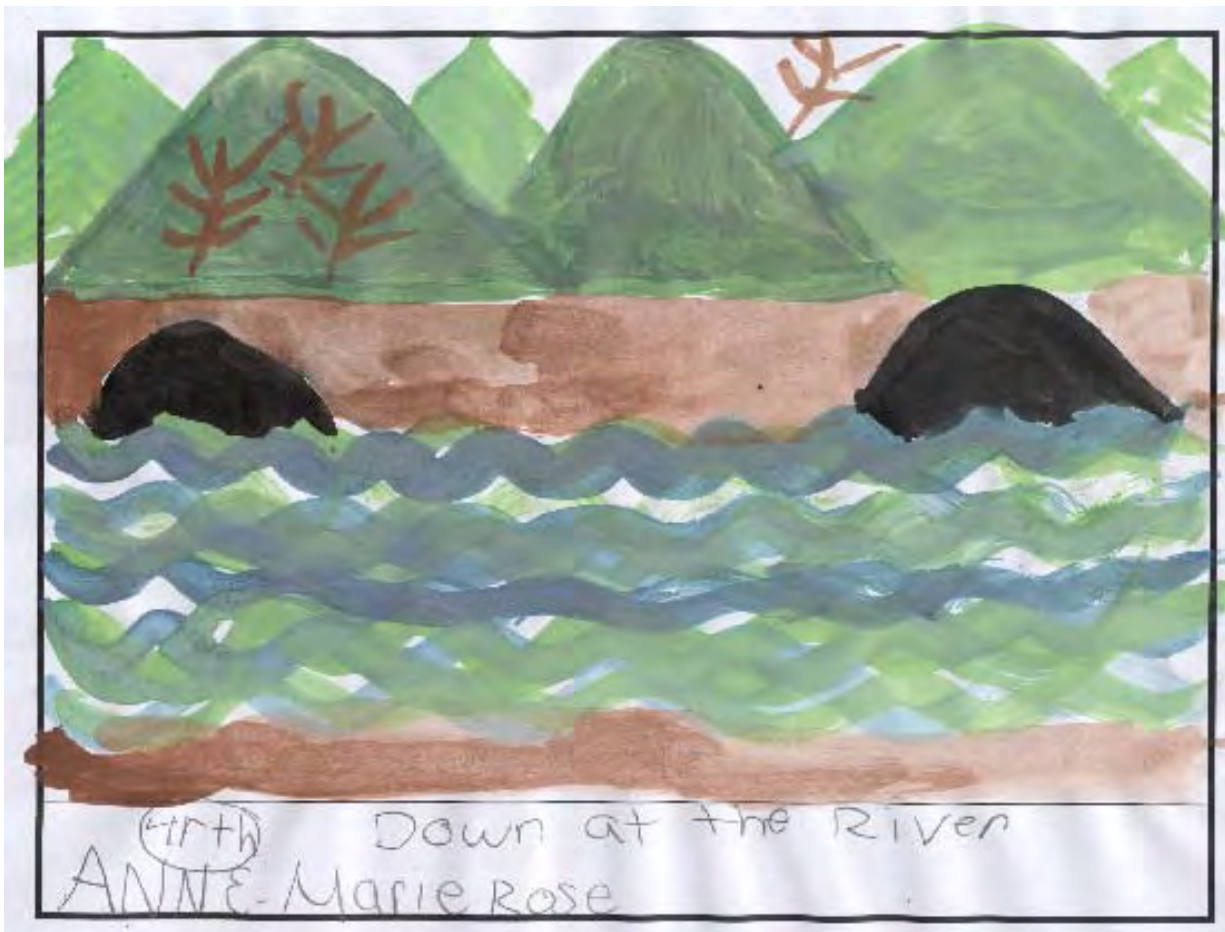


TOWN OF CHARLEMONT

OPEN SPACE AND RECREATION PLAN 2004

Prepared by the
CHARLEMONT OPEN SPACE AND RECREATION
PLANNING COMMITTEE



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With the Assistance of

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
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SECTION 1

PLAN SUMMARY

The 2004 Charlemont Open Space and Recreation Plan is a comprehensive inventory of the town's natural, agricultural, cultural and recreational resources as well as a plan for their stewardship and conservation. It contains an analysis of the town's needs, goals and objectives. The plan is designed to help guide important decisions about the use, conservation and development of the land and resources within Charlemont. A five-year action plan provides real steps that residents are already engaged in implementing towards achieving their common goals.

The Plan emphasizes the remarkable wealth of the town's resources, including:

- Prime farmland and twenty-four working agricultural businesses;
- The only 10,000-acre block of contiguous forest in West County (shares with Heath and Colrain);
- The Mohawk Trail State Forest;
- BioMap Core Habitats for rare species;
- A rare high yield aquifer under the Deerfield River in the western portion of Charlemont;
- The historic Charlemont Fairgrounds; and,
- The Deerfield River's wildlife habitat, prized scenic views, and recreational and economic benefits.

These resources provide residents with clean air and water, a rural environment within which to live, jobs, and access to an abundance of recreational opportunities. Charlemont's forests and farmland give the town its rural character, contribute to the local property tax base, and are at the heart of what residents love about living here.

Compared to surrounding communities, Charlemont has very little (only 1 percent) of its farmland in the Agricultural Preservation Restriction Program. However, nearly 40 percent of all of the privately owned undeveloped land in town is enrolled in the Chapter 61, 61A, or 61B programs. These private property owners continue to maintain their land in farms and forest and practice good stewardship.

One important message contained within the plan, is that the town's natural, agricultural and recreational resources should not be taken for granted. Thousands of acres of farm and forestlands remain highly vulnerable to development. Fortunately, the surrounding towns including Colrain, Shelburne, Buckland, Heath, Rowe, and Florida are currently involved in developing their own Open Space and Recreation plans. Actions to address common threats to the region's rural character can be taken jointly by towns that share common goals. Charlemont is a community that is actively learning about, promoting, and practicing good stewardship of its natural and cultural resources.

SECTION

2

INTRODUCTION

In 2001, the Massachusetts Executive Office of Environmental Affairs (EOEA) sponsored-Deerfield River Basin Team secured funding for a watershed-wide open space and recreation planning effort that included the development of several municipal Open Space and Recreation Plans (OSRP). EOEA staff met with town officials and residents to determine their interest in working towards the completion of their own plan. Charlemont agreed to participate. The grant to assist Charlemont, Colrain, and Leyden in the development of their own OSRP was awarded to the Franklin Regional Council of Governments (FRCOG) Planning Department.

A. STATEMENT OF PURPOSE

The purpose of this plan is to provide an accurate and thorough basis for decision-making involving the current and future open space and recreation needs of the residents of Charlemont. This OSRP represents the third phase of a six-year community planning process that has included consensus building on the most important community and natural resource needs in town and on the best solutions for addressing them. The Five-Year Action plan, when carried out by the Open Space Committee and other town boards and commissions, will successfully implement the town's open space and recreation goals and objectives.

B. PLANNING PROCESS AND PUBLIC PARTICIPATION

In November 2002, a Planning Committee was formed to develop the town's Open Space and Recreation Plan and an EO418 Community Development Plan. In December 2002 and February 2003, the Committee developed a set of goals and objectives that reflected the extensive public participation of the two recent master planning efforts in 1998 and 2001. Many of the people on the Planning Committee participated in the earlier planning efforts.

Including the Public Forum, which was held on March 25, 2004 and involved approximately twenty people, there have been twelve public meetings of the Charlemont Open Space and Recreation Planning Committee. Before each meeting, draft chapters were sent to sixty-five community members for review. This form of work review was a significant and consistent vehicle for public participation in the development of the Open Space and Recreation Plan. Overall, twenty-five different residents participated in at

least one meeting. Members represented different town boards, committees, and stakeholders including:

- Select Board
- Planning Board
- Economic Development Planning Committee
- Conservation Commission
- Board of Health
- Historical Commission
- the Mohawk Trail Scenic Byways Committee
- Business owners, landowners, and farmers

Any comments expressed at the public forum were recorded on flip chart paper and included in Section 10 – Public Comments as well as in the final version of the Action Plan. Any ideas, comments, and corrections pertaining to different sections of the plan and the action steps have also been included in the final version of the Charlemont Open Space and Recreation Plan.

SECTION

3

COMMUNITY SETTING

The Town of Charlemont contains rural landscapes that have been established, developed, and affected by its human inhabitants over the past several hundred years. Planning for open space and recreation in Charlemont must account for the complex relationships between people and the open spaces and natural resources upon which they depend. Continued growth without consideration of the natural systems that need to be protected will reduce the quality of life for current and future generations.

The information provided in this section, Community Setting, uses a variety of sources, two of which are the 1998 Charlemont Master Plan Background Document and the 2001 Charlemont Master Plan. Both of these documents helped to inform the inventories and analysis of the human and land use components of Charlemont's landscapes.

This section provides an inventory and assessment of land use and landscapes in Charlemont, moving from the present, to the past, and to the future based on current development trends. *Regional Context* gives a snapshot of Charlemont today, and identifies the ways in which the location of the town within the region has affected its growth and the quality of open space and recreational resources. *History of the Community* looks back at how early residents settled and developed the landscape. *Population Characteristics* explores who the people of Charlemont are today and how population and economic trends may affect the town in the future. Finally, *Growth and Development Patterns* describes how the town has developed over time and the potential impacts of current land use regulations on open space and municipal services.

A. REGIONAL CONTEXT

The Town of Charlemont is a highland town located at the foot of the Berkshire Hills in western Franklin County. Charlemont is bordered by the Towns of Rowe and Heath on the north, Colrain and Shelburne on the east, Buckland and Hawley on the south, and Savoy and Florida on the west. State Route 2, also known as the Mohawk Trail, is the principal highway running in an east-west direction through Charlemont, linking the Town to Greenfield and Interstate 91 to the east, and North Adams and New York to the west. The principal highway running north-south is State numbered Route 8A connecting Charlemont with Heath and Vermont to the north, and Hawley to the south.

A.1 Natural Resources Context

In order to plan for the protection of open space and natural resources in the Town of Charlemont, residents may want to consider the role these natural resources play across the region. There are several ways residents can view their town's landscapes. Two of these are important in both Charlemont and in surrounding communities: abundant and contiguous forestland and watersheds. The presence and relatedness of these significant resources presents both opportunities and challenges to open space and recreation planning.

A.1.1 Large Blocks of Contiguous Forestland

Forests constitute one of the most important natural resources in the Town of Charlemont and the region. The Commonwealth of Massachusetts owns 1,902 acres (MassGIS) of forestland as part of the Mohawk Trail State Forest in the western half of Charlemont. The Department of Conservation and Recreation oversees this forestland and approximately 6,500 acres in the neighboring Towns of Savoy, Florida and Hawley. Other protected open space and natural resources in the region include Savoy Mountain State Forest in Savoy, Kenneth Dubuque State Forest in Hawley, and Catamount State Forest in Colrain.

Large blocks of contiguous forestland such as these are important regional resources for several reasons. First they represent an area with a low degree of fragmentation. Wildlife species that require a certain amount of deep forest cover separate from people's daily activities tend to migrate out of fragmenting landscapes. New frontage lots and subdivisions can often result in a widening of human activity, an increase in the populations of plants and animals that thrive alongside humans (i.e. raccoons and squirrels) and a reduction in the species that have larger home ranges and unique habitat needs. When these large blocks of forest are protected from development they help to protect and provide clean water, air, and healthy wildlife populations. In addition, as development fragments forests, it also reduces the viability of some types of forest management and harvesting regimes. As woodlands, valued for their hardwood and softwood timber are broken up through subdivision and development, the resulting ownerships (acres/lot) may not be large enough to support commercial harvesting operations.

Contiguous forest constitutes the backbone of any greenway or wildlife habitat planning effort in the region simply because it is the dominant vegetative community. The forestlands in Charlemont are part of significant regional greenbelts that have been recognized by the Massachusetts Natural Heritage and Endangered Species Program as providing habitat to viable populations of rare and endangered plant and animal species as well as buffering these unique habitats from human impacts like roads and development. Contiguous forest in Charlemont is part of the bridge, the connection of undeveloped lands across the regional landscape. The importance of the town's forested land will be addressed in greater depth in Section 4.

A.1.2. Watersheds

Watersheds are the areas of land that drain to a single point along a stream or river. Sub-watersheds contain first and second order stream tributaries. A first-order stream flows from a single source; a second order stream starts at the point where two first-order streams meet. These small streams are the most extensive component of any watershed. They are also the most sensitive to land use, both the negative impacts of runoff and the positive effects of forest cover. Two of the most important reasons to protect forests within the watersheds are preserving the long-term integrity of wildlife habitat and maintaining the quality of surface and ground waters.

The Town of Charlemont is located in the south-central portion of the Deerfield River Watershed, which encompasses all or part of twenty western Massachusetts communities and sixteen towns in Vermont. From Stratton Mountain in Vermont to the confluence with the Connecticut River in Greenfield and Deerfield, Massachusetts, the Deerfield River drains a regional landscape that is 665 square miles in size, 347 of which are in Massachusetts (DRWA; 2002). Its total river length is 70.2 miles, forty-four of which are in Massachusetts. The Deerfield River, one of the coldest and cleanest rivers in Massachusetts, has a steep gradient, dropping 46.8 feet per mile from its headwaters to the USGS gauge near the Town of West Deerfield, a distance of 69.5 river miles. This feature has made the Deerfield River a magnet for hydroelectric power generation, with ten hydroelectric developments constructed on the river since 1911. Given its gradient and excellent water quality, the Deerfield River has seen a long history of use by fishermen and whitewater enthusiasts. The Commonwealth of Massachusetts actively stocks the river to augment native populations in addition to stocking juvenile salmon, as part of the Connecticut River restoration project.

The Deerfield River is a major tributary of the Connecticut River. The Connecticut River Watershed is the largest river ecosystem in New England. The River enters Massachusetts through the Town of Northfield and drains all or part of forty-five municipalities before entering the State of Connecticut where it eventually empties into Long Island Sound at Old Saybrook.

While the Deerfield River Watershed is a viable management unit for state agencies like the Department of Environmental Protection, the subwatershed may be a more appropriate unit for the town to use in its planning. The subwatershed is the unit of choice for tracking potential impacts from development on the biodiversity and water quality of first and second order streams within the stream network. Subwatersheds also typically play an important role in the recharge of Charlemont's sole high yield aquifer. The town's subwatersheds are covered in detail in Section 4-Environmental Inventory and Analysis.

The degree of forest continuity, pattern of residential development, and the purity of the water in the Deerfield River Watershed are beyond the control of any one community. The Town of Charlemont could promote the conservation of all its significant open space and natural resources, but if surrounding towns fail to protect land, plan growth, or continue to monitor and participate in the cleanup of brooks and rivers, their level of impact on the resources that disregard political boundaries (water, wildlife populations, scenic views, trails, etc.) will be insignificant. Charlemont needs to take an active role in the conservation of regionally important natural resources, whether they occur in town or not.

A.2 Socio-Economic Context

The Town of Charlemont's economy shifted from agriculture and industry to primarily a tourist/recreation based economy since the early part of the 20th century. The opening of the Mohawk Trail as an auto route in 1914 through the Deerfield River corridor and along the southern part of Charlemont, allowed tourists from Boston to New York access to Charlemont's natural resources for recreational purposes. Although World War II and construction of the Interstate 90 slowed tourist-related activities in the region in the mid-20th Century, tourism and recreation continue to be key to the local economy with approximately 71 percent of the jobs in town in the related Service and Trade industries.

Charlemont's population grew significantly in the past thirty years, and it is projected the town will continue to gain residents through 2010. Although the tourist and recreation industry grew during the past decade, the unemployment rate in Charlemont was generally higher than that of the State for the same time period. In 2000, the per capita income was lower than that of both County and State. Additionally, 10.4 percent of individuals, for whom the percent was estimated, live below the poverty level as compared to 9.4 percent for Franklin County.

Like many of the communities in the western and eastern edges of Franklin County, there has not been the same level of pressure to develop the open spaces of Charlemont for residential development in comparison to communities along the Interstate 91 corridor. Thus the community has an opportunity to protect natural, open space, and recreation resources in advance of the next surge in development. Currently, due to the local economy and lower property values relative to other areas in the region, development rights may be purchased at much lower rates than would be possible if the town or local land trusts were to wait for the need for land protection to become more apparent.

B. HISTORY OF THE COMMUNITY

Given the excellent fishing opportunities of the Deerfield and Cold Rivers as well as the hunting resources of the surrounding woodlands, it is believed the Town of Charlemont was the likely site of Native American settlement. It is probable the Native Americans used the Deerfield River floodplain at the confluence of the Cold River as a site for seasonal hunting and fishing camps. Other hunting and fishing sites may have been the areas between Zoar and Charlemont villages, near the confluence of the Deerfield River and Hartwell Brook, and the village of East Charlemont. Given their proximity to Charlemont, the Pocumtucks of Deerfield were most likely to have used these sites to a great degree. The Mohawk Trail, which cuts through Charlemont, was a regional corridor for Native Americans who traveled between the Hudson River Valley and the Connecticut River Valley.

Colonial settlement began in Charlemont in 1740 with Moses Rice constructing the first home at the foot of Warfield Mountain. Shortly thereafter, Othniel Taylor built a home in East

Charlemont. The attack of Fort Massachusetts by French and Indian forces necessitated the abandonment of these homes in 1746. Resettlement of the area did not occur until 1749, and no major expansion of settlement occurred until the early 1760s. Although agriculture was the primary economic activity of the early settlers, Moses Rice built the first gristmill soon after settling in Charlemont. Given the abundant water resources of the town, other mill operations including sawmills and gristmills, soon followed.

During the Federal Period (1775-1830), Charlemont's population grew significantly. There were two commercial village centers, the primary one being at Charlemont Center with the second being in East Charlemont. East Charlemont was also the center of industrial activity. A smaller mill center was also located in the village of Zoar in the western section of town. Agriculture, in the form of dairy and sheep farms, was also important.

Charlemont in the Early Industrial Period (1830-1870) did not have access to the economic benefits of the Troy and Greenfield Railroad until 1868, which was thought to be one of the main reasons the town did not see the growth of industry as expected. This rail line later connected Charlemont to North Adams via the Hoosac Tunnel (c. 1875). In spite of this development, agriculture continued as the town's economic base.

By 1875, at the start of the Late Industrial Period (1870-1915), Charlemont's industrial base was limited to several sawmills, two scythe snathes shops and a chair making operation. With the opening and success of the nearby Davis iron pyrite and talc mine in Rowe in the 1880s, a prospecting craze developed in the area. Mining operations were also opened in Charlemont during this period and included the Massachusetts Talc Company in the village of Zoar. The merchants of Charlemont Center benefited greatly from this prospecting craze. Several merchant shops still present in town include Tyler's Store and Post Office (c. 1840s), Wells Corner Store (c. 1845), and the W.E. Niles House and Storefront (c. 1840). Two other shops opened in the early 1890s, which were important to the town's economy for a number of years. In 1891, W.M. Pratt established a rake handle factory and the following year, H.H. Frary opened a carriage shop, which also produced wooden spools for the silk mills in Northampton. In 1912, the Massachusetts Highway Commission approved the upgrade of the Mohawk Trail through the Deerfield corridor to accommodate automobiles. When construction was completed in 1914 the auto route, which extended along the Deerfield River in Charlemont to the base of Hoosac Mountain in North Adams, opened the steepest section of the Mohawk Trail to automobiles. This road also formed the connecting link of state highway from Boston to New York. Agriculture remained a primary economic activity in Charlemont through the mid- 20th century.

In modern times Charlemont's economy shifted from agriculture and industry to a tourist/recreation based economy based upon its natural resources. The second home movement, generated in part by the recreation and tourism industries, will continue to impact Charlemont. Today, recreation related businesses such as Berkshire East Ski Resort, Crabapple Whitewater and Zoar Outdoor contribute greatly to the local economy. Going hand in hand with the recreation industry is the lodging and restaurant industry, which is also important to Charlemont's economy.

B.1 Historic Structures in Charlemont

Charlemont's Town Center was designated as a National Historic District in 1985. The town's two other villages, Zoar and East Charlemont do not have their own historic districts but are home to many historical structures. The Charlemont Master Plan Background Document contains many records of historical structures and sites and these are included in the Appendix.

C. POPULATION CHARACTERISTICS

In this section, Charlemont's needs for open space and recreational resources are assessed based upon an analysis of demographic and employment statistics. The demographic information includes changes in total population, changes in the relative importance of different age groups in town, and potential changes in development patterns due to shifts in the local economy.

C.1 Demographic Information

C.1.1 Population and Population Change

Demographics can be useful for forecasting the potential need for open space and recreational resources that will be required by residents. During the ten year period 1970-1980, the Town of Charlemont saw an increase in population from 897 in 1970 to 1,149 in 1980, an increase of 252 residents or 28.1 percent. The next two decades, 1980-2000 again saw a large increase in population of 209 residents or 18.2 percent. According to the U.S. Census, Charlemont had 1,358 residents in the year 2000. Thus, over the previous thirty years, 1970-2000, the Town of Charlemont saw a total increase of 51.4 percent in the number of its residents. While both Franklin County and the Commonwealth of Massachusetts both saw increases in population over the same period, the growth was not as significant, at 20.8 percent and 11.6 percent respectively.

According to the Massachusetts Institute of Social and Economic Research (MISER), the town's population will experience an increase during the ten year period 2000-2010. MISER projects the Town of Charlemont will increase by 122 residents or 9 percent of its population (See Table 3-1). This will be in contrast to Franklin County and Massachusetts, which are expected to have a population increase of 7.8 percent and 5.5 percent, respectively. It should be noted that in forecasting future populations MISER develops low, middle and high projections each with slightly different assumptions. The high projection was used here as it more accurately reflects what is happening in Charlemont. Also, MISER's current projections, released in 1999, relied heavily on data from the 1990 U.S. Census and intermediary population estimates produced from 1990 to 1999 prior to the 2000 U.S. Census. As a result, these new MISER forecasts, which will likely extend out to 2025, could potentially show different trends and patterns than those suggested by MISER's projections from 1999.

Table 3-1: Population Growth, Estimates and Projections 1970-2010

	Population Growth, 1970-1980 (# of People)	Percent Population Growth, 1970-1980	Population Growth, 1980-2000 (# of People)	Percent Population Growth, 1980-2000	Percent Population Growth, 1970-2000	Population Growth Projections, 2000-2010* (# of people)	Projected % Change, 2000-2010*
Massachusetts	47,660	0.84%	612,060	10.7%	11.6%	349,897	5.5%
Franklin County	5,084	8.6%	7,218	11.2%	20.8%	5,550	7.8%
Charlemont	252	28.1%	209	18.2%	51.4%	122	9.0%

Sources: Growth and Estimated Growth from U.S. Census Bureau: Census of Population & Housing, Projection data from the Massachusetts Institute of Social and Economic Research (M.I.S.E.R.), July, 1999; The Greater Franklin County Region Comprehensive Economic Development Strategy, 2000 and 2002. *Miser develops high, middle and low projections, each with slightly different projections. The high-level projections are used for Charlemont, while MISER’s middle projections are used for Franklin County and the State.

If we assume the Town of Charlemont will experience a 9 percent increase in population by the year 2010, how will this translate into demand for open space and recreational resources? Will these additional residents be young, middle-aged, or elderly? According to the U.S. Census 2000 General Demographic Characteristics, the majority (approximately 62 percent) of Charlemont’s residents are in the 0-19 (school age) and 20-44 year (early working years) age cohorts. These are the age cohorts or groups that also showed minimal change during the ten (10) year period 1990-2000 (-0.5 percent and 1.3 percent respectively) (See Table 3-2). Interestingly, Charlemont is not losing its young people quite as fast as are other towns in the Commonwealth. Between 1990 and 2000, the number of Charlemont’s 20-34 year olds diminished by 2.8 percent, while in the county the number of residents in this age group declined by 24 percent and in the state by nearly 18 percent. What is stemming the out-migration of existing young residents or attracting younger adult residents to Charlemont? Affordable housing, flexible employment in the recreation industries, and diverse recreational opportunities may be a few of the causes.

Another population trend occurring in the county and the state is the growth of the elder segment of the population. Both the 45-64 year age group and the 65+ year group are both growing in the county and the state. In Charlemont, the 45-64 year age cohort grew by 34.7 percent and the 65+ age cohort grew by 9 percent between 1990 and 2000 (See Table 3-2). In ten years time, what is the likelihood of the population getting even older? The 55-64 year age group grew by 32 percent between 1990-2000, which is twice the growth rate for that age group in the county (16 percent) and significantly greater than the state (6 percent). Given these figures, it appears the elderly may be among the largest cohorts in Charlemont in the years to come. Based on this analysis, the Town of Charlemont needs to be concerned about providing for an aging population in its open space and recreation programming.

Table 3-2: Number of People by Age Cohort Between 1990 and 2000 in Massachusetts, Franklin County, and in Charlemont

Age Cohort	Massachusetts Population		% Change	Franklin County Population		% Change	Charlemont Population		% Change
	1990	2000		1990	2000		1990	2000	
0-19 years	1,561,017	1,675,113	7.3%	19,038	18,502	-2.8%	383	381	-0.5%
20-44 years	2,530,390	2,394,062	-5.4%	28,635	24,303	-15.1%	457	463	1.3%
45-64 years	1,110,013	1,419,760	27.9%	12,289	18,550	50.9%	265	357	34.7%
65+ years	815,005	860,162	5.5%	10,130	10,180	0.5%	144	157	9%

Source: U.S. Census, 1990 and 2000.

Seniors require different recreational facilities and services including accessible walking paths, arts, and leisure programs. Both the Master Plan and the Master Plan Background Document contain objectives and options that support the development of parks, pedestrian facilities, and elder housing within the Center. A modestly sized senior housing facility, designed to fit architecturally within Charlemont Center, and managed by the Franklin Regional Housing and Redevelopment Authority could help to support local commercial businesses.

The Master Plan documents also point to the need for recreational facilities and programs for youth of all ages including access to open space. Many of the objectives and options described in the Master Plan documents could also result in added areas for recreation. However, unless the town plans on hiring a recreation coordinator, the development of youth programming may be dependent on the leadership and will of parents. A well led Recreation Committee, however could galvanize the varied interests in providing safe places, programs and access to activities and open spaces for the benefit of all residents.

Charlemont currently has a diversity of recreational spaces and opportunities that with additional effort could be available for more residents. For example, Berkshire East Ski Area provides skiing programs for local school children. Sites such as the Mohawk Trail State Forest (6,457 acres), the Mohawk Park Restaurant and Hotel (400 acres), Zoar Picnic Area (187 acres), Pike Camping Area (50 acres), Charlemont Fairgrounds (20 acres), Zoar Outdoor, and Crab Apple Whitewater, could be contacted or in the case of the fairgrounds, simply assessed, to increase limited access to residents at reduced rates. The Master Plan Background Document included a table of Recreational Sites and Activities. This table has been reproduced and placed in the Appendix of the Open Space Plan.

In addition, according to the Master Plan Background Document, there are a number of recreational activities that are open to the general public. Individuals, volunteers, and businesses sponsor these activities, which shows that there may be room for additional recreational opportunities for residents of all ages with a little leadership. Existing organized recreational activities include:

- Mohawk Trail Concert Series-Classical music in the summer and fall at the Federated Church
- Yankee Doodle Days-Crafts Fair at the Charlemont Fairgrounds last weekend in July
- Charlemont Reggae Fest-Music Concert at the Charlemont Fairgrounds in September

- Native American Pow-wows-A Native American Cultural Event at the Rte. 2 Village May through October 7
- National Jeep Jamboree in October
- American Whitewater Association Festival-Riverfest

Identifying the best location for new open space and recreation resources should consider where people live and the special needs of its citizens. As will be seen in the fourth part of Section 3, Growth and Development Patterns, future growth depends in large part on zoning, soil and groundwater related constraints, and on which lands are permanently protected from development. Town Officials could identify key parcels in town that might be future parks and walking trails close to neighborhoods and areas that could be developed for compact residential uses. Officials could be looking for opportunities to conserve land in Charlemont in a way that protects valuable scenic and natural resources and provides public access to trail networks and future parks and conservation lands.

Whatever the generational make up of the future community, recreation and open space needs may change over time. What would Charlemont’s response be to these potential increasing and changing needs? How can these services and facilities be created in an efficient and economical manner? The answers to these questions may depend in part on the current and potential economic and financial well being of Charlemont and its residents.

C.1.2 Economic Wealth of Residents and the Community

Measures of the income levels of Charlemont residents as compared to the County and State are helpful in assessing the ability of the citizenry to pay for recreation resources and programs and access to open space through property taxes or directly through the use of fees.

Table 3-3: Median Household Income, Per Capita Income, and Percentage Below Poverty Level in 1999 for Charlemont compared to Franklin County and the State

	Median Household Income	Per Capita Income	Percentage Below Poverty Level*
Charlemont	\$46,548	\$19,577	10.4%
Franklin County	\$40,768	\$20,672	9.4%
Massachusetts	\$50,502	\$25,952	9.3%

Source: U.S. Bureau of the Census, Census 2000. *Percentage of individuals living below poverty level for which the poverty status has been determined.

Table 3-3 describes the earning power in Charlemont as compared to the County and the State. According to Census 2000 figures, Charlemont households earn incomes that are 14.2 percent above the median for the County, but 7.8 percent below the median for the State. The per capita income for the town (total income for all residents divided by the total number of men, women, and children) is approximately the same as that of the County but less than the State’s figure. The percentage of people living below poverty level in Charlemont is slightly higher than both the

County and the State at 10.4 percent. Residents may be willing to consider spending limited tax dollars on targeted recreational programming and facilities.

Although Charlemont's resources today are clearly both its people and its natural landscapes, the status of the town's finances could be affected by an interdependent relationship that exists between the two. Costly community services provided to residents and businesses are paid for with the tax revenues generated by different kinds of property, both developed and undeveloped. As is shown in the Master Plan Background Document, while commercial and industrial property taxes accounted for less than \$200,000 in 1998, taxes paid by residential property owners exceeded 1.1 million dollars. Though residential property owners pay the lion share of the costs of running the town, housing is often considered a fiscal loss because the school costs of one household are rarely made up by the revenues generated by that same property. One reason that towns encourage economic development is to have some other type of property to share the tax burden carried by residential property owners and caused by associated education and public works costs. Protected open space on the other hand costs very little, provides a meager amount of tax revenues, but reduces the amount of housing that can occur. This relationship is explored in more detail in subsection D. Growth and Development Patterns.

C.2 Employers and Employment Statistics

C.2.1 Labor Force: Charlemont residents that are able to work

In the year 2001, the Town of Charlemont had a labor force of 655 with 631 residents employed and 24 unemployed (Massachusetts Division of Employment and Training). This is equal to a 3.7 percent unemployment rate for the town. The Commonwealth of Massachusetts' unemployment rate was the same at 3.7 percent while Franklin County's unemployment rate was slightly lower at 3.2 percent. Table 3-5 shows that the number of residents in the labor force and employed in Charlemont reached a peak in 1999 and that the town's unemployment rate decreased by 51 percent between 1994 and 2001.

Table 3-4 also shows the unemployment rates for Franklin County and for the Commonwealth of Massachusetts during the same time period. Charlemont residents have been evermore successful at gaining employment over the last decade, though the unemployment rate for the town exceeded the averages for the county and state most of the time. Overall, the town receives more benefits when residents are employed than not. When residents are employed, earning a decent wage, they are more apt to own homes, pay property taxes, and volunteer their time, skills and interest in the community. On the other hand, if the unemployment rate in town is very low, an expanding local business might need to consider the regional labor pool to fill new positions.

Table 3-4: Labor Force and Unemployment Rate in Charlemont, Franklin County and the Commonwealth of Massachusetts 1994-2001

	1994	1995	1996	1997	1998	1999	2000	2001	1994-2001 Change	% Change
Number of People in the Labor Force and Employed	599	611	611	627	635	641	635	631	32	5.34%
Number of People in the Labor Force and Unemployed	49	33	33	38	31	31	23	24	-25	-51%
Charlemont Unemployment Rate	7.6%	5.1%	5.1%	5.7%	4.7%	4.6%	3.5%	3.7%	-3.9%	N/A
Franklin County Unemployment Rate	5.2%	4.7%	3.8%	3.8%	3.3%	2.9%	2.6%	3.2%	-2.0%	N/A
Massachusetts Unemployment Rate	6.0%	5.4%	4.3%	4.0%	3.2%	3.2%	2.6%	3.7%	-2.3%	N/A

Source: Commonwealth of Massachusetts, Division of Employment and Training (Local Area Unemployment Statistics), 2002.

C.2.2 Employment in Charlemont: People who work in town, whether they are residents or not.

Table 3-5 depicts sector employment in the County and State as a percentage of total employment. The Table demonstrates that the manufacturing, trade and service sectors on both the State and the County levels produced the highest percentage of total employment in 1998, together combining for over 80 percent in the state and 85 percent in the county. It can be said that the county has a strong manufacturing sector, since it has a higher percentage, or share, of total employment in this sector than the state average. In other words, Franklin County employs more people in manufacturing jobs than the average in other counties in Massachusetts. Though it has declined some since the beginning of the decade and a lot since the middle of the 20th century, the sector still employed a quarter of the people in the county (25.75 percent) in 1998. Whereas, the state, which has lost many manufacturing jobs since 1990, employed only 14 percent of its total workers in industries in the manufacturing sector (See Table 3-5). Using the same comparative analysis, other competitive sectors in the county are Agriculture, and Transportation, Communication (Information), and Public Utilities (T.C.P.U). Since these sectors are employing more people in the county than in the state, it is likely that they are producing more goods and services than their counterparts in other areas of the state. Therefore, it can also be said that these sectors are most likely exporting their goods and bringing money into the region.

Another important technique for determining the relative strengths and weaknesses of the county employment sectors as compared to the state is to analyze the shifts in employment over time. This method also shows that manufacturing is relatively strong in Franklin County. For example, during the period from 1990 to 1998, the county's manufacturing sector lost 4 percent of its jobs, while the sector in the state as a whole lost 28 percent. Though also declining on both levels, Agriculture and Trade declined more slowly in the county than in the state as a whole during those same eight years. Weaker sectors in the county, construction and F.I.R.E (Finance, Insurance and Real Estate) declined at a greater rate in Franklin County than in the state.

Analysis of the seven sectors found only the T.C.P.U (Transportation, Communication and Public Utilities) and services sectors demonstrating growth between 1990 and 1998 in both Franklin County and in the state. Services grew at a slightly greater pace in the state while T.C.P.U. grew slightly faster on the county level.

Table 3-5: Employment by Industry Sector for Franklin County and State of Massachusetts as a Percentage of Total Employment, 1990 and 1998

Industry Sectors	1990 Franklin County	1998 Franklin County	1990 Massachusetts	1998 Massachusetts
Agriculture	0.67%	0.45%	0.43%	0.04%
Construction	4.25%	3.23%	3.91%	3.63%
Manufacturing	26.87%	25.75%	19.40%	14.02%
T.C.P.U.	4.84%	6.86%	4.75%	6.62%
Trade	25.81%	25.20%	26.06%	24.64%
F.I.R.E.	6.05%	3.60%	8.93%	8.85%
Services	31.52%	34.85%	36.51%	41.42%

Source: County Business Patterns 1990 and 1998, Bureau of the Census.

T.C.P.U.: Transportation, Communication, and Public Utilities; Trade: Wholesale and Retail Trade; F.I.R.E.: Finance, Insurance, and Real Estate. Note: County Business Patterns data are not available for Years beyond 1998 and do not include the Government sector.

Unfortunately, local employment information provided by the Massachusetts Division of Employment and Training is incomplete, although Open Space Committee members estimate local employment figures for the Agricultural sector to be 14 employees and for the Construction sector, 43 employees. The following economic base analysis is presented for the purposes of a general comparison between local and regional trends.

Charlemont's economy was once dominated by agriculture and to a lesser extent, commerce and manufacturing, both of which relied on the town's natural resources. Today, the economy continues to be dependent upon these natural resources, but the dominant sector is clearly the service sector comprised of recreation and tourism-based businesses. Combined, the service and trade sectors (wholesale and retail trade, which includes inns, restaurants, and stores) now account for the majority of employment in town, in Franklin County, and in Massachusetts in 1998, though agriculture and construction appear to also be very important sources of employment.

Generally, outside of the relatively large share of employment in agriculture and construction sectors, Charlemont appears more in-line with state business trends than that of the county. Charlemont's growth sector is services, which includes professional, recreational, health, legal, managerial, and personal care businesses. Trade, both retail and wholesale, is declining in both the state and the town at a greater rate than the county. Businesses in two other sectors, manufacturing and Transportation, Communications, and Public Utilities are present in Charlemont according to the Master Plan Background Document.

One interesting trend is the relatively consistent growth in employment over the decade 1990-2000. Charlemont's steady growth in jobs appears void of the dramatic employment gains and losses typically found in communities with a heavy manufacturing base. Steady growth in

employment is an economic development goal sought after by many communities. This may be a business characteristic for Charlemont to capitalize on.

Table 3-6: Place of Work for Workers 16 Years and Over in 2000

	Worked in Town of Residence	Worked out of Town of Residence but in County of Residence	Worked out of County of Residence but in State of Residence	Worked out of State of Residence
Charlemont	18.4%	61.1%	17.6%	2.9%
Franklin County	27.6%	34.9%	33.4 %	4.1%
Massachusetts	31.3%	35.4%	30.1%	3.3%

Source: U.S. Census Bureau, Census 2000.

Table 3-7: Place of Work for Workers 16 Years and Over in 1990

	Worked in Town of Residence	Worked out of Town of Residence but in County of Residence	Worked out of County of Residence but in State of Residence	Worked out of State of Residence
Charlemont	24.2%	63.4%	6.5%	6.0%
Franklin County	35.8%	35.8%	24.9%	3.4%
Massachusetts	36.5%	35.9%	24.5%	3.1%

Source: U. S. Census Bureau, 1990.

Another interesting economic trend that could impact land use is shown in U.S. Census information. According to the 2000 U.S. Census, Charlemont residents were more likely to work farther from home than in 1990 (See Tables 3-6 and 3-7). When compared to the county and the state, the percentage of Charlemont residents that worked in town is far less than would be expected. The percentage of residents that worked outside of town but in Franklin County is almost double the county average and the percentage that worked out of the county but in the state is about half. However, those residents that are commuting to other counties in the state, nearly tripled over the last decade, according to the U.S. Census. This could either mean that more of Charlemont residents are working in Berkshire County, which does not imply further commuting time, or that they are working in Hampshire County, which would mean longer commutes. What are the implications of commuting time changes to open space planning? If people are more willing to commute longer distances to go to work, are able to tele-commute, or have their own home business, they are less likely to choose their place of residence based on its proximity to a regional employment center. Places that offer a high quality of life with plenty of forests, farms and scenic views like Charlemont may become more in demand by these types of workers, which could result in added development pressures.

C.2.3 Employers in Charlemont

Based on two sets of dated information, Charlemont has several major employers, most of which are in recreational-based and educational services, trade or in government. The 1998 Master Plan Background Document identified five major employers as having at least 6 employees including Berkshire East Ski Resort, Charlemont Inn, Zoar Outdoor, and A.L. Avery and Son. In 1997, the Massachusetts Division of Employment and Training identified only four employers that had at least 10 employees: Mohawk Park Corporation, Bittersweet Herb Farm, The Academy at Charlemont, and the Berkshire East Ski Resort.

In January 2003, with the assistance of Charlemont town officials, FRCOG staff identified major employers with at least ten employees and determined the types of employment offered at each business (See Table 3-8). Government, and educational services businesses provide the most full-time employment, which is more likely to include benefits and additional training opportunities while retail trade and service sector businesses provide mostly part time or seasonal employment.

Table 3-8: Selected Employers in Charlemont with Greater than Ten Employees (2003).

Major Employers in Charlemont	Industry Sector	Number of Full Time Employees Year Round	Number of Part-Time Employees Year Round	Number of Full Time Employees, Seasonal	Number of Part Time Employees, Seasonal
Town of Charlemont	Government				
Hawlemont Elementary School	Government	21	9		
Academy at Charlemont	Services	20	4		
Mohawk Park Family Campground and Pub	Retail Trade	4	6		
Country Aire Campgrounds	Services				
Charlemont Inn	Services	10	18		
Stillwaters Restaurant	Retail Trade	15	10-12		
Oxbow Resort Motel	Services				
Berkshire East Ski Area	Services	3		220 total FT and PT employees in winter	
Zoar Outdoor	Services	5	1	11	80
Crab Apple Whitewater	Services	3		35+ FT and PT employees April – Oct.	

Source: Telephone contact with each business in January 2003.

Both Master Plan documents suggest the opportunity exists to encourage existing recreational-based tourism businesses as well as expand locally owned small businesses in the service fields. Whenever town resources are applied to economic development, no matter the sector targeted for support, it is important to consider the types of jobs to be created. Full time jobs typically pay more and provide benefits. Part time and seasonal jobs provide flexible employment and less pay. Both types of jobs may be in demand but clearly full time jobs create a more stable economy.

D. GROWTH AND DEVELOPMENT PATTERNS

The Town of Charlemont has a population density of 48 people per square mile (Commonwealth of Massachusetts Department of Housing and Community Development).

D.1 Patterns and Trends

The Town of Charlemont developed from a sparsely populated agricultural community to one with several early commercial and industrial centers dependent both on the waterpower of rivers and wood and mineral deposits from local forests. These commercial and industrial activities helped to establish the villages of Charlemont Center, Zoar and East Charlemont. The Troy and Greenfield Railroad and Rte. 2 both provided access for residents and visitors to move in and out of the region. Despite the development of manufacturing and transportation facilities, agricultural remained the basis of the economy well into the 20th century.

By the early 20th century, Charlemont had become a rural recreational center as use of the Rte. 2 Mohawk Trail by tourists peaked. Berkshire East Ski Area began in the 1950s while Zoar Outdoor started in 1989. According to the 1998 Master Plan Background Document, these two businesses combined with another recreational-based business, Crab Apple Whitewater (established in 1990), grossed between 17.5 and 35 million dollars in 1997. Charlemont has primarily a tourist-based economy. One example that shows the importance of tourism in Charlemont is reflected in its 1999 zoning by-laws. Criteria for granting a special permit by the Planning Board includes the impact the activity, site plan, and building design may have on existing and future tourism.

Computer mapping technology called Geographic Information Systems (GIS) can be used to develop and display spatial information helpful for analysis in many types of planning. Land use GIS maps show where forest, cropland, residential, commercial, and industrial development occur within a town or region. The shapes depicted on a land use map are called polygons and are created from aerial photographs. For example, a single-family home built on a lot with frontage on a main road and surrounded by forest, or cropland, could be described as a polygon of a ½ acre of residential use. By comparing land use maps from two different years, in this case 1971 and 1999, it is possible to see the areas of land that changed uses, from pasture to forest, and from forest to residential uses. Over the past thirty years there were changes in land use at the following locations:

- Tower Road: Conversion of open land to pasture and cropland.
- Western Charlemont: Pasture and open land converted to forest, expansion of mobile home park, and residential development of ½ acre in size or more on frontage lots (referred in the following bullets as approval-not-required (ANR) large lot development).
- Rowe Rd.: Expansion of mining areas.
- Schaefer Way: Large lot ANR.
- At base of Legate Hill Rd. and Rte. 2: Conversion of cropland to large lot residential uses.

- Legate Hill from Rte. 2 to town's border with Rowe: Conversion of forest to ANR development.
- Potter Rd.: Conversion of forest and pasture to large lot residential uses.
- Warner Hill Rd.: A fair amount of crop and pasture converted to ANR development and some pasture returned to forest.
- In Charlemont Center, south of Hawlemont School: Conversion of urban open land and spectator recreation land to participatory recreation land.
- North of Charlemont Center, off Warfield Rd.: Conversion of cropland to pasture and ANR uses and, of forest to pasture.
- Off North Heath Road: Land converted from spectator to participatory recreation uses, reduction in mining uses, conversion of forest and cropland to ANRs, some crop to forest changes, and the development of large lot residential uses within forestland back off the road.
- Near the Academy: Expansion of ANR developments off Burrington Rd.
- Mountain Road: Conversion of forest and cropland to ANR development and from cropland to pasture.
- Traveling east along Rte. 2: Conversion of pasture to cropland, forest to large lot ANR uses, and forest to participatory recreation.
- Off Avery Brook: Very little change, except for the development of two ANR house lots within forest.
- West Oxbow Rd.: Near Rte. 2, the conversion of cropland to participatory recreation land and from forest to ANR uses.
- East Oxbow Rd.: Most significant conversion of forest to large lot residential development on Hawks Hill and Deer Run Lane.
- Heath Stage Terrace and River View Rd.: Conversions of cropland to ¼ to ½ acre residential uses, open land to commercial uses, and forest to large lot ANR uses.
- North River Rd.: Conversion of spectator recreation uses to open land and of forest to ANR development.

Between 1971 and 1997 the predominant land use change in the Town of Charlemont has been the conversion of forest to residential development on ANR frontage lots. Another important change is the increase in participatory recreational uses. The locations of the ANR lots are spread throughout town with an atypical concentration in East Charlemont off Hawk Hill and Deer Run Lane. Between 1985 and 1999, the loss of forest was equal to 166 acres while the gain in large lot residential development was 190 acres. According to the U.S. Census, there was a gain of only 27 housing units between 1990 and 2000, which implies that much residential development happened in the late 1980s.

During the next ten-year period, the Massachusetts Institute of Social and Economic Research's high population estimates forecast a 9 percent increase in Charlemont's population, which is approximately 122 more people. Unless Charlemont encourages development in and around its village centers through zoning revisions, the long-term development trend will likely continue to be large lot residential development on frontage or ANR lots throughout town.

D.2 Infrastructure

Infrastructure plays a vital role in current and future development patterns.

D.2.1 Transportation Systems

There are two principle highways in the Town of Charlemont, State Route 2 and State-numbered 8A. State Route 2, also known as the Mohawk Trail, is the primary east-west highway in Northern Massachusetts. It passes through Charlemont Center and the southern section of the town. Route 2 connects Charlemont to Greenfield and Interstate Route 91 to the east, and with North Adams and New York to the west. State numbered Route 8A, is a town-owned route with state designations, which travels in a north-south direction and connects the Town of Charlemont to Heath and Vermont to the north and Hawley to the south. It too passes through Charlemont Center.

Charlemont is serviced by the Franklin Regional Transit Authority (FRTA), which provides fixed route service between Charlemont and Greenfield when Charlemont Academy and Greenfield Community College are in session. The FRTA also provides on-demand service for people with disabilities and the elderly.

The Springfield Terminal Railway (the former Boston and Maine Corp.) passes through the Town of Charlemont along Route 2. It does not, however, service commercial or industrial interests in town.

According to the Massachusetts Department of Housing and Community Development website, the nearest airport servicing the Town of Charlemont is located in North Adams. The Harriman and West Airport is a general aviation facility capable of accommodating small aircraft.

D.2.2 Water Supply Systems

The Town of Charlemont does not have a municipal water supply. All residences and businesses are served by private wells.

D.2.3 Wastewater Treatment and Sewage Systems

The Town of Charlemont has a wastewater treatment facility that serves 360 people in Charlemont Center. It is a recirculating sand filter facility with a design capacity of 500,000 gallons per day. As of April 2003, it was operating at 65 percent of capacity. The wastewater treatment facility composts its sludge and discharges its effluent to the Deerfield River (FRCOG; 1998).

Typically, a public sewer system can impact development in a number of ways. Sewer infrastructure could be expanded to ensure that new industrial development occurs away from

sensitive natural resources and that new dense residential development is built ideally within a town-mandated boundary. Expanding sewer to areas with physical and hydrogeologic constraints may open up other areas to future development. Expanding sewer lines could result in increases in costs associated with infiltration of groundwater and inflow of storm water, which can eat up extra capacity. In addition, new demand for public sewer service may require further expansion of the wastewater treatment facility capacity, which can be very expensive. In short, public sewer systems can be a valuable tool for controlling and, in a sense, rewarding dense residential development that remains close to existing infrastructure. On the other hand, expanding sewer without proper planning can create a drain on the town budget due to the costs of future community services resulting from expanding sparse yet sewer residential development in rural outlying areas.

The Charlemont Sewer District is not designed to accommodate uses that would require an extension of its collection system or its storage and filtration capacity. The ordinance authorizing designation of the District does not allow for its boundaries to expand and there is not enough land surrounding the wastewater treatment facility to allow for an expansion of the holding tanks or sand filters. According to its chief operator, the sand filters are very near to the lot lines of the parcel on which they are situated. The Deerfield River borders the southern lot line, a brook is to the west, and the Department of Public Works is to the north and east. Currently, the facility is treating wastewater at 65 percent of its design capacity. When a wastewater treatment facility operates at 80 percent of its design capacity, the Massachusetts Department of Environmental Protection requires the facility to pursue changes to the system to increase its design capacity.

The District is designed to allow for limited increases in wastewater treatment needs for existing uses. For example, a laundry mat might be developed in an existing building or, the school could see an increase in enrollment. Both of these examples would likely result in an increase in the amount of wastewater flowing to the filters and also a reduction in excess capacity. The closer the District gets to 100 percent of design capacity, the more cautious the operators must be. Any unusually high flows exceeding the design capacity could result in the discharge of untreated effluent to the Deerfield River, an unacceptable situation for all parties.

If the Town of Charlemont were to consider expanding sewer service to areas outside the district as a means of providing relief to homeowners with failing septic systems or of encouraging development at a higher density than what would be found in surrounding rural areas, several hurdles might need to be overcome. First, the ordinance authorizing the District might need to be redefined so as to expand its boundaries. Secondly, it would be important to determine the feasibility of acquiring land to contain additional sand filters and holding tanks. Other challenges might include deciding which areas of town should be serviced with public sewer and whether changes in zoning would be warranted.

D.3 Long-term Development Patterns

Long-term development patterns in Charlemont will be affected by both existing and future land use controls, including zoning; by the permanent protection of more land; and, by potential changes in transportation and sewerage infrastructure.

D.3.1 Land Use Controls

Residential development of frontage lots on existing roads will likely be the dominant short-term development pattern given current zoning. Charlemont’s zoning includes a single Residential/Agricultural district. The zoning bylaws also include several measures that may influence long-term development patterns: Minimum lot area with conditions; Special Permit Criteria; Erosion Control; and Cluster Development.

Table 3-9: Selected Features of the Residential Agricultural District

Dimensional Requirement	Slope, Soil, Percolation Rate Conditions Adequate	One or more of the Slope, Soil, Percolation Rate Conditions Inadequate
Min. Lot Area (sq. ft.) for Single-Family	45,000 sq. ft.	66,000 sq. ft.
Min. Lot Area (sq. ft.) for Two-Family	60,000 sq. ft.	88,000 sq. ft.
Min. Lot Area (sq. ft.) for Three-Family	75,000 sq. ft.	110,000 sq. ft.
Min. Lot Area (sq. ft.) for Non-Residential Use with capacity of <2,000 gal. on-site waste water /day	45,000 sq. ft.	66,000 sq. ft.
Min. Lot Area (sq. ft.) for Non-Residential Use with capacity of ≥2,000 gal. on-site waste water /day	90,000 sq. ft.	132,000 sq. ft.
Min. Lot Frontage for all Lots & Uses	150 ft.	150 ft.
Min. Front Yard off Rte. 2	75 ft.	50 ft.
Min. Front Yard off all other roads	50 ft.	50 ft.
Min. Side Yard	25 ft.	25 ft.
Min. Rear Yard	25 ft.	25 ft.

Source: Town of Charlemont Zoning By-Laws; October 19, 1999.

Minimum Lot Area with Conditions

The basic minimum lot size is 45,000 sq. ft. if certain conditions are present (See Table 3-9). The ground that will be disrupted due to construction should have an average slope of 15 percent or less. Depth to bedrock, hardpan or the high water table should be at least six feet. Finally the soils should percolate at rates of ten minutes per inch or less. If any one of these conditions is not present, the basic minimum lot size of 66,000 sq. ft. is applied. The general purpose behind such measures is likely to ensure that on-site septic systems do not contaminate groundwater and private wells.

Increases to the basic minimum lot size, whether the lot has constraints or not, are also applied to residential development of two and three-family units, to mobile home parks, campgrounds, and motels. Non-residential uses enjoy the basic minimum lot size as long as the capacity of their on-site septic systems is less than 2,000 gallons per day. If not, the commercial, industrial, or institutional use must be built on lots at least 90,000 sq. ft. in size were none of the site constraints present.

The single minimum frontage (150 ft.) and the basic minimum lot size ensure that new lots will be in one consistent pattern all over town, despite traditional changes in density between rural outlying areas and the villages. Villages tend to have a variety of structures on lots smaller than an acre in size, while working farms and forests typically produce a sparsely developed rural landscape. In the future, there may be a desire for smaller frontage requirements (e.g. 75 or 100 ft.) in village areas and larger frontages (200-300 ft.) in the rural areas. Another interesting measure in the zoning rests in the requirement that two- and three-family homes, even where connected to sewer, would still be required to be on 60,000 sq. ft. and 75,000 sq. ft. lots with frontages of 150 ft. Typically, communities interested in promoting development patterns that result both in economic vitality and the preservation of open space seek a variety of development densities, including dense mixed use traditional village centers where residents can support nearby commercial businesses.

Special Permit Criteria

The Special Permit Criteria listed in the Zoning By-Laws identify factors that would be considered in the Planning Board's decision to grant a use that is not allowed by right in Charlemont. These uses are varied from three-family homes, mobile home parks, structure heights greater than 32 ft., to accessory scientific research or development. The Special Permit Criteria provide the Planning Board the basis for protecting undeveloped lands with special or unique cultural, ecological, or recreational values as well as the town's rural character and environmental quality overall. The Special Permit Criteria include impacts on:

- Development of tourist activities;
- Capacity of the town to meet service needs;
- School facilities;
- Abutting lands in regards to sound, light, odor, noise, etc.;
- The natural landscape including habitats, trees and plants; and whether the project causes erosion, siltation and increased stormwater runoff;
- Safety;
- Neighborhood and community character; and,
- Employment and fiscal integrity.

Erosion Control

This measure authorizes the Building Inspector to require any development to ensure that soil erosion and excessive stormwater runoff will be minimized. In addition, the measure requires a special permit for any grading or construction on land with slopes over 25 percent. This does not restrict all development along ridgelines, but does provide the town with an opportunity to focus development in more appropriate upland areas.

Cluster Development

The Cluster Development measure requires a special permit to be granted by the Planning Board for the development of parcels at least 5.2 acres for lots with no constraints or 7.6 acres for lots with constraints. The measure allows for a 20 percent increase in density beyond the basic minimum lot size, as long as the amount of open space created by the development is at least 30 percent of the total parcel size. For a 5.2-acre parcel, a developer would need to set aside 1.6

acres. No minimum lot size applies, but the 20 percent increase in density would result in only four 36,000 sq. ft. lots. A 5.2-acre roadside parcel with the necessary frontage could fit five 45,000 sq. ft. lots, while a traditional subdivision of the same size would likely provide the same number of lots as the cluster, but at the minimum lot size. In addition, there is no mention of the protection status of the open space or of a minimum upland percentage requirement. Charlemont may want to consider revising the cluster development measure to ensure that it provides more incentives for its use, and at the same time, ensures upland is protected, not wetlands, which are already protected from development.

Charlemont's zoning by-laws will create a pattern of development very different from its historical patterns. It encourages scattered residential development on all roadways including Rte. 2. Charlemont's zoning does not reflect the desire of the town to protect open space, farmland, forests, or to concentrate development near existing infrastructure. Remaining pastures and woodlands will continue to be encroached upon by larger lot residential development. Charlemont may want to consider implementing a sustained land protection effort and revisions to the zoning by-laws so that the pattern of future development retains the town's rural character. Unless this occurs, Charlemont will likely experience sprawl of predominantly single-family residential development on lots of 1 –1 ½ acres in size over much of the developable acreage. The potential results of this type of development pattern are reflected in the following build-out analysis.

D.3.2 Build-out Analysis

To illustrate the long-term effects of current zoning, results of a build-out study are included here. This aforementioned study is part of a State-wide effort funded by the Executive Office of Environmental Affairs. The methodology and results of the build-out study and associated GIS mapping is explained below.

The purpose of the build-out analysis is to determine potentially developable land areas for residential, commercial, and industrial development. The process starts with identifying development that already exists based on 1997 Mac Connell Land Use data and new subdivisions built since that time. Already developed areas are subtracted from the town's total acreage and the remaining area is classified as undeveloped. Undeveloped areas are then screened for environmental constraints such as steep slopes in excess of 25 percent, wetland areas, Rivers Protection Act buffer areas, and Zone I Recharge areas to public water supplies. In addition, protected open space is removed from consideration, but only those areas that are permanently protected, such as farmland in the Agricultural Preservation Restriction Program. Interestingly, some areas which you would expect to be screened, such as those held by water districts to protect public water supplies, may not be if a conservation restriction or some other legal mechanism is not placed on the deed to permanently protect the land as open space. Slopes between 15 and 25 percent are considered a partial constraint, since certain types of land use typically do not occur on relatively steep slopes. For purposes of this build-out analysis, it was assumed that commercial and industrial development, and residential districts with small lot sizes would not occur on slopes of 15 and 25 percent. However, it was assumed that large lot residential zoning could occur on slopes of 15 and 25 percent given greater flexibility to grade

and site structures. The areas that remain after the screening process are considered potentially developable.

The zoning district is then overlaid on to the potentially developable areas and a “build factor” is calculated. The build factor is calculated based upon the requirements of each zoning district in terms of minimum lot size, frontage, setbacks, parking required and maximum lot coverage permitted. Once calculated, the build factor is used to convert potentially developable acreage into either residential house lots, or commercial or industrial square footage depending on the zoning district. Once house lots are calculated, this can be translated into estimated population growth, miles of new roads, and additional water consumption and solid waste generation. Commercial and industrial square footage is calculated and its associated demand for water is estimated.

Table 3-10: Summary Build-out Statistics of New Development and Associated Impacts

Potentially Developable Land (acres)	8,336
Total Residential Lots	5,916
Total Residential Units	6,270
Comm./Ind. Buildable Floor Area (sq. ft.)	2,131,182
Residential Water Use (gallons per day) [2]	1,272,521
Comm./Ind. Water Use (gallons per day) [2]	159,839
Non-Recycled Solid Waste (tons/year) [3]	6,190
New Residents [4]	16,967
New Students [5]	3,208
New Residential Subdivision Roads (miles)	108

Notes:

1. All wetlands removed from potentially developable land;
No development on slopes in excess of 25%;
No development in Zone I Water Supply Protection Areas;
No development in permanently protected open space; and,
No development within 150-foot buffer of transmission lines.
2. Estimate from the Department of Housing & Community Development's
Growth Impact Handbook
3. Statewide Average
4. 1990 Census; Population/Housing Units
5. MISER; 1997 School Children/Population

The results of the build-out analysis are often quite startling. Table 3-10 describes the results of the build-out in numerical terms. While it might take many decades to reach “build-out,” it is quite clear that current zoning will not protect the community’s rural character or natural resource base. Open Space and Master Planning can help to identify key resources to protect and the areas most suitable for development. Once completed, Open Space and Master Plans should be translated into zoning revisions and land protection programs in order to realize the balance desired by a community between natural resource protection and development.

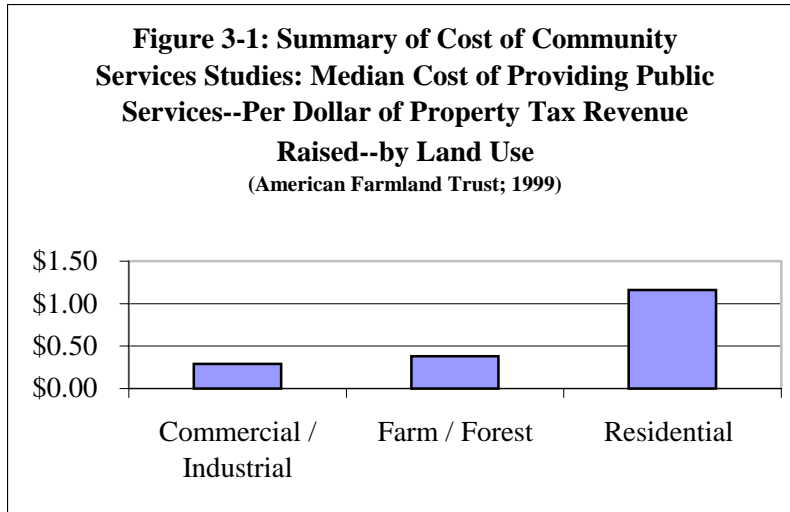
Although Charlemont has zoning that contains measures that seek to protect natural landscapes, sprawl of roadside frontage lots is the current development pattern occurring today. This development pattern will diminish the differences between the village and rural areas of town. Charlemont’s zoning encourages the development of homes on large lots. Even with slope and soil constraints, the build-out analysis estimates there is room for 6,270 new dwelling units in town. This could result in over 17,000 more people and 3,200 more school-aged children.

The analysis assumes that after all frontage lots are developed, backland will be developed as subdivisions. New subdivisions could result in the creation of more than 108 new miles of roads that would need to be maintained. Fire and police services would have to expand to protect the increased population. Before the last acre was developed, Charlemont would need community water supplies to satisfy an estimated additional daily water demand of 1.4 million gallons.

It is clear that this degree of population growth and development would result in ecological as well as economic impacts. The impacts could include a reduction in available clean drinking water, decreases in the quantity and quality of wildlife and fisheries habitat, a reduction in the water quality of streams, lower air quality, less biodiversity, increases in erosion and loss of open spaces. Full development would also result in the loss of agricultural businesses and rural character as well as a reduction in the viability of the town's recreation and tourism-based economy.

The economic impacts of this level of population growth and development would be felt well before maximum build-out was reached. The challenge for Charlemont and other communities is to find a model for growth that protects vital natural resource systems and maintains a stable property tax rate. In designing the model, it is important to understand the fiscal impact of different land uses, which can be calculated based on the relationship of property tax revenues generated to municipal services used.

Although protected open space typically has a low assessed value and thus generates low gross tax revenues, municipal expenditures required to support this use are typically much lower than the tax revenue generated. In 1991, the American Farmland Trust (AFT) conducted a Cost of Community Services (COCS) analysis for several towns in Franklin County. A COCS analysis is a process by which the fiscal impacts of different land uses within a town are compared to determine whether a use has a positive or negative net fiscal impact. The results of the 1991 AFT study showed that protection of open space is an effective strategy for promoting a stable tax base. It found that for every dollar generated by open space, the municipal services required by that land cost on average only 29 cents, resulting in a positive fiscal impact to the town. In 1995, the Southern New England Forest Consortium (SNEFC) commissioned a study of eleven southern New England towns that confirmed the findings of the earlier AFT study. These findings were confirmed by another 47 COCS analyses across the country conducted in the 1990s. Figure 3-1 demonstrates the summary of the 58 COCS studies. For every dollar of property tax revenues received from open space, the amount of money expended by the town to support farm and forest land is typically less than a dollar.



Source: American Farmland Trust; 1999.

The second component of a balanced land use plan concerns the development of other tax-generating land uses. Both the AFT and the SNEFC studies showed that for every dollar of taxes generated by commercial and industrial uses, the cost to towns for these uses resulted in a positive net gain. Patterns of commercial and industrial uses vary considerably between towns, and positive fiscal impact is only one of several important factors that need to be considered when encouraging this type of development. It is just as critical for communities to consider the impact of commercial and industrial development on quality of life. Viewed in this light, the best types of commercial and industrial development for Charlemont to encourage might have one or more of the following characteristics: Being a business in the recreation and tourism-based services sector; locally owned and operated; use of a large amount of taxable personal property; a “green industry” that does not use or generate hazardous materials; businesses that add value to the region’s agricultural and forestry products; and, businesses that employ local residents. It is also important to consider that successful commercial and industrial development often generates increased demand for housing, traffic congestion and pollution. Therefore, the type, size and location of industrial and commercial development require thorough research and planning.

By pursuing strategies that combine active land protection, zoning measures that direct development while protecting natural and historical resources, and sustainable economic development, Charlemont can continue to grow and stabilize its property tax rate while maintaining its historic villages and rural character.

Town of Charlemont

Open Space and Recreation Plan

Zoning









Map Sources:

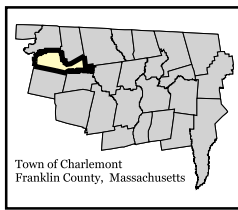
Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEa maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEa makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEa maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEa Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

Road data provided by Massachusetts Highway Department. Town line, rail line, river, stream, wetland, and lake data provided by MassGIS. Zoning provided by FRCOG.

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

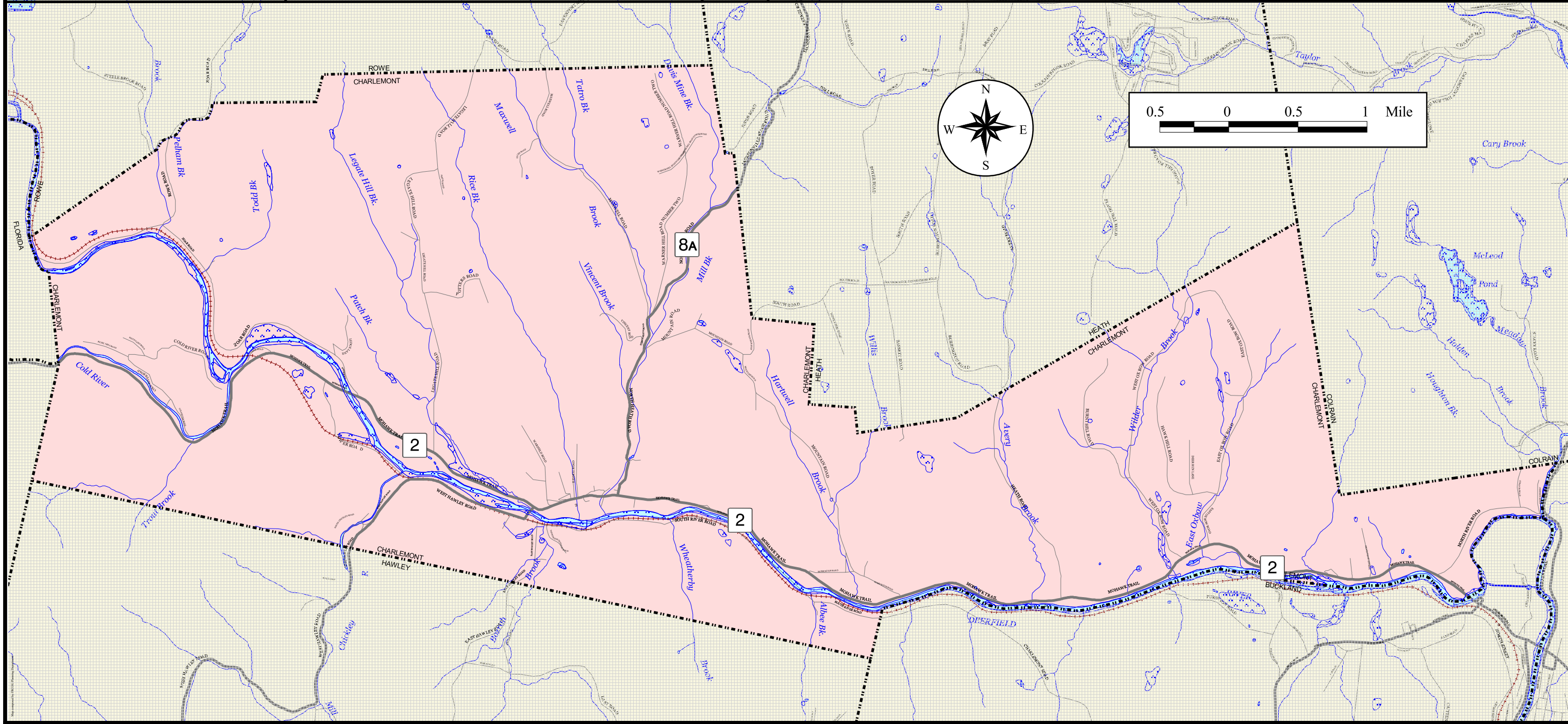
Legend

-  Town Line
-  Rail Lines
-  Roads
-  Major roads
-  Streams and Rivers
-  Water
-  Wetland
- Zoning**
-  Residential/Agricultural (RA)



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April 26, 2004












Town of Charlemont


Open Space and Recreation Plan

Developable Soils and Development Constraints







Legend

-  Town Line
-  Rail Lines
-  Roads
-  Major roads
-  Streams and Rivers
-  Water body
-  National Wetland Inventory wetland
-  Slope greater than 25%
-  Prime Farmland Soils



River Protection Act

-  0-100 feet from river bank

Open Space

-  Open Space with Permanent Protection
-  Open Space with Limited Protection
-  Chapter 61: Forestry (Temporary Protection)
-  Chapter 61A: Agriculture (Temporary Protection)
-  Chapter 61 & 61A: Forestry & Agriculture (Temporary Protection)
-  Chapter 61B: Recreation (Temporary Protection)

Land Use

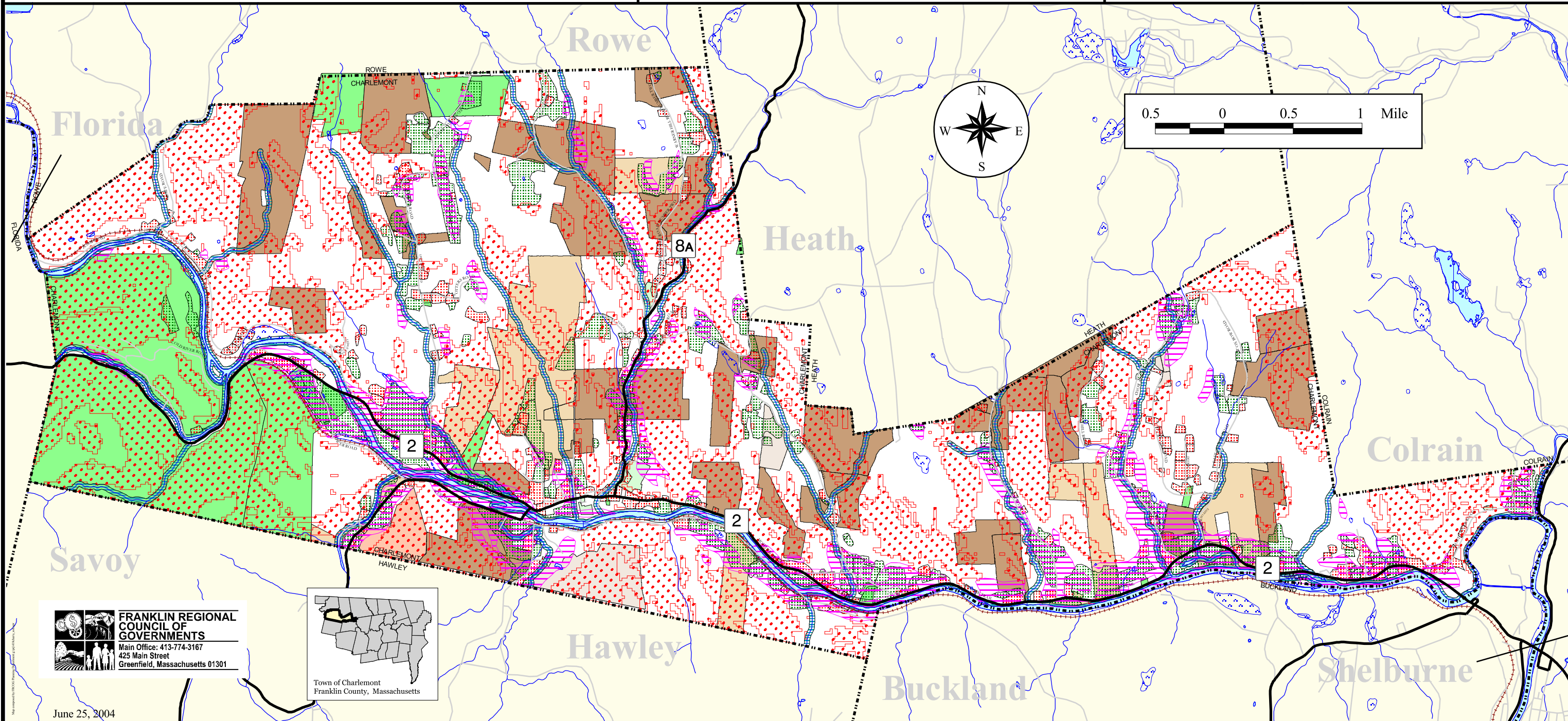
-  Crop and pasture land
-  Residential

Map Sources:

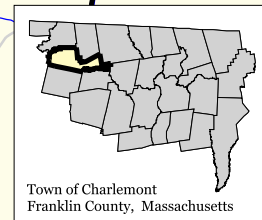
Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEa maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEa makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEa maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEa Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

Road data provided by Massachusetts Highway Department.
Town line, rail line, river, stream, pond, slope, River Protection Act, land use, and open space data provided by MassGIS.
Farmland soils digitized by FRCOG planning department staff from 1979 U.S. Soil Conservation Service Map "Important Farmlands of Franklin County."

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.



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Town of Charlemont

Open Space and Recreation Plan

Land Use Suitability

Legend

- Town line
- Rail lines
- Roads
- Streams and rivers
- Transmission lines
- Water body
- National Wetland Inventory wetland
- Potentially developable, has no absolute constraints

Potential constraints for development

- Slope 15-25%
- Prime farmland soil
- Interim wellhead protection areas
- Estimated Habitats of Rare Wildlife (NHESP)
- Priority Habitats of Rare Species (NHESP)
- NHESP BioMap Core Habitat

Developed land (1999)

- Residential
- Commercial
- Industrial
- Urban open
- Transportation

Map Sources:

Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEIA maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEIA makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEIA maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEIA Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

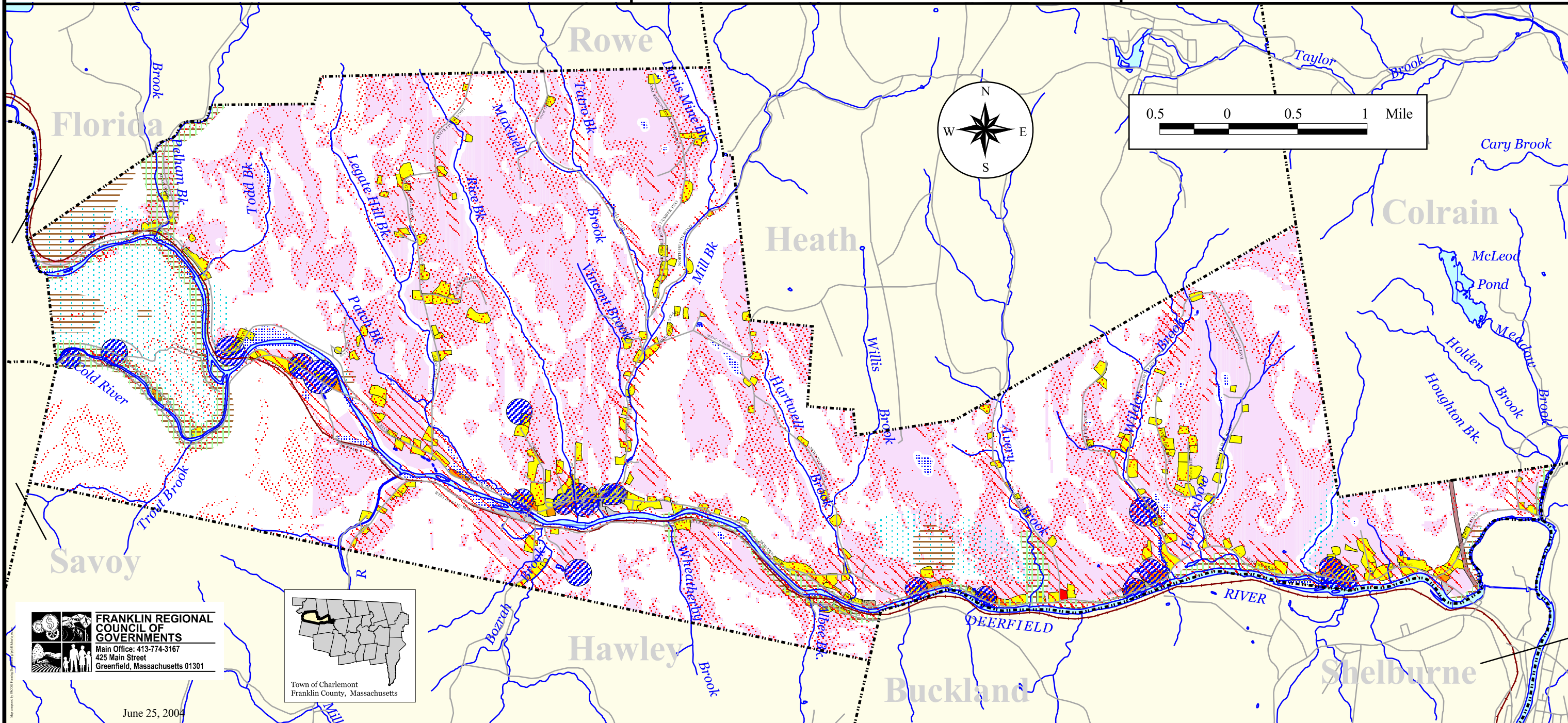
Road data provided by Massachusetts Highway Department. Town line, rail line, transmission line, river, stream, pond, National Wetlands Inventory, slope, soil, interim wellhead protection area, aquifer, land use, NHESP, and outstanding water resource data provided by MassGIS. Prime farmland soils digitized by FRCOG staff.

NHESP 2003 Estimated Habitats of Rare Wildlife: For use with the Massachusetts Wetlands Protection Act regulations (310CMR 10).

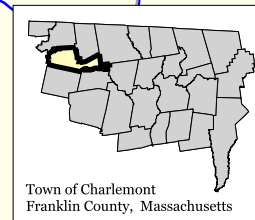
NHESP 2003 Priority Habitats for State-protected Rare Species: NOT equivalent to 'Significant Habitat' as designated under Massachusetts Endangered Species Act.

NHESP BioMap Core Habitat.

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.



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SECTION

4

ENVIRONMENTAL INVENTORY AND ANALYSIS

The scenic landscape of the Town of Charlemont has been cherished by its residents for generations. This Open Space and Recreation Plan is intended to help residents protect the town's scenic value and natural resources in the face of increased development pressure, while recognizing that people need places to live, learn, work and play. These needs require infrastructure: homes, roads, power, water, wastewater systems, etc. Infrastructure, in turn, both depends upon and impacts critical natural systems like the water cycle. One way to understand the impact of development on natural resources is to study the *ecosystems* of the town and the region.

An ecosystem is a concept that describes how a group of living organisms (plants, animals and microorganisms) interacts with each other and their physical environment (soil, climate, water, air, light, etc.). Ecosystems exist at different scales. A large forest can be an ecosystem and so can a decayed tree trunk. The integrity of ecosystems depends on the relationship between living beings and their environment. Wetlands, for example, are ecosystems consisting of plants and animals that depend on water from the surface and the ground. Wetland vegetation grows where soils are saturated by water for at least several weeks a year. This vegetation provides shade, food and habitat for a wide variety of insects, birds and fish.

Ecosystems provide a variety of “services” that are very important to human communities. Wetlands, for example, trap and remove sediments, nutrients and toxic substances from surface water. They store floodwaters during and after storms, preventing damage to public and private property, and recharge water to the ground, and retain it during droughts. These functions are vulnerable to the impacts of land development. Construction in and around wetlands not only displaces the animals that depend on this ecosystem, it may also result in increased flooding, storm damage, and reduction in the quality and quantity of drinking water.

The information provided in this section explores the biological and physical components of the town's ecosystems. These components include air, surface and ground water, soils, vegetation, fisheries and wildlife. *Topography, Geology, and Soils* provides a general understanding of the ways different soil characteristics can impact land use values. *Landscape Character* provides an overall scenic context. *Water Resources* describes all of the water bodies in town, above and below ground, including their recreational value, public access, and any current or potential quality or quantity issues. Charlemont's forest, farmland and wetland vegetation types are documented including rare, threatened, and endangered species. In *Fisheries and Wildlife*, wildlife, habitat, special corridors, and rare, threatened, and endangered species are discussed. Charlemont's *Scenic Resources and Unique Environments* are identified and described. Finally, *Environmental Challenges* addresses current and potential problems that may influence open space or recreation planning.

A. TOPOGRAPHY, GEOLOGY, AND SOILS

Decisions about land use must take into consideration the inherent suitability of a site for different kinds of development. Geology, soils, and topography are essential to determining potential sites for future residential, commercial and industrial development and for new parks, hiking trails and open space.

A.1 Topography

The topography of the Town of Charlemont consists of steep and rolling hills, open fields, numerous streams and the “crown jewel”, the Deerfield River, which flows the entire length of the town. The Deerfield River enters the Town of Charlemont in the northwestern corner of the town and flows southeastward to its eventual confluence with the Connecticut River in the Town of Deerfield. The steep and rolling hills of Charlemont lie on both sides of the Deerfield River, with the highest elevations in the southwestern and northeastern corners of town. The town’s highest point is Pocumtuck Mountain, at 1,872 feet, located in the northeastern corner. Within much of Charlemont, the Deerfield River Valley is fairly broad and flat and encompasses a significant portion of the town’s prime agricultural land.

A.2 Geology

The Town of Charlemont as we know it today is the result of millions of years of geologic history: great upheavals of the earth’s crust and volcanics, and the sculpting power of moving water, ice and wind. This distinctive physical base has determined the distribution of the town’s water bodies, its soils and vegetation and its settlement patterns, both prior to and since colonial times. Understanding Charlemont’s current landscape requires a brief journey back in time and a review of some basic geological concepts.

The earth’s crust is a system of plates whose movements and collisions shape the surface. As the plates collide, the earth’s crust is compressed and forced upward to form great mountain ranges. In the northeastern United States, the plates move in an east-west direction, thus the mountains formed by their collisions run north to south.

The pressure of mountain building folded the earth, created faults, and produced the layers of metamorphosed rock typically found in New England. Collision stress also melted large areas of rock, which cooled and hardened into the granites that are found in some of the hill towns in Massachusetts today. Preceding the collisions, lines of volcanoes sometimes formed, and Franklin County shows evidence of this in bands of dark rock schist metamorphosed from lava flows and volcanic ash.

Hundreds of millions of years ago, a great continent, known as Pangaea, formed through the collisions of plates. Pangaea began to break apart almost 200 million years ago, and continues to

do so as the continents drift away from each other today. This “continental drift” caused earthquakes and formed large rift valleys, the largest of which became the Atlantic Ocean. The Connecticut Valley was one of many smaller rifts to develop. Streams flowing into the river from higher areas to the east brought alluvium, including gravels, sand and silt. At the time, the area that is now the Town of Charlemont was located south of the equator. The Dinosaur era had begun, and the footprints of these giant reptiles are still visible in the rock formed from sediments deposited on the valley floor millions of years ago.

By the close of the Dinosaur age, the entire eastern United States including Charlemont was part of a large featureless plain, known as the peneplain. It had been leveled through erosion, with the exception of a few higher, resistant areas. Today, these granite mountaintops, called monadnocks, are still the high points in this region. Local examples include Mt. Wachusett, Mt. Greylock, and Mt. Monadnock in New Hampshire.

As the peneplain eroded, the less resistant rock eroded to form low-lying areas, while bands of schist remained to form upland ridges. By this time, the Connecticut Valley had been filled with sediment, while streams that would become the Deerfield, Westfield and Farmington Rivers continued to meander eastward. The westward-flowing streams would become more significant later on.

A long period of relative quiet in geologic terms followed the Dinosaur era. Then, as the Rocky Mountains were forming in the west eight million years ago, the eastern peneplain shifted upward a thousand feet. As a result of the new, steeper topography, stream flow accelerated, carving deep valleys into the plain. Today, the visible remnants of the peneplain are the area's schist-bearing hilltops, all at about the same 1,000-foot elevation.

Mountain building, flowing water, and wind had roughly shaped the land; now the great glacial advances would shape the remaining peneplain into its current topography. Approximately two million years ago, accumulated snow and ice in glaciers to the far north began advancing under their own weight. A series of glaciations or “ice ages” followed, eroding mountains and displacing huge amounts of rock and sediment. The final advance, known as the Wisconsin Glacial Period, completely covered New England before it began to recede about 13,000 years ago. This last glacier scoured and polished the land into its final form, leaving layers of debris and landforms that are still distinguishable.

The glacier picked up, mixed, disintegrated, transported and deposited material in its retreat. Material deposited by the ice is known as *glacial till*. Material transported by water, separated by size and deposited in layers is called *stratified drift*. (Natural Resource Inventory for Franklin County, University of Massachusetts Cooperative Extension; May 1976) The glacier left gravel and sand deposits in the lowlands and along stream terraces. Where deposits were left along hillsides, they formed kame terraces and eskers. Kames are short hills, ridges, or mounds of stratified drift, and eskers are long narrow ridges or mounds of sand, gravel, and boulders.

A.3 Soils

Soil is the layer of minerals and organic material that covers the rock of the earth's crust. All soils have characteristics that make them more or less appropriate for different land uses. Scientists classify soils by these characteristics, including topography; physical properties including soil structure, particle size, stoniness and depth of bedrock; drainage or permeability to water, depth to the water table and susceptibility to flooding; behavior or engineering properties, and biological characteristics such as presence of organic matter and fertility (Natural Resource Inventory for Franklin County, University of Massachusetts Cooperative Extension; May 1976). Soils are classified and grouped into associations that are commonly found together.

As Charlemont plans for the long-term use of its land, residents should ask: 1) Which soils constrain development given current technologies? 2) Which soils are particularly suited for recreational opportunities and wildlife habitat? and 3) Which soils are best for agriculture? The answers to these questions can help lay a foundation for open space and recreation planning in Charlemont. The following sub-section provides a description of the soils in Charlemont based on their impact on agriculture, drinking water issues, wastewater issues, recreation opportunities, erosion and wildlife habitat.

Which soils constrain development given current technologies?

Soils in Charlemont found on the moderate to steep slopes are of the Lyman, Westminster and Colrain series. The Westminster and Lyman soils are found on the moderate to steep slopes in town. They are extremely rocky and are well to excessively drained. They develop in thin deposits of glacial till over bedrock. Due to their shallowness, they are droughty. Depth to bedrock is generally less than twenty inches, but can be at a depth of three feet in some places. The Colrain soils can be found in nearly level to very steep slopes, but are limited in use due to their extreme stoniness. They are moderately to well drained soils that are found in loose to compact glacial till. The Colrain soils have a moderate to high moisture holding capacity. Other soils that constrain development are those that are either shallow or wet. Both wet and shallow soils do not provide for adequate filtration of wastewater pollutants associated with private septic systems. Shallow soils are often associated with steep slopes or hilltops while wet soils are often found along floodplains and wetland systems.

Which soils are particularly suited for recreational opportunities and wildlife habitat?

Outside of flat areas for sports fields, the soils best suited for rural recreational purposes are the same as those that provide upland wildlife habitat. Different recreational uses are constrained by different soil and topographical characteristics. Sports fields require well-drained soils and level topography, whereas lands with slopes greater than 25 percent are attractive to mountain biking and hiking enthusiasts. The level topography of the Deerfield River Valley makes it well suited for walking, birding and mountain biking, as well as appealing to all-terrain vehicles and snowmobiles, however, the soils in the Valley are also considered prime farmland soils.

Erodability of soils has important implications for the impact of recreational uses. Erodable soils include those that are shallow, wet, sandy, or sloped, or those with a combination of these characteristics. Hikers, mountain bikers and ATVs can create and exacerbate erosion on steep slopes and in sandy soils.

In other areas of town, there is a good correlation between soils that support wildlife habitat and soils that present the most constraints to development. These soils include the extremely rocky loam type soils of the Westminster, Lyman, and Colrain series found on the moderate to steep slopes in the town.

Which are the best soils for agriculture?

The Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service of the U.S. Department of Agriculture is responsible for classification of soils according to their suitability for agriculture. NRCS maintains detailed information on soils and maps of where they are located.

NRCS defines prime farmland as the land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and that is available for these uses (USDA, NRCS, National Soil Survey Handbook; 2001). Prime soils produce the highest yields with the fewest inputs, and farming in these areas results in the least damage to the environment. Unique farmland is land other than prime farmland used for the production of high-value food and fiber crops. Unique farmland has a special combination of soil quality, location, growing season and moisture supply. These agricultural soils are a finite resource. If the soil is removed, or the land is converted to another use, the capacity for food and fiber production is lost.

Prime farmland soils have contributed to the town's economic stability throughout its history. According to the Charlemont Master Plan Background Document, 14 percent of total land area in Charlemont is Prime Farmland, including other Farmland of Statewide importance. The more common soils that constitute these prime agricultural lands include those of the Agawam, Merrimac, and Suncook series (Charlemont Master Plan; 1998). Prime farmland soils are primarily located within the Deerfield River floodplain and along Avery Brook, Wilder Brook, the Chickley River, the lower portion of Mill Brook from Mountain Road south, Legate Hill Road and Potters Road (USDA; 1979).

The characteristics that make prime farmland soils suitable for agricultural also make them easy to develop. Large tracts of level, well-drained farmland are attractive to developers because the cost of installing roads and other infrastructure is relatively low. Residents interested in conserving these lands can consider all farmland soils to be rare, valuable, and vulnerable to development.

B. LANDSCAPE CHARACTER

The diverse landscape character of the Town of Charlemont distinguishes it from surrounding communities. The town is one of steep forested hills, agricultural lands, numerous streams, and abundant wildlife. The Deerfield River, a focal point within Charlemont, flows southeastward along the entire length of the town. Many of the town's agricultural lands can be found within the Deerfield River floodplain as well as within the floodplains of its many tributaries. The town's villages, including Charlemont Village, are also located along the Deerfield River.

C. WATER RESOURCES

C.1 Watersheds

Charlemont is rich in water resources, including brooks, streams, vernal pools, wetlands, and aquifers (*See the Water Resources Map*). As described in Section 3, all the land in town drains into the Deerfield River, which is an important sub-watershed within the Connecticut River Watershed. Information on water quality in the main stem of the Connecticut River within Massachusetts and the Deerfield River is presented in Section 3. This section focuses on waters within the Town of Charlemont, but it is important to keep in mind that improvements in water quality in the Deerfield River and the other brooks and streams in town have impacts beyond town borders.

Deerfield River (sub-watershed of the Connecticut)

The Deerfield River Watershed is a sub-watershed of the Connecticut River Watershed that drains approximately 665 square miles of the Southern Green Mountains in Vermont and the Northern Berkshires in Massachusetts. Three hundred and forty-seven square miles of this land is located in all or part of twenty western Massachusetts towns. From its headwaters at Stratton Mountain in Vermont, the Deerfield River flows southeastward for approximately seventy (70.2) miles through the steep terrain of the Berkshires to its confluence with the Connecticut River.

The northern portion of the watershed from Somerset to Route 2 in Massachusetts is primarily forested and steep, accounting for approximately 78 percent of the total watershed area. Much of the land along the remaining length of the river is open and agricultural land.

The Deerfield River drops 1,000 ft. in elevation along its length in Massachusetts. This feature has resulted in the management of the Deerfield River for hydroelectric power generation with ten hydroelectric developments constructed on the river since 1911.

Despite the River's regulation by hydroelectric facilities, the Deerfield River's cold and clean waters makes it one of the best fisheries in the State. As part of the Connecticut River restoration project, the Massachusetts Division of Fisheries and Wildlife (DFW) is responsible for the Atlantic salmon restoration effort. The stocking program releases Atlantic salmon fry into tributaries of the Connecticut River. The Deerfield River Watershed (in twenty-one tributaries) is stocked with 700,000 Atlantic salmon fry each spring (Slater; 2001). The River also supports native and stocked trout, making the Deerfield River one of the premier rivers for fishing in the New England.

Recreational opportunities within and along the Deerfield River abound. Whitewater sports, hiking, biking, hunting, fishing, cross-country skiing, and snowshoeing are some of the activities enjoyed by residents and visitors alike.

According to the Mass. Department of Environmental Protection, the Deerfield River from the Vermont-Massachusetts State Line to its confluence with the Connecticut River is given a Class B water quality designation. Given a Class B designation, a water body is considered suitable habitat for fish, other aquatic life and wildlife. It is also safe for primary and secondary contact recreation and has overall consistent aesthetic quality.

The Deerfield River, from the confluence of the Cold River in the Town of Charlemont to its confluence with the North River at the Charlemont/Shelburne Falls line is one of the water bodies in the state that the Massachusetts Department of Environmental Protection (DEP) has placed on its Section 303(d) List of Waters (Segments Needing Confirmation List). A report of the DEP, Final Massachusetts Section 303(d) List of Waters, 1998, states that the “Section 303(d) of the Federal Clean Water Act requires states to identify those water bodies that are not expected to meet surface water quality standards after the implementation of technology –based controls and, as such, require the development of total maximum daily loads (TMDL).” A TMDL is the greatest amount of a pollutant that a water body can accept and still meet water quality standards for protecting public health and maintaining the designated beneficial uses of those waters for drinking, swimming, recreation, and fishing. TMDL’s also describe a report prepared by DEP for each impaired water body that identifies the steps and technologies needed to reduce the pollutant or source of impairment to meet water quality standards. The TMDL reports reflect DEP’s strategy for cleanup of all of the water bodies in Massachusetts.

The Deerfield River Watershed Association (DRWA) has been monitoring the Deerfield River and several of its tributaries in Massachusetts for water quality since 1990. The results of its 2002 Volunteer Monitoring Program note that the alkalinity levels in the watershed are low which can stress the native trout fishery. Dissolved oxygen levels have been historically high and were found to continue to be so. After five years of collecting bacteria data, the DRWA has concluded that dry spells in the watershed do not pose a bacterial threat to the Deerfield River and the tributaries it monitors and thus, these waters are safe for contact recreation during times of drought. Conversely, it was found that runoff, as a result of storms, does pose a bacterial threat at several of the monitored sites, making them unsafe for swimming at those times.

Surface Water Resources in the Deerfield River Watershed

Flowing into the Deerfield River from the north side of the River are the following:

Pelham Brook

Pelham Brook originates at Pelham Lake in the Town of Rowe. It joins the Deerfield River in Zoar Village at the intersection of Zoar and Rowe Roads.

Todd Brook

Todd Brook originates near the top of Coon Hill and flows to its confluence with the Deerfield River near the Zoar Village cemetery.

Patch Brook

Patch Brook is a tributary of Legate Brook, which originates in the uplands below Blueberry Peak.

Legate Brook

Legate Brook originates in The Basin and flows southeasterly to its confluence with the Deerfield River in Charlemont Village.

Rice Brook

Rice Brook originates in the uplands west of Tatro Road just across the town line in the Town of Rowe. It converges with the Deerfield River in Charlemont Village.

Vincent Brook

Vincent Brook is a tributary of Mill Brook. It originates in the uplands east of Riddell Road and flows southeasterly to join Mill Brook approximately one half mile north of the Bissell Bridge on Route 8A.

Maxwell Brook

Maxwell Brook originates in the uplands of the Town of Rowe north of Tatro Road. It flows southeast to join Mill Brook just southeast of the intersection of Warner Hill Road and Route 8A.

Tatro Brook

Tatro Brook is a tributary of Maxwell Brook. It originates in the uplands of the Town of Rowe near the town line.

Davis Mine Brook

Davis Mine Brook is a tributary of Mill Brook originating in an area of wetlands south of the intersection of Cyrus Stage Road and Dell Road in the Town of Rowe. Davis Mine Brook is listed on the Massachusetts Section 303 (d) List of Impaired Waters (Segments Needing Confirmation List), for pH and habitat alteration.

Mill Brook

Mill Brook originates in the uplands of the Town of Heath. It flows southwesterly along Route 8A and is joined by Maxwell and Davis Mine Brooks before it converges with the Deerfield River in Charlemont Village.

Hartwell Brook

Hartwell Brook originates in the Town of Heath and flows along either side of Mountain Road. It enters the Deerfield River in East Charlemont near the Leavitt Cemetery.

Willis Brook

Willis Brook is a tributary of Hartwell Brook. It originates in the Town of Heath, west of South Cemetery.

Avery Brook

Avery Brook originates in the Town of Heath in the uplands just south of the village of Heath. It flows southeasterly to its confluence with the Deerfield River near Heath Road.

Wilder Brook

Wilder Brook originates in the uplands east of Burnt Hill in the Town of Heath. As it enters the Town of Charlemont it follows West Oxbow Road in East Charlemont to its confluence with the Deerfield River across from the intersection of West Oxbow Road and Route 2.

East Oxbow Brook

East Oxbow Brook originates along the southeast side of Pocumtuck Mountain and flows into the Deerfield River in East Charlemont.

Flowing into the Deerfield River from the south side of the River are the following:

Albee Brook

Albee Brook originates in an area of wetlands west of Dodge Corner in the Town of Hawley. It flows northward to its confluence with the Deerfield River in the central section of Charlemont.

Wheatherby Brook

Wheatherby Brook originates in the uplands of northeastern Hawley, to the east of Mount Institute. It flows northward to its confluence with the Deerfield River near Charlemont Center.

Bozrah Brook

Bozrah Brook drains an area of wetlands located west of East Hawley Road in the Town of Hawley. The Brook flows northward to its confluence with the Deerfield River, across from Charlemont Center.

Chickley River

The Chickley River originates in Savoy State Forest in the Town of Savoy in Berkshire County. It flows eastward, then northward to its confluence with the Deerfield River, near Route 8A on the southern shore of the River. The Chickley River, from its confluence with Tilton and Horsefords Brooks in Savoy to the River's confluence with the Deerfield River, is on the 1998 Massachusetts Section 303 (d) List of Impaired Waters (Segments Needing Confirmation List), for pathogens.

Cold River

The Cold River originates in the Hoosac Range in the Town of Florida. It flows southeastward. For a portion of its length, the Cold River runs through Mohawk Trail State Forest, where it is enjoyed for swimming and whitewater boating, in season. The Cold River's confluence with the Deerfield River is also located in Mohawk Trail State Forest in the southwestern section of town.

Trout Brook

The headwaters of Trout Brook are located on Hawks Mountain in Mohawk Trail State Forest in the Town of Hawley. It is a tributary of the Cold River and is located in the southwestern corner of the town.

C.2 Flood Hazard Areas

Flooding along rivers is a natural occurrence. Floods happen when the flow in the river exceeds the carrying capacity of the channel. Some areas along rivers flood every year during the spring, other areas flood during years when spring runoff is especially high, or following severe storm events. The term “floodplain” refers to the land affected by flooding from a storm predicted to occur at a particular interval. For example, the “one hundred year floodplain,” is the area predicted to flood as the result of a very severe storm that has a one percent chance of occurring in any given year. Similarly, the 500-year floodplain is the area predicted to flood in a catastrophic storm with a 1 in 500 chance of occurring in any year.

The 100- and 500-year floodplains are mapped by the National Flood Insurance Program (NFIP) after study of waterways. The 100-year floodplain is used for regulatory purposes. According to the NFIP maps effective 1980, one hundred year flood plains in Charlemont occur along:

- The entire length of the Deerfield River in Charlemont;
- Pelham Brook from its confluence with the Deerfield River north approximately 500 ft.;
- Legate Brook from its confluence with the Deerfield River to its confluence with Patch Brook;
- Mill Brook from its confluence with the Deerfield River north to approx. 0.4 miles past the intersection of North Heath Road and Warner Road;
- Bozrah Brook;
- The Chickley River from its confluence with the Deerfield River to a point approximately 1,500 ft. upstream; and
- Along the Cold River.

C.3 Wetlands

Wetlands are transitional areas where land-based and water-based ecosystems overlap. Inland wetlands are commonly referred to as swamps, marshes and bogs. Technically, wetlands are places where the water table is at or near the surface or the land is covered by shallow water. Sometimes, the term “wetlands” is used to refer to surface water as well.

Historically, wetlands have been viewed as unproductive wastelands, to be drained, filled and “improved” for more productive uses. Over the past several decades, scientists have recognized that wetlands perform a variety of extremely important ecological functions. They absorb runoff and prevent flooding. Wetland vegetation stabilizes stream banks, preventing erosion, and trap sediments that are transported by runoff. Wetland plants absorb nutrients, such as nitrogen and phosphorus, which would be harmful if they entered lakes, ponds, rivers and streams. They also

absorb heavy metals and other pollution. Finally, wetlands are extremely productive, providing food and habitat for fish and wildlife. Many plants, invertebrates, amphibians, reptiles and fish depend on wetlands to survive. Wetlands have economic significance related to their ecological functions: it is far more cost-effective to maintain wetlands than build treatment facilities to manage stormwater and purify drinking water, and wetlands are essential to supporting lucrative outdoor recreation industries including hunting, fishing and bird-watching.

In recognition of the ecological and economic importance of wetlands, the Massachusetts Wetlands Protection Act is designed to protect eight “interests” related to their function: public and private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution, land containing shellfish, fisheries, and wildlife habitat. To this end, the law defines and protects “wetland resource areas,” including banks of rivers, lakes, ponds and streams, wetlands bordering the banks, land under rivers, lakes and ponds, land subject to flooding, and “riverfront areas” within two hundred feet of any stream that runs all year. Local Conservation Commissions are responsible for administering the Wetlands Protection Act; some towns also have their own, local wetlands regulations.

Many of Charlemont’s wetlands can be found in its forested upland areas. Some of these wetlands are mapped by the National Wetlands Inventory (NWI) (*See Water Resources Map*).

Vernal Pools

Vernal pools are temporary bodies of fresh water that provide critical breeding habitat for many vertebrate and invertebrate wildlife species. They are defined as “basin depressions where water is confined and persists for at least two months during the spring and early summer of most years, and where reproducing populations of fish do not survive”. Vernal pools may be very shallow, holding only 5 or 6 inches of water, or they may be quite deep. They range in size from fewer than 100 square feet to several acres (Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, *Massachusetts Aerial Photo Survey of Potential Vernal Pools*; Spring 2001). Vernal pools are found across the landscape, anywhere that small woodland depressions, swales or kettle holes collect spring runoff or intercept seasonal high groundwater, and along rivers in the floodplain. Many species of amphibians and vertebrates are completely dependent on vernal pools to reproduce. Loss of vernal pools can endanger entire populations of these species.

The state’s Natural Heritage and Endangered Species Program (NHESP) has predicted the location of vernal pools statewide based on interpretation of aerial photographs. NHESP believes that its method correctly predicts the existence of vernal pools in 80 to 90 percent of cases. They acknowledge, however, that the method probably misses smaller pools. In Charlemont, NHESP has identified thirty-two potential vernal pools.

In addition to identifying potential vernal pools, NHESP certifies the existence of actual vernal pools when evidence is submitted to document their location and the presence of breeding amphibians that depend on vernal pools to survive. Certified vernal pools are protected by the Massachusetts Wetlands Protection Act and by additional state and federal regulations.

Vernal pools are magical places in early spring. They are easiest to find by listening for the mating choruses of frogs and toads. The pools teem with life, and are wonderful places to teach children about the natural world. The town should continue its efforts to identify vernal pools, provide landowners with information on their ecological importance, and encourage certification to protect these unique ecosystems.

C.4 Potential Aquifers and Recharge Areas

Aquifers are composed of water-bearing soil and minerals, which may be either unconsolidated (soil-like) deposits or consolidated rocks. Consolidated rocks, also known as bedrock, consist of rock and mineral particles that have been welded together by heat and pressure or chemical reaction. Water flows through fractures, pores and other openings. Unconsolidated deposits consist of material from the disintegrated consolidated rocks. Water flows through openings between particles.

As water travels through the cracks and openings in rock and soil, it passes through a region called the “unsaturated zone,” which is characterized by the presence of both air and water in the spaces between soil particles. Water in this zone cannot be pumped. Below this layer, water fills all spaces in the “saturated zone.” The water in this layer is referred to as “groundwater.” The upper surface of the groundwater is called the “water table” (Masters, Gilbert. *Introduction to Environmental Engineering and Science, Second Edition*; 1998).

The route groundwater takes and the rate at which it moves through an aquifer is determined by the properties of the aquifer materials and the aquifer’s width and depth. This information helps determine how best to extract the water for use, as well as determining how contaminants, which originate on the surface, will flow in the aquifer.

Aquifers are generally classified as either unconfined or confined (EPA and Purdue U.; 1998). The top of an unconfined aquifer is identified by the water table. Above the water table, in the unsaturated zone, interconnected pore spaces are open to the atmosphere. Precipitation recharges the groundwater by soaking into the ground and percolating down to the water table. Confined aquifers are sandwiched between two impermeable layers (Masters; 1998). Almost all the public wells in Massachusetts and many private wells tap unconfined aquifers (Mass. Audubon Society; 1985). Wells that rely on confined aquifers are referred to as “artesian wells.”

According to MassGIS and US Geological Service (USGS) documents, Charlemont contains a high-yield aquifer, defined as an aquifer with the potential to provide a pumping volume 50 to 200 gallons per minute. In Charlemont, this aquifer is located along the Deerfield River approximately from Todd Brook to the Chickley River (*See Water Resources Map*).

Charlemont’s surficial geology has characteristics that would support low to medium yield aquifers as well. A low-yield aquifer provides a yield of between 0 and 50 gallons per minute. According to MassGIS and the USGS, these low to medium yield aquifers are located along:

- The Deerfield River;
- Pelham Brook;
- The lower portion of Legate Brook;
- The lower portion of Maxwell Brook;
- Mill Brook;
- Mountain Road between Route 8A and Hartwell Brook;
- Avery Brook;
- Wilder Brook;
- Bozrah Brook;
- Chickley River; and
- The Cold River.

D. VEGETATION

Plants are a critical component of ecosystems in Charlemont. Plants convert solar energy into food, which supports all animal life. Plants cycle energy through the ecosystem by decaying, by removing carbon from the atmosphere and by shedding oxygen. Plants help moderate temperatures and act as shelter and feeding surfaces for herbivores, omnivores, and carnivores.

Plants and animals together make up *natural communities*, defined as interacting groups of plants and animals that share a common environment and occur together in different places on the landscape (NHESP; 2001). Over the past decade, ecologists and conservationists in Massachusetts have devoted increasing effort to studying and protecting these natural communities, rather than focusing on individual species. This section and the following section will address both natural communities and their component species.

Forests make up 83 percent of Charlemont's total land area and are one of the town's most important natural resources. The town's forests include Northern hardwoods and conifers, as well as floodplain forests. This section describes vegetated areas in town with ecological and economic significance.

D.1 Forests

Northern Hardwoods Forest

Charlemont is located in the Northern Hardwoods Forest Region (DeGraaf, R.M et. al; 1992). This forest type commonly occurs up to an elevation of 2,500 ft. above sea level and prefers fertile, loamy soils and good moisture conditions. In New England, the Northern Hardwoods can be found in Massachusetts in the glacial till soils west of the Connecticut River and in small portions of Maine and Connecticut, as well as most of the forested areas in New Hampshire and Vermont. The predominant species of the Northern Hardwoods are American beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*) and sugar maple (*Acer saccharum*). Associated species include red maple (*Acer rubrum*), white ash (*Fraxinus americana*), eastern

hemlock (*Tsuga canadensis*), paper birch (*Betula papyrifera*), quaking and big tooth aspen (*Populus tremuloides* and *P. grandidentata*), eastern white pine (*Pinus strobes*), red spruce (*Picea rubens*) and red oak (*Quercus rubra*).

Northern Hardwood – Hemlock – White Pine Forest

According to the Massachusetts Natural Heritage and Endangered Species Program, the Town of Charlemont is home to old growth Northern Hardwoods-Hemlock-White Pine forests, a good example of which is located in the Mohawk Trail State Forest (NHESP; 2002). The Northern Hardwoods-Hemlock-White Pine forest is a variant of the Northern Hardwood Forest which occurs in dry to moderately moist and acidic conditions on north facing slopes and ravines. This community varies from pure stands of hemlock to deciduous forests scattered with hemlocks. Various combinations of hemlock (*Tsuga canadensis*), sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), black cherry (*Prunus serotina*), red oak (*Quercus rubra*), and white pine (*Pinus strobus*). Scattered throughout this forest type one can also find paper birch (*Betula papyrifera*), aspen (*Populus tremuloides*), red maple (*Acer rubrum*), and yellow birch (*Betula alleghaniensis*).

High-Terrace Floodplain Forest

The high-terrace floodplain forests can also be found in Charlemont. Typically, they occur on raised banks adjacent to rivers and streams, on steep banks along high gradient rivers particularly in western Massachusetts, on high alluvial terraces and on raised areas within major-river and small-river floodplain forests. The high-terrace floodplain forest is not subjected to annual spring flooding as it is above the flood zone.

The high-terrace floodplain forest in Massachusetts has a mixture of hardwoods generally associated with floodplains. These include red and silver maple (*Acer rubrum* and *saccharinum*) as well as sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), and basswood (*Tilia americana*). Ironwood (*Carpionus caroliniana*) is present in the sub-canopy and is a good indicator of this community. Within the shrub layer one can find arrowwood (*Viburnum dentatum*), nannyberry (*Viburnum lentago*) and winterberry (*Ilex verticillata*). The herbaceous layer is a mixture of forest ferns and upland herbs characteristic of floodplain forests.

D.2 Unusual Natural Communities

The Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife has noted the Town of Charlemont as having a number of uncommon ecologically significant natural communities within its borders, which support a number of the state-listed rare and endangered species (NHESP correspondence; 2002). These communities include:

Rich, Mesic Forests

Rich, mesic forests are one type of unusual natural community known to occur in the Town of Charlemont. The rich, mesic forest is nutrient-*rich*, moderately moist (*mesic*) variant of the Northern Hardwood forest. It is found in areas of calcium-rich bedrock and alkaline groundwater. In the Northeast, these forests occur at low to moderate elevations below 2,400 feet and usually on the north or east-facing, concave, middle to lower slopes. Within the Commonwealth of Massachusetts only a limited number of rich, mesic forests can be found. Sugar maple (*Acer saccharum*) and/or basswood (*Tilia americana*) are the dominant species of this forest. White ash (*Fraxinus americana*), yellow birch (*Betula alleghaniensis*), butternut-hickory (*Carya cordiformis*), and sweet birch (*B. lenta*) also occur in small numbers.

Rocky Summit/Rock Outcrop Community

The Rocky Summit/Rock Outcrop community is found on the rocky summits of hills and mountains where bedrock is exposed or on rock outcrops of upper to mid-slope areas. Most of these communities are small in size, usually less than one-quarter acre. Grasses, sedges, herbaceous plants and shrubs dominate them.

High-Energy Riverbank

High-energy riverbank communities are rare in Massachusetts, however they are found in steep gradient, high flood areas on fast-flowing rivers. They typically occur on riverbeds and the upstream ends of islands. These communities are created by cobbles, sand and silt being deposited during spring floods. Plants associated with this community vary depending upon the composition of the substrate and the severity of annual flooding. On open cobbles, false dragonhead (*Physostegia virginiana*), cocklebur (*Xanthium strumarium*), beggar's ticks (*Bidens* spp.) and lady's thumb (*Polygonum persicaria*) are dominant. As the amount of sand increases, water horsetail (*Equisetum fluviatile*) and clasping dogbane (*Apocynum sibiricum*) occur. There is also definitive band of switchgrass (*Panicum virgatum*). In the sandiest environments, mixed grasses of switchgrass, big and little bluestem (*Andropogon gerardii* and *Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*) and goldenrods (*Solidago* spp.) are found. Due to the intense flooding, trees and/or tall shrubs are not able to establish themselves in the high-energy riverbank environment. However, short shrubs such as shadbush (*Amelanchier sanguinea*), silky dogwood (*Cornus amomum*), sandbar willow (*Salix exigua*) and sandbar cherry (*Prunus pumila* var. *depressa*) can be found on the sandiest sections, which typically border floodplain forests.

Riverside Seep

Riverside seeps occur at the base of steep riverbanks where groundwater seeps out of the bottom of the slope. These seepages are usually mineral rich leading to great plant diversity. Periodic flooding helps to prevent woody shrubs from establishing themselves. The riverside seeps

known to occur along the Deerfield River are not calcareous (limey), which is common with the seeps along the Connecticut River in Vermont and New Hampshire. Riverside seeps are often associated with riverside outcrop communities and high-energy riverbanks.

Vegetation is that of a mixed herbaceous community with the wettest spots being mossy with a mixture of herbs and sedges. The muskflower (*Mimulus moschatus*), a threatened species, utilizes riverside seeps as habitat.

Bat Hibernaculum

According to the NHESP, the Town of Charlemont is home to a bat hibernaculum. Several bat species in the United States spend winter hibernating in caves or abandoned mines (bat hibernaculums). Cave bats return yearly to the same hibernaculum and often to the same location within the hibernaculum (U.S. Fish and Wildlife Service Website; 2003).

D.3 Agricultural Land

In 1997, agricultural land in Charlemont comprised 8.7 percent of the town's total land area (MassGIS; 2002). The 1997 U.S. Census of Agriculture indicated that Charlemont had twenty-four farms, twenty-two of which were over forty-nine acres in size. They do not however, provide municipal-level data for the specific amount of land in farms. According to the Agricultural and Forestry Lands Map of the Town of Charlemont's Master Plan (2001), the town's agricultural land is located primarily along:

- The Deerfield River;
- Warner Hill;
- Tower Road;
- Burrington Road;
- Legate Hill and Tatro Roads;
- Maxwell Road;
- Warfield Road;
- Route 8A and Vincent Road;
- Mountain Road;
- Heath Road;
- Burnt Hill Road; and
- Along East and West Oxbow Roads.

D.4 Rare, Threatened and Endangered Plant Species

The Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife has designated several "Priority Habitat" areas in the Town of Charlemont. A Priority Habitat is an area where plant and animal populations protected by the

Massachusetts Endangered Species Act Regulations (321 CMR 10.00) may occur. These areas include:

- A small circular area on the eastern slope of Todd Mountain;
 - An oval shaped area from the summit of Todd Mountain west across the town line into the Town of Florida;
 - Along the entire length of Pelham Brook in Charlemont;
 - Along the Deerfield River from the Florida town line to the confluence with the Cold River;
 - Along the Cold River;
 - A small area on the eastern side of Zoar Road just past the intersection of Route 2;
 - Along the Deerfield River from the confluence with Weatherby Brook east to the Charlemont town line;
 - Along Avery Brook from the confluence with the Deerfield upstream one-half mile; and
 - A small area in the wetlands and uplands between Willis and Avery Brooks.
- (See *Open Space Map*).

NHESP has identified 241 native plant species as rare in the Commonwealth, and a number of rare plants have been documented in the Town of Charlemont (See Table 4-1). These plants occur in some of the Priority Habitats identified above. Plants (and animals) listed as *endangered* are at risk of extinction (total disappearance) or extirpation (disappearance of a distinct interbreeding population in a particular area). *Threatened* species are likely to become endangered in the foreseeable future. Species of special concern have been documented to have suffered a decline that could result in its becoming threatened, or occur in very small numbers and/or have very specialized habitat, the loss of which could result in their becoming threatened (NHESP and The Nature Conservancy, *Our Irreplaceable Heritage: Protecting Biodiversity in Massachusetts*; 1998).

Table 4-1: Rare Plant Species in the Town of Charlemont

Scientific Name	Common Name	State Status
<i>Aplectrum hyemale</i>	Putty Root	Endangered
<i>Triphora trianthophora</i>	Nodding Pogonia	Endangered
<i>Trisetum triflorum spp. molle</i>	Spiked False Oats	Endangered
<i>Carex lenticularis</i>	Shore Sedge	Threatened
<i>Viola nephrophylla</i>	Northern Bog Violet	Threatened
<i>Platanthera flava var. herbiola</i>	Pale Green Orchis	Threatened
<i>Mimulus moschatus</i>	Muskflower	Threatened
<i>Alnus viridis spp. crispa</i>	Mountain Alder	Special Concern
<i>Panax quinquefolius</i>	Ginseng	Special Concern
<i>Ribes lacustre</i>	Bristly Back Currant	Special Concern
<i>Aster tradescantii</i>	Tradescant's Aster	Special Concern
<i>Corallorhiza odontorhiza</i>	Autumn Coralroot	Special Concern
<i>Prunus pumila var depressa</i>	Sandbar Cherry	Special Concern

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2002.

E. FISHERIES AND WILDLIFE

Charlemont's upland forests, rivers, wetlands, and open farmland provide habitat for a variety of common and rare wildlife species. This section discusses wildlife species and their habitats from the perspective of natural communities, individual species, and patterns of wildlife distribution and movement across the landscape.

The BioMap Project of the Natural Heritage & Endangered Species Program has identified areas throughout the state that are critical to supporting the maximum number of terrestrial and wetland plant and animal species and natural communities. The BioMap uses Estimated Habitat and other records to identify the areas most in need of protection to safeguard the native biodiversity of the Commonwealth. It focuses primarily on state-listed rare species and exemplary natural communities and was developed to promote strategic land protection.

The BioMap divides the state into thirteen distinct ecological regions based on geology, soils and plant and animal communities. Within each region, scientists have designated "Core Habitat" and "Supporting Natural Landscape." Core Habitat areas include the most viable habitat for rare plants and animals and exemplary natural communities. Supporting Natural Landscape includes buffer areas around Core Habitat, large undeveloped patches of vegetation, large areas without roads and undeveloped watersheds. In Charlemont, there are several Biomap areas, which include both Core Habitat and Supporting Natural Landscape. These areas include much of the eastern section of Charlemont from Willis Brook east to the town line. In the western part of town, the area includes the Todd Mountain area of the Mohawk Trail State Forest, part of the Deerfield River, and the Legate Brook area.

E.1 General Description and Inventory of Wildlife and Wildlife Habitats

The Town of Charlemont contains a significant amount of upland and floodplain habitat. Forests in Charlemont consist of large unbroken tracts, which allow for wildlife species movement within the town and the surrounding region.

Based on the forest type, individuals of the following species of wildlife are likely to be found in Charlemont at least once as members of migrating, wintering, or breeding populations. The lists are based on information presented in *New England Wildlife: Management of Forested Habitats* by R.M. DeGraaf et. al., published in 1992, which correlates wildlife with the major forest type in the area. The species are listed by category (amphibians, reptiles, birds, or mammals), then by type of habitat and by size of home range. It is by no means a complete inventory of all species that may be found in Charlemont.

E.1.1. Amphibians

These species are found in forest, wetland, and open upland habitats and require a home range 1-10 acres in size:

Red-spotted Newt, Four-toed Salamander, Red-backed Salamander, Eastern American Toad, Northern Spring Peeper, Bullfrog, Green Frog, Wood Frog, Gray Tree Frog, Northern Leopard Frog, and Pickerel Frog.

This species is found in forest habitats and requires a home range 11-50 acres in size:

Spotted Salamander

E.1.2. Reptiles

These species are found in forest, wetland, and open upland habitats and require a home range 1-10 acres in size:

Wood Turtle, Spotted Turtle, Eastern Painted Turtle, Eastern Box Turtle, Eastern Garter Snake, Northern Redbelly Snake, Eastern Ribbon Snake, Northern Ribbon Snake, Eastern Hognose Snake, Northern Ring-neck Snake, Eastern Smooth Green Snake

This species is found in forest, wetland, and open upland habitats and requires a home range 11-50 acres in size:

Common Snapping Turtle

This species is found in forest, wetland, and open upland habitats and requires a home range >50 acres in size:

Eastern Milk Snake, Black Rat Snake

E.1.3. Birds

These species are found in forest /nonforested habitats and require a home range 1-10 acres in size:

Common Goldeneye, Hooded Merganser, Common Merganser, Ruby-throated Hummingbird, Yellow-bellied Sapsucker, Downy Woodpecker, Hairy Woodpecker, Northern Flicker, Eastern Wood-Pewee, Yellow-bellied Flycatcher, Willow Flycatcher, Least Flycatcher, Eastern Phoebe, Black-capped Chickadee, Tufted Titmouse, House Wren, Carolina Wren, Winter Wren, Golden Crowned Kinglet, Ruby Crowned Kinglet, Blue-gray Gnatcatcher, Eastern Bluebird, Bobolink, Veery, Hermit Thrush, Wood Thrush, American Robin, Brown Thrasher, Cedar Waxwing, Solitary Vireo, Yellow-throated Vireo, Warbling Vireo, Philadelphia Vireo, Red-eyed Vireo, Blue-winged Warbler, Tennessee Warbler, Nashville Warbler, Northern Parula, Yellow Warbler, Chestnut-sided Warbler, Black-throated Blue Warbler, Yellow-rumped Warbler, Black-throated Green Warbler, Blackburnian Warbler, Prairie Warbler, Blackpoll Warbler, Black-and-White Warbler, American Redstart, Worm-eating Warbler, Ovenbird, Louisiana Waterthrush, Northern Waterthrush, Song Sparrow, Lincoln Sparrow, White-throated Sparrow, Dark-eyed Junco, Common Grackle, Brown-headed Cowbird, Northern Oriole, Rufous-sided Towhee, Purple

Finch, Scarlet Tanager, Northern Cardinal, Rose-breasted Grosbeak, Indigo Bunting, Great Crested Flycatcher, Eastern Kingbird, Tree Swallow, Blue Jay, Mourning Warbler, Common Yellowthroat, Wilson's Warbler, Canada Warbler, Chipping Sparrow, Field Sparrow, Grasshopper Sparrow, Henslow's Sparrow, American Goldfinch, Gray Catbird, Great Blue Heron, Green-backed Heron, Wood Duck, American Black Duck, Green-winged Teal, Mallard, Northern Pintail, Blue-winged Teal, Northern Shoveler, Common Egret, American Wigeon, Canvasback, Ring-necked Duck, American Goldfinch, Evening Grosbeak, American Redstart, Red Crossbill, European Starling, Sora, Killdeer, Spotted Sandpiper, Common Snipe, Northern Mockingbird, Eastern Phoebe, Mourning Dove, Pine Siskin, Northern Waterthrush, Virginia Rail, Eastern Kingbird, Pine Siskin.

These species are found in forest/nonforested habitats and require a home range 11-50 acres in size:

Ring-necked Pheasant, Ruffed Grouse, Upland Sandpiper, Black-billed Cuckoo, Yellow-billed Cuckoo, Common Nighthawk, Whip-poor-will, Northern Rough-winged Swallow, Bank Swallow, Barn Swallow, Purple Martin, Red-breasted Nuthatch, White-breasted Nuthatch, Brown Creeper, American Woodcock, Horned Lark, Muted Swan, Canada Goose.

These species are found in forest/nonforested habitats and require a home range >50 acres in size:

Turkey Vulture, Bald Eagle, Sharp-shinned Hawk, Cooper's Hawk, Northern Goshawk, Red-shouldered Hawk, Broad-winged Hawk, Red-tailed Hawk, Golden Eagle, American Kestrel, Peregrine Falcon, Wild Turkey, Great Horned Owl, Eastern Screech-Owl, Great Gray Owl, Barred Owl, Northern Saw-whet Owl, Pileated Woodpecker, American Crow, Common Raven, Chimney Swift, Belted Kingfisher, Northern Harrier.

These species are found in forest/nonforested habitats with unknown home ranges:

American Tree Sparrow, Bohemian Waxwing, Northern Shrike, Common Redpoll.

E.1.4. Mammals

These species are found in forest habitats and require a home range 1-10 acres in size:

Eastern Cottontail, Snowshoe Hare, Eastern Chipmunk, Gray Squirrel, Red Squirrel, Northern Flying Squirrel, Beaver, Deer Mouse, White-footed Mouse, Shrew, Northern Short-tailed Shrew, Hairy-tailed Mole, White-footed Mouse, Meadow Vole, Star-nosed mole, Eastern mole, Muskrat.

These species are found in forest habitats and require a home range 11-50 acres in size:

Virginia Opossum, Porcupine, Ermine.

These species are found in forest habitats and require a home range >50 acres in size:

Woodchuck, Coyote, Red Fox, Grey Fox, Black Bear, Raccoon, Marten, Fisher, Striped Skunk, River Otter, Lynx, Bobcat, White-tailed Deer, Moose.

These species are found in forest/nonforested habitats with unknown home ranges:
 Little Brown Myotis, Big Brown Bat.

E.2 Rare, Threatened and Endangered Wildlife Species

NHESP has mapped several “Priority Habitats of Rare Species” and “Estimated Habitats of Rare Wildlife” in the Town of Charlemont. Rare species habitat is located in the following areas:

- Along the entire length of Pelham Brook in Charlemont;
- Along the Deerfield River from the Florida town line to the confluence with the Cold River;
- Along the Cold River;
- Along the Deerfield River from the confluence with Wheatherby Brook east to the Charlemont town line; and,
- Along Avery Brook from the confluence with the Deerfield upstream one-half mile.

These habitats provide for wildlife species that are endangered, threatened and of special concern. Charlemont’s rare, threatened and endangered wildlife species are listed in Table 4-2.

Table 4-2: Rare, Threatened and Endangered Wildlife Species found in Charlemont

Scientific Name	Common Name	State Status
<i>Invertebrates</i>		
<i>Rhodoecia aurantiago</i>	A Noctuid Moth	Threatened
<i>Cincindela duodecimguttata</i>	Twelve-Spotted Tiger Beetle	Special Concern
<i>Cincindela purpurea</i>	Purple Tiger Beetle	Special Concern
<i>Vertebrates</i>		
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Endangered
<i>Oporornis philadelphia</i>	Mourning Warbler	Special Concern
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	Special Concern
<i>Catostomus catostomus</i>	Longnose Sucker	Special Concern
<i>Clemmys insculpta</i>	Wood Turtle	Special Concern
<i>Gyrinophilus porphyriticus</i>	Spring Salamander	Special Concern

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2002.

E.3 Conserving Charlemont’s Biodiversity

There are two concepts that can be used to help explain Charlemont’s options for pursuing the conservation of the town’s biodiversity: Island Biogeography and landscape ecology.

The theory of Island Biogeography is based on observations that biodiversity is greater on large islands than on small ones, and greater on islands that are close to the mainland. The concept of islands surrounded by water has been applied to the idea of “islands” of protected open space surrounded by developed areas. Based on this theory, ecologists predict that increasing the size of a protected area increases its biodiversity (MacArthur and Wilson; 1967). Therefore, connecting two protected areas via a protected corridor to create one large area should also increase natural biodiversity (Wilson and Willis; 1975).

Another model for wildlife habitat protection aggregates similar land uses while allowing other uses in discrete areas (Forman; 1997). This model is reflected in Charlemont in that the several villages and the floodplain areas concentrate development, agriculture is concentrated where prime farmland soils occur along river corridors, and large blocks of forest remain intact.

Individual animals move within a landscape. When and where wildlife and fish species move is not well understood by wildlife biologists. However, we do know that animals pay little attention to political boundaries. Wildlife seek natural cover for shelter and food, but some species willingly forage where human uses, such as farm fields, gardens and even trash cans, provide browse or food. As the land within Charlemont continues to be fragmented by development, it is reasonable to expect that remaining large blocks of undeveloped forest and the parcels of land connecting them will become more important to area wildlife, and that conflicts between the needs of wildlife and residents will become more common.

Many species of wildlife in Charlemont have home ranges greater than fifty acres in size. Even those species with smaller home ranges move across the landscape between sources of shelter, water, food and mating areas. Some animals, including white-tailed deer and black bear, seek both interior forest habitat and wetland edges where food sources may be more abundant.

Roads are a form of connection for humans but they can be an impediment to some wildlife movement. Wildlife benefit from having land to move within that is isolated from human uses. Conservation planning that recognizes this need often focuses on the development of wildlife corridors. Permanently protected wildlife corridors are particularly critical in a landscape which is experiencing development pressures to ensure that animals have the ability to travel across vegetated areas between large blocks of habitat.

Connections between bodies of water and sub-watersheds are also important for wildlife and fisheries species. Some of the more common animals that use river and stream corridors are beaver, muskrat, raccoon, green heron, kingfish, snapping turtle, and many species of ducks, amphibians, and fish. Since many species rely on a variety of habitats during different periods of their life cycle, species diversity is greatest in areas where several habitat types occur in proximity to each other. With this in mind, the protection of all habitat types is vital for maintaining and enhancing biodiversity in Charlemont.

How will the Town of Charlemont determine the most appropriate conservation strategies for wildlife habitat? There are three general paths to follow in conserving the health of wildlife populations. One is to protect the habitat of specific species that are rare, threatened, or endangered. It is thought that other species will also benefit from this strategy. A second path is to conserve landscape-level resources such as contiguous forest or riparian areas. This helps to protect the habitats of a large number of species, but it might not meet the needs of all rare and endangered species. The third method is a combination of the first two. Maintaining the biodiversity of Charlemont over the long term will likely require the protection of both unique habitats for specific species and networks of habitat across the landscape. Conservation strategies for the town to consider include monitoring of species locations, numbers, and movements; the protection of core habitat areas as identified by the NHESP BioMap (*see Open Space Map*); the continued protection and linkage of large blocks of contiguous forestland; the

retention of early successional habitats like fields and grasslands; and the protection of vernal pools, wetlands, and riparian corridors that sustain the greatest diversity of life in Charlemont.

F. SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

The characteristics that allow a stranger to distinguish Charlemont from other towns in the region may be different than the unique qualities and special places that only residents can really know. This section identifies the scenic resources and unique environments that most Charlemont residents would agree represent the essence of Charlemont's character.

In many ways the history of Charlemont--how people came to settle the land, use its resources, and enjoy its forests, streams, and bodies of water--can be seen in the landscapes that have retained a sense of the past. The unique environments in Charlemont play a very important role in providing residents with a sense of place. Brooks, mountains, wetlands, and village centers provide markers on the landscape within which we navigate our lives.

Scenic landscapes often derive their importance from location relative to other landscape features. The purpose of inventorying scenic resources and unique natural environments in Charlemont is to provide a basis for setting resource protection priorities. To this end, the following section includes information about the different values associated with each scenic resource and natural environment, and indicates areas where multiple values are represented in one landscape. Those landscapes that contain, for example, scenic, wildlife, and cultural values may be given higher priority for protection than a landscape that contains only one value (See Table 4-3).

These documented resources include historic landscapes and special places. This inventory is based on a formal survey done in 1992 for the Franklin County Rural Historic Landscape Preservation Plan Report, as well as sources listed following the table. This document distinguishes between types of landscapes, identifies in general terms the locations of rural historic landscapes in each town, and provides examples of different preservation strategies. The methodology for identifying significant historical landscapes was based on National Park Service criteria including area of significance, period of significance and historical integrity. NPS classifies landscapes into four different categories: landscapes that reflect major patterns of a region's history (e.g. agricultural landscapes), landscapes that are associated with historically significant individuals (e.g. institutional grounds and buildings), landscapes that are important due to their design or physical characteristics (e.g. an 18th century Colonial Period Connecticut Valley rural farm), and landscapes that yield or have the potential of yielding significant information on pre-history or history (e.g. a native American encampment site).

Table 4-3: Significant Scenic/Ecological/ Recreational/and Historic Landscapes/Environments in Charlemont

Map #	Scenic Resources	Ecological/ Geological Resources	Recreational Value	Historical Value
	<i>Stream Corridors</i>			
1	Deerfield River	Priority habitat of rare species; High and low yield aquifers	High value; Non-motorized boating, fishing	Historic Native American trail; Hawk's, Rice's & Taylor's Forts, c.1740s
2	Pelham Brook	Priority habitat of rare species; Low yield aquifer		
3	Todd Brook			
4	Patch Brook	High yield aquifer in southern section		
5	Legate Hill Brook	Low yield aquifer in southern section		
6	Rice Brook			Prehistoric site
7	Vincent Brook			
8	Maxwell Brook	Low yield aquifer		
9	Tatro Brook			
10	Davis Mine Brook			
11	Mill Brook	Low yield aquifer		Historic sawmills site c. 1790s
12	Hartwell Brook	Low yield aquifer		
13	Willis Brook	Low yield aquifer		
14	Avery Brook	Priority habitat of rare species (southern end); Low yield aquifer		Historic sawmills, c. 1790s
15	Wilder Brook	Low yield aquifer		
16	East Oxbow Brook	Low yield aquifer (southern end)		
17	Albee Brook			
18	Wheatherby Brook			
19	Bozrah Brook	Low yield aquifer (northern end)		
20	Chickley River	Low yield aquifer		
21	Cold River	Priority habitat of rare species; Low yield aquifer		Prehistoric sites
22	Trout Brook			
	<i>Wetlands</i>			
23	Zoar Road wetlands	Diverse habitats		
24	Mountain Road wetlands (north of Bald Mt.)	Diverse habitats		
25	West Oxbow Road wetlands	Diverse habitats		
26	Tea Street Wetland	Diverse habitats		
27	Feder Wetlands	Diverse habitats		
28	Avery Brook Wetlands	Diverse habitats		

Map #	Scenic Resources	Ecological/ Geological Resources	Recreational Value	Historical Value
29	Windy Hill Wetland	Diverse habitats		
	<i>Agricultural Lands</i>			
30	Route 2, multiple farmstead sites			<i>Historical Agricultural Landscapes</i>
31	Heath Road, multiple farmstead sites			<i>Historical Agricultural Landscapes</i>
32	Route 8A, multiple farmstead sites			<i>Historical Agricultural Landscapes</i>
33	Kirin Farm, Mountain Road			<i>Historical Agricultural Landscapes</i>
34	Hawk Farm			<i>Historical Agricultural Landscapes</i>
35	Harris Farm			<i>Historical Agricultural Landscapes</i>
36	Griffin Farm			<i>Historical Agricultural Landscapes</i>
37	Hicks Farm			<i>Historical Agricultural Landscapes</i>
38	Blue Heron Farm, Warner Hill Road			<i>Historical Agricultural Landscapes</i>
	<i>Historic Industrial Area</i>			
39	Hall Tavern Farm, Route 2			<i>Historical Agricultural/Industrial Landscape</i>
	<i>Villages</i>			
40	Charlemont Center	Low yield aquifer	Concerts, boating, art exhibits	National Historic District, structures dating from 1749
41	East Charlemont			<i>Historical Community Development Landscape</i>
42	Zoar Village			<i>Historical Community Development Landscape</i>
	<i>Recreational Areas</i>			
43	Mohawk Trail State Forest	Priority habitat of rare species; High yield aquifer	Hiking, swimming, fishing, cross country skiing, horseback riding	Indian encampment; Historic trail sites
44	Zoar Outdoor / Deerfield River		Non-motorized boating	
45	Crabapple Whitewater/ Deerfield River		Non-motorized boating	
46	Mohawk Park, Route 2 (Early Modern Tourist Cabins)		Cabins	c. 1930
47	Charlemont Fairground, Route 8A		Yankee Doodle Days, Reggae Fest	Established 1850
48	Hawlemont School		Baseball fields	Historic Structure
49	Indian Plaza		Native American Pow-wows	c. 1930

Map #	Scenic Resources	Ecological/ Geological Resources	Recreational Value	Historical Value
50	Campground		Camping	
51	Berkshire East Ski Resort		Skiing, snowboarding	
	Transportation Corridors			
52	Route 2 (Historic Mohawk Trail)	Priority habitat of rare species; High and low yield aquifers	High value; Scenic views	Indian trail to Hudson Valley; Multiple historic sites; County Rd. laid out in 1754; 1914 auto highway
53	Railroad Depot and related system, Route 8A			Tracks through historic Hoosac Tunnel, 1875
54	Mahican Mohawk Trail	Priority habitat of rare species	High value; Scenic views	Historic Native American trail with native encampment sites
55	Route 8A			Historic 1760s highway to Heath
56	Legate Hill Road			Fort Pelham Highway (1750s)
57	Avery Brook Road			Road built to Heath in 1763
58	Old Center Heath Road			Road built to Heath in 1753
59	East Oxbow Road			Military Rd between Forts Morrison & Taylor
	Cultural Sites			
60	Little Red Schoolhouse			Oldest one room brick schoolhouse in Massachusetts
61	Shunpike			Site of toll road bypass
62	Moses Rice Monument and Grave Site			Grave site of the first settler of the Town of Charlemont
63	Hawks Cemetery			
	Unusual Natural & Geologic Features			
64	Blueberry Peak	Bald rock hilltop		
65	Burnt Hill	Bald rock hilltop		
66	Pocumtuck	Bald rock hilltop		
67	Buttonball Tree			Historic tree at Warner homestead
68	Historic Old Oak			Historic meeting place
	Scenic Views			
69	Mohawk Trail Scenic Byway		Scenic views	
70	Deerfield River		Scenic views	
71	Berkshire East Ski Resort		Scenic views	
72	Legate Hill Road		Scenic views	
73	Warfield Road		Scenic views	

Map #	Scenic Resources	Ecological/ Geological Resources	Recreational Value	Historical Value
	<i>Unusual Natural Communities</i>			
74	Rich, Mesic Forest	Rare habitat; Old growth forest		
75	Rocky Summit/Rock Outcrop Community	Rare habitat		
76	High Energy Riverbank	Rare habitat		
77	Riverside Seep	Rare habitat		
	Bat Hibernaculum	Rare habitat		

Sources: *Franklin County Rural Landscape Preservation Plan Report*, Franklin County Commission, 1992; Natural Heritage and Endangered Species Program, Correspondence, 2002; *Charlemont Master Plan Background Document*, Center for Rural Massachusetts, 1998; Charlemont, *Massachusetts; Frontier Village and Hill Town*, Allen Healy, 1986; *Reconnaissance Survey Report for Charlemont*, Mass. Historic Commission, 1982, *Mohawk Trail Scenic Byway Corridor Management Plan*, FRCOG & Berkshire RPC, 2002. MassGIS, 2003.

G. ENVIRONMENTAL PROBLEMS

According to the Open Space Planning Committee, there are three main types of environmental problems in Charlemont: non-point source pollution, other potential impacts of development, and threats to the ecological integrity of the Deerfield River. Non-point source pollution occurs when pollutants are generated not by a single source like an outflow pipe from a factory but from improper land use across landscapes both suburban and rural. For example, Charlemont residents can unknowingly contaminate groundwater by failing to update their private septic systems to limit leaching into rivers and streams and by improperly disposing of household hazardous materials like petroleum products, wood preservatives, and pesticides. Non-point source pollution can result in the contamination of both surface and groundwater and involve other types of pollution. Sources of pollution thought to be of greatest concern to residents include the Charlemont Landfill, road salt, used car dumps, gravel roads, contamination from the railroad corridor, motor vehicle traffic and trash and litter. Other environmental problems in Charlemont include threats to the ecological integrity of the Deerfield River including acid mine drainage from the Davis Mine in Rowe, invasive plants, and flow peaking problems caused by the use of the river to generate power.

G.1 Non-point Source Pollution Problems

Charlemont Landfill

According to the Massachusetts Department of Environmental Protection's Bureau of Waste Prevention, the Charlemont Landfill, located off of Rte. 8A at the base of Warner Hill on the Heath town line, is uncapped, unlined, and of an unknown acreage. Closed in 1972, residents are concerned about this inactive landfill, which may be leaching potential pollutants. Any town actions to be taken toward protecting local wetlands, streams, and groundwater from potential

leachate down slope of the landfill may be constrained by the cost of properly containing the material at the site.

Roadside De-icing Materials

Another example of non-point source pollution of concern by residents is the use of road salt along Rte. 2. Although, road salt on other roads in town may be of concern, its use on Rte. 2 is particularly worrisome due to the fact that the town's only potential high yield aquifer runs parallel to and beneath portions of both the Deerfield River and the state highway in the western portion of town. The use of wintertime de-icing materials can result in road salt runoff and groundwater contamination. For example, the Deerfield Fire District lost use of its Wapping Well due to sodium contamination from road salt use along Rte. 5/10. For this reason, Charlemont residents are interested in exploring the use of alternatives to road salt as a deicing material. According to Larry Salvatore, Maintenance Operations Engineer for MassHighway, District 1, some alternatives to road salt use include a lower salt/sand ratio, a low salt/calcium chloride mix, and the use of hops. Hops have been used in place of a straight salt and sand mix by some communities including Pittsfield. Although the type of hops used are a byproduct of the beer making process, they are thought to be more expensive than road salt. Even if hops do cost more than salt per unit volume, the benefits in reduced risk of groundwater and surface water contamination may be worth the price.

Used Car Dumps

Unfortunately, used car dumps and junkyards are not uncommon throughout Franklin County. Cars can leak hazardous materials that can contaminate the groundwater overtime. Charlemont could develop a water resource protection overlay district to help minimize the risk of groundwater and aquifer contamination. One example of a water resource protection overlay district, which has been approved by the Massachusetts Department of Environmental Protection (DEP) where a town has received grant funding for aquifer land acquisition, includes the prohibition of automobile graveyards and junkyards.

Gravel Roads

Gravel roads, if not properly maintained, can produce impacts to local wetlands and surface waters due to erosion and sedimentation. There are no statewide standards for the design of gravel roads mainly because the Massachusetts Highway Department does not maintain any. The DEP administers the Massachusetts Wetlands Protection Act to ensure that any wetlands within 100 feet of a gravel road project would be protected. The Wetlands Protection Act protects these resource areas and typically a permit is required for any highway project that might impact them. If the impact, erosion and siltation for example, had been caused in the absence of a formal project, the Conservation Commission can still initiate action to protect the resource area.

Guilford Transportation Systems, Inc.

According to Charlemont residents, Guilford Transportation Systems, Inc., which runs the railroad line through the town, has been less than helpful in its communications with the Select Board. Select Board members, motivated in part by the frequency of derailments along a particular ½ mile stretch of track, have sought information from Guilford relating to the type of materials transported on their lines. Staff at the Region 1 Office of the Federal Railroad Administration in Cambridge, Massachusetts referred to the Code of Federal Regulations as the ultimate source of information relating to materials transported by Guilford. Code 49, part 172.101 tabulates the substances subject to federal regulations, which can therefore be transported by carriers. The 55-page long table includes all types of hazardous materials and the manner in which they need to be transported.

Automobile-Related Non-point Source Pollution

Two other types of environmental problems may be attributed to the traffic caused by people passing through Charlemont from surrounding areas. A lack of public transportation has helped to ensure that as the population and the popularity of the region increases the vehicular traffic and its associated impacts will also rise. Non-point source pollution associated with automobiles include leaking petroleum products and other hazardous materials, air pollutants, and trash. Trash and litter are considered to be environmental problems by residents. Litter can be an eyesore as well as a health hazard.

G.2 Other Potential Impacts of Development

Although there may not be agreement as to its severity or solution, another environmental problem for Charlemont is the potential for future growth in the region and the negative impacts of the development of approval-not-required frontage lots. The build-out analysis in Section 3 forecasts that residential development will produce negative fiscal impacts on the municipal budget. In a growing community, the costs of community services including public education can be greater than the revenues generated through real estate taxes.

Some people argue that current development constraints, mainly related to soil characteristics, are sufficient to control development. The depth to the groundwater, depth to bedrock, and the steep slopes are three characteristics, which restrict where people may build. Others would point to changes in technology and regulations, which have the potential for reducing those limitations on development.

New residential development across town would likely increase the prevalence of non-point source pollution, reduce the rural character and cause a reduction in the acreage in, and value of, remaining wildlife habitat. Sprawl would also increase runoff (potentially including contaminants such as road salt), decrease the recharge to ground water, decrease stream flow, and increase erosion. Increases in runoff would diminish biodiversity in first and second order streams. One solution to the problem could be a combination of zoning techniques to encourage

development in suitable areas and open space protection to minimize development in areas with the greatest scenic, ecological, cultural, and historical values.

G.3 Threats to the Ecological Integrity of the Deerfield River

The following information under subsection G.3 is from text prepared by Gisela Walker of the Deerfield River Watershed Association.

Acid Mine Drainage from the Davis Mine in Rowe

Davis Mine Brook, a tributary of the Deerfield River, is a 303d listed segment (3.8 miles) that is impaired by acid mine drainage from Davis Mine. The entire length of the brook below where the mine drainage enters appears to be devoid of aquatic life. The University of Massachusetts has received a National Science Foundation grant to study the biology, chemistry and hydrology of the site. The UMass study and other existing data from the site could be used to develop a §319 project to reduce the impacts of acid mine drainage to Davis Mine Brook.

Invasive Japanese Knotweed

The invasive plant, Japanese knotweed, is pervasive along the main stem of the Deerfield and in some sub-watersheds. Japanese knotweed is native to Eastern Asia, and is one of the first plants to appear on volcano slopes after volcanic activity. It was introduced to the United Kingdom as an ornamental in 1825, and from there to North America in the 19th Century.

It appears to require be shade intolerant, and does very well along roadways and rivers. It reproduces by seed and large rhizomes, which may reach a length of 40 to 60 feet. A small piece of rhizome can float down a river and begin to grow once it is deposited on land.

This plant is a threat to native vegetation because it often forms dense patches, which shade out all other plants. It is a particular threat in riparian areas where it can survive floods and quickly colonize scoured streambanks. Japanese knotweed is difficult to eradicate once it has become established.

Flow Peaking Problems Caused by the Use of the River to Generate Power

The cold, clean water of the Deerfield River and its tributaries support a native fish community and stocked trout. Because of its high gradient, the Deerfield River also has hydropower dams. A 1997 FERC hydro re-licensing settlement established minimum flows in 12 miles of river that were previously bypassed, required maintenance and monitoring of dissolved oxygen and temperature conditions, and provided commitments for future fish passage facilities.

Nevertheless, the effects of fluctuating water levels created by hydro peaking on fish communities and other stream biota in the river continue to be a concern to local watershed groups, fishing organizations, and others.

Rapid changes in flow caused by hydroelectric power generation create unstable habitats that can reduce the abundance and diversity of riverine fish. Changes in water levels displace shallow shoreline zones, forcing fish in those areas to relocate, stranding fish, or exposing trapped fish to predation. Flow fluctuations can also degrade the quality of shoreline habitat by altering macro invertebrate communities, aquatic and riparian vegetation, and availability of structure such as woody debris. A study in the Deerfield River prior to the establishment of minimum flows (Bain; 1988) demonstrated that variable stream flows modified the fish community composition in the River. The study demonstrated that small fish and size classes that use relatively shallow habitats (habitats slow in velocity and concentrated along stream margins in pools and riffles) were eliminated from sites in the Deerfield River that had the greatest fluctuations in flow.

Legend

- Town Line
- Rail Lines
- Roads
- Major roads
- Streams and Rivers

River Protection Act

- 0-100 feet from river bank
- 100-200 feet from river bank

- Water body
- National Wetland Inventory wetland
- Interim Wellhead Protection Area
- Surficial Geology: sand/gravel and floodplain alluvium (low yield aquifer)
- Aquifer: Potential yield 25-1,000 gallons per minute (medium yield aquifer)
- Public water supply sources
- Deerfield River Watershed

Map Sources:

Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEa maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEa makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEa maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEa Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

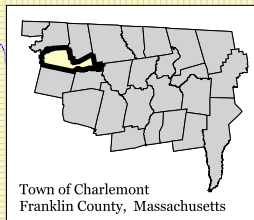
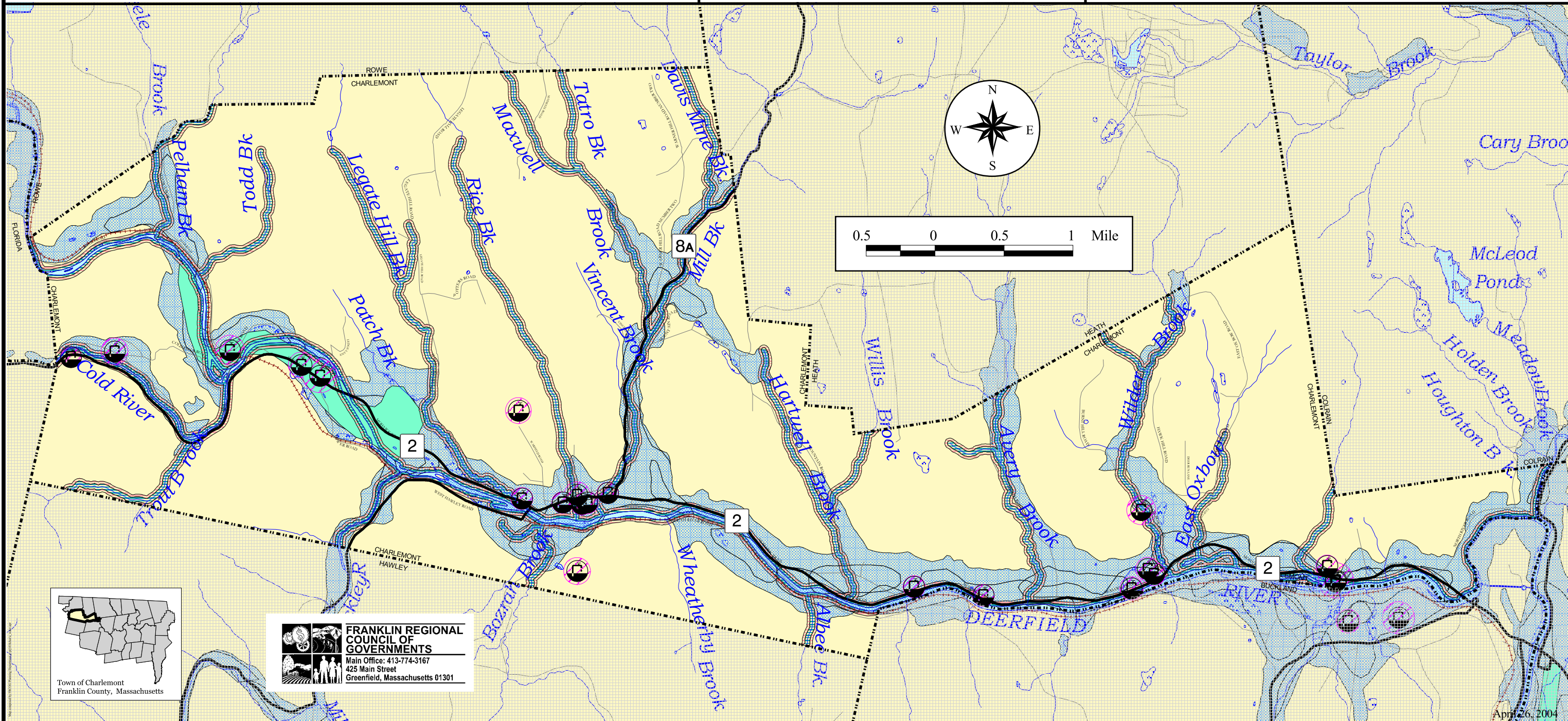
Road data provided by Massachusetts Highway Department. Town line, rail line, zone II and interim wellhead protection area, public water supply, aquifer, surficial geology, River Protection Act, National Wetlands Inventory, major basin, river, stream, and pond data provided by MassGIS.

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

Town of Charlemont

Open Space and Recreation Plan

Water Resources



FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
Main Office: 413-774-3167
425 Main Street
Greenfield, Massachusetts 01301

Town of Charlemont

Open Space and Recreation Plan

Scenic Resources and Unique Environments

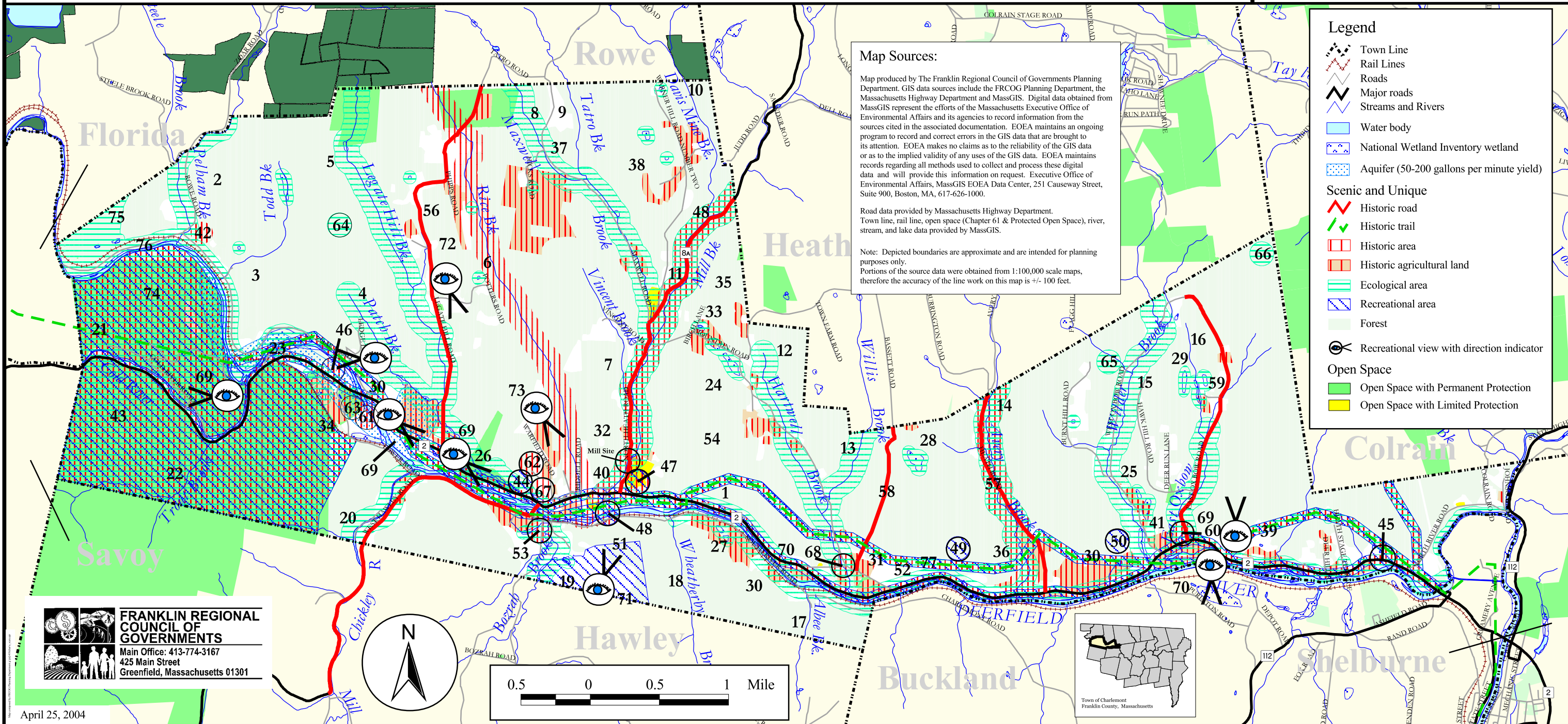
Map #	Scenic Resource
1	Deerfield River
2	Pelham Brook
3	Todd Brook
4	Patch Brook
5	Legate Hill Brook
6	Rice Brook
7	Vincent Brook
8	Maxwell Brook
9	Tatro Brook
10	Davis Mine Brook
11	Mill Brook
12	Hartwell Brook
13	Willis Brook
14	Avery Brook
15	Wilder Brook
16	East Oxbow Brook
17	Albee Brook

Map #	Scenic Resource
18	Wheatherby Brook
19	Bozrah Brook
20	Chickley River
21	Cold River
22	Trout Brook
Wetlands	
23	Zoar Road wetlands
24	Mountain Road wetlands (north of Bald Mt.)
25	West Oxbow Road wetlands
26	Tea Street wetland
27	Feder wetlands
28	Avery Brook wetlands
29	Windy Hill wetland
Agricultural Lands	
30	Route 2, multiple farmstead sites
31	Heath Road, multiple farmstead sites
32	Route 8A, multiple farmstead sites

Map #	Scenic Resource
33	Kirin Farm, Mountain Road
34	Hawk Farm
35	Harris Farm
36	Griffin Farm
37	Hicks Farm
38	Blue Heron Farm, Warner Hill Road
39	Hall Tavern Farm, Route 2
Villages	
40	Charlemont Center
41	East Charlemont
42	Zoar Village
Recreational Areas	
43	Mohawk Trail State Forest
44	Zoar Outdoor / Deerfield River
45	Crabapple Whitewater/ Deerfield River
46	Mohawk Park, Route 2 (Early Modern Tourist Cabins)
47	Charlemont Fairground, Route 8A
48	Hawlemont School

Map #	Scenic Resource
Recreational Areas (continued)	
49	Indian Plaza
50	Campground
51	Berkshire East Ski Resort
Transportation Corridors	
52	Route 2 (Historic Mohawk Trail)
53	Railroad Depot and related system, Rt. 8A
54	Mahican Mohawk Trail
55	Route 8A
56	Legate Hill Road
57	Avery Brook Road
58	Old Center Heath Road
59	East Oxbow Road
Cultural Sites	
60	Little Red Schoolhouse
61	Shunpike
62	Moses Rice Monument and Grave Site
63	Hawks Cemetery

Map #	Scenic Resource
Unusual Natural & Geologic Features	
64	Blueberry Peak
65	Burnt Hill
66	Pocumtuck
67	Buttonball Tree
68	Historic Old Oak
Scenic Views	
69	Mohawk Trail Scenic Byway
70	Deerfield River
71	Berkshire East Ski Resort
72	Legate Hill Road
73	Warfield Road
Unusual Natural Communities	
74	Rich, Mesic Forest
75	Rocky Summit/Rock Outcrop Community
76	High Energy Riverbank
77	Riverside Seep
	Bat Hibernaculum



Map Sources:

Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEAO maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEAO makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEAO maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEAO Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

Road data provided by Massachusetts Highway Department. Town line, rail line, open space (Chapter 61 & Protected Open Space), river, stream, and lake data provided by MassGIS.

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

Legend

- Town Line
- Rail Lines
- Roads
- Major roads
- Streams and Rivers
- Water body
- National Wetland Inventory wetland
- Aquifer (50-200 gallons per minute yield)

Scenic and Unique

- Historic road
- Historic trail
- Historic area
- Historic agricultural land
- Ecological area
- Recreational area
- Forest
- Recreational view with direction indicator

Open Space

- Open Space with Permanent Protection
- Open Space with Limited Protection

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SECTION 5

INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Open space in the Town of Charlemont consists of farms, forests, parks, and recreation areas under both public and private ownership and management. This section provides a summary of all lands that provide open space, wildlife habitat, agricultural and forest products, watershed protection, scenic landscapes and recreational opportunities that have some level of protection from development.

In general terms, ‘open space’ is defined as undeveloped land. In an Open Space and Recreation Plan, the focus is on undeveloped land, which is valued by residents because of what it provides: actively managed farm and forestland, wildlife habitat, protection and recharge of groundwater, public access to recreational lands and trail systems, important plant communities, structures and landscapes that represent the community’s heritage; flood control, and scenery. The term ‘natural resource’ describes the biological and physical components of an ecosystem that people depend on for their existence and for some, their livelihood. These components are air, surface and ground water, soil nutrients, vegetation, fisheries, and wildlife. Recreational facilities can include open space, parks, and developed areas like tennis courts and swimming pools. Open space and recreation plans typically identify areas of undeveloped land that contain precious natural and recreational resources and prioritize them for protection.

Open space can be protected from development in several ways that differ in the level of legal protection they provide, the method by which they are protected, and by the type of landowner. When land is considered to be “protected,” it is intended to remain undeveloped in perpetuity. This level of protection is ensured in one of two ways: ownership by a state conservation agency, a not-for-profit conservation land trust, or the local Conservation Commission, or attachment of a conservation restriction or similar legal mechanism to the deed.

Land is considered to be “protected” from development when it is owned by the Commonwealth of Massachusetts and managed by a state conservation agency, including the Department of Fish and Game (DFG) or the Department of Conservation and Recreation (DCR). Land is also considered “protected” when it is owned by a town and is under the authority of the Conservation Commission, or when it is owned by a land trust for conservation purposes.

A conservation restriction is a legally binding agreement between a landowner (grantor) and a holder (grantee) - usually a public agency or a private land trust; whereby the grantor agrees to limit the use of his/her property by forfeiting interests in the land (development being one type of

interest) for the purpose of protecting certain conservation values. The conservation restriction may run for a period of years or in perpetuity and is recorded at the Registry of Deeds. Certain income, estate or real estate tax benefits may be available to the grantor of a conservation restriction.

There are several types of conservation restrictions. Some protect specific resources, such as wildlife habitat, or farmland. Actively farmed land with Prime soils or soils of Statewide Importance may be eligible for enrollment in the state's Agricultural Preservation Restriction (APR) Program. The APR program purchases the development rights and attaches a restriction to the deed, which legally bars development, keeping land "permanently" available for agriculture.

The development of any parcel of land that is in the APR Program, protected with a conservation restriction, owned by a state conservation agency, or owned by a land trust or a town for conservation purposes, would require a vote by two thirds of the State Legislature as outlined in Article 97 of the Amendments to the Massachusetts State Constitution. For the purposes of this Open Space and Recreation Plan, cemeteries will also be considered to be protected from development.

This "protection" conveyed by Article 97 does have its limits. The state legislature has voted to release this protection at the request of local communities, so that conservation land can be used for schools, roads, economic development, or other public projects not related to resource protection. Reforms have been proposed to make this process more difficult. It is important for local advocates of conservation to be vigilant of attempts to remove the "protection" status from open space in the Town of Charlemont.

Land in Massachusetts owned by towns or water districts may be considered to have limited protection from development. If a town-owned parcel of land is under the legal authority of the Select Board rather than the Conservation Commission, it is considered to have limited protection from development. The parcel could be called a wildlife sanctuary or a town forest, but not have the long-term protection afforded by Conservation Commission lands. In this case, converting a town forest to a soccer field or a school parking lot could be decided by the Select Board or at Town Meeting. A parcel of land used for the purposes of water supply protection is considered in much the same way. Unless there is a legal restriction attached to the deed or if the deed reads that the land was acquired expressly for water supply protection, the level of protection afforded these types of parcels varies depending on the policies of each community. In most cases, the water district would be required to show the Massachusetts Department of Environmental Protection just cause for converting the use of the land. However, this is not an insurmountable hurdle. The Town of Athol recently took their surface drinking water supplies off-line after developing a productive well field. A change in land use around the reservoir from water supply protection to active recreational use may occur.

Parcels enrolled in Massachusetts Chapter 61 tax abatement programs are considered to be "temporarily protected" from development. This program offers landowners reduced local property taxes in return for maintaining land in productive forestry, agricultural or recreational use for a period of time. These "chapter lands" provide many public benefits, from maintaining

wildlife habitat and recreational open space to sustaining rural character, and local forest and farm-based economic activity. Another benefit of the Chapter 61 programs is that they offer towns the opportunity to protect land. When a parcel that has been enrolled in one of the Chapter programs is proposed for conversion to a use that would make it ineligible for the program, the town is guaranteed a 120-day waiting period during which it can exercise its right of first refusal to purchase the property.

Approximately 41 percent of the total land area in Charlemont is comprised of open space with some level of protection from development. The total land area of the town is 16,859.6 acres. The portion of the total land area that is protected as open space is summarized in Table 5-1. The table is divided into two main sections based on type of ownership: private and public. Within each of these major categories, parcels are differentiated by use (farm or forestland), by ownership and management, and by level of protection: “protected,” limited, and temporary.

Table 5-1: Summary Areas of Farmland and Forest Open Space by Ownership and Level of Protection from Development in Charlemont

	Acres	% Of Total Land Area in Charlemont
PRIVATELY OWNED OPEN SPACE		
Farmland		
<i>Protected by Agricultural Preservation Restriction</i>	146.85	0.9%
<i>Temporarily Protected Farmland under Ch. 61A</i>	1,320.53	7.8%
Forestland		
<i>Protected by Conservation Restriction</i>	6.61	.04%
<i>Temporarily Protected Forestland</i>		
Chapter 61	3,225.46	19.1%
Chapter 61B	279.68	1.7%
Other Protected Land		
Cemeteries	<u>11.1</u>	<u>.07%</u>
TOTAL PRIVATELY OWNED OPEN SPACE WITH SOME LEVEL OF PROTECTION	4,990.23	29.6%
PUBLICLY OWNED OPEN SPACE		
Forestland		
<i>Protected by State Conservation Agencies</i>		
Department of Conservation and Recreation	1,900.1	11.3%
Land with Limited Protection & Owned by Town of Charlemont	<u>31.1</u>	<u>0.2%</u>
TOTAL PUBLICLY OWNED OPEN SPACE WITH SOME LEVEL OF PROTECTION	1,931.2	11.5%
TOTAL OPEN SPACE WITH SOME LEVEL OF PROTECTION	6,921.43	41.1%

Source: Charlemont Assessors Records and Maps, 2003; and MassGIS Open Space data, 2003.

A. PRIVATELY OWNED PARCELS

Approximately 72 percent of open space in Charlemont is privately owned. Most of this land is owned by private individuals and is either forested or in use for agriculture. There are many advantages to private ownership of open space. Privately owned open space contributes to the town's tax base. When used for farming or forestry, land also generates revenue, jobs, food, and forest products. Some landowners allow access to their property for recreational purposes. Most take pride in their land, which favors good stewardship. Finally, owning land gives people a sense of place. This is particularly true of residents whose families have owned land in Charlemont for generations. Land ownership encourages a sense of community and helps contribute to community stability over time.

The major disadvantage of private ownership of open space is that most privately owned land can easily be converted to other uses. According to Table 5-1, only 3 percent of 4,990 acres of privately owned open space in Charlemont has been protected from development. The remainder (97 percent) is only temporarily protected and therefore, vulnerable to development. Some landowners acquire land specifically for the purposes of development, but others are forced to sell property due to circumstances beyond their control. Aging, the death of a parent or spouse, financial needs of family and rising costs or declining profits of farming and forestry are common reasons why landowners decide to put their property on the market. The high value of land for residential development is both a powerful incentive to sell property, and a formidable obstacle to people who might otherwise want to buy it for other purposes.

This section provides a detailed inventory of privately owned land in the Town of Charlemont and discusses the value of this land for conservation and recreation. Privately owned land provides many public benefits, but it is important to respect the property rights of landowners. While many landowners choose to keep their property in farms and forests, and some allow public access, it is important that residents respect the rights of those who make different choices.

A.1 Privately Owned Agricultural Land

Farmland, including farm woodlots, constitutes approximately 29 percent of the total amount of privately owned open space in Charlemont with some level of protection from development, 21 percent of all open space and 9 percent of the town's total land base. Tables 5-2 and 5-3 display information on those farms in Charlemont which have achieved a level of protection from development, including their ownership, management, and farm size.

Table 5-2: Privately Owned Agricultural Land Protected from Development in Charlemont

Owner/Manager	Holder of the Conservation Restriction	Map	Lot	Acres	Value
Meeks, Legate Hill Rd.	Franklin Land Trust	12	59, 60	100	Prime Farmland Soils
Kinchla, J. Route 2 and Tower Rd.	Dept. of Agricultural Resources	6	19.1, 20	46.85	Prime Farmland Soils
Total				146.85	

Source: Town of Charlemont Assessor's Records and Maps; 2003; Franklin Land Trust, 2003.

Approximately 10 percent of Charlemont's farm acreage with some level of protection includes land "protected" by the Agricultural Preservation Restriction (APR) Program. These restrictions are overseen by the Massachusetts Department of Agricultural Resources. Information on "protected" farmland in Charlemont is included in Table 5-2.

Land enrolled in Chapter 61A is considered to be "temporarily protected." Approximately 90 percent of Charlemont's open space farmland, including parcels with prime farmland soils, falls into this category (see Table 5-3). In some cases, farmland enrolled in Chapter 61A abuts "protected" land. Conversion of even a small percentage of this land to residential use could affect the viability of farming on the remainder. Location of new homes in proximity to active agricultural operations often results in conflict between new residents and farmers over the noise, dust, and odors that are part of normal agricultural practices. Increased commuter traffic on roads in agricultural areas also makes it difficult for farmers to move their equipment between fields.

Table 5-3: Privately Owned Agricultural Land Enrolled in Chapter 61A in Charlemont

Owner	Map	Lot	Acres
White, H. Jr.	1	1	17.00
White, H. Jr.	2	6	3.50
Twenty-Nine Franklin Street Trust	2	8	11.50
Twenty-Nine Franklin Street Trust	2	13	13.80
Sheilds, G.	3	7	44.00
Dean, D. & J.	4	33.1	21.00
Ballard, B.	4	36	13.60
Ballard, B.	4	37	73.20
Dean, D. & J.	4	37.3	45.38
Healy, J. (Manager-Hall Tavern Farm)	4	62	9.50
Healy, J. (Manager-Hall Tavern Farm)	4	82	17.80
Healy, J. (Manager-Hall Tavern Farm)	4	83	438.00
Glaze, J.W.	7	9	494.00
Glaze, J.W.	7	93	15.25
Coli, W. & N.	13	9	86.50
Total			1,304.03

Source: Town of Charlemont Assessor's Records and Maps, 2003

Much of the land enrolled in Chapter 61A also abuts rivers and streams. While agriculture can have negative impacts on water quality, these impacts can be reduced or avoided through the use of best management practices. When best management practices are observed, agriculture is compatible with watershed protection, because it keeps the land open, while development results in conversion of land to impervious surfaces, with negative impacts on water quality.

Agricultural lands enrolled in the Chapter 61A program offer much value to the town, even if the farmlands are only “temporarily protected.” Firstly, the agricultural parcels often contain prime farmland soils which should be preserved for continuing use. These privately owned open spaces also contribute to the town’s tax base and generate revenue, employment, and food products. In addition, some landowners may allow access to their property for recreational purposes, like hiking or snowmobiling. Most Chapter 61A landowners take pride in their land, while practicing good stewardship. They help to define a sense of place for Charlemont and contribute to community stability over time.

A.2 Privately Owned Forested Land

Approximately 51 percent of Charlemont’s open space with some level of protection is privately owned forest in one of the Chapter 61 tax abatement programs, accounting for approximately 3,505 acres, or 21 percent of the town’s total land area. There are two conservation restrictions in town protecting 6.61 acres of forest. These conservation restrictions are held by the Franklin Land Trust.

Table 5-4: Privately Owned Forested Land Protected from Development

Owner	Holder of the Conservation Restriction	Map	Lot	Acres
Schuster, Potter Rd.	Franklin Land Trust	7	74	1.45
Unknown, Hawk Hill Rd.	Franklin Land Trust	4	68	5.16
Total				6.61

Source: Town of Charlemont Assessor’s Records and Maps, 2003.

Privately owned forestland with temporary protection is shown in Tables 5-5 and 5-6. In addition, many of the temporarily protected farms shown in Table 5-3 include farm woodlots. Approximately 99 percent of privately owned forest with temporary protection in Charlemont is enrolled in the Chapter 61 tax program for Forestry, while one percent is enrolled in the Chapter 61B program for Recreational Open Space.

Table 5-5: Privately Owned Forestlands with Temporary Protection from Development Enrolled in the Ch. 61 Forestland in Charlemont

Owner	Map	Lot	Acres
Twenty-Nine Franklin Street Trust	2	8	91.00
Krusz, A.	2	22	151.20
Charlemont Land Preservation	2	32	69.70
Wilcox, E.	3	42	46.40
Summers, C.	3	48	93.62
Otico, D. & J.	3	64, 67	86.10
W. D. Cows, Inc.	4	26	63.30
Rotima, S. A., Inc.	4	52	25.20
Giffin, M.	4	14, 15	63.74
Kendrick, M., P., & J.	5	1	69.00
Bannish Land Preserves, Inc.	6	24.1	98.00
DuPree Family Revocable Living Trust	7	96	73.74
Nebiker, U.	7	91, 92	21.00
DuPree, B. & C.	8	2.1	91.36
Trinity Church, Boston	8	45	145.00
Gibbon Family, LLC	8	35, 36	89.00
T.S. Mann Lumber Co.	9	10	77.19
Seibold, C.	9	22	51.57
Rotima, S. A., Inc.	9	49	8.40
Hobbs, J.	9	19.1, 19.2	112.52
Flora N. Sampson Funding Trust	9	6, 7	31.10
Rotima, S. A., Inc.	10	1	170.00
Rotima, S. A., Inc.	10	3	67.02
Bannish Realty Trust	11	28	362.00
Anderson, B.	12	1	21.04
DeFilippi, R. & Flack, L.	12	4	42.00
Knoblock, K. & Buchanan, E.	12	42	277.20
Mohr, C.	12	51	16.70
Friend, D.	12	70.6	144.00
Wallace, D. & J.	12	2, 5, 6	21.80
Martha F. Meeks Trust	12	59, 60	83.50
Earle, R., Jr.	12	66, 66.1, 67	190.00
Coli, W. & N.	13	7	28.00
Grogan, P. & C.	13	19	5.90
Mc Gahan, R. & P.	13	25	2.56
Scott, M.	13	16, 17	150.60
Kendrick, M., P., & J.	13	2, 3	85.00
Total			3,225.46

Source: Town of Charlemont Assessor's Records and Maps, 2003.

All of the parcels in Tables 5-5 and 5-6 are temporarily protected in the Ch.61 Forestland and the Ch. 61B Recreational Open Space Classification and Taxation Programs and the degree of protection of these parcels is short term. There are no public grants awarded as a result of the Program, however, the owner

agrees not to change the land’s use for ten years while paying reduced property taxes during that time period.

Table 5-6: Privately Owned Forestlands with Temporary Protection from Development Enrolled in the Ch. 61 B Recreational Open Space Taxation Program

Owner	Map	Lot	Acres
Union Terminal Piers, Inc. (Berkshire East)	2	27	225.00
MacLeish, W. & E.	8	42	40.00
Budnik, V.	9	38	5.05
Budnik, V.	9	39	4.61
Budnik, V.	9	63	5.02
Total			279.68

Source: Town of Charlemont Assessor’s Records and Maps, 2003.

Privately owned forestland offers many values to the community and are important resources for several reasons. First, many forestlands are large parcels with a low degree of fragmentation, so wildlife and plant habitats are preserved. When these forestlands are protected from development, they help to protect and provide clean water, air, and healthy wildlife populations. Forest soils have a high infiltration capacity, so they absorb moisture and permit very little surface runoff. Once absorbed, water is released gradually so flooding is reduced during large rain events and streamflow is maintained during low water months. Forests recycle nutrients, so the nutrients do not pass into waterways, and water quality is preserved. Because forest soils are absorptive, soil erosion is reduced and fish habitat is preserved. Chapter 61 lands are managed for forest products, which result in employment of loggers, foresters, and local millworkers, income for landowners, and the availability of locally grown wood for flooring, furniture making and firewood. Many forested lands also provide recreational value for Charlemont residents. The Chapter 61 forests help to preserve the character of the wooded landscape prized in Charlemont.

B. PUBLICLY OWNED PARCELS

Publicly owned protected open space equals approximately 28 percent of all of the open space that has some level of protection in town. Almost all of this land is protected from development and is owned by DCR. However, the town-owned parcels, representing only 31 acres, have a limited amount of protection because they are not under the authority of the Charlemont Conservation Commission. The following inventory includes those parcels that are owned by the Commonwealth of Massachusetts and the town.

B.1 Publicly Owned Open Space

There are approximately 1,931 acres of publicly owned open space in Charlemont, accounting for about 28 percent of the total amount of open space with some level of protection from

development and 11.5 percent of the town’s land area. In Charlemont, publicly owned open space includes land owned by state conservation agencies, school districts, and the Town of Charlemont. These lands are described in Tables 5-7 and 5-8. For the purposes of this section, both public and privately owned cemeteries are included in this category. Cemeteries are listed in Table 5-9. Most of the publicly owned open space in Charlemont is forested or occupied by cemeteries.

Table 5-7: Publicly Owned State Land Protected from Development in Charlemont

Property Manager	Site Name	Acres	Map	Lot	Current Use	Recreation Value	Public Access
Div. of State Parks and Recreation	Mohawk Trail State Forest	803.00	6	1	State Park	High	Good
Div. of State Parks and Recreation	Mohawk Trail State Forest	740.00	6	2	State Park	High	Good
Div. of State Parks and Recreation	Mohawk Trail State Forest	357.14	6	6	State Park	High	Good
Total		1,900.14					

Source: Town of Charlemont Assessor’s Records and Maps, 2003.

The Commonwealth of Massachusetts is the single largest property owner in the Town of Charlemont. The Massachusetts Department of Conservation and Recreation, Division of State Parks and Recreation manages approximately 1,900 acres. Together, three large parcels comprise the Mohawk State Forest, which is located in the southwest sector of town. The Mohawk State Forest receives use by campers, hikers, swimmers, picnickers, and nature study groups.

The Town of Charlemont owns approximately 31 acres of open space (Table 5-8) with limited protection from development in two main open space properties. There are another four acres of town-owned land but these parcels are either so small or are developed, to be inappropriate for tabulating here in this plan. The two areas listed are under the authority of the Select Board and are therefore considered to have limited protection from development. If residents wanted to sell town land for development, the Select Board or a Town Meeting vote could provide the authority. If the Conservation Commission held the land, it would take a majority vote by the Massachusetts State Legislature to convert open space to a non-conservation use. Some of these open spaces may be set aside for municipal uses like schools, parks, or historic sites.

Table 5-8: Town-owned Land with Limited Protection from Development in Charlemont

Owner / Property Manager	Site Name	Acres	Map	Lot	Current Use	Condition	Recreation Value	Public Access
Town of Charlemont	Memorial Park	24.00	2	37	Fairgrounds	Good	High	Good
Town of Charlemont/ Hawlemont Regional School District	Town of Charlemont/Hawlemont Regional School District	0.40 6.71	19 19	85 85.2	Hawlemont Athletic Fields	Good	High	Good
Total		31.11						

Source: Town of Charlemont Assessor's Records and Maps, 2003.

It is not unusual for a community to set aside land for future expansion of schools, sports fields, police and fire stations, and drinking water supplies. Open space planned for these purposes might be used as open space today and placed under the authority of the Select Board. It may also be sensible to place town-owned land that clearly contains wetlands or wildlife habitat, but which does not provide for easy development, under the authority and protection of the Conservation Commission.

Table 5-9 lists the cemeteries in Charlemont that are privately owned and are protected from development. Most cemeteries represent well-maintained open space areas that are sometimes appropriate for walking and bird watching.

Table 5-9: Cemeteries in Charlemont

Owner / Property Manager	Site Name	Acres	Map	Lot	Current Use
Leavitt Cemetery Trust	Leavitt Cemetery	8.65	3	27.1	Historical Cemetery
East Charlemont Cemetery Assoc	East Charlemont Cemetery	1.54	4	42.1	Historical Cemetery
Village Cemetery Assoc.	Village Cemetery	0.92	19	73.1	Historical Cemetery
Total		11.11			

Source: Town of Charlemont Assessor's Records and Maps, 2003.

Legend

- Town Line
- Rail Lines
- Roads
- Major roads
- Streams and Rivers
- Water

- NHESP BioMap Core Habitat
- NHESP BioMap Supporting Natural Landscape

Open Space

- Open Space with Permanent Protection
- Open Space with Limited Protection
- Chapter 61: Forestry (Temporary Protection)
- Chapter 61A: Agriculture (Temporary Protection)
- Chapter 61B: Recreation (Temporary Protection)
- Chapter 61 & 61A: Forestry & Agriculture (Temporary Protection)

Map Sources:

Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEa maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEa makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEa maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEa Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

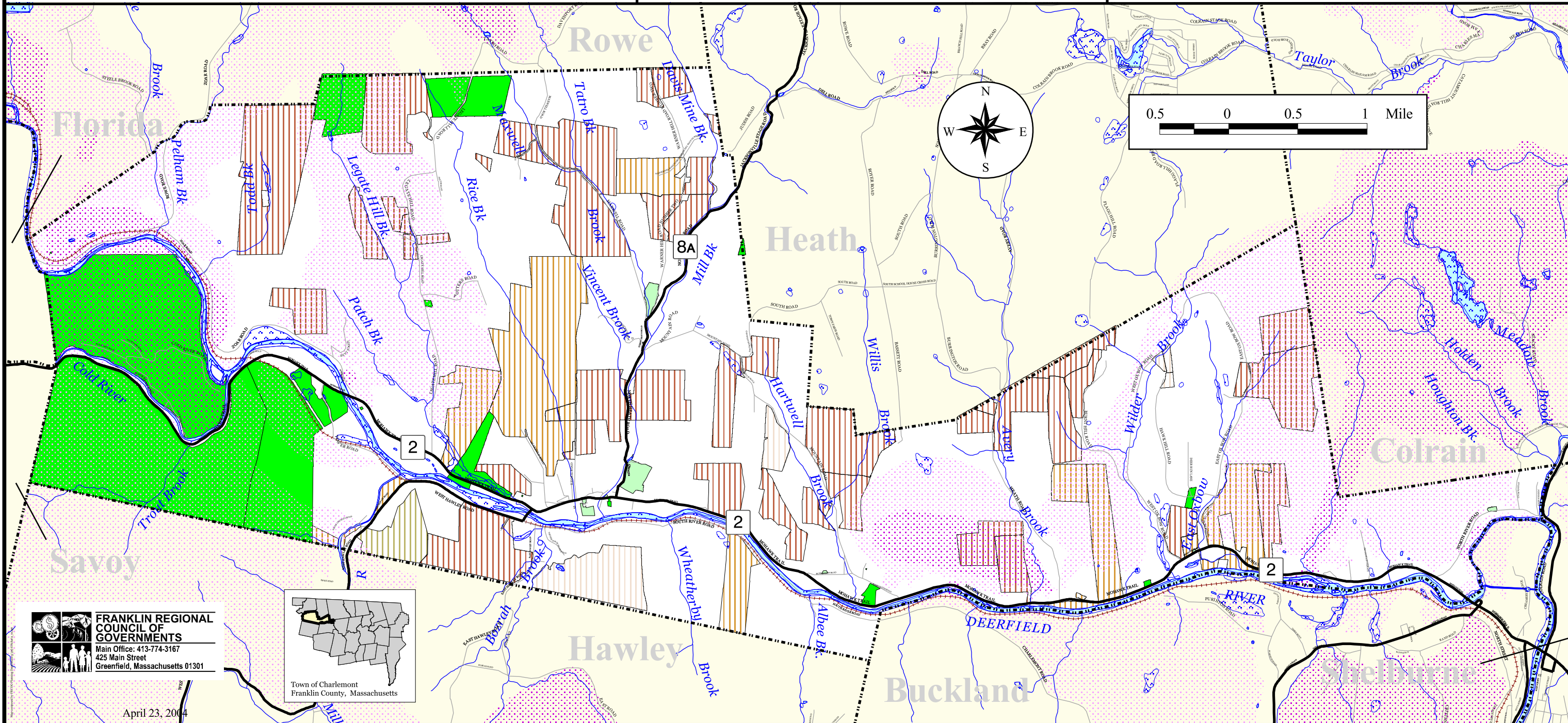
Road data provided by Massachusetts Highway Department. Town line, rail line, open space (Chapter 61, Protected Open Space, and Open Space with Limited Protection), National Wetlands Inventory wetlands, NHESP, river, stream, and pond data provided by MassGIS.

Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

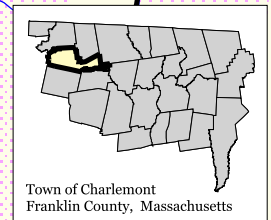
Town of Charlemont

Open Space and Recreation Plan

Protected Open Space



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SECTION 6

COMMUNITY GOALS

A. DESCRIPTION OF PROCESS

The Town of Charlemont's open space and recreation goals were developed in part through the following planning processes:

- The Town of Charlemont began to develop consensus on their most important community goals in 1998 when a Graduate Regional Planning Studio from the University of Massachusetts was hired to develop the Background Document. Public participation in the 1998 planning process included:
 - Eight meetings with the Planning Board to receive input on the plan;
 - Forty interviews with residents, business owners, and town officials; and
 - Approximately 500 Master Plan Surveys were distributed throughout the community and 20 percent were returned.
- In 2001, a second Graduate Regional Planning Studio was hired to write a Master Plan for the Town of Charlemont. This next step in the Master Planning process used the Background Document as a foundation. The Studio used results from the Charlemont Public Vision Forum, and feedback from the Master Plan Committee, which held meetings twice a month as guidance for generating the recommended actions listed in the Master Plan. Over fifty of the town's residents attended the vision forum held on Monday, October 15, 2001, providing an adequate sample of the residents' vision for the future of their community.
- In November 2002, a Planning Committee was formed to develop the town's Open Space and Recreation Plan and an EO418 Community Development Plan. In December 2002 and February 2003, the Committee reviewed, discussed, and developed a set of goals and objectives that reflected the extensive public participation of the recent past. Many of the people on the Planning Committee participated in the earlier planning efforts.
- Between November 2002 and December 2003, Franklin Regional Council of Governments Planning Department staff developed this Open Space and

Recreation Plan under the supervision of the Planning Committee. The planning process used several methods for involving public participation:

- The results of the 1998 and 2001 Master Plan documents were used as the basis for the development of goals and objectives as well as the overall open space and recreation vision.
- The Planning Committee held ten public meetings.
- Several drafts of each section of the plan were mailed to approximately fifty-five people representing key town boards, community groups, and residents.
- Several sets of the Open Space and Recreation Plan maps were displayed at the Town Hall, Hawlemont Elementary School, and at other locations.
- Elementary School students were encouraged to draw pictures of their favorite places in Charlemont. These will be used to adorn the cover and pages of the Plan.
- A public forum was held on March 25, 2004, where residents reviewed and discuss the major findings and five-year action plan. All public comments were recorded and considered for incorporation into the plan.

B. STATEMENT OF OPEN SPACE AND RECREATIONAL GOALS

Residents recognize that the economic vitality of Charlemont is dependent on the ecological integrity of its watersheds and on the retention of its historical and naturally scenic agricultural landscapes. They value its diverse terrain, which includes a mix of working farms, extensive forests, steep hillsides and the Deerfield River floodplain. They like living in a town with clean air and water and a great diversity of native plants and animals, that is relatively safe from crime and vandalism, has affordable housing, and offers abundant opportunities for outdoor recreation.

Residents who have participated in past planning processes and in the development of this Open Space and Recreation Plan, have a vision for the future of Charlemont's natural, historical, and recreational resources. In this vision, the town's large blocks of forests, sensitive wildlife habitat areas, and active farmland are protected as a result of cooperative efforts between private landowners, and local and state agencies and private non-profit organizations. The town has a history of yearly contributions to a town match fund to support local farmers applying to protect their land through the Agricultural Preservation Restriction Program. Most protected lands have remained in private hands and control, and continue to contribute property taxes. The town has protected land along the Deerfield River to protect public access to its waters as well as some of the finest scenic views in town. Residents continue to enjoy clean drinking water from sources and aquifers that have been protected from contamination.

In this vision for the future, Charlemont has a diverse local economy anchored by existing recreational-based tourism firms. Farmers and wood producers link forces with local retailers taking advantage of the tourist traffic along Rte. 2. Residents speak proudly of their successful efforts to maintain and restore historic buildings in each of the villages, but especially in the Center. The Bissell Bridge, for example, has been renovated for public use and enjoyment. The Fairground's grandstand has been lovingly restored and is used for town community events and festivals. Charlemont Center continues to thrive as the commercial and civic center.

Residents of all ages and abilities enjoy access to the Deerfield River via the town-owned beach and waterfront park as well as to a system of well-maintained trails, most of which are on private property. Town officials and trail enthusiasts are successful at organizing and facilitating trail use among residents to only those trails open to the public with the express permission of the landowners. Using the success of the Deerfield River Impact Committee to facilitate the adoption of safety policies by all types of recreational users of the river, residents have developed a protocol for private property trail use that was adopted town wide. The resulting pedestrian and biking trails provide an alternative mode of transportation to residents between villages, recreational amenities offered by local tourism-based businesses, and a source of customers of local farmers road-side stands.

SECTION 7

ANALYSIS OF NEEDS

The Charlemont Open Space and Recreation Plan incorporates the inventory of all the land-based natural, scenic, and cultural resources that are available in town (Section 4), identifies the areas that contain these resources (Section 5), and based on the community's general goals (Section 6), makes comparisons between the supply of resources and the demand (Section 7). In the following three subsections, the most important environmental issues are highlighted (Summary of Natural Resource Protection Needs), the recreation and open space needs of the residents are discussed (Summary of Community's Needs) and the obstacles to the effective resolution of these needs are addressed (Management Needs).

A. SUMMARY OF NATURAL RESOURCE PROTECTION NEEDS

Charlemont residents value their town's natural environment including the Deerfield River, clean drinking water, working farms and forests, diverse wildlife habitats, and scenic views. They appreciate the economic opportunities that the river and surrounding hills provide and understand that only through careful management of human impacts can the ecological, historical, and scenic integrity of its landscapes remain for the future.

According to results of the planning in which the residents invested between 1998 and 2003, the main natural resource protection needs facing Charlemont include: 1) protecting the Deerfield River from potential contamination; 2) contributing to the retention of farm and forest-based businesses; 3) managing the impacts of tourism on river quality; and, 4) ensuring that large blocks of contiguous forest are conserved despite future residential development.

Protecting the Deerfield River

In many ways the Deerfield River represents the heart and soul of Charlemont. Unlike other communities along its course, Charlemont's local economy owes its growth, fortitude and resilience to the river's continuous ability to attract visitors from whitewater enthusiasts and anglers to people on their way to some other destination. The town's residents and business owners continue to utilize the commercial opportunities presented by this flow of capital. Therefore, it is imperative for the town to continue to use its influence locally and within the watershed to reduce the negative impacts to the river from pollutants and from its use by PG&E to generate power.

All forms of erosion and pollutants throughout town ultimately arrive in the Deerfield River. Therefore, most of the problems associated with the Deerfield River are also issues for the many tributaries that flow into the main stem. All of the issues identified as environmental problems in Section 4 G need to be addressed by the town to ensure the quality of the Deerfield is enhanced over time:

- Properly close the Charlemont Landfill.
- Work with the Deerfield River Watershed Association and continue to monitor the polluted Davis Mine Brook.
- Talk with MassHighway, District 1 to negotiate an alternative to the current road salt to sand mix and consider funding the extra costs of applying hops instead of salt along the Deerfield and along areas with known aquifers.
- Work with the Board of Health to identify locations of car dumps and ensure through soil and water tests that these areas pose no immediate threat to groundwater quality.
- If not properly engineered or maintained, gravel roads can erode in any number of ways resulting in detrimental sediment loading in abutting wetlands. A number of solutions are known to fix site-specific problems as well as help to ensure a minimum of erosive flow per storm event along the entire gravel road network.
- Town officials need to continue to work in partnership with other towns and the Council of Governments to address the regional issues of right-of-way vegetation management as it relates to pesticide use and of hazardous material transport along rail sections with documented failures.
- The town also needs to continue to work with MassHighway to impact factors within their control (e.g., tree planting and commercial development), which could result in the slowing of traffic along Rte. 2.
- To reduce trash and litter in a community that caters to out-of-towners as Charlemont does, town officials should support passage of MGL- CMR #323 2.12.5 for implementing a fine for alcohol on the river. The Deerfield River Impact Committee feels that alcohol is a major contributor to littering and unsafe conduct on the river.
- The town needs to find ways and funding to upgrade private septic systems that do not currently comply with Title V.

Retaining Farm and Forest-based Businesses

There are several examples of programs and services that farmers can participate in to upgrade their business plans (Farm Viability Program), to pass on their farms to the next generation (estate planning and land protection services offered by land trusts, land lawyers, and UMass Extension), or to increase their marketability (CISA's Be A Local Hero campaign). Forest landowners can belong to cooperatives and work with consulting foresters if they so choose.

Charlemont could ask farmers and wood producers what government can do to assist land-based businesses to become more profitable despite dynamic markets and increasing

fixed costs. Town officials may want to consider treating farmers and wood producers like any other business owner. One way government and non-profits have assisted private agricultural enterprises is through the promotion of locally grown farm and niche forest-based products to tourists and residents of the region.

Managing the Impact of Tourism on Environmental Quality of the Deerfield River

The town should consider enacting the recommendations of the Deerfield River Impact Committee to manage the impact of summer recreational use of the river:

- Support passage of MGL- CMR #323 2.12.5 for implementing a fine for alcohol on the river.
- Install informational signage at access points on the Deerfield River.
- Develop a map and information brochure of the River showing or describing river access points, river hazards, river safety precautions and phone locations.
- Work with the Towns of Florida and Rowe to implement a consistent plan throughout the three towns.
- Consider implementing a town bylaw for Personal Floatation Device use by children when accessing the river.
- Establish a car count on Zoar Road weekday/weekend, summer and fall.
- Maintain a police presence at the Zoar Picnic Area, Shunpike Rest Area, along Zoar Road and other busy areas.
- Establish a committee to implement and coordinate the town's efforts. Include townspeople, outfitters, fire rescue officials, the Power Company, environmental police and other river safety advisors.
- Consult with outfitters, Deerfield River Watershed Association, the Power Company and others to determine appropriate information and content, and to help find grants to implement projects.
- Consider establishing guidelines, standards, and/or regulations that promote safety and provide reasonable safety information and equipment to customers of businesses that rent, lease or sell inner tubes, canoes, inflatable crafts and other floating vessels for use on water in the town.

Ensuring that Large Blocks of Contiguous Forest are Conserved Despite Future Residential Development

According to a recent geographic information systems (GIS) analysis of large forest blocks in Franklin County developed by the FRCOG Planning Department (2003), Charlemont and Heath contain one of the largest blocks of contiguous forest in West County. Large blocks of contiguous forest protect habitat, drinking water supplies, wetlands and plant and animal biodiversity. Along with the Deerfield River and farmland, large blocks of undeveloped forest are an extremely important yet vulnerable component of Charlemont's rural character.

The current development trend in Charlemont and in the rest of the region is single-family homes developed off of existing roads. As these frontage lots are developed around town, two things may occur: 1) farmland, which is typically located next to roads will continue to be targeted for development, and 2) most of the land occupied by residential development in town will remain within road corridors as it is today until it becomes profitable to develop back land. Based on Charlemont's current zoning the only constraints to developing back land are slope and soil conditions, which can be overcome over time through changes in technology and on-site septic system regulations.

Charlemont officials may want to consider revising their zoning and developing a more pro-active land conservation program to protect the town's rural character and in return, its economic base. Even with the limitations of the Massachusetts Zoning Act, towns have the ability to apply zoning in thoughtful ways that encourage acceptable patterns of development through incentives. By setting aside money in the budget each year in a conservation fund, towns can have the capacity to facilitate the investment of federal, state, and private dollars to protect the most important forest habitat, the oldest farm, or the best scenic view of the Deerfield River, if they become available.

The town could use the Natural Heritage and Endangered Species Program's BioMap as a means of identifying forests to prioritize for protection (*see Open Space Map*). If town officials were to use presence of a Core Habitat Area or Supporting Natural Landscape, as significant criteria in their prioritization process, several areas in town would be highlighted: Core Habitat forests are located north of the Deerfield River, near the confluences of Pelham Brook and Todd Brook; between Hartwell Brook and Avery Brook; and straddling an unnamed brook in the eastern section of town. Forests that provide Supporting Natural Landscapes in town buffer Core Habitats, surround Legate Hill and Patch Brook from the Deerfield River north to Rowe, and encapsulate the residential subdivision of Hawk Hill Road and Deer Run Lane.

B. SUMMARY OF COMMUNITY'S NEEDS

Planning for a community's open space and recreation needs must satisfy the present population's desires for new facilities, spaces, and services, and also must interpret and act on the available data to prepare for the future needs of Charlemont residents. Although the Charlemont Open Space and Recreation Plan will be updated in five years, the types of actions identified in Section 9 will take into account the needs of the next generation as well.

Past comprehensive planning processes in 1998 and 2002, as well as the Open Space and Recreation Meetings and discussions at Open Space Committee meetings, helped to identify several community needs relating to open space and recreation resources: restore the grandstand and develop the Charlemont Fairgrounds as a public space; additional

recreational programming for all ages; safe pedestrian and bicycle paths between village centers; acquiring a town-owned river front parcel to be used as a public beach; protecting scenic views along the Mohawk Trail from poorly planned development; and, promotion of existing hiking trails.

Restore the Charlemont Fairgrounds

The Friends of the Charlemont Fairgrounds, is a non-profit organization dedicated to restoring the fairgrounds, its usage and the revitalization of Yankee Doodle Days. Each year the group has made modest profits that have been reinvested in the renovation of the fairgrounds. Their list of accomplishments include:

- Receiving 501c non-profit status from the IRS;
- Developing a Fairgrounds Master Plan;
- Providing the town's share (\$1,740) towards a Department of Conservation and Recreation Historic Preservation Grant of \$5,000 for a preliminary engineering study of the 1892 grandstand;
- Pledging \$4,500 towards repair work on the 130-year-old Exhibition Hall at the Fairgrounds;
- Installing more electricity in 1997 and expansion each year;
- Building a horse coral for the gymkhana;
- Building a coral for the horse and oxen draws;
- Grading the track;
- Improving the fields;
- Clearing diseased trees from the pine grove; and,
- Building two new sets of bleachers.

The Friends of the Charlemont Fairgrounds have been working diligently over the past decade to improve the fairgrounds. The next step involves funding the complete renovation of the grandstand, which will require the collaboration of everyone in town.

Additional Recreational Programming for all Ages

Small towns interested in increasing the amount of recreational programs available to children, adults, and seniors have four main options: funding the programs themselves, depending on volunteers, providing programs in collaboration with other towns, or a

combination of the first three. Library programs might best be funded through town appropriations and grants. Volunteers already organize and lead recreational events and programs including the Mohawk Concert series, Scouts, adult enrichment programs, a children's ski program, and 4-H. With ample year-round recreational opportunities in town, the limiting factor may be the lack of facilitators. Some towns have active Recreation Committees that are responsible for running a set number of events per year. When the economy is stronger, Charlemont officials might consider working with other towns like Hawley and Heath to hire a part time recreation coordinator. This person could coordinate the efforts of volunteers, attract state and federal grants to develop and maintain recreational facilities, and organize and produce recreational and community-wide events for residents year round.

Safe Pedestrian and Bicycle Paths Between Villages and Shelburne Falls

Residents have long voiced a desire to have pedestrian and bicycle trails connecting some of the villages in Charlemont. This is not surprising given Rte. 2 is the only east-west transportation route between Zoar and East Charlemont. The Town of Erving is in a very similar predicament. Erving's Open Space and Recreation Plan recommended the development of a trail across the Millers River in Wendell that would connect Erving Center with Farley, two of the town's three villages. Charlemont on the other hand enjoys a wider floodplain in most cases than the Millers River offers Erving.

Road right-of-way bike paths might be more easily designed and implemented than a shared road lanes, especially on Rte. 2. Even so, permanent path systems are likely a long-term project dependent in large part upon the presence of leadership. There needs to be a person or persons willing to move the project from beginning to end, independent of town staff.

Acquiring a Town Beach Parcel

Access to the Deerfield River for swimming, fishing, boating, and other recreational activities, is also identified in the Master Planning processes. Town officials may want to consider reaching out to all landowners via a letter and the town web site, asking them to consider selling their land to the town for recreational or other facilities needs. The Town of Shutesbury did just that by mailing a request for responses to landowners. One landowner responded with an offer to sell land that abutted the Town Hall lot. The money used to purchase the land was taken from Free Cash, though Shutesbury conservation land has also been preserved in part through private donations. As a first step, the Select Board could establish a Town Lands Committee to determine land needs for the town.

Protecting Scenic Views along the Mohawk Trail

The 2003 Mohawk Trail Scenic Byway Corridor Management Plan grades areas along Rte. 2 from Greenfield to Williamstown by their scenic value relative to the entire roadway. Within Charlemont, the results of the landscape and visual assessment show that most of the Rte. 2 corridor between East Charlemont and Rowe is comprised of “Outstanding” scenic values, the highest standing considered in the assessment. The Plan also provides an action plan that includes strategies, which seek to protect the scenic rural character of the corridor and its important viewsheds. Two of the three sections of the Mohawk Trail in Charlemont containing scenic viewsheds look upon privately owned farmland and open land on both sides of the Deerfield River, while a third looks west from Rte. 2 to Mohawk State Forest. The action plan strategies that may be most effective at protecting viewsheds that include mostly privately-owned farmland include:

- Pursue funding to purchase scenic easements, farmland preservation restrictions to protect scenic vistas and agricultural lands.
- Work with local farmers to increase the economic viability of their farms including promotion of locally grown products.
- Revisit zoning bylaws including review of allowed uses and densities, establishment of a byway corridor overlay district, and review of site plan approval process and criteria.

Promote Existing Hiking Trails

To promote existing trail systems that take advantage of historical highways and Native American trade routes, town officials might begin by organizing a well-represented trails committee. The purpose of the committee would be to develop a coordinated plan for trail promotion and maintenance in town. The plan could be a long-term action-based plan, which would require the collaboration of willing private landowners, and would focus on the trails they support the most.

C. MANAGEMENT NEEDS

The main challenge for Charlemont town officials in providing for natural resource and community needs may be to effectively use consensus building and collaboration to accomplish both short and long-term projects. The following needs can all be expressed as projects:

- Protecting the Deerfield River (from improper land uses);
- Retaining farm and forest-based businesses;
- Managing the impact of tourism on environmental quality of the Deerfield River;
- Ensuring that large blocks of contiguous forest are conserved;
- Restore the Charlemont Fairgrounds;

- Additional recreational programming;
- Safe pedestrian and bicycle paths between villages;
- Acquiring a town beach parcel; and,
- Promote existing hiking trails.

Most of the items listed above are long-term projects that may have many action steps to be completed over the next decade. Each project can be accomplished by a committee with a leader appointed by the Select Board. By authorizing several committees each year via warrant articles at Town Meeting, volunteers won't be overburdened and the voters will feel more ownership for the community overall. In each case, the overall goal of the committee will have been chosen in part at its formation at Town Meeting. The objectives, how the purpose of the committee gets realized, is up to the members of the committee and to the residents who participate in the meetings. Through the public meeting process different view points get expressed and ultimately result in a draft plan that can be presented for wider discussion and input on the town web site, at Town Meeting, or at a special presentation. Step by step, most of these needs can probably be met to some degree within the next five years.

Meeting goals such as protecting the Deerfield River, retaining farm and forest-based businesses, saving the Fairgrounds grandstand, and protecting large blocks of forest, will require town committees to collaborate with regional and statewide agencies and organizations. Town officials need to continue to build relationships with Franklin Land Trust, Trustees of Reservations, and state agencies and offices including UMass Extension, the Executive Office of Environmental Affairs, the Division of Conservation Services, MassHighway, and the Department of Environmental Protection. Other town-wide needs will require town committees and boards to collaborate with each other, which may require more multi-board meetings, and the formation of an Open Space and Recreation committee charged with the responsibility of implementing the Five-Year Action Plan (*see Section 9*).

SECTION 8

GOALS AND OBJECTIVES

The Town of Charlemont has been involved in master planning efforts over the past five years, which have resulted in consensus on the most important issues facing the town. In 1998, with the assistance of a University of Massachusetts (UMass) graduate regional planning studio, the town developed the Charlemont Master Plan Background Document. As part of this planning process, the studio group met with the Planning Board twice a month to receive input on the plan; they conducted forty interviews with residents, business owners, and town officials; and, they developed a Master Plan Survey. Of the 500 surveys distributed throughout the community, 100, or 20 percent were returned. The results of the survey were used in the development of the Document. Then in the fall of 2001, the town received the assistance of a second graduate regional planning studio from UMass in developing a Master Plan, which used the Master Plan Background Document as its foundation. A Vision Forum held in October brought together over sixty residents to chart the town's direction by creating goals and objectives, which identify and work to resolve the community's most pressing problems.

The Open Space and Recreation Plan Preliminary Draft Goals and Objectives were formulated from the sources of public input listed above. Although the responses recorded in the public meetings, the Vision Forum, and the Master Plan survey may not reflect the opinions of all residents, in sum they do represent a significant source of community input, which was used to identify the open space and recreation resources most important to Charlemont residents.

A. Goal: Ensure that the Town of Charlemont improves the quality and accessibility of all of its recreational and historic areas, facilities, and programming for both residents and tourists, including access to the Deerfield River, forests, fields and unbroken trails.

Objectives:

1. Work with the existing Friends of the Charlemont Fairgrounds Committee to restore the grand stand and to develop the fairgrounds as a public space. Promote their use for public events like farmers' market, concerts, and communal festivities.
2. Increase year round recreational opportunities for residents of all ages, especially after school programming for teens.

3. Identify existing trails, which could be promoted in the future.
4. Provide safe and adequate bike and pedestrian path connections in town (e.g. between Charlemont Center and the Fairgrounds and along Zoar Road).
5. Assess the status of buildings and structures located within the Charlemont National Historic District and in other areas of town.

B. Goal: Ensure that the Town of Charlemont maintains or improves the quality of its surface and ground waters including the Deerfield River and its associated aquifers, agricultural landscapes, scenic views, and the diversity and integrity of native plants and animals through the conservation of locally important natural and open space resources.

Objectives:

1. Identify, improve and protect scenic viewsheds, especially along Rt.2 and along the Deerfield River consistent with the Scenic Byway Corridor Management Plan.
2. Pursue the protection of natural resources including prime farmland soils, active farms, and Priority Habitats within the Deerfield River valley.
3. Protect from development lands that contain productive farmland, groundwater resources, large blocks of contiguous forestland, wildlife habitat, lands along the Deerfield River, and other environmentally critical unprotected open space.
4. Support local agriculture to strengthen the long-term viability of agricultural businesses and to help ensure the retention of the town's most significant scenic and historic agricultural landscapes.

C. Goal: Ensure that Charlemont maintains its small town rural atmosphere characterized by both rural and village land use patterns, community spirit, affordable housing, and an abundance of recreational opportunities.

Objectives:

1. Encourage land use and development patterns that preserve rural character, open space, water resources, and agricultural lands in Charlemont.
2. Determine the feasibility of an agricultural incentive area, which can be established under the Massachusetts Right to Farm Law, Ch.40L, to protect farmers from rising property taxes, betterment assessments, and nuisance lawsuits.
3. Maintain and promote the village as the economic center of the town.

SECTION 9

FIVE YEAR ACTION PLAN

The Five-Year Action Plan is intended to provide concrete steps towards implementing the objectives of the Open Space and Recreation Plan. The Open Space and Recreation Planning Committee developed the draft action steps outlined below.

The objectives are listed in the far left column of the foldout Table 9-1 in the same order as they appear in Section 8. They are followed in the same row by recommended actions, the board or group responsible for implementation, and start dates. By implementing the recommended actions, each of the objectives will begin to be realized.

Successful implementation will require the participation of existing town boards, committees and staff, including but not limited to the Board of Selectmen, Planning Board, Conservation Commission, Historical Commission, Community Development Committee and others.

Accomplishing the actions identified in this section will require time and commitment from dedicated volunteers. Where money is required, it may be sought from state and federal governmental agencies, private non-profit conservation agencies, foundations, and individual donations in addition to municipal funds. A broad base of community support for the Open Space and Recreation Plan should facilitate fundraising to achieve its goals and objectives.

Table 9-1: Recommended Action Steps to Implement the Charlemont Open Space and Recreation Plan

Objective	Action	Responsible Board/Group	Start Date
Work with the existing Friends of the Charlemont Fairgrounds Committee to restore the grand stand and to develop the fairgrounds as a public space. Promote their use for public events like farmers' market, concerts, and communal festivities.	Encourage the Parks and Recreation Commission to work with the Friends of the Fairgrounds on an Urban Self-Help Application and other grant opportunities to renovate the grandstand.	Select Board and Friends of the Fairground (Friends)	2004
	Request the Park Commissioners to have regular, posted, and scheduled, public meetings.	Select Board, all other boards and the Friends	2004
Increase year round recreational opportunities for residents of all ages, especially after school programming for teens.	Expand the Park Commission to a Parks and Recreation Commission and increase members from 3 to 5.	Select Board and Town Meeting	2004
	Identify locations to acquire for a Town Beach on the Deerfield River.	Planning Board, Parks and Recreation Commission, Open Space Committee, and Community Development Committee	2005
Identify existing trails, which could be promoted in the future.	Explore the development of a trail from Charlemont Village to the Fairgrounds.	Parks and Recreation Commission, Friends and Charlemont Development Committee	2005
	Research, categorize, and plot existing trails for identification purposes only.	Deerfield River Watershed Association (DRWA), Open Space Committee, and Parks and Recreation Commission	2005
Provide safe and adequate bike and pedestrian path connections in town (e.g. between Charlemont Center and the Fairgrounds, and along Zoar Road).	Encourage the Select Board to continue to work with MassHighway on Rte. 2 improvements including pedestrian access and traffic calming.	Select Board and Planning Board	2004
Assess the status of buildings and structures located within the Charlemont National Historic District (NHD) and in other areas of town.	Create a comprehensive inventory of all of the historical structures near the Charlemont NHD.	Historical Commission	2005

Table 9-1 continued

Objective	Action	Responsible Board/Group	Start Date
Identify, improve and protect scenic viewsheds, scenic views of the river, especially along Rte.2 and along the Deerfield River consistent with the Scenic Byway Corridor Management Plan.	Work together to identify locations along the Deerfield River that could be managed to provide better visibility of the river without increasing the presence of invasive species.	Conservation Commission, Deerfield River Watershed Association, Open Space Committee, Commercial River Business Operators, Planning Board, the Mohawk Corridor Scenic Byways Committee, and the Franklin Regional Council of Governments.	2004
	Implement recommendations of the Deerfield River Impact Committee 2003 Study.	Deerfield River Impact Committee and Select Board	2004
	Identify the most important viewsheds to protect.	Planning Board, Conservation Commission, Open Space Committee, and the Mohawk Corridor Scenic Byways Committee.	2005
	Identify the funding sources that could be used to protect the most important viewsheds.	Same groups as listed above.	2005
Pursue the protection of natural resources including prime farmland soils, active farms, and Priority Habitats within the Deerfield River valley.	Acquire funding to purchase Agricultural Preservation Restrictions and Conservation Restrictions so that more of the town's remaining farmland and Priority Habitats can be conserved for future generations.	State Legislators, Department of Agricultural Resources, Department of Fish and Game, Department of Conservation and Recreation, Franklin Land Trust, and the Charlemont Open Space Committee	2004
	Consider zoning amendments for the Deerfield River valley, which would help protect natural and agricultural resources.	Planning Board	2005

Table 9-1 continued

Objective	Action	Responsible Board/Group	Start Date
Protect from development lands that contain productive farmland, groundwater resources, large blocks of contiguous forestland, wildlife habitat, lands along the Deerfield River, and other environmentally critical unprotected open space.	Appoint a Charlemont Open Space Committee to ensure the successful implementation of the town's Open Space and Recreation Plan.	Select Board	2004
	Meet with and encourage the Finance Committee to resume contribution to the APR match fund every year.	Select Board and Planning Board	Ongoing
	Contact the Geology Department at UMASS to attract a graduate student to identify the yield of aquifers in town.	Board of Health	2004
	Seek funding from federal, state, and private sources to protect remaining farm and forestland in town as the opportunities arise.	Franklin Land Trust, State Legislators, Select Board, and Open Space Committee	2005
	Identify areas of land that contain the most critical resources (prime farmland soils, aquifers, contiguous forests, land that provides public access to the Deerfield River, BioMap core habitat, and Living Waters core habitats (special aquatic habitats)), to enable the town to be able to prioritize which lands would be most important to protect from development were they to become available.	Conservation Commission, Open Space Committee, and the Planning Board	2005-2006

Table 9-1 continued

Objective	Action	Responsible Board/Group	Start Date
Support local agriculture to strengthen the long-term viability of agricultural businesses and to help ensure the retention of the town's most significant scenic and historic agricultural landscapes.	Put town website URL on Town Sign.	Community Development Committee	2004
	Utilize the town website and links to the websites of Shelburne Falls Area Business Association and the Franklin County Chamber of Commerce to promote agricultural businesses.	Community Development Committee	Ongoing
	Develop an updated list of all businesses in town.	Community Development Committee	2005
	Promote locally grown and made products at the Mohawk Trail Visitors Center.	Community Development Committee	2006
	Develop and print a newspaper ad that shows a map of all the businesses in town and what they sell, including farms and wood product manufacturers.	Community Development Committee	2006
Encourage land use and development patterns that preserve rural character, open space, water resources, and agricultural lands in Charlemont.	Amend the town zoning bylaws to promote desirable development patterns.	Planning Board	Ongoing
	Organize a meeting with Legislators, staff of the Office of Commonwealth Development, and representatives from surrounding towns to discuss how the communities in the region can promote development patterns that sustain the quality of the region's agricultural, natural, cultural, and recreational resources.	The Planning Boards and Open Space Committees of the towns of Charlemont, Colrain, Heath, Shelburne, and Buckland and Franklin Land Trust.	2004

Table 9-1 continued

Objective	Action	Responsible Board/Group	Start Date
Determine the feasibility of an agricultural incentive area, which can be established under the Massachusetts Right to Farm Law, Ch.40L, to protect farmers from rising property taxes, betterment assessments, and nuisance lawsuits.	Ask local farmers to get together to discuss the feasibility of an Agriculture Incentive Area and other methods for strengthening local farm and forest-based business viability.	Planning Board, the Franklin County Regional Planning Board, and the Community Development Committee	2005
	Produce a workshop on estate planning and inter-generational farm transfer.	Select Board, Open Space Committee, Conservation Commission and the Franklin County Regional Planning Board	2005
Maintain and promote the village as the economic center of the town.	Pursue the development of the Visitors Center/Museum in Charlemont Center.	Community Development Committee and Select Board	Ongoing

Source: Charlemont Open Space and Recreation Planning Committee Members; 2004.

Legend

- NHESP BioMap Core Habitat
- NHESP Living Waters Core Habitat
- Contiguous Forest Block
- Active Agricultural Use

Open Space

- Open Space with Permanent Protection
- Open Space with Limited Protection
- Chapter 61: Forestry (Temporary Protection)
- Chapter 61A: Agriculture (Temporary Protection)
- Chapter 61B: Recreation (Temporary Protection)
- Chapter 61 & 61A: Forestry & Agriculture (Temporary Protection)

- Town Line
- Rail Lines
- Roads
- Major roads
- Streams and Rivers
- Mohawk-Mahican Trail
- Pedestrian path
- Water
- Aquifer
- Proposed National Historic District
- Traffic Calming / Pedestrian Facility
- Fairgrounds
- Scenic View with direction indicator

Map Sources:

Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEa maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEa makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEa maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEa Data Center, 251 Causeway Street, Suite 900, Boston, MA, 617-626-1000.

Road data provided by Massachusetts Highway Department. Town line, rail line, open space (Chapter 61 & Protected Open Space), National Wetlands Inventory wetlands, NHESP Living Waters Core Habitat, NHESP BioMap Core Habitat, river, stream, and pond data provided by MassGIS.

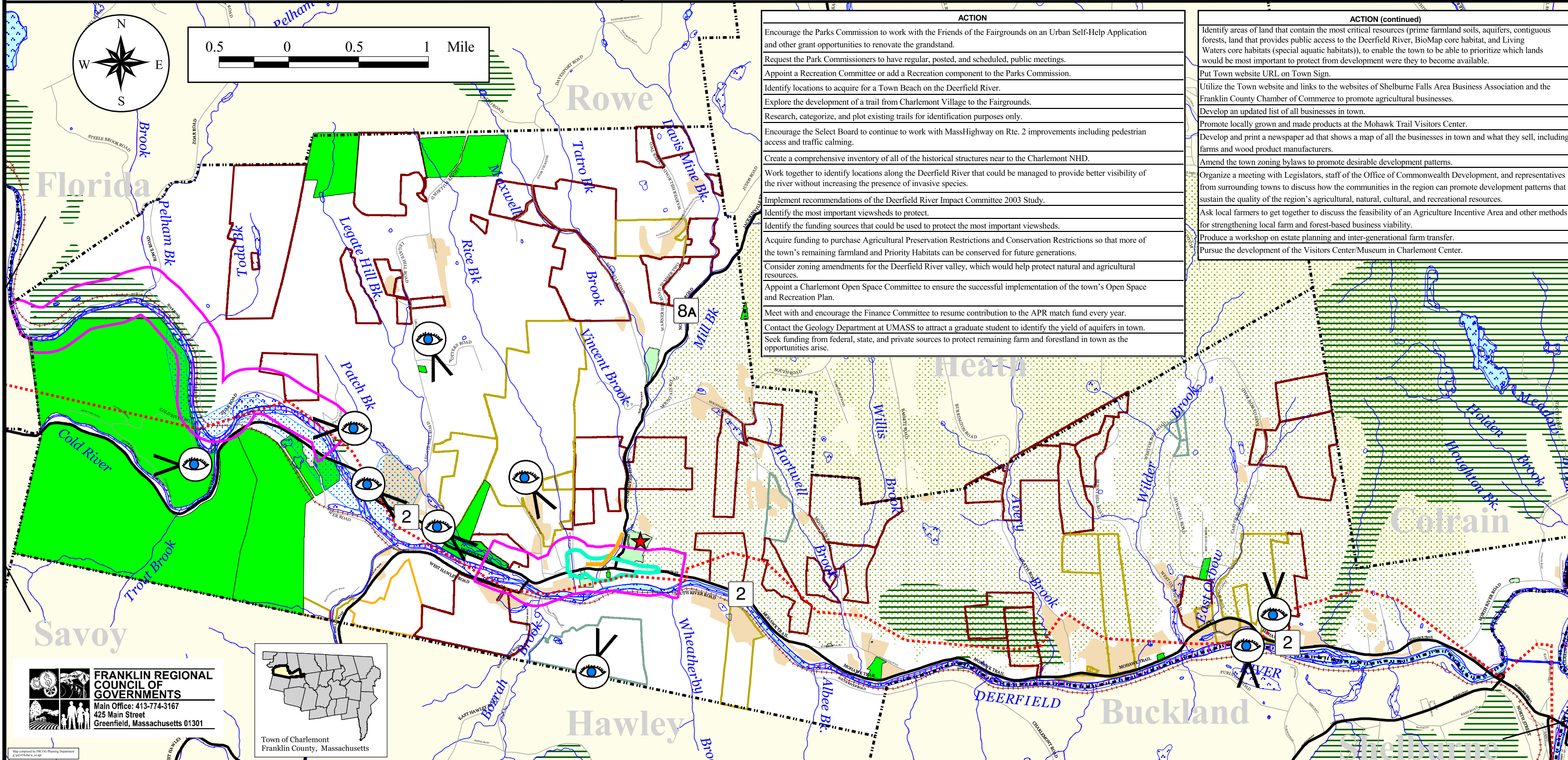
Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

April 30, 2004

Town of Charlemont

Open Space and Recreation Plan

Action Plan



ACTION
Encourage the Parks Commission to work with the Friends of the Fairgrounds on an Urban Self-Help Application and other grant opportunities to renovate the grandstand.
Request the Park Commissioners to have regular, posted, and scheduled, public meetings.
Appoint a Recreation Committee or add a Recreation component to the Parks Commission.
Identify locations to acquire for a Town Beach on the Deerfield River.
Explore the development of a trail from Charlemont Village to the Fairgrounds.
Research, categorize, and plot existing trails for identification purposes only.
Encourage the Select Board to continue to work with MassHighway on Rte. 2 improvements including pedestrian access and traffic calming.
Create a comprehensive inventory of all of the historical structures near to the Charlemont NHD.
Work together to identify locations along the Deerfield River that could be managed to provide better visibility of the river without increasing the presence of invasive species.
Implement recommendations of the Deerfield River Impact Committee 2003 Study.
Identify the most important viewsheds to protect.
Identify the funding sources that could be used to protect the most important viewsheds.
Acquire funding to purchase Agricultural Preservation Restrictions and Conservation Restrictions so that more of the town's remaining farmland and Priority Habitats can be conserved for future generations.
Consider zoning amendments for the Deerfield River valley, which would help protect natural and agricultural resources.
Appoint a Charlemont Open Space Committee to ensure the successful implementation of the town's Open Space and Recreation Plan.
Meet with and encourage the Finance Committee to resume contribution to the APR match fund every year.
Contact the Geology Department at UMASS to attract a graduate student to identify the yield of aquifers in town.
Seek funding from federal, state, and private sources to protect remaining farm and forestland in town as the opportunities arise.

ACTION (continued)
Identify areas of land that contain the most critical resources (prime farmland soils, aquifers, contiguous forests, land that provides public access to the Deerfield River, BioMap core habitat, and Living Waters core habitats (special aquatic habitats)), to enable the town to be able to prioritize which lands would be most important to protect from development were they to become available.
Put Town website URL on Town Sign.
Utilize the Town website and links to the websites of Shelburne Falls Area Business Association and the Franklin County Chamber of Commerce to promote agricultural businesses.
Develop an updated list of all businesses in town.
Promote locally grown and made products at the Mohawk Trail Visitors Center.
Develop and print a newspaper ad that shows a map of all the businesses in town and what they sell, including farms and wood product manufacturers.
Amend the town zoning bylaws to promote desirable development patterns.
Organize a meeting with Legislators, staff of the Office of Commonwealth Development, and representatives from surrounding towns to discuss how the communities in the region can promote development patterns that sustain the quality of the region's agricultural, natural, cultural, and recreational resources.
Ask local farmers to get together to discuss the feasibility of an Agriculture Incentive Area and other methods for strengthening local farm and forest-based business viability.
Produce a workshop on estate planning and inter-generational farm transfer.
Pursue the development of the Visitors Center/Museum in Charlemont Center.

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
 Main Office: 413-774-3167
 425 Main Street
 Greenfield, Massachusetts 01301

Town of Charlemont
 Franklin County, Massachusetts

SECTION 10

PUBLIC COMMENT

Public feedback was sought throughout the entire open space and recreation planning process. The text and maps included in the Plan reflect these enhancements. A more direct request for feedback on the Five-Year Action Plan was made at the public forum held March 25, 2004, which resulted in changes to the final drafts of the Five-Year Action Plan.

Copies of the final version of the Charlemont Open Space and Recreation Plan were also sent to the following boards and organizations for review and comment:

- Massachusetts Division of Conservation Services (DCS)
- Charlemont Board of Selectmen
- Charlemont Planning Board
- Charlemont Conservation Commission
- Franklin Land Trust

Letters of comment are inserted into the plan at the end of this section. The letters reflect a broad base of support for the research, analysis, outreach and recommendations developed by the Open Space and Recreation Planning Committee.

During the March 25, 2004 public forum, audience comments resulted in additions to the Five-Year Action Plan:

- Instead of appointing a Recreation Committee, it was decided that the Parks Commission would be expanded to a Parks and Recreation Commission and from a three-person body to a five-person body.
- The following objective was added-Pursue the protection of natural resources including prime farmland soils, active farms, and Priority Habitats within the Deerfield River valley.
- The following action steps were also added:
 - Appoint a Charlemont Open Space Committee to ensure the successful implementation of the town's Open Space and Recreation Plan.
 - Seek funding from federal, state, and private sources to protect remaining farm and forestland in town as the opportunities arise.

- Identify the funding sources that could be used to protect the most important viewsheds.
- Acquire funding to purchase Agricultural Preservation Restrictions and Conservation Restrictions so that more of the town's remaining farmland and Priority Habitats can be conserved for future generations.
- Consider zoning amendments for the Deerfield River valley, which would help protect natural and agricultural resources.
- Develop an updated list of all businesses in town.
- Organize a meeting with Legislators, staff of the Office of Commonwealth Development, and representatives from surrounding towns to discuss how the communities in the region can promote development patterns that sustain the quality of the region's agricultural, natural, cultural, and recreational resources.

SECTION 11

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Table A-1: Historic Structures and Sites in Charlemont

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
901	Burrington Rd.	Old Oak Tree Monument		1893	
919	Burrington Rd.	Kinney Lower Bridge	Burrington Road Bridge over Hartwell Brook	1920	
314	Davis Mine Rd.			1850	Federal
315	Davis Mine Rd.			1850	Not researched
316	Davis Mine Rd.	Porter, Levi M. House		1743	Greek Revival
917	Deerfield River	Development #4 Hydroelectric Station Gravity Dam		1912	
918	Harris Mountain Rd.	Mill Bridge - Meekins Bridge	Harris Mountain Road Bridge over Mill Brook	1939	
15	High St.	Richards, J. N. House		1825	Federal
27	High St.	Mayhew, Charles House		1840	Greek Revival
28	High St.	Warner, C. House		1850	Greek Revival
28	High St.	Warner, C. House		1850	Victorian Eclectic
50	High St.	Mayhew, George House		1835	Federal
50	High St.	Mayhew, George House		1835	Greek Revival
57	High St.	Ballard, J. - Edwards, L. H. and P. O. House		1830	No style
320	High St.	Rice, L. House		1860	Greek Revival
321	High St.		Blacksmith Shop	1850	Not researched
322	High St.	Todd, D. House		1830	Federal
322	High St.	Todd, D. House		1830	Greek Revival
325	High St.			1870	Italianate
325	High St.			1870	Queen Anne
326	High St.	Whitman, J. and C. P. House		1835	Greek Revival
914	High St.				
1	Main St.	Cooley Place	Goodnow, E. R. E. Farm	1900	Federal
2	Main St.	Sears, J. D. House		1850	Greek Revival
2	Main St.	Sears, J. D. House		1850	Victorian Eclectic
3	Main St.	Saint Christopher's Baptist Church		1803	Greek Revival
4	Main St.	Congregational Church Parsonage		1845	Greek Revival
5	Main St.	Charlemont Congregational Church	Charlemont Federated Church	1845	Greek Revival
6	Main St.	Marcy, A. H. Tin Shop		1840	Greek Revival
7	Main St.	Tyler, Ansel L. House		1820	Federal
8	Main St.	Edward, R. R. House		1845	Greek Revival
9	Main St.				Greek Revival

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
10	Main St.	Village Schoolhouse		1845	Greek Revival
11	Main St.	Wells Corner Country Store	Tyler, A. J. Store	1845	Greek Revival
12	Main St.			1845	Greek Revival
13	Main St.	Tyler's Store and Post Office		1840	Greek Revival
14	Main St.	Goodnow Hall	Charlemont Town Hall	1892	Richardsonian Romanesque
16	Main St.	Niles, W. E. and Rogers, C. Shoe Shop		1840	No style
16	Main St.	Niles, W. E. and Rogers, C. Shoe Shop		1840	Victorian Eclectic
17	Main St.			1879	Greek Revival
17	Main St.			1879	Colonial Revival
18	Main St.			1860	Greek Revival
19	Main St.	Avery, A. L. and Sons General Store		1855	Greek Revival
20	Main St.			1825	No style
21	Main St.	Pond, F. A. Block	Post Office Block	1850	Italianate
21	Main St.	Pond, F. A. Block	Post Office Block	1850	Federal
22	Main St.	Boot Mart		1850	Greek Revival
23	Main St.			1840	Greek Revival
23	Main St.			1840	Italianate
24	Main St.	Bemis Block		1890	Victorian Eclectic
24	Main St.	Bemis Block		1890	Italianate
25	Main St.	Charlemont Elementary School		1907	Greek Revival
26	Main St.	Charlemont Odd Fellows Hall		1901	Victorian Eclectic
29	Main St.	Charlemont Stage House - Charlemont Inn		1787	Federal
30	Main St.	Rice, Charles H. Boarding House	Village Cafe	1790	No style
30	Main St.	Rice, Charles H. Boarding House	Village Cafe	1790	Greek Revival
31	Main St.	Harris, A. House		1840	No style
31	Main St.	Harris, A. House		1840	Greek Revival
33	Main St.				No style
33	Main St.				Victorian Eclectic
34	Main St.			1870	Victorian Eclectic
35	Main St.				No style
35	Main St.				Victorian Eclectic
36	Main St.	Rice, Moses - Warner, Charles Didley House	Buttonball House	1742	Colonial

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
36	Main St.	Rice, Moses - Warner, Charles Didley House	Buttonball House	1742	Federal
37	Main St.				No style
38	Main St.				Greek Revival
38	Main St.				No style
39	Main St.			1830	Federal
40	Main St.				No style
41	Main St.				No style
41	Main St.				Colonial Revival
42	Main St.				No style
42	Main St.				Federal
43	Main St.			1800	Federal
43	Main St.			1800	Greek Revival
44	Main St.			1830	Greek Revival
45	Main St.	Charlemont Unitarian Church	Charlemont Methodist Church	1840	Greek Revival
46	Main St.	Bakers Grain Depot		1930	No style
49	Main St.	Warner, N. G. House		1790	Federal
51	Main St.			1890	No style
51	Main St.			1890	Victorian Eclectic
52	Main St.			1880	Stick Style
52	Main St.			1880	Queen Anne
53	Main St.			1880	Queen Anne
54	Main St.			1858	No style
56	Main St.	Peck, Charles House		1845	No style
56	Main St.	Peck, Charles House		1845	Colonial
305	Main St.			1890	Stick Style
305	Main St.			1890	Queen Anne
306	Main St.			1890	Stick Style
306	Main St.			1890	Queen Anne
307	Main St.			1890	Stick Style
307	Main St.			1890	Queen Anne
308	Main St.			1880	Queen Anne
308	Main St.			1880	Shingle Style
309	Main St.			1870	Greek Revival
310	Main St.			1860	Greek Revival
311	Main St.			1890	Queen Anne
312	Main St.	Hunt, W. House		1850	Greek Revival
313	Main St.	Sears, P. House		1860	Greek Revival
317	Main St.	Mansfield, B. P. House		1840	Greek Revival
318	Main St.	Kwik Mart		1975	Not researched
319	Main St.			1880	Greek Revival
323	Main St.	Bates, S. House		1840	Greek Revival

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
324	Main St.	Mayhew, H. H. House		1820	Greek Revival
333	Main St.			1880	Victorian Eclectic
333	Main St.			1880	Not researched
803	Main St.	Village Cemetery		1797	
903	Main St.	Charlemont Settlement Marker			
905	Main St.	War Memorial Monument			
906	Main St.	Rice, Moses Monument and Grave Site		1871	
915	Maxwell Rd.	Maxwell Road Bridge over Maxwell Brook	Bridge #12	1939	
101	Rte.2/Mohawk Trail				No style
102	Rte.2/Mohawk Trail				No style
103	Rte.2/Mohawk Trail			1800	Federal
104	Rte.2/Mohawk Trail			1800	Federal
105	Rte.2/Mohawk Trail			1800	No style
106	Rte.2/Mohawk Trail				No style
108	Rte.2/Mohawk Trail				No style
109	Rte.2/Mohawk Trail				No style
109	Rte.2/Mohawk Trail				Greek Revival
110	Rte.2/Mohawk Trail				Federal
111	Rte.2/Mohawk Trail				No style
112	Rte.2/Mohawk Trail	Wilcox Motel			Greek Revival
201	Rte.2/Mohawk Trail				Greek Revival
201	Rte.2/Mohawk Trail				No style
202	Rte.2/Mohawk Trail			1800	Federal
203	Rte.2/Mohawk Trail			1830	Federal
204	Rte.2/Mohawk Trail	East Charlemont Bible Church and School			Greek Revival
204	Rte.2/Mohawk Trail	East Charlemont Bible Church and School			Not researched

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
205	Rte.2/Mohawk Trail			1830	Federal
206	Rte.2/Mohawk Trail			1830	Greek Revival
206	Rte.2/Mohawk Trail			1830	Federal
207	Rte.2/Mohawk Trail	East Charlemont District School			No style
208	Rte.2/Mohawk Trail	Adams, Gen. Hap House		1780	Colonial
209	Rte.2/Mohawk Trail				No style
210	Rte.2/Mohawk Trail				No style
210	Rte.2/Mohawk Trail				Federal
211	Rte.2/Mohawk Trail				Italianate
211	Rte.2/Mohawk Trail				No style
212	Rte.2/Mohawk Trail			1830	Federal
213	Rte.2/Mohawk Trail			1870	Victorian Eclectic
213	Rte.2/Mohawk Trail			1870	Italianate
214	Rte.2/Mohawk Trail			1830	Federal
801	Rte.2/Mohawk Trail	Leavitt Cemetery			
902	Rte.2/Mohawk Trail	Hall Tavern Marker			
904	Rte.2/Mohawk Trail	Taylor Fort Marker			
107	Mountain Branch Rd.	Charlemont Center Schoolhouse			No style
47	North Heath Rd.	Bishop, E. L. - Porter, Levi M. House		1743	Colonial
47	North Heath Rd.	Bishop, E. L. - Porter, Levi M. House		1743	Greek Revival
907	North Heath Rd.	Bissell Covered Bridge	North Heath Road Covered Bridge	1951	
912	North River Rd.	Four Mile Square Bridge	North River Road Bridge	1937	
32	Rice Rd.	Rice, Samuel House		1752	No style
32	Rice Rd.	Rice, Samuel House		1752	Greek Revival
48	Rice Rd.	Snath Wooden Handle Factory	Charlemont Redman's Hall	1840	No style

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
331	Rice Rd.	Rice, H. A. House		1820	Federal
332	Rice Rd.			1880	Not researched
327	Riddell St.			1870	Victorian Eclectic
328	Riddell St.			1880	Not researched
329	Riddell St.			1870	Not researched
330	Riddell St.			1870	Victorian Eclectic
909	River Rd.	Florida Bridge	River Road Bridge	1886	
911	Rte.2/Mohawk Trail	Route 2 Bridge		1931	
913	Rte.2/Mohawk Trail	Route 2 Bridge		1954	
304	Rowe Rd.			1870	Victorian Eclectic
304	Rowe Rd.			1870	Stick Style
342	Rte.2/Mohawk Trail	Development #4 Power Facility - Cable Way House		1913	No style
343	Rte.2/Mohawk Trail	Development #4 Power Facility - Headgate House		1913	No style
344	Rte.2/Mohawk Trail	Development #4 Power Facility - Watchman's Shed	Development #4 Power Facility - Warming Hut	1914	No style
910	Rte.2/Mohawk Trail	Mohawk Trail		1700	
916	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Campground Stone Steps	Mohawk Trail State Forest - Spring Enclosure	1933	
334	Rte.2/Mohawk Trail	Mohawk Trail State Forest - CCC Administration Bld	Mohawk Trail State Forest - Nature Center	1936	Not researched
335	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Rental Cabin #1		1934	Not researched
336	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Rental Cabin #2		1934	Not researched
337	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Rental Cabin #3		1934	Not researched
338	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Rental Cabin #4		1934	Not researched
339	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Rental Cabin #5		1990	Not researched
340	Rte.2/Mohawk Trail	Mohawk Trail State Forest - Comfort Station		1990	Not researched
341	Rte. 8A North	Memorial Park Exhibition Hall	Charlemont Fairgrounds Exhibition Hall	1872	No style
908	Rte 8A North	Charlemont Fairground - Memorial Park Grandstand		1871	

MHC Inventory #	Street Name	Historic Name	Common Name	Year	Style
800	South Heath Rd.	Colonial Burial Ground, Old		1760	
301	Zoar Rd.			1800	Federal
302	Zoar Rd.				No style
303	Zoar Rd.			1850	Greek Revival
303	Zoar Rd.			1850	No style
802	Zoar Rd.				
900	Zoar-Rowe Rd.	Zoar - Rowe Road Bridge over Pelham Brook		1939	
A		Charlemont Center District			
B		Charlemont Center Village			
C		East Charlemont			
D		Charlemont Village Historic District			
E		Mohawk Trail State Forest - Campground			
F		Mohawk Trail			
G		Deerfield River Hydroelectric Development #4			

Source: Mass. Historical Commission, 2002.

APPENDIX B: Americans with Disabilities Act (ADA) Access Self-Evaluation

One of the requirements of a state-approved Open Space and Recreation Plan is an ADA Access Self-Evaluation. The ADA Self-Evaluation describes how accessible a community's conservation and recreation programs and facilities are to people with disabilities. Its purpose is to highlight what still needs to be accomplished so that more people can enjoy the parks and recreation programs offered by the town.

The following pages include all the necessary components of the Evaluation. Three areas need to be evaluated based on the ADA Access requirements: Administrative Requirements, Program Accessibility (includes the Facility Inventory and Transition Plan), and Employment Practices.

Part One of the Evaluation includes the following Administrative Requirements:

- Designation of an ADA Coordinator
- Grievance Procedures- The Town of Charlemont Section 504 Grievance Procedure.
- The Public Notification Requirements.
- Participation of Individuals with Disabilities or Organizations Representing the Disabled Community- See the Transition Plan.

Part Two of the Evaluation focuses on Program Accessibility and includes:

- A Transition Plan for two properties in Charlemont (Hawlemont School sports field and the Charlemont Fairgrounds).

Part Three of the Evaluation is Employment Practices and includes:

- A copy of a letter from the town's ADA Coordinator attesting that Charlemont is in compliance with the Americans with Disabilities Act.
- A description of fair compensation policy.
- The Town of Charlemont Sharing Handicapped Regulations.
- Charlemont's Affirmative Action Policy Non-Discrimination Against the Handicapped.