. In 1980, there were 819 dwellings, an increase of 82% in twelve years. By 1985, there were at least 913 dwellings, an increase of 11.5% since 1980. In 1990, the figure had risen to 1,003, an increase for the 1980's of 22%. The mid 1990's have brought another boom in residential development to Bolton. The number of building permits issued for the years 1993 to 1997 has averaged in excess of 50 per year. The total number of residential buildings as of last count, 1997, equals 1241. This increased development challenged developers, citizens and town officials to protect open spaces to the maximum extent possible, while allowing development to go forward.

The character of the population of Bolton has changed as a result of the growth since the 1970s. The existence of Interstate 495 through Bolton and the proximity to other major highways has increased Bolton's role as a bedroom community for workers in eastern Massachusetts. The influx has tended to be upper middle class and the new housing construction has tended to reflect the needs of the upper middle class. The

significant increases in real estate values during the late 1980s and again in the mid-1990s has contributed to the construction of large, expensive houses and put increasing pressure on the affordability of housing in Bolton. Figure 3-2 shows the number of home sales and average cost per home.

Along with the influx of young and middle-aged professionals to Bolton, has come an increase in median family income. As of the 1980 federal census, Bolton's median family income was \$28,194 compared to \$20,494 and \$24,039 for Worcester and Middlesex counties, respectively. Only 3.2% of Bolton's families fell below the poverty level in 1980 whereas 7.1 % of Worcester County, and 5.2% of Middlesex County families were considered below poverty. The unemployment rate as of July 1997 stood at 2.9%. Eighty eight percent of Bolton residents 25 or older had completed high school in 1980, and 35% had completed college, well above both the Worcester County and Middlesex County statistics. The increase in families has produced a need for particular town services, most notably education. The town's school budget has increased in recent years and a new elementary school, the Florence Sawyer School, has just been completed and opened for classes in September 1997.

New Bolton residents choose the town because of the uncluttered, rural character and lifestyle that exist in the town, compared with the suburbs closer to Boston. The new homes must be built on 1.84-acre lots (new minimum lot zoning passed in 1996). This represents a considerable reduction in lot size from older existing homesteads away from the center of Bolton. One "new" resident who bought a home and 12 acres in 1980 was considered to have a small parcel of land outside of the immediate town center. Comparatively, 12 acres is considered to be a large parcel of land today. Consequently, the existing open spaces, both private and public, in Bolton represent an important asset to new residents. These new residents place increasing demands on the town for passive and active recreational opportunities and, in general, bring to Bolton a desire to maintain its rural atmosphere and appearance. Similar to the problems faced by our nation's National Parks, the qualities that attract so many people to Bolton are the qualities that Bolton is quickly losing.

D. Business Development

Bolton has an Industrial zone at the east end of town on both sides of Route 117. Originally GenRad, the current use of the complex on the north side of Route 117 is offices and a distribution center for Future Electronics. Across 117 are two office building/laboratories currently owned by Atlantic Microwave. The Skinner auction gallery is a pre-existing business on the north side of 117 before Route 85 and Skinner expanded to its present size in 1984.

Just beyond Route 85 to the west are business zones that contain a gasoline station and the Country Cupboard convenience store and retail complex. Between Country Cupboard and Interstate 495 is business zone land that was proposed for a hotel in the early 1990s.

There is Limited Business zoned land to the west of 495 which contains Hebert Candy's retail operation (1981), the Flatley Company's Bolton Office Park which has housed Yankee Atomic Electric Company since 1986, Fred Freidus's Bolton Corner professional building (1988), Thomas Murtha's veterinarian in one of the three Atwood

cottages in front of Flatley (1996), and some currently undeveloped limited business land in that area on both Sugar Road and Route 117.

The Salt Box retail complex is in the Business zone on the south side of 117 just before the center. In the center at the intersection with Wataquadock Hill Road are several pre-existing businesses including Smith Motors, the Cracker Barrel, and several retail or antique shops. Further on across from the library, the site of the former post office houses an insurance company and a dentist's office.

There is a business zone at the intersection of 117 and Forbush Mill Road that includes a restaurant and liquor store. Further on is the current post office building which is in the Limited Business zone and includes additional retail and office space. At the intersection with Route 110 is Bolton Orchards retail store along with two pre-existing businesses.

Agriculture and retail sales of agricultural products continue to be the dominant business in Bolton. In addition to Bolton Orchards, there are orchards and a retail store at Bolton Spring Farms near East End Road, orchards and a small farm stand at Windy Hill Farm on Sawyer Road, and a farm stand at Shartner's at the intersection of Sawyer and West Berlin Road. Great Brook Farms operates a farm and garden center across from Skinner Gallery. The Nashoba Valley Winery and orchard on Wataquadock Hill Road has become a major attraction in Massachusetts and changed ownership in 1995. The operation has been revitalized and now includes an Agricultural Preservation Restriction on the orchard land.

There are numerous pre-existing nonconforming businesses in the residential zone in various parts of the town including Sylvester's restaurant, numerous antique shops, and other owner-operated businesses. Several of these involve construction equipment and repair businesses operated by the owner of the property. These have not detracted from the rural image and character of the town, but during 1995 and 1996 two of them became issues to the expanding residential neighborhood as the businesses expanded from recent levels, but within allowable pre-existing limits.

The 1997 town meeting approved congregate and assisted living uses in the Limited Business zone. The change was proposed by the owner of Limited Business undeveloped land on Sugar Road. Expansion of buildings and businesses is possible on both the Freidus and Flatley parcels. There is also undeveloped Business land at Forbush Mill Road. By and large however, there is relatively little business-zoned land remaining in Bolton. This means that significant developments of businesses in the future will require zoning changes, something that has been relatively hard to obtain in the past.

New provisions of the National Telecommunications Act is imploring communities to set aside suitable areas for telecommunication companies to erect towers for public access of cellular telephones. Since Bolton is bisected by 1-495, the town has come under pressure from companies to establish services along the interstate and perhaps at other high areas of town. Because Bolton lies on the highest ridge between Boston and Mt. Wachusett, areas outside of the highway corridor are also desirable to telecommunication companies.

One tower has been built on town-owned land just southwest of the I-495/Rt. 117 interchange. A proposal recently came before the Board of Selectmen from Davis Farm on Wataquadock Hill, to erect a tower. The Board of Selectmen has been reviewing the Special Permit request as to whether or not the tower is a use under the town's limited agricultural/business district. A town committee under the direction of the Planning Board as drafted a bylaw that will define exactly what areas of town could be suitable for a tower.

Interestingly, although an unsightly blotch on the rural landscape of town, the towers could be utilized for conservation purposes. If an appropriate piece of land were identified, a tower could be placed on conservation land and the revenues could be used for open space acquisition. In addition, towers could be placed on privately owned land, and if defined in a bylaw, the existence of the tower could restrict building from a certain amount of adjacent land. These options are made more palatable by experts that suggest the communication towers may be obsolete, and thus disbanded in the near future, as satellites become more widely utilized for daily communication purposes.

The International Golf Club and Conference Center, the largest landholder and taxpayer in Bolton, is in the process of undergoing change. Its parent company, ITT Corporation, has been bought by the Hilton Corporation. Given that Hilton will likely sell many of ITT's holdings, the town was concerned that the nearly 500 acres of land might be converted into residential homes, causing a huge burden on town services and character.

At a Special Town Meeting in December 1997, the town rezoned the International Golf Course property as recreational zone, limiting its uses. This will encourage future owners of the golf course to expand the course, presently at 27 holes, and add other service-related facilities to its current lodging and conference center that will make the golf business more profitable. As part of the agreement, ITT gave a conservation restriction to the town on an adjacent but separate parcel of land, the Schultz Farm, totaling 105 acres which has been leased in recent years to a local farmers

E. Growth and Development Patterns

Patterns and Trends

Agriculture has always been important to Bolton. Early settlers farmed the land and there have been important dairy farms and orchards that have lasted through two and one half centuries. Today, apple orchards are among Bolton's claims to fame. Farmland remains in Bolton while the more easterly towns such as Acton, Sudbury and Concord have lost much of theirs to urbanization. Over the years, development has occurred along major roads such as Routes 117, 110 and 85, inter-town roads such as Harvard Road or Wilder Road, and in gradual development of large tracts of open land or former farms. In the past two years two major subdivisions have been filed in Bolton along with many smaller plans. This trend is likely to accelerate with the improving economy.

Development is currently occurring rapidly in Bolton. While the total number of dwellings in 1967 was 451, in the 1990's an average of 50 homes are being built each year. This trend shows no sign of abating. The reason for this is a strong real estate

market and a sharp increase in land value that has made the construction of multi-lot subdivisions an economically viable prospect. Figure 3-3 shows the number of houses built each year. These are either developed as conventional subdivisions with a new town road, or through the use of common driveways, each accessing up to five homes.

Subdivision proliferation has been steadily increasing in Bolton over recent years with strong peaks in the mid-1980s and 1990s. A 15-house subdivision and new road - Coventry Wood Road- were developed off Sugar Road in 1969-1970 as the first subdivision under the subdivision control regulations. A 6-house subdivision on a cul de sac off Vaughn Hill Road -Woodside Drive- was constructed in 1980. A 26-house subdivision was approved by the Planning Board in 1978 and a new road -Nashaway Road- between Vaughn Hill Road and Still River Road was accepted by the Town in May 1980. A 50-house subdivision off Still River Road was approved in June 1985 and another new road -Kettlehole Road- was created. One large development of 30 homes known as Wilder Farms used backland lots and a series of common driveways to develop neighborhoods.

More recently, there has been a surge in subdivision building in town. In 1995, the Sugar Mill subdivision was approved, with 26 houses and a new road off Sugar Road. In 1996, a major subdivision known as Pleasant Ridge was approved with 48 lots and two new roads, one a cul de sac and the other a road that runs between Kettlehole Road and Main Street. Other medium scale development projects include Meadow View off Berlin Road with 11 houses and one new road and Mt. Wachusett subdivision with 6 houses and a new road. Several other developments using common driveways have been approved in the past two years.

Technological advances have made subdivision development more efficient. One example is the use of more sophisticated computer techniques to maximize lot layout in larger developments results in increased density and can render marginal developments economically viable because of the ability to increase the number of lots and associated revenues. This further reduces open space.

Affordable Housing

As property values rise in Bolton, there is a strong concern in town about the availability of affordable housing. The townspeople have signified the importance that the town remain diverse and that there is adequate housing for both lower income families and for long-time residence and retirees who may no longer be able to afford to live in their family homes.

Towards achieving these goals, the Bolton Conservation Trust set-aside a portion of land donated by a local developer in 1987 for the purpose of building affordable housing. Low-income housing was built and a new road, Bolton Woods Way, was created. More recently, the town's Senior Housing Committee received a grant from the Department of Housing and Urban Development (HUD) to build low cost or subsidized senior housing. At the 1996 annual Town Meeting, the town voted to provide the Committee with 5 acres of Town-owned land, known as the Sawyer Land, for the construction of the facility. In addition, a non-profit housing authority has agreed to build

a second facility for "at cost" housing. The two facilities will be built adjacent to each other in order to make more efficient use of necessary services and infrastructure.

F. Transportation System

Interstate 495 divides the town from north to south and is a major thoroughfare to connecting Interstates to Worcester and points east and west on the Massachusetts Turnpike. The Route 117 exit backs up onto 495 during rush hours. Interstate 495 helped make it easier for commuters to get to their jobs to the east as far as Boston and at the many high technology companies along Interstate 495. The highway has played a major role in the residential development of Bolton in the last 25-30 years.

Automobile traffic on Route 117 continues to be a major problem as Bolton and central Massachusetts grow. As a main artery from Routes I-190 to the west and 2 and 495 to the north and east to high technology firms in Stow, Maynard, and other surrounding towns, Route 117 has traffic which chokes the two-lane roadway each morning and evening rush hour. Trucks of all sizes use Route 117 as a shorter route from 495 to Route 2 in Leominster. The high volumes of traffic destroy the serenity of the center of the town and produces increased noise and air pollution.

In addition, traffic flow on connecting roads is adversely affected by the rush hour traffic on Route 117. There are no traffic signals on connecting roads except Route 110 near the Lancaster line, although some signals have been proposed at various times for the center of town and at Interstate 495. The congestion on Route 117 has caused numerous out-of-town commuters to seek alternate routes on the back roads of Bolton. This leads inevitably to excessive speed on the back roads and complaints from residents. There have been numerous requests for lower speed limits, truck exclusions, and other measures to reduce the speed hazard to local residents, but such exclusions are not possible under state laws and safety regulations.

Bolton has no public transportation of any kind. There are no current rail lines through the town, although commuter rail stations are within 15 minutes in Littleton and Acton. There is also no bus service. This means that virtually all movements within Bolton and to and from shopping, work, and recreation must be by automobile. Local volunteers provide shopping and other transportation to senior citizens; the Council on Aging sponsors entertainment and shopping buses for seniors. Most commuting to Bolton's businesses is also by individual cars; in general, the traffic to local businesses has minor impacts on traffic compared with commuters traveling through Bolton.

Commuter parking is a problem in Bolton. If a spot could be found near the 495 interchange, it would be a logical and worthwhile location for carpool parking. A study was completed by the Metropolitan Area Planning Council in 1983 which examined demand and possible sites for commuter parking. There are no appropriate state or town properties near 495 for commuter parking. Federal rules prohibit the use of land within the 495 right of way including the land within the on and off ramp areas. The study could not identify a specific site, but did suggest future business or industrial development on the business-zoned land near the interchange. While sharing of parking lots at the Flatley development was considered, nothing was developed.

Bolton conducted a major corridor traffic study in 1988-89 that made a number of recommendations about safety-related improvements at some intersections along Route 117. Some of the inexpensive recommendations were implemented and a left turn lane was installed at the Flatley complex in part based on recommendations in the study. One of the problem intersections addressed in the study and considered by the town in later years was the Sugar Road intersection with Route 117 and its proximity with the Interstate 495 ramps. In 1995, the town obtained approval -and funding- from the state to relocate the end of Sugar Road slightly to the west so that it aligns with the southbound ramp of 495. Also approved was a traffic signal to control the traffic movements at this critical intersection. The work is expected to be completed in the fall of 1998.

G. Sewage Systems and Water Supplies

Bolton is one of only 50 of the 351 cities and towns in Massachusetts that has no public water supply of any kind. Each of the more than 1100 residences and businesses in Bolton has its own private well. Nor does Bolton have a town sewer system. Each house or building has its own onsite sewerage disposal system, usually with leaching field.

Board of Health regulations have incorporated the State's recent Title 5 revisions, updated in 1995, which provides for a more stringent review of septic systems, while also promoting the use of alternative technologies in areas where traditional septic systems may not perform properly. Changes in Title 5 will have substantial long-term effects on development. The use of soil mottling to more accurately estimate high groundwater levels will result in subsurface disposal systems which are more protective of groundwater resources. As development pressures increase with associated increase in land values, disposal systems that were prohibitively expensive to install and maintain will become more economically feasible. We anticipate increased use of alternative technologies, encouraged under the revised Title 5, as well as the acceptance of more highly engineered, and costly, traditional subsurface disposal systems. Thus, any underlying assumptions regarding limiting land use and ancillary open space benefits associated with development limits imposed by Title 5 are questionable.

As has been widely reported in the media, the new Title 5 has also placed strict scrutiny over the performance of existing septic systems by requiring septic system inspections and improvements, if necessary, in conjunction with all home sales. Because current economic conditions result in a high turnover housing market, there have been a substantial number of septic inspections. Failure rates in Bolton are generally below those experienced in the region. Required upgrades and repairs have generally been done expeditiously and will result in continued protection of groundwater resources.

The town has received a grant to implement the recently funded loan program for septic upgrades. This program is focused on areas of environmental sensitivity and will require a more thorough assessment of groundwater resources than currently exists. The Board of Health intends to implement the program when approved by the town. The required authorizing article has been prepared and will appear at the next town meeting.

Open spaces are essential to the private water supplies because of the continual danger to the private wells from pollution such as septic leachate, road salt, and agricultural runoff. Bolton's Board of Health regulations requires that septic systems be 100 feet from wells. The increase in minimum lot zoning to 1.84 acres is one method of

protecting private water and sewer systems. This zoning and the separation of houses from each other help assure the integrity of wells. Soil limitations necessitate low house density. There is a strong feeling among residents that large lot zoning and private water and sewerage systems are the keys to the rural character of Bolton.

In 1984, steps were taken to further protect the important groundwater resource through passage of a Groundwater Protection bylaw (a general bylaw rather than a zoning bylaw), including underground tank testing requirements. This bylaw is considered to be weak and ineffective, and as a result, has not been utilized by the Board of Health. A goal for the Board of Health may be to consider changes to the bylaw that could provide increased groundwater protection.

Bolton's unlined landfill has not, as of yet, negatively impacted the surrounding areas which are currently monitored through groundwater wells. The Board of Health has initiated water sampling programs around the landfill, has conducted an engineering study for monitoring wells, to include installation. The landfill is scheduled for closure in 1998 (see Environmental Problems section). It should be noted here that Bolton has had an excellent recycling record and recently the State presented Bolton's recycling committee with an award.

Several large scale projects near the center of Town, namely the construction of the new Florence Sawyer Elementary School and the two affordable housing projects, has again pushed to the forefront the issue of a public water supply. The Selectmen are looking to form a committee to explore the town's options for such a supply. The purchase of land for water supply purposes is currently a high priority in Bolton.

H. Long-Term Development Patterns

Zoning bylaws were introduced in Bolton in 1972. Industrial, business, and residential zones were created. Industrial and business zones were created primarily at locations of existing businesses and included both sides of the frontage roadways at those locations. In the residential zone lot sizes were established to assure protection of individual water supplies and sewerage systems. Bolton's Comprehensive Plan (1971) noted the importance of larger size lots in retaining private water supplies and sewerage systems. Bolton's Comprehensive Plan (1971) noted the importance of larger size lots in retaining private water supplies and sewerage systems. Various federal, state and regional studies (USDA soil Conservation Service, Massachusetts Audubon Society, Metropolitan Area Planning Council) have also stressed the importance of such lots for private water supplies.

In 1973 the town changed the minimum required lot size from 40,000 square feet and 150-foot frontage to 1.5 acres and 200 foot frontage. Subdivision control regulations originally introduced in 1968, were updated by the Planning Board in January 1970 to regulate the development of new roads and houses without frontage on existing roads. The regulations were revised again in 1996 requiring a lot have 80,000 square feet (1.84 acres) with 200 feet of frontage.

For a number of years, there have been discussions in Bolton of "creative" residential zoning to increase the flexibility developers have in providing housing and maximum value from the land while protecting open spaces. One such proposal, backland

zoning (sometimes referred to as hammerhead or "porkchop" lots) was approved at the May 1985 town meeting. The zoning allows reduced road frontage (50 feet) with larger acreage (4.5 acres) under special permit from the Planning Boards. The backland zoning is intended to be used with standard 80,000 square foot lots to increase developer flexibility while reducing the cost to the developer and the town of new roads. In 1987, the town increased allowable common driveways from two houses (with a special permit) to as many as five houses with a special permit. The more flexible, yet controllable common driveways have been used in conjunction with frontage and backland lots to develop parcels of land that might otherwise have seen subdivisions with town roads.

Another creative zoning mechanism utilized by the town is the Farmland and Open Space Planned Residential Development (FOSPRD). A FOSPRD plan allows for reduced frontage and set backs in order to set-aside open land to be held by the town under a conservation restriction or other means. In 1988, a FOSPRD bylaw was passed by town meeting. The FOSPRD concept proved successful through the acceptance of a FOSPRD plan at the Great Brook Estates subdivision which produced a set-aside of 22 acres of conservation land adjacent to a 100 acre parcel of existing conservation land. The failure of the bylaw, however, was that developers had the choice as to whether or not a FOSPRD plan would be submitted. As a result, the aforementioned subdivision was the only FOSPRD filed under the 1988 FOSPRD bylaw.

In an effort to get more developers to use the FOSPRD concept, the Bolton Conservation Trust filed several changes to FOSPRD bylaw in conjunction with the increase in conventional lot size to 80,000 square feet at the 1996 Town Meeting. The major change under the 1996 subdivision bylaw is the requirement that large subdivisions file both a FOSPRD plan and a conventional subdivision plan for consideration by the Planning Board. The Planning Board then decides which plan is in the best interest of Bolton. The changes seemed to have worked. In 1997, one FOSPRD has been filed, and another is in the process of being filed.

Bolton's current zoning map is shown in Figure 3-4. Several small industrial zones were established in the zoning bylaws around and across from the existing businesses such as Future Electronics (previously known as GenRad). A limited business zone was added in 1978 in place of an existing industrial zone. This allowed retail establishments, multiple structures and businesses on the same parcel, and provided for special permit approval by the Selectmen of the proposed developments. There have been discussions and proposals for increasing industrially zoned land to accommodate high technology growth which has occurred throughout the Greater Boston- I-495 area. None of these proposals has been adopted. Continued pressure from developers and landowners to rezone land for commercial/industrial development, especially near 495, is expected. Figure 3-5 shows the percentage of lands in Bolton and their "development" status.

An important addition to the zoning bylaws came in 1983 with the approval of a Site Plan Approval bylaw for commercial or industrial property. The site plan must be submitted to the Selectmen and is reviewed by that Board, the Planning Board and other town boards with an interest in the development. The site plan deals with such topics as driveway and parking locations, screening vegetation between the buildings and the road or abutters' property, landscaping and other vegetation around the site, and the location of open spaces in conjunction with the development.

Bolton has several overlaying zoning districts that are important to open spaces. These deal primarily with wetlands and the flood plain of the Nashua River. The Flood Plain District definition and boundary line were changed during 1980's as a result of a flood study by the Federal government as part of its flood insurance program. The floodplain now extends to include the major brooks in Bolton as well as the Nashua River itself. While the intent of the Federal study and of the revised town bylaw is primarily to define the areas and premium rates for Federal flood insurance, the new bylaw acts as protection of open space by regulating potential development in floodplains. Any development in the flood plain requires protective measures to the dwelling and a replacement of the flood area taken.

A Water Resource Protection District (WRPD) was included in the zoning bylaws in 1973 to protect wetlands near watercourses. This was an extremely important bylaw for the protection of open spaces and of lands that should not be developed. The WRPD, established as the wetland resource plus the 25 foot buffer area surrounding the resource, provides additional local protection of wetlands and streams already regulated under provisions of the state's Wetlands Protection Act. Complications have occurred when administering the two provisions because while the Wetlands Protection Act is a non-zoning authority under the jurisdiction of the Conservation Commission. The WRPD has been implemented by the Board of Selectmen through a special permit approval process.

At the Annual Town Meeting in May 1998, some modifications were made to the WRPD in order to improve its administration. Authority for implementing the provision was transferred from the Board of Selectmen to the Conservation Commission, who had been for the most part administering it in practice before. The definition of the WRPD was also clarified. Although it has always been defined as the area 25 feet from the wetlands since it is a zoning bylaw, only those 25 foot areas delineated on a map were considered to be WRPD by the letter of the law. The new definition omitted the necessity of showing all WRPD areas on the zoning map. In addition, the WRPD is also defined to include the wetland area inside the 25-foot area. This clarification was important for making calculations that require information on protected wetlands areas for assessing buildable area in backland lot zoning and upland protected areas in FOSPRD.

The town has also considered a wetland bylaw in recent years in order to provide greater local control over wetlands protection. A wetland bylaw failed to pass at the 1996 annual Town Meeting. In 1997 changes to the WRPD Bylaw, the "super-WRPD", were brought before the Town Meeting but failed to pass. The Conservation Commission continues to meet with various boards and local groups to develop a wetlands bylaw that will be accepted at town meeting and adequately protect the town's wetlands resources and their values.

In 1996, the Conservation Commission began implementing both the Rivers Act and the new Stormwater Management Policy. A few cases have already brought these new regulations and policies into consideration. Commissioners from Bolton have been attending workshops sponsored by state agencies and regional groups that are aiding commissions in the implementation of these new measures.

Many of the zoning mechanisms necessary to preserve open space, while promoting appropriate development are currently in place. While residential development

is expected to grow, the FOSPRD bylaw will be an effective mechanism for setting aside open space as compensation. Likewise, the selectmen have some control over business development in town. Growth pressures are sure to continue particularly near the Interstate 495 interchange, which will impact the character of the town.

Section 4.

ENVIRONMENTAL INVENTORY AND ANALYSIS

Bolton is rich and somewhat unique in its natural history and diversity, owing in large measure to its geologic past. Due to folding and faulting many millions of years ago, the various bedrock formations have been aligned in a generally north-northeast to south-southwest orientation forming the Vaughn Hills, Wataquadock and Rattlesnake hills. Amidst the compressed and metamorphosed rock persisted several lime-rich deposits - quite uncommon in eastern New England. The soils that have developed atop these deposits have given rise to numerous floral species, many of which are very unusual in central and eastern Massachusetts. The geology of the town has also created many seasonal habitats, most notably vernal pools. These unique ecosystems harbor many rare and threatened amphibian species.

In the extreme northwest corner of town is the Nashua and Still River valley. Hundreds of acres of floodplain provide habitat to a diversity of mammals including otter and white-tailed deer, and to several rare and endangered avifauna. The Still River is home to several uncommon reptiles and amphibians as well.

Across town, Bolton's streams flow into Great Brook, Danforth Brook, and Forbush Mill Brook which eventually enter the Assabet, Still and Nashua Rivers. Unlike the large, slow flowing river on the west of town, Great Brook and Mill Brook are much smaller, relatively high gradient, cold water streams which at one time supported several small mills. Today, the clear flowing streams are popular trout waters.

A. Geology, Soils, and Topography

Bolton has an interesting and well-documented geological history which has produced many of the town's natural features and has helped to shape the kind of growth and rate of development which has taken place. Bolton's geology has greatly influenced the town's land use and open space patterns.

The literal foundation of Bolton is its bedrock that is exposed in numerous road-cuts and as "ledge" along the slopes of most of the town's prominent hills and ridges. The majority of rock underlying Bolton is comprised of meta-sedimentary deposits called gneiss and schist that are roughly 500 million years old. These banded layers are part of the Nashoba Formation, which extends from Lowell to Connecticut. Bolton's hills and ridges, along with others in New England, are now believed by geologists to have been formed approximately 250 million years ago when the continent of Africa collided with North America, compressing and folding the rock layers, creating the Appalachian mountains of which Bolton's hills are part of a northern extension. The best-known relict in the Bolton area of this continental collision, is the so-called Clinton-Newbury fault zone, which occurs along the northwestern-most part of town, in the Nashua River valley.

The general soil composition found in Bolton and surrounding towns is found on Figure 4-1.

At the time of their formation, the Bolton hills were considerably higher in elevation than at present. The force primarily responsible for eroding the one-time Alp-like mountains of New England, was continental glaciation which, in geologic terms, occupied Bolton fairly recently. Geologists estimate that 15,000 years ago there was a one-mile thickness of glacial ice over Bolton.

During glaciation, ice movement was generally southerly, with the glacier's terminus coinciding with Cape Cod and Long Island. As the ice "retreated" during its melting, enormous amounts of water further eroded and smoothed the landscape. Mountains were rounded and valleys were filled with sediment. Boulders, which the glacier had carried from the north, dropped to the land surface as the ice melted and are numerous today in the hills and ridges.

Though only stumps of their one-time prominence, Bolton's hills and ridges are still impressive. The Vaughn Hills and Wataquodock Hill form part of a residual ridgeline, much of which exceeds 550 feet in elevation. This ridge and associated hills offer many spectacular views to Mount Wachusett and beyond looking west and, on a clear day, to the John Hancock and Prudential buildings some 40 miles east.

In addition to its effect on topography, the glacier has shaped Bolton's drainage patterns. It appears that before the glaciers, Great Brook flowed south into Danforth Brook along Hudson Road; Mill Brook at one time flowed northeast to the Great Brook, but was diverted into Danforth Brook and separated from Great Brook by glacial debris at the sites of Little Pond and West Pond. These pre-glacial streams were filled with loose sorted glacial deposits as the glaciers retreated, and are now buried valleys of sand and gravel and important sources of ground water.

Similarly, near the end of the last glaciation, a large lake (Glacial Lake Nashua) occupied an area larger than Quabbin Reservoir. The eastern shoreline of Glacial Lake Nashua lay just west of the Vaughn Hills and Nashoba Regional High School. Today, remnants of the lake are observed in the several large gravel pits that occupy the eastern wall of the Nashua River valley. The valley and associated sand and gravel deposits comprise, potentially, Bolton's richest aquifer. All of Bolton's existing natural ponds, swamps and marshes were also formed by the glaciers.

Among the unique geological features in Bolton are the bedrock outcroppings on the two peaks of the Vaughn Hills (including a type of rock named the Vaughn Hill member by Hansen because it is best exposed at that location), garnets in outcrop on Pine Hill, and the marble and lime deposits near Rattlesnake Hill, the type locale for the mineral "Boltonite." There are numerous old quarries in that area which were worked in the 18th and 19th centuries. Today the quarries are important sources of study for geology students and are of historical value to the town. There are also many boulders and small cliffs where exposed bedrock was broken away by glaciers and deposited up to three miles away.

The soils that have developed in Bolton since the last glaciation 15,000 years ago, reflect the underlying geology. The majority of the town is underlain by glacial till-

derived soils. These soils occupy virtually all land above an elevation of 400 feet in Bolton, with various forms of stratified deposits (ice contact, outwash, terraces and alluvium) occurring in the valleys and plains. Deposits associated with wetlands account for about 8% of the town.

Bolton's soils have played a major role in the development pattern of the town. Though the USDA Natural Resources Conservation Service (formerly the Soil Conservation Service) lists only 16.5% of the town's soils as prime agricultural, history has shown that Bolton's soils have been, and continue to be, well suited for a variety of agricultural pursuits, with apple growing heading the list. The Bolton Preservation Plan, recently completed by a consultant for the Historical Commission, has an excellent summary of Bolton's Geological history.

B. Landscape Character

Bolton is somewhat distinctive among east-central Massachusetts communities in that it still retains much of the openness of colonial times. This is due to the fact that there remain a number of large, active farms that have held firm against the invasion of both suburbia and forest. Nevertheless, subdivision and backland lot development is increasingly visible. However, the vast floodplain of the Nashua and Still Rivers and the opportunities for scenic views from numerous prominent, positive topographic features offer natural opportunities to appreciate Bolton's openness.

It is, in large measure, this diverse variety of land cover types which typifies Bolton's landscape character. The admixture of both deciduous and coniferous woodlands, wetlands of virtually all inland variety, expansive floodplains, high gradient streams, rolling orchards, pastures, hayfields, minor amounts of cropland, proper colonial homes, several white church spires - all smattered like a patchwork quilt on a three-dimensional surface - is what characterizes Bolton's landscape.

A major component of Bolton's open space is held privately in its viable agricultural industry. Approximately, 1,500 acres are owned by local farmers of which 1,000 acres is in active agriculture. Bolton's major agriculture lies in six commercial orchards totaling 550 acres.

The typical signs of a changing community character are increasing in Bolton. 1-495 is the most prominent feature of the town's landscape. Several large office buildings and numerous nondescript commercial establishments are distractions among an otherwise most appealing landscape.

The concerns for Bolton's landscape future are several. Hodge-podge, strip commercial development along Main Street would cut the heart out of a charming town. Standard tract development, replacing woodland, orchard or meadow is incrementally destroying Bolton's landscape diversity. Too many ill conceived "improvements" to Bolton's infrastructure, such as road widening, road straightening, road leveling, signalization, and public sewerage would reduce the town's ability to protect the landscape and community character.

So far, Bolton has been fortunate. Due mostly to many capable and hard working volunteer town board members, growth in Bolton has fit in. Recognition of, and respect for, landscape and architectural integrity have by and large, been the rule in the town's

residential and some business development over the last decade or two. Hopefully, Bolton will continue to be blessed with quality leadership, talented local boards and conscientious developers.

C. Water Resources Surface Waters

The streams of Bolton are tributary to two primary river systems, the Assabet and the Nashua. Wataquadock Hill and the peaks of the Vaughn Hills form the predominantly north-south divide from which surface waters flow to the east and west through three major perennial streams-Great Brook, Danforth Brook and the Still River. Figure 4-2 shows surface waters in Bolton.

Both Great Brook and Danforth Brook flow east/southeast to eventually join the Assabet River in Hudson and Stow. Great Brook rises from tributary streams east of Harvard Road and south of Great Road, which flow a combined distance of over 10 miles through 37 percent of the town's northeastern and central areas before entering Delaney Pond at the Stow boundary. The eastern slopes of Wataquadock Hill are drained by several small watercourses that merge in the wetlands of Sunk Meadow to form Mill Brook, tributary to Danforth Brook. Hog Swamp lies on Bolton's southern boundary with Berlin, also contributes to Danforth Brook. The watershed to the Danforth Brook system encompasses 21 percent of the land surface in the southern section of Bolton.

The third major stream, the Still River, is fed by brooks originating in the Vaughn Hills and on the western slope of Wataquadock, draining one quarter of the town land surface. The Still River converges with the Nashua River in the northwest corner of Bolton. Other unnamed streams to the south also flow to the Assabet River; to the north, Bowers Brook flows to Bare Hill Pond in Harvard.

Great Brook, Forbush Mill Brook and Branch Still River, the latter two both tributaries to the Still River, as well as the Still River itself, are all actively used for recreational fishing. The Still and Nashua Rivers are popular for canoeing. The Still River also supports a small amount of ice fishing. Hunting takes place both along the Still and Nashua Rivers within the Bolton Flats Wildlife Management Area and within the Delaney Flood Control Project, through which Great Brook flows. All of the rivers and streams in Bolton are accessible from roadways, and several offer multiple access points from conservation land.

While the state classification of streams in Bolton is not known, Class B status is assumed, with the exception of portions of the Nashua River. In the case of the fishable streams, the presence of brook trout may indicate higher water quality.

Bolton has few open water resources; the two major ponds are West Pond and Little Pond, both located in close proximity in the center of the town. Bowers Springs Conservation Area contains two small dammed ponds while Fyfehire Conservation Area includes small and large dammed ponds. Welch Pond lies on the western side of Wataquadock Hill, and has a small central area of open water surrounded by shrub swamp. Several smaller water bodies exist within the town including old millponds and farm ponds. Some of these are shallow depressions characterized by seasonal flooding and include vernal pool habitat.

West Pond waterfront property includes that of Camp Virginia, owned by the Girl Scouts of America. The pond itself is included in the State list of Great Ponds. Although no formal public access has been established, many residents of the town use the pond for ice skating and fishing. Little Pond is extensively used by the Boy Scouts of America at Camp Resolute, a part of which is also used as the town beach. Recently, the town was gifted a summer cottage on a five acre parcel of land with frontage on Little Pond. Town boards and citizens are currently discussing recreation and conservation options for the land and uses for the cottage.

The ponds at Bowers Springs are used in the summer by the Bolton Conservation Trust for its Tom Denney Nature Camp. During all seasons the ponds are used by residents of Bolton and Harvard for passive recreation, although no swimming is allowed. The smaller ponds at Fyfeshire and the more remote Welch Pond are less used except in the course of hiking and cross-country skiing, due to dense vegetation around the edges. New scout project improvements have made the Fyfeshire ponds more accessible. Both of these areas offer valuable wildlife habitat due to the variety of vegetational communities.

Flood Hazard Areas

Definition of the major floodplain and floodway areas are contained in the Flood Insurance Rate Maps (FIRM) and the Flood Boundary and Floodway Maps for the Town of Bolton (see Figure 4-3). These maps are published by the Federal Emergency Management Agency (FEMA), dated June 18, 1980. These indicate extensive areas subject to the 100-year and 500-year floods within the town. The Massachusetts Wetlands Protection Act includes jurisdiction over the 100-year floodplain and therefore, those lands are also under the jurisdiction of the Bolton Water Resource Protection District. The Massachusetts Rivers Protection Act includes jurisdiction over lands adjacent to waterways that flow year-round (perennial) to protect important buffer zones.

Preservation of floodplain areas is critical to the town and given that Bolton's floodplains exist within two major watersheds, the Nashua River/Still River and the Assabet River, preservation is important to the region. The FIRM maps for Bolton identify the 100-year floodplains and floodways in association with the following perennial water courses and their tributaries:

- Great Brook
- Nashua River
- Mill Brook
- Still River
- Danforth Brook

Floods in Bolton, associated with excessive rainfall, snowmelt, hurricane and tropical storms have resulted in localized damage in certain low-lying areas of the town. The most significant flooding is usually associated with the Nashua and Still Rivers that occasionally overtop Route II 7 at the western end of town. Fortunately, the extensive natural flood storage provided by the State-owned Bolton Flats Wildlife Management Area which incorporates portions of these two rivers, results in the ability to absorb and

contain flood waters, thereby minimizing flood damage to populated areas. Great Brook, Mill Brook and Danforth Brook are higher gradient streams with smaller tributary watersheds and thus do not exhibit the extreme flooding that is associated with the Nashua and Still Rivers. Furthermore, portions of Great Brook occur within existing town-owned conservation land that provides a buffer during flooding events to adjacent developed parcels. Acquisition of properties for conservation land adjacent to Mill and Danforth Brooks would be desirable as these parcels could also provide a buffer during flooding events.

Wetlands

Bolton is fortunate to contain extensive wetland areas, significant not only for their scenic beauty, but for the integral role wetlands play in water supply and filtration, flood control, storm damage prevention, pollution prevention and wildlife habitat. Wetlands are also shown in Figure 4-2.

In Massachusetts, activities in wetlands are regulated under the Massachusetts Wetlands Protection Act (MGL Ch. 131, s. 40) which is locally overseen by the Conservation Commission. The Bolton Water Resources Protection District (NVRPD) Bylaw also provides considerable protection for wetlands and portions of the buffer zone, setting a strict standard for work within these areas. It is becoming more widely recognized that wetlands are a valuable resource to a community primarily for the reasons stated above.

In Bolton, the most predominant wetland type is a forested wetland with red maple being the most common tree species. As described above, most of these wetlands are contiguous to streams or linked to them and are thus constituents of the floodplain. Notable forested wetlands include Hog Swamp in the southeastern corner of Bolton that forms the headwaters of Hog Brook, a tributary of the Assabet River in Hudson. Sunk Meadow, off South Bolton Road is another large red maple dominated forested wetland which is hydrologically connected to Mill Brook downstream. Just east of 1-495 Great Brook floods a large forested wetland north of West pond. Another noteworthy wetland system that contains a diversity of wetland types is the Bolton Flats Wildlife Management Area. Although only approximately one-half of this state owned area exists in Bolton, it is a highly significant wetland system along the Nashua and Still Rivers.

The Flats provide Bolton with its only true riparian habitat, much of which is bordered by scrub-shrub and emergent wetland types. These habitats provide a haven for wildlife as evidenced by state-listed rare amphibian and bird species that have been documented to breed in Bolton within the Management Area. As described in the Floodplain section above, Bolton Flats provides a critical natural flood storage area that serves to protect adjacent developed areas in Bolton and Lancaster. Although much of Bolton Flats would be classified as wetlands it is very popular with hunters, birdwatchers, cross-country skiers and hikers. During summer and autumn months, much of it is dry enough to be accessible to the public. It is a noteworthy and much appreciated wetland in Bolton. The recently designated ACEC (Area of Critical Environmental Concern) includes the Bolton Flats Wildlife Management Area and lands to the north and west

located in the towns of Bolton, Lancaster, Harvard, and Leominster. The total acreage of this extensive protected riparian system is 12,900 acres.

In 1978, the Wetlands Restriction Program of the Department of Environmental Protection (DEP) had aerial photographs taken of Bolton and other towns within the upper Nashua River watershed. The purpose of this state-directed program was to place strict limitations on any encroachment upon areas designated as inland wetlands by the Inland Wetlands Restriction Act (MGL Ch. 131, sec. 40A). Section 40A includes "inland wetlands and is that portion of any bank which touches any inland waters or any freshwater wetlands and any freshwater wetland subject to flooding." Delineation of major wetland systems within Bolton was completed during this inventory on aerial orthophotos at a scale of 1-inch equals 600 feet. Although the baseline inventory was completed for Bolton, funding was eliminated for the Wetland Restriction Program. Thus, regulatory goals for protecting these wetlands was never implemented by the state DEP. More recently, the DEP has instituted the Wetlands Conservancy Program to extend mapping of Massachusetts wetlands.

Aquifer Recharge Areas

Aquifer and recharge area data exist for the town in the form of maps prepared by Goldberg-Zoino Associates. There is one high yield aquifer covering several hundred acres on the west end of the town, some of which is preserved, some already developed into single family homes, and other land which might be set aside. For example, the aquifer lies under the International Golf Course, recently re-zoned away from development as recreational open space, and under Bolton Flats, State preserved open space. It also lies under the Town Dump, soon to be capped, the Eastwood Cemetery, and under Bolton Orchard, privately owned farmland. This same aquifer also underlies another 65 acres of privately owned open space. Additional land under the aquifer is subdivided into individual single-family house lots.

There is a medium yield aquifer near the center of Bolton in the area of Nashoba Regional High School. Some open fields will remain around the high school, but most of this area is already being developed into individual single-family house lots.

There is another smaller medium yield aquifer in the east end of town, underlying the Delaney parcel of State preserved land. This is also where Great Brook flows through an orchard (Bolton Springs Farm) and into the Delaney land. There are a number of single-family homes above the aquifer on Sugar and East End Roads.

D. VEGETATION

Forest Land

Typical of the south central New England area, Bolton's upland forests are characterized by a mixed deciduous community. Red, black and white oaks are interspersed with hickory, cherry, maple and ash, in varying association with white pine, which also occurs in small groves at lower elevations. Examples of white pine stands are to be found along Forbush Mill Road, in the Fyfeshire and Vaughn Hills Conservation Areas, and at the base of Pine Hill.

Cooler, more mesic areas are dominated by beech, birch and hemlock, all of which are less common species in Bolton. Some species, such as sycamore, silver maple, basswood and tupelo, occur here toward the northern limit of their ranges, with higher and cooler elevations just 35 miles away lacking significant populations. The larches, firs and spruces of more northern parts of the state are for the most part absent in Bolton.

Forested wetlands are comprised of red maple, ashes and elms. Floodplains along the Nashua and Still Rivers in some sections support continuous forest with silver maple and sycamore among the more interesting species.

Of the over 12,000 acres in Bolton, over 2000 acres are currently under the Chapter 61 tax incentive program for either forestry or agricultural purposes. Some very significant woodland areas are protected in perpetuity through state or local ownership. All forested areas are in second or third growth, but are approaching maturity in some locales.

Of far more influence is the current tendency to utilize existing frontage for house lots, and to design long driveways extending into single-family backland house lots. This design alternative seldom results in the large scale clearing or logging operations common to subdivision design and construction. One recent large subdivision, Nashaway Estates II, created Kettlehole Road, resulting in significant amounts of lost forest, in part to create views of the Nashua River Valley. This trend has continued with successive subdivisions and the Planning Board and Conservation Commission are working with developers to limit tree cutting where possible.

Upland forested areas coincide with the major hills and adjacent slopes, including Powderhouse, Spectacle, Rattlesnake, Barrett, Pine and the Vaughn Hills areas. The exceptions to this pattern are Wataquodock and Long Hills, which include large areas of cleared agricultural land. Between the hills, roadways usually follow the bases of the slopes, leaving the summits and upper elevations in continuous cover or agricultural use.

Powderhouse Hill between Great Road and Golden Run Road, and the woodlands north of Golden Run to the Harvard line comprise the largest undisturbed forested tract west of Route 495 in Bolton. However, one recent subdivision, Sugar Mill, and the second impending development, Quail Run, are significantly decreasing forested open space in this area. The second largest continuous area is the Pine-Barretts- Spectacle Hill complex, separated by roadways, but with continuous interiors. Rattlesnake Hill and the Vaughn Hills also contain significant forest resources. Smaller forested areas lie between virtually all other roadways, and cover most undeveloped land, with the exception of agricultural, mowed and landscaped areas. The largest protected areas are the Phillips (75 acres), Rattlesnake Hill (106), the Powderhouse Hill (75), and the Vaughn Hills (101). Major wooded swamp areas include Sunk Meadow and Hog Swamp, the wetlands bordering Danforth and Great Brooks, and the floodplains and wetlands bordering the Nashua and Still Rivers.

Much of the forested land in Bolton is accessible to the recreational user, as most landowners do not post their properties, and many welcome residents engaged in passive recreation, some even clearing trails for these users. With the exception of the Bolton Flats Wildlife Management Area and the Delaney Flood Control Project, hunting in

Bolton is prohibited without the landowner's permission, and is not permitted on town-owned land. In the permitted areas, hunting is extremely popular.

The extensive areas of till underlying forested areas increase the importance of erosion and sedimentation control, as in developments where clear-cutting has taken place, the poor permeability has resulted in the loss of topsoil down hillsides, and damage to understory communities adapted to shade from the tree layer.

Economic impacts from forest land has been realized mostly by the individual landowner contracting with logging companies for land clearing under the Forest Practices Act, and site preparation for residential development. During the early 1980's, a successful woodcutting program was managed on several parcels of conservation land, including Vaughn Hill and Powderhouse Hill. Despite this activity, there remain many areas of public land suitable for such harvesting. In recent years, the concept of "healthy" forests through forest management have come into question, since many wildlife species depend upon dense protected forests and dead and dying trees or snags for food and shelter.

General Inventory

The overall vegetational community characteristics are determined to a great extent by the forest cover. Within the separate forest types occur smaller plant communities of special interest. Forest cover types common to Bolton are described above in the Forest Land section.

The importance of the Nashua River floodplain as a composite of wetland community types is related both to geologic and hydrologic influences, and is further affected by agricultural use and land management practices for the benefit of wildlife. The area includes the previously mentioned bottomland hardwoods, extensive sedge meadows and shrub swamp, and intensively used agricultural fields. Harvesting in these areas is managed so as to leave a portion of the harvest for wildlife, most importantly the migratory waterfowl. Similarly, hedges, shrub areas and open water are managed for a balance of fruit and seed bearing plants. As a result, the area has a vast potential for wildlife habitat and varied recreational opportunities related to wildlife and scenic values, to include hunting, fishing, trapping, bird-watching, cross country skiing and hiking.

A second extremely unusual vegetational community exists in the Rattlesnake Hill area, where the limestone substrate creates soil conditions required by lime-loving species. Fortunately, most of this area is under protection, except for some isolated and adjacent parcels. The challenge remains to encourage recreational uses while protecting the plant communities established there. A flora of this area has been started, and includes several hundred species of wildflowers and other herbaceous plants, with a section on trees and shrubs being planned. Another management objective is to regulate shrub and tree growth in a wet meadow supporting a station of *Gentianopsis crinita* (fringed gentian), which is on the "watch list" of the Massachusetts Natural Heritage and Endangered Species Program.

Bolton has three areas that support bog vegetation: Cranberry Meadow, Welch Pond and the small pond on the Gould Conservation Area. Both the latter host

communities of *Cephalanthus occidentalis* (buttonbush), and the Gould parcel also contains a colony of *Woodwardia virginica* (Virginia chain fern). All three fortunately are included in Bolton's list of protected areas, and require no management objectives other than monitoring of adjacent land use.

Other herbaceous plants of interest are colonies of *Lobelia cardinalis* (cardinal flower) at the Fyfehire Conservation Area and along Sugar and Meadow Roads. The latter station is presently threatened by intensive agricultural use. The Hansen Conservation Area and adjoining Turner land contain an area of shrub swamp and open marsh with a sizeable stand of *Decodon verticillatus* (water willow), protected both by its presence in bordering vegetated wetland and by its location between conservation land and a donated trail easement.

A pine forest off South Bolton and Wheeler Roads includes a very unusual colony of *Linnaea borealis* (twinflower), common in northern New England but possibly at the southern limit of its range in this area. Landowners have been approached to encourage protection of the plants.

An area off Bare Hill Road supports a small colony of *Isotria verticillata* (whorled pogonia), also uncommon in this region. The plants are currently threatened by development plans, and the owner has been requested to provide an undisturbed buffer for the station. A second smaller community of *verticillata* exists east of Nourse Road.

The presence of these plants in widely separated sections of the town indicates both that varying climatic and ecological conditions exist within Bolton, and that sufficient undisturbed areas remain to reduce immediate threat to a diversity of vegetational plant communities. Preliminary work has been done to locate interesting plants both in a floristic list and on a USGS quad sheet of Bolton.

Larger areas of unusual vegetation communities exist within the framework of the mixed deciduous forest, to include:

- Isolated pine knoll on the east bank of the Nashua River
- Hemlock stands off Forbush Mill Road, Old Sawyer Road, Annie Moore Road, and Old Bay Road
- Tupelo stand on the shores of West Pond
- Rock ravine community off Annie Moore Road
- Swamp white oak surrounding a possible vernal pool off Whitcomb Road

Economically the most important native plants are the oaks and white pine, both existing in places as commercially harvestable resources; most woodlot management in the town has been exercised as selective cutting, preserving the areas' renewable potential.

The agricultural planted areas are most notable for fruit and vegetable crops, with apple orchards covering a significant amount of land. The inclusion of this resource is due to its long-standing nature as a feature of the vegetational landscape.

Rare and Endangered Plant Species

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) has records of two rare plant species occurrences in Bolton. Both species are within the Orchid Family that comprises several genera of orchids. *Arethusa* (*Arethusa bulbosa*) is listed as threatened by NHESP. This species is a spring flowering orchid that usually inhabits sphagnum bogs. The second listed species, autumn coralroot (*Corallorhiza odontorhiza*), a saprophytic plant, is rated as a species of special concern by NHESP. This orchid usually flowers in late summer and fall and is found in woodland areas. Coralroots are so named due to the short, stubby-branched root that resembles coral. The fringed gentian (*Gentiana crinita*), occurring at the Lime Kiln Conservation Area, is also listed as a species of special concern. The sensitivity of the area within which these two species occur, prevents their disclosure to the public. This is to prevent damage to sensitive populations through collection or vandalism.

E. Fish and Wildlife

Inventory

The diversity of woodlands, open fields, orchards and wetlands in Bolton provide ideal habitat for supporting many wildlife species. Wetlands in association with undeveloped upland areas have long been recognized as important and necessary habitat for a variety of wildlife. At present, Bolton has three certified vernal pools. Areas such as Bolton Flats Wildlife Management Area along the Still River in Bolton and the extensive undeveloped land along Great Brook in the Rattlesnake Hill area offer superb habitat for fisheries and wildlife.

The wooded swamps and marshes commonly found adjacent to the Still River support large number of migrant and nesting game birds, waterfowl and songbirds, many forms of water dependent mammals, such as muskrat, mink and otter, and upland mammals as white-tailed deer, red fox and skunk. The Still River wetlands and floodplain within Bolton Flats are also home to state-listed rare species such as Blanding's turtle, American bittern, least bittern and the pied-billed grebe, as designated by the Massachusetts Natural Heritage and Endangered Species Program.

The Rattlesnake Hill area offers habitat for numerous resident and migratory songbird species, upland game birds such as ruffed grouse and ring-necked pheasant, and recently, wild turkey. Large mammals, such as white-tailed deer, and vernal pool species such as spotted salamanders also inhabit this interesting area of town. Two additional state-listed species, the blue-spotted salamander and marbled salamander occur in several wetlands across town. Other notable areas in Bolton for wildlife due to size of undeveloped areas, interspersed vegetation types and proximity of open or flowing water include Vaughn Hills, Wataquodock Hill, Spectacle Hill and Long Hill.

A small portion of the extensive Delaney Wildlife Management Area, owned by the State Division of Fisheries and Wildlife is found in east Bolton off of East End Road. This large flood impoundment area is located between the towns of Bolton, Stow and Harvard. The Delaney parcel as well as Bolton Flats are stocked with ring-necked pheasant by the Division of Fisheries and Wildlife in October of each year for hunting purposes, as part of the ongoing game management program.

Bolton's significant fishery resources are found within the Still River, Great Brook, Danforth Brook and the two ponds Little Pond and West Pond. The Still River supports a warm-water fishery with the principal game fish being large-mouthed bass with some brown trout. Other species such as bluegill, sunfish, and perch are also present. The Division of Fisheries and Wildlife stock both Great Brook and Danforth Brook with brown trout in the spring. Little Pond and West Pond are popular warm-water fishing areas. Public access is not available at either pond for fishing as there are no boat launching areas and no motorized boats are allowed on either pond. Ice fishing is very popular in the winter months (although there is no public access) and species such as carp, large-mouthed bass and bluegill are found in both ponds.

Corridors

Wildlife and fish populations cannot survive within restricted habitat confines. Wildlife habitat corridors extend in a linear direction beyond limits of conservation lands and town boundaries. Rivers and streams form the basis of many natural corridors through which fish and wildlife travel, breed, feed, and rest during migration. Protecting and managing these streamside corridors is necessary for wildlife protection and management.

In Bolton, the most significant corridor for wildlife and fisheries exists along the Still River, and in the Bolton Flats Wildlife Management Area. This State managed preserve is the second most important stopover in Massachusetts for migratory waterfowl. This 698 acre conservation area is an important component of a greenway system along the Nashua River that extends for nearly 70 miles and encompasses over 8,000 acres of land protected local, state and federal agencies and private entities. Bolton Flats is within proximity to the federally owned Oxbow National Wildlife Refuge downstream in Harvard. In addition, the U.S. Fish and Wildlife Service recently obtained 4,830 acres of the South Post of Fort Devens that will be added to the Oxbow National Wildlife Refuge. Much of this land is also part of the recently designated Central Nashua Area of Critical Environmental Concern (ACEC).

Another natural wildlife corridor in Bolton is the Vaughn Hills/Bowers Springs complex that extends from the Nashoba Regional High School on State Rte II 7 northeast, across the Vaughn Hills Conservation Area and to the Bowers Springs Conservation area which extends between Bolton and Harvard. The Bolton Conservation Trust recently was granted a conservation restriction on the 41 -acre Held Property, which with the Hanson purchase in the early 1990's provides approximately 73 acres of additional protected land in the Vaughn Hills area. This linkage of conservation lands extends further north into Harvard as Bowers Springs interconnects to other open space parcels in the town of Harvard. This 275-acre corridor allows wildlife to migrate through the open space system that is of greater value to maintaining regional animal populations than separate and isolated conservation lands.

The Rattlesnake Hill area, encompassing the Lime Kiln/Quarry Conservation Area, the Phillip Phillips Family Conservation Area, the Rattlesnake Hill Conservation Area, the Harris Farm Conservation Area and extending northeast to the Delaney Wildlife Management Area, provides several hundred acres of interconnected

conservation lands which extends into Stow and Harvard through the Delaney property. As with the Vaughn Hills area, the Rattlesnake Hill complex is a priority area in Bolton for additional land acquisition, to extend the existing wildlife corridors and to provide permanently protected open space for its citizens. Local, state, and federal partners should establish a land acquisition plan for the region which would connect the Oxbow/Bolton Flats Complex on Bolton's western boundary with the Great Meadows National Wildlife Refuge Complex in the Towns of Wayland, Concord, Sudbury, and Hudson to the east and south.

Rare, Threatened and Endangered Animal Species

The Massachusetts Natural Heritage and Endangered Species Program (MNHESP) currently lists ten rare animal species occurrences in Bolton, as listed in the following table.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status*</u>
Marbled Salamander	ambystoma opacum	Threatened
Blue-spotted Salamander	ambystoma laterale	Special Concern
Four-toed Salamander	Hemidactylum scutatum	Special Concern
Eastern Box Turtle	Terrapine carolinum	Special Concern
Blanding's Turtle	Emydoidea blandingii	Threatened
Spotted Turtle	Clemmys guttata	Special Concern
Wood Turtle	Clemmys unsculpta	Special Concern
American Bittern	Botaurus lentiginosus	Threatened
Least Bittern	Ixobrychus exilis	Threatened
Pied-billed Grebe	Podilymbus podiceps	Threatened

*Listed pursuant to the Massachusetts Endangered Species Act, MGL Chapter 131

Three of the 52 current state records for the marbled salamander are in Bolton. This species was first noted here in 1969.

As with rare vegetation, the sensitivity of these animal populations prohibits their locations from being publicized. The Conservation Commission is especially interested in protecting these populations, and their habitats are priorities for town acquisition.

Vernal Pools

Vernal pools have received a considerable amount of attention in recent years due to their ecological and hydrological importance. These pools typically form in the spring and fall during periods of high rainfall and elevated water tables. During drier periods of mid to late summer, they will often be completely devoid of water. Because vernal pools dry up, they cannot support fish species. For this reason, many amphibian species have

adapted to breeding in vernal pools where their offspring have a greater chance of survival. A few of these species are listed under the State's Endangered Species Act, notably the blue-spotted and marbled salamanders, both recorded in Bolton.

Vernal pool habitats are highly at risk from development. Because of their temporary nature, they can become filled during development, unless they have been certified. If certified by the State Division of Fisheries, vernal pools receive protection under the State Wetlands Protection Act. As a result, many towns and local groups are looking for vernal pools each spring to certify and protect.

A number of listed amphibian species have been recorded in Bolton and several of these depend on vernal pools for breeding habitat. The Bolton Conservation Trust has held a number of workshops to educate school children and the general public about vernal pools and to enlist volunteers to look for and certify pools in town. Through these efforts, the number of certified (and thus protected) vernal pools has grown over the past few years. Locations of certified vernal pools include: in the old quarries at the Lime Kiln; south of Golden Run Road; on the east side of Harvard Road; behind the Emerson School; behind the Country Cupboard Store near the intersection of Routes II 7 and 85; and on the Philips Property (see Figure 4-4).

Along with certifying additional vernal pools, the town hopes to work with the Division to inventory which species are using the vernal pools. Thus far, Marbled Salamanders have been found in the Lime Kiln quarries and adult marbled salamander have been found near the Country Cupboard. In addition, blue-spotted salamanders have been found in the other pools in town.

Bird List

See Appendix G for Division of Fisheries and Wildlife's "Birds of the Bolton Flats Wildlife Management Area."

Mammal List

See Appendix H for a list of mammals commonly found in southern New England.

F. Scenic Landscapes, Unique Areas and Historical Features

Scenic vistas have been inventoried by the state through the Massachusetts Landscape Inventory. Figure 4-5 shows important scenic areas identified by the inventory in Bolton. Distinctive areas are noted with a "D", and other notable areas with an "N."

Scenic vistas noted in the inventory and others well known to residents in town include:

- Long Hill road looking west over rolling hills, grassy meadows and forested areas. Also at Annie Moore Road there is an impressive scenic view to the north, looking at Great Brook and the Delaney area.
- Wataquaddock Hill Road looking east over apple orchards, pasture land and the towns lying beyond.

- Nourse Road looking west to grasslands, forest and many distant hills, including land in agricultural use.
- Vaughn Hill Road looking west over Bolton Flats conservation area and the Still and Nashua Rivers. From the Southern peak of the Vaughn Hills, now the site of a private residence, there is a spectacular view to the west and northwest to Mount Wachusett and Mount Monadnock.
- West Berlin and Sawyer Roads looking east over farmland and forests to the Boston skyline on a clear day.
- Wilder Road looking west over apple orchards, fields and forest to Mt. Wachusett.
- Old Bay Road east of Wataquadock Hill Road overlooking rolling farmland.
- Kettle Hole and Still River Roads with views to the west over Bolton Flats Wildlife Management Area and the Nashua River Valley to Mount Wachusett.

Figure 4-6 shows many of the unique areas of Bolton discussed in this section and the ones that follow.

Major Characteristics or Unusual Geologic Features

Among the unique geological features in Bolton are the bedrock outcroppings on the two peaks of the Vaughn Hills. The predominantly quartzitic rock of the Worcester Formation has been named the "Vaughn Hill member" in this area.

Another interesting geologic site in Bolton is the kettle hole, left in the terrain by the receding glaciers of the last glaciation. It is located on a loop trail just off Kettle Hole Road. Although there are other fine examples of ice contact deposits in Bolton, this kettle hole is most noteworthy due to its size and the fact that it is dry and can be walked.

The marble and lime deposits near Rattlesnake Hill also constitute unusual geological features of Bolton. The lime kiln and quarry areas are preserved on conservation land and date back to the early 1700's, when limestone was quarried and burned in the kiln to make lime for plaster. The unique grey plaster is still found in many of the old homes in the area. The quarry area was purchased from Gertrude Anderson in 1974 and, with the help of a state bicentennial grant and generous efforts of many in the town, the lime kiln was restored in 1976. Boltonite is also found in the quarry, an unusual mineral named for the town. Thirty other minerals can also be found in this area. The adjacent Rattlesnake Hill conservation land is covered with glacial age rock formations, including huge boulders, small caves and small kettlehole ponds.

Another unusual geologic feature is the Spectacle Hill esker and the deep gorge between Spectacle Hill Road and South Bolton Road created by the glaciers. There is also a brook running through the gorge, although this area is well hidden by the surrounding woods.

There is an esker on Parcel A of the Vinger land recently donated to the town as conservation land. This lies off Berlin Road near the Bolton/Berlin boundary. It is a ridge of high land created by the deposition of sediments associated with a glacial stream. Another esker can be found just to the west of Sugar Road near the intersection with Main Street.

Drumlin hills can also be found, predominantly on the eastern side of Bolton. Examples of Drumlin hills are Barretts and Stratton Hills in the southern eastern part of town, Spectacle Hill and Long Hill.

Pine Hill is also mentioned in Hanson's "Geology of the Hudson and Maynard Quadrangles" because of the continuous beds of garnet occurring here in association with amphibolite.

Cultural and Historic Areas

The Powder House on Powderhouse Hill dates back to 1812. It was restored in 1957 by the Lions Club. The almost four acres surrounding it were given to the town in 1916 by George B. Newton, and another adjoining acre was given by his sister Fidelia Newton in 1930.

The Whitcomb Garrison House is noted as the oldest house in town, built in 1681. While the house, is no longer standing, the foundation of the house has been uncovered and protected and remains one of the most important historical artifacts in town.

The area between Wilder Road and Forbush Mill Road includes the foundation of an old ice house, lovely stone walls along an abandoned cart road, and several scenic fields and wetland areas. This section was cited in the Shrewsbury Ridge Report as being of prime scenic importance. In addition, the Forbush Mill Brook and two old darn sites exist as historical remains of water-powered mills of colonial Bolton.

In the Whitcomb Road area there is also a pond and mill site, both scenic and providing a buffer from Rte. 495 for residents of the Whitcomb and Sugar Roads. The dam site and mill pond on Century Mill Road at South Bolton Road is among the first in Bolton.

David Whitcomb's Inn on Old Sugar Road is the oldest house in Bolton dating from 1700. It was once the private home of Dr. Phillips, who donated 75 surrounding acres as conservation land.

There is an old railroad bed that is of both scenic and historic interest, running from Lancaster through Bolton. It was built in the early 1870s, but only one train passed over the line before service was abandoned. In many areas through which the rail line passes the bed is several feet higher than the surrounding terrain and provides a natural path for a trail. In the Wilder Road area some stone work from railroad underpasses still remains. One of the best areas to see the old railroad bed is just west of Hudson Road as it runs north to south along Danforth Brook.

Areas of Critical Environmental Concern (ACEC)

Part of Bolton was recently included in the newly designated Central Nashua River Valley Area of Critical Environmental Concern (ACEC). Figure 4-7 shows the boundaries of this area. This ACEC, announced in January 1996, totals 12,900 acres of land in the towns of Lancaster, Leominster, Harvard and Bolton. The area in Bolton is nearly identical to the boundaries of the Bolton Flats State Wildlife Management Area, with the only exception being that the ACEC boundary is Route 10, while the

Management Areas boundary is slightly west of Route I 10. The total acreage in Bolton included in the ACEC is 700 acres.

The next step for the ACEC is to develop a management plan so that specific regulations can be adhered to. This will be a major process. While the ACEC program was created in the mid- 1970's and the total number of ACECs is currently 25, only one, the Neponset River, has a management plan. A second ACEC, Pleasant Bay, will also soon have a management plan. Both plans were developed with considerable State and local resources. A long-term goal of Bolton and its neighboring ACEC communities should be to develop an ACEC management plan for the Central Nashua River Valley.

Environmental Problems

Bolton owns and operates an unlined landfill on Forbush Mill Road. For some years, groundwater monitoring has been conducted at the landfill and the landfill has operated under a management plan approved by the Department of Environmental Protection. The volunteer recycling program has helped to extend the useful life of the landfill. Nevertheless, the state has ordered closure of Bolton's as well as all other unlined landfills. The town has agreed to a closing schedule. A design engineer will be selected by mid-August and the closure design will be completed by this year. The town is on schedule to close the landfill in December 1998 and with the capping completed in 1999. The town is also studying alternative means of solid waste disposal for the future. If a transfer station is decided upon, land area will be needed to house the facility. State regulations seriously restrict the possible uses of capped landfills. Monitoring of possible leachate pollution will continue for many years.

As a result of faulty installation of some underground gasoline tanks at the Highway Bam on Forbush Mill Road, gasoline leaked into the surrounding soil, polluting the ground around the Bam and then traveling across Forbush Mill Road to the restaurant and houses. In 1994, the town began a state-supervised clean up which will continue for a number of years. This includes providing drinking water as needed for as long as required at the surrounding residences and businesses. Ultimately town ownership of some of these properties may be required.

The hazardous chemical contamination cleanup at the former GenRad site, now Future Electronics, was discovered during the 1980s and has been largely completed under state supervision. Apparently, the problem is still in the process of being remediated through the Massachusetts Contingency Plan (MCP) process. Additional spills have filed with the Department of Environmental Protection's MCP process at the former Gulf station at the intersection of Routes II 7 and 85. The hazardous waste from this station has recently been removed and the station is now operated under the Mobil sign.

Bolton's private water wells and private sewage disposal require the town and its residents to be ever vigilant to avoid contamination and malfunctions. Board of Health regulations and careful enforcement of Title V by the Board of Health help to assure continued environmentally safe operation of wells and septic systems. The new requirements for septic system testing in conjunction with sale of a house, while inconvenient in some cases and an unexpected homeowner expense in other cases, helps

assure continued safe operation of systems and the resultant protection of the groundwater. There are some concerns about the age and concentration of septic systems in the center of Bolton and the possibility of development of senior housing on town land near the center. Preliminary discussions amongst town boards in 1995-6 dealt with future sewage disposal in this section of town and the alternatives were multiple septic systems to fail. A study committee was discussed, but was never officially appointed. This remains a probable study as plans for senior housing gel. Although the likely solutions of a sewage treatment plant for the area or tying into neighboring towns' sewers will be expensive, environmental protection will be improved.

Section 5.

INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

This section contains a complete listing of land parcels in town that are of interest for conservation. All existing town-owned lands, public and private conservation lands, and properties with development restrictions are mapped on Figure 5-1. The first section (A) comprises the protected open space in the town of Bolton. This section presents a list of lands owned in fee simple by the State, Town, or the Bolton Conservation Trust for the purposes of conservation in perpetuity. These lands are grouped into four distinct areas of town that forms the core areas of conservation interest in Bolton. The final part of this section lists land for which a conservation restriction has been placed, and development activities limited. A summary of these lands is provided below.

The second section (B) lists lands in Bolton that are not protected open space. These lands are divided between private lands in the Chapter 61 Program, and lands not enrolled in the Chapter 61 Program. Although not permanently protected, lands in Chapter 61 have taxes deferred, thereby providing an incentive to remain in the program and not to convert to other uses. When property values rise significantly, however, the back tax payments become only a small portion of the profit and during the recent building boom, several parcels have been taken out of the Chapter 61 Program and developed.

The final section lists areas of conservation interest. This section is prioritized between lands of immediate priority and action, lands near the four core areas as second tier priority, and other important lands in town of note.

Distinguishing Between Protected and Unprotected Open Space

With only 4,000 residents within 20 square miles, Bolton in 1998 is comprised of a significant amount of open space. This open space can be found along most roadways in town as fields, forests, wetlands, and surface waters. However, only a small portion of these open spaces are currently protected in perpetuity. The future uses of the unprotected open spaces are uncertain. This is why it is important to define and distinguish between "protected" and "unprotected" open space.

Open spaces are protected when a parcel of land or the future uses of a parcel of land is owned and reserved for specifically for conservation. This is accomplished by

purchasing the development rights or by purchasing the entire property in the name of conservation. Both public agencies and private institutions may purchase property or the development rights, known as fee simple, however, in order to receive legal protection in the future as conservation, these lands must be protected under State Statutes and by the appropriate legal documentation.

A municipality that plans to purchase a property for conservation purposes must state so in the article language proposed at Town Meeting. The article must state that the land is being purchased for conservation purposes under Massachusetts Chapter 40, Section 8C. The municipality may purchase land for purposes other than conservation, including, schools, infrastructure, cemeteries, etc. It is important to distinguish that these municipally owned properties are not permanently protected. While certain uses may be restricted on other municipal land purchases, the land receives permanent protection in the name of conservation only if it is protected under Massachusetts Chapter 40. Bolton's conservation lands are protected under Chapter 40, including the Fyfeshire, Vaughn Hills, and Powderhouse Hill. In addition, properties, such as the Lime Kiln, that were purchased with state financial assistance for conservation lands, must be purchased under Chapter 40.

Both municipalities and private institutions may purchase or receive in gift the development rights to a particular parcel of land. This is also known as a Conservation or Agricultural Preservation Restriction. A legal document known as a conservation restriction must be appropriately developed and signed by the owner (or purchaser) of a property and the entity (either municipality or private institution) that will hold the development rights to the property. This legal document is authorized under Massachusetts Chapter 184 Sections 31-33. Private institutions may also place a conservation restriction onto a property that it purchases to ensure that the property is permanently protected, even beyond the life of the institution or past its ability to own the property.

Some lands in Bolton currently receive temporary protection under the Chapter 61 Program. Landowners may be eligible to receive property tax breaks under the Chapter 61 Program if they agree not to develop their land. Landowners may qualify if they are farming the land (Chapter 61 A), managing forested land (Chapter 61), or if using land for recreational purposes (Chapter 61 B). Landowners are not permanently bound to the program, however, and may depart the program upon giving the municipality a "right of first refusal" to purchase the property and paying the back taxes. When land values increase significantly as has been the case in recent years, there is considerable financial pressure to exit the program even with the financial penalties. Although these lands are not permanently protected, the Chapter 61 Program plays an important role in providing landowners with incentives not to sell for development and allowing for a mechanism where the municipality has an opportunity to purchase a property before it is sold for development.

<u>Land Type</u>	<u># of Parcels</u>	<u>Total Acres</u>
Protected Open Space	42	1448.98
Conservation Restrictions	20	447.26

A. Protected Parcels ACREAGE IN PUBLIC OPEN SPACE

<u>Name</u>	<u>Year</u>	<u>Acreage</u>	<u>Cost</u>	<u>Ownership</u>	<u>Protection</u>
Delaney		72.72		State	
Bolton Flats		454.77		State	
Memorial Field		11.11		Town	
Derby/Sawyer		51.09	\$80,000	Town	
Flatley Field		59.70		Town	
Emerson School		19.76		Town	
Nashoba Reg. H.S.		47.00		Town	
Pond Park		1.85		Town	
Town Hall		5.73		Town	
Annie Moore	1987	10.00		Town	
Dunnell KH	1988	2.31		Town	
Fyfeshire	1969	31.00	Gift	Town	Ch 40
Haynes-Wheeler	1970	6.75	Gift	Town	Ch 40
Bower Springs	1973	48.09	\$46,000	Town	LWCF
Philbin Land	1973	60.75	\$ 8,700	Town	
Tenney-Slader	1975	1.40	Gift	Town	Ch 40?
Cranberry Meadow		1.27	Gift	Town	Ch 40
Rattlesnake Hill	1976	10.00	Gift	Cons. Trust	
Lime Kiln	1976	40.58	\$17,500	Town	Self Help
Vaughn Hills	1976	100.60	\$23,750	Town	Self Help
Welch Pond	1980	12.68	\$4,950	Town	Self Help
Finlay Land	1980	1.80	\$2,400	Town	Ch 40
Gould Land	1986	8.27	\$9,300	Town	Ch 40
Annie Moore	1987	81.16	Gift	Town	
Goodrich Land	1987	13.73	\$20,000	Town	Ch 40
Harris Land	1988	55.44	Gift	Town	Ch 40
Phillips Land	1989	75.89	Gift	Cons. Trust	TTOR
Vinger Land	1990	28.00	Gift	Town	Ch 40
Wilder Pond	1990	5.00	\$5,000	Town	Ch 40
Hansen Land	1991	17.00	\$20,000	Town	Ch 40

White Land	1993	18.00	Gift	Town	Ch 40
Wallie Land	1994	9.50	\$13,500	Town & Trust	Ch 40
McGourty Land	1994	3.23	Gift	Cons. Trust	Ch 40
Dunnels	1995	2.31	Gift	Town	
Mentzer Land	1995	22.06	FOSPRD	Cons. Trust	
Partridge/Winery	1995	3.00		Cons. Trust	
Sochalski	1996	31.28	\$15,000	Town	Ch 40
Persons Park	1996	5.50	Gift	Town	
Richards	1997	5.20	Gift	Town	
Smith, Don	1997	0.75	Gift	Town	
LeDuc	1997	1.70	\$6,650	Town	
Mentzer #2	1997	5.00	Gift	Cons. Trust	
Sullivan	1997	6.00	Gift	Cons. Trust	
TOTAL		1448.98			

Core Conservation Areas

1. Powderhouse Hill/Golden Run

This area begins behind the Town Hall in the center of town. On a wooded hillside stands the old Powderhouse from 1812, restored by the Bolton Lions Club in 1957. A trail system, called the Bolton Historical Land-Use Trail, was recently built over part of the Old Town House Road, the 1764 cart path which connected the east side of town with the Church. Two formerly private parcels of land lying along this wooded trail were purchased by the Conservation Commission, consisting of the 14 acre Goodrich parcel and the 61 acre Philbin land. There are trail easements to Golden Run Road and the Whitcomb Garrison site to the northeast and Sugar Road to the East. The land is a mixed hardwood and softwood forest that borders a large wetland to the southeast. The land is also crossed by small streams.

2. Rattlesnake Hill/Phillips

At the heart of this large area of protected land in the northeastern quadrant of Bolton is the 10 acre Rattlesnake Hill section, acquired by the Bolton Conservation Trust in 1976. Large borders and rocky ledges abound, left by retreating glaciers, and providing spectacular scenery throughout this mixed forest area. The land is hilly, with a number of large vernal pools. To the south, 55 acres gifted to the town by the Harris family contains the same general topography. To the west a total of 75 acres of gifted and restricted land is lower, with lovely streams and a large wet meadow. This is the Phillips land, and the property includes the David Whitcomb's Inn, now a private home, and one of the oldest houses in Bolton.

Recently a 22-acre parcel to the South has been added to conservation due to the development use of a FOSPRD. Between these areas, however, lay over 100 acres of privately owned land

All of the land is interspersed with trails, and provides excellent wildlife habitat, including a herd of at least 20 deer, a moose in winter (!), red fox, grouse, coyotes, rare turtles and salamanders, to name only a few.

The protected land extends to Rt. 117 where there is an historic lime kiln and a meadow where rare flowers grow. Back a short distance is an old rock quarry, still full of water and still containing some unusual rock specimen, although under siege by rock hounds. The Conservation Trust and the Garden Club cooperated in establishing a wildflower trail along the Bob Horton Trail in this area, with markers identifying over 150 species, and it is very popular with the public.

3. Vaughn Hills/Bower Springs

The 100-acre North Peak of Vaughn Hills has been preserved since 1976. The more open South Peak, with spectacular views of Bolton's orchards and Mt. Wachusett to the west, was recently lost to development after a failed attempt to obtain matching State funds. The recent purchase of the 17-acre Hansen parcel, by the Commission, with frontage on Green Road, provides access with a small parking area. This land provides excellent wildlife habitat, partly due to the amount of wetland, and partly due to a failed logging effort, leaving many large trees downed on the land. A recently acquired Conservation Restriction and Trail Easement provides a connection to Bower Springs, one of the oldest, most beautiful, and most utilized conservation areas in Bolton. It is used in winter for skating and cross-country skiing, including at least one major Bill Koch race a year that draws over 125 young skiers. In summer it is used for the seven-week Thomas Denney Nature Camp and an annual Boy Scout weekend outing.

The adjacent town of Harvard, which owns abutting conservation land, has applied for Self Help money to acquire another linking parcel. Bolton is also trying to obtain a restriction on another adjoining parcel.

4. Wataquodock Hill/Randall Rd.

The South Western Quadrant of Bolton bordering on the town of Berlin, and covering an area from Wataquodock Hill Rd. to Randall Rd., perhaps even to Berlin Rd. offers some unrealized conservation possibilities. There are several unconnected parcels of conservation land in the area, including: the 31 acre Fyfeshire land, with its two wildlife ponds, lovely dams, and running brooks providing habitat for waterfowl and birds; the 6.8 acre Haynes-Wheeler parcel; and the 12+ acre Welch Pond parcel, all near Wataquodock Hill Road, but not connected to each other by public access. Large tracks of farmland, currently under Chapter 61 protection, separate this land from several other parcels of conservation land to the east, between West Berlin and Randall Roads. There a trail easement connects the 18-acre White gift off Randall Road through the 9.5-acre Walley purchase to the lovely Gould pond surrounded by 8 acres of forested hillside.

Further east and off Berlin Rd., another 30 acres in two separate parcels have been given to the town by the Vingers. The largest parcel is a wet grassy marsh, bordered by an upland trail through the woods on one side, and a ledgey, wooded esker on the other.

The second parcel is wooded upland, with a small area of wetland and stream in its southeast corner. The conservation challenge is to connect all of these tracts by a series of trails, gifted easements or perhaps further donations or purchases, through the large undeveloped parcels separating them, before that land is covered with houses.

ACREAGE UNDER PRIVATELY-OWNED CONSERVATION RESTRICTIONS

<u>GRANTOR</u>	<u>YEAR</u>	<u>ACRES</u>	<u>HOLDER</u>
Roemer	1976	0.39	Conservation Commission
Linnell	1980	12.34	Conservation Commission
Finley	1980	1.00	Conservation Commission
Phillips	1989	76.00	TTOR
Phillips (Parcel A)	1989	11.32	TTOR & Con Com
P. Davies	1989	2.83	TTOR & Con Com
Phillips (lots 1&3)	1989	0.70	TTOR & Con Com
P. Davies (lot 4)	1989	0.50	TTOR & Con Com
Mohsen Khani	1989	10.00	Conservation Commission
MFCLT/TTOR	1989	27.30	Conservation Commission
MFCLT/TTOR	1989	5.60	Conservation Commission
Vinger (Parcel A)	1991	11.50	Conservation Trust
Vinger (Lot 5)	1991	9.60	Conservation Trust
Nashoba Winery APR	1995	39.12	Con Com and Trust
Meadow View	1995	18.66	Conservation Commission
Meadow View	1995	20.00	Conservation Commission
Anita Hooker	1995	41.00	Conservation Trust
Miskill	1996	13.00	Conservation Trust
Held	1996	41.00	Conservation Trust
Schultz Farm	1997	105.40	Conservation Trust
TOTAL		427.26	

B. Unprotected Parcels - Private Parcels

Agricultural Lands

Agriculture has always been important to Bolton. Early settlers farmed the land and there have been important dairy farms and orchards in town which have lasted through two and one half centuries. Today, apple orchards are among Bolton's "claims to fame." Farmland

remains in Bolton while more easterly towns such as Acton, Sudbury and Concord have lost much of theirs to urbanization. There have been, however, continuing pressures to remove the choice open fields and aesthetically pleasing hillsides of apple trees in favor of housing development.

The Commonwealth of Massachusetts through its Department of Agriculture has shown its concern for the decline in agriculture throughout the state and has worked to establish programs and policies that promote agriculture and the retention of agricultural lands. Through its efforts and those of the Legislature, there exist important tax assessment and preservation programs designed to provide financial assistance to farmers so that the land they farm will remain in agricultural use.

The most important State program is the farmland assessment program under General Laws Chapter 61 and 61A. Farmland is taxed at a much lower level (Chapter 61A) than normal commercial or residential property, providing important incentives for landowners to continue to use their land for agriculture, however modest the farm may be in terms of production. There is a similar program for forested land that is in a state-approved Forest Management Program (Chapter 61). In both of these cases, assessment rates are set by the town's Board of Assessors based on guidelines from a state-appointed committee.

Another important state program is the Agricultural Preservation Restriction (APR) Program. In this program, the state (and town) purchase the "development rights" to farmland from the farmer so that the land will remain in an undeveloped condition suitable for farming in perpetuity. The land is appraised by the state as farmland and as residential development and the landowner receives the difference while retaining full ownership of the land. The Conservation Commission began an intensive effort in 1984 to bring some of Bolton's farms and orchards under the APR Program. After 11 years, the town was successful in securing an APR for the Nashoba Winery. Recently a second conservation restriction on a farm, the Schultz farm, was gifted to the town. The town hopes to use the momentum of this restriction to acquire development rights through the APR Program on two other farms, Nicewicz and Schartner, and is currently in discussions with the Department of Food and Agriculture about these farms.

The loss of farms to development is a primary concern despite the temporary protection provided by the Chapter 61A Program. The Brazeau Family Farm, 64.8 acres on Berlin Road, was sold to developers a few years back resulting in an eleven-lot subdivision. Three other parcels of 61A property have been taken out of the program in the second half of 1997. However, it is encouraging that many farms remain in 61 and 61A. The surge of land values, however, currently makes the APR program and other means of protecting Bolton's farms high priorities. The results of the town land use survey are confirmation that saving Bolton's Farms is the number one priority.

It is encouraging that in the face of development pressures and the decrease in farming in general throughout the region, that some of Bolton's land is being returned to active agriculture by new and competitive enterprises. The Nashoba Valley Winery purchased and began using the nearly abandoned Clemens orchard on Wataquadock Hill Road in 1983. A "pick your-own" program was added to those already successfully being

conducted in Bolton. The Winery has added a variety of trees and bushes to its orchard to produce other fruits for its vines. The winery has won several awards for its fruit wines.

A number of the farmers in Bolton have farm stands, the most prominent being Bolton Spring Farm and Bolton Orchards. These stands sell products grown and processed elsewhere in addition to their own produce. They thus combine agriculture with commercial operations and carry the additional products in order to cover facilities costs. The Nicewicz Farm grows all produce sold at its stand on Sawyer Road. Most of the harvest from the Lord orchards on Annie Moore Road is grown for the commercial market. In general, most of Bolton's farms do not have extensive production, storage, and transportation facilities to move the produce to market. Markets for produce have become more difficult and costly for farmers to find. These situations make it difficult for the farms to compete while relying on their own produce and adds further pressures to place the farmland in more financially attractive use.

The following table lists the farmland presently under the Agriculture Assessment of Chapter 61 A of the General Laws. There is additional land being farmed that is not in Chapter 61 A, although these are small-scale enterprises. Unfortunately, areas of prime farm soils have been uncultivated for some time on other properties. Ideal husbanding of agricultural resources would attempt to bring together new agriculture endeavors and remaining prime soils.

Chapter 61A Properties

<u>Owner</u>	<u>Address</u>	<u>Acres</u>
Bemis	Berlin Rd	18.40
Hatch	Berlin Rd	21.20
Coolidge	Berlin Rd	38.73
Nicewicz	Sawyer Rd	100.50
Schartner	West Berlin Rd	93.70
E. Taylor	West Berlin Rd	54.16
R. Taylor	West Berlin Rd	19.15
Hills	Old Bay Rd	16.91
Ela	Wataquaddock Hill Rd	240.93
Stephenson H.	Wataquaddock Hill Rd	75.00
Slade P.	South Bolton Rd	29.63
Slade C.	South Bolton Rd	54.37
Slade S.	South Bolton Rd	23.93
Smith	Century Mill Rd	65.77
Stephenson J.	Main St	105.00

Wilson	Long Hill Rd	32.30
Ettinger	Long Hill Rd	60.00
Lord	Annie Moore Rd	96.40
Grouse Hill Realty	Golden Run Rd	63.81
Colby	Golden Run Rd	13.65
Zayka	Harvard Rd	22.50
Crispen	Green Rd	19.52
Fuller	Vaughn Hills	11.69
Butler	Wilder Rd	14.00
Davis	Wilder Rd	230.00
Davis Farm Trust	Still River Rd	16.50
Norseen	Harvard Rd	24.00
NVW LTD	Harvard Rd	42.21
Weatherbee	Harvard Rd	25.50
Vattes	Sargent Rd	<u>63.42</u>
TOTAL		1692.88

Forest Land

Forest land remains Bolton's largest undeveloped natural resource. The vegetation analysis in Section 4 indicates that from 70 to 75% of Bolton's land area remains in forest cover. While some of this woodland now lies within individual house lots, under current zoning these parcels may be quite large and are often contiguous with larger backland wooded acreage.

The following table lists those parcels retained in forest management under the provisions of Chapter 61 and represents only 3% of the Town's area. A goal of this Open Space and Recreation Plan should be to disseminate information on this program and to assist individual landowners in participation.

Chapter 61 Properties

<u>Owner</u>	<u>Address</u>	<u>Acres</u>
Hays	Whitcomb Rd	9.16
Perham	Wataquaddock Hill Rd	40.00
D. Vespa	Wilder Rd	10.00
M. Vespa	Wilder Rd	34.00

Daman	Whitcomb Rd	26.47
McAfee	Whitcomb Rd	15.26
Demers	Harvard Rd	14.07
Willruth	Harvard Rd	41.37
Levison	WarnerRd	44.30
Hapgood	Warner Rd	30.10
Moen	Vaughn Hills	49.02
Henry	Long Hill Road	47.02
Held	Bare Hill Road	<u>34.56</u>
TOTAL		395.33

Chapter 61B (Recreation) Properties

During the 1980s, a program for non-agricultural open space assessment was established by the state known as Chapter 61B. Intended primarily for active recreation land such as golf courses, the program has been used by one landowner for a relatively large open parcel. Again, the town should encourage the use of such programs and take steps to protect land when an owner is ready to remove it from the 61 B program.

<u>Owner</u>	<u>Address</u>	<u>Acres</u>
Berlin Country Club	Randall Rd	24.57
Mauro	Randall Rd	5.51
Reed	Randall Rd	11.00
Schechter	West Berlin Rd	45.61
Timberlake	Century Mill Rd	30.79
Scudiere	Annie Moore Rd	12.64
Velardocchia	Annie Moore Rd	13.24
Koppelman	Annie Moore Rd	13.60
Kanis	Still River Rd	15.00
Silver	Still River Rd	9.50
Bartsch	Bare Hill Rd	9.62
Demers	Harvard Rd	12.23
Swanton	Ballville Rd	<u>9.68</u>
Total		212.99

Total 61, 61A, 61B acreage 2,195.81

This total represents a 500-acre net increase since the last Open Space Plan. As long as the landowners keep these properties in one of the three state programs, some 2300 acres is protected from development at a very low cost to the town. All residents should remember that these properties are not protected in perpetuity, but that the town has rights which should be investigated each time a landowner proposes to remove his or her land from the programs.

Private Recreation Lands

IGC and Twin Springs Golf Courses - There is an impressive 18 hole private course as part of the International country club complex and a 9 hole public course. It is highly desirable for these areas to remain as golf courses for the benefit of open spaces in Bolton and the recreational value they provide. If the present owners ever decide to sell the courses, it would be useful for the town to pursue more public operation of the International although the country club in its present form is an important open space resource for Bolton. Because the IGC is the largest property tax payer to the town and because of the potential impacts of future residential of the property, the town should aid the IGC in continuing as a golf enterprise and plan for its future. This was accomplished late in 1997 when the town rezoned the 575 acre property for recreational uses.

Estates

Properties in Bolton of sufficient size to be considered estates are also participants in the 61 and 61A programs and previously described.

Large Land Areas not Under APR or Chapter 61 Program

<u>Location</u>	<u>Acres</u>
Bonazolli	110.50
East of Hudson Rd	41.58
East of Hudson Rd	44.00
North of South Bolton Rd	64.00
Donato Farm	26.45
South and West of Annie Moore Conservation	100.00
East of Derby Land	59.16
IGC (Hill East of Ballville Rd)	80.80
Atlantic Union Land	67.90
Stephenson Land on Rattlesnake Hill	65.00
Callahan on Powderhouse Hill	76.00

Rogers on Randall Road	57.00
Zink on Corn Rd	90.50
South of Main St at Forbush Mill Rd	<u>30.60</u>
TOTAL	856.49

Major Institutional Holdings

None.

C. Areas of Conservation Interest

A fundamental purpose of this open space plan is to list the town's priorities for open space acquisition in the near future. These priorities are provided in this section.

The rationale for the Town's acquisition priorities is consistent with the overall purpose of the open space plan. First and foremost, these priorities are established based on the broad goals of the Open Space Plan as listed in Section #9, the Action Plan. The goals are:

- Preserve Rural and Historical Character of Bolton
- Protect the Water Resources of Bolton
- Preserve and Encourage Agriculture
- Protect Natural Resources and Wildlife Habitat
- Conserve Open Space Areas for Public Use
- Provide Active Recreation Opportunities to Bolton Citizens

Land acquisition proposals that meet any of the above goals are broadly considered to be priorities. These include acquisitions which contribute to the rural and historical appearance in town, protect aquifers and wetlands, preserve farms, protect unique natural resources (i.e., geologic formations, endangered species), expand and connect existing trail networks, and enhance active recreation opportunities.

In addition, land acquisition actions will also depend upon opportunity and circumstance. Therefore, while the acquisition areas are presented, the selection of which specific parcels to purchase will greatly depend upon the availability of resources and the opportunities presented in each situation. Given opportunity and circumstance, the following priorities are forwarded. These areas are illustrated on Figure 5-2.

First Tier Priority

An area threatened with immediate development is in the southern most section of Bolton, bordering Hudson. The Danforth Brook area contains extensive wetlands, meadows and an old railroad bed that should be protected for water resource, wetland species, natural habitat and historic values. Evidence of early American riverside structures is found along the brook in Bolton. It is marked by crashing waterfalls and clear water reminiscent of the pristine conditions of Northern New England woodland

brooks. There is a loop trail and a link trail with Hudson, which owns a 5.1-acre parcel of protected land and has applied for state funds for additional lands. The 335 privately owned abutting acres in Bolton have been inventoried. Altogether this represents one of the largest areas of undisturbed woodland in town.

The Town has recently purchased a 1.7-acre access wedge on Hudson Rd. The Town of Hudson has received financial assistance to help them pursue the purchase of more than 30 acres of the brook immediately on the Bolton town line, including Danforth Falls. This purchase will add to the more than 50 acres of land already owned by the Town of Hudson. Bolton's short-term plan is to acquire nearly 50 acres in Bolton, which in all would lead to the protection of more than 130 acres of land in the two towns.

Second Tier Priority

Parcels of interest under tier two are those parcels that will meet any of the six broad goals of the plan. Higher priority is placed upon those parcels that either (1) contribute to achieving more than one of the goals; and/or (2) are able to multiply the benefits for any one goal because of size, uniqueness or other special attributes, or is deemed to be of particular temporal importance to the town (e.g., need to preserve a future town water supply). The broader context goal is to establish greenways and wildlife corridors by protecting unbroken tracts of land across town.

- 1) Core Areas - There are four core areas of open space in Bolton that currently hold great preservation value. They contain forest reserves, wetlands, wildlife habitat, vegetative and scenic variety, and provide recreational opportunities. They constitute sections of town where considerable land has already come under public domain as protected Open Space under Chapter 40 Section 8C of Mass. State law. Adjacent parcels of privately held land are very valuable for enhancing the conservation values of these areas.

Large tracts of undeveloped land remain near several areas of town with protected open space near Powderhouse Hill, Phillips/Rattlesnake Hill, Wataquadock Hill/Randall and Bower Springs/Vaughn Hills. Opportunities exist for gaining financial assistance through the intermodal Surface Transportation Enhancement Act (ISTEA) Program under the Federal Highway Administration for lands associated particularly with the Phillips property due to its location near Interstate 495. One of the long-term goals for acquisition which would satisfy many of this plan's objectives would be to link these major core areas with each other, and with core areas in neighboring towns to establish regional greenways that could link the large federally-protected areas of Great Meadows to the East and Oxbow/Bolton Flats complex to the west.

- 2) Major wetland buffer acquisitions and protection of land near aquifers are top priorities for protecting water resources. Areas of town that would fit into this priority include aquifer recharge areas on the eastern and western borders of town, and the major hydrologic corridors in town, notably the Great Brook, Mill Brook, and the Forbush Mill systems.

- 3) A number of farms in town are high priorities for preservation. Some of these have applications in to the APR program including the Nicewicz and Schartner Farms. Because farms are always in immediate danger to development, the town considers all remaining farms to be a top priority for acquisition. Preserving agriculture is Goal #3, and is also a major part of achieving Goal #1, preserving rural and historical character.
- 4) Through coordination with the Historical Commission and their draft Preservation Plan, historical landscapes have been identified as important for preserving the rural and historical character of Bolton. Several of these areas also connect with core areas. The historical areas reflect villages within Bolton, such as East End Road and the Shaker Cemetery, that retain many buildings and the landscapes from the nineteenth century. Other areas contain geological features unique to Bolton, such as Bolton Flats and Forbush Mill Road.
- 5) Protection of diverse natural habitats is also a top priority. Areas for consideration include sites of rare animal and plant species. Geologic formations associated with the several hills in town should also be considered a top priority. Some of the most unique areas are discussed more in-depth in Section 4, Environmental Inventory.

Other important Areas of Note

- 1) Great Brook: An intensive effort is needed to establish buffer protection for this scenic, fishable brook. Some sections pass through areas already under protection, but most of the brook is threatened by repeated culverting, poor forest husbandry, and potential impacts to headwater wetlands. A new town wetlands bylaw, in process, would help in guaranteeing long-range protection.
- 2) West Pond: The water resources, wildlife and natural beauty of this largest pond in Bolton should be protected. The antique brick house, farmland, meadows and old stone walls on the East side make this one of the most beautiful and historic areas of Bolton. Agricultural production and pasturing should be continued and encouraged with careful buffering and minimal pesticide use. Controlled public access to the pond would be appropriate for future recreational uses compatible with agriculture and wildlife. Several new homes have been built on the west side of the pond, but far back from the shoreline.
- 3) Little Pond: The Town's Beach is on this pond, but the land is owned by the Boy Scouts. No plan is currently in place for its acquisition should the Boy Scouts discontinue their use. The pond is lovely and quite large with some areas of sandy shore and some vegetated banks with woods behind. The Town has just been given a 5.5-acre shore front parcel of land containing a small cottage by the Persons estate.
- 4) Pond between Wilder and Forbush Mill Roads: On State owned land, this pond is currently used by the Correctional Institution in Lancaster for recreational purposes. In the event that the State discontinues its current use, the Town should be ready to assume it for fire protection and potential recreational use.
- 5) Forbush Mill Brook to Wilder Road: This is an area of major scenic interest, prime agricultural soils, historic landmarks, and a source of Forbush Mill Brook. The

property has elicited praise for its unique combination of features for many years. The area is adjacent to the Forbush Mill Brook and two historic dam sites. It includes the foundation of an old icehouse, the remains of water-powered mills of colonial Bolton, lovely stone walls along an abandoned cart road, and several scenic fields and wetland areas. There are fishable sections of the brook, and the ponds behind the larger of the two dams could also provide water for fire protection.

This area was cited in the Shrewsbury Ridge Report as being of prime scenic importance. Recent development in the area was combined with agricultural restrictions of 3+ acres, under the Mass. Farm Conservation Land Trust. The Conservation Commission purchased a 5 acre parcel including a pond. There is a public access trail from Wilder Rd. and from Main St. to the pond and then over to Forbush Mill Rd.

- 6) Pine Hill/Century Mill Rd.: There are garnet outcroppings on the hillside above an old mill site and millpond. This site has scenic, and historic interest. It would also make an attractive place for fishing and picnicking.
- 7) Pond on Flatley Field and Wetland Areas: The pond is of scenic value to the town, and adjacent wetlands are part of the extensive Sunk Meadow. The Town of Bolton owns over 140 acres of adjacent land in this area, comprising an elementary school, a ball field, and excellent open meadows which are used for recreational purposes, including the Bolton Town Fair. The land is not conservation restricted but a plan for its use was developed by the Selectmen, Parks and Recreation Dept., the Bolton Fair Committee, and several other interested groups. It includes the development of Senior Citizen Housing on a portion of the property. A new elementary school is under construction on another parcel, due to increasing school enrollment.
- 8) Hog Swamp: This large swamp lying to the south of South Bolton Rd. on both sides of Rt. 495 needs protection for water resource purposes, both for the wetlands and for the ground water deposits in the area. A new development of 11 homes has already been built off Wheeler Rd. in an area no one thought could be developed.
- 9) Still River: Parts of the Still River pass through areas under private ownership. The Nashua River Watershed Assoc. is supporting and assisting communities in developing river greenway areas. Owners of Still River frontage are working together toward the establishment of a Still River Greenway. Public access? A medium size high yield aquifer underlies the Still River basin, and buffer areas should be created for protection in perpetuity for the aquifer.
- 10) Nashoba Regional High School Area: There are trails for team training in this area which are part of privately owned lots, but hold a conservation restriction. A large sub-division to the west of the H.S. is in progress. Some land abutting a trout stream will be restricted and trail Road area. It is a good location as well for branch trails off the main loop trail that will pass easements will be granted adjacent to the school.
- 11) Whitcomb Road Area, Pond and mill site: Mill sites in Bolton should be protected for their historic and scenic value. The pond in this area is also quite scenic. The area should be protected as it provides a buffer from 495 for the residences in the

Whitcomb Road and Sugar close to the area. It represents a possible connection for trails into Harvard.

Access to Conservation and Recreation Lands

The Section 504 Self-Evaluation as it applies to Bolton's park, recreation and conservation land reveals the fact that few accommodations exist within these areas for the handicapped. The reasons for this situation derive from Bolton's semi-rural character, and from the emphasis that has been placed in Town acquisition efforts on securing areas of natural resource interest and maintaining them primarily for wildlife habitat and passive recreation. Funding over the past five years, from both State and local sources, has dropped markedly, with support for maintenance and improvement available only for addressing public safety concerns.

The checklists, while useful for parks and other areas with existing improvements and heavy public use, may not serve to target those areas in Bolton most suitable for improvements as part of the action plans. Further, recreational facilities, such as ball fields, have been maintained and improved to serve as traditional athletic areas. With these facts in mind, the following assessment is made through a listing of the Section 504 Administrative Requirements and how Bolton meets those requirements, followed by a listing of facilities with handicapped and general public services.

Section 504: Administrative Requirements

1. The Town Selectmen have agreed to appoint a 504 Coordinator at their next meeting. This had not been done previously.
2. The Personnel By-Law and Grievance Procedure is included as Appendix J
3. BoltonTown jobs are always advertised as following non-discriminatory hiring practices on the basis of sex, race or disability. Examples are included as part of Appendix J

Recreation Facilities Access

1) Memorial Ball Field

The parking area is gravel and dirt. The playing fields are grass. There is paving over the basketball area and a few other patches. The area is wheel chair accessible based on grade level. There is also a handicap accessible water fountain.

2) Leatherwood Playground

Parking is from a paved road surrounding the Florence Sawyer School and there is a handicapped access ramp from which a portion of the playground can be reached.

3) Town Beach

The parking area is gravel and grass; the slope to the water is hard sand becoming softer at waters edge. The swimming area is probably not wheelchair accessible.

4) Derby Soccer Field

The field is level and accessible by vehicle. It is considered handicap accessible.

Conservation Facilities Access

Bolton is a rural community and all of our conservation areas are unimproved natural lands. Many are very small. They are grouped for purposes of the following inventory. Doing a separate report on each would not add value.

1) **Bolton Flats and Delaney**

These are large state owned conservation areas with parking for at least 20 vehicles, including handicap vans. They afford beautiful views of the land and water from the parking area. Some of the trails are wide and flat enough to afford access to a motorized or pushed wheelchair. None are paved. 68

2) **Pond Park, Persons Park, Mentzer, Partridge, Le Due, Wilder Pond, Vinger, and Dunnell Kettlehole.**

These sites are all view accessible from a paved or gravel road, so a person without the ability to walk could see the sights from a vehicle.

3) **Phillips Conservation Land**

This site is entered from a hard dirt road at one location, which would admit to wheelchair access for some distance into the property. There is a bench located for viewing, accessible through this route.

4) **Fyfeshire**

This site has handicap accessible parking and a 10 foot long bench located near one of the ponds for viewing.

5) **Bower Springs and Lime Kiln**

These areas have parking for at least five vehicles and are wheelchair view accessible. In the future they will also have benches very near their entrances.

6) **Annie Moore, Goodrich, Harris, Hansen, White, Wallie, Sochalski, Richards, Smith and Sullivan.**

These areas are wooded, with narrow trails, or in some cases as yet incomplete trails, and are not very accessible to any but agile hikers. They are, however, excellent wildlife habitat areas, which was the reason for preserving them.

Other Public Facilities –

Public Telephones: Bolton has two public telephones on Rt. II 7 in the town center near Smith's gas station and there are three more phones near the 1-495/Rt. II 7 juncture: two at the Country Cupboard Store and one at the Gulf gas station under renovation.

Drinking Fountains: The only public drinking fountains in Bolton are located at Camp Resolute, by the swimming area which the Boy Scout camp provides for Town use. A pump for drinking and washing was installed at Bowers Springs by the Conservation Trust, but has not been consistently operational. The Trust is continuing improvement of this facility.

Toilet/Bathing Facilities: This type of facility exists only at Camp Resolute, which is a private facility. Since Bolton has no public water or sewer systems, improvements in this category are not practical at this time.

Picnic Areas: Picnicking is allowed on all park, recreational and conservation land. No amenities exist, however, except for trash barrels at Bowers Springs. Open fires and grills

are not permitted on Town land except by individual permit. Improvements in this area should initially focus on properly sited and constructed picnic tables.

Boat Docks: There are no areas suitable for public boating within the Town. The Still River is accessible by canoe only for a short distance. The one section of the Nashua River located within Bolton adjoins private land. Informal access to West Pond off of Long Hill Road, is used by boaters.

Fishing Facilities: Several areas in Town offer opportunities for fishing; most are along streams, with access from the roadside or over existing trails. The areas most suitable for a significant number of fishermen are the Still River, the Delaney Project and Little and West Ponds. The Still River frontage is primarily in private and State ownership; fishing at Delaney is located primarily at a small roadside pond. Little and West Ponds are accessible by permission of the landowner. West Pond has been classified as a Great Pond, but the only point of public access is at Long Hill Road, where room does exist for formal entry. Ice fishermen generally reach the pond through private property. An attempt at compliance with this category would be made at the Bolton Flats Wildlife Management Area through Fish and Wildlife. An appropriate location is by the Still River Road entrance, where a parking lot exists, and where level ground leads to the river.

Section 6.

COMMUNITY GOALS

A. Description of Process

The community goals for open space and recreation presented in the following sections were produced through interactive strategy sessions and developed through a phased approach. Cultivating an accurate representation of the needs of town citizens began with the issuance of a town questionnaire on land use and open space issue (see appendices A & B). Responses were received from 10% of the households in town. Then a committee was formed to take the goals from the 1991 Plan and compare them to the responses from the questionnaire. A notice was placed in the paper requesting participation on the committee. In addition, letters were sent out to all of the boards in town requesting participation.

The committee represented an accurate cross-section of town. Members included representatives from the Board of Selectmen, Board of Health, Conservation Commission, Parks and Recreation Committee, Planning Board, as well as a leader of the farming community, representatives from the local land trust, and other private citizens. The committee met regularly over a nine-month period to mesh questionnaire response with previous goals and present aims stated by the varying interests. The draft plan was then released to the public for comment and a public meeting was convened.

Statement of Open Space and Recreation Goals

Bolton's unique landscape of hills, streams, forests, farmland, and colonial homes are important qualities to be retained as the town is developed. While it is amazing that many special areas of town have been protected, it is equally incredible the number of

cultural sites, scenic views, and unusual natural areas are still unprotected. The goal of this open space plan is to permanently protect those remaining special places and link together the town's protected space for the preservation of wildlife and for the enjoyment of the town's citizens.

Preserve the rural and historical character of Bolton.

New residents are attracted to Bolton by the open space and rural nature of the town. The intent of this plan and primary open space goal is to protect that character. Bolton's open spaces, agricultural lands, forested lands, historic sites, and low housing density contribute to its character. It is of paramount importance to the town residents that this character be protected and that Bolton remain a rural town. This can be achieved only through long-term planning efforts similar to the process followed every five years in updating an open space plan.

Protect the water resources of Bolton

This goal is particularly important since Bolton currently has individual private wells as its water supply, since it has no surface water resources suitable for a supply, and since it is far from possible hookups with any metropolitan or regional water supplies. The town desires to maintain its private system. Looking to the future, it needs to protect watershed areas both for private wells and for potential public water supplies.

Preserve and encourage agriculture

Farmland is an essential and declining natural resource which needs protection. One of the key goals of this Open Space Plan is to protect existing agricultural and forest lands and to encourage additional agriculture in Bolton, particularly on designated prime soils. This can help to meet the growing need for locally produced food and will also protect existing open spaced in the Town. Town support for those engaged in agriculture is part of the goal.

Protect natural resources and wildlife habitat

The woods, fields, wetlands, floodplains, vernal pools, orchards, and scenic viewsheds of Bolton combine to form a diverse natural resource base which includes habitats for many species of birds, reptiles, amphibians, and mammals. Protection of this habitat is an important goal of the Open Space Plan. Particular attention will be paid to rare and endangered species of plants and animals. Plants and wildlife are integral to the rural nature of Bolton and contribute to insect control, water purification, and other balances within the ecological system. It is important that this heritage be preserved now, so that it can be enjoyed by future generations.

Provide conservation areas for public use

The passive recreational potential of Bolton is exceptional due to the hilly nature of the terrain, the number of woodlot roads, and the existence of large amounts of undeveloped backland. This goal relates to providing open spaces for such passive recreation as nature study, cross country skiing, hiking, horseback riding, etc. These activities are available to the general public and offer inexpensive opportunities for enjoying nature close to home and help to give Bolton residents a better appreciation for their town. Where possible, public access to connect open spaces for passive recreation could be gained from individual landowners. Purchase of land by the town for conservation purposes has also been a policy and will continue to be appropriate. Making conservation land available to citizens is an important goal of this Open Space Plan.

Provide active recreation opportunities to Bolton citizens

Active recreation is particularly important to the youth of Bolton. There is currently insufficient space in Bolton on which active recreational activities can take place. The current popularity of field sports such as soccer and baseball create an expanding need for fields for practice and games. This goal relates to identifying recreation areas, facilities, and programs which should be developed by the town to serve the future needs of townspeople.

Section 7. ANALYSIS OF NEEDS

In Sections I through 5, the Town of Bolton has endeavored to compile all of the relevant data available about the Town as it relates to Open Space and Recreation Planning. Section 6 has simply stated the Town's goals in Open Space Planning. Through the process of gathering information and discussing the information among the Open Space Committee, with Town Boards, and at public meetings, the Town is forwarding the following sections that will identify the needs of the town and the specific actions for addressing those needs. Section 7 herein outlines the identified needs under three categories: (1) natural resource protection needs; (2) community needs; and (3) management needs.

Natural Resource Protection Needs

Natural resource protection needs are borne out of the Section 4 and 5, and supported by responses to the 1994 Land Use Survey. Overwhelmingly, respondents to the survey indicated that protecting the rural character of Bolton was a number one priority. Articles and letters over the past year in the Bolton Common advocating the preservation of rural character have reinforced this need. Rural character is supported by a relatively low development density (when compared to surrounding towns), and a mix of fields and forests that have characterized Bolton for several hundred years. Respondents also declared resoundingly that protection of Bolton's orchards and farms as top priority. Other important natural resources signified for protection include forestlands, wetlands/wildlife, and scenic views.

The survey did not specifically address three other needs identified by the Open Space Committee. These are endangered species protection, preservation of greenway corridors, and linkage of open space efforts with neighboring communities. Outreach on these topics will be important for making progress in these areas, as noted below under "Community Needs."

Community Needs

Community needs have been identified by the Open Space Planning Committee primarily through public meetings and discussion with Town Boards and supported by dialogue in the community newspaper. The land use survey did not request information outside of specific questions about the Town's future development.

Preserving the historical character of Bolton was a significant topic at the Open Space public meeting. Because several old homes have been demolished or greatly altered in recent years, commentators sought support for the notion that rural character cannot be preserved without also protecting historic character. Additional comments related to the need for organized trail and recreational facilities maintenance, the noticeable lack of disability facilities in town, and the need to focus outreach work on working with surrounding towns and profiling the unique natural resources in Town.

Management Needs

Management needs also arose out of Committee discussions, public meetings, and meeting with other boards. For the most part, management, particularly staff (or more likely volunteer) time and organization, along with financial resources, is behind many of the previously cited needs.

The town boards do an excellent job of communicating amongst themselves considering that all board members are volunteers, and are supported primarily by two full staff and two half staff and the Town Clerk. A great deal of discussion has been generated recently about developing a Town "Coordinator" position where a skilled individual would be hired to oversee and coordinate among the town boards. This discussion has arisen from the realization that despite the amount of communication among the town boards, major issues are not being addressed. The Town Coordinator would help the Town and the town boards to focus on specific issues that need addressing.

While most boards have part-time secretarial staff, most still are overburdened with the escalating demands placed on them from a rapidly growing citizenry. For example, the Planning Board does not conduct any planning because it is working full-time on road and subdivision review. A town need that has been forwarded is for a part-time planner to work with the Planning Board on town planning.

Management of existing conservation and recreation lands is also a need. Although paid staff would be helpful for these endeavors, they will likely be accomplished by volunteers. The Parks and Recreation Committee has not been actively functioning over the last several years except on efforts to oversee the Town Beach. New members have recently joined the Committee, which many people believe will help

rejuvenate the committee. Trail maintenance on conservation lands has also been proceeding at a slow pace. Over the past six months, however, the Conservation Commission has presented a prioritized list of maintenance needs on conservation lands and has received small amounts of money along with donations of time and equipment to complete the repair jobs. The next need is to organize neighborhood trail committees to clear local conservation trails on a regular basis. One active committee could be used as a model.

The following is a list of needs for all categories:

1. Find innovative ways to help farmers protect their farms and orchards
2. Plan for future public water supplies
3. Protect lands that link existing conservation lands to develop "green" corridors
4. Focus landscape preservation in historic villages in town such as East End and the Quaker Village
5. Improve Bolton's current recreational facilities including playing fields and the Town Beach
6. Improve access to particular conservation areas for the disabled and elderly
7. Protect unique and endangered natural resources
8. Increase staffing needs that will help town planning and priority setting
9. Inspire an active Parks and Recreation Committee
10. Engage more new residents in town volunteership
11. Organize neighborhood trail committees

Section 8.

GOALS AND OBJECTIVES

This section describes the more specific objectives related to each of the eight goals included in Section 6.

1. Preserve the rural and historical character of Bolton
Increase Open Space in Bolton by pursuing the following priority acquisition plan.
Preserve open space, scenic areas, and areas with great conservation potential through open space protection, restriction, and/or acquisition.
Preserve farmlands through agricultural restriction programs and by developing creative new strategies.
Identify and preserve historical sites in Bolton.
2. Protect the water resources of Bolton
Protect groundwater resources.
Preserve major wetland areas through land acquisition.

Identify and reduce impacts of road salt, agricultural runoff, and storm water.

Protect Wetlands from filling and other damage.

3. Preserve and encourage agriculture

Increase participation in the State's Agriculture Preservation Restriction (APR) Program.

Increase participation in State agriculture programs known as Chapter 61, 61A, and 61B.

Support the preservation of open fields.

Work to integrate some agricultural education programs into the school system.

Work to help reduce tax burdens on farmers.

4. Protect natural resources and wildlife habitats

Preserve natural resources and wildlife habitat through land acquisition.

Preserve natural resources and wildlife habitat on lands already under protection.

Protect Endangered Species

Publicize information about Bolton's unique natural resources and wildlife habitat.

5. Provide conservation areas for public use

Increase conservation lands and promote their use for passive recreation

Create a trail system for both summer and winter passive recreation.

Publicize conservation lands for public use

Work with surrounding towns on linking trails for a regional trail system.

6. Provide active recreation opportunities to Bolton citizens

Continue to provide summer recreation program for school children

Upgrade fields on town land to meet future needs

Upgrade picnicking and other facilities at town parks

Develop the town-owned Derby land with new access roads, vehicle parking, athletic fields, and other recreational facilities

Upgrade skating ponds on town-owned land-

Develop a plan to establish a bike path system on selective roads throughout the town

Provide open fields in various parts of the town for neighborhood recreation activities

Section 9. ACTION PLAN

In the following sections, the Town presents its overarching goals and prioritized actions for the 1998 Open Space Plan. It should be noted these goals and actions are based on four principles without which they will not be achieved. The four principles are:

- 1) efficient and inclusive town government,
- 2) long range planning,
- 3) interactive education and dialogue, and
- 4) coordination with regional and state efforts.

Although these principles are woven throughout the following sections, the Town/Committee felt that it was important to present them up-front to emphasize their importance. The town boards and citizens must regularly engage in these four activities if the town is to achieve the goals and implement the actions set forth in this Bolton Open Space Plan.

Section 9 uses the following abbreviations to review to town boards and local groups who are responsible for implementing the applicable action items:

BoS - Board of Selectmen
AC - Advisory Committee
CC - Conservation Commission
BCT - Bolton Conservation Trust
PB - Planning Board
BoH - Board of Health
HC - Historical Commission
HS - Historical Society
FRM- Local Farm Groups
PR - Parks and Recreation Committee

GOAL #1 PRESERVE RURAL AND HISTORICAL CHARACTER OF BOLTON

Objective

Increase Open Space in Bolton by pursuing the following priority acquisition plan.

Actions

Acquire lands along Danforth Brook on Bolton/Hudson line CC and BCT - **YEARS 1 - 5.**

Acquire lands abutting Powderhouse Hill Conservation Areas CC and BCT - **YEARS 1 - 5.**

Acquire lands in the Rattlesnake Hill Area which abut Phillips, Harris, and Lime Kiln Conservation lands CC and BCT - **YEARS 1 - 5.**

Acquire lands abutting the Vaughn Hills and Bowers Springs Conservation Area CC and BCT - **YEARS 1 - 5.**

Acquire lands that connect various existing conservation parcels in the Wataquadock Hill/Randall Road area of town CC and BCT - **YEARS 1 - 5.**

Acquire other lands, when available, which abut existing conservation areas or will lead to linkages between existing conservation areas, including those adjacent to neighboring towns CC and BCT - **YEARS 1 - 5.**

Objective

Preserve open space, scenic areas, and areas with great conservation potential through open space protection, restriction, and/or acquisition.

Actions

Continue to promote and encourage use of the new FOSPRD bylaw. PB - **YEARS 1 - 5**

Work to identify and enforce Open Space set-aside requirements for conventional subdivision plans submitted to the Planning Board. PB - **YEARS 1 - 5**

Continue to define specific acreage/owners of areas of interest and define a strategy for access to each. CC and BCT - **YEARS 1 - 5**

Lobby for Land Bank legislation and present an article for approval at Annual Town Meeting to implement a transfer tax on real estate CC and AC - **YEAR 2**

Identify competitive grant programs for open space acquisition and apply for funding. CC and BCT - **YEARS 1 - 5.**

Contact governmental agencies that purchase lands for specific purposes, such as endangered species protection or greenway development, about potential projects in Bolton. CC and BCT - **YEARS 1 - 5.**

Strengthen and apply the town's Scenic Roads Bylaw. BCT, PB and BoS - **YEAR 2.**

Objective

Preserve farmlands through agricultural restriction programs and by developing creative new strategies.

Actions

Continue to work with landowners interested in applying for the APR program. CC and BCT - **YEARS 1 - 3**

Sponsor workshops on estate planning and agricultural preservation to update information conveyed at past workshops. BCT - **YEARS 3 and 4.**

Actively pursue opportunities to establish conservation restrictions with private landowners. BCT and CC - **YEARS 1 - 5.**

Organize a public event to promote Bolton's orchards emphasizing the importance of apple farming in this region. BCT, CC, Farm Groups - **YEAR 2.**

Develop and implement additional strategies, such as school involvement and pamphlet development, to help protect and promote orchards. BCT - **YEARS 2 - 4**

Encourage lobbying activity to enhance APR funding. Trust - **YEARS 1 - 5.**

Work with receptive teachers to develop a curriculum around present and long range land use, the role of farmland in the community and methods of preserving open space. BCT - **YEARS 2 - 4**

Objective

Identify and preserve historical sites in Bolton.

Actions

Support the establishment of a State Historic District(s). HC - **YEARS 1 and 2.**

Continue to identify and mark historical and archaeological sites in town, such as the cemetery near the Phillips Conservation Area HC and HS - **YEARS 1 - 5.**

Incorporate historical sites into the town's trail system HC and HS, BCT, CC - **YEARS 1 - 5.**

Support bylaws that protect and enhance the historical character of town. HC - **YEARS 1 - 5.**

Support and develop the use of a historical coloring book for grade school children which depicts Bolton's History through the eyes of Bolton's Junior High students. HC and HS, BCT - **YEAR 1.**

Develop a process where the Bolton Conservation Trust and the Historical Commission work together to preserve Bolton's older homes and surrounding land with restrictions. HC, BCT - **YEAR 1 - 5.**

GOAL #2 PROTECT THE WATER RESOURCES OF BOLTON

Objective

Protect groundwater resources.

Actions

Conduct a study to identify and delineate the major aquifers in town BoS, BoH, PB, CC - **YEAR 2.**

Convene a multi-board committee to identify the town's near future water needs and to draft a plan to prioritize and protect areas necessary to meet future water needs. BoS - **YEARS 3 and 4.**

Utilize this new committee as a de facto advisor to regular business of town boards. BoH, CC, PB, BoS - **YEARS 2 - 5**

Develop a public information program on the Groundwater protection bylaw and consider necessary changes in order to make it more practical to implement. BoH - **YEAR 2.**

Support and promote the Adopt-A-Stream Program and watershed curriculum for the whole Nashoba Regional School District. BCT, CC - **YEARS 2 - 4.**

Encourage water testing in classes using community volunteers as facilitators. BCT - **YEARS 3 - 5.**

Develop collaboration between the Nashua River Watershed stream monitoring teams and the classes involved in water testing for discuss and compare results. BCT - **YEARS 3 - 5.**

Objective

Preserve major wetland areas through land acquisition.

Actions

Target open space protection toward the following natural systems: Great Brook, Danforth Brook, Forbush Mill, Sunk Meadow, Hog Swamp, and Still River. CC, BCT - **YEARS 1 - 5.**

Objective

Identify and reduce impacts of road salt, agricultural runoff, and storm water.

Actions

Promote and expand the work of school water quality monitoring programs and stream teams with assistance from Nashua River Watershed Association and the State Riverways Program. BCT, BoH, CC - **YEARS 3 - 5**

Improve the control of storm water pollution by applying the recently developed State Storm water Policy to roadway projects and assess effectiveness of current Planning Board bylaws in storm water management at subdivisions. PB, CC - **YEARS 1 - 5.**

Identify farms which currently do not employ Integrated Pest Management (IPM) and seek to encourage the use of IPM. FRM, BoH, CC - **YEARS 3 – 4**

Consult with the Town Highway Director and Town Boards on reducing salt and sand use where appropriate. BoH, CC - **YEARS 2 - 3.**

Objective

Protect wetlands from filling and other damage.

Actions

Enact a local Wetlands Protection Bylaw (non-zoning). CC - **YEAR 1.**

Appoint Associate Members to the Conservation Commission to provide better enforcement on projects under file with the Commission. CC - **YEAR 1.**

Investigate the potential for an overlaying bylaw that creates a process which subdivision applicants must follow for obtaining multiple town-board permits, and references state laws which provides town with the jurisdiction to develop such a process. BoS, PB, CC, BoH - **YEAR 3.**

GOAL #3 PRESERVE AND ENCOURAGE AGRICULTURE

Objective

Increase participation in the State's Agriculture Preservation Restriction (APR) Program.

Actions

Contact State officials with the APR Program to inquire about the status of applications currently on file with the State. CC, BCT - **YEAR 1.**

Identify officials (e.g., political and industry representatives) who could contact lobby the state APR Program to consider current applications. CC, BCT - **YEAR 1.**

Identify other farm owners interested in filing an application to the Program. BCT - **YEARS 2,3.**

Objective

Increase participation in State agriculture programs known as Chapter 61, 61A, and 61B

Action

Identify any large tract landowners who are eligible for the Chapter 61 program, but are not currently enrolled and contact them about joining. CC, BCT - **YEARS 2 - 3.**

Objective

Support the preservation of open fields.

Actions

Develop a program to create a clearinghouse of landowners who seek agricultural management on their land. BCT, CC - **YEAR 2.**

Identify town lands for a town operated agricultural project and develop such a program. BCT, CC - **YEAR 3.**

Objective

Work to integrate some agricultural education programs into the school system.

Actions

Contact agriculture education group known as "Agriculture in the Classroom" about working with Bolton schools. BCT - **YEAR 3 - 4.**

Work with Fitchburg State College and their agricultural education programs. BCT - **YEARS 3 - 4.**

Objective Work to help reduce tax burdens on farmers. Actions Sponsor estate planning courses for farmers BCT - **YEARS 2 - 3.**

Support State and Federal legislation favorable to reducing inheritance tax burdens on farmers. BCT - **YEARS 4 - 5.**

GOAL #4 PROTECT NATURAL RESOURCES AND WILDLIFE HABITAT

Objective

Preserve natural resources and wildlife habitat through land acquisition. 82

Actions

Assess natural resources and wildlife habitat value for potential acquisition areas; wildlife habitats include woods, fields, wetlands, floodplains, vernal pools, orchards, and scenic viewsheds. CC, BCT - **YEARS 1 - 3.**

Acquire lands with high natural resource and wildlife habitat value. CC, BCT - **YEARS 1 - 5.**

Acquire lands that lead to the creation of wildlife corridors across town. CC, BCT - **YEARS 1 - 5.**

Objective

Preserve natural resources and wildlife habitat on lands already under protection.

Actions

Work with Massachusetts Division of Fisheries and Wildlife on management activities at Bolton Flats and Delaney Wildlife Management Areas. CC - **YEARS 2 - 4.**

Work with the Massachusetts Natural Heritage Program to inventory wildlife, including unique mammals, birds, fishes, and plants on town conservation lands. CC, BCT - **YEARS 3 - 5.**

Objective

Protect Endangered Species

Actions

Continue to work with the Massachusetts Natural Heritage Program to certify Vernal Pools throughout the town. BCT, CC - **YEARS 1 - 3.**

Identify habitats that may contain endangered species known to live elsewhere in Bolton. BCT, CC - **YEARS 2 - 4.**

Continue to apply all available state laws and bylaws to ensure protection of areas of "estimated habitat for endangered species" as identified by the Massachusetts Natural Heritage Program. CC - **YEARS 1 - 5.**

Promote the current program by the Bolton Conservation Trust to involve citizens and students in vernal pool certification. BCT – **YEARS 1 - 3.**

Objective

Publicize information about Bolton's unique natural resources and wildlife habitat

Actions

Continue to work with schools and school children on environmental education projects including the ELF (Environmental Learning for the Future) Program and the Tom Denney Nature Camp. BCT - **YEARS 1 - 5.**

Write articles for the Bolton Common which highlights important natural areas in town BCT - **YEARS 1 - 5.**

Encourage production of other media for public display of Bolton's natural resources including booth at the Bolton Fair, poster at Town Hall, poster at Town Meeting, etc. BCT - **YEARS 1 - 5.**

Support the use of public lands for class projects and the Tom Denney nature camp which encourages awareness of the natural world in Bolton's youth. CC, BCT - **YEARS 1 - 5.**

GOAL #5 CONSERVE OPEN SPACE AREAS FOR PUBLIC USE

Objective

Increase conservation lands and promote their use for passive recreation.

Actions

Acquire lands that increase the recreation potential of existing conservation lands, including those that lead to a recreational corridor. CC, BCT - **YEARS 1 - 5.**

Establish trail committee to maintain trails to facilitate passive recreational efforts on town conservation lands. CC, BCT - **YEARS 1 - 5.**

Objective

Create a trail system for both summer and winter passive recreation.

Actions

Investigate the potential for using old railroad beds for bike trails in town; apply to grant programs for project funding. CC, BCT - **YEARS 2 - 4.**

Research ownership of private existing trails; locate new trail connections. BCT, CC - **YEARS 2 - 4**

Design permanent and temporary trail easement agreements. BCT, CC - **YEARS 2 - 4.**

Convene open house for private owners of existing trails to present easement options, protective laws, monitoring, and maintenance ideas. BCT - **YEARS 1 - 2.**

Approach individual owners about easements. BCT - **YEARS 2 - 4.**

Objective

Publicize conservation lands for public use

Actions

Contact with special interest recreation groups in town (e.g., ski, horse) about trail activities. CC, BCT - **YEARS 3 - 5.**

Complete publication of a new trail guide to town conservation lands BCT - **YEAR 1.**

Hold special interest walks (bird-watching, geology, wildflower, tracking, orienteering, etc.) on town conservation lands, and post them in local newspapers. BCT, CC - **YEARS 1 - 5.**

Recruit trail groups from neighborhoods for public trail projects. BCT, CC - **YEARS 1 - 2.**

Encourage the formation of additional trail groups by publicizing trail walks in neighborhoods. BCT, CC - **YEARS 1 - 2.**

Collaborate with Eagle Scouts and other groups on trail projects. CC, BCT - **YEARS 2-5.**

Objective

Work with surrounding towns on linking trails for a regional trail system.

Actions

Make contact with trail groups in neighboring towns CC, BCT - **YEARS 3 - 5.**

Coordinate trail efforts with regional groups (e.g., Nashua River Watershed Association).
BCT, CC - **YEARS 2 - 5.**

Organize intertown walks with Harvard, Hudson, Lancaster, and Stow. BCT, CC -
YEARS 3 - 5.

GOAL #6 PROVIDE ACTIVE RECREATION OPPORTUNITIES TO BOLTON CITIZENS

Objective

Continue to provide summer recreation programs for school children.

Actions

Expand the programs of the Tom Denney Nature Camp. BCT - **YEAR 2.**

Develop swimming programs at the Town Beach PR - **YEAR 1.**

Objective

Upgrade fields on town land to meet future needs. ,

Actions

Develop a schedule to seed and loam fields on a rotating basis. PR-**YEAR2-4.**

Objective

Upgrade picnicking and other facilities at town parks.

Actions

Develop a plan of needs for upgrading facilities. PR - **YEAR 2.**

Request funds from the Town for upgrades. PR - **YEAR 3 - 5.**

Objective

Develop the town-owned Derby land with new access roads, vehicular parking, athletic fields, and other recreational facilities.

Actions

Develop a plan of action and schedule and present to the Selectmen. PR - **YEARS 2 – 4**

Objective

Upgrade skating ponds on town-owned land.

Actions

Discuss with other boards a maintenance strategy for appropriate skating locations. PR - **YEAR 1.**

Objectives

Develop a plan to establish a bike path system on selective roads throughout the town.

Actions

Convene a meeting among members of the PR, CC, and PB to develop a strategy for appropriate roads for bike paths PR, CC, PB - **YEAR 2.**

Investigate grant money availability for design and construction of bike paths. PR - **YEARS 2 - 5.**

Objectives

Provide open fields in various parts of town for neighborhood recreation activities.

Actions

Present plan to BoS for appropriate fields for neighborhood use. PR - **YEAR 1**

APPENDIX A
SUPPORT LETTERS FROM TOWN BOARDS AND LOCAL
GROUPS

Board of Selectmen
Conservation Commission
Planning Board
Board of Health
Historical Commission
Bolton Conservation Trust

APPENDIX B
MEMBERS OF THE OPEN SPACE COMMITTEE

Elizabeth Bagdonas	Citizen
John Balco	Board of Health
Steven Barrett	Conservation Commission
Noreen Beck	Citizen
Iris Berdrow	Historical Commission
Al Ferry	Conservation Trust
Pat Huckery	Citizen
Jane Moosbrucker	Citizen
Ken Nicewicz	Farm Community
Tom Parker	Conservation Trust
Bonnie Potter	Conservation Trust
Brad Reed	Planning Board
Nancy Reed	Selectperson
Patricia Reilly	Conservation Trust
Paul Slade	Historical Society
Ken Troup	Selectperson

APPENDIX C
LIST OF OFFICIAL MEETING DATES

Open Space Committee

March 10, 1997

April 12, 1997

April 28, 1997

May 12, 1997

June 5, 1997

June 19, 1997

Town Boards

December 29, 1997 Board of Selectmen and Advisory Committee

January 13, 1998 Bolton Conservation Trust

January 27, 1998 Meeting of all Town Boards – Open Space Plan discussed

February 4, 1998 Planning Board

March 11, 1998 Planning Board

March 24, 1998 Board of Health

April 20, 1998 Historical Commission

June 15, 1998 Historical Commission

Public Meeting

January 20, 1998 Review Draft Plan

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