TOWN OF BUCKLAND
2010 OPEN SPACE AND RECREATION PLAN

Prepared by:

BUCKLAND OPEN SPACE AND RECREATION COMMITTEE

AND

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
PLANNING DEPARTMENT

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SECTION 1

PLAN SUMMARY

The 2010 Buckland Open Space and Recreation Plan (the Plan) is one representation of the interest, enthusiasm and motivation of the Town's residents to proactively plan for the future of their community; a future that respects the value of contiguous tracts of forestland and other wildlife habitat, farmland, scenic views, water resources, historic structures and landscapes, and recreational resources. The Plan is a comprehensive inventory of the town's natural, agricultural, cultural and recreational resources as well as a blueprint for their stewardship and conservation. The Plan contains an analysis of the town's open space and recreation needs, and goals and objectives which will help guide future decisions about the use, conservation and development of the town's land and resources. A 7-Year Action Plan details real steps that the town can take towards achieving these goals.

Buckland's myriad natural resources are on display beautifully in this autumn scene.

The Plan emphasizes Buckland's abundance of resources, including:

- Prime farmland soils and active farms;
- Large blocks of contiguous forest;
- Buckland State Forest;
- BioMap Core Habitats and Priority Habitats for rare species;
- A large number of historic structures and sites;
- The Buckland Recreation Area; and
- A number of scenic and historic landscapes.

These resources provide Buckland residents with many benefits, including clean air and water, jobs, and access to recreational opportunities. Buckland'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.

The Deerfield River bisects the Village of Shelburne Falls, with Buckland lying to the west.

Buckland is fortunate in that a significant amount of agricultural land and forest in town is enrolled in the Chapter 61, 61A, or 61B programs in which private property owners continue to maintain their land in farms and forest and practice good stewardship. These properties are, however, under temporary protection. Thousands of acres of farm and forestlands remain highly vulnerable to development and permanent conservation through programs such as Agricultural Preservation Restrictions or Conservation Restrictions are the only sure way to guarantee the preservation of land. Conservation of priority lands will require increased public awareness of their value and a concerted, cooperative effort on behalf of landowners, elected officials, municipal boards and area land trusts.

The Seven-Year Action Plan gives concrete substance to the goals and objectives, which were developed from the results of the Open Space and Recreation Survey and from community members' understanding of their town's vast yet vulnerable natural resource base.

SECTION 2

INTRODUCTION

The Buckland Open Space and Recreation Plan (OSRP) was developed with funding afforded under a Direct Local Technical Assistance Grant provided by the Massachusetts Department of Housing and Community Development. The Franklin Regional Council of Governments (FRCOG) Planning Department worked closely with the members of the Buckland Open Space and Recreation Committee comprised of town residents to prepare this update.

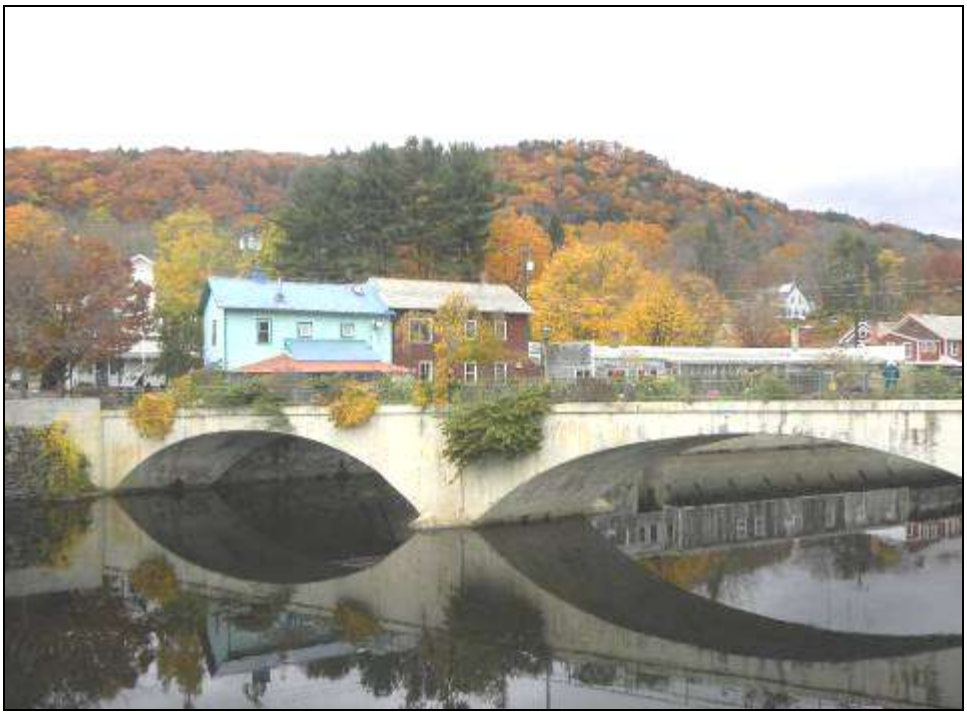
A. STATEMENT OF PURPOSE

The purpose of this Open Space and Recreation 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 Buckland. This Plan represents months of consensus building on the most important community and natural resource needs in town and on the best solutions for addressing them. The 7-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

An Open Space and Recreation Survey was developed and reviewed by the Buckland Open Space and Recreation Committee (the Committee). The survey was posted online with paper copies available at the Town Hall and the Library. Survey results of the 70 respondents were compiled into a report (see Appendix C) and presented for review at a meeting of the Committee. A draft of Section 8 – Goals and Objectives was prepared using information obtained from the survey as well as from a brainstorming session of the Committee.

Including the Public Input Session, held on October 21, 2010 and the Public Forum, held on November 17, 2010, there have been six (6) public meetings of the Buckland Open Space and Recreation Committee. The Public Input Session was held in the same evening as a Town Meeting, drawing nearly fifty residents, many of whom viewed and commented upon drafts of the OSRP maps and Goals and Objectives. The Public Forum attracted an enthusiastic group of about 15 residents and, during and after and Powerpoint presentation give by members of the Committee and FRCOG staff, they offered ideas and opinions, particularly on the Goals, Objectives and Action items. An additional three-week public comment period was held after the Public Forum, during which time copies of the OSRP and maps were available for review and comment at the Town Hall.



The 80-year-old Bridge of Flowers, a volunteer-maintained garden, provides an appealing pathway from Buckland to Shelburne.

Comments expressed at the Public Forum were recorded 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 Buckland Open Space and Recreation Plan.

Committee members representing the public with one resident volunteer and different town boards and commissions included:

- Select Board,
- Planning Board,
- Conservation Commission, and the
- Recreation Committee.

SECTION 3

COMMUNITY SETTING

The Town of Buckland contains rural landscapes that have been established, developed, and formed by its human inhabitants over the past few hundred years. Planning for open space in Buckland must consider the complex relationships between people and the open spaces and natural resources upon which they depend. If growth continues without consideration for the natural systems that need to be protected, such as drinking water supplies, the quality of life for future generations will be diminished.

The Deerfield River, one of Buckland's key natural resources, flows against a backdrop of Buckland's wooded hills.

The information provided in this section, Community Setting, inventories and assesses the human and land use components of the landscape, moving from the present, to the past, and then to the potential future based on current development trends. The Regional Context presents an overview of Buckland today, and identifies the ways in which the location of the town within the region has affected its growth and quality of open space and recreational resources. The History of the Community looks at the manner in which the human inhabitants settled and developed the landscapes in Buckland. Next, using statistical information and analysis, Population Characteristics reveals who the people of Buckland are today and how population and economic trends may affect the town in the future. Finally, Growth and Development Patterns describes specifically how the Town of Buckland has developed over time and the potential impacts current zoning may have on open space, drinking water supplies, and municipal services.

A. REGIONAL CONTEXT

Regional Context concentrates on the location of the Town of Buckland relative to natural and socio-economic resources as well as conditions shared by communities in the region. It describes the significant influence a town's physical location can have on its characteristics, including the quality and quantity of open space in the town as well as its recreational resources. Regional Context also considers the impact that different land uses have on regional open space and recreational resources, both within Buckland and in surrounding communities.

The Town of Buckland is located in northwestern Massachusetts, in western Franklin County. Buckland is bordered by Charlemont on the north; Shelburne on the northeast; Conway on the southeast, Ashfield on the south; and Hawley on the west. See the Regional Context map at the end of this section.

A.1 Natural Resources Context

In order to plan for the protection of open space and natural resources in the Town of Buckland, residents should consider the role natural resources play across the region. There are two important regional landscape-level natural resource contexts which are important in both Buckland and in surrounding communities: abundant and contiguous forestland, and watersheds (the Deerfield River Watershed). 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 renewable natural resources in the Town of Buckland and the region. While approximately 81 percent (10,286 acres) of the town's lands are forested,[1] much of that land is privately owned. Less than 3% of Buckland's forestland (approximately 316 acres) is owned and protected by the Commonwealth of Massachusetts. These forestlands include two Buckland State Forest parcels (92 acres and 103 acres), the 44-acre Kenneth Dubuque Memorial State Forest, and the Catamount State Forest, comprised of 79 acres. These state forestlands are overseen by the Department of Conservation and Recreation.

The Massachusetts Natural Heritage and Endangered Species Program's (NHESP) BioMap uses Estimated Habitats and other documentation to identify the areas most in need of protection in order to protect the native biodiversity of the Commonwealth. The BioMap focuses primarily on state-listed rare species and exemplary natural communities and was developed to promote strategic land protection of areas which would provide suitable habitat over the long term for the maximum number of Massachusetts's terrestrial and wetland plant and animal species and natural communities. The BioMap shows areas designated as Core Habitats and Supporting Natural Landscapes (SNL). The Core Habitat areas include the most viable habitat for rare plants and rare animals and exemplary natural communities. The Supporting Natural Landscapes include buffer areas around the Core Habitats, large undeveloped patches of vegetation, large "roadless" areas, and undeveloped watersheds. The Core Habitat areas were

[1] 2010 MassGIS Land Use data.
[2] U.S. Census Bureau - Population Division, June 2010 Release.
[3] Calculated by dividing 2009 U.S. Census Population Estimates by the town's total square mileage derived from MassGIS 2005

identified, through field surveys, as supporting viable populations of rare plant and animal species while the Supporting Natural Landscape areas were determined through analyses using Geographic Information Systems (GIS) mapping programs.

Of the many large areas of contiguous forest in Buckland, four are considered by the NHESP BioMap to contain Supporting Natural Landscapes (SNL) that buffer or link lands to Core Habitat areas:

- Most of the eastern half of Buckland is included within a large section of BioMap Core Habitat. This area includes Clark Brook, Johnson Hill, Goodnow Hill, Moonshine Hill, and the Buckland State Forest. Clesson Brook also borders the western edge of this region. This core habitat is buffered on the southeast and southwest by surrounding forestlands. These Supporting Natural Landscapes extend southeastward across the Conway town line, and southward into Ashfield, encompassing Mary Lyon Hill.
- In the northern central region of town, a large SNL includes Walnut Hill and extends northward to the Deerfield River and a small BioMap Core Habitat area in the far northwest corner.
- Along the northeast town line with Charlemont, three small Core Habitat areas are linked and buffered by a SNL that encompasses the Deerfield River. This area extends from Depot Road eastward to the loop in the Deerfield River, adjacent to the aqueduct.
- Along the central eastern town line with Shelburne, two other small Core Habitat areas are linked by a forested SNL that follows the Deerfield River. This area extends from the Glacial Potholes southward to the Conway town line, and continues on into Conway and Shelburne.

One other region of Core Habitat is identified on the NHESP BioMap, although it is not adjacent to any reported Supporting Natural Landscapes in Buckland:

- The southwestern edge of town is part of a large Core Habitat that extends into Hawley and includes the Hawley State Forest.

It is important to note that the NHESP BioMap program has not inventoried or mapped a large portion of land in the western half of town, so the contiguous forest blocks in that area are not represented in this list. The rare species and priority habitat inventories are based on sightings and reports from local citizens, and as of September 2002, that area had not been studied. The NHESP recommends that Buckland focus on a biological inventory and study in this area, as well as land acquisition and protection.

The 13th edition of the NHESP Natural Heritage Atlas (effective October 1, 2008) displays the boundaries of Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife for the entire Town of Buckland. A Priority Habitat is an area where plant and animal species that are protected by the Massachusetts Endangered Species Act regulations may occur. Estimated Habitats are a sub-set of the Priority Habitats, and are based on the geographical extent of habitat of state-listed rare wetlands wildlife as codified under the Wetlands Protection Act, which does not protect plants. According to the 2008 Atlas, Priority Habitat areas occur in the forested area of Putnam Hill and a small forested area just south-east of Lone Tree Hill. Priority Habitat and

Estimated Habitat areas are also identified along the southern portion of Clesson Brook, the southern portion of Shepard Brook that runs along Clesson Brook Road, a small area in the south west corner of town, and the southern portion of the Deerfield River beginning in Shelburne Falls. Additionally, a certified vernal pool, a temporary body of water that provides critical habitat for many species, is located just east of the Mohawk Trail Regional High School (NHESP, 2008). See the Environmental Habitat Map at the end of this section.

Large blocks of contiguous forestland 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, areas of unfragmented forest are more suitable for active forest management.

A recently mowed Buckland farm field borders a block of contiguous forestland.

Large blocks of contiguous forestland are important for the preservation of water quality and quantity in Buckland. Forest soils have a high infiltration capacity, so they absorb moisture and permit very little surface runoff. The soil pores act like miniature reservoirs, storing water for later usage. 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. Brooks flowing through forests have a low turbidity, or cloudiness due to suspended sediments. Sediments in streams destroy fish habitat, reduce storage space in reservoirs, and cause increased treatment for water supplies. Forest trees also have a thermal impact on brooks. When trees are removed from stream banks, water temperatures rise. Warm water contains less oxygen than cool water, so cold water-dependent

aquatic species like trout are adversely affected. Maintaining contiguous forestland for all of Buckland's waterways is important, to protect water quality and wildlife habitat.

A.1.2 Watersheds

Watersheds are the areas of land that drain to a single point along a stream or river. The Town of Buckland is located within the southern portion of the Deerfield River Watershed. The Deerfield River Watershed encompasses all or part of twenty (20) western Massachusetts communities and sixteen (16) towns in Vermont. From Stratton Mountain in Vermont to the confluence with the Connecticut River in Greenfield, Massachusetts, the Deerfield River drains a regional landscape that is 665 square miles in size, of which 347 are in Massachusetts (Deerfield River Watershed Association (DRWA) website, 2010). The Deerfield's length is 70.2 miles, forty-four (44) 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 West Deerfield, a distance of 69.5 river miles. This feature has made the Deerfield River a magnet for hydroelectric power generation, with ten (10) 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 fish populations in addition to stocking juvenile salmon, as part of the Connecticut River restoration project.

Subwatersheds are smaller drainage areas within watersheds and contain first and second order stream tributaries. These 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. At least twenty-eight first order streams originate in Buckland, most of them flowing into second or third order streams within the town limits. The protection of forestland results in the long-term maintenance and integrity of wildlife habitats and water quality within the subwatershed's surface and ground waters.

The Clesson Brook Subwatershed is a major tributary of the Deerfield River and defines the principal north-south valley in central Buckland. Located within the two towns of Hawley and Buckland, it has a drainage area of 21.2 square miles and is comprised of numerous small streams, many of which originate in the uplands of eastern Hawley, as well as western Buckland. The headwaters of Clesson Brook originate at an unnamed pond in eastern Hawley and then flow through Cox Pond. From the outlet of Cox Pond, the brook flows toward the east through steep terrain as it enters Buckland. Cooley Brook and Ruddock Brook contribute their waters to the Clesson at this point. The brook then winds around Drake Hill and flows southeast until it reaches Buckland Four Corners. From there, the Clesson flows northeast with a gentler gradient and the floodplain widens to allow farming. The brook runs parallel with Route 112 until it reaches a small unnamed impoundment where it joins Clark Brook. Clesson Brook then flows a short distance to its confluence with the Deerfield River in Buckland. The Clesson is considered to be a Class B, cold-water fishery, with a high quality water designation (Massachusetts Department of Environmental Protection (DEP), 2000).

The Clark Brook Subwatershed is located in the eastern half of Buckland. Clark Brook originates in southern Buckland in a steep narrow valley between Mary Lyon Hill and Moonshine Hill and flows north toward the Deerfield River. The brook parallels East Buckland

Road until it flows beneath Route 112 and joins Clesson Brook in a small, unnamed pond. The Clark Brook is also considered to be a Class B, cold-water fishery, with a high quality water designation (DEP 2000).

Natural resources such as water and wildlife populations do not follow political boundaries, and therefore require a regional approach to conservation. Maintaining forest continuity and the purity of watersheds are beyond the control of any one community. Towns need to work together to protect land, plan growth, and monitor and participate in the cleanup of brooks and rivers. Buckland should work with surrounding towns to promote the conservation of regionally important natural resources, whether they occur in town or not. To that end, the Objective in Section 8 that aims to promote partnerships and collaboration between town boards and commissions, land owners and regional organizations to implement OSRP Objectives, addresses this need to reach across town and political boundaries.

A.2 Socio-Economic Context

Agriculture, manufacturing, and waterpower have all had an influence on the development and growth of the Town of Buckland as a small rural industrial hill town. Like many communities along the major waterways in the region, Buckland experienced economic decline after its manufacturing heyday, but has seen somewhat of a revival as Shelburne Falls has become a tourist destination in recent years. As will be described in the next section, Buckland's manufacturing centers developed due to the harnessing of hydropower of the Deerfield River. However, manufacturing declined across the region during the latter half of the 20th Century.

Agriculture has also played a prominent role in the Town of Buckland throughout its history. During the late 1880s and early 1900s, Buckland ranked first in Franklin County in the production of cheese and second in the production of butter. Dairy farming was an important agricultural enterprise. Due to the suitable soils and climate, apple orchards were also planted and became an agricultural crop.

Between 2000 and 2009, the Town of Buckland's population declined slightly with an estimated 2009 population of 1989 residents. The loss of manufacturing jobs in Buckland over the last few decades is consistent with a statewide trend towards longer commuter travel times as fewer residents find work in their town of residence. At the same time, income levels among residents are running above the average for Franklin County. Buckland residents have likely overcome the loss of in-town employment by finding work elsewhere.

Like many of the communities on the western and eastern edges of Franklin County, there has not been the same level of pressure to develop the open spaces of Buckland for residential development, compared to communities along the Interstate 91 corridor. With property values just slightly higher than the neighboring towns of Charlemont and Colrain, (The Warren Group, 2010), Buckland's location has helped to discourage a building boom in the past. The Buckland population growth rate remained one of the lowest in the county from 1970 to 2000 (5.2 percent). Census estimates show a .1% decline in population from 2000 to 2009.[2] Currently, due to the local economy and lower property values relative to other areas to the south and east in Franklin

[2] U.S. Census Bureau - Population Division, June 2010 Release.

and Hampshire County, development rights may be purchased at much lower rates than would be possible if the Town were to wait for the need for land protection to become more apparent.

Other socio-economic patterns are a reflection of Buckland's recent growth patterns. Forty-two building permits were issued in the years between 2002 and 2009 for new residences. While the population has held steady in town in recent years, tax rates have continued to rise, which is to be expected, as Buckland does not have enough of an industrial or commercial base to offset residential taxes. This rise in taxes is consistent with trends within the state. However, because Buckland's residential properties are assessed at a lower rate than in many other communities, Buckland residents actually pay less in taxes than many other towns. Buckland's average single-family tax bill for 2010 ($3,012) was slightly less than the average tax bill for Franklin County ($3,081).

A.3 Regional Strategies for Protection of Open Space, Natural and Recreational Resources

A variety of state and regional studies have been done which can help the Town of Buckland further identify local recreation and land protection priorities. The Commonwealth has completed The Statewide Comprehensive Outdoor Recreation Plan (SCORP), *Massachusetts Outdoors 2006*, an update of the SCORP 2000, five-year plan. SCORP plans are developed by individual states to be eligible for federal Land and Water Conservation Fund (LWCF) grants and serve as a tool for states to use in planning for future needs and uses of outdoor resources for public recreation and relaxation.

The SCORP provides information about use of and demand for outdoor recreational resources in the Connecticut River Valley region that may be relevant to Buckland's open space and recreational planning efforts. When assessing resource use in this region, the SCORP notes that rivers and streams, historic and cultural sites, lakes and ponds, forests, coastal beaches and shorelines, and mountains, all have 40% participation rates or greater. When reporting on satisfaction levels of users of resources in this region, residents report being most satisfied with historic and cultural sites, mountains, and trails and greenways resources. Somewhat lower than statewide levels of satisfaction were reported in this region for rivers and streams, and lakes and ponds. Rivers and streams were the area where Connecticut Valley Region residents who use these facilities were least satisfied overall. When considering new recreational projects, the Town may want to consider the following response from regional residents about future needs and interest from the SCORP:

> *"In contrast to demand (or present use patterns), respondents in this region place the highest priority for new facilities on road biking (14.5%), walking (13.9%), swimming (13.8%), playground (11.3%), hiking (10.0%), and mountain biking (10.3%)".*

The Mohawk Trail Scenic Byway is one of four State designated scenic byways in Franklin County, and was one of the earliest scenic byways in New England receiving its designation in 1953. The Byway travels on Route 2 through Berkshire, Franklin and Worcester counties. In Franklin County, the Byway travels through the towns of Charlemont, Buckland, Shelburne, Greenfield, Gill, Erving, and Orange. The Franklin Regional Council of Governments (FRCOG) completed a corridor management plan in 2002 for the western section of the Mohawk Trail

Scenic Byway from Williamstown to Greenfield. This plan includes an inventory of the historic, cultural and natural resources; a scenic landscape assessment; an inventory of the heritage and recreational attractions; an evaluation of the existing land use regulations and resource protection measures for the towns along the byway; and a list of recommended future actions that are intended to balance future growth with the preservation of the Byway's resources. Projects along the byway are eligible for funding from the National Scenic Byway Program.


The Route 112 Scenic Byway offers scenic views of farmland and woodland.

In 2009 the FRCOG and the Pioneer Valley Planning Commission (PVPC) completed a Corridor Management Plan for the Route 112 Scenic Byway, which was designated in 2004. The study area includes a one-half-mile buffer strip along each side of the road within the towns of Colrain, Shelburne, Buckland, Ashfield, Goshen, Cummington, Worthington and Huntington. The overall purpose of the project is to recognize, interpret, preserve, and promote the unique scenic, cultural, archeological, natural, and recreational resources in the Byway corridor. The completion of the Corridor Management Plan makes the towns and willing landowners along the byway eligible for funding from the National Scenic Byway Program for projects recommended in the plan that are consistent with local priorities.

Envisioned as a 100-mile long trail from the Connecticut River to the Hudson River, the Mahican-Mohawk trail currently includes the towns of Deerfield, Buckland, Shelburne Falls, and Charlemont with future plans seeing the trail reaching Vermont and New York. The trail follows the corridor of an historic Native American path and is a significant link for Massachusetts. It preserves an important historic trail and connects scenic landscapes. Today, approximately 34 miles of the trail are open and designated in Massachusetts as woodland trail, on-road segments, and water trail on the Deerfield River in Buckland. The Mahican-Mohawk Trail helps delineate important scenic and historic resources for the Town of Buckland and neighboring towns.

B. HISTORY OF THE COMMUNITY

Buckland's local history is revealed through its wealth of historic structures and landscapes. The town's heritage can be seen by traveling over the many scenic roads that connect homes to farms, to old-field forests, and village centers. A visitor to Buckland could view approximately 170 historic structures and two notable historical and cultural landscapes. This preservation of the community's historic and scenic resources is one of the reasons people choose to live in Buckland.

Over 90 percent of respondents to the 2010 Buckland Open Space and Recreation Survey felt it was very important to preserve Buckland's rural, small town character, and 70 percent felt it was very important to preserve Buckland's historic structures and cemeteries. The latter figure is up from 50 percent in 2004. Buckland contains significant examples of period architecture and settlement and farming patterns from as early as the 1760s. Residents understand the connection between community character and the protection of historic resources, including structures and landscapes.

The Village of Shelburne Falls is an unincorporated village that straddles the Deerfield River between the towns of Buckland and Shelburne. Shelburne Falls is a hub of activity and serves as the industrial, commercial and village residential center of Buckland. Shelburne Falls is especially notable, according to the Massachusetts Historical Commission (MHC), because many of the original commercial blocks and residential neighborhoods are intact. These historical and cultural resources are symbols representing various stages of population growth linked to agriculture and industrial development, which occurred over the past three hundred years. The information in the following sections was obtained from the Massachusetts Historical Commission's 1982 *Reconnaissance Survey Report for Buckland* and the *Buckland-Shelburne Master Plan* (1999).

B.1 Historic Context

Contact Period (1500 and 1620) and Plantation Period (1620-1675)

Although there are no documented existing native-period sites in Buckland, Shelburne Falls was very productive for shad and salmon fishing and was most likely used as a resource area by the Deerfield Pocumtucks, especially during spring spawning runs. Buckland is on the Mahican-Mohawk Trail, the highland corridor running alongside the Deerfield River from the Connecticut River Valley to the Hudson River Valley in New York. Some native horticulture is reported to have existed on the Deerfield River floodplain near Depot Road and along the Clesson Brook floodplain near route 112, as well as hunting. Development of the English market for furs and skins probably encouraged the trapping of animals by Native Americans. Buckland appears to have been an important fishing and hunting site for the Pocumtucks.

Colonial Period (1675 – 1775)

Native American use of the area for fishing and hunting continued until the French and Indian Wars ca. 1755. The historic community was originally included as part of Boston Plantation Number One (Charlemont). Because Anglo-Indian warfare remained a threat until fighting terminated, Buckland remained unoccupied except for sporadic settlement until 1769, when Capt. Nahum Wood established a home on Clesson Brook Road. Between 1769 and 1775, the

MHC estimates that there may have been 10 families living in Buckland. Surviving residential structures built during this time period were homes with center chimney plans, and included the Samuel Taylor (1770), Nathaniel Coleman (1774), and Wilder (1775) houses. The Colonial residents focused on agriculture and livestock production for their sustenance, with added hunting and fishing, particularly along the Deerfield floodplain. The town's first saw and gristmills also appeared, along Clesson Brook and Ruddock Brook. Given the lack of industry in Buckland at the time, Deerfield was probably the primary commercial resource area.

Federal Period (1775 – 1830)

The town was established as a separate district and incorporated as a town in 1779. During this time period, sawmills and gristmills took advantage of waterpower in town, but agriculture was still the primary commercial activity. An economic focus developed in Shelburne Falls after a covered bridge was built over the Deerfield River in 1821. Buckland's population increased by 45 percent between 1790 and 1830, with the majority of that growth occurring in the 1790's. Federal style houses were built in Buckland Center, at Buckland Four Corners, and on Ashfield and Conway Streets. There were also many institutional buildings constructed during this period. The survivors include the Grange Hall and a school at Four Corners (1829). Finally, two of the four taverns that were operating from that time period have survived. They are the Zenas Graham Tavern (1797) and the Freighters Inn (1827).

The Mary Lyon Church and the Grange Hall sit atop a hill on Upper Street in Buckland.

Early Industrial Period (1830 – 1870)

The Buckland population remained almost unchanged during this time period. It took the expansion of the Lamson & Goodnow Company in 1851 for the settlement patterns to shift. The prosperity of Lamson &Goodnow, which had approximately 250 employees, established the village of Shelburne Falls on both sides of the Deerfield River. The company dominated the manufacturing economy of Buckland and a good portion of western Franklin County, a position

it retained for many years. Small woodworking shops and cheese and butter producers also helped to make Buckland prosperous. In 1855, Buckland was the leading cheese producer in the county. Most residential construction during this time period occurred in the Shelburne Falls section of the town and at Buckland Four Corners with Greek and Gothic Revival cottages. Institutional buildings built during this period include the Shelburne Falls Methodist (1842), Second Methodist (1850), and Saint Joseph's (1858) churches. Most of Buckland's commercial buildings of the time were located in Shelburne Falls and fell victim to fire in 1836. Lastly, the industrial buildings during this period were the Townsley Cobbler Shop, the Newton Griswold sash and blind factory (1836), the Hubbard and Hitchcock Clock Shop (1836), and the Lamson and Goodnow Cutlery Factory (1851–1870).

Late Industrial Period (1870 – 1915)
Lamson & Goodnow Cutlery remained the dominant economic factor in Buckland and Shelburne Falls. This era also saw the construction of the Victorian iron truss bridge in 1896 and the concrete trolley bridge in 1908 (now the Bridge of Flowers) connecting Buckland with Shelburne. Buckland's population steadily decreased over this period but industrial activity in Shelburne Falls increased as a result of the arrival of the Troy & Greenfield Railroad in 1867 and the construction of two hydroelectric plants along the Deerfield River. The population peaked in 1870 with 1,946 residents. Although Lamson and Goodnow prospered, the population declined thereafter, reaching 1,569 in 1915, a loss of approximately 20 percent.

During the Late Industrial Period, residential construction occurred mostly in Shelburne Falls with 1-½ and 2 story Stick Style or Queen Anne style houses. At the same time, institutional buildings were mostly located in Shelburne Falls. These include the Methodist Episcopal Church (1877), which is now used as the Buckland Town Hall, St. Joseph Catholic Church (1888), the Methodist Church (1906), and the Romanesque Revival library in Buckland Center. Commercial construction included the Queen Anne/Colonial Revival Odd Fellows Hall (1877) and the 2-story brick Newell Block (Aubuchon Hardware block).

Early Modern Period (1915-1940)
Buckland's population declined to its lowest point in 1920 with 1,433 residents and population numbers began to increase again after the end of the Great Depression. The trolley line closed in 1926, yet Shelburne Falls remained a center of both commercial and industrial activity. A small amount of residential development occurred during this period. Most construction happened in the Shelburne Falls area in the form of cottages (some of block concrete), small commercial buildings, and a two-story concrete block garage. Many of the buildings discussed above still remain. In all, the historical inventory of the town contains over 170 documented historic structures, evidence of the rich history within Buckland.

While Buckland has changed from a town where most residents earned their living locally to a place where most people commute to work outside of town, many residents continue to appreciate the eighteenth and nineteenth century agricultural landscape that still exists. The rural small town character of Buckland is further defined by its historic structures and sites. These assets contribute to Buckland's "sense of place," as unique qualities of the town. Buckland's historical resources are listed in Table 3-1. The Massachusetts Historical Commission notes in its 1982 *Reconnaissance Survey Report* that Buckland's historic inventory adequately documents

18th and early 19th century residences, early 19th century institutional, and 19th century commercial and industrial building. The report recommends that the town complete documentation on post-1830 residential building, late 19th and early 20th century institutional buildings, and 20th century commercial buildings. Historic district potential exists at Buckland Center, on Hawley Road between Shephard and Cemetery Roads, and at Buckland Four Corners. Detailed documentation of historic resources is often an important step for preservation.

B.2 Inventory of Historic Resources

The following inventories for historic structures, landscapes and scenic roads were constructed using information from the Massachusetts Historical Commission (MHC), the 1992 *Franklin County Rural Historic Landscape Preservation Plan*, and field surveys conducted by FRCOG Planning Staff for the 1999 Buckland-Shelburne Master Plan.

Shelburne Falls National Historic District

The Shelburne Falls National Historic District (NHD) encompasses 26 acres in the village center business district spanning both Buckland and Shelburne. The commercial core of the Shelburne Falls NHD, located one-half mile from Route 2, contains many contributing commercial, civic, and religious buildings located primarily to the north and south of Bridge Street in Shelburne and on State Street in Buckland. Within the NHD are the Glacial Potholes located in the Deerfield River, just south of the dam and falls.

The various historic structures and sites within the NHD have been compiled from the Massachusetts Historical Commission (MHC) inventory and the Massachusetts Cultural Resource Information System (MACRIS) database. The table includes the name of the feature, the date of origin, and its location. The tables also include a form number, assigned by the MHC. The form numbers were recorded from the individual MHC historical inventories. Only the structures and sites on the Buckland side of the Shelburne Falls National Historic District are reflected in the table here (see Table 3-1).

Table 3-1: Significant Structures and Sites within the Buckland NHD

Name of Feature	Date	Location	MHC Form Number
Sash, door, and blind factory	1863	State St., east of split with North St.	156
Shelburne Falls Fire House	1869	#4 and # 6 State Street	157
Shelburne Falls Business District	Late 1860's to early 1900's	Ashfield Street and State Street	31-37 +903
Methodist Episcopal Church (now Buckland Town Hall)	1877	17 State Street	155
Odd Fellows Building	1877	On corner of State and Clement Streets	153
Buckland – Shelburne Bridge	1890	Bridge Street/Route 112	904
Potter Grain Company	1894	Off of Ashfield Street, west of Shelburne Falls	158
Newell Block	1895	On State St, opposite the Truss Bridge	154
Methodist Episcopal Church	1906	On corner of State and Clement Streets	152
Bridge of Flowers (1929 Flowers added)	1908 Const.	Across Deerfield River, State - Water Streets	903

Source: Compiled from Massachusetts Historical Commission Inventory forms and the Massachusetts Cultural Resource Information System (MACRIS) database.

In addition to the structures and sites within the Shelburne Falls National Historic District, there is an historically significant landscape. This landscape includes the Glacial Potholes at the bottom of Salmon Falls on the Deerfield River. The Glacial Potholes were formed as river water caused small stones to spin within cracks and openings in the rock, thus carving out these cylindrical holes.

Shelburne Falls Residential & Industrial Districts

Immediately adjacent to the Shelburne Falls National Historic District are historically significant residential areas, civic buildings and on the Buckland side an historically significant manufacturing site, the Lamson & Goodnow complex. The residential areas in Buckland are located along Williams, State, and North Streets, and contain twenty-seven buildings, only one of which would be non-contributing.

In Buckland, the National Historic District could be expanded to include over 40 additional structures that occur in clusters within the central village district (see Table 3-2). The expansion would be northward and include portions of State Street, North Street, and William Street; westward to include 4 structures off of Clement Street; and southward along the Deerfield River to capture buildings off of Ashfield, Conway, and Summer Streets. Included in this expanded district would be the Lamson and Goodnow complex on Conway Street. Tables 3-3 and 3-4 list the structures currently located outside of the existing NHD.

Table 3-2: Significant Structures and Sites Adjacent to the NHD in Buckland

Name of Feature	Date	Location	MHC Form Number
Lamson & Goodnow Mfg. Co. buildings	1850	Conway Street on Deerfield River	162
First house built by Nathaniel and Gershom Coleman	1774	Sears Street, at corner of Clement Street	161
Residence	1800	67-69 State Street	128
Residence	1800	46 North Street	8
Residence	1875	41 North Street	7
Residence	1865	45 North Street	6
Residence	1870	49 North Street	5
Residence	1882	62 North Street	4
Residence	1800	53 North Street	3
Residence	1775	56 Conway Street, between Summer and Elm Street	49
Residence	1770	62 Conway Street	48
J. S. Halligan House	c. 1880	64 Conway Street	47
Residence	1850	20-22 Summer Street, on corner of South Street	46
Residence	1830	26 Summer Street, on corner of South Street	45
Residence, Greek Revival	1820	9 Summer Street	44
Cobb House	1800	18 Ashfield Street, on corner of Green	29

Name of Feature	Date	Location	MHC Form Number
		Street	
J. W. Gardiner House	1775	14 Ashfield Street, near intersection w/ Conway Street	28
G. W. Ornaby House	1875	10 Ashfield St, near church on Clement St	27
The Clement House	1840	4 Clement Street	26
Lamson & Goodnow Mfg. Co. building	1846 - 1880's	Between Conway Road and the Deerfield River	50
Maintenance Building	c. 1920	Conway Road	208
Carpentry Shop/ Electricity Building	c. 1941	Conway Road	207
Office Building	1940	Conway Road	206
Residence	1850	8 Conway Street on corner of Ashfield Road	51
Jesse Thayer House	1874	19 Clement Street	25
Albert Pelton's Place	1880	23 Clement Street	24
Coleman House servant's quarters	1790	31 Clement Street	23
Residence	1835	Williams Street	21
The Richmond Place	1850	44 Williams Street	20
Residence	1850	39 Williams Street	19
Residence	1850	35 Williams Street	18
Residence	1850	33 Williams Street	17
Residence	1850	27 Williams Street	16
Residence	1900	8 Williams Street	15
Residence	1886	49-51 State Street	14
Residence	1875	63-65 State Street	13
Residence	1890	75 State Street	12
Residence	1875	79 State Street	11
Residence	1900	87 State Street	10
Residence	1880	89 State Street	9

Source: Compiled from Massachusetts Historical Commission Inventory forms and the Massachusetts Cultural Resource Information System (MACRIS) database.

Buckland Center

Buckland Center (see Table 3-3) has a wealth of historic resources. This area includes historic structures and sites located on Ashfield Road (Route 112), Upper Street, Maynard Hill Road, Charlemont Road, and Cross Street. Within this area, 45 contributing structures remain, most of which are located on Upper Street between Orcutt Hill Road and Ashfield Road.

The stately 1775 Wilder Homestead stands against a wooded backdrop.

It is important to note that there are 5 or 6 structures that are in the surrounding area, close to Buckland Center but seemingly scattered amongst many non-contributing structures. Typically districts are mapped with the minimum number of non-contributing structures. Also, Buckland Center has been mapped based upon information taken from individual MHC forms. Numerous individuals, as stated before, have completed the forms, and the sketch maps included were often difficult to translate. Additional fieldwork will be needed prior to district nomination of Buckland Center to the National Register.

Table 3-3: Significant Structures within Buckland Center

Name of Feature	Date	Location	MHC Form Number
No. 4 Taylor Cemetery	1850 - Present	Charlemont Road	803
No. 1 First Cemetery	1777	Upper St, East and North of Congregational Church	805
Josiah Spaulding, Jr. Gravestone	1968	First Cemetery	806
Wilder Homestead	1775	Ashfield Road, north of intersection of Upper St	72
The Forbes Place	1844	Ashfield Road	73
Residence	1832	Ashfield Road (Mattie Wiley)	94
Purinton's House	Unknown	Ashfield Road (Lower Street)	95
Daniel's General Store	1875	Ashfield Road (Lower Street)	96
Bronson Place	1850	Ashfield Road, near intersection with Cross St.	97
The F. Ballard estate	1855	Ashfield Road, near intersection with Cross St.	98
The Charly Shed Place	1830	Ashfield Road	108
Farm, Residence	1800	Ashfield Road	116
Residence	1790	Ashfield Road (Vight)	118
Residence	1875	Ashfield Road (Willis)	119
Residence	1825	Ashfield Road (Holmes)	120

Name of Feature	Date	Location	MHC Form Number
Graham Hall	1797	Charlemont Road on corner of Upper St.	75
Samuel Taylor Place	1770	Charlemont Road	78
The Temple Cottage	unknown	Charlemont Road	83
Sherwin's Clocks	1830	Clock Hollow Road	77
Sash and Blind Shop	1836	Cross Street and Ashfield Road	99
Residence, Greek Revival	1840	Cross Street	110
Josiah Spaulding, Jr. Place	1700's	Cross Street	111
Elmer House	1820	Cross Street	112
Hoyt Smith House	1850	Cross Street	113
Dan Townsley's Cobble Shop	unknown	Cross Street	114
The Lily Place	1830	Martin Road	115
Parsonage	unknown	Upper Street, north of Charlemont Road	74
District No. 1 Schoolhouse	1860	Upper Street	84
The Trow House	1870	Upper Street	85
Residence (Currently Post Office)	1700's	Upper Street	86
Buckland Library	1870	Upper Street	87
Residence, Greek Revival	1835	Upper Street	88
The "Red House" overflow of Griswold Homestead	unknown	Upper Street	89
Griswold Place / Mary Lyon House	1818	Upper Street	90
Alpheus - Brooks House	1790	Upper Street	91
Elisha Smith Place	1797	Upper Street	92
Rural Farm, Residence	unknown	Upper Street	93
Residence, Greek Revival	1855	Upper Street	100
Home of Robert Strong Woodward, the artist	1850	Upper Street	101
The Gould Place	1820	Upper Street	102
The George Tower Place	1855	Upper Street	103
Jabez Brooks House	pre-1800	Upper Street	104
Home of Colonel John Ames	1800	Upper Street	105
Mary Lyon Church	1800	Upper Street at Cross Street	106
Buckland Grange Hall	1850	Upper Street	107

Source: Compiled from Massachusetts Historical Commission Inventory forms and the Massachusetts Cultural Resource Information System (MACRIS) database.

Buckland

The historically significant structures and sites that exist in Buckland outside of Shelburne Falls or Buckland Center occur in clusters. These clusters of historic structures include those found on or near: Clesson Brook Road, west of Shepherd Road; the triangular grouping of Ashfield, Purinton, and Depot Roads; the Goodnow and Stone Road cluster; and the area known as Buckland Four Corners. The approximate locations of many of these structures and sites are identified on the Scenic Resources and Unique Environments Map in Chapter 4, however more work still needs to be done to map this extensive inventory. These locations are not exact given

that the forms and associated sketch maps locating these structures and sites were often vaguely rendered. The structures and sites are listed in Table 3-4.

Table 3-4: Other Significant Structures and Sites in Buckland

Name of Feature	Date	Location	MHC Form #
No. 2 East Buckland, Cemetery	1804 - 1876	Old County Rd. (abandoned)	801
East Buckland Cemetery	1849 - Present	Buckland Road	802
Upper City Cemetery	1841	Old Apple Valley Road	804
Mary Lyon birth place, bronze plaque on a rock	1887	East Buckland Road	901
Mary Lyon's first school, bronze plaque on quartz boulder	1968	Walker Road	902
Boston and Maine Railroad Trestle	1885	Old Conway Road, approx. 300 meters northwest of Gardner Falls Hydro Facility	905
Gardner Falls Station Power House, Canal and Dam	1904	Gardner Falls Station Road	159, 906, 907
Glacial Pothole	unknown	North Street, near feature # 13	909
Residence	1800	South Street	160
Home of Lois Buell	pre 1800	Off of Old Goodnough Road	151
Salt Box Home	1880	Off of Stone Road	150
F. R. Bray Farm	1820	On West side of Bray Road	148
Residence	1840	Stone Road	149
The Elmer Place	1876	Off of Bray Road, north of Stone Road	147
The Drake Place	1780	On Bray Road 100 yards north of Ashfield	146
The Nilman House	1846	Off of Nilman Road	145
The Johnson House	1896	East Buckland Road	144
The Bellows Place	1810	East Buckland Road	143
Hog Hollow Schoolhouse	1800	Hog Hollow Road	142
Purinton House	1852	Hog Hollow Road	141
Goddard Place (Porter House)	1812	Hog Hollow Road	140
The Hartwell House (Schneider Dog Pound)	not available	Hawley Road	138
The Rood Place	1830	Hawley Road	137
The Cranson Place	1700	Hawley Road	136
The Sanderson Ruddock Place	1800	Dodge Road	135
The Dodge Place	1805	Dodge Road	134
The Orta Kenney Place	1750	Hawley Road	133
Residence	1780	Hawley Road	132
The Ward Place	1790	Hawley Road	131
High Street School House	1850	Hawley Road	130
Auge Place	1880	Hawley Road	129
Scott House	1830	Hawley Road	127
The Hartwell House	1790	Hawley Road	126
The Lily Place (H. L. Dea. Warfield House)	1830	Martin Road	115
The Wood House	1810	Ashfield Road	121

Name of Feature	Date	Location	MHC Form #
Hathaway Place	1750	Hawley Road	122
District No. 5 Schoolhouse	1829	Hawley Road, Buckland Four Corners	123
The Kenney Place (Enos Pomeroy House)	1750	Hawley Road	124
Enoch Wells Place	1814	Hawley Road	125
Residence	1871	85 North Street	2
Freighter's Inn	c. 1800	124 North Street	1
Residence	1800	South Street	43
Braehead Farm	1795	88 Elm Street, near intersection of Homestead Avenue	42
Residence, Salt Box	1795	65 Elm Street, near intersection of Laurel Road	41
Residence, Greek Revival	1830	41 Elm Street	40
Residence	1850	Bray Road, just south of Ashfield Street	38
Residence	1815	Elm Street, on corner of Birch Road	39
The Lanfair Estate	1830	26 Walker Road	37
Residence	1850	9 Kendrick Road	36
Residence, Cape	1875	79 Ashfield Street	35
Parsonage for Catholic Church	1870	Monroe Avenue on corner of Ashfield Street	34
Crittenden School	after Dec. 6, 1919	Ashfield Street, near intersection with Franklin Street	33
E. B. Sherwin House	1830	50 - 52 Ashfield Street, on corner of School Street	32
Slattery House	1830	49 School Street	31
Nathaniel Lamson House	1850	39 Green Street	30
The Spencer Woodward House	1790	Rand Road, opposite the high school	52
Patch Farm	1785	Crittenden Hill Road, near intersection with Rand Road	53
The Luther Dunnell House	1840	Ashfield Road	54
Pine Brook Farm	1809	Ashfield Road, near intersection with Rand Road	55
The Gould Place	1875	Woodward Road, near intersection with Ashfield Road	56
Boehmer's Mill	1810	Ashfield Road and Woodward Road	57
The Lightning Splitter	1900	Ashfield Road, on corner of Depot Road	58
Bert Shaw's House	1830	Depot Road, near corner of Ashfield Rd	59
William Taylor House	Pre - 1800's	Dunbar Road	60
Dunbar House	1776	Dunbar Road	61
Burdick Place	1796	Laurel Road	62
The Otis Field House	1790	Purinton Road	63
The Sweet Place	1890	Laurel Road	64
Residence	1850	Purinton Road (Mowry's)	65
Goodnow Farm	1860	Purinton Road	66
Scott's Dairy	1780	Ashfield Road	67
Cooper's Shop	Pre - 1800	Ashfield Road, opposite Purinton Road	68
The Silas Trowbridge Place	1829	Ashfield Road, opposite Purinton Road	69

Name of Feature	Date	Location	MHC Form #
Enos Taylor House	Pre - 1800's	Ashfield Road, just north of intersection with Purinton Road	70
The Buckland Post Office	1819	Ashfield Rd, at intersection of Depot Rd	71
Koonchaug Farm	1800	Avery Road	82
Keach Place	pre - 1793	Charlemont Road	81
The Ward Place	1858	Charlemont Road	80
The Manard Place	1812	Charlemont Road	79

Source: Compiled from Massachusetts Historical Commission Inventory forms and the Massachusetts Cultural Resource Information System (MACRIS) database.

Historically Significant Landscapes

Another category of historic resources is landscapes. A listing and description of each of these landscapes are provided below and are summarized in Table 3-5. Many of these landscapes are tied to the agricultural history of both towns and remain largely intact, but are most at risk from Approval Not Required (ANR) development.

Table 3-5: Historically Significant Landscapes in Buckland

Early Industrial Areas along the Deerfield River and Related Neighborhoods
Buckland Center, Charlemont Road and Cross Street
Numerous Properties along Route 112
Orcutt Hill Road
The Guilford homestead

Source: OSRP Committee, 2010.

Early Industrial Areas along the Deerfield River

The 19th Century Lamson Goodnow Manufacturing complex remains largely intact and provides a rare example of an historic manufacturing landscape. There are excellent views of this "landscape" from the end of Deerfield Avenue in Shelburne.

Buckland Center, Charlemont Road and Cross Street (Buckland)

In the 1992 Rural Historic Landscape Preservation Plan, Buckland Center is considered a type of scenic and historic landscape known as *community development*. As the old village center, it contains over forty historic features (see Table 2-5), including Charlemont, Cross, and Upper Streets. In addition, there are significant scenic and historic landscapes to the southwest of Cross Street and to the northeast of Upper Street including old pastures and apple trees which surround the historic structures of the old town center which was built in the early to mid-1800's.

Numerous Properties along Route 112 (Buckland)

According to the 1992 Rural Historic Landscape Preservation Plan and the Route 112 Scenic Farm Byway Final Report, published by the Franklin County Commission in 1995, this roadway in Buckland contains historic *agricultural* landscapes which are interspersed with villages and other developed landscape patterns. Amidst the farm and forest landscapes are twenty-six significant historic structures with a variety of architectural forms including Greek Revival, Federal, Italianate, Georgian, Queen Anne, and Gothic. Route 112 is an important scenic

resource area as well. The 1995 Route 112 Scenic Byway report presented rankings of outstanding, excellent, and high for over 95% of this roadway's landscapes.

Orcutt Hill Road, and the Guilford Homestead (Buckland)
Orcutt Hill Road has two significant historic *agricultural* landscapes. The first is located looking south of Orcutt Hill Road as you travel west from its intersection with Upper Street. This landscape includes abandoned pastures, active fields, stone walls, old but well maintained barns, and old apple trees. The second historic landscape off of Orcutt Hill Road is located after one has traveled down Orcutt Hill and leveled off right before the intersection with Clesson Brook Road. To the northwest the landscape includes open pasture and the rolling, tree covered slopes of Hog Mountain. To the south, from this point, one can see another farm, more pasture and in the distance, Drake Hill. In the foreground, at this intersection, is the old farm homestead of C. S. Guilford, c. 1871, which includes pastures and a low barn.

C. POPULATION CHARACTERISTICS

In this section on Population Characteristics, Buckland'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 Buckland, and measures of income. The employment statistics section covers labor force and employment by industry sector.

C.1 Demographic Information

C.1.1 Population and Population Change

Demographics are useful for forecasting the need for open space and recreational resources that may be required by residents over time. According to the U.S. Census, Buckland's population growth rate between 1970 and the year 2000 was far less than the county and state (See Table 3-6). Between 1970 and 2000, Buckland's population increased by only 99 people, equal to a growth rate of 5.2 percent. This is in contrast to Franklin County as a whole, which saw a 20.8 percent increase in population from 1970-2000 and to the Commonwealth of Massachusetts, which saw an 11.6 percent increase in population. Buckland has a population density of 100 people per square mile.[3] To compare with several neighboring Franklin County towns, Shelburne has 87 persons per square mile, Colrain has 43 per square mile, Charlemont has 53 per square mile, and Montague has 260 per square mile.

Table 3-6: Population for Buckland, Franklin County and Massachusetts 1970-2000

	Population 1970	Population 1980	Population 1990	Population 2000	Change in Population 1970-2000	Percent Population Change 1970-2000
Buckland	1,892	1,864	1,928	1,991	99	5.2%
Franklin County	59,233	64,317	70,092	71,535	12,302	20.8%
Massachusetts	5,689,377	5,737,037	6,016,425	6,349,097	659,720	11.6%

Sources: U.S. Census of Population and Housing, 1970, 1980, 1990, 2000.

[3] Calculated by dividing 2009 U.S. Census Population Estimates by the town's total square mileage derived from MassGIS 2005 land use data.

According to the U.S. Census 2009 Population Estimates Program, Buckland's population is estimated to have remained steady from 2000 to 2009, with a growth rate of -0.1 percent (Table 3-7). Franklin County's population is also estimated to have remained relatively stable, with a growth rate of 0.3 percent, while the State's population is estimated to have grown slightly by 3.9 percent.

Table 3-7: Estimated Population Growth, 2000-2008

	Population 2000	Estimated Population 2009	Change in Population 2000-2009	Percent Population Change 2000-2009
Buckland	1,991	1,989	-2	-0.1%
Franklin County	71,535	71,778	243	0.3%
Massachusetts	6,349,097	6,593,587	244,490	3.9%

Source: 2000 U.S. Census of Population and Housing, 2008 U.S. Census Population Estimates Program.

Although Buckland's population may not be growing in numbers, it may be changing in age. The age distribution of the population will determine what open space and recreation resources are likely to be of highest demand, as different age groups require different recreational opportunities. As such, an action item to evaluate the adequacy of Buckland's recreational resources and programming has been added to the Seven-Year Action Plan. According to the U.S. Census 2000 General Demographic Characteristics (see Table 3-8), the Town of Buckland had a relatively young population in 2000 with a majority of its residents in the 20-44 (early working years) age cohorts, although the numbers indicate that group is declining in size. The 0-19 age cohort was very similar in size to the 45-64 age group (older working years). However, while the youngest age cohort registered very little change, the 45-64 year age cohort experienced the largest growth with a 40.7 percent increase over the ten-year period between 1990 and 2000. The change in this group is driven by the aging of the baby boomer generation (born 1946-1964) who began turning 45 in 1991. There were also 19 more residents who were in the 65+ years of age cohort in 2000, than there were in 1990. This is an overall increase of 7.7 percent, which is a greater rate than the county (0.5%) and a slightly higher rate than the state (5.5%) average.

Table 3-8: Number of People by Age Cohort Between 1990 and 2000 in Massachusetts, Franklin County, and in Buckland

	Massachusetts Population		% Change	Franklin County Population		% Change	Buckland Population		% Change
Age Cohort	1990	2000		1990	2000		1990	2000	
0-19 years	1,561,017	1,675,113	7.3%	19,038	18,502	-2.8%	558	561	+0.5%
20-44 years	2,530,390	2,394,062	-5.4%	28,635	24,303	-15.1%	735	617	-16.1%
45-64 years	1,110,013	1,419,760	27.9%	12,289	18,550	50.9%	390	549	+40.7%
65+ years	815,005	860,162	5.5%	10,130	10,180	.5%	245	264	+7.7%

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

It is important to note that this data is now ten years old, and in this time the population has also aged by ten years, pushing some residents from one age cohort into the next. Data from the 2010 census, when available, will help determine exactly how Buckland's population has changed since 2000. However, past trends from between the years of 1990 and 2000 offer clues as to how Buckland's population might be changing, and what this may mean for open space and recreation planning. In 2000, Buckland had a large number of young people (0-19 years old), an even larger young work force (20-44 years old) that is shrinking, and a smaller yet growing older work force, which typically earns higher incomes than younger workers, and a growing elderly population. The declining numbers in the 20-44 years age cohort should also impact the growth of the youngest age group. If the relatively large cohort of older (45-64), working-aged residents continue to reside in Buckland, it could result in a significant population of individuals in the older age cohort in five to ten years. How will the Town of Buckland provide recreational facilities and services for all of its residents, especially the elderly, who may require accessible walking paths, arts, and leisure programs? Residents of all ages may need facilities and programs that provide safe space for recreation, as well as access to open space.

Identifying the best location for the development of new open space and recreation resources should consider where the concentration of population will occur and which parts of the local citizenry require specific needs. As will be seen in the fourth part of Section 3, Growth and Development Patterns, future growth depends in large part on zoning, slopes, soil and groundwater related constraints, and which lands are permanently protected from development. Town officials could identify key parcels in town that might be future parks and walking trails that are close to the current distinct villages and areas that could be later developed for residential uses. Officials could be looking for opportunities to conserve land in Buckland that protects valuable scenic and natural resources and provides public access to trail networks and open spaces.

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

C.1.2 Economic Wealth of Residents and Community

Measures of the income levels of Buckland residents as compared to the County and State are helpful in assessing the ability of the citizenry to pay for recreational resources and programs and access to open space.

Table 3-9 describes the earning power of residents in Buckland as compared to the County and the State. Median income figures describe the middle income among residents, thus eliminating any extreme numbers (either the very wealthy or very poor) from influencing the overall figure. Median household figures include data for families, for households of non-related people, and for individuals living alone. Buckland households earn a median income of $45,833, 12.4 percent above the median for the County ($40,768), and 9.2 percent below the median for the State ($50,502). The per capita income for the Town (total income for all residents divided by the total population) is similar to the County and lower than the State. However, the percentage

of people living below the poverty line in Buckland is significantly lower than both the County and the State at 6.9 percent. It appears that the financial well being of Buckland residents is higher than the average for the County, but lower than the average for households in the State. Buckland's slightly lower per capita income figure may be due to the fact that Buckland has more people per household (2.57) than the County average (2.38).

Table 3-9: Median Household Income, Per Capita Income, and Percentage below Poverty Level in 1999 for Buckland compared to Franklin County and the State

	Median Household Income	Per Capita Income	Percentage Below Poverty Level*
Buckland	$45,833	$20,033	6.9%
Franklin County	$40,768	$20,672	9.4%
Massachusetts	$50,502	$25,952	9.3%

Source: 2000 Census of Population.
*Individuals living below poverty level for whom the poverty status has been determined.

Although Buckland's resources today are clearly both its people and its natural landscapes, the status of its finances could be affected by an interdependent relationship that exists between the two. The costs of the community services provided to residents are paid for with the tax revenues generated by different kinds of property, both developed and undeveloped. Some developed uses like housing are often considered a loss because the tax revenues generated by a piece of property seldom cover the school costs for one household. One reason that many towns encourage economic development is to have some other type of property to share the tax burden. 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 Employment Statistics

Employment statistics like labor force, unemployment rates, numbers of employees, and place of employment are used to describe the local economy. Labor force figures can reflect the ability of a community to provide workers for incoming and expanding businesses. Unemployment rates can show how well residents are faring in the larger economy while employment figures describe the number of employees in different types of businesses. Employment can be used as a measure of productivity that can help gauge economic health, which should be encouraged in Town.

The Town may decide to encourage business development to supply local jobs and to build taxable value, which can help pay for municipal services and facilities, including recreational parks and programming as well as protected open space.

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

In 2009, the Town of Buckland had a labor force of 1,106 with an unemployment rate of 4.1, significantly lower than the rate for the County (7.9) and the State (8.4) (See Table 3-10). The labor force is defined as the pool of individuals 16 years of age and older who are employed or who are actively seeking employment. Enrolled students, retirees, stay-at-home parents and other persons not actively seeking employment are excluded from the labor force.

Labor force is available on an annual basis from the Massachusetts Executive Office of Labor and Workforce Development. From 2000 to 2009 Buckland's labor force has decreased by 3.2 percent, from 1,143 to 1,106. Buckland's unemployment rate has consistently been lower than both the County and State rates.

Citizens at work in Buckland – on a volunteer basis – pitch in to help with fall clean-up on the Bridge of Flowers.

Table 3-10: Labor Force and Unemployment Rate in Buckland, 2000-2009

Year	Labor Force	Unemployment Rate		
		Buckland	Franklin County	Massachusetts
2000	1,143	1.3	2.5	2.7
2001	1,138	1.6	3.1	3.7
2002	1,151	1.7	4.0	5.3
2003	1,161	2.2	4.6	5.8
2004	1,141	2.5	4.3	5.2
2005	1,142	2.4	4.3	4.8
2006	1,155	2.5	4.3	4.8
2007	1,147	3	4.2	4.5
2008	1,127	2.8	4.9	5.3
2009	1,106	4.1	7.9	8.4
% Change 2000-2009	-3.2%	N/A	N/A	N/A

Source: Massachusetts Executive Office of Labor and Workforce Development.

Table 3-11 displays the top ten employment destinations for employed Buckland residents according to 2000 U.S. Census Journey to Work data. Roughly 23 percent (23.2%) of Buckland workers were employed in Greenfield, the top destination, and in Buckland (22.9%), the second most frequent destination. Shelburne was the next most frequent destination at 11.5 percent, followed by Deerfield (8.1%), Northampton (3.8%), and Amherst (3.6%), the latter two communities located in Hampshire County. Employment for Buckland residents was spread among a total of 42 different communities in Massachusetts, Vermont, and Connecticut.

Table 3-11: Top Ten Employment Destinations for Buckland Workers, 2000

Rank	Buckland Resident Employment Destination	Number of Employees	Percent of All Employed Buckland Residents
1	Greenfield	254	23.2%
2	**Buckland**	**250**	**22.9%**
3	Shelburne	126	11.5%
4	Deerfield	88	8.1%
5	Northampton	42	3.8%
6	Amherst	39	3.6%
7	Ashfield	31	2.8%
8	Montague	28	2.6%
9	Northfield	22	2.0%
10	Whately	21	1.9%
	Other	192	17.6%
Total		**1093**	**100.0%**

Source: 2000 U.S. Census Journey to Work Data.

Table 3-12 displays the travel time to work for Buckland workers in 1990 and 2000, compared to the County and the State. In 2000, most Buckland workers traveled between 10-19 minutes (23.1%), and less than 10 minutes (21.0%) to get to work. Workers traveling between 20-29 minutes decreased from 21.3 percent of the workforce in 1990, to 16.5 percent in 2000. However workers traveling 30 minutes or more increased from 1990 and 2000, consistent with County and State trends. Buckland residents who worked from home decreased from 6.2 percent in 1990 to 3.7 percent in 2000, in contrast with County and State trends. However, it is important to note that 2000 is the most recent year of data available. Recent trends in telecommuting may be increasing the percentage of at-home workers in Buckland since 2000, with technological advances and changing workplace philosophies making it easier for employees to work from home.

Table 3-12: Travel Time to Work for Buckland, Franklin County, and Massachusetts Workers, 1990 and 2000

Geography	Total Workers*	Worked at Home	Less than 10 Min.	10-19 Min.	20-29 Min.	30-39 Min.	40-59 Min.	60-89 Min.	90+ Min.
Buckland									
1990	**1,015**	**6.2%**	**21.7%**	**23.2%**	**21.3%**	**15.4%**	**9.0%**	**1.9%**	**1.5%**
2000	**1,093**	**3.7%**	**21.0%**	**23.1%**	**16.5%**	**18.8%**	**12.2%**	**2.5%**	**2.3%**
Franklin County									
1990	34,674	4.7%	21.8%	32.1%	17.8%	11.5%	7.7%	3.2%	1.1%
2000	37,053	5.1%	16.3%	30.0%	19.1%	14.2%	9.7%	3.3%	2.3%
Massachusetts									
1990	2,979,594	2.5%	15.6%	31.3%	18.7%	15.5%	10.7%	4.7%	1.0%
2000	3,102,837	3.1%	12.6%	27.4%	18.6%	16.3%	13.0%	6.5%	2.4%

Source: U.S. Census, 1990 Census STF3A and 2000 Census SF3
**employed workers 16 years and older*

C.2.2 Employment in Buckland: Residents and Non-Residents

It is important to examine employment within the state and county, even though the number of employers currently in Buckland is limited. According to 2006 U.S. Census County Business Patterns data, the industry sector with the highest percentage of employment in Franklin County is manufacturing (19.9%), an industry with a long history in the region that is still strong when compared to the State, where only 9 percent of total employment is in manufacturing. Manufacturing's share of total employment in the County has been declining for several decades, however, and dropped by 10 percent since 2000, when it accounted for roughly 30 percent of the County's total employment. The sectors comprising the next highest percentages of employment in the County are health care and social assistance (16.0%), and retail trade (14.6%). It is important to note that County Business Patterns data does not publish information for a sector when it would disclose the operations of any single business, and does not include the public administration sector.

Like most of the country, over the past few decades Franklin County has been transitioning from a "goods producing" based economy to a more diversified economic base with an expanded service sector. According to County Business Patterns data, three of the top five employment sectors in Franklin County are service industries: health care and social assistance services (16.0%), education services (7.2%), and food and accommodations services (8.1%). These three service sectors account for approximately 31% of the total employees in Franklin County (Greater Franklin County Comprehensive Economic Development Strategy – 2009 Annual Report).

Table 3-13 shows the number of establishments and average monthly employees working for Buckland employers from 2001 through 2008. This includes residents as well as those who reside elsewhere but commute to Buckland for work. The number of establishments has generally remained the same throughout the time period, beginning at 39 establishments in 2001, and peaking at 24 in 2004 before declining to 36 in 2008. The number of total employees working in town, however, has steadily decreased from 500 in 2001 to 348 in 2008.

Table 3-13: Total Establishments and Average Monthly Employment in Buckland, 2001-2008

Year	Establishments	Average Monthly Employment
2001	39	500
2002	38	503
2003	40	493
2004	42	456
2005	37	442
2006	36	411
2007	38	401
2008	36	348

Source: Massachusetts Executive Office of Workforce Development, ES202 data.

The Massachusetts Executive Office of Workforce Development collects industry data for towns using the same categories as County Business Patterns, but also includes the public administration sector. Table 3-14 shows the percentage of total employment for industry sectors in Buckland from 2001 through 2008. It is important to note that industry data is kept confidential if there are less than three reporting businesses within one sector, or if with three or

more businesses, one accounts for 80 percent or more of total employment within the sector. Due to confidentiality, it is difficult to determine trends in employment in Buckland. From 2001 to 2004, Manufacturing was the largest reporting sector, comprising roughly 20 percent of employment in Buckland. The Construction sector has steadily decreased in its share of employment, from 11 percent in 2001 to 4 percent in 2008. The Health Care and Social Assistance sector has also declined from 9 percent of Buckland's employment in 2004 to 4 percent in 2008. Retail Trade has fluctuated throughout the time period, comprising between 6.9 percent and 11.7 percent of total employment in Town. Confidentiality is likely the reason why the Public Administration sector, the Agriculture, Forestry, Fishing, and Hunting sector, and other sectors that may exist in Buckland do not appear in the data.

Table 3-14: Employment by Industry as a Percentage of Total Employment, 2001-2008

	2001	2002	2003	2004	2005	2006	2007	2008
Industry	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**	**% of Total Employ-ment**
Construction	11.0%	8.7%	6.9%	7.9%	7.2%	6.3%	4.5%	4.0%
Manufacturing	22.4%	19.7%	18.1%	19.5%	n/d	n/d	n/d	n/d
Retail Trade	9.2%	9.1%	7.9%	7.5%	9.3%	11.7%	11.0%	6.9%
Professional and Technical Services	n/d	n/d	n/d	n/d	n/d	n/d	n/d	4.3%
Health Care and Social Assistance	n/d	n/d	7.1%	9.0%	5.4%	4.9%	4.5%	4.0%
Accommodation and Food Services	n/d	n/d	6.3%	6.6%	n/d	n/d	n/d	n/d
Other Services, Excluding Public Admin	2.8%	2.0%	2.0%	2.4%	2.3%	1.2%	1.5%	2.3%

Source: Massachusetts Executive Office of Labor and Workforce Development, ES202 data.
*n/d = data withheld for confidentiality reasons.

C.3 Analysis

Buckland's population is estimated to have remained stable over the last decade, with little or no growth. The overall population will continue to age if older residents continue to reside in Town. A growing senior population will have implications for land use within the Town's river valleys and villages. As Baby Boomers age, they may require different housing options than are currently available in Town. This potential demand for new housing will impact the available open space in Buckland. The Town should proactively identify the types of housing this population group will need and determine the best locations for development, taking into consideration the needs of an older population while also working to protect open space and natural resources. Additionally, all residents of Buckland should benefit from recreational programming. Therefore, open space and recreation opportunities should be available to all age and income groups and should be evaluated as Buckland's population continues to grow and change.

Residents may continue to depend on jobs in other communities and counties. Town officials could strengthen the local economy by supporting existing manufacturing industries and

facilitating local ownership and entrepreneurship in industry that is already strong in the county, such as the services sector. The town could also encourage local agricultural businesses, as Buckland has historically maintained a strong agricultural tradition tied to its landscape, open space, and economic development. Despite the "confidential" listing for agriculture and the relatively small percentage of employees that farms may employ, agriculture is still an important industry in Buckland. Agriculture provides many public benefits beyond employment. Fresh food, preservation of significant historical landscapes, scenery, and rural character are just a few of the benefits that active agricultural businesses provide to Buckland residents.

Two trends that have implications for farmlands under temporary protection are the increasing commuter times of Massachusetts' workers and an increasing state population. Buckland can no longer expect its natural rural landscape to be forever outside the influence of development. On the contrary, Massachusetts is a slowly urbanizing state and Buckland may experience the renewed interest of prospective homeowners looking for a quieter pace of living. Planning for growth before it happens will help to protect open space and recreation resources into the future.

D. GROWTH AND DEVELOPMENT PATTERNS

D.1 Patterns and Trends

Over the past two hundred years, Buckland residents developed their community using the productivity of the area's forests and valley soils, and using the waterpower of Clesson Brook and the Deerfield River. In the late nineteenth century, Buckland's population declined as industrial development lured people away from rural areas, even though agriculture remained a significant part of the local economy. This movement resulted in a population decline that lasted for 50 years, from a census count of 1,946 in 1870, down to 1,433 in 1920. Beginning in the late 1920s, the automobile and improved roadways, especially Route 2, made commuting possible so Buckland's population began to recover.

The land use figures presented in this section are based on data provided by MassGIS. MassGIS classifies land uses based on aerial photograph interpretation conducted by the Department of Forestry's Resource Mapping Project at the University of Massachusetts, Amherst. Statewide data including all municipalities are available for 2005, 1999, 1985, and 1971.[4] Initially, analysis was conducted through manual interpretation of the aerial photos. In 2005, the land use data was created using semi-automated methods. MassGIS uses 38 land use classifications in the 2005 data, an increase from the 21 codes in the 1999 dataset. It is important to note that readers should exercise caution in comparing land use data over the years. Such comparisons can provide only an estimation of the trends in land use change over the years. Due to different data collection and analysis methodologies used over the decades, direct comparisons between the various datasets cannot be made with precision.

In 1971, the predominant land use in Buckland was forest (80%), although cropland and pasture (12%) could be found in contiguous bands along Ashfield Road, Clesson Brook Road, Charlemont Road, Avery Road, Depot Road, and in other scattered sites throughout Town. Open land existed as corn and hay fields, pastureland, orchards, and abandoned farmland. The most

[4] The first statewide land use maps were created in 1953-54 from 1951-52 aerial photos. These maps were never digitized. They are available in the Map Collection Archives at the W.E.B. DuBois Library at the University of Massachusetts, Amherst.

common development pattern in 1971 was single-family homes on roadside lots at least two acres in size.

Between 1971 and 1999, this pattern continued as the predominant land use changes were the development of new single-family housing along existing public ways and the conversion of active farmland to abandoned fields and orchards or forestland. The residential development spread along many of Buckland's roads, but is most dense along East Buckland Road, Charlemont Road, Bray Road, Apple Valley Road, Howes Road, Goodnow Road, Clesson Brook Road, Orcutt Hill Road, and Avery/Shepard Roads. Residential use of lands on lots over ½ acre in size increased by 183 acres during this time period to nearly 5 percent of the Town's total acreage, increasing the amount of total residential land in Town from 4 percent to 6 percent. While approximately 25 percent of new construction was on farmland, 75 percent was on forested land. However, because 387 acres of cropland, pasture, and orchards reverted either to abandoned fields or woodlands, the amount of forestland changed very little, remaining at approximately 80 percent of the Town's total acres.

Between 1999 and 2005, forestland increased to approximately 81 percent of the Town's total acres. Cropland and pasture continued to decline to roughly 8 percent, and residential land declined from 6 percent in 1999 to 5 percent in 2005.

Most new residential construction has occurred on lots larger than two acres in size. The Franklin County Cooperative Inspection Program maintains computer records of building permit information since 1993. Between that year and 2002, 52 building permits were issued for homes in Buckland. Only three of those permits were for conversion of single-family homes into multi-family housing. All the rest were for new single-family housing development. From 2002 through 2009, 42 permits were issued for new residential development.

Based on the current zoning in Town, large lot residential development is expected to continue to be the dominant pattern of land conversion in Buckland. Although the minimum lot size in the Shelburne Falls Area is 20,000 square feet, fewer than 121 acres are available for development within that zone**..** In addition to losses in farmland and forestland, new residential development has other impacts, including increases in traffic congestion, school costs, and road maintenance expenditures. The loss of farmland and forestland along the edges of large blocks of woodland may seem to be unimportant. However, the impact on natural resources may go beyond the simple loss in acreage. As forest and remaining pastureland acres are converted to residential uses, the landscape becomes more fragmented.

Fragmentation of the landscape can negatively impact the quality of wildlife habitat, watershed protection, recreation opportunities, forest management opportunities, and ultimately, the municipal services budget. The more fragmented land uses become, the more expensive it becomes to manage and to provide services to residents or businesses, based on additional travel time and fuel costs. Fragmentation of the landscape affects the viability of forest management operations. Development is limited to the road corridors in many rural communities in western Massachusetts. The roadways occur within a landscape of large blocks of contiguous forestland. When forestland is sold for residential development, the resulting lots, usually associated with

single-family homes, are often too small to manage individually for forestry purposes. Similarly, the most inefficient method of providing municipal services such as police, fire, sewer, water, waste disposal, and snow plowing is associated with a fragmented landscape where residential development is spread sparsely across the town.

D.2 Infrastructure

D.2.1 Transportation Systems

Running parallel to Clesson Brook is the Town of Buckland's principal roadway, Ashfield Road, also known as Route 112. This is a north-south byway linking Buckland with Ashfield and Franklin County to the south. To the south, Route 112 extends to Goshen and connects the town to Route 9, another primary east-west corridor, with connections to Northampton and Interstate 91, the major north-south highway. To the north, this roadway provides a northern corridor through Colrain to Vermont. Along the northeastern corner of town, Route 2 provides a major east-west highway, which intersects in Greenfield with Interstate 91, the primary north-south route for western Massachusetts.

The Franklin Regional Transit Authority (FRTA) schedules a regular bus route with four busses a day, Monday through Friday, between Greenfield,Shelburne Falls, Buckland, and Charlemont.. However, stops in Buckland are limited on the westbound trip to one stop in the morning at Mohawk Trail Regional School. Traveling eastbound, three busses stop at Mohawk Trail Regional School, and all four busses travel down State Street, stopping on the Buckland side of Shelburne Falls before continuing to Shelburne and Greenfield. FRTA also provides on-demand transportation for the elderly and people with disabilities with scheduling done through the Shelburne Falls Senior Center.

D.2.2 Water Supply Systems

The Shelburne Falls Fire District was established in 1912, and provides water supply to approximately 2,200 persons within the village of Shelburne Falls, on both the Buckland and Shelburne side. The District has two active wells, and an emergency supply in the Fox Brook Reservoir. The wells are located between 120 and 165 feet from the banks of the North River in the Town of Colrain. Farmland on the west side of the North River is protected through the Agricultural Preservation Restriction Program. Fox Brook Reservoir has a surface area of approximately 3 acres and a total storage capacity of 12 million gallons. In 2009, the Fire District served the residents, commercial businesses, and industries with 61.7 million gallons of drinking water, with an average annual daily withdrawal of 169,088 gallons. The registered withdrawal for the system is 310,000 gallons per day. Approximately half of the water consumed in 2009 was by Buckland residents and businesses and half by Shelburne's. The Shelburne Falls Fire District has a delineated Zone II Recharge Area and received a Source Water Assessment and Protection (SWAP) Report from the DEP in 2003. The water sources for the Shelburne Falls Fire District are listed in Table 3-15.

One of the issues facing the Shelburne Falls Fire District is the protection of the water source. The wells providing water to Shelburne Falls are located in the town of Colrain and that town is not willing to utilize their town funding to protect land around the wellheads. The onus is, therefore, on the Fire District to protect this resource. The Fire District has already acquired some land around the water supplies in Colrain. However, this is an expensive and time-

consuming strategy. The towns of Buckland and Shelburne would be well served to identify any aquifers and potential water supply sources within their own town boundaries to ensure protection of the local water supply. Potential aquifer areas are identified on the Water Resources Map. The Natural Resources section of the 1999 Buckland-Shelburne Master Plan also proposed the establishment of aquifer protection overlay districts to protect the aquifer resources within the town boundaries that may serve as potential water sources for the towns at a future date. The United States Geological Survey (USGS) has identified a single area in the two towns with a potential yield of 51 - 200 gallons per minute. This area lies right below Shelburne Falls Village Center on the Shelburne side. However, this aquifer would not be suitable for locating a public water supply, given the type and intensity of uses which currently exist. The next highest yield category, of 50 gallons or less per minute, runs along the Deerfield River on both the Buckland and the Shelburne banks, and along the Clesson Brook and Clark Brook in Buckland. It is important to note that these ranges are estimates based on soil conditions. Ideally, the Fire District would need a well with a yield of 150 gallons per minute to be a suitable source for public water supply.

Table 3-15: Shelburne Falls Fire District Public Water Supplies

Source Name/Type	Ground (G) Or Surface (S) Water	Availability/Status
Well #1	G	Inactive
Fox Brook Reservoir	S	Emergency
Well #2	G	Active
Well #1 Replacement	G	Active

Source: Massachusetts Department of Environmental Protection, 2003.

Protection of drinking water quality is of critical importance in Buckland. Development can impact water quantity and quality. Future growth can affect the drinking water resources available for use. Threats to groundwater include agricultural runoff, salt storage residue, road salting, contaminated runoff from paved surfaces, failing septic systems, leaking underground storage tanks (UST), abandoned unlined landfills, and chemical contamination from business and industry. To date, development has been moderate, and the municipal public water supply, which is closely monitored, has not suffered from contamination. The public water supply in Shelburne Falls allows residences and businesses to share the expense of providing and maintaining a water supply, thereby reducing development costs and encouraging growth in the parts of the towns serviced by the system. An important link exists between the availability of water service and control of development.

There are also two Non-Community public water supply wells in Buckland, one at Mohawk Trail Regional High School, and one at the Buckland Recreation Center. By definition, a public water supply provides piped water for human consumption, if such system has at least fifteen service connections or regularly serves a minimum of 25 individuals daily at least 60 days of the year. A Non-Community source is one that serves 25 or more persons, such as a school, factory, campsite, or restaurant. This may be Transient or Non-Transient, depending upon the usage period. Sources that are in use for less than six months are considered Transient.

Currently, no coordinated program exists to monitor and track water quality of private wells in Buckland. The local Board of Health is only able to review private water supplies at the time of

new well installation. Subsequent contamination may remain undetected for years. Because approximately half of the homes in town rely on private wells for water supply, the need for protection of these water resources is important. According to a nationwide study, about 60% of all private wells contain various pollutants at levels exceeding public drinking water standards. The most common sources of private well pollution are septic systems, pesticides, road salt, underground fuel tanks, hazardous waste, and landfills. One gallon of cleaning solvent, waste oil, or gasoline can contaminate one million gallons of ground water. The quantity of water has also decreased noticeably in some existing wells as new housing has drawn upon the same sources.

D.2.3 Septic and Sewer Systems

Sewage disposal in Buckland is primarily by private systems, except for the buildings and homes in a small part of town known as the "Shelburne Falls" district of Buckland. These homes and businesses utilize the Shelburne Falls Waste Water Facility, a shared sewage treatment facility that also covers part of Shelburne. The effectiveness of the private systems is variable and depends on topography, water table, and soils. Dependence on private sewage disposal requires that housing be restricted to soils and slopes that can reasonably be expected to handle on-site sewage systems. Soil types are critical for determining this capacity, and many soils in Buckland are wet, are shallow to bedrock, or are coarse and stony which provide very little filtration to septic leachate since water passes through coarse soils very quickly. While not precluding development in Buckland, the density and total amount of new development in the near future will in large part be determined by the soils and their ability to pass percolation tests.

In many communities across the region, development follows infrastructure improvements. However, given Buckland's very limited community drinking water supply or sewer collection system, the relationship between development and infrastructure appears to be a conditional one. If the soil, drainage, and topographical characteristics of the land are favorable, development will occur. If technology were to remain static, as it may in the near future, development may be limited to those areas that are already developed. As population increases and the land most accessible to development becomes scarce, developers may adopt new and/or alternative septic technologies that would allow for the construction of homes in areas once thought to be beyond consideration.

D.3 Long-Term Development Patterns

Long-term development patterns will be based on a combination of land use controls and population trends.

D.3.1 Land Use Controls

During the Spring of 2004, recognizing that it would be beneficial to complete a full review of the zoning bylaw, revisit recommendations in the 1999 Shelburne-Buckland Master Plan, and consider incorporating incentives or ideas to encourage development that is sensitive to the scenic and natural resources in Buckland, the town requested the assistance of the Franklin Regional Council of Governments (FRCOG). With funding secured from the Trustees of Reservations, Highland Communities Initiative, staff from the FRCOG worked with a town committee to prepare proposed zoning revisions. See the Zoning Map at the end of this section.

In 2005, Town Meeting approved changes to the Zoning Bylaw that included replacing the existing three districts (Residential, Commercial, and Industrial) with six: Rural Residential, Village Residential, Village Commercial, Commercial, Industrial, and Historic Industrial. Most of the land in Buckland is zoned Rural Residential. Shelburne Falls and the nearby neighborhoods are zoned as Village Residential, Village Commercial, or Historic Industrial. There is an area of industrially zoned land to the north of Route 2 in the north-eastern part of Buckland. As part of the 2005 changes, an industrial area in the north-central part of Town was eliminated based on a recommendation from the 1999 Buckland-Shelburne Master Plan, because it is located in a floodplain and is an area of prime farmland soils. Three areas along Route 112 are designated as Commercial Districts.

The use regulations for each district were also revised. The past Bylaws utilized a pyramid zoning scheme, where the residential district was the most restrictive (top of the pyramid), allowing the fewest number of uses, and each subsequent district (commercial then industrial), allowed a greater number of uses. The use regulations were flexible with regard to uses within the zoning districts as long as they were generally in accordance with the category of land use being targeted for a particular zone. The new Bylaws replaced the old use regulations with a Table of Use Regulations, where specific uses are allowed by right, allowed with a special permit, or not allowed in a district.

A subsequent change to the Buckland Zoning Bylaws occurred in 2008 with the addition of a Farm Building Reuse Overlay District. According to the Bylaws, the purpose of the district is "to promote the reuse of vacant or underutilized farm buildings for commercial uses while maintaining open space and existing historical and scenic landscapes in Buckland**,"** and **"**to support farming by allowing an additional revenue source for farmers and to improve the Town's tax base with the addition of commercial uses," (Town of Buckland Zoning Bylaws, Section 6-4 (a), 2010). Farmers with land within the overlay district can sell or lease historic farm buildings for professional office or artisan/craft use. In exchange, at least 5 acres of farmland must be permanently protected. The district is located within 400 feet of Route 112**,** Clesson Brook Road, Upper Street, Cross Street, Old Upper Street, Charlemont Road, and Purington Road.

In addition to the districts described above, Buckland has a Flood Plain Overlay District in which development is allowed as long as it meets a number of provisions to prevent impact to flood storage capacity. The Buckland Zoning Bylaw also contains a Back Lot with Farmland Set Aside, which is intended to encourage the efficient use of land resources in new residential development to increase opportunities for the preservation and continued agricultural use of productive farmland, to preserve land with prime agricultural soil conditions, and to preserve the scenic qualities of the Town. In exchange for the permanent protection of buildable "Approval not Required" (ANR) lots with roadside frontage, a Back Lot Bylaw with Farmland Set Aside allows development in the back of the parcel on an equal number of lots without roadside frontage. The bylaw provides for a common driveway to access the back lots. The intention is to permanently protect this quality roadside area and develop the lots in the back of the parcel as an alternative to a traditional ANR. The incentive for the property owner is that the building lots can be created using a common driveway instead of a subdivision road, which would be more costly and would involve the subdivision process.

The Buckland Zoning Bylaw also contains a Cluster Development/Conservation Bylaw, which is an optional provision that allows residents and developers of land with an alternative to a standard subdivision. The cluster development is a residential development in which the lots are grouped together in one or more clusters within the boundaries of a larger parcel of land. The building lots are reduced in size and concentrated together thereby taking up only a portion of the entire parcel of land. The land not included in building lots is shared by the development's residents as permanently preserved agricultural or forested land or can remain the property of the original landowner if a permanent conservation restriction preventing future development is placed on the land.

A Cluster Development for Commercial Uses bylaw allows for development of a campus-like clustering of a mixture of commercial uses and building types based on a comprehensive site plan in the commercial districts along Route 112. Similar to the Cluster Development/Conservation Bylaw for residential uses, the Cluster Development for Commercial Uses is meant to concentrate development on one portion of a parcel while preserving the remaining land as undeveloped. At least 60% of a parcel must be permanently protected as open space, farmland, or forest, with preference given to protecting active farmland and prime farmland soils. See Prime Farmland and Development Constraints Map at the end of this section.

The Buckland Zoning Bylaw contains a provision regulating the construction of personal wireless service facilities. The site planning requirements for proposed developments are also generally flexible. The Buckland-Shelburne Master Plan recommended the adoption "of Voluntary Design Guidelines for commercial and industrial development in the Village District, along Route 2 and Route 112 and provide density bonuses or parking reductions to encourage its use." The Master Plan also recommended the adoption of "a Ridge Protection Bylaw that would serve to regulate development on the top of a ridge to control erosion and to ensure that uninterrupted views are protected."

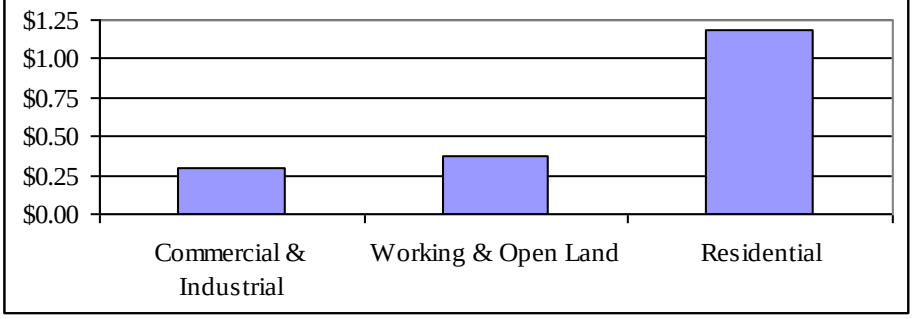
It is clear that Buckland has made strides in recent years to protect the community's rural character and natural resource base. Farmland along Route 112 and other Town roads is considered an important resource to protect, both for the quality of the soils and for the preservation of the Town's character. Further planning is needed to identify key resources worthy of protection and the areas most suitable for development. Recommendations from this Open Space and Recreation Plan update, the 2004 Community Development Plan, the 1999 Master Plan, and other planning efforts should continue to be revisited and implemented by adopting zoning revisions and land protection programs to realize the balance between natural resource protection and development desired by the community. The Town of Buckland has zoning that is designed to promote village, agricultural and rural residential uses, as well as commercial and industrial uses. However, the predominant development pattern is that of residential development in all areas of Buckland. The Rural Residential zoning district is open to large lot residential use with few constraints.

The challenge for Buckland will be to find a model for growth that protects vital natural resource systems like aquifers and prime farmland soils while promoting a stable property tax rate. In designing the model, it is important to understand the measurable fiscal impacts of different land uses. For instance, permanently protected open space (e.g. farmland/forest), residential, and

commercial /industrial development each have a different fiscal impact depending on the relationship of property tax revenues generated to municipal services consumed. There is a process by which the fiscal value of these three different land uses are compared within a town to determine whether a use has a positive or negative fiscal impact. This process is called a Cost of Community Services (COCS) analysis.

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 residential uses cost more in services that they provide in tax revenues and that protection of open space is an effective strategy for promoting a stable tax base. The studies found that for every dollar generated by residential uses they cost on average $1.16 in services, while commercial and industrial uses used 29 cents and open space, an average of only 38 cents. Protected open space results 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 further confirmed by other COCS analyses conducted across the country over the last two decades. Figure 3-1 demonstrates the summary of more than 120 COCS studies. For every dollar of property tax revenues received from residential property, the amount of money expended by the town to support homeowners is over a dollar, while working and open land and commercial and industrial property provide a positive fiscal impact.

Figure 3-1: Summary of Cost of Community Services Studies: Median Cost of Providing Public Services - Per Dollar of Property Tax Revenue Raised - By Land Use
(American Farmland Trust 2007)



Source: American Farmland Trust 2007

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 having a 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 to encourage might have some of the following characteristics: locally owned and operated; in the Services or Agricultural sectors; use of a large amount of taxable personal property; being 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.

To summarize the current situation within the town, several issues should be reviewed. Buckland's population has expanded slowly in the last three decades, and new home construction is appearing along town roads as former forest and agricultural lands are converted to large lot, single-family residences. While population numbers have been expanding slowly within Town, the U.S. Census of 2000 indicates that the older adult population is rising more rapidly than any other age group, due to the aging of Baby Boomers. Most of Buckland's residents are better off financially than the average County resident. However, because there are few commercial or industrial properties to provide tax revenues, residential taxes are relatively high to support town services. Agricultural land uses in Buckland provide the characteristic field/forest landscapes so valued by residents. It is critical to continue to pursue avenues to protect the agricultural heritage of Buckland, including tax incentives and possible Agricultural Preservation Restrictions.

In conclusion, Buckland might consider some of these measures to preserve its resources and generate revenue:

- Promote small business development in the Services and Agricultural sectors to create taxable property for the long-term future wealth and financial security of the Town.
- Protect open space to ensure that Buckland's rural character and historic agricultural landscape is maintained.
- Develop housing for elderly residents, particularly given the rise in the older adult population.
- Continue to preserve and promote Buckland's historic resources. Shelburne Falls is designated as a National Historic District. National designation recognizes the historical value of the area but does not provide guidelines to ensure its protection. A local historic district and associated bylaws incorporating design guidelines can be adopted by Town Meeting to ensure that future development in the area is consistent with the traditional historic character.
- Continue to support and collaborate with Shelburne Falls Area Business Association in promoting community-based recreational events.
- Encourage Shelburne Falls Area Business Association to place an additional focus on agri-tourism and the marketing of local farm and forest based products.

SECTION 4

ENVIRONMENTAL INVENTORY AND ANALYSIS

Residents have cherished the natural resources and scenic landscapes of the Town of Buckland for generations. This section of the Buckland Open Space and Recreation Plan provides a comprehensive inventory of the significant natural and cultural resources in Town. The inventory identifies and qualifies the Town's soils, special landscape features, surface waters, aquifers, vegetation, fisheries and wildlife, unique environments and scenic landscapes. The Environmental Inventory and Analysis provides the town with factual information about existing natural and cultural resources and its relationship to people that is important to understand in order to make informed land use decisions that affect the Town's natural and open areas.

An analysis of each resource area is provided from two perspectives. The first perspective examines the basic ecological services and cultural amenities that the Town's natural resources provide to people that live, work, and visit Buckland. Ecological services include drinking water filtration, flood storage capacity, maintenance of species diversity, and soil nutrient levels. Cultural amenities include the recreational use of open spaces, the quality of life benefits that are maximized by maintaining the area's rural character and scenic beauty, and the direct and indirect benefits that well-conserved natural resources, such as good drinking water and open spaces, have on the local economy. The second perspective examines whether additional conservation measures should be in place to ensure that the required quality and the quantity of each resource is sustained.

The residents of Buckland cherish their natural resources and open space.

Environmental Inventory and Analysis is divided into the following seven subsections. 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 the water bodies in Town, above and below ground, including their recreational value, public access, and any current or potential quality or quantity issues. In the subsection Vegetation, Buckland's forest, farmland and wetland vegetation types are documented including rare, threatened, and endangered species. Fisheries and Wildlife includes a description of wildlife habitat, special corridors, and rare, threatened, and endangered wildlife species. Scenic Resources and Unique Environments in Buckland 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 relating to open space and recreation planning should take into consideration the inherent suitability of a site for different uses. Topography, geology, and soils are essential in determining potential sites for future residential, commercial and industrial development as well as for new parks, hiking trails, and open space.

A.1 Topography

The Town of Buckland is located in the Berkshire Hills. Local terrain is dominated by rolling, till-covered uplands ranging between 1,100 and 1,600 feet in elevation with the highest elevations in the southern and western portions of town. The uplands are incised by the valleys of the Deerfield River and the Clesson and Clark Brooks. The hills generally decrease in elevation as they extend north and east to the Deerfield River Valley. Gentler terrain can be found along the fertile flood plain of the Clesson Brook Valley where much of Buckland's prime farmland soils are located. Clesson Brook extends the length of the town along a northeast axis. Other prime farmland soils can be found near Depot Road in the Deerfield River floodplain and in the Clark Brook Valley.

A.2 Geology

The Town of Buckland 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 Buckland'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 brought alluvium, including gravels, sand and silt. At the time, the area that is now the Town of Buckland 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 Buckland, 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. Later, the westward-flowing streams would become more significant.

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 one thousand (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.

During the end of the last ice age, a great inland lake formed in the Connecticut River Valley. Fed by streams melting from the receding glacier, Lake Hitchcock covered an area approximately 150 miles long and twelve miles wide, stretching from St. Johnsbury, Vermont to Rocky Hill, Connecticut. Streams deposited sand and gravel in deltas as they entered the lake, while smaller silts and clays were carried into deeper waters.

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.

Because of glacial activity, many small pockets of differing soil types are scattered throughout town. The upland soils of Buckland fall into the broad soil group classification called Westminster-Colrain-Buckland association. These soils are suitable to support pastureland, for dairy and other livestock farms and apple orchards, as well as forestland. The river and stream valleys in town, particularly the Clesson Brook floodplains and the Deerfield River floodplains near Depot Road, are formed of a mix of alluvial soils carried by erosion and flooding. These soil types are of the Merrimac-Ondawa association with pockets of Podunk, Agawam, and Sudbury sandy loams and many of them are considered to be prime farmland soils, which would be good for growing crops.

As Buckland plans for the long-term use of its land, residents should consider which soils constrain development, which soils are particularly suited for recreational opportunities and wildlife habitat, and which soils are best for agriculture. Understanding the best use of different types of soil can help lay a foundation for open space and recreation planning in Buckland. The following sub-section provides a description of the soils in Buckland and examines their suitability for use in agriculture, recreation, and wildlife habitat.

The Westminster soils are the predominant soils found on the moderate to steep slopes in the Town of Buckland. These soils are extremely rocky and are well to excessively drained. They developed in thin deposits of glacial till derived mainly from gray mica schist over bedrock. The Westminster series consists of well-drained, slightly droughty, shallow loams with dull-colored subsoil. This soil is typically forested with a thin, crumbly, black loam surface layer about 4 inches thick, covered by 3 or 4 inches of forest litter in various stages of decomposition. At a depth of about 18 inches, it is underlain by dark gray schist bedrock. Outcrops of bedrock occur 10 to 150 feet apart and stones and boulders are scattered on the surface.

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 well-drained fine sandy loams that are found in loose to compact glacial till. The Colrain soils have a moderate to high moisture holding capacity. If this soil has been tilled, it usually has an 8-inch surface layer of dark grayish-brown loam, thick and very crumbly. Stones 12 to 24 inches in diameter are scattered throughout the soil, with occasional boulders. In less sloping, non-stony areas, the Colrain soils are suitable for apple orchards, silage corn, and hay.

The Buckland soils consist of moderately well drained, fine sandy loams. These soils formed in compact glacial deposits and can be found on the nearly level to moderately steep hills in Town. At a level of 20 to 30 inches, the Buckland soils have a hard layer that is difficult to dig. Although water passes through these soils rapidly, the Buckland soils are considered wet and seepy because water moves slowly through the dense substratum.

A.3.1. Soils that Constrain Development

Of the three predominant soil types found in Buckland, the only one that is rated as having only a slight or moderate limitation for development of septic systems, if slopes are not over 15 percent, is the Colrain soil. The Buckland soils have hardpan within 30 inches of the surface, rendering them a severe limitation for septic installation, but acceptable for residential homesites if sewer lines are available. As Buckland currently has no plans to install wastewater treatment facilities outside of the village center, these soils are also deemed unacceptable for development in most parts of town. The Westminster soils have hardpan layers located at 24 inches of depth, contain bedrock ledge, and thus are not suitable for septic systems or residential homesites. As previously noted, the Westminster soils are the predominant soils found on the moderate to steep slopes in Buckland.

A.3.2 Soils Suited for Recreational Activities and/or 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 often attractive to wildlife and to outdoor recreation enthusiasts such as hikers, mountain bikers and snowshoers. The soils in town that support wildlife habitat are those that are a constraint to other types of development. Where soils have prevented building or farming activity due to poor drainage, steep slopes, or bedrock ledge, forests have thrived and offer a habitat for wildlife.

The Westminster-Colrain-Buckland soils found in forested, stony, rocky, gently sloping to steep hills, and the narrow valleys along the Town's fast flowing streams, support some outdoor recreational activities. Westminster soils are shallow and have many rock ledges and outcrops, Colrain soils are deep, well drained, and typically more gently sloping, and Buckland soils are moderately well drained and have a hard layer in the subsoil. The only soils of the main three categories listed as well suited to recreational sports fields are the Colrain soils. These soils are rated as having only a moderate limitation for athletic fields if the slopes are less than 8 percent. The other main types are a severe limitation to this type of development due to high water tables and slowly permeable hardpan.

A.3.3 Soils Suitable 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 and maps on soils suitable for agriculture.

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 defined by NRCS as 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. Both of these types of 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 economy throughout its history and continue to be in use throughout the Town today. The more common soils that constitute Buckland's prime and unique agricultural lands include the Merrimac-Ondawa association and the Colrain-Buckland soils. The Merrimac-Ondawa soils are found on floodplains and terraces in narrow, steep-sided valleys along major, fast flowing streams. The soils are well drained to somewhat excessively drained, and are sandy and gravelly. The Colrain soils are deep and well drained and are found in gently sloping areas, whereas the Buckland soils are moderately well drained, fine sandy loams found in nearly level to moderately steep slopes. All of these soils are considered suitable for dairy farming and the Colrain-Buckland soils support apple orchards as well. The Podunk, Agawam, Sudbury sandy loams are also prime farmland soils intermixed with these broader associations.

These prime farmland soils can be found within the floodplains of the Deerfield River near Depot Road, within the floodplains of the entire length of Clesson Brook, within the floodplains of Clark Brook north of Hog Hollow Road, and in scattered sites throughout town. Some of the best soils for orchards and grazing in Buckland have moderate slopes. Moderate slopes provide good drainage, which is important for cultivating fruit tree orchards as well as for plants suitable for grazing.

The characteristics that make prime farmland soils suitable and valuable for agricultural also make them easy to develop. Large tracts of level, well-drained farmland are attractive to developers because infrastructure (such as roads, sewer and water hookups) often already exists or has a relatively low cost to install or improve for residential use. The Town may want to consider all soils currently in use for agriculture to be rare, valuable, and vulnerable to development. In this case, the Town should consider the protection of these soils and the farm businesses that sustain them when enacting land use bylaws and other land use actions in Town. Landowners may want to consider temporary or permanent forms of land protection as well as farm assistance programs to help them keep this land in active agriculture,

A.4. Analysis

Buckland is primarily a mostly forested landscape, providing rich wildlife habitat that connects to a larger regional ecosystem, as well as opportunities for residents to appreciate the forest through active recreation on existing trails. Residential development is concentrated in Buckland Center but also along more rural roads, where farmland corridors, such as those located along Route 112, offer scenic open fields and historic barns. Upland soils support orchards and pastureland, while river valleys provide fertile soils for growing crops. Water sources in town, such as rivers and streams, offer scenic, recreational and ecological values to the Town, and contain some historically significant early industrial areas. Wetlands and forested areas provide natural filters to protect water quality for Buckland residents.

This scenic riparian corridor offers habitat to wildlife in Buckland.

Understanding the topography, geology and soils of Buckland will help the Town take action to protect important natural resources and ensure that infrastructure and development is sited in appropriate locations. The Town has recently enacted zoning bylaws that contribute to the protection of farmland, natural resources, and open space. The Town's Agricultural Commission and Open Space Committee could work together to encourage residents to support land based businesses in Town, as well as to provide information to farm and forest land owners about programs and protection options to preserve their land and businesses. The Town could consider adopting a Ridge Protection Bylaw to redirect future development away from vulnerable ridge tops, to prevent erosion, protect wildlife corridors, and retain scenic views in coordination with any efforts to identify areas that may be appropriate for siting wind turbines.

B. LANDSCAPE CHARACTER

Buckland is situated in the foothills of the Berkshire Mountains and the character of the landscape is rugged. The landscape is composed of high upland hills, steep slopes, fast flowing streams, hardwood forests and abundant wildlife. The highest hill elevations occur in the western and southern regions of town. In addition to this ruggedness, the gentler lands found

along Clesson Brook, the Deerfield River floodplains, and along upland ridges have historically afforded residents the opportunity for productive farming. The Clesson Brook floodplain bisects the upland hills and extends the length of the town along a northeast axis. The swift waters of this brook historically offered power for small grist and saw mills. The Deerfield River provides a town boundary to the north with the Town of Charlemont and an eastern border with the Town of Shelburne. Shelburne Falls, the primary town center for Buckland and the neighboring Town of Shelburne, developed on the Deerfield River, near the historically important Salmon Falls, a native and colonial fishing site. A secondary upland village center, historic Buckland Center, is located near the geographic center of town, along a north-south corridor between Route 2 and Ashfield.

The Town of Buckland is unique in the region because it combines a rugged, forested upland landscape with a scenic farm valley viewshed, and has a low population density, with little commerce or industry. Buckland's numerous brooks drain this steep, rugged landscape and provide unique riparian habitat for several rare and endangered species, particularly along the Deerfield River and Clesson Brook. Woodland areas, some containing large tracts of unbroken forestland, surround the agricultural fields and orchards in town. Buckland's upland location on the south side of the Deerfield River contributed to the late development of the town. The village of Shelburne Falls is especially notable because many of the original commercial blocks and residential neighborhoods remain intact. The town is situated along Route 2 and within ten miles of Route 91, the two major east-west and north-south traffic corridors in the county. Nineteenth century historical agricultural landscapes remain largely undeveloped today.

C. WATER RESOURCES

Buckland is rich in water resources, including brooks, streams, ponds, vernal pools, wetlands, and aquifers *(See the Water Resources Map)*. This section focuses on waters within the Town of Buckland, but it is important to keep in mind that improvements in water quality to the brooks and streams in town have impacts beyond Buckland's borders.

C.1 Watersheds

As described in Section 3, land in the Town of Buckland is part of the Deerfield River Watershed, which is a part of the Connecticut River Watershed. The Clesson Brook and Clark Brook are also important sub-watersheds within the Deerfield River Watershed.

The Connecticut River is New England's largest watershed (11,260 square miles) and longest river (410 miles). The Connecticut is nationally significant. In 1991, Congress established the Silvio O. Conte National Fish and Wildlife Refuge, the only refuge in the country to encompass an entire watershed – the Connecticut River watershed is in New Hampshire, Vermont, Massachusetts and Connecticut. In 1998, the Connecticut River became one of only fourteen rivers in the country to earn Presidential designation as an American Heritage River.

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 20 western Massachusetts towns. From its headwaters at Stratton

Mountain in Vermont, the Deerfield River flows southeastward for approximately seventy 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 (DFWELE) 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, DFWELE; 2001). The River also supports native and stocked trout, making the Deerfield River one of the premier rivers for fishing in the region.

The Clesson Brook Watershed is located within the two towns of Hawley and Buckland, draining 21.2 square miles. It is comprised of numerous small streams, many of which originate in the uplands of eastern Hawley, as well as western Buckland. The headwaters of Clesson Brook originate at an unnamed pond in eastern Hawley and then flow through Cox Pond. From the outlet of Cox Pond, the brook flows toward the east through steep terrain as it enters Buckland. Cooley Brook and Ruddock Brook contribute their waters to the Clesson at this point. The brook then winds around Drake Hill and flows southeast until it reaches Buckland Four Corners. Historically, Clesson Brook was the site of seven sawmills due to the harnessing of the fast flowing brook for hydropower. From there, the Clesson flows northeast with a gentler gradient and the floodplain widens to allow farming. The brook runs parallel with Route 112 until it reaches a small, unnamed impoundment where it joins Clark Brook. Clesson Brook then flows a short distance to its confluence with the Deerfield River in Buckland. The Clesson is considered to be a Class B, cold-water fishery, with a high quality water designation (Mass. DEP website, 2002). Forests dominate the upland slopes of the watershed while the floodplain areas in the valley are mostly agricultural. Residential development in the watershed is primarily concentrated within the river floodplain.

While the DEP recommended that Clesson Brook should not be placed on the 303(d) list of impaired waters, it noted that much of the flood plain in the lower sub-watershed had agricultural activities which could impair the quality of the lower 2.4 miles of the stream if best management practices (BMPs) are not implemented (MA DEP; 1996). Fields are plowed close to the stream edge, allowing for possible siltation and other habitat alterations. Because the DEP was uncertain whether BMPs were being used, it recommended that farmers should be working with the Natural Resource Conservation Service to implement these measures.

The Clark Brook subwatershed is located in the eastern half of Buckland. Clark Brook originates in southern Buckland in a steep narrow valley between May Lyon Hill and Moonshine Hill and

flows north toward the Deerfield River. The brook parallels East Buckland Road until it flows beneath Route 112 and joins Clesson Brook in a small, unnamed pond. The Clark Brook is also considered to be a Class B, cold-water fishery, with a high quality water designation (Mass. DEP website, 2002).

C.2. Surface Water

The following is an inventory describing Buckland's rivers, streams, brooks, and ponds. It focuses on public access and recreational value of these waters as well as any water quality issues.

C.2.1 Deerfield River

The Deerfield River is a major tributary to the Connecticut River and extends 70.2 mainstem river miles from the river's source on Stratton Mountain (VT) to its mouth in Greenfield, MA.

The beginning of the Deerfield River in Massachusetts is at the outlet of Sherman Reservoir dam in Monroe and Rowe, Massachusetts. Sherman Reservoir lies across the Vermont-Massachusetts border and is fed by the drainage of both the main branch of the Deerfield River and the South Branch of the Deerfield River in Vermont. From the outlet of Sherman Reservoir dam in Massachusetts the river flows generally south and then easterly 44 miles to its confluence with the Connecticut River[5].

The Massachusetts Surface Water Quality Standards (SWQS) assign all inland and coastal and marine waters to classes according to the intended beneficial uses of those waters. For example Class A waters are designated as the source of public water supplies and, where compatible with this use, should also be suitable for supporting aquatic life, recreational uses such as swimming and boating, and fish consumption. Class B waters are not water supplies, but are designated for all of the other uses cited above for Class A. Finally, Class C waters should be suitable for aquatic life and recreational uses where contact with the water is incidental, such as boating and fishing, but may not be suitable for swimming, diving, or water skiing.[6]

The Deerfield River Watershed 2000 Water Quality Assessment report, prepared by the Massachusetts Department of Environmental Protections' Division of Watershed Management and published in 2004, provides an assessment of whether designated uses defined by Massachusetts Surface Water Quality Standards are supported, impaired, or not assessed for given surface waters.

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. Class B waters are not water supplies, but are designated as suitable for supporting aquatic life, recreational use (such as swimming and boating) and fish consumption.

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

[5] The Deerfield River Watershed 2000 Water Quality Assessment, Mass Department of Environmental Protection, 2004.
[6] 2008 Massachusetts List of Integrated Waters by the Division of Watershed Management, Department of Environmental Protection (DEP.

bodies in the state that the Massachusetts Department of Environmental Protection (DEP) has placed on its 1998 Section 303(d) List of Waters The Federal Clean Water Act (Section 303(d)) requires states to identify those water bodies that are not meeting surface water quality standards after the implementation of technology-based controls and prioritize 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. Massachusetts DEP has a TMDL program that identifies the steps and technologies needed to reduce the pollutant or source of impairment for each impaired water body in Massachusetts to reduce pollution from both point and nonpoint sources in order to meet water quality standards.

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. While continued and more recent testing has been conducted, final results of more recent EPA Assessment Data are not yet available.

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 high rainwater events, with stormwater runoff, do pose a bacterial threat at several of the monitored sites, making them unsafe for swimming at those times. Samples were collected by DWRA for pH, D.O., alkalinity, and temperature once during April in 2001 and 2002. However, due to the limited number of samples the results were not used in the DEP Deerfield River Watershed Water Quality Assessment.

Recreational opportunities in the Deerfield River abound. Hiking, biking, whitewater sports, non-powered boating, hunting, fishing, cross-country skiing, and snowshoeing are some of the activities enjoyed by residents and visitors.

Table 4-1: Summary of Data from MA DEP 2000 Water Quality Assessment Report

Location	Aquatic Life	Fish Consumption	Primary Contact (e.g. Swimming)	Secondary Contact (e.g. Boating)	Aesthetics	Overall Ranking of Segment
SEGMENT MA33-01: Outlet of Sherman Reservoir in Monroe/Rowe to confluence with the Cold River - Length -13.4 miles	Threatened Due to habitat alteration relating to high temperatures and undetermined enrichment.	-Support – with Alert (1)	Support	Support	Support	Class B (Cold Water Fishery)

Location	Aquatic Life	Fish Consumption	Primary Contact (e.g. Swimming)	Secondary Contact (e.g. Boating)	Aesthetics	Overall Ranking of Segment
SEGMENT MA33-02: Confluence with the Cold River to the confluence with the North River. Length – 11.4 miles	Support with Alert (2)	Not Assessed	Support	Support	Support	Class B (Cold Water Fishery)
SEGMENT MA33-03: Confluence with the North River to the confluence with the Green River. Length – 17 miles	Support with Alert (3)	Full Support	Support with Alert (4)	Support	Support	Class B (Warm Water Fishery)
SEGMENT 33-04: Confluence with the Green River to the confluence with the Connecticut River. Length – 2.0 miles	Support with Alert (5)	Support	Support	Support (Note: Higher counts not in excess of the water quality standards do occur in this section of the river when the Gfld WPCP is not chlorinating its discharge)	Support with Alert (6)	Class B Warm Water Fishery)

Source: Deerfield River Watershed 2000 Water Quality Assessment Report; Massachusetts Department of Environmental Protection (published in 2004).

(1) Aquatic Life for this segment is assessed as Support based on the good survival of test organisms exposed to the *Deerfield River and the water quality data but identified with an Alert Status because of concerns reported to the Deerfield River Watershed Team from river users' observations regarding flow regulation (hydromodification) resulting from the operations of the hydroelectric generating facilities (EOEA 2002, EOEA 2003 and EOEA 2004).*
(2) Aquatic Life for this segment is assessed as Support based on the generally good survival of test organisms exposed to the Deerfield River and the water quality data. This use, however, is identified with an Alert Status because of concerns reported to the Deerfield River Watershed Team from river users' observations regarding flow regulation (hydromodification) resulting from the operations of the hydroelectric generating facilities (EOEA 2001, 2002, 2003 and 2004).
(3) Aquatic Life for this segment is assessed as Support based on the benthic macroinvertebrate community analysis, high survival of test organisms exposed to the river water, the water quality data, and with the exception of arsenic, the limited sediment quality data. The concentration of arsenic in sediment samples collected behind the Deerfield No.3 Gardner Falls, and Deerfield No.2 dams in this segment of the Deerfield River were slightly elevated, but is due likely to natural background conditions typical of sediment from New England freshwater rivers (ESS 2002). This use, however, is identified with an Alert Status because of concerns reported to the Deerfield River Watershed Team from river users regarding flow regulation (hydromodification) resulting from the operations of the hydroelectric generating facilities (EOEA 2001, 2002, 2003 and 2004.
(4) Primary Contact Recreational Use is identified with an Alert Status because of episodic elevated bacteria counts documented by DRWA during wet weather particularly at the confluence with the South River.
(5) Aquatic Life Use for this segment of the Deerfield River is assessed as support based on the good survival of test organisms exposed to the river water and the water quality data. This use, however, is identified with an Alert Status because of concerns

reported to the Deerfield River Watershed Team from river users regarding flow regulation (hydromodification) resulting from the operations of the upstream hydroelectric generating facilities. Whether or not minimum flow requirements are being met and the effect, if any, of the hydropower generating developments on instream habitat and aquatic life is of concern and merits further investigation. The one episode of elevated total phosphorus and instream turbidity is also of concern.
(6) Aesthetics Use is also assessed as support based on the generally high aesthetic quality of the river. This use, however, is identified with an Alert Status because of concerns about observations of high turbidity that could not be explained.

Recommendations from the Deerfield River Watershed 2000 Water Quality Assessment Report for these four segments of the Deerfield River are in Appendix D.

Surface Water Resources in the Deerfield River Watershed:

First Brook

First Brook drains the northwest slope of Snow Mountain and the northern slope of Hog Mountain in northwestern Buckland. It flows in a northward direction and empties directly into the Deerfield River.

Unnamed Brook #1

Unnamed Brook #1 is located to the east of First Brook and drains the northern slope of Snow Mountain. After crossing beneath Charlemont Road, the brook meets the Deerfield River.

Second Brook

Second Brook is located in northern Buckland and has its headwaters in a small pond near Charlemont Road. It drains the southeast slope of Snow Mountain and the northwest face of Walnut Hill, to converge with the Deerfield River.

Third Brook

Third Brook drains the northern face of Walnut Hill and is located in northern Buckland. It converges with the Deerfield River near the western edge of the rich farmland on the wide Deerfield River floodplain.

Tributary D

Tributary D has its origins near Crittenden Hill Road on the northern slopes of Goodnow Hill. The brook flows north, beneath Route 112, and between the Mohawk Regional High School and the Buckland Recreation Area, before it meets with the Deerfield River.

Bray Brook

Bray Brook has its headwaters in Goodnow Pond, southwest of Shelburne Falls. The brook flows northeast beneath Elm Street and Conway Road before converging with the Deerfield River south of Lamson & Goodnow.

Goodnow Pond

The eleven-acre Goodnow Pond is the largest body of fresh water in town and is located in eastern Buckland near Goodnow and Stone Roads. The MA DEP lists the pond's water as eutrophic (1996) and aquatic vegetation covers a portion of the pond's surface area. Due to these noxious aquatic plants, Goodnow Pond was placed on the Massachusetts DEP's List of Impaired Waters. The MA DEP is responsible for identifying those waters that are impaired and developing a plan to bring them back into compliance with the Massachusetts Surface Water Quality Standards. The Integrated List of Waters list of impaired waters identifies rivers, lakes,

and coastal waters and the reasons for impairment. While the Massachusetts Year 2008 Integrated List of Waters no longer categorizes Goodnow Pond as impaired, the Pond was categorized as "those waters for which insufficient or no information was available to assess any uses", pointing to the possibility that the quality has not necessarily improved.[7]

Clesson Brook winds its way south toward Buckland's Four Corners.

C.2.3 Clesson Brook

Clesson Brook flows 10.3 miles from an unnamed pond south of Forget Road through Cox Pond in Hawley, then easterly through steep terrain entering the Town of Buckland and then bends around Drake Hill to flow southeast until it reaches Buckland Four Corners. From here the brook flows northeast with a lower gradient and a wider floodplain, parallels Route 112 until it joins Clark Brook and continues a short distance to its confluence with the Deerfield River.

Table 4-2 Summary Table of Testing Results for Clesson Brook

Location	Aquatic Life	Fish Consumption	Primary Contact (e.g. Swimming)	Secondary Contact (e.g. Boating)	Aesthetics	Overall Ranking of Segment
SEGMENT MA33-15: Outlet of unnamed pond south of Forget Road, Hawley through Cox Pond to confluence with Deerfield River - Length -10.3miles	Support – with Alert [8]	Not Assessed	Support	Support	Support	Class B

Source: Deerfield River Watershed 2000 Water Quality Assessment Report; Massachusetts Department of Environmental Protection (published in 2004).

[7] http://www.mass.gov/dep/water/resources/tmdls.htm

[8] *Aquatic Life is assessed as Support based on the limited water quality data and best professional judgment. It is noteworthy that although temperature and oxygen levels met cold water fishery standards, salmonids were not collected during sampling of this proposed cold water fishery. This use is, therefore, identified with an "Alert Status" because of the absence of salmonids in the fish population sample and because the habitat assessment identified a number of potential concerns that may be impacting the habitat.*

Recommendations from the Deerfield River Watershed 2000 Water Quality Assessment Report for Clesson Brook are included in Appendix D.

Surface Water Resources in Clesson Brook Watershed (sub-watershed of the Deerfield River):

Cooley Brook

Cooley Brook is located in southwestern Buckland with its headwaters originating in Hawley State Forest, in eastern Hawley. The brook flows southeasterly to its confluence with Clesson Brook near the town line between Buckland and Hawley.

Ruddock Brook

Ruddock Brook is located in southwestern Buckland. It originates in eastern Hawley and runs parallel to Dodge Corner Road. It drains the southwestern slope of Hog Mountain, before joining Clesson Brook less than one half mile east of the confluence with Cooley Brook.

Shepard Brook

Shepard Brook originates in the valley between Snow Mountain and Hog Mountain. It flows in a southeasterly direction and runs parallel to Shepard Road, to its confluence with Clesson Brook, approximately one half mile east of Orcutt Hill Road.

Upper Branch Brook

Upper Branch Brook has its headwaters in Ashfield in Apple Valley. The brook flows alongside Apple Valley Road, draining north into Buckland, then south into Ashfield, before converging with Smith Brook, a tributary stream to Clesson Brook.

Smith Brook

Smith Brook originates in the highlands of Ashfield, at the Upper Reservoir on Bear Swamp Road. The Upper Reservoir is the primary drinking water source for Ashfield's town center. Smith Brook parallels Smith Branch Road and Route 112, flowing north until it converges with Clesson Brook, just north of Four Corners.

Unnamed Brook #2

Unnamed Brook #2 originates on Lone Tree Hill and drains those southern slopes. It flows southeast, flowing beneath Upper Street, to its confluence with the Clesson Brook.

Maynard Brook

Maynard Brook has its headwaters in a wetlands area north of Avery Road. This Unnamed Brook flows east to connect with Clesson Brook north of Hog Hollow Road.

Unnamed Brook #3

Unnamed Brook#3 originates on the northwestern slopes of Mary Lyon Hill. It parallels Martin Road until it reaches its confluence with Clesson Brook along Lower Street.

Unnamed Brook #4

Unnamed Brook #4 originates on the northwestern slopes of Putnam Hill and crosses below Hog Hollow Road before it converges with Clesson Brook near the Atherton Farm.

C.2.4. Clark Brook

Clark Brook originates in Buckland, flows 3.8 miles through a steep narrow valley between Mary Lyon Hill and Moonshine Hill, parallels East Buckland Road until it flows under Route 112, and then joins Clesson Brook in a small, unnamed pond before its confluence with Deerfield River in Buckland.

Table 4-3 Summary Table of Testing Results for Clark Brook

Location	Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics	Overall Ranking of Segment
SEGMENT MA33-16: Headwaters near Moonshine Rd (Howes Rd)/E. Buckland Rd to confluence with Clesson Brook, Buckland Length - 3.8 miles	Support [9]	Not Assessed	Not Assessed [10]	Not Assessed	Support	Class B

Source: Deerfield River Watershed 2000 Water Quality Assessment Report; Massachusetts Department of Environmental Protection (published in 2004).

Recommendations from the Deerfield River Watershed 2000 Water Quality Assessment Report for Clark Brook are included in Appendix D.

Surface Water Resources in Clark Brook Watershed (sub-watershed of the Deerfield River):

Unnamed Brook #5

Unnamed Brook #5 originates on the east slope of Mary Lyon Hill, at the pond near the Mary Lyon homestead. The waters flow east to converge with Clark Brook along East Buckland Road.

Unnamed Brook #6

Unnamed Brook #6 has headwaters on the northern slopes of Mary Lyon Hill. The brook drains north through a small pond, then east, before converging with Clark Brook.

Tributary B

Tributary B originates near Nilman Road. This brook flows north, parallel with Nilman Road for much of its length, before emptying into Clark Brook near East Buckland Road.

C.3 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, while 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

[9] *Aquatic Life* use in Clark Brook is assessed as Support based primarily on fish population information. The presence of multiple age classes of brook and rainbow trout is indicative of excellent habitat and water quality. Furthermore, these fish are fluvial specialists, which suggests that the flow regimes have not been compromised in this brook.

[10] *The recreational uses (primary and secondary) of Clark Brook were not assessed due to limited current bacterial data.*

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.

Information regarding 100-year floodplains in Buckland has been obtained from the National Flood Insurance Map (1980) and the *Flood Insurance Study: Buckland, MA* (FEMA; 1979).

According to the *Flood Insurance Study: Buckland, MA* (FEMA; 1979), major flooding occurred on the Deerfield River six times during the 65 years between 1914 and 1979. Some of these events were of such severity that dams, structures, and roadways were destroyed. A major flood also occurred in 1987, after the report was published. Clesson Brook has also experienced extensive flooding so it was included in the study. The major floods in Buckland have resulted from rainfall or precipitation combined with snowmelt. The Town of Buckland does not have flood control structures within its borders and thus utilizes land use regulations, which control building in areas with risk of flooding. Within Buckland's Zoning Bylaws, a Flood Plain District has been established which addresses compatible land uses and building requirements within the 100-year floodplain.

The National Flood Insurance Map (1980) shows that a 100-year floodplain exists along Deerfield River, Clesson Brook, Clark Brook, along tributaries to those brooks, and around Goodnow Pond. The most extensive 100-year floodplain in Buckland is at the convergence of Clesson and Clark Brooks with the Deerfield River, near Depot Road.

The Town of Buckland has adopted a Floodplain Overlay District to regulate development (structural and nonstructural activities whether permitted by right or by special permit) within the floodplain district to minimize flood damage, manage stormwater runoff, and protect groundwater and wetland resources that can provide important flood storage capacity. Other land use measures have been adopted in Town in recent years that are not specifically designed for flood mitigation and control but that naturally help prevent or mitigate the impacts of flooding by helping to preserve natural sites including floodplains, wetlands, and water bodies. These bylaws and regulations include Backlots with Farmland Set Aside, the Cluster Development Conservation Bylaw – Minimum Standards, and portions of the Subdivision Regulations (i.e. those portions related to wetlands protection, conservation restrictions and storm water drainage). *(Town of Buckland Local Natural Hazards Mitigation Plan, 2005*)

Buckland participates in RiverFest, an annual tribute to the Deerfield River and the role it plays in people's lives and the ecosystem of western Massachusetts. The event includes a children's parade, displays, and demonstrations aimed at educating residents and visitors in order for them to gain a greater understanding and appreciation of this valuable natural resource. This celebration takes place in Shelburne Falls in June, and promotes local shops and restaurants as well as natural resource based activities for participants such as organized hikes, river rafting and a birds of prey demonstration. Riverfest is sponsored by the Deerfield River Watershed Association, local businesses, and local Cultural Councils from Buckland, Charlemont, Hawley, Colrain, Conway, Heath, Rowe, and Shelburne. (www.deerfieldriver.org/RiverFest.htm)

The following action items are recommended in the 2005 Buckland Natural Hazard Mitigation Plan in order to further strengthen existing land use regulations in Buckland related to flood mitigation and prevention:

- Review and update the Floodplain District Overlay Zoning Bylaw. Special consideration should be given to further restricting or limiting new development with the 100-year floodplain.
- Support local and regional, watershed-wide open space protection efforts, particularly in floodplain areas.
- Consider implementing standards to require temporary and permanent erosion control measures for streams and surface water bodies and prohibiting permanent alterations of watercourses or streams.
- As appropriate, consider adding flood prevention and mitigation to the Purpose section of the Zoning and Subdivision Regulations.

The Town may also want to consider having floodplains and other natural areas that provide flood protection be one of the criteria to be considered when evaluating possible land in Town for purchase and/or protection of open space.

C.4 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 wetland 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 pollutants. 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; and

some towns also have their own, local wetlands regulations. Many of Buckland's wetlands can be found in its uplands in isolated forested areas. Some of these wetlands are mapped by the National Wetlands Inventory (NWI) (*see Water Resources map).*

C.5 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. In Buckland, NHESP has identified 17 potential vernal pools. 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. Potential vernal pools can be found by listening for the mating choruses of frogs and toads in early spring.

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. Guidelines for the certification of vernal pools were revised in 2009 to increase the confidence that pools that become certified provide essential breeding habitat for certain amphibians that require vernal pools. Certified vernal pools are protected by the Massachusetts Wetlands Protection Act and by additional state and federal regulations. Certifying the existence of potential vernal pools would provide additional protection to these wetlands and the species that use them.

Two certified vernal pools have been identified and certified in Buckland according to 2010 NHESP data *(http://www.mass.gov/dfwele/dfw/nhesp/vernal_pools/vernal_pool_data.htm)*. One vernal pool is located in the northeast part of town, north of Route 112 and south of Route 2. The second is located in the eastern part of Town on Elm Street. In order to identify vernal pools, Buckland should encourage its residents to work with experts (and/or residents with expertise) in the to to document and report vernal pools according to NHESP's guidelines and standards (available on NHESP's website, www.nhesp.org) and request verification from NHESP. This could be a project for the Conservation Commission or the Planning Board.

C.6 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, including those in Buckland, 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, Buckland does not possess any high-yield aquifers, but it does contain many areas considered to have low-yield aquifers, defined as an aquifer with the potential to provide a pumping volume of 0 to 50 gallons per minute. These areas are along the entire length of the Deerfield River bordering Buckland, and along most of Clesson Brook and Clark Brook. The low-yield aquifer is widest in Buckland where the Clesson and Clark Brooks converge with the Deerfield River. The community water supply wells for Mohawk Trail Regional High School and Buckland Recreation Area are located in this area. *(See Water Resources Map)*.

Buckland's surficial geology has characteristics that would support other low-yield aquifers as well. According to MassGIS and the USGS, the following areas also support low-yield aquifers:

- The southern end of Bray Road, where it intersects with Howes Road;
- The eastern end of Apple Valley Road in Buckland; and,
- Several other scattered sites throughout town.

The USGS identified one area along the Deerfield River, in Shelburne Falls on the Shelburne side, which contains a high-yield aquifer. However, that area was found unsuitable for development as a community well source because of current land uses. For this reason, the Shelburne Falls Fire District (SFFD) water resources are located within the North River watershed in the Town of Colrain, on Call Road.

The areas that contribute to public water supply wells are known as recharge areas. The primary recharge to the aquifer that contains the SFFD wellfield is the North River in Colrain. The Massachusetts Department of Environmental Protection strictly regulates an area within a radius of 100 to 400 feet of public water supply wells, known as the "Zone I," and land uses in this area are restricted to water supply related activities only. Primary recharge areas are determined by hydrological studies involving pump tests and wells that monitor the level of groundwater in proximity to the public water supply well. The SFFD wellfield has a Zone I radius of 400 feet. SFFD owns all of the land within the Zone I except the farmland across the North River, which is held in an APR program and is therefore difficult to purchase. DEP recognizes that the SFFD has actively pursued methods to protect the land within Zone I, and has granted approval for the wells.

The DEP also regulates a newly established Zone II protection area, which was delineated by consultants utilizing geologic mapping, and analytical and numerical modeling. Data for the analysis was gathered from extended pumping tests. A Zone II is that area of an aquifer that contributes to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield with no recharge from precipitation) (Mass. DEP; 2001). The Zone II area contributing to this well field extends from the USGS gage station in the village of Shattuckville, Colrain, to approximately one mile northward of the confluence between the east and west branches of the North River, a distance of about two miles.

According to the Source Water Assessment and Protection (SWAP) Report (2003), the North River aquifer is considered to be highly vulnerable to contamination, due to the absence of a hydrogeologic barrier (such as clay) that could prevent contaminant migration from surrounding land uses.

C.7 Surface Water Reservoirs

The Fox Brook Reservoir located north of Call Road in Colrain is an emergency water source for the Shelburne Falls Fire District. The reservoir has a surface area of three (3) acres and a storage capacity of twelve (12) million gallons.

C.8 Potential Sources of Public and Private Drinking Water Supply Contamination

Potential sources of contamination of public and private wells include septic systems, sub-surface fuel tanks, manure piles, improper use, storage and disposal of hazardous materials, fuel or hazardous chemical spills, herbicide runoff from farmland, utility rights-of-way, state highway vegetation control, and road runoff. These possible contaminants can come from a variety of sources, including commercial, agricultural and residential uses. It is important to note that these are potential sources of contamination only if the contaminants are managed improperly or accidents occur.

D. VEGETATION

Plants are a critical component of ecosystems in Buckland. 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 approximately 81 percent of the Buckland's total land area[11] and are one of the Town's most important renewable natural resources. The Town's forests are diverse, including Northern hardwoods and conifers; high-terrace floodplain forests; rich, mesic forests; and cobble bar forests. This section describes vegetated areas in Town and their ecological and economic significance.

D.1 Forests

Northern Hardwood Forest

Buckland is located in the Northern Hardwoods Region (USDA, 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 tremuloide*s and *P. grandidentata*), eastern white pine (*Pinus strobus*), red spruce (*Picea rubens*) and red oak (*Quercus rubra*).

Buckland contains areas in the eastern part of Town identified by the Harvest Forest as forested in the 1830s that may not ever have been tilled, placing them in a category of Primary Forest with greater biodiversity value than forest with soils that have been tilled over time.[12] Native biodiversity unique to these areas typically includes soil fauna and flora, microorganisms and plants that produce primarily vegetatively, as well as species of wildflowers not common in other areas. Harvest Forest has GIS maps available showing primary forests by town. *(Harvard Forest, 2002, 1830 Map Project*). The town of Buckland should recognize the value of these Primary Forest areas for conservation acquisition to maintain biodiversity in town and the region. *(NHESP, 2010).*

[11] 2005 MassGIS Land Use data

[12] Primary Forests are not the same as Old Growth forests, as they have likely been pastured and/or harvested over time.


A red oak stands in the foreground of this hardwood forest.

D.2 Public Shade Trees

Maintaining the rural character of Buckland is a top priority for its residents. Public shade trees live along Buckland's roads and in its villages, parks, and cemeteries. These trees promote both environmental quality and quality of life for residents and contribute to the Town's character.

Trees in Buckland's commercial district have many benefits. Trees can offer a shady respite from hot summer sun, can minimize demands on air conditioning, can reduce stormwater runoff, particularly when planted in vegetated swales, and can add to the charm and aesthetic appeal of a streetscape. Mature shade trees in cemeteries and parks offer shade to visitors and increase the appeal of the landscape.

Good stewardship of existing mature shade trees and planting of new trees help maintain the rural character of the Town. Trees situated along heavily traveled roads, such as along Route 112 in Buckland, can be subject to such stresses as soil compaction, salt and automobile pollution, power line pruning and injuries from snowplows and other large vehicles.

Growing trees successfully in a streetscape setting requires careful planning and preparations to the site and soil along with consideration of challenges such as overhead power lines. Consultation with an arborist or with the Massachusetts Urban and Community Forestry Program (MUCFP)[13] would be a good first step in planning for and maintaining public shade trees. The MUCFP also offers training and public education resources.

[13] http://www.mass.gov/dcr/stewardship/forestry/urban/index.htm

D.3 Unusual Natural Communities

The Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fish, Wildlife and Environmental Law Enforcement has noted the Town of Buckland as having a number of uncommon ecologically significant natural plant 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 likely to occur in the Town of Buckland based on vegetation, although it is not yet documented by NHESP. The rich, mesic forest is a 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.

Rare plants known to occur in Buckland's rich, mesic forests include the Barren Strawberry (*Waldsteinia fragarioides*), a member of the Rose family. It prefers rich wooded areas or semi-open banks, but also does well in cool, wooded areas and in sandy, dry soil. Woodland Millet or Millet Grass (*Milium effusum L.*) occurs on steep slopes within the rich, mesic forest, where the soil has a high calcium content. The Hooded Ladies'-tresses (*Spiranthes romanzoffiana*) are also a rare species that can be found in this community.

Riverside Rock Outcrop

Riverside Rock Outcrop communities occur on flood-scoured bedrock along rivers. The outcrops may be low or steep along the river's edge, or extending into the river channel with soil accumulated in rock crevices. While these areas are regularly disturbed by almost annual flooding and ice scouring, proximity to the river's edge may alleviate some to the harsh conditions found on sand in open areas. The sparse, mostly herbaceous vegetation tend to be hardy, limited to crevices where soil accumulates. Typically, a mix of only a few plant species will be found per site. Examples are harebell (*Campanula rotundifolia)*, Canadian burnet (*Sanguisorba canadensis*), big blue stem (*Andropogon gerardii*), and goldenrods (*Solidago* spp.). Nonnative species that commonly occur in the Riverside rock outcrop communities are Purple loosestrife (*Lythrum salicaria*) and Canada bluegrass (*Poa compressa*). The riverside rock outcrop community is found along the Deerfield River, south of Shelburne Falls.

Riverside Seep

Riverside Seep communities occur within somewhat protection areas 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 Rock Outcrop

communities and high-energy riverbanks. In Buckland, the NHESP program has documented Riverside Seeps along the Deerfield River west of the aqueduct, and along Clesson Brook.

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.

D.4 Agricultural Land

In 1999, agricultural land in Buckland, which includes cropland, pastureland, orchards and nurseries, comprised 9.2 percent of the Town's total land area based on MassGIS data. 2005 data from the same source shows a total of 1,100 acres or 8.7 percent of the total land area in town. The U.S. Census of Agriculture does not provide municipal-level data for the amount of land in farms. Buckland's agricultural land is located primarily along the Clesson Brook Valley, and the Deerfield River floodplain near Depot Road. Agricultural lands can also be found along Clark Brook, in Apple Valley, and in scattered sites around town.

Table 4-4: Farms of Buckland, Massachusetts

Family	Farm Name	Primary Products
Paul Willis	Clesson Brook Farm	Dairy
Glen Schmidt	Walnut Hill Farm	Vegetables
Edmund Smith	Glistening Brook Farm (Historic 1851 farm)	Hay, Dairy
Sue Atherton	Atherton Farm	Vegetables, Hay
Colin Scott	E & J Scott Orchards	Apple Orchards, Beef, Wood
Ben Murray	Red Gate Farm	Educational / Recreational Farm
Sandy and Glenn Cardinal	Johnson Hill Farm	Lavender/Recreation
Dennis Bruffee	Buckboard Veggies	Vegetables and Flowers
Lauren and Erik Abend	Earthfire Farm	Chicken, Lamb & Pork; Meat CSA
Mark Benjamin	Leaping Frog Farm	Vegetables, Fruits; CSA
Sam Purington	Purington	Maple Syrup, Beef, Hay
Diane and Charles Wilder	Wilder	Beef, Horses
Charles Patnode	Patnode	Goats, Cattle, Chicken
Francis Trow	Clock Hollow Farm	Beef, Hay

Source: Buckland Open Space and Recreation Committee, 2010, Massachusetts Department of Agricultural Resources www.mass.gov/agr/massgrown/map.htm, Communities Involved in Sustaining Agriculture www.buylocalfood.org.

According to the Massachusetts Department of Agricultural Resources (DAR) (formerly the Department of Food and Agriculture), there are two dairy farms in the Town of Buckland. One of these farms has been designated as a Massachusetts Century Farm for having been owned or worked by the same family for at least one hundred years. Glistening Brook Farm has been in existence since 1851. See Table 4-4 for a list of farms in Buckland.

D.5 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 Buckland. 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. See Environment Habitat Map for locations of priority habitat.

NHESP has identified 259 native plant species as rare in the Commonwealth, and nine rare plants have been documented in the Town of Buckland, with two of them listed as endangered (See Table 4-5). 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).

Several rare plants are known to occur, or have been identified in the past, in Buckland. The two endangered species listed in Buckland, as well as three threatened species and one of special concern all have not been observed in town since the early twentieth century (see Table 4-5) and may no longer be in existence within town borders, due to forest succession, development, and habitat loss. Tradescant's Aster is found predominantly on rocky ledges along the Deerfield River within the range of spring floods. Mountain Alder is a threatened species also found on exposed ledges along rivers. Autumn Coralroot, a species of special concern, is an orchid found mostly in moist, limey forests. Several plant species – Putty-Root and Mountain Firmoss - were found in Buckland in the early 1900's but have not been located more recently. Forest succession, development, and habitat change may have contributed to the loss of the species, or they may continue to exist unnoticed, although they have been sought.

Table 4-5: Rare Plant Species in the Town of Buckland

Scientific Name	Common Name	State Status	Most Recent Observation
Aplectrum hyemale	Putty-Root	Endangered yes	1904
Huperzia selago	Mountain Firmoss	Endangered - yes	1899
Aster tradescantii	Tradescant's Aster	EThreatened	2002
Ophioglossum pusillum	Adder's -tongue-fern	Threatened - yes	1913
Sanicula odorata	Long-Styled Sanicle	Threatened - yes	1907
Platanthera dilatata	Leafy White Orchid	Threatened	1932
Alnus viridis *spp.* crispa	Mountain Alder	Threatened	2004
Amelanchier sanguinea	Roundleaf Shadbush	Special Concern	1911
Corallorhiza odontorhiza	Autumn Coralroot	Special Concern	2006

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2009. http://www.mass.gov/dfwele/dfw/nhesp/species_info/town_lists/town_b.htm#buckland

D.6 Analysis

Plants and animals are the visible 'citizens' of the ecosystems in Buckland. Plants convert solar energy into food that supports all animal life. Plants cycle energy through the ecosystem by decaying, removing carbon, and shedding oxygen. Plants also help moderate temperatures and act as shelter and as feeding surfaces for herbivores, omnivores, and carnivores. It is easy to take

plants for granted because they are the backdrop for our daily activities. Fields, a maintained stage of human-caused vegetation, are important wildlife habitat for many species.

The information provided here also emphasizes the importance of forests: they protect aquifers, first and second order streams, and edge and interior habitats; they clean the air and cleanse the water; and they can provide materials, food, and medicines to support our human community. They provide habitat for rare, threatened, and endangered plant species that have the potential to disappear with the loss of forestland. Forests of all types, densities, ages, and sizes, are what would predominate in our absence. Therefore, the multiple values of the forest should be considered in land use decisions with a goal of maintaining as much forestland as possible.

Agricultural lands have seen a gradual loss in Buckland, which can be partially contributed to changing economic conditions, but also to development pressure. Farmland has multiple benefits for the environment such as providing wildlife habitat, providing buffers to protect water quality, reducing the community's dependence on fossil fuels to transport food, as well as health benefits to residents by having direct access to local, fresh food.

E. FISHERIES AND WILDLIFE

Buckland'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, completed in 2001, 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 Project used Estimated Habitat and other records to identify the areas most in need of protection to safeguard the native biodiversity of the Commonwealth. It focused primarily on state-listed rare species and exemplary natural communities and was developed to promote strategic land protection.

The resulting 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 Habitats" and "Supporting Natural Landscapes" (SNL). Core Habitat areas include the most viable habitat for rare plants and animals and exemplary natural communities. Supporting Natural Landscapes include buffer areas around the Core Habitat, large undeveloped patches of vegetation, and large areas without roads and undeveloped watersheds. In the Town of Buckland, there are several BioMap areas. The largest area of Core Habitat is located in the eastern half of Buckland and includes Clark Brook, Moonshine Hill, "Putts Hill"(Putnam Hill), Johnson Hill, West Mountain, and Buckland State Forest. Clesson Brook borders the western edge of this section. This Core Habitat area is also buffered by Supporting Natural Landscape areas. An area of Core Habitat in the southwest section of town extends into Hawley and includes the Hawley State Forest. In addition, six smaller Core Habitat areas are found along the Deerfield River. All of these areas are also buffered by SNLs (NHESP; 2002.)

It is important to consider that the western half of Buckland was not inventoried, thus many more rare species may actually be present in town. The NHESP recommends that a focused biological inventory and study be conducted in this area, as well as land acquisition and protection of specified land areas after the study is completed. NHESP updated and releases BioMap2 in late Fall of 2010. No new field work is included in this update, but some modeling and some habitat indicating less rare species is included.

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

The Town of Buckland contains a significant amount of upland and floodplain habitat. The forests in Buckland consist of large unbroken tracts of dense forest, allowing for good species movement within the Town and the surrounding region. See Appendix E for a listing of amphibian, fish, reptile, bird, and mammal species representative of those species typically found in this region of Massachusetts along with their habitat types and home range sizes. (*New England Wildlife: Management of Forested Habitats* by R.M. DeGraaf et al 1992)

E.2 Rare, Threatened and Endangered Wildlife Species

NHESP has identified 176 species of vertebrate and invertebrate animals that are officially listed as Endangered, Threatened or of Special Concern in Massachusetts. NHESP has mapped several "Priority Habitats of Rare Species" and "Estimated Habitats of Rare Wildlife" in the Town of Buckland. The Estimated Habitats of Rare Wildlife are generally located in the same areas noted for the Priority Habitats earlier in this section. These habitats provide for wildlife species that are endangered, threatened and of special concern. Table 4-6 lists the rare, threatened and endangered wildlife species currently known to occur in the Town of Buckland. Note that only species with a most recent observation date within the past 25 years are considered current by the Massachusetts Endangered Species Act (MESA*)* and therefore listed in Table 4-6.

Table 4-6: Rare, Threatened and Endangered Wildlife Species found in Buckland

Scientific Name	Common Name	Taxonomic Group	State Status	Most Recent Observation
Erora laeta	Early Hairstreak	Butterfly/Moth	Threatened	1988
Ambystoma jeffersonianum	Jefferson Salamander	Amphibian	Special Concern	1989
Catostomus catostomus	Longnose Sucker	Fish	Special Concern	1989
Clemmys insculpta	Wood Turtle	Reptile	Special Concern	2007
Cicindela duodecimguttata	Twelve Spotted Tiger Beetle	Beetle	Special Concern	2001
Boyeria grafiana	Ocellated Darner	Dragonfly/Damselfly	Special Concern	2004
Gomphus abbreviatus	Spine-crowned Clubtail	Dragonfly/Damselfly	Endangered	2004
Neurocordulia yamaskanensis	Stygian Shadowdragon	Dragonfly/Damselfly	Special Concern	2004
Rhionaeschna mutata	Spatterdock Darner	Dragonfly/Damselfly	Special Concern	2004

Source: Natural Heritage and Endangered Species Program, (www.mass.gov/dfwele/dfw/nhesp/species_info/), Division of Fisheries and Wildlife, 2009.

Of these species, the Jefferson Salamander, a species of special concern, generally resides in upland hardwood forests within several hundred feet of wetlands or vernal pools, where breeding occurs. The Wood Turtle also uses uplands as habitat for much of its life, including foraging for

food and nesting, but this species is predominantly associated with wetlands and riparian zones. The Longnose Sucker occurs predominantly in the cool, upper sections of streams in the upland regions of Buckland. A rare invertebrate species, the Early Hairstreak butterfly, uses hardwood forests or hardwood-northern conifer mixed forests that contain beech and hazelnut, which provide food for the developing larvae. Although these types of forests are abundant in Buckland, the butterfly is not common.

The only species currently listed as endangered on Table 4-6 is the Spine-Crowned Clubtail dragonfly/damselfly that typically inhabits large streams and rivers with silty and sandy bottoms, such as the Connecticut River. The nymphs are aquatic and burrow just under the sediment of the river bottom. The adults inhabit the riparian areas, forested uplands, and fields.

The Occelated Darner is a species of Special Concern in Buckland.

E.3 Conserving Buckland's Biodiversity

The most important areas to protect within Buckland include those identified on the Open Space Map as Priority Habitat (2008), BiCore (2001), and Living Waters (2003). These regions included a broader area than site specific locations that rare, threatened and wildlife species have been located, as they are a wider habitat area that supports such species. Any land use activities should include consideration of the identified locations of these species as well as their surrounding habitat that is crucial to support continued survival.

There are two concepts that can be used to help explain Buckland'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 Buckland in that the several village centers 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 do not pay 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 Buckland 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 Buckland 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 Buckland.

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 Buckland 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 Buckland.

F. SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

The characteristics that allow a stranger to distinguish Buckland 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 Buckland residents would agree represent the essence of Buckland's character. In many ways the history of Buckland--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 Buckland 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 Buckland is to provide a basis for setting resource protection priorities. To this end, this 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 (See Table 4-7 and the Environmental Habitat Map). 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.

These documented resources include historic landscapes and special places identified by the Opens Space Committee in the course of preparing the 2004 Open Space and Recreation Plan and the 2010 Update (*see Table 4-7*). This inventory is based on a formal survey done in 1992 for the Franklin County Rural Historic Landscape Preservation Plan Report. 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 (NPS) criteria including area of significance, period of significance, and historical integrity. The 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 4-7: Significant Scenic/Ecological/ Recreational & Historic Landscapes in Buckland

Resource Type	Ecological Value	Recreational Value	Historical Value
Stream Corridors			
Deerfield River	Endangered species, Rare wildlife habitat,	White water kayaking, canoeing, fishing, swimming	Native American Mahican-Mohawk Trail, Pioneer trails, Early automobile route, Historic bridges
Clesson Brook	Endangered species, Rare wildlife habitat, Potential Aquifer material	Trout Fishing	Historic mills
Second Brook	Priority Habitat for Rare Species; potential Vernal Pools		
Tributary D	Priority Habitat for Rare Species; BioMap Core Habitat area		
Bray Brook	BioMap Core Habitat	Trout Fishing. Brook is stocked with trout	Heritage Landscape
Cooley Brook	Priority Habitat for Rare Species; BioMap Core Habitat area		
Ruddock Brook	Priority Habitat for Rare Species; BioMap Core Habitat area		
Shepard Brook	Priority Habitat for Rare Species; BioMap Core Habitat area; potential Vernal Pools		Heritage Landscape
Upper Branch Brook	Priority Habitat for Rare Species; BioMap Core Habitat area		
Maynard Brook			Heritage Landscape
Clark Brook	BioMap Core Habitat area; potential Vernal Pools	Trout Fishing. Brook is stocked with trout	Historic mills and other structures, Historic farmland corridor
Ponds and Lakes			
Ice Pond/Goodnow Pond	Undergoing Eutrophication	Scenic area for snowmobiling, hiking, swimming	Historic ice house, structures and foundations. Pond was used for ice harvesting
Beaver Ponds	Yes		
Rod & Gun Club Pond		Private	Previously used as a Boy Scout camping site
Recreation Areas			
Buckland State Forest	Within the Biocore Habitat; Contains the largest Oak in New England	Multi-use trails, hunting	
Buckland Recreation Area		Swimming, hiking, multi-use trails, camp	
Mohawk Trail Regional High School		Organized sports, passive recreation	
Gardner Falls Project		Picnic area, hiking trail	Beautiful brickwork in building

Resource Type	Ecological Value	Recreational Value	Historical Value
Red Gate Farm	Potential vernal pools	Hiking trails, camp, educational and recreational programs	Unique barn structure (Barn Restoration Program), researching history of farm
Scenic Roads			
Ashfield Road		Scenic Road; Scenic Bike Route	Historic homes; Historic Agricultural Landscape
Avery Road		Special scenic qualities/value	
Charlemont Road		Special scenic qualities/value	
Clesson Brook Road	Tree canopies	Special scenic qualities/value	Historic Agricultural Landscape
Crittenden Road	Tree canopies	Special scenic qualities/value	
Depot Road		Special scenic qualities/value	Historic Agricultural Landscape
East Buckland Road		Scenic Road; Connection to historic cemeteries	Historic Agricultural Landscape
Hog Hollow Road		Special scenic qualities/value	
Howes Road	Tree canopies	Special scenic qualities/value	
Orcutt Hill Road		Special scenic qualities/value	
Purington Road	Tree canopies	Special scenic qualities/value	Historic Agricultural Landscape
Rand Road	Tree canopies	Special scenic qualities/value	
Shepard Road		Special scenic qualities/value	
Historical Religious Landscape			
Mary Lyon Birthplace (1818)		Tours available to public	Birthplace and Home of Mary Lyon, founder of Mt. Holyoke College
Mary Lyon Church		Community dinners, outdoor fair	Yes
St. Joseph's Church			Yes
7th Day Adventist Church			Yes
Historical Community Development/ Industrial Landscape			
Shelburne Falls (the Buckland side)	Salmon Falls, Potholes	Road races, Trolley Museum, Street festivals, River	National Register of Historic Places

Resource Type	Ecological Value	Recreational Value	Historical Value
		festivals, Bridge of Flowers	
Four Corners			Compact (make-up) Factory; Historic houses
Buckland Center		Historic Museum, Church, Buckland Public Hall, Library and cemeteries. Historic houses; Downtown; Studio of Robert Strong Woodward, artist	Potential Historic District: Old civic center; historic buildings, Griswold House, old town common
Nathan Hale House			Historic houses
Wilder Homestead		Shoemaker's shop; Historic Farm Museum	
Lamson-Goodnow Complex			Biggest factory in Franklin County at one time during the 1860's
Mayhew Steel			
Salmon Falls Market Place		Museum quality Arts & Crafts	Grain mill
Hydropower dams and plants			
Creamery Avenue			Old creamery
Historical Transportation Landscape			
Route 2		Scenic views of Deerfield	Historic Mohawk Trail, Early automobile route,
Route 112	Scenic Corridor on Clesson Brook	Potential Scenic Farm Byway	
Railroad Line from Greenfield to North Adams			
Railroad yard and freight house			Stockyard; freight and passenger interchange
1890's truss bridge			Old New Haven Line
Unusual Geologic Features			
Deerfield River Potholes		Scenic views	
Stone quarry near Pike's Pothole			Used stones for local buildings
West Mt./Mayhews quarry			Used stones for local buildings

Source: Buckland Open Space Committee 2010; Buckland Open Space and Recreation Plan 2004; Franklin County Rural Landscape Preservation Plan Report, Franklin County Commission, 1992;

G. ENVIRONMENTAL CHALLENGES

The Buckland Open Space Committee identified several environmental challenges within their community that have the potential to affect the open space and natural resources in Buckland. These challenges are described in this section along with efforts that the Town either has already implemented or may want to consider in order to address these issues.

G.1 Protecting the Public Water Supply:

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, Buckland 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 improper use and disposal of hazardous chemicals, other hazardous wastes, road salt, siltation from new construction, gravel roads, and the use of herbicides along utility right-of-ways.

Public water supply source in Buckland is difficult to protect. Due to the proximity of the two wells to the North River, under pumping conditions, it is likely that water from the river is drawn into the aquifer that serves the wells. The Shelburne Falls Fire District Source Water Assessment and Protection report indicates that the susceptibility of the wells to contamination is high due to pollution at a factory site upstream (non-point source pollutions) discharge of municipal wastewater upstream of the wells, and other activities within the Zone II area that include hazardous materials use and storage. Other potential mid-yield aquifers in Buckland should be protected, especially along Clesson Brook.

Landfills and Hazardous Wastes

The Town of Buckland has two capped, closed landfills. A 10.8-acre unlined landfill operated on Hodgen Road from 1966 to 1996 and was capped and certified complete by the DEP in 1996. The second landfill, a 7-acre unlined wood and demolition landfill operated from 1970 to 1979, at which point it was capped. Even though capped and closed, these sites could potentially cause contamination to neighboring water bodies or ground water.

Roadside De-icing Materials

Another example of non-point source pollution that is a concern of residents is the use of road salt on area roadways. The use of wintertime de-icing materials can produce road salt runoff that can contaminate rivers, streams, and groundwater. Some alternatives to road salt use include a lower salt/sand ratio, a low salt/calcium chloride mix, and the use of hops.

Runoff from New Home Construction

One type of non-point source pollution that is more common in an urbanizing landscape is the result of poor site management during new home construction. During a storm event, rainwater traveling over land can erode soil uncovered in the construction process. In addition, after construction, stormwater runoff from seeded and fertilized soils can load nearby streams and wetlands with excessive nitrogen and phosphorus. Fortunately, this is a well-recognized problem in the country and in the state. The Massachusetts DEP provides ample erosion and sediment control guidelines via their website (http://www.state.ma.us/dep/brp/stormwtr/files/esfull.pdf). The goals of construction site Best Management Practices (BMPs) can include:

- Maintain average volumes and peak runoff rates after construction at levels similar to predevelopment levels;
- Ensure that annual loadings of total suspended solids after construction are no greater than predevelopment rates;
- Retain sediment on-site during construction; and
- Reduce the amount of nitrogen, bacteria, and phosphorus that leave the site.

Some BMPs during construction including phased grading, seeding of stockpiles, vegetation of open space, cross-grading, and sediment detention swales can help to reduce runoff and improve water quality. After construction, other BMPs can help to deter stormwater runoff using features such as pervious driveway surfaces, landscape plantings, reduced roadway widths, roadside swales, detention swales and a cul-de-sac detention basin.

Gravel Roads

Gravel roads and steep driveways, 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 coes not maintain any. However, the FRCOG has produced a guide to gravel roads[14] and Berkshire Regional Planning Commission has produced a best management practices guidebook.[15]

The DEP administers the Massachusetts Wetlands Protection Act to ensure that any wetlands within 100 feet of a gravel road project are 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.

Gravel driveways on steep slopes without swales can result in runoff of the road base and sedimentation of wetlands. A town can adopt grade limitations and require the use of swales where driveways intersect roads.

Natural Heritage & Endangered Species Program (NHESP) has not inventoried the western half of town. In order to identify the most important areas in Buckland for biodiversity while much of town remains undeveloped, Buckland should encourage its residents to work with experts (and/or residents with expertise) in the various taxa of Massachusetts' biota to document and report sightings of rare species and natural communities according to NHESP's guidelines and

[14] Answers to Frequently Asked Questions About Gravel Roads, FRCOG, September 2001.
[15] The Massachusetts Unpaved Roads BMP Manual, Berkshire Regional Planning Commission, 2001.

standards (available on NHESP's website, www.nhesp.org) and request verification from NHESP. This could be a project for the Conservation Commission or the Planning Board.

Lack of funding for open space projects. Buckland should prioritize open space resources for acquisition and collaborate with regional entities like the Franklin Land Trust to leverage funding and develop outreach programs targeted to landowners. Buckland should follow Ashfield's lead and establish a committee of local residents to negotiate access rights to a trail system in town.

Hazardous waste sites exist in Bernardston, Colrain and Conway for year-round drop off of hazardous materials for Franklin County residents. The Franklin County Solid Waste Management District[16] holds a hazardous waste collection day each fall, which allows residents to bring common household hazardous waste items to a specific site for disposal. It is important that the town helps inform residents of the need to participate in hazardous materials drop off events.

Stormwater management is an issue with runoff affecting drainage downtown as well as in residential areas, where some of the culverts have been filled in. Stormwater runoff is a threat to the water quality and environmental habitat of the Deerfield River and its tributaries. An assessment of the system should be conducted throughout town to identify problem areas and recommend solutions, such as the repair or addition of culverts and/or public awareness as to how to maintain the current system. The impacts of new development on the overall system should be a consideration by the Conservation Commission when reviewing proposals and requiring conditions.

Forestry related issues including nonnative species and threats to variety of native species. Nonnative species such as knotweed are an issue, preventing native species from surviving and resulting in costly measures to control. Another issue that has been identified by members of the community is the threat to the survival of tree species such as the American Elm by pests, disease and other causes.

In response to this issue, the Buckland Historical Society created the Hilltown Legacy Tree Project (HLTP), which seeks to conserve traditionally significant tree species and woody plant communities in Buckland, MA and adjacent hilltowns of Western Franklin County. The project has organized a community elm tree planting program for the past two years, and the Buckland Select Board proclaimed Town Arbor Day in April of 2010 to support this tree planting effort and the multiple values of trees and woodlands for this and future generations. (http://hilltownlegacytreeproject.wordpress.com)

The potential for unplanned, sprawling residential development is an overarching problem facing Buckland and other towns in Franklin County. Unplanned residential development can result in non-point source pollution (stormwater runoff from roads and construction sites that carries contaminants such as oil, grease, road salt and sediments to streams) and can fragment the large blocks of forest and other wildlife habitat areas. Buckland's rural character is largely dependent on the vast stretches of hilly and steep, forested landscape and the open agricultural lands in the

[16] www.franklincountywastedistrict.org/hazardouswaste.html

valley areas. These lands provide scenic views, wildlife habitat, and recharge to streams and aquifers.

Buckland began working with the Franklin Regional Council of Governments in 2004 to assess existing zoning and develop strategies for directing growth to areas of the town with existing infrastructure and away from sensitive resource areas. This planning effort built upon the 1999 Buckland-Shelburne Master Plan, the 2004 Buckland Open Space and Recreation Plan and the 2004 Buckland Community Development Plan. Buckland zoning bylaws related to open space and farmland protection include:

- Three zoning districts have been replaced with six districts with more specific use definitions, including agricultural manufacturing uses allowed in the Rural Residential district;
- The back lots with Farmland Set Aside bylaw exists in order to concentrate the development of lots towards the back of a parcel with a common driveway while preserving farmland with soils classified as ”prime” or “statewide importance” and farmland with roadside frontage. Purposes of this zoning bylaw include:
  - To encourage the efficient use of land resources in new residential development
  - To increase opportunities for the preservation and continued agricultural use of productive farmland
  - To preserve land with prime agricultural soil conditions
  - To preserve the scenic qualities of the Town
  - To protect or enhance the value of properties in the Town by enabling landowners to create appropriate patterns of land ownership use and development, subject to public review and approval.
- The Cluster Development/Conservation Bylaw, which concentrates development to lots of a reduced size, leaving a portion of the land on each parcel undeveloped and preserved for agriculture, conservation, or forestry. Since the 2004 Open Space Plan, this regulation has been changed from a Special Permit process, (which required a supermajority vote) to By Right with Site Plan Review (requiring a majority vote) so that it is no longer discretionary, encouraging use of the bylaw by developers. To further encourage cluster development, a bonus point incentive system has been adopted. A development that increases the amount of land permanently preserved by 5% above the 40% requirement earns 10 points; each additional 5% increase in preserved land results in additional 10 points. Additional points are provided if the development meets additional conservation related criteria specified in the bylaw. Depending upon the number of points earned, the developer may earn a bonus in the form of extra building lots allowed within the development.
- A new Farm Building Reuse Overlay District promotes the reuse of underutilized barns and other farm outbuildings as commercial uses, in order to help keep these agricultural and often historic buildings maintained while providing rental income to farms. (See Zoning map for district outline). This bylaw is intended to help maintain open space and existing historical and scenic landscapes in Buckland while providing economic development opportunities targeted towards agricultural operators.

SECTION 5

INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

A. INTRODUCTION

This section of the Open Space and Recreation Plan provides an inventory of the undeveloped parcels in Buckland, including their ownership, use, and level of protection from development. Land parcels of conservation and recreation interest are important either because they are already protected from development or because they could be granted priority for protection. Such parcels are considered of interest, either individually or in the aggregate, because they help conserve ecosystems and their services, scenic landscapes, rural character, and may provide resources for current and future recreation needs.

The half-acre East Buckland Cemetery is Town-owned land under permanent protection.

Communities across the country are protecting land from development to ensure that the scenic, recreational and resource-based activities of the landscape remain unchanged. 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.

This section will identify open space parcels under four levels of protection: permanent protection, temporary protection, limited protection, and unprotected. Each level is briefly defined below:

- Land is considered to be have **permanent protection** if it 1) is owned by a state conservation agency, a nonprofit conservation land trust, or other conservation organization, or by the Town of Buckland under the care and control of the Conservation Commission; or 2) the land is subject to a conservation (or other) restriction which keeps it undeveloped either for a specified number of years or in perpetuity (in accordance with M.G.L. Ch. 184, section 31).
- Privately owned land is considered to have **temporary protection** if it is enrolled in one or more of the state's Chapter 61, Chapter 61A or Chapter 61 B current use tax abatement programs.
- All land owned by the Town of Buckland - except for cemeteries and land under the care and control of the Conservation Commission - is considered to have **limited protection**.
- All privately owned land which is neither permanently nor temporarily protected is considered to be **unprotected**.

Table 5-1 is a comprehensive inventory of all land in town that provides open space, wildlife habitat, agricultural and forest products, watershed protection, scenic landscapes and recreation opportunities for Buckland residents. The inventory, combined with the Open Space Map, shows the location, types and distribution of conservation lands in Buckland. These lands have been grouped into two main categories: private and public/nonprofit lands. Within each category, parcels are differentiated by use (farmland or forestland), by ownership and/or management, and by level of protection (permanent, temporary, limited, and unprotected). The table also shows the percentage of total land area (12,679 acres) each category represents.

Total land under permanent protection in Town is equal to approximately 371 acres, or less than 3% of the total land area of Buckland and less than 7% of the total open space in Buckland. While there is significantly more land under temporary protection (a total of approximately 4974 acres), that land is subject to possible future development once the manner of temporary protection has expired. The only truly protected land is that land which is preserved in perpetuity, such as that land protected by an Agricultural Preservation Restriction or a Conservation Restriction.

Table 5-1: Summary of Protected Open Space in Buckland

LAND IN PERMANENT PROTECTION	Area in Acres	% of Total Open Space in Buckland	% of Total Land Area in Buckland
Privately Owned PERMANENTLY Protected Open Space			
Table 5-2: Permanently Protected Farmland by Agricultural Preservation Restriction	28	0.51%	0.22%
Table 5-4: Permanently Protected Forestland by Conservation Restriction	17.4	0.32%	0.14%
Publicly Owned PERMANENTLY Protected Open Space			
Table 5-7: Permanently Protected Department of Conservation and Recreation	316.22	5.78%	2.49%
Table 5-9: Permanently Protected Land Owned by Buckland - Cemeteries	9.2	0.17%	0.07%
TOTAL LAND IN PERMANENT PROTECTION	**370.82**	**6.78%**	**2.92%**

LAND IN TEMPORARY PROTECTION	Area in Acres	% of Total Open Space in Buckland	% of Total Land Area in Buckland
Privately Owned TEMPORARILY Protected Open Space			
Table 5-3: Temporarily Protected Farmland by Chapter 61A Agricultural Use	1948.18	35.61%	15.37%
Table 5-5: Temporarily Protected Forestland by Chapter 61 Forestry Use	1864.27	34.08%	14.70%
Table 5-6: Temporarily Protected Forestland by Chapter 61B Recreational Use	912.8	16.68%	7.20%
Publicly Owned TEMPORARILY Protected Open Space			
Table 5-8: Land with Limited Protection & Owned by Buckland	248.44	4.54%	1.96%
TOTAL LAND IN TEMPORARY PROTECTION	**4973.69**	**90.91%**	**39.23%**
TOTAL OPEN SPACE	**5345 ACRES**		

Source: Buckland Assessors Records and Maps, 2010; Mass Land Records 2010; MassGIS 2010.

A.1 Permanently Protected Land - Overview

Land is considered permanently protected from development if it is owned by a state agency, a land trust or other conservation organization, under the care and control of the Town's Conservation Commission, or has a permanent restriction attached to the deed, restricting the land to a specified use, such as agricultural, conservation, or recreation.

The Commonwealth of Massachusetts owns land throughout the state that it maintains as state forests or parks, with management and oversight assigned to one of their divisions, such as the Department of Conservation and Recreation. This state owned conservation land is considered permanently protected from development.

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 surface water. Actively farmed land with prime soils or soils of Statewide Importance may be eligible for enrollment in the Massachusetts Department of Agricultural Resources (MDAR) Agricultural Preservation Restriction (APR) Program. The APR Program purchases the development rights by paying the willing landowner a one-time payment that equals the difference between the market value and the agricultural value of the property and attaches a restriction to the deed, which legally bars development on the property that is not related to the agricultural enterprise, keeping the farmland in active agricultural use.

Land that is permanently protected through any of these methods is protected by Article 97 of the Amendments to the Massachusetts State Constitution, which requires a vote by two thirds of the State Legislature to convert open space to another use. While not common, there have been cases when 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. 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 Buckland.

Land owned by the Town of Buckland under the authority of the Conservation Commission is considered permanently protected through Article 97. Cemeteries are also considered to be permanently protected from development in this inventory, as they have associated regulations that keep them from being developed.

A.2 Temporarily Protected Land - Overview

Land considered to have limited protection includes any town owned open space that is not under the authority of the Conservation Commission, which could be developed through a decision by the Select Board or by Town meeting vote. Examples of town-owned open space include parks, public water supply land, and old landfills.

Lands enrolled in one of the Chapter 61 tax abatement programs are also considered to have a temporary level of protection from development. Chapter 61 offers a reduced assessment on privately owned working land. Landowners that choose to participate in this program receive a reduced tax assessment by the Town on the portion of their land that is in active production as agriculture or forestland, or available for public recreation.

There are three Chapter 61 programs: Chapter 61 for Forestry, Chapter 61A for Agriculture, and Chapter 61B for Recreation. In order to participate in the Ch. 61 Program, landowners must manage their forestland under a ten-year management plan. The aim of this program is to temporarily keep working forests undeveloped and in forestry use.

In order to participate in the Chapter 61A program, a landowner must have at least 5 acres of land currently in active agriculture, and apply every year to enroll their parcel/s of land in the program. The aim of this program is to temporarily keep farmland in active agricultural production.

The 61B program also promotes the private ownership of open space, with the requirement that land enrolled in the program be used for public and private recreation purposes, or as open space. No management plan is required, as commercial timber harvesting is not allowed on lands in the Ch. 61B program.

Lands in the Chapter 61 program are considered only temporarily protected because a landowner may remove land that is enrolled in the Ch. 61 Program at any time and pay a penalty tax. If the landowner receives a formal offer from another party to purchase his/her parcel of land, which is in one of the Ch. 61 Programs (61, 61A, 61B), they must notify the Town. The Town then has 120 days from the day the offer is made, to either exercise its right-of-first-refusal by matching the bona-fide offer, or transfer this right to a conservation organization. The Town would likely be much more successful in taking advantage of this opportunity if a Chapter 61 protocol is established ahead of time to outline the steps involved in the process. Ideally, the Town should also prioritize parcels or groups of parcels of conservation interest ahead of time.

B. PRIVATELY OWNED PARCELS

Approximately 90% percent of open space in Buckland 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 Buckland 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. Only about 3% percent of privately owned open space in Buckland has been permanently protected. The remainder is 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 agriculture or forestry.

This section provides a detailed inventory of privately owned land in the Town of Buckland and discusses the value of this land for conservation and recreation. Privately owned land provides many public benefits, but it is important to respect private property rights and to remember that landowners ultimately determine use and disposition of this land. While many landowners choose to keep their property in farms and forests, it is important to respect the rights of those who make different choices.

B.1 Privately Owned Agricultural Land

Farmland with some level of protection constitutes approximately 38% percent of the open space in Buckland. Table 5-2 includes land that has been permanently protected from development

with an Agricultural Preservation Restriction (APR). Important characteristics for each of these privately owned parcels are identified in the table.

Table 5-2: Permanently Protected by Agricultural Protection Restriction

Owner/Manager	Holder of the Conservation Easement	Map-Lot	Acres	Important Characteristics
Mayer/ Gutierrez, Purple Woods, Route 112	Franklin Land Trust	2 0 21	16.00	Prime Farmland Soils
Bartlett	Franklin Land Trust	3 15-1	12.00	Landmark, scenic vista
TOTAL			**28.00**	

Source: Town of Buckland Assessor's Records and Maps, 2010; Mass. Dept. of Agricultural Resources, 2010 and Massachusetts Land Records http://www.masslandrecords.com/malr/index.htm

Table 5-3 displays information on those farms in Buckland that have a limited level of protection from development through enrollment in the Chapter 61A program. 15% of the total land area in Buckland is enrolled in the Chapter 61A program, and therefore considered to be temporarily protected.

There are only 28 acres of permanently protected farmland in Buckland.

In some cases, farmland enrolled in Chapter 61A abuts protected land. Conversion of even a small percentage of this farmland to residential use could affect the viability of farming on the remainder. Location of new homes in proximity to active agricultural operations may result in conflict between new residents and farmers over the noise, dust, odors, and use of chemicals 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. Buckland's Agricultural Commission was instrumental in helping the Town adopt a Right to Farm Bylaw to address this issue. The bylaw notifies new and existing residents that the community supports agriculture and the inherent activities associated with farming.

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 continue to be used as farmland and all lie within the town's Rural Residential District. No state, town, or private funds are necessary to enroll the land in the program. Chapter 61A lands offer much value to the town, even if the farmlands are only "temporarily protected." The agricultural parcels often contain prime farmland soils, 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, such as hiking or snowmobiling. However, access should not be assumed, as the land is privately owned. Most Chapter 61A landowners take pride in their land, while practicing good stewardship. They help to define a sense of place for Buckland and contribute to community stability over time.

Remaining farms that are not in either the APR Program or the Chapter 61 Program are not listed here, as they are not considered to have any form of protection from development. It is important to note that farms may remain in a family for generations with no formal protection other than a family's desire and ability to keep working the land. However, with development pressure and unreliable economic and weather conditions that impact farms, it is important for farm families to consider successional planning for the future continuance of their farm. This future planning may involve family discussions to consider land protection options, legal and estate issues, ownership and management of the farm operation, and sharing of assets among successors.

Table 5-3: Temporarily Protected Chapter 61A Agricultural Use

Owner	Map / Lot	Acres
Camille O. Cosby	2 0 44	129.70
Camille O. Cosby	2 0 8	1.00
Camille O. Cosby	2 0 11	31.80
Camille O. Cosby	2 0 12	18.00
Camille O. Cosby	2 0 13	48.30
Camille O. Cosby	2 0 14	5.20
Camille O. Cosby	2 0 51	9.80
Camille O. Cosby	2 07	72.00
Camille O. Cosby	2 08-1	14.00
Charles & Diane Wilder	4 0 12	58.00
John Organ	7 0 90	25.00
Todd & Vicky Seavey	1 0 22	125.6
Joseph Scalise	5 0 54	8.20
Dena Wilmore & Martha Thurber	8-10 0 15-1	9.85
Dale Moss & Dale Cooper	2 0 46	10.00
Francis Trow Jr.	5 0 39-2	77.93
David & Raith Thibault	9 0 37	7.30
Susan & Carlton Roberts	6 0 20	46.02

Owner	Map / Lot	Acres
Sammy & Janice Purington	4 0 33	145.00
Robert & Luann Lord	7 0 40	4.56
Paul & Judy Willis	8 0 59	45.20
Paul & Judy Willis	4 0 24	93.00
Paul & Judy Willis	5-10 0 18	5.00
Paul & Judy Willis	5-1 0 37	7.00
Paul & Judy Willis	7 0 71	18.00
Paul & Judy Willis	7 0 82	51.50
Paul & Judy Willis	8 0 58	88.00
Paul & Judy Willis	8 0 49	14.60
David & Susan Grader	5 0 21	11.00
Colin E. Scott	5 0 63	38.00
Edward & Colin Scott	8 0 64	16.50
Edward & Colin Scott	5 0 56	6.80
Edward & Colin Scott	5 0 57-1	18.00
Edward & Colin Scott	5 0 58	1.40
Edward & Colin Scott	5 0 62-1	48.77
Mailcom Clark, et als	7 0 51	44.60
Mailcom Clark, et als	7 0 56	93.20
Edmund F. Smith	7 0 83	94.00
Edmund F. Smith	8 0 50	8.00
Charles Patenaude & Theresa Haire	2 0 3	4.20
Charles Patenaude & Theresa Haire	2 0 1	22.80
Charles Patenaude & Theresa Haire	2 0 4	78.20
Richard Bargeron & Jane Spooner	3 016	13.57
Richard Bargeron & Jane Spooner	3 017-1	9.99
James M. Georgantas	4 0 9	13.94
James & Laura Georgantas	4 0 9-2	2.02
James & Laura Georgantas	4 0 9-3	2.01
Susan Atherton	5 0 5	67.20
Susan Atherton	5 0 32	72.50
Ned James & Marilyn	7 0 106	2.30
Ned James & Marilyn	7 0 108	2.00
Michael & Susan Garfield-Wright	4 015	32.00
Franklin & Sally LaBelle	7 0 14	16.90
Franklin & Sally LaBelle	7 0 15	2.80
Franklin & Sally LaBelle	7 0 22	41.40
Franklin & Sally LaBelle	7 0 103	14.50
TOTAL ACRES		**1948.16**

Source: Town of Buckland Assessor's Records and Maps, 2010

B.2 Privately Owned Forested Land

The following inventory includes privately owned forestland with different levels of protection from development – either temporary or permanent. Permanently protected forestland exists when landowners have donated or sold their development rights to a state conservation organization or a land trust. The landowners retain the other rights of ownership and they continue to pay property taxes, though they will be less due to the reduced value of their land.

Buckland currently has two privately owned forestland parcels for a total of 17 acres that are permanently protected from development with a conservation restriction (see Table 5-4).

Properties with conservation restrictions may have the potential for passive recreational use or for activities such as fishing or hunting, but this is dependent upon the wishes of the landowner. It is important to note, however, that public access cannot be assumed, as properties with conservation restrictions are privately owned.

Table 5-4: Permanently Protected by Conservation Restriction

Owner	Holder of the Conservation Restriction	Map-Lot	Acres
Mary Lyon Birthplace	Mount Holyoke College Trustees	8 0 30	11.60
Eric Laursen / Mary Dearborn	unknown	7 0 58	5.80
TOTAL			**17.40**

Source: Buckland Assessor's Records and Maps, 2010; 2010 MassGIS Open Space Layer, Franklin Land Trust.

Privately owned forestland with temporary protection is shown in Table 5-5 and Table 5-6. Approximately 1,864 acres or 15% percent of the Town's area is privately owned forest that is enrolled the Chapter 61 (Forestry) program while approximately 913 acres or 7% of the Town's areas is enrolled in the Chapter 61 B (Recreation) program. In addition, many of the temporarily protected farms shown in Table 5-3 include farm woodlots.

All the parcels in Table 5-5 and Table 5-6 are temporarily protected in the Ch.61 Forestland and the Ch. 61B Recreational Open Space Classification and Taxation Program 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 5-5: Temporarily Protected Chapter 61 Forestry Use

Owner	Map / Lot	Acres
Janet Sinclair	1 0 19	24.24
Michael & Susan Garfield-Wright	4 0 15	52.90
John F. Allen	4 0 10	63.00
Melinda Cross	4 0 43	31.90
Melinda Cross	7 0 19	44.40
Curtis & Norma LaBelle	4 0 54-2	5.42
Curtis & Norma LaBelle	4 0 58	12.90
Curtis & Norma LaBelle	4 0 54	2.00
Joann Steinbauer & Maria Meisner	4 0 7	111.50
Joann Steinbauer & Maria Meisner	4 0 7-1	0.60
Joann Steinbauer & Maria Meisner	4 0 5-1	20.00
Joann Steinbauer & Maria Meisner	4 0 6	37.90
Joann Steinbauer & Maria Meisner	4 0 6-1	78.00
Harold & Ruth Toy	5 0 10	84.50
Walton Chapman & Carol Cone	5 0 23	19.31
Walton Chapman & Carol Cone	6 0 12	10.97

Owner	Map / Lot	Acres
Antoinette Bauerlein	6 0 19	88.93
Tina Peters	7 0 1	10.50
Tina Peteres	7 0 2-1	6.67
James & Laura Rodley	7 0 30	36.26
John F. Organ	7 0 54	107.80
Gordon & Maureen Humphrey	7 0 95	41.80
Mark & Ellen Kaufman	8 0 33	1.54
Mark & Ellen Kaufman	8 0 10	6.20
Mark & Ellen Kaufman	8 0 33-1	3.16
Mark & Ellen Kaufman	8 0 34	16.30
Leroy W. Provost Jr.	8 0 38	63.00
Edmond & Muriel Shippee	8 0 55	120.50
Paula Pilkington Estate	8 0 9-1	23.70
Richard & Lori Miner	9 0 41-1	23.50
Robert Higginson	1 0 14	53.30
Hale Estate c/o Stephen Hale	2 0 43	79.20
Mildred C. March	2 0 48	57.20
Robert & Luann Lord	4 0 18	38.60
Robert & Luann Lord	7 0 40	19.66
Russell & Cheryl Dodge	4 0 48-1	80.00
Helen Buell Estate c/o Peter Buell	6 0 25	33.60
EM Milt Realty	7 0 104	3.00
Sandra Armstrong	7 0 23	12.70
Theodore & Claire Pease	7 0 34	30.75
Theodore & Claire Pease	7 0 36	8.00
Theodore & Claire Pease	7 0 37	8.80
Robert A. Jonas	8 0 36	3.00
Brett W. Sallee	8 0 4	39.60
W.D. Cowls Inc.	9 0 12	48.00
Anthony Kwame Harrison	9 0 6	23.74
Anthony Kwame Harrison	9 0 7	29.80
William & Mary Peck	9 0 13	70.90
Robert & Linda Sidorsky	9 0 17	75.00
TOTAL ACREAGE (CH 61)		**1,864.25**

Source: Town of Buckland Assessor's Records and Maps, 2010

Privately owned forestlands offer many values to the community and are important resources for several reasons. 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. Forestlands also have a thermal impact on brooks. When trees are removed from stream banks, water temperatures rise and cold water-dependent aquatic species like trout are adversely affected. Many forested lands may also provide recreational value such as hunting, fishing, hiking, and bird watching for Buckland residents, if the owner allows access.

Table 5-6: Temporarily Protected Chapter 61B Recreational Use

Owner	Map / Lot	Acres
David & Susan Grader	5 0 21	11.24
David & Susan Grader	6 0 11	42.80
Kathleen Ann Brown	3-1 04	2.03
Kathleen Ann Brown	3-1 06	2.64
Kathleen Ann Brown	3-1 01	80.12
Kathleen Ann Brown	3-1 03	2.18
Kathleen Ann Brown	3-1 07	2.10
Chester & Irene Zagrubski	6 0 13	59.60
Robert & Nancy Braun	8 0 40	68.38
Peter Chadwick & Robert Gardiner	8-1 0 14	7.60
Jack Curtiss, et als	9 0 16	26.00
Michael & Laura Earl	9 0 34	40.00
Marice Huppe	4 0 20	14.40
Paul & April Mascolino	3 0 20	11.00
Paul & April Mascolino	3 0 19	4.40
Betsy Andrews	9 0 43	11.00
Catherine Forbes Ishii	1 0 17	26.45
Christopher & Sarah Grader	5 0 21-1	5.42
Ronald and Judy Ann Harlow	3 0 36	13.00
Donald E. Thieringer	3 0 36-2	30.82
Richard & Darleen Conklin	8 0 21	13.42
Anthony Kubiak	8 0 17	5.00
David Hopkins & Joan Dickson	9 0 11	9.90
Dale Cooper & Dale Moss	2 0 46	22.60
Charles & Diane Wilder	4 0 12	223.00
Sally Mullen	9 0 2	2.00
Sally Mullen	9 0 3	17.00
Edmund & Theresa Smith	8 0 51	105.00
Bear Ridge Realty Trust	1 0 12	55.70
TOTAL ACRES (61B)		**912.8**

Source: Town of Buckland Assessor's Records and Maps, 2010

C. PUBLIC AND NON-PROFIT PARCELS

State conservation agencies and the Town of Buckland own a small portion of Buckland's land. However, the Town-owned parcels have a low level of protection unless they are under the authority of the Buckland Conservation Commission. The following inventories include those parcels that are owned by the Commonwealth of Massachusetts and by the Town of Buckland.

C.1 Publicly Owned Open Space

There are approximately 574 acres of publicly owned open space in Buckland, accounting for about 10 percent of total open space in Buckland and 5 percent of the town's land area. Publicly owned open space includes land owned by state conservation agencies, municipal fire and water districts, school districts, the federal government and the Town of Buckland. 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.

The Massachusetts Department of Conservation and Recreation (DCR) owns a total of 316 acres. The Kenneth Dubuque Memorial State Forest (formerly the Hawley State Forest) parcel contains 45.6 acres in Buckland and is located in the southwest section of town. It is part of the much larger state forest which extends across the town line into Hawley. Buckland State Forest now consists of two parcels, with the second having been added in 2006. The parcel located in the southeastern corner of Buckland is comprised of 92 acres of land with hiking and cross-country skiing trails. The second, newer Buckland State Forest parcel is comprised of 103 acres with its primary recreation value described as conservation and with limited public access. Catamount State Forest stretches over the boundary from Buckland to Charlemont. In Buckland, it is comprised of two parcels with a total of approximately 78 acres.

Table 5-7: Permanently Protected by Department of Conservation and Recreation

Property Manager	Site name	Map-Lot	Current Use	Recreation Value	Public Access	Acres
DCR	Kenneth Dubuque Memorial State Forest	7 0 7	State Park	Hiking, fishing, wilderness camping, and cross-country skiing. Marked trails.	Good	44.15
DCR	Buckland State Forest	9 0 23 / 9 0 24	State Park	Hiking, cross-country skiing, nature study. No facilities.	Fair	92.00
DCR	Buckland State Forest	9 0 23	Conservation	Conservation	Limited	102.65
DCR	Catamount State Forest	3 1 1	State Forest	Hiking, cross-country skiing, nature study. No facilities.	Fair	74.78
DCR	Catamount State Forest	3 1 6	State Forest	Hiking, cross-country skiing, nature study. No facilities.	Fair	2.64
TOTAL						**316.22**

Source: Town of Buckland Assessor's Records and Maps, 2010; MassGIS Open Space data, 2010.

The Town of Buckland owns approximately 248 acres of open space (Table 5-8). All of these parcels 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 land is held by the Conservation Commission, it would take a majority vote by the Massachusetts State Legislature to convert this open space to another non-conservation use. Some of these open spaces are water supply protection zones which currently help to protect wetlands and tributaries for drinking water supplies, or are set aside for other municipal uses like schools, parks, or historic sites.

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 consider placing town owned land that clearly contains wetlands or wildlife habitat under the authority and protection of the Conservation Commission.

The town does not own any significant undeveloped open space, except for the closed landfill sites on Conway Road and on Hodgen Road. Both sites are capped and the Hodgen Road site has potential to be linked to a trail system for hiking, horseback riding, and snowmobiling.

The Buckland Recreation Area recently underwent renovations and has updated some of its facilities to be handicapped accessible, including the swimming pools and a ramp for access to the building adjacent to the swimming pool. Other facilities at the Recreation Area include a basketball court, a baseball diamond, a hiking trail, and a picnic pavilion. Parking for the swimming pool is in a small, unpaved lot and along the recreation area roadway. Parking for baseball games is available on the open field and under the forested tree line. Recreational access is via an asphalt roadway, which winds behind the swimming pool.

Table 5-8: Land with Limited Protection from Development in Buckland

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condition	Recreation Value	Public Access	Acres	Grant Received	Zoning	Degree of Protection
Town of Buckland	Buckland Recreation Area	2 0 18	Swimming, baseball, basketball, picnicking, playground, hiking	Good	Excellent	Good	32.50	None	Rural Residential	Limited Protection
Town of Buckland	Buckland Town Hall	6-1 0 34	Municipal	Excellent	Excellent	Excellent	0.15	None	Village Commercial	Limited Protection
Town of Buckland	Town Of Buckland, William Street	6-1 0 35	Parking lot	Good	Poor	Excellent	0.13	None	Village Residential	Limited Protection
Town of Buckland	Town Of Buckland	6-2 0 118	Freight Yard	Fair	Fair	Good	0.70	None	Historic Industrial	Limited Protection
Town of Buckland	Town Garage and Sheds, Conway St.	6-2 0 122	Buckland DPW	Poor	Poor	Poor	0.36	None	Rural Residential	Limited Protection
Town of Buckland	Wastewater Treatment Plant	6-5 0 15	Wastewater Treatment	Good	N/A	Good	4.47	None	Village Residential	Limited Protection
Town of Buckland	Buckland Landfill Site	8 0 62	Landfill capped, Transfer station	Excellent	N/A	Good	11.00	None	Rural Residential	Limited Protection
Town of Buckland	Landfill Site, Conway Street	9 0 36	C&D debris, stumps, Abandoned	Poor	N/A	N/A	7.60	None	Rural Residential	Limited Protection
Town of Buckland	Town Common	5-1 0 14	Parking lot, Open air events	Good	Good	Good	0.72	None	Village Residential	Limited Protection
Mohawk Trail Regional School District	Mohawk Trail Regional High School	3 0 8	Football, track, baseball, soccer, field hockey, cc skiing	Excellent	Excellent	Excellent	64.99	None	Rural Residential	Limited Protection
Shelburne Falls Fire District	Walker Road	6 0 20-1	Water tank site	Excellent	N/A	N/A	1.38	None	Rural Residential	Limited Protection
Buckland Fire District	Hodgen Road	8 0 48	Fire station	Good	N/A	Good	1.00	None	Rural Residential	Limited Protection
Shelburne Falls Fire District	Crittenden Hill Road	6-2 0 154	Abandoned water tank site	Fair	N/A	N/A	0.22	None	Rural Residential	Limited Protection

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condition	Recreation Value	Public Access	Acres	Grant Received	Zoning	Degree of Protection
Buckland Public Library	Buckland Public Library	5-105	Library	Good	Excellent	Good	0.32	$145,000 Federal Stimulus for 2010 expansion	Rural Residential	Limited Protection
Mary Lyon Church	Church	5-1 0 15	Worship	Excellent	Excellent	Excellent	0.47	None	Rural Residential	Limited Protection
Buckland Public Hall Association	Grange Hall	5-1 16	Community gatherings	Excellent	Excellent	Good	0.49	None	Rural Residential	Limited Protection
Buckland Historical Society	T/B Buckland Center School	5-1 0 1	Historical Society	Good	Excellent	Good	0.32	None	Rural Residential	Limited Protection
US Gen New England	Malley Park	40331	Picnic area, river viewing	Excellent	Excellent	Excellent	1.00	None	Rural Residential	Limited Protection
Veterans of Foreign Wars	Chadwick Memorial (Cricket) Field	6-3 0 12	Ball field, horseshoes	Excellent	Excellent	Excellent	3.50	None	Historic Industrial	Limited Protection
WMECO	Gardner Falls Project	6-7 0 2	Trails, river access	Good	Excellent	Excellent	30.65	None	Historic Industrial	Limited Protection
Buckland Historical Society	Wilder Homestead	40302	Recreation destination	Good	Excellent	Good	45.20	None	Rural Residential	Limited Protection
Association for Community Living	Association for Community Living	3-1 0 15	Foundation	N/A	N/A	N/A	23.32	None	Rural Residential	Limited Protection
Commonwealth of Massachusetts	Mass Highway Facility	3-1 0 19	Municipal	Good	N/A	N/A	5.25	None	Rural Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 119	Recreation destination	Good	Good	Good	0.57	None	Village Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 120	Recreation destination	Good	Good	Good	1.68	None	Village Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 120-1	Recreation destination	Good	Good	Good	0.01	None	Village Residential	Limited Protection
Southern NE Conf. 7th Day Adventist	Church	6-2 0 13	Worship	Good	N/A	Good	0.37	None	Rural Residential	Limited Protection
Roman Catholic Bishop	Church	6-2 0 89	Worship	Good	N/A	Good	6.00	None	Rural Residential	Limited Protection
Shambala International	Lodge	6-2 0 95B	Meetings	Good	N/A	Good	0.47	None	Rural Residential	Limited Protection
Town of Buckland	Police Station	6-3 0 25	Municipal	Good	N/A	N/A	0.60	None	Village Residential	Limited Protection
TOTAL							**248.44**			

Source: Town of Buckland Assessor's Records and Maps, 2010.

Table 5-9 lists the cemeteries in Buckland, which are owned by the Buckland Cemetery Association and the Town of Buckland. Cemeteries are considered to be protected from development. Most cemeteries represent well-maintained open space areas that are sometimes appropriate for walking and bird watching.

Table 5-9: Permanently Protected Land Owned by Buckland – Cemeteries

Owner/Property Manager	Site Name	Map-Lot	Acres
Buckland Cemetery Association	Buckland Cemetery, Hog Hollow Road	5 0 17	0.5
Buckland Cemetery Association	Buckland Cemetery, East Buckland Road	5 0 20	0.5
Buckland Cemetery Association	Buckland Cemetery, Charlemont Road	5 0 38	3
Town of Buckland and Buckland Cemetery Association	Buckland Cemetery, Upper Street	5-1 0 17	3.6
Buckland Cemetery Association	Buckland Cemetery, Cemetery Road	7 0 12	1.6
TOTAL			**9.2**

Source: Town of Buckland Assessor's Records and Maps, 2010; MassGIS Open Space data, 2010.

The Buckland Historical Society building sits on a third of an acre parcel of land with limited protection from development.

D. OPPORTUNITIES FOR FUNDING OPEN SPACE AND CONSERVATION PROJECTS IN BUCKLAND[17]

Opportunities for the Town of Buckland to procure funding for open space projects can be a challenge. While the town has many unique conservation values, only the private land subject to conservation restrictions is truly protected. The following paragraphs provide a brief description of some available resources for funding open space and conservation projects.

[17] In this section and Section E, the criteria for open space protection were adapted from the 2010 Warwick OSRP.

D.1 LAND grant program (formerly the Self-Help grant program)

The Commonwealth of Massachusetts offers a grant program through the Executive Office of Energy and Environmental Affairs, Division of Conservation Services, to assist municipalities with open space projects. The LAND Program (formerly the Self-Help Program) was established in 1961 to assist municipal conservation commissions acquiring land for natural resource and passive outdoor recreation purposes. Lands acquired may include wildlife, habitat, trails, unique natural, historic or cultural resources, water resources, forest, and farm land. Compatible passive outdoor recreational uses such as hiking, fishing, hunting, cross-country skiing, bird observation and the like are encouraged. Access by the general public is required.

This state program pays for the acquisition of land, or a partial interest (such as a Conservation Restriction), and associated acquisition costs such as appraisal reports and closing costs.[18]

D.2 Franklin Land Trust

The Franklin Land Trust is a non-profit organization that assists farmers and other landowners who seek to protect their land from unwanted development. The Land Trust does not seek to own land, but instead encourages private stewardship. Although Franklin Land Trust (FLT) could assist the Town of Buckland in land conservation, it does not have funds of its own available to donate to the Town for protecting open space. FLT, like other land trusts, must be creative in searching for funding for projects and Buckland is only one of 26 towns in FLT's service region. FLT can be most helpful by serving Buckland on a consultant basis, by recommending funding sources, and by partnering with Buckland to provide public education and outreach.

D.3 Regional and Statewide Land Conservation Trusts

In addition to FLT, several other regional and statewide conservation organizations are available for partnership conservation projects. The New England Forestry Foundation (NEFF) has a focus in conserving managed forest lands. Massachusetts Audubon Society (MAS) works to protect the diversity of Massachusetts natural resources. Additional organizations include the Trustees of Reservations and the Nature Conservancy. Each of these conservation organizations has access to no interest or low interest loan funds to assist in the conservation of significant natural resources through the Norcross Wildlife Foundation's loan program and the Open Space Institute's Western Mass Loan Fund.

D.4 Conservation Partnership Program

This is a state grant program that is designed to help land trusts and other non-profit conservation organizations receive a 50% reimbursement for open space projects (fee or Conservation Restriction). This is a resource that could help to conserve parcels within Buckland with high conservation value. However, no matter how worthy a project in Buckland may be, the non-profit conservation organization will not be interested in applying for these funds unless the Town can supply the other 50% .

[18] Mass.gov Department of Energy and Environmental Affairs, Division of Conservation Services, Grant Programs, http://www.mass.gov

D.5 Forest Legacy Program

This is a federal grant program administered for the purpose of conserving forestland nation-wide. Participation in Forest Legacy is limited to private forest landowners. To qualify, landowners are required to prepare a multiple resource management plan as part of the conservation easement acquisition. The federal government may fund up to 75% of project costs, with at least 25% coming from private, State or local sources. In addition to gains associated with the sale or donation of property rights, many landowners also benefit from reduced taxes associated with limits placed on land use.

As a national program, Forest Legacy funding is very competitive. For Fiscal Year 2011, there are 38 proposed Forest Legacy projects for a total of $1.1M in funding. One drawback of this program is that it can take up to four years for landowners to receive payment for selling the fee interest in the land or a Conservation Restriction once they agree to participate in one of the grant applications. This may be a longer time than some landowners can afford to wait to receive compensation.

D.6 Community Preservation Act

The Community Preservation Act is legislation that allows cities and towns to exercise control over local planning decisions. The Community Preservation Act (CPA) provides new funding sources that can be used to address three core community concerns:

- Acquisition and preservation of open space
- Creation and support of affordable housing
- Acquisition and preservation of historic buildings and landscapes

The CPA allows communities to create a local Community Preservation Fund to raise money through a surcharge of up to 3% of the real estate tax levy on real property for open space protection, historic preservation and the provision of affordable housing. The act also creates a significant state matching fund, which serves as an incentive to communities to pass the CPA. (Distributions from 2002 to 2007 were at a match rate of 100%). Municipalities must adopt the Act by ballot referendum.

A minimum of 10% of the annual revenues of the fund must be used for each of the three core community concerns, and up to 5% may be used for administrative expenses of the Community Preservation Committee. The remaining funds can be allocated for any combination of the allowed uses, or for land for recreational use. This gives each community the opportunity to determine its priorities, plan for its future, and have the funds to make those plans happen. If residents don't feel the CPA is working as they expected, they can repeal it or change the surcharge amount.

E. CRITERIA FOR OPEN SPACE PROTECTION

To support the Town's goals of retaining its rural and historic character and supporting willing landowners in their efforts to preserve open space, scenic views, and culturally and historically

significant landscapes, the Open Space and Recreation Committee has expressed interest in developing a set of criteria to help identify those properties with the highest conservation value.

As part of a blueprint for conserving open space land in Buckland, developing criteria to identify and prioritize land for conservation could help focus Buckland's conservation efforts and could assist in applying for funding to acquire open space. A systematic approach, including applying criteria, enables Buckland to be strategic in its allocation of program funds by giving the Town a tool to both proactively identify parcels and resources that meet the goals of the open space program; and to analyze the merits of individual parcels of land and projects as they present themselves.

Criteria for rating open space are unique to a community. The following information is presented as a stepping off point for the Open Space and Recreation Committee to use and modify to suit the Town's unique resources.

E. 1 Basis for Generating Criteria

As a starting point for generating criteria, Buckland should assess which parcels possess such exceptional open space and recreational values that they are worth conserving as open space.

To generate an answer, the following should be reviewed:

1. *State-Wide Value:* Are there unprotected open spaces in Buckland that are so exceptional statewide that the Town is very fortunate to possess them within its boundaries; and therefore Buckland has the incentive to preserve these open space "treasures" for the benefit of its own residents as well as for the citizens of the Commonwealth. Newly discovered rare wildlife habitat is a likely example in this category.
2. *Town-Wide Value:* Are there unprotected parcels that are particularly critical for preserving Buckland's culture, historic landscapes, scenic views, rural economy, ecology or recreational resources. Such parcels would be beloved and meaningful to a large number of Buckland residents.
3. *Neighborhood Value:* Are there parcels that are exceptionally significant to and highly used by residents of a particular section of Town (as well as by residents from other parts of Buckland) that if lost to unplanned development would clearly diminish the quality of life in that neighborhood and in the Town as a whole?
4. *Future Development Value:* Is there a parcel in Town that is particularly well suited for future residential or small scale commercial development that Buckland would consider purchasing so that it can plan its own development (such as senior housing); and if so, are there also accompanying open space, recreational and green corridor amenities that the Town would also like to secure to fulfill that vision of a well-planned development.

E. 2 Simultaneous Highest Priorities and Open Space Protection Opportunities

Buckland might include parcels of land that are high priority for open space protection in several different categories simultaneously. In this scenario, it is the availability of opportunities that will control which projects are undertaken. Open space protection can move forward only when

a landowner is interested in conserving their land or when funding is available to pay full market value when critical parcels come on the open market.

E. 3 Preferred Type of Open Space Protection for Buckland – To Retain Private Ownership

Given concerns about keeping land on the tax rolls, the ideal form of open space protection for the future is the purchase of Conservation Restrictions and trail easements. In this way, the land itself remains in private ownership and stays on the tax rolls. An open space and recreation budget stretches further when it is possible to purchase just a CR or trail easement, rather than having to pay for the entire parcel.

E.4 Open Space Criteria

As explained above, the open space criteria categories listed below are not necessarily listed in any particular order, given that Buckland has high priorities in different open space categories ***simultaneously***. However, for discussion purposes, examples of scenarios that might occur within each category are presented. For example, under the Open Fields category, land with "prime" agricultural soils currently in active use might be given a higher priority than fields in Town that are being used for crops, hay or pasture, or just being faithfully mowed and maintained. The highest priorities would represent projects of such high value that the Town may want to raise funds in order to accomplish them; whereas with lower priority projects, the Town might not be willing to expend funds but would consider accepting the gift of a Conservation Restriction or trail easement if it were donated by the landowner.

E.4.1 Open Fields

a) Fields with "Prime Agricultural Soils" currently in active use.
b) Fields with soils designated "Prime Agricultural Soils" or "Soils of Statewide Importance"
c) Fields that are adjacent to farmland preserved with an Agricultural Preservation Restriction (APR) that are actively farmed or have the potential to be farmed
d) Fields that have particular scenic, historic or cultural value

E.4.2 Unfragmented Forest Blocks

a) "In-holdings" in large blocks of forest.
b) Forestland adjacent to or near already preserved forests, such as Buckland State Forest, Kenneth Dubuque Memorial State Forest and Catamount state forest
c) Forest parcels that connect existing permanently protected forested parcels for the sake of the integrity of wildlife and trail corridors.

E.4.3 Ecological Significance

a) A parcel, or group of parcels, that has been identified by GIS mapping as containing the following:
    i. NHESP BioMap Core Habitats
    ii. NHESP BioMap Supporting Landscapes
    iii. Priority Habitats of Rare Species
    iv. Certified Vernal Pools

b) Ridge-line corridors – Buckland has several undeveloped ridge lines; ridge tops are known to be used by large mammals with extensive territories.

E.4.4 Hydrological Significance
Land that abuts or contains the following:

a) A parcel, or group of parcels, that has been identified by GIS mapping as containing all or portions of rivers, streams, lakes or ponds
b) Aquifers or floodplains
c) Significant upland or wetland habitat
d) Public or private drinking water supplies

E.4.5 Recreation Resources

a) Trail Corridors – Land that would contribute to the creation of a comprehensive trail network including parcels that form linkages with an existing or planned trail system
b) Scenic Views – preserve outstanding views by fee purchase or conservation easements.
c) Land that would provide access to water for swimming, canoe and kayak put-ins and fishing.

E.4.6 Scenic Resources

a) Views Across Fields – Roadside views across fields are an important scenic amenity Buckland; their scenic value reinforces the importance of protecting agricultural fields adjacent to Town roadsides.
b) Views of Ridgelines – Buckland has several undeveloped ridgelines that are an important part of the Town's rural scenery. Maintaining undeveloped ridgelines benefits both the scenic value of the Town and the quality of the wildlife habitat (see 3 b above).Maintaining undeveloped ridgelines could potentially become more challenging as the pressure for alternative energy sources and the need to site wind turbines grows.

E.4.7 Historic and Cultural Resources

a) Historic Village Center District – Helping Buckland Center to remain undiluted by incongruously modern construction will help preserve the Town's historic heritage.
b) Historic Farmsteads – Buckland still contains many historic farmsteads where the original farmhouse, barns and outbuildings, stonewalls, and fields are intact. Each of these is an historic artifact worthy of inventory and preservation through conservation easements.

E.4 Implementing Open Space Criteria

Once a set of criteria have been defined and adopted, the Open Space Committee could move forward with related objectives and action items in Sections 8 and 9, such as identifying and inventorying viewsheds and historic sites as well identifying and seeking funding sources for protecting that land with the highest conservation value. Additional steps could include collaborating with adjacent towns and with area land trusts to build land conservation coalitions and to create public outreach and education materials, as defined in Section 9. An example of a public outreach brochure is located in the appendix of this document.

SECTION 6

COMMUNITY GOALS

A. DESCRIPTION OF PROCESS

The Town of Buckland's open space and recreation goals were developed through a detailed planning process. In September and October of 2010, Open Space and Recreation Plan surveys were made available on-line and at locations throughout the Town of Buckland, including the Town Hall and Library. A press release announcing the availability and deadline of the survey was published in the Greenfield Recorder and the Shelburne Falls Independent newspapers and on Falls Cable's message board. Reducing costs by eliminating mailing of the survey was the primary reason for switching to an on-line survey format. An additional benefit of the on-line survey method was the anticipated increase in participation. In actuality, the number of respondents decreased from 98 in 2004 to 70 in 2010. See Appendix C for a copy of the survey and for survey results. Although the responses may not reflect the opinions of all residents, they do represent a significant source of community input, which was used to develop the preliminary draft Section 8-Goals and Objectives.

Between August and November of 2010, the members of the Buckland Open Space and Recreation Planning Committee and staff from the Franklin Regional Council of Governments Planning Department developed this Open Space and Recreation Plan update. The planning process used several methods for encouraging public participation:

- The results of the 2010 Open Space and Recreation Survey were used as the basis for the development of Section 8 - Goals and Objectives as well as the overall open space and recreation vision.
- Six (6) public meetings were held by the Buckland Open Space and Recreation Planning Committee between August and November of 2010.
- Drafts of each section of the plan reviewed with the Buckland Open Space and Recreation Planning Committee.
- A Public Input Session was held on October 21, 2010, where approximately 50 residents reviewed and offered comment on the Vision Statement and the Goals and Objectives. All public comments were recorded and considered for incorporation into the OSRP.
- A Public Forum was held on November 17, 2010, where approximately 15 residents reviewed and discussed the major findings of the OSRP and the Seven-Year Action Plan. All public comments were recorded and considered for incorporation into the OSRP.
- Public meetings, the Public Input Session and the Public Forum were all advertised in the Daily Hampshire Gazette and the Shelburne Falls Independent newspapers as well as on Falls Cable. Announcements were made at Select Board meetings and flyers were distributed throughout town. An example of the flyer and a press release are included in Appendix B.

B. VISION STATEMENT OF OPEN SPACE AND RECREATIONAL GOALS

The following Vision Statement was developed incorporating information from the 2004 OSRP, results from the 2010 survey, and input from the Open Space and Recreation Planning Committee and from public comment:

> *Our vision for the town of Buckland is to preserve agricultural land and working farms, promoting the value of locally raised agricultural products. In addition to preserving our agricultural lands, we wish to encourage development that preserves contiguous tracts of forest land, that protects our valuable water resources, and that maintains the rural and historic character of our community. Our vision also includes encouraging economic development appropriate to the rural nature of our Town by supporting working forests and farms, farm-related businesses, and cottage industries.*
>
> *Our vision also supports the maintenance, improvement, and promotion of recreational opportunities and resources available to our residents. Our vision includes supporting willing landowners in their efforts to preserve open space, scenic views, and culturally and historically significant landscapes. We also wish to provide for zoning that allows for renewable or alternative energy research, development, and generation. Our vision balances the need for economic growth with the desire to protect our scenic, historic, and natural resources.*

SECTION 7

ANALYSIS OF NEEDS

The Buckland 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 subsection, A. Summary of Natural Resource Protection Needs, the most important environmental issues are highlighted. In B. Summary of Community's Needs, the recreation and open space needs of the residents are discussed. Finally, in C. Management Needs, the obstacles to the effective resolution of these needs are addressed.

A. SUMMARY OF NATURAL RESOURCE PROTECTION NEEDS

Buckland residents value the rural character of their town. They value their agricultural land and working farms, their contiguous tracts of forested land, their water resources, and the historic character of their Town. According to the 2010 Open Space Survey, the top five resources worth preserving were:

1. Clean drinking water (93%)
2. Clean air (93%)
3. Rural, small town character (90%)
4. Lakes, streams and ponds (89%)
5. Open fields (86%)

Water resources – lakes, streams, ponds, and drinking water – ranked high on the 2010 Survey of top resources worth preserving.

Recreational resources rated as a lower priority on the same question. The top three recreational resources respondents thought worth preserving were:

1. Bridge of Flowers (75%)
2. Walking and hiking trails (72%)
3. Buckland Recreation Center (52%)

Survey respondents were asked to rate how the character of their town has changed since they lived in Buckland. Responses were mixed, with about 30% stating that village community and sense of character have changed for the better while 18% thought sense of character has changed for the worse. The majority of respondents thought local open space, sense of community, rural character and recreational facilities had remained the same. However, survey respondents did not feel complacent about the town's current situation. Respondents expressed concern about the following threats to Buckland's sense of community and rural character:

1. Loss of farmland (60% very concerned, 24% concerned)
2. Loss of open space (46% very concerned, 25% concerned)
3. Environmental pollution (38% very concerned, 36% concerned)
4. Lack of economic growth (38% very concerned, 35% concerned)
5. Residential development (29% very concerned, 39% concerned)

Other environmental challenges facing Buckland were identified and discussed during meetings of the Open Space and Recreation Plan Committee, including:

- Protecting potential sources of drinking water (aquifers)
- Access to the Deerfield River
- Addressing eroding stream bank at Buckland Recreation Area
- Protecting ridgelines and wildlife corridors from development
- Identifying and protecting rare species and vernal pools

Many of Buckland's natural and open space resources are vulnerable to loss and degradation because of the ways humans use the landscape. New development, if not properly planned, could have a negative and permanent impact on both the quality and quantity of these resources. Large, contiguous areas of land, including forest, wetlands, stream corridors, and agricultural land, support many of the natural, open space and recreational resources Buckland residents consider important. Only a small percentage of land in town is permanently protected from development. The results of the 2010 Open Space Survey indicate that 71% of respondents (up from 65% in 2003) would vote for a town-supported land acquisition program to preserve the resources they consider very important. Other Town and State resource protection initiatives supported by respondents include:

1. Cooperative protection efforts between the town and the state and/or non-profit groups/land trusts (90%)
2. State property tax reduction programs (Chapter 61, 61a and 61b) for farm, forest, and recreation land (90%)
3. Town acceptance of donated land (85%)

4. Zoning changes for open space protection, such as an Agricultural Land Preservation or Watershed Overlay District (82%)
5. Mandatory preservation of open space by developers of large parcels/multiple house lots (82%)

When asked what they would personally be willing to do where their own land was concerned, respondents were less enthusiastic – and even opposed – to supporting private landowner initiatives as follows:

1. Donating land to the Town (71% opposed)
2. Donate land to the state Division of Fisheries & Wildlife or Department of Conservation & Recreation (67% opposed)
3. Selling land to the town for a "bargain price" (61% opposed)
4. Selling land to the town at fair market value (50% opposed)

Town collaboration with Franklin Land Trust and other organizations to produce public outreach and educational materials on topics such as land protection, estate planning and land, a stated action item, could help lower the resistance of individuals toward private landowner conservation initiatives. An example of a private landowner conservation options brochure is included in the appendix of this report.

The ways in which land can be protected from development can yield different benefits, both to the landowner and to the community. For example, land that is protected through the use of a conservation restriction or Agricultural Preservation Restriction can stay in private ownership. Decisions regarding property management are left in the hands of individuals, not a state or federal agency or non-profit group. Individual landowners may be more responsive to local concerns, and the land remains on the local property tax rolls. Although public access is sometimes required in conservation easements purchased by state agencies and land trusts, it is not guaranteed. Lands purchased in fee by state agencies and large land trusts are likely to provide access to the general public and sometimes offer payments in lieu of taxes.

The question of connectivity, management, and public access will gain importance as the population of Buckland grows and development pressures increase. The difference between protected and unprotected lands is not visibly apparent currently, since most of the landscape in town is undeveloped. The importance of permanently protected land, including both agricultural and forested landscapes, may not become obvious enough to mobilize people into action until a "cookie-cutter", large-lot residential subdivision is built in town or a portion of a favorite hiking trail or recreation spot is sold for development. Action items such as collaboration between the Town and other entities such as land trusts to provide public education on landowner conservation options, developing criteria to help prioritize land for protection, and adopting scenic viewshed and ridgeline protection will all help in avoiding such undesirable development.

New home construction, primarily Approval-not-Required (ANR) development, along Buckland's major roads could also have the result of diminishing the quality of significant historic landscapes and the future use of prime farmland soils. The value of prime agricultural soils is negated once the land is developed. Many of Buckland's most scenic vistas are

dependent on the maintenance of open fields and the retention of contiguous forests along the slopes of the many hills in town. The scenic value of these landscapes would be severely diminished by unplanned development. Large blocks of contiguous forest, wetlands, and stream corridors create a diversity of habitats across the landscape of the town and provide recharge to the aquifers that supply drinking water to residents.

The challenge for many rural towns like Buckland is to grow in population without diminishing natural resources like clean drinking water and contiguous forests beyond the capacity of local ecosystems. Although exact capacity thresholds for water supplies and forest habitat acreage are not yet known, most Buckland residents would probably agree that poorly planned development can detract from their town's rural character and erode the quality of the environment over time.

Commercial properties are tucked along the Deerfield River and draw residents and tourists alike.

Of course, some types of residential, commercial, and industrial development can be very beneficial to a community especially if it is consistent with a town plan that balances growth with natural resource protection. Well-planned economic development, for example, could help provide jobs and small-scale commercial enterprises that serve the community. Generally, as more families move in to Buckland, a greater level of municipal services would be required to serve the population, including schools and road infrastructure. Based on regional trends, the average residential tax bill will likely rise as the population of Buckland increases because the costs of services are generally greater than the revenues generated by residential property. In addition, residential development would likely reduce the number of acres in agricultural uses over time since farmland often represents the most developable soils.

Clearly, not all development is undesirable, nor could the town over-control land development, even if this was the consensus of residents and officials. Most Buckland residents understand the need for balance and respect the rights of property owners, including their right to develop land. Ideally, through zoning and non-zoning techniques the town could provide incentives to developers so that all development in Buckland would contribute as much as possible to the residents' shared vision for their town. For example, by using existing buildings for new commercial or residential development, forest or farmland would remain undeveloped. Another way the town could promote and preserve active farmland, help stabilize local residential property tax bills, and create jobs, is by developing a heritage-based eco-tourism sector in the town and the region, which could combine residents' interest in historic preservation, bicycle and hiking trail systems, and active farmland. This could help to increase revenue from farms' direct sales and create local jobs. A town with a greater number of its residents working locally feels different than a bedroom community. Local workers can support stores and other services with their purchases. Action items such as marketing local farm and forest products, promoting tours of working farms, and encouraging small businesses and artisans to join the community all work toward balancing development and economic growth with the preservation of Buckland's natural resources.

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 Buckland residents. Although the Buckland Open Space and Recreation Plan will be updated in seven (7) years, the types of actions identified in Section 9 will take into account the needs of the next generation as well.

The results of the 2010 Open Space and Recreation Survey, and discussions of the Open Space and Recreation Plan Committee members, helped to identify the most popular recreation activities. The top five open space and recreation activities were:

1. Walking
2. Gardening
3. Hiking
4. Wildlife viewing
5. Swimming

Action items related to these popular activities include establishing a trails committee and developing a network of trails as well as bike and pedestrian path, exploring options for access to the Deerfield River, and identifying key wildlife corridors for preservation.

Respondents were asked what types of recreational programming and/or facilities they most wanted to see in Buckland. Twenty five respondents replied, with 9 requesting swimming related facilities including improvements to the Recreational Area pool, access to the Deerfield River and adding a community swimming pool. In addition to the survey results, the October 21st Input Session generated additional comments about the aging of the pool. Twelve out of the 25

responses were hiking and biking related, including a better trail system, safer trails for bikes and walkers and safer sidewalks.

Small towns like Buckland that are interested in increasing the amount of recreational programs available to residents of all ages typically have four main options for funding these programs: using town funds to pay staff; depending on volunteers to staff the programs, providing programs in collaboration with other towns, or a combination of the first three. Programs at the Buckland Recreation Area might best be funded through town appropriations and grants. Buckland has an elected Recreation Committee that sets policy and is responsible for the oversight of a part-time Seasonal Recreation Area Director. As reflected by the survey responses and by committee input, action items such as maintaining and improving the Buckland Recreational Area, creating a trails committee and publicizing recreational events and schedules are all priorities for the Town.

The public expressed a desire for more information on recreational facilities and programming at sites such as Mohawk Trail Regional High School.

Trails and access to the Deerfield River for swimming, fishing, boating, and other recreational activities were needs expressed by residents in the 2010 Open Space and Recreation Survey. Residents voiced a desire to have pedestrian and bicycle trails connecting some of the villages in Buckland. Bike lanes and paths which utilize road right-of-ways might be more easily designed and implemented than a system of trails, which go between roads and across private land. Either way, permanent trail systems are a long-term project dependent in large part upon the commitment of people who are willing to move the project from beginning to end, independent of town staff. These opinions still ring true in 2010 and remain on the list of objectives and action items.

In the 2010 Survey, when asked in general what information they would like access to, respondents answered as follows:

- Buckland State Forest's trails and signage (3 out of 8)

- Zoning, APRs, land trusts and the Community Preservation Act (2 out of 8)
- Recreational programming / programming paid for by tax dollars (2 out of 8)
- Lamson and Goodnow property (1 out of 8)

Along with needs identified in the Survey, Buckland's community open space and recreation needs are also impacted by items identified as a result of the Americans with Disabilities Act (ADA) report findings (see Appendix A). Two facilities, Buckland Recreation Area and Buckland Public Library, were identified as hosting or potentially hosting recreational program. The Buckland Recreation Area has had some ADA-compliant updates to its facilities in 2009. The pool building can be accessed via a ramp and the facilities contained within are all ADA compliant. The pools are equipped with ramps.

Some deficiencies in terms of handicapped accessibility remain at the Buckland Recreation Area, however. The pavilion is not easily accessed due to a 6" slab with no ramp and its bathrooms are not handicapped accessible. The ball fields fence openings are only 24" wide, not the required 36" to accommodate wheel chairs. A complete list of updates in shown Appendix A in the ADA Transition Plan and a related action item is listed in the Seven-Year Action Plan.

The Buckland Public Library is not currently handicapped accessible, however, as of November 2010, the library is closed for a complete renovation and an expansion. The finished structure, slated to be completed in 2011, will be completely ADA compliant.

C. MANAGEMENT NEEDS

Buckland has several management needs with respect to open space and recreation, all of which are dependent in part on a prioritization of the most important problems and the best solutions. As is mentioned in the Natural Resources Needs section, the most important management need for local officials and community leaders may very well be the importance of building consensus on a vision for the future of land use, development and conservation in town. This process has been initiated in previous planning efforts, including the Buckland-Shelburne Master Plan and the Buckland Community Development Plan, through recent discussions concerning proposed zoning revisions, and continues with the development of the 2010 Open Space and Recreation Plan. Consensus is needed to determine the land that should be protected and the land that should be developed. Without consensus, the town will be less equipped to protect its existing resources (water supplies, farmland, and large blocks of forest habitats), its rural character, as well as to develop future recreational facilities (trail networks). To help build needed consensus on a vision for the future of land use, conservation and development, several action items have been laid out in the Seven Year Action Plan. They include:

- Developing procedures for evaluating parcels for their natural resource value such as scenic ridges, farmland, views, drinking water, and wildlife habitat
- Adopting and using criteria to identify highest priority land for possible conservation
- Pursuing funding for preserving land identified as high priority

As the results of the 2010 Open Space and Recreation Survey and Committee discussions have revealed, there is a need for more public awareness regarding the existing recreational facilities

and programming currently available to Buckland residents. Eight (8) local open space and recreational resources were listed in the Survey:

- Buckland State Forest;
- Buckland Recreation Area;
- Mohawk Trail Regional High School Facilities;
- Chadwick Field/Cricket Field;
- Gardner Falls Project;
- Mary Lyon Birthplace;
- Mohawk Trail Rest Area; and
- Riverwalk Park

When asked to rate how often they used Buckland open space and recreation facilities and programs, respondents rated some as those they used daily while others were rated as those they did not know existed. The most used facilities are:

- Mohawk Trail Regional High School facilities (10% daily use, 10% weekly use)
- Buckland Recreation Area (8% daily use, 17% weekly use)
- Riverwalk Park (6% daily use, 9% weekly use)

The least used facilities are:

- Chadwick Field/Cricket Field (65% never use, 16% unaware of facility)
- Mary Lyon birthplace (65% never use, 6% unaware of facility)
- Mohawk Trail rest area (64% never use, 8% unaware of facility)
- Buckland State Forest (31% never use, 22% unaware of facility)

Another survey question regarding the condition of open space and recreation areas in town and the quality of Buckland's recreational programming also reflects the need to advertise and promote the use of local resources. The list of resources for this question included the areas mentioned above as well as the following:

- Playground/tot lots
- Sports fields
- Tennis courts
- Swimming areas
- Hiking Trails
- Recreational programs for teens
- Recreational programs for seniors
- Community events/festivals
- Bike trails/bikeway

When asked for their opinions on the conditions of these areas and programming, the three rated as most excellent or good were:

1. Mohawk Trail Regional High School facilities (17% excellent, 44% good)

2. Community events and festivals (16% excellent, 36% good)
3. Buckland Recreation Area (9% excellent, 31% good)

The bottom three open space and recreation areas and programming or those rated as poor were:

1. Bike trails and bikeways (30%)
2. Recreational programming for teens (29%)
3. Playgrounds and tot lots (13%)

Action items for addressing this underuse of local resources include the Recreation Committee publishing an annual or biannual newsletter to inform residents about the availability of local open space and recreation resources and collaborating with other town departments and officials, state agencies, local businesses, and other groups to promote these resources. Other action items include publishing information in local newspapers. Periodically, articles could be written that highlight local resources and encourage residents to visit these facilities (Buckland Recreation Area) or explore them (Buckland State Forest).

Many of Buckland's residents receive their drinking water from the wells operated by the Shelburne Falls Fire District. These wells tap an aquifer adjacent to the North River in Colrain. The Town of Buckland would be well served by working closely with the Town of Colrain, the Shelburne Falls Fire District and the other two water supply districts in Colrain (Griswoldville and the Colrain Fire District) to help develop strategies to protect the water supplies from contamination, particularly given that survey respondents rating as clean drinking water as their number one natural resource preservation priority. Contaminants can originate from non-point source pollution generators like improper pesticide use by farmers, homeowners, utility companies, and highway departments and road salt use by local and state highway departments. None of these water districts have long–term emergency water supplies, so the loss of one well to pollution could be extremely inconvenient to residents using public water. Zoning can be designed to include overlay districts that seek to protect aquifer integrity by restricting the amounts and types of hazardous materials that can be stored, used and disposed of, and the density and types of development allowed. This level of protection cannot happen without the collaboration of town and district officials. Consideration of an Aquifer Protection Overlay District was an action item in the 2003 plan and is included in this plan's Seven Year Action Plan as well.

Another potential threat to the water supply is the annual accumulation of water-borne debris (wood, etc.) in the Deerfield River under the Bridge of Flowers. The aqueduct that carries the drinking water into Buckland is located on the Bridge of Flowers. The battering and stress that the structure endures each year from the accumulated debris is a concern because there is generally no money to pay for prompt removal of the debris. In the summer of 2010, a crack was discovered on the bridge, further threatening this valuable resource. Given the popularity of the Bridge of Flowers with tourists and residents alike, the Town of Buckland should follow up on the action item to work with the Water District to pursue the necessary funding to access and repair the Bridge.

Although farmland is at risk throughout New England, as markets and other forces often work against small family farms, there are a multitude of strategies available to a town committed to

preserving its local and regional agricultural industry. These include marketing local farms and farm products and encouraging the preservation of farmland by promoting leasing of farmland and the addition of community gardens, and CSAs, as stated in the Action Plan.

To protect large blocks of forest from fragmentation might require both land protection efforts and strategies similar to those that would support agriculture. Land protection work may begin with providing landowners (residents and non-residents) with information about the benefits and risks of enrolling in the Chapter 61 programs, in protecting their land with a conservation restriction, and with estate planning in general.

To develop a town-wide trail system, Buckland officials might begin by organizing a well-represented trails committee. The purpose of the committee would be to develop a coordinated plan for trail development, maintenance, and promotion 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. As part of this effort, trail committee members might want to consider talking to their neighbors in Ashfield who have undertaken a similar project and may be able to offer some guidance and suggestions.

D. OPEN SPACE EQUITY

Open Space Equity means taking a look at conservation and recreation opportunities available in the town and determining if there are areas of the town that seem to be lacking resources. This is somewhat difficult to do in a town the size of Buckland, with only a few areas recognized by residents as discrete neighborhoods, such as the Town Center.

Buckland has few recreational facilities, which is not unique among rural western Massachusetts towns. Respondents to the 2010 Open Space Survey felt that the following facilities were at least adequate to meet their needs: Buckland Recreation Area, Mohawk Trail Regional High School facilities and community events and festivals. Bike trails, playgrounds and tot lots as well as recreational programming for teens are items that many respondents felt are in poor condition. The most popular activities according to the survey were walking, gardening, hiking, wildlife viewing, and swimming. These activities can all be done throughout the Town of Buckland. Given Buckland's community setting and traditions, there is no area of town that is deprived of recreational opportunities relative to other areas.

SECTION 8

GOALS AND OBJECTIVES

The following goals and objectives were formulated from the results of the 2010 Buckland Open Space and Recreation Planning Survey and were reviewed and modified through the public meetings of the Buckland Open Space and Recreation Committee. Review of the 2004 Buckland Open Space and Recreation Plan, the 2009 Route 112 Scenic Byway Corridor Management Plan, the 2010 Buckland Green Communities Action Plan Report as well as public input and comment were also considered in the formulation of the goals and objectives.

GOAL	OBJECTIVE
1: Ensure that the Town of Buckland retains its rural and historic character and supports willing landowners in their efforts to preserve open space, scenic views, and culturally and historically significant landscapes.	
	Promote partnerships and collaboration between town boards and commissions, land owners and regional organizations to implement OSRP Objectives.
	Develop strategies for identifying and prioritizing scenic viewsheds for the purpose of preserving them.
	Promote and historically significant landmarks, features, and structures.
2: Ensure that the Town of Buckland maintains or improves the quality of its significant natural resources, including rivers, ponds and streams, drinking water supplies, clean air, wetlands, native wildlife populations and plant communities, farmland, forests, and scenic ridges.	
	Pursue strategies to protect land with significant natural resource value from development and work with willing landowners to protect their land by pursuing funding for easements or conservation restrictions.
	Encourage landowners and Town officials to employ best management practices to protect and maintain water quality.
3: Ensure that the Town of Buckland improves the quality, quantity and accessibility of its recreational resources.	
	Promote and maintain recreational resources and opportunities in Town.
4. Encourage economic development appropriate to the rural nature of the Town by supporting working forests and farms, farm-related businesses, artisans, and cottage industries while preserving the Town's most significant scenic and historic agricultural landscapes.	
	Support local agriculture and land/resource-based businesses with active involvement by Agricultural Commission and Planning Board.

SECTION 9

SEVEN YEAR ACTION PLAN

This Seven-Year Action Plan is intended to provide concrete steps towards implementing the objectives discussed in previous sections of this Open Space and Recreation Plan. The objectives are listed in the far left column of Table 9-1 in the same order as they appear in Section 8. They are followed in the same row by recommended actions, potential funding sources, the board or group responsible for implementation, and start dates. By implementing the recommended actions, each of the objectives will begin to be realized. The Action Plan Map at the end of this section is a graphical representation of the Action Plan.

Successful implementation will require the participation of existing town boards, committees and staff, including, but not limited to: the Open Space and Recreation Committee, the Recreation Committee, Board of Selectmen, Planning Board, Conservation Commission, Historical Commission, and Historical Society. Successful implementation will also require the collaboration of the town with other local and regional entities working in the town and the surrounding area such as the Deerfield River Watershed Association, the Franklin Land Trust, and the Franklin Regional Council of Governments (FRCOG) and the Natural Resources Conservation Service (NRCS).

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 the fundraising which may be needed to implement the action items.

Citizen involvement is key to the success of the OSRP Seven-Year Action Plan.

SECTION 10

PUBLIC COMMENT

Public feedback was sought throughout the entire open space and recreation planning process. A public input session was held on October 21, 2010 to receive comments on the Buckland Open Space and Recreation Plan's Vision Statement and Goals and Objectives. In December 2010, the Buckland Open Space and Recreation Plan Committee sought comments from the Select Board, Planning Board, and the Conservation Commission as well as from the Massachusetts Division of Conservation Services (DCS). Prior to publishing the final version of this Plan, these letters of comment will be included in this section of the Plan.

Public feedback provided during the entire planning process is difficult to document due to the fact that the plan constantly incorporated these changes and enhancements. The letters of support from the Town boards and the DCS will reflect the broad base of support that the Buckland Open Space and Recreation Plan Committee has earned over the past six (6) months.

Comments at the Public Forum included the need for better recreational programming for teens.

The following comments were captured on comment boards at the Buckland Open Space and Recreation Plan Public Input Session. The comments offered insight on the need for an officially appointed Open Space and Recreation Committee and on how to maintain the interest that has been generated, specifically around certain projects in the Action Plan.

Public Comments recorded at the Public Input Session on October 21, 2010:

- Think about the proper placement of wind turbines – are some ridges more valuable to protect than others
- Collaborate with Buckland Historical Society to preserve Wilder Homestead
- Buckland State Forest needs brochures / trail information
- Protect drinking water, groundwater and underground springs in Buckland Center
- Work with State Department of Agriculture on farm-related goals
- 1962 pool at Recreation Area needs updates or replacement
- Recreation Area playground needs updates or replacement
- Recreation Area riverbank needs stabilization
- Buckland Recreation Area is great resource but needs improvements, particularly the pool
- Recreation Area pavilion needs work
- Concern about town's liability should a swimming area be located on the Deerfield River

Public Comments recorded at the Public Forum on November 17, 2010:

- Provide more comprehensive information on recreational facilities and programs.
    - According to Town Administrator Andrea Llamas, a Town website is being developed and a link to recreational information and programming could be included.
    - Another resident indicated she would still like to have access to the same materials in printed form.
    - It was also suggested that the Town Annual Report could include an insert of recreational news.
- Provide a town newsletter.
    - Any town newsletter would have to be created and maintained by volunteers.
    - A resident stated that the West County Independent and Falls Cable are existing sources of information and could easily include more recreation-related information and news.
- Provide a setting for a dog park.
- Bridge of Flowers work is already underway to repair the crack to the structure.
- Add UMass student and County Extension and Responsible Board / Group for Goal 2 Objective 1 Action Item 1.
- Be sure to note the need for teen recreational programming and for the addition and/or improvement of playgrounds / tot lots to action items.
- Concern about wood smoke and dryer sheets contributing to air pollution was raised.

SECTION 11

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APPENDIX A

ADA INVENTORY OF TOWN RECREATIONAL FACILITIES

In 2002, the Town of Buckland undertook a Self Evaluation of its recreational programs, practices, and recreation facilities in order to assess their compliance with Title II of the Americans with Disabilities Act (ADA) regulations. The objective of the Self Evaluation is to identify and bring into reasonable compliance programs and practices that do not currently meet the requirements of the Act. The Self Evaluation is not "official," in that there is no specific format prescribed by a federal enforcement agency. However, the three major elements outlined below were assessed. By evaluating these three elements, Buckland will work to comply with ADA Self Evaluation regulations.

1) Site Accessibility: Is the site accessible to persons with disabilities?

2) Program and Service Accessibility: Are the programs and services offered available to all persons, regardless of their disability?

3) Employment Practices: Are employment decisions made without discrimination on the basis of disability? Are reasonable accommodations made for employees who may require them? Are employment notices in formats accessible to people with sight or hearing disabilities?

A. ADA REQUIREMENTS

The ADA requires public entities with 50 or more employees to designate at least one employee to coordinate its efforts to comply with Title II and investigate any complaints of ADA-related discrimination. At the time of the Self Assessment, the Board of Selectmen designated Administrator Coordinator, Robert Dean, to act in this capacity. Robert Dean was replaced as Town Administrator by Andrea Llamas in 2008, who has also assumed the role of ADA Coordinator.

A.1 Public Notification

A public entity is required to inform applicants, participants, beneficiaries and other interested parties of their rights and protections afforded by the ADA. A copy of the Public Notice of the Town of Buckland's Policy of Non Discrimination on the Basis of Disability is located at the end of this Section.

A.2 Grievance Procedures

ADA regulations also require a formal grievance procedure by which complaints of ADA violations may be resolved. The Town of Buckland's ADA Grievance Procedure is located at the end of this Section.

A.3 Employment Practices

The Town of Buckland's employment practices are in compliance with the ADA regulations, especially regarding: recruitment, personnel actions, leave administration, training, tests, medical exams/questionnaires, social and recreational programs, fringe benefits, collective bargaining agreements, and wage and salary administration. A statement from the Town's ADA Coordinator attesting to this are located at the end of this Section.

B. SITE ACCESSIBLITY

This section describes the two facilities in the Town of Buckland that are recreation related. Included are a description of the facilities, accessibility needs, and recommendations for modifications, which would help to provide people with disabilities equal access to these resources. The specific recommendations for each site are summarized in a table, the ADA Transition Plan, at the end of this document. The standards by which the park facilities are judged are from the Massachusetts Division of Conservation Services and are based on state and federal guidelines.

Buckland Recreation Area

Description

This area consists of an 82-acre parcel of land located on Route 112 and includes open fields, a baseball diamond, a basketball court, a pavilion, woods and a pool complex with a main pool, wading pool and a main building. The main building has a check-in and food sales area, a women's locker room (with toilets, sink, showers and changing stalls) a men's locker room (with toilets, urinals, sink, showers and changing room), and a pool filter room. Below the filter room's pump deck is the valve pit, which can be accessed via a ladder. One end of the main building has an attached maintenance shed.

The pavilion is comprised of a long concrete slab on-grade with a continuous roof. Centrally located in the pavilion is an enclosed service area which includes girl's and boy's restrooms and a small utility room.

Access

The Buckland Recreation Area is accessed from Route 112 via a paved drive. The parking lot has 8 parking spaces with none that are marked specifically as a handicapped space. Parking for the swimming pool is in a small, unpaved lot and along the recreation area roadway. Parking for baseball games is available on the open field and under the forested tree line. All facilities but the swimming area are accessed via flat grassy areas. The pool complex is equipped with a handicapped accessible ramp. There are no hindrances such as curbs or uneven pavement on the parking lot.

The swimming area was updated in 2009. The main building can be accessed via a ramp and the facilities contained within are all ADA compliant.

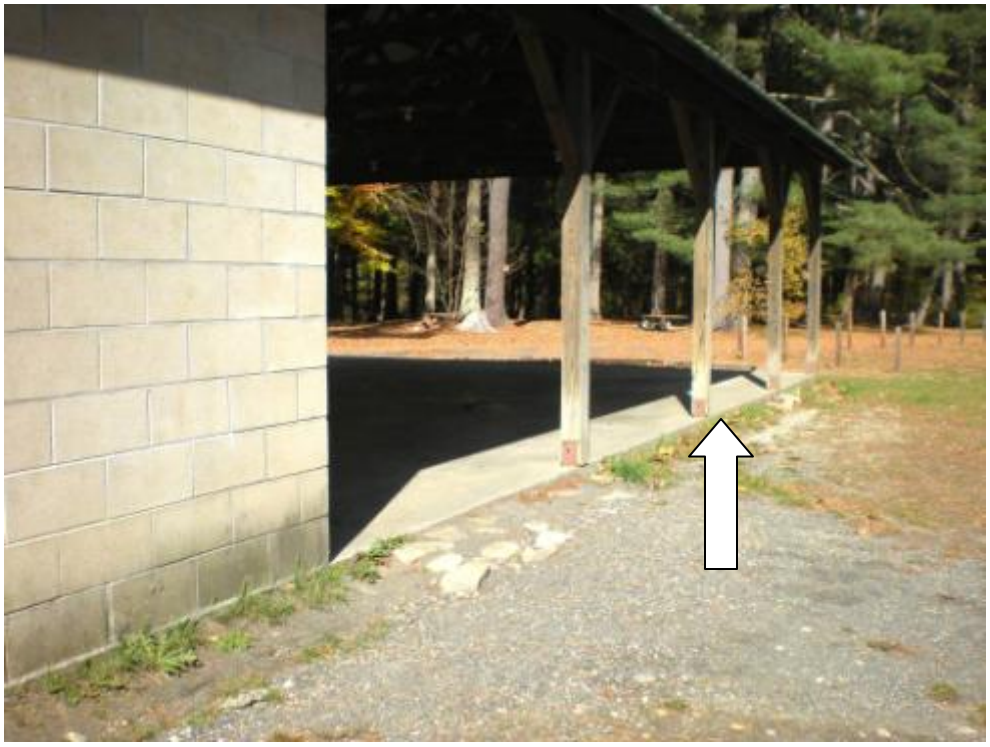
Three picnic tables have room at the ends for wheelchair access. There are no currently accessible paths that lead to either the picnic tables or benches. The playground equipment is composed of swings, slides, and climbing structures. The ground surface under the play structures is composed of wood chips, which does not allow for easy mobility.

Findings

1. The parking area is gravel with railroad tie borders and with no ADA signage, spaces, or aisles. Parking for the pool is located adjacent to the pools but not immediate to the building's entrance.
2. A handicapped accessible ramp leads to the ADA compliant entrance. The doors leading to the pools are also ADA compliant.
3. Both swimming pools have been updated with lifts.
4. All toilet stalls, fixtures, controls, signage, showers and changing stalls have been updated to be compliant.
5. The sales counter is compliant.
6. The drinking fountain and outdoor shower controls are now ADA accessible.
7. The baseball/softball field is not accessible as the fence openings are only 24" wide and no accessible seating area is designated.
8. The Pavilion's Boy's Toilet is not accessible due to the following:
    a) The wall hand dryer is a protruding object
    b) The sink counter apron lacks the required 29" knee space
    c) The urinal rims are above the 17" maximum allowable height
    d) The toilet stall has no door
    e) The rear grab bar is absent
    f) The toiled is not the required 18" from the side wall.
9. The Pavilion's Girl's Toilet is not accessible due to the following:
    a) The wall hand dryer is a protruding object
    b) The sink counter apron lacks the required 29" knee space
    c) The toilet stall lacks the 60" width for turnaround
    d) The rear grab bar is absent
    e) The toiled is not the required 18" from the side wall.
10. The pavilion slab has an edge step greater than that allowed with uneven ground surrounding slab
11. The playground equipment is composed of swings, slides, and climbing structures, none of which are ADA compliant.
12. The ground surface under the play structures is composed of wood chips, which does not allow for easy mobility.

ADA-compliant ramps were added in 2009at the Buckland Recreation Area.

Uneven ground on the path to Buckland Recreation Area pavilion makes access via wheel chair challenging.



Greater than 6” allowable edges on the Buckland Recreation Area pavilion slab prohibits access via wheel chair.

Less than 36” ADA allowable fence openings to the ball field at Buckland Recreation Area prohibits access via wheelchair.

Buckland Center Library

Description

The Buckland Center Library is an historic one-story masonry building with a basement. The building has no off-street parking, no accessible parking, routes or signage and no at-grade access. The entry stairs are non-compliant and there are not ramps, lifts or elevators. The library is a one-room building with non-compliant toilets and closet.

Access

There are no ramps with which to access neither the site nor the building.

Findings

1. There is no stable, firm route of travel that does not require stairs.
2. There are no curb cuts at drives, parking and drop-offs.
3. There are no accessible parking spaces and no access aisles.
4. There are stairs to access the building with no lift, ramp or alternative access available.
5. The entrance does have at least 32" of clear opening , the threshold edge not accessible in that it is more than ¼" high and the door handle is higher than the allowable 48".
6. All aisles and pathways to materials are not at least 36" wide.
7. Emergency systems are not ADA compliant.
8. The tops of tables and counters are not between 28" and 34" high and the knee spaces are not at least 27" high, 30" wide and 19" deep.
9. There are no ramps, lifts or elevators to all public levels.
10. Restrooms are not accessible to people with disabilities.

Update

The Buckland Public Library received $145,000 in federal stimulus funding for a renovation and expansion. The grant will make it possible for the library to expand the building, allowing it to broaden its services and increase the community's access to information.

Buckland Public Library was closed for renovations and expansion in fall of 2010.

Ground-breaking for the 3,200 square foot expansion took place in 2009. When completed, the expanded library will include a community room, expanded children's area, and a separate adult and young adult area. Technology improvements will meet the needs of a community in which there is limited access to high-speed internet. The completion, anticipated for spring 2011, will provide a fully ADA accessible library.


Buckland Public Library's expansion adds 3,000 square feet to the overall footprint.

Buckland Public Library's expansion provides ADA compliant access for all.

C. PROGRAMS AND SERVICES

The suggested changes in the above Site Accessibility section to make those sites more accessible will also make any recreational programs and services provided by the Town of Buckland Recreation Department accessible for persons with disabilities.

D. ADA TRANSITION PLAN

Buckland Recreation Area			
Physical Obstacles	**Type of Action to be Taken**	**Date to Be Completed**	**Responsible Party**
No marked handicapped-accessible parking space	Designate 1 space as handicapped accessible. It should be the closest space to the pool building entrance and marked with a sign.	Completed - Two marked spaces installed in 2010	N/A
There are no paths from the parking lot to basketball court, baseball field, and pavilion.	Install an accessible path to each of these items from the parking area.	2013	Recreation Committee, Select Board
Fence openings to baseball field are 24" wide.	Change size of opening to at least 36" on all entrances.	2013	Recreation Committee, Select Board
Pavilion slab lacks handicapped-accessible access.	Add ramp on either side of lab.	2013	Recreation Committee, Select Board
Buckland Center Library			
Physical Obstacles	**Type of Action to be Taken**		
Once expansion is completed, there should be no physical obstacles to the library.	N/A	N/A	N/A

E. Public Notification

I. ADMINISTRATION

A. ADA Coordinator, Robert Dean, Town Administrator
17 State Street
Shelburne Falls, MA 01370
413-625-6167 (VOICE)
413-625-8570 (FAX)

Note: As of Spring 2008, the ADA Coordinator is Andrea Llamas, Town Administrator

B. It is the policy of the Town of Buckland to include information on ADA rights and requirements in documents posted in prominent locations and on all program brochures and manuals.

TOWN OF BUCKLAND

PUBLIC NOTICE
AMERICANS WITH DISABILITIES ACT

The Town of Buckland does not discriminate on the basis of disability. Program applicants, participants, members of the general public, employees, job applicants, and others are entitled to participate in and benefit from all Town programs, activities, and services without regard to disability. The Town of Buckland does not discriminate on the basis of disability in its hiring and employment practices.

This notice is provided as required by Title II of the Americans with Disabilities Act of 1990 (ADA). Copies of this notice are available, upon request, in alternate print formats (large print, audiotape, computer disk, etc.) Our grievance procedure, self-evaluation, as well as ADA policies, practices and procedures are available upon request.

The **Town of Buckland** has designated the following person to coordinate its efforts to comply with the ADA. Inquiries, requests, and complaints regarding the ADA should be directed to:

ROBERT DEAN, TOWN ADMINISTRATOR
17 STATE STREET
SHELBURNE FALLS, MA 01370
413-625-6167 (VOICE)
413-625-8570 (FAX)

Individuals who need auxiliary aids or any other modifications for effective communication in programs and services of the Town of Buckland are invited to make their needs and preferences known to the ADA Compliance Coordinator.

Signed:

F. Greviance PRocedure

C. TOWN OF BUCKLAND ADA LOCAL GRIEVANCE PROCEDURE:

I. Purposes

WHEREAS, it is the intent of the Town of Buckland ("Town") to comply with the requirements of the Americans with Disability Act ("ADA"), and to provide its programs, services and activities in a manner consistent with the provisions of the ADA; and

WHEREAS, the Town recognizes the importance of the prompt and equitable resolution of disputes arising relative to the application, meaning, or interpretation of the ADA, it has adopted the following procedure for resolving such disputes at the local level.

II Application

Any individual entitled to participate in a program, service or activity provided by the Town may utilize the Local Grievance Process described below to resolve any claim or dispute he/she may have with the Town as to the application, meaning or interpretation of the sections of the ADA applicable to the Town. The Local Grievance Process may not be used by Town employees if their claim is otherwise protected under a collective bargain agreement with the Town. The application should be directed to:

ADA Coordinator
Town of Buckland
17 State Street
Shelburne Falls, MA 01370

The ADA Coordinator may also be contacted at (413) 625-6330 (VOICE) or (413) 625-8570 (FAX).

III. Local Grievance Process

A. Level I

1. An individual (hereinafter "complainant") shall present a written complaint or dispute to the Town of Buckland's ADA Coordinator within a reasonable time after the act or condition which is the basis of the complaint or dispute has occurred, but in no event later than 60 days. The following information shall be forwarded to the ADA Coordinator as a necessary part of every complaint or dispute filed:

(i) Name, address, and telephone number of complainant and/or complainant's designee;

(ii) Statement of complaint or dispute and the facts involved, including but not limited to the location, date, and description of the complaint or dispute;

(iii) The corrective action requested;

(iv) The basis upon which such corrective action is requested;

(v) Signature of complainant and/or complainant's designee.

Anonymous or incomplete complaints will not be acted upon. Reasonable accommodations, such as personal interviews or a tape recording of the complaint, will be made available for persons who are unable to submit a written complaint. All complaints received by other Town entities shall be forwarded to the ADA Coordinator.

2. ADA Coordinator Review

A. The ADA Coordinator, or his/her designee, shall review the information presented and shall conduct an investigation to the extent necessary to determine the merits of each complaint or dispute. The ADA Coordinator, or his/her designee, shall, within fifteen (15) days after receipt of the complaint, meet with the complainant and/or his/her authorized representative to discuss the complaint and possible resolutions. Within fifteen (15) calendar days after the meeting, the ADA Coordinator will mail a written response, and when appropriate, a response in an accessible format such as large print, Braille or audio tape, to the complainant. The response will explain the position of the Town of Buckland and offer options for substantive resolution of the complaint, when appropriate. The written response and a copy of this Local Grievance process, and when appropriate such documents in an accessible format, shall be mailed to the complainant's address as noted in the complaint or dispute. Failure of the ADA Coordinator to respond to a complete complaint within the time period specified herein shall be deemed a denial.

B. Level II

1. If the complaint or dispute remains unresolved after the Level I decision is rendered, the complainant shall present his/her complaint or dispute to the Board of Selectmen in writing within fifteen (15) calendar days after receipt of the ADA Coordinator's decision. The following information shall be forwarded to the Board of Selectmen as part of the Level II appeal:

(i) Original complaint or dispute and accompanying information;

(ii) A copy of the ADA Coordinator's decision.

2. The Board of Selectmen shall schedule a hearing on the appeal for the next available scheduled meeting of the Board of Selectmen and written notice, and when applicable notice in an accessible format, shall be mailed to the complainant of said hearing at least five (5) days before the date scheduled. The hearing shall be placed on the agenda for the meeting and shall be held in open session. The Board of Selectmen and the complainant may schedule the hearing for a later date if they so agree. The Board of Selectmen shall mail a written response, and where applicable a response in an accessible format, to the parties involved within fifteen (15) days after the hearing. Failure to respond within the time period specified herein shall be deemed a denial. The decision of the Board of Selectmen is final.

IV. Records

A record of the action taken on each complaint or dispute shall be maintained as part of the records or minutes at each level of the Local Grievance Process for a period of three (3) years.

V. Additional Remedies

Other remedies may be pursued by the complainant at any time. The use of the Local Grievance Process is not a prerequisite to the pursuit of other remedies.

VI. Effect of Resolutions

Agreements, recommendations, decisions and statements made by the Town at any level of the Local Grievance Process shall not be deemed admissions or otherwise used against the Town in any other forum or in any other claim or action pursued by a complainant.

VII. Severability

If any section of the Local Grievance Process is determined to be in conflict with the provisions of the ADA or any other federal, state or local law, it shall be stricken. All other sections shall remain in full force and effect.

VIII. Notices

All notices required under the provisions of the Local Grievance Process shall be sent by certified mail, return receipt requested or hand-delivered to the following address:

Town of Buckland:	Board of Selectmen Buckland Town Hall 17 State Street Shelburne Falls, MA 01370
Complainant:	As per complaint

G. EMPLOYMENT PRACTICES

A. Reasonable Accommodation Policy.

It is the policy of the Town of Buckland that no otherwise qualified individual with a disability shall, solely by reason of his/her disability, be excluded from employment by the Town. Employment review and hiring will be based on the employee/prospective employee's ability to perform what the Town of Buckland determines to be the essential functions of a job.

Further, it is the policy of the Town of Buckland that reasonable accommodation will be made for an otherwise qualified applicant or employee with a disability, unless the Town can demonstrate that the accommodation imposes an undue financial or administrative hardship on the operation of its programs.

Notice of the availability of reasonable accommodations for job applicants will be included in postings and advertisements and will be made available upon request to

APPENDIX B

Meeting Agendas and Sign-In Sheets

Buckland Open Space and Recreation Meeting
Wednesday, September 9, 2010
5:30 p.m. - 7:30 p.m.
Town Hall

Agenda

1. Welcome and Introductions – 5:30 p.m. (Andrea Llamas, Town Administrator).
2. Elect Chair of Open Space Committee – 5:35 p.m. (Andrea Llamas, Town Administrator).
3. Review Project Timeline - 5:45 p.m. (Kimberly Noake MacPhee, FRCOG).
4. Review and Discussion of Draft Section 3 and Maps – 6:00 p.m. (Kimberly Noake MacPhee, FRCOG).
5. Review and Discussion of Draft Section 4 and Maps – 6:40 p.m. (Melissa Adams, FRCOG).
6. Discuss Timeframe for Mailing and Receiving Responses to the Survey- 7:15 p.m. (Kimberly Noake MacPhee, FRCOG).
7. Other Business/Next Meeting Date/Adjourn – 7:25 p.m.

Buckland Open Space & Recreation Plan Update Project
Meeting
Attendance Sheet for Thursday, September 9, 2010
Please print clearly

Name	Mailing Address and/or **E-Mail Address**	Affiliation/Representing
Andrea Llamas	17 State Street, SF Mass 01370 twradmin@town.buckland.ma.us	Town administrator
Ed A Smith	138 State St Shelburne Falls	Planning board.
RANDY GOBEIL	19 * 2 CLEMENT ST S.F.	
Kimberly MacPhee	natres@frcog.org	FRCOG
Melissa Adams	melissaadams4@comcast.net	FRCOG

Buckland Open Space and Recreation Meeting
Wednesday, October 6, 2010
5:30 p.m. - 7:30 p.m.
Town Hall

5:30 p.m. - 7:30 p.m.

Agenda

1. Welcome and Introductions – 5:30 p.m. (Andrea Llamas, Town Administrator).
2. Final Review of Sections 3 and 4 and Associated Maps – 5:35 p.m. (Kimberly Noake MacPhee, FRCOG).
3. Review of Draft Section 5 and Map – 6:00 p.m. (Mary Praus, FRCOG).
4. Discuss Town's Vision for Open Space and Recreation and the Associated Goals and Objectives and Analysis of Needs (Review Sections 6, 7 and 8 from the 2004 Plan) – 6:30 p.m. (Kimberly Noake MacPhee and Mary Praus, FRCOG).
5. Other Business/Next Meeting Date/Adjourn – 7:25 p.m.

Buckland Open Space & Recreation Plan Update Project
Meeting
Attendance Sheet for Wednesday October 6, 2010
Please print clearly

Name	Mailing Address and/or **E-Mail Address**	Affiliation/Representing
RANDY GOBEIL	19 CLEMENT ST	OS COMMITTEE
Andrea Llamas	17 State Street	Town Admin OSCommittee
Kimberly MacPhee	natres@frcog.org	FRCOG
Mary Praus	MPraus@frcog.org	FRCOG

TOWN OF BUCKLAND
MASSACHUSETTS

Buckland Open Space and Recreation
PUBLIC INPUT SESSION
Wednesday, October 21, 2010
6:30 p.m. - 7:30 p.m.
Town Hall

INPUT SESSION

1. ACTION PLAN - Review and Comment
2. VISION STATEMENT – Review and Comment
3. OSRP MAPS – Review and Comment

Note: Franklin Regional Council of Governments planners will be available for questions and discussion during informal session.

17 STATE STREET - BUCKLAND
SHELBURNE FALLS, MA • 01370
PHONE: (413) 625-6330 • FAX: (413) 625-8570

Voter Id	Name	Address	Status
CURRENTLY RESIDING IN BUCKLAND			
[illegible]	ANDERSON, POLLY	72 UPPER ST BUCKLAND MA 01338	A
[illegible]	BOISKIE, ANN W	20 SHEPARD RD BUCKLAND MA 01338	A
[illegible]	CARDINAL, GLENN WILLIAM	51 LOG GOLW RD BUCKLAND MA 01338	A
[illegible]	CARDINAL, SANDRA I	51 LOG GOLW RD BUCKLAND MA 01338	A
[illegible]	DEAN, ROBERT ANDREW	113 ELM ST BUCKLAND MA 01338	A
[illegible]	DOLE, GEORGE L	45 UPPER ST BUCKLAND MA 01338	A
[illegible]	DOLE, NANCY L	25 BIRCH RD BUCKLAND MA 01338	A
[illegible]	DONLON, ANDREA I	49 UPPER ST BUCKLAND MA 01338	A
[illegible]	DURFEE, CHERYL L	9 STARR ST BUCKLAND MA 01338	A
[illegible]	ELDER, ELLEN	7 HOMESTEAD AVE BUCKLAND MA 01338	A
[illegible]	FISHER, CYNTHIA L	25 GORGETTE RD BUCKLAND MA 01338	A
[illegible]	FOX, KEVIN PATRICK	4 CHARLEMONT RD BUCKLAND MA 01338	A
[illegible]	GLORY, JUDITH S	35 UPPER ST BUCKLAND MA 01338	A
[illegible]	GOBEIL, RANDY J	79 CLEMENT ST BUCKLAND MA 01338	A
[illegible]	GUYETTE, PAMELA M	334 CLESSON BROOK RD BUCKLAND MA 01338	A
[illegible]	HARMON, KAREN A	29 UPPER ST BUCKLAND MA 01338	A
[illegible]	HARMON, THOMAS S	29 UPPER ST BUCKLAND MA 01338	A
[illegible]	HOLM, LOIS F	292 ASHFIELD RD BUCKLAND MA 01338	A
[illegible]	JACOBSON-CARROLL, ELIZABETH M	8 CHARLEMONT RD BUCKLAND MA 01338	A
[illegible]	JEPSEN, MARY ELLEN	61 SHEPARD RD BUCKLAND MA 01338	A
[illegible]	JEPSEN, THOMAS J	63 SHEPARD RD BUCKLAND MA 01338	A
[illegible]	JEWELL, ANTHONY E	15 BIRCH RD BUCKLAND MA 01338	A
[illegible]	KENDZIOR, WILLIAM L	61 PUNTON RD BUCKLAND MA 01338	A
[illegible]	LABELLE, PAUL S	113 CLESSON BROOK RD BUCKLAND MA 01338	A
[illegible]	LABELLE, SALLY I	122 CEMETERY RD N BUCKLAND MA 01338	A
[illegible]	LABELLE, SHARON F	113 CLESSON BROOK RD BUCKLAND MA 01338	A
[illegible]	LENAERTS, DAVID CHRISTOPHER	49 UPPER ST BUCKLAND MA 01338	A
[illegible]	LOVE, AMY H	136 ELM ST BUCKLAND MA 01338	A
[illegible]	MCCUSKER, MICHAEL T	32 UPPER ST BUCKLAND MA 01338	A
[illegible]	PICHETTE, MARK EDWARD	18 ORCHARD DR BUCKLAND MA 01338	A
[illegible]	PURINGTON, JANICE D	78 CLESSON BROOK RD BUCKLAND MA 01338	A
[illegible]	PURINTON, CRAIG A	3 AVERY RD BUCKLAND MA 01338	A
[illegible]	PURINTON, REGINA T	3 AVERY RD BUCKLAND MA 01338	A
[illegible]	RACZ, SUZANNE	131 STATE ST BUCKLAND MA 01338	A
[illegible]	RICE, SUSAN F	20 PURINTON RD BUCKLAND MA 01338	A

VRIS | TOWN OF BUCKLAND | Nov 08, 2010 15:22

Voter Activity Status Report for Local Town Meeting held on 10/21/2010

RPS110 | All Voters | Page No : 2

Voter Id	Name	Address	Status
CURRENTLY RESIDING IN BUCKLAND			
[illegible]	[illegible], WESLEY M	[illegible] PURINTON RD BUCKLAND MA [illegible]	A
[illegible]	SAMIOLOSKI, SUSAN B	8 OLD UPPER ST BUCKLAND MA 01338	A
[illegible]	SHIPPEE, EDWARD [illegible]	19 MARTIN RD BUCKLAND MA [illegible]	A
[illegible]	SHIPPEE, MERILL P	19 MARTIN RD BUCKLAND MA [illegible]	A
[illegible]	THURBER, MARTHA [illegible]	[illegible] CHARLEMONT RD BUCKLAND MA [illegible]	A
[illegible]	TURLEY, MICHAEL [illegible]	[illegible] CROSS ST BUCKLAND MA [illegible]	A
[illegible]	WALKER, PAMELA W	[illegible] FRANKLIN ST BUCKLAND MA 01338	A
[illegible]	WALKER, PHOEBE	[illegible] WILLIAMS ST BUCKLAND MA [illegible]	A
[illegible]	WILLMORE, DIANA G	[illegible] CHARLEMONT RD BUCKLAND MA 01338	A
[illegible]	WYMAN, JON M	[illegible] NORTH ST BUCKLAND MA 01338	A
[illegible]	YOUNG, ALAN M	62 CLESSON BROOK RD BUCKLAND MA [illegible]	A
[illegible]	YOUNG, DIANNA [illegible]	62 CLESSON BROOK RD BUCKLAND MA [illegible]	A

Number of Voters Residing in BUCKLAND: 47

Total Number of Voters: 47

No. of Pages Printed: 2

*** End of Report ***

Buckland Open Space and Recreation Meeting
Wednesday, November 3, 2010
5:30 p.m. - 7:30 p.m.
Town Hall

Town Hall

AGENDA

1. ENVIRONMENTAL INVENTORY -Review and Discussion of Draft Section 5 and Map
   Kimberly Noake MacPhee and Mary Praus, FRCOG
2. SURVEY - Review and Discussion of Survey Results
   Kimberly Noake MacPhee and Mary Praus, FRCOG
3. NEEDS ANALYSIS - Review and Discussion of Draft Section 7
   Kimberly Noake MacPhee and Mary Praus, FRCOG
4. ACTION PLAN - Review and Discussion of Draft Section 9 and Map
   Kimberly Noake MacPhee and Mary Praus, FRCOG
5. PUBLIC FORUM - Review and Discussion of PowerPoint Presentation
   Kimberly Noake MacPhee and Mary Praus, FRCOG
6. Review of outstanding items

Note: Drafts of Sections 5, 7 and 9 and survey results have been emailed to committee members prior to the meeting. Please review the sections and come to the meeting prepared to discuss your comments. Draft maps will be available at the meeting.

17 STATE STREET - BUCKLAND
SHELBURNE FALLS, MA • 01370
PHONE: (413) 625-6330 • FAX: (413) 625-8570

Public Open Space and Recreation Plan Update Project

Public Forum

Attendance Sheet for Wednesday, November 17, 2010

Name	Mailing Address / Email	Affiliation
KAREN HARMON	39 UPPER ST	
Ellen Eller	1 Homestead Ave	Con Comm
Tom HARMON	39 UPPER ST	
Mike Eller	1 Homestead Ave.	
Ben Murray	4 Norman Rd.	
KIM ERSLEV	16 WILDE RD, ersler@csld.edu	I'M INTERESTED IN JOINING THE AGRICULTURAL COMMITTEE. 625-2164
Pam Walker	48 Franklin St	
Nicole Freeman	60 Colrain St.	
Cheryl L. DUKES	9 Sears St.	
Bob Dean	110 Elm St. Buckland	Selectboard
Richard Harmer	191 Upper St	Board of Health
Donna Liebl	67 North ST	
GAYLE DAVIDSON	61 [illegible]	
Henry Bateau	19 School St	
RANDY GOBEIL	19 CLEMENT ST	OPEN SPACE COMMITTEE

Press Release

CONTACT:
Andrea Llamas, Town Administrator, Buckland Open Space & Recreation Planning Committee, (413) 625-6167

FOR IMMEDIATE RELEASE

November 8, 2010

Buckland Open Space & Recreation Plan Public Forum Planned for November 17th

The Buckland Open Space & Recreation (OSRP) Planning Committee is pleased to present the results of the Open Space and Recreation Survey and the Seven Year Action Plan. A draft version of the Plan and Maps will also be available for public review. Staff from the Franklin Regional Council of Governments and members of the Committee will be available to answer questions.

The presentation will be held in the town hall at 7:00 PM. Refreshments will be served.

Public Open Space and Recreation Plan Update Project

Public Forum

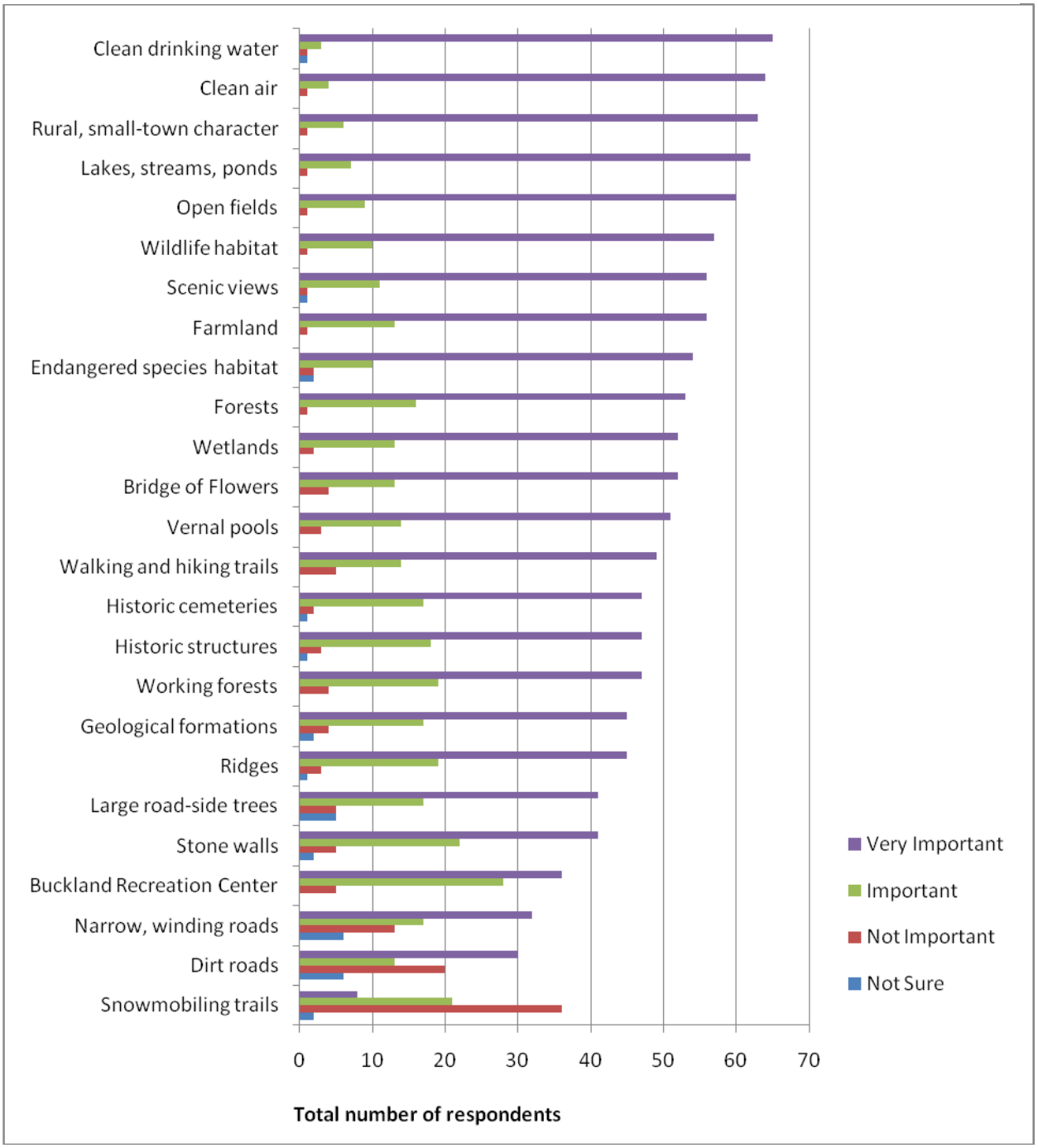
Attendance Sheet for Wednesday, November 17, 2010

Name	Mailing Address / Email	Affiliation
Karen Harmon	39 Upper St	
Ellen Eller	1 Homestead Ave	Con Comm
Tom Harmon	39 Upper St	
Mike Eller	1 Homestead Ave.	
Ben Murray	" Norman Rd.	
Kim Ersley	16 White Rd, ersley@csld.edu	I'm interested in joining the Agricultural Committee. 625-2164
Pam Walker	75 Franklin St	
Nicole Freeman	60 Conway St.	
Cheryl L. Dukes	9 Sears St.	
Bob Dean	10 Elm St. Buckland	Selectboard
Richard Warner	151 Upper St	Board of Health
Donna Liebl	67 Nowell St	"
Gayle Davidson	61 [illegible]	
Henry Battegu	19 School St	
Randy Gobeil	19 Clement St	Open Space Committee

APPENDIX C

SURVEY RESULTS

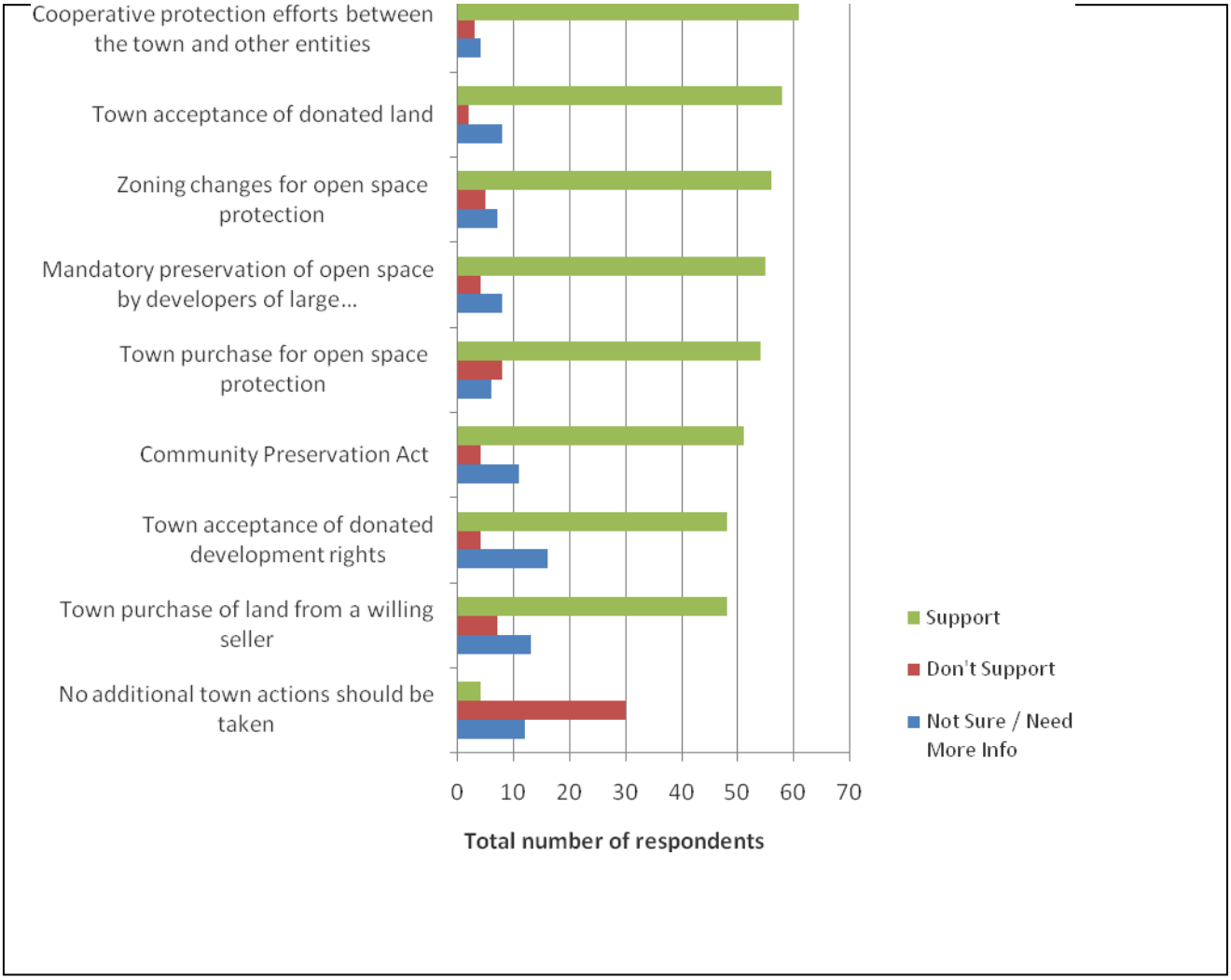
Q1: How important is it to you to preserve the following resources in Buckland?



Q1 (cont.): Other Important Resources (please list):

Schools (2 responses)
Housing that is affordable for people who grew up here
Defining ourselves as an artsy tourist destination leads to gentrification and increases property values
Darkness at night (limiting light pollution)
Logging roads between Charlemont Rd and Purinton Road. Could they b converted into hiking trails?
Maintain, identify and post access points to public lands
Forests along Critenden Hill Road (very important)
Access to the Deerfield River and Access to the Glacial Potholes (very important)
Street trees
Buckland state forest
Cross country trails at MTRHS that abut the Recreation Area
Streambank stabilization at Recreation Area
New trail at top of Elm street
Land along the river below Lamson and Goodnow (very important)
Outdoor areas, like the Buckland Recreation, where children can be children; (very important)
I don't feel that wind turbines decrease the beauty of the view. I feel they enhance it.
Wilder Homestead, Buckland Public Library, Buckland Historical Society museum , Mary Lyon birthplace, national historic register sites (very important)
Town hall and downtown cleanliness, attractiveness building facades (very important)
Buckland library (Very Important)
Good road surfaces and shoulders for cyclists
Small businesses
Craftspeople
Perserving the character of our town and surrounding land (very important)
Farmers (very important)
Businesses (very important)

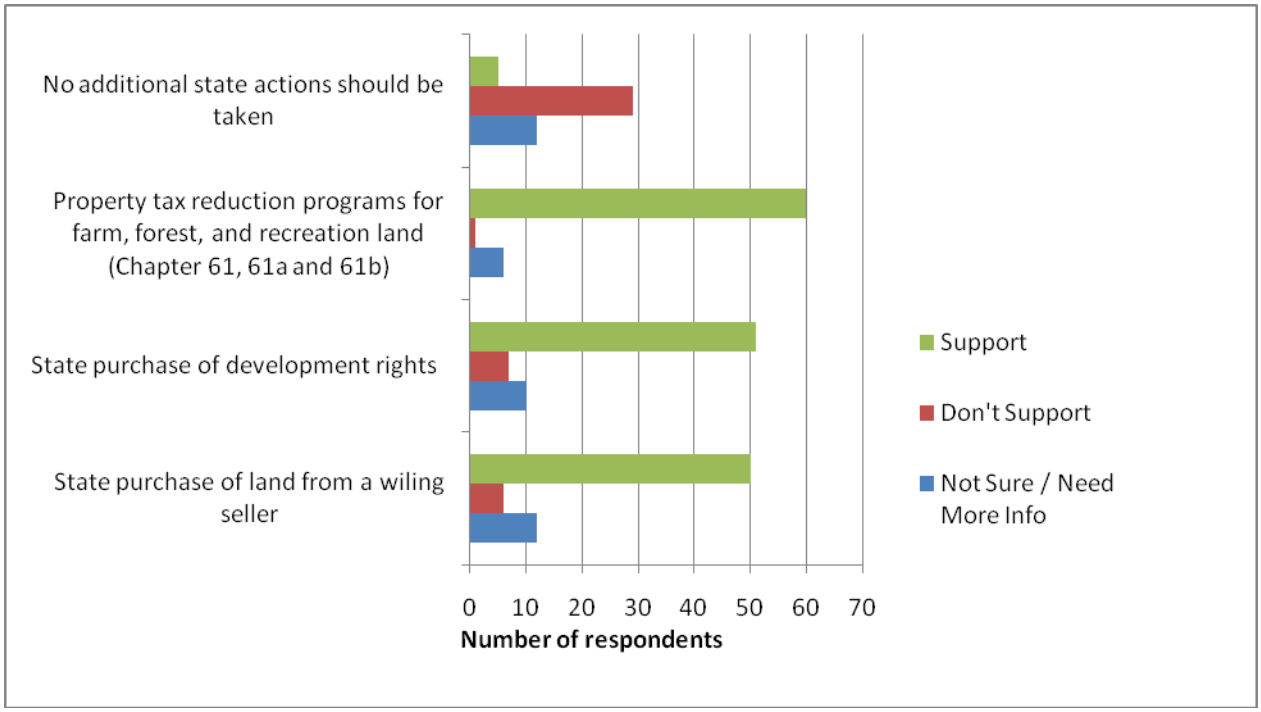
Q2: What TOWN actions do you support to preserve the resources you rated as important or very important from Question 1?



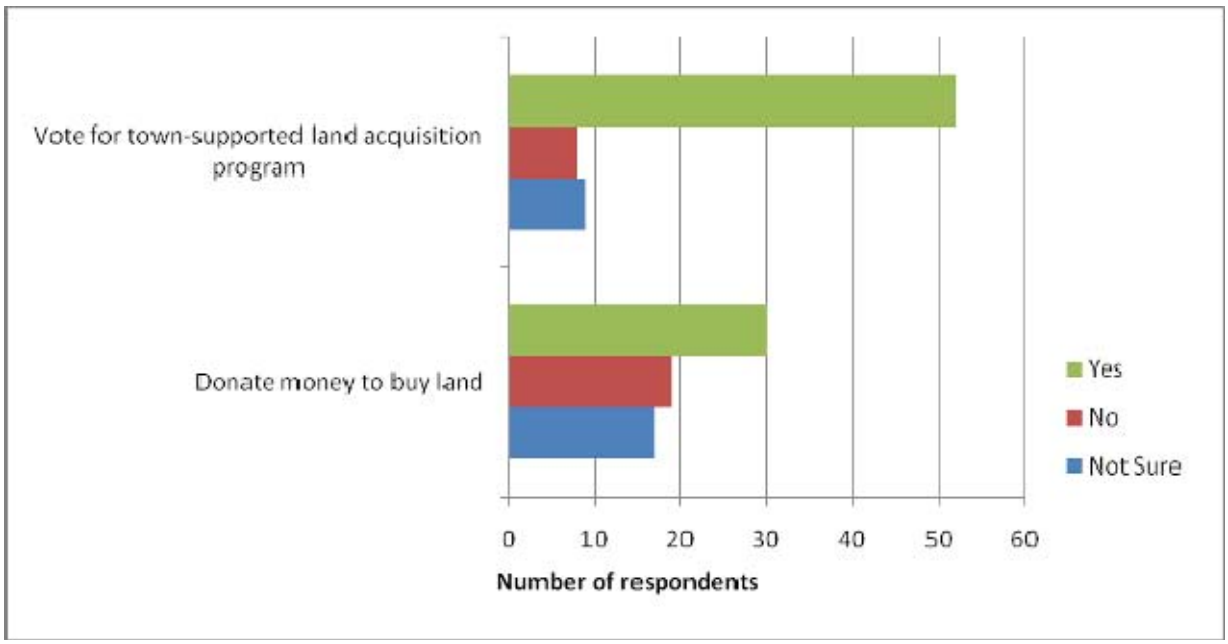
Q2: Other ideas:

Before putting any more resources into the Potholes viewing ares have the hydraulic flood gates sand blasted to remove an eyesore from what should be one of the most beautiful of the town's attractions for both visitors and those of us who live here.
Any time a road bed is rebuilt or water mains replaced submerge the utility lines to allow the trees to grow naturally and minimize the cost of maintenance and storm caused power outages.
More investment in improving the already preserved land we have
Nature education center at the Potholes?
Establish trails on private property (similar to Ashfield trails)

Q3: What STATE actions do you support to preserve the resources you rated as important or very important from Question 1?



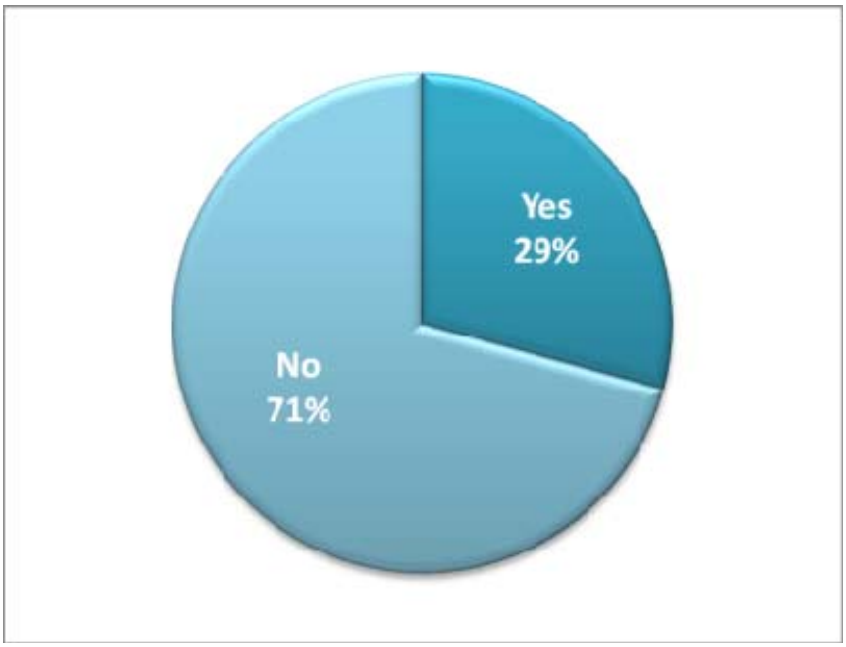
Q4: What would YOU be willing to do to preserve the resources you rated as important or very important from Question 1?



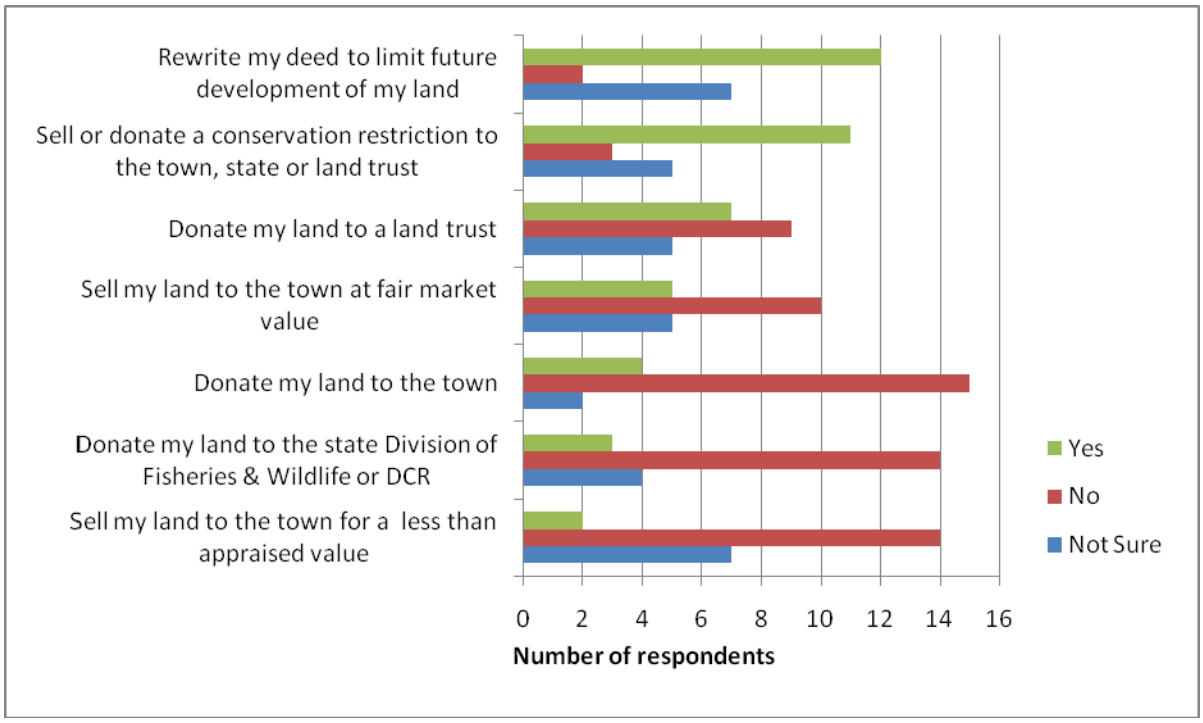
Q4: Other ideas:

Own and maintain property.
Pay more taxes for this.
Work on a committee to fundraise/brainstorm/enact such measures.
Really need to learn more about what the implications are of the various options that were listed.
Contribute to property surcharge through CPA.
Administer a nature center to help children and adults integrate with the natural world we sometimes take for granted.

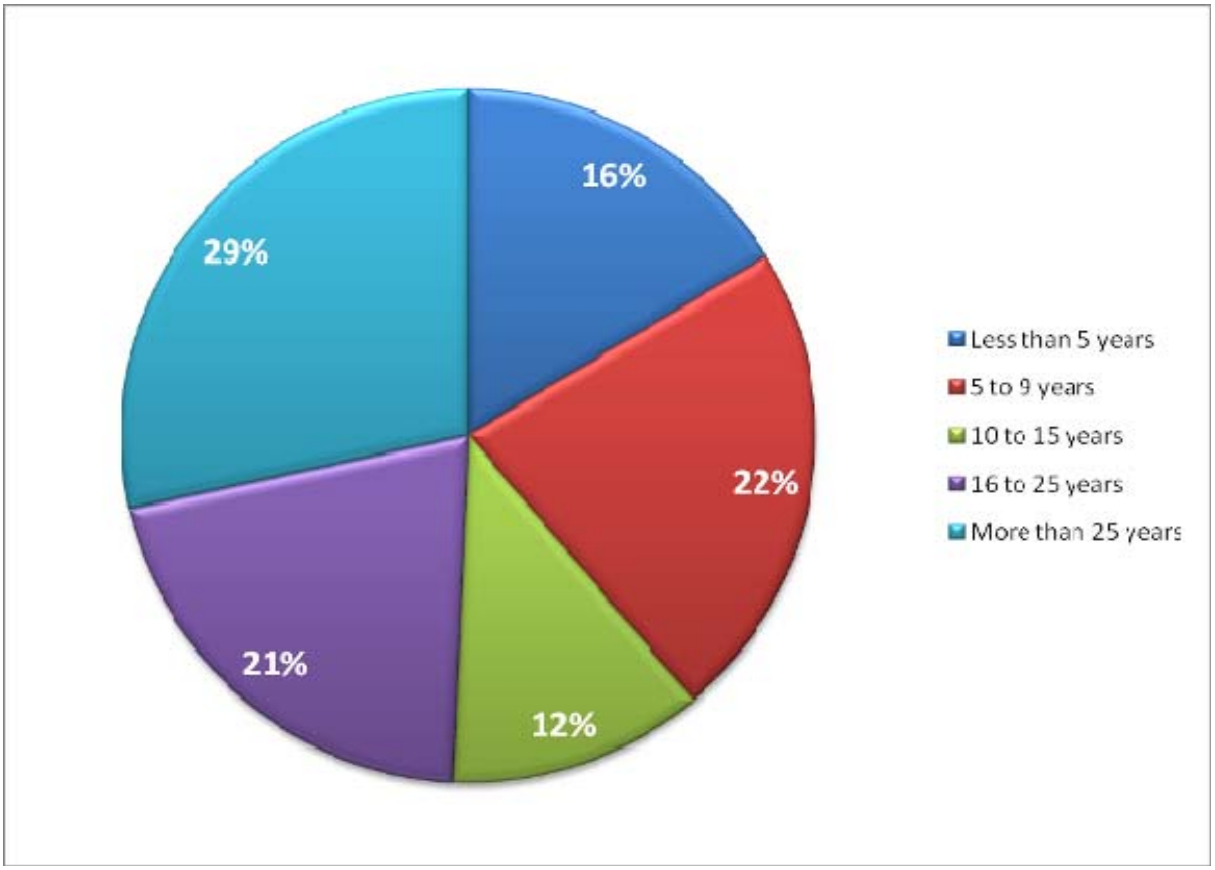
Q5: Do you own at least 5 acres of undeveloped land in Buckland? (If yes, please answer Question 6. If no, skip question 6.)



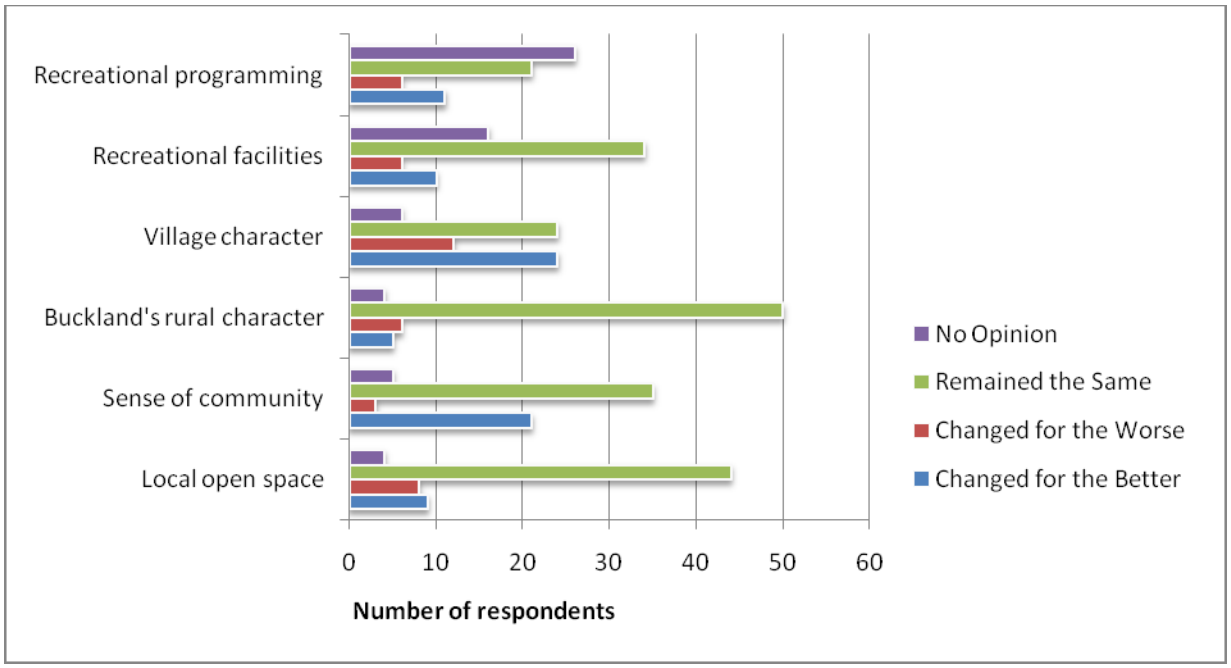
Q6: If you own at least 5 acres of undeveloped land in Buckland, would you consider doing any of the following to preserve the resources you rated very important and important (from Question 1)?



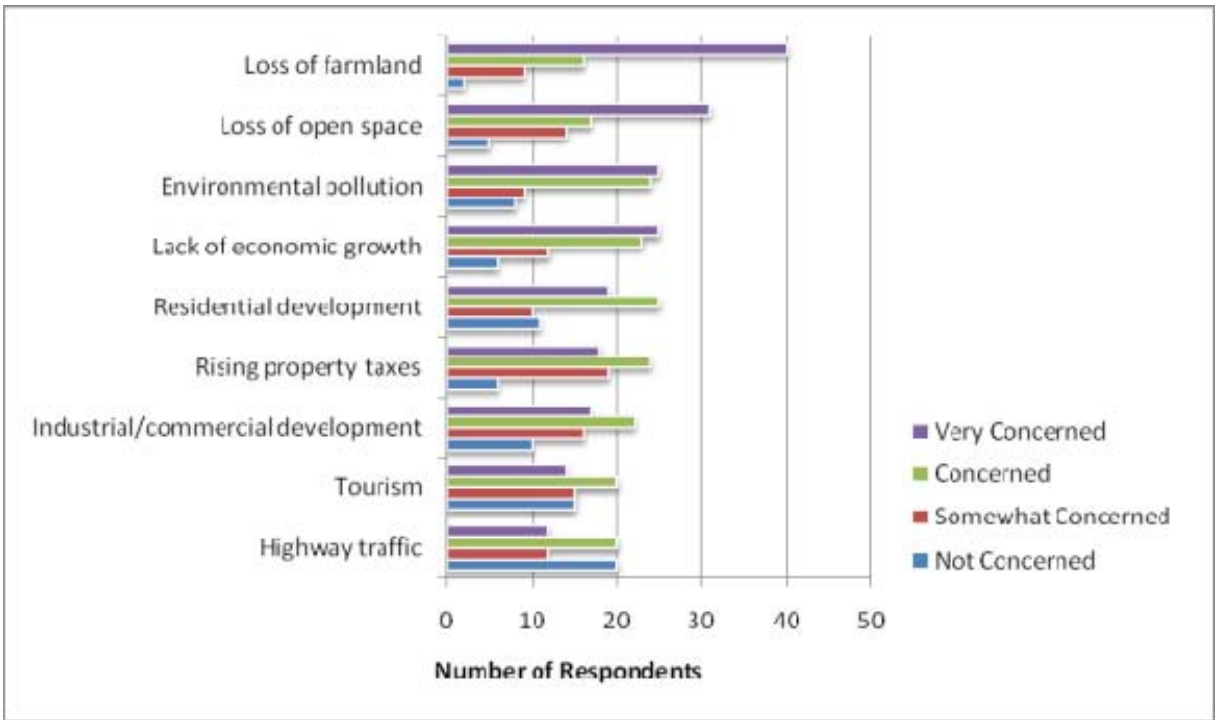
Q7: How many years have you lived in Buckland?



Q8: How has the quality of the following changed since you've lived in Buckland?



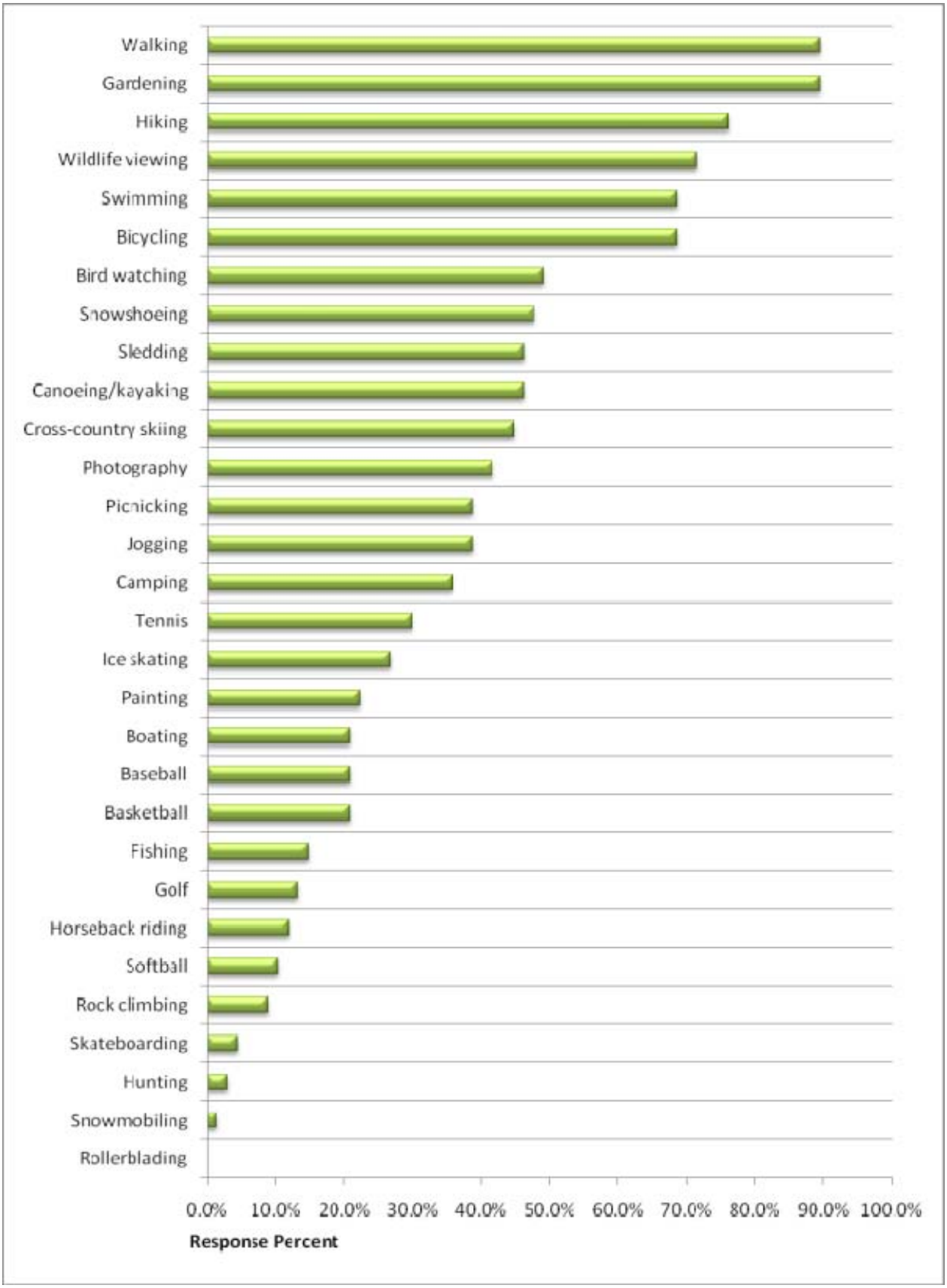
Q9: How concerned are you about the following factors regarding Buckland's sense of community and rural character?



Q9: Other (Please List)

People relying on government for livelihood and recreation
Parking (very concerned)
Residential development is important. We need more beautifully made and strategically located lower income housing.
Very concerned about the LACK of industrial/commercial development - in fact we have lost or will be losing some industry. We need more light industry in order to support our tax revenues and to help slow the rate of increase in property taxes.
Concerned about the number of homes that have been put on 2 acre sites, 350 feet apart. Commercial development of Route 112 will be a major bummer. What was the planning board thinking?
I would not want to see Buckland turn into a Commercialized development. It is quaint and beautiful.
I think industrial/commercial development and tourism are good for Buckland, as long as they're planned well.
I am concerned that some elements of the business community seem to view our town as a vehicle for them to attract tourists to their businesses. I would love it if there were fewer festivals, races and all that stuff that is supposed to generate business but does not actually help the folks who live here in the town.

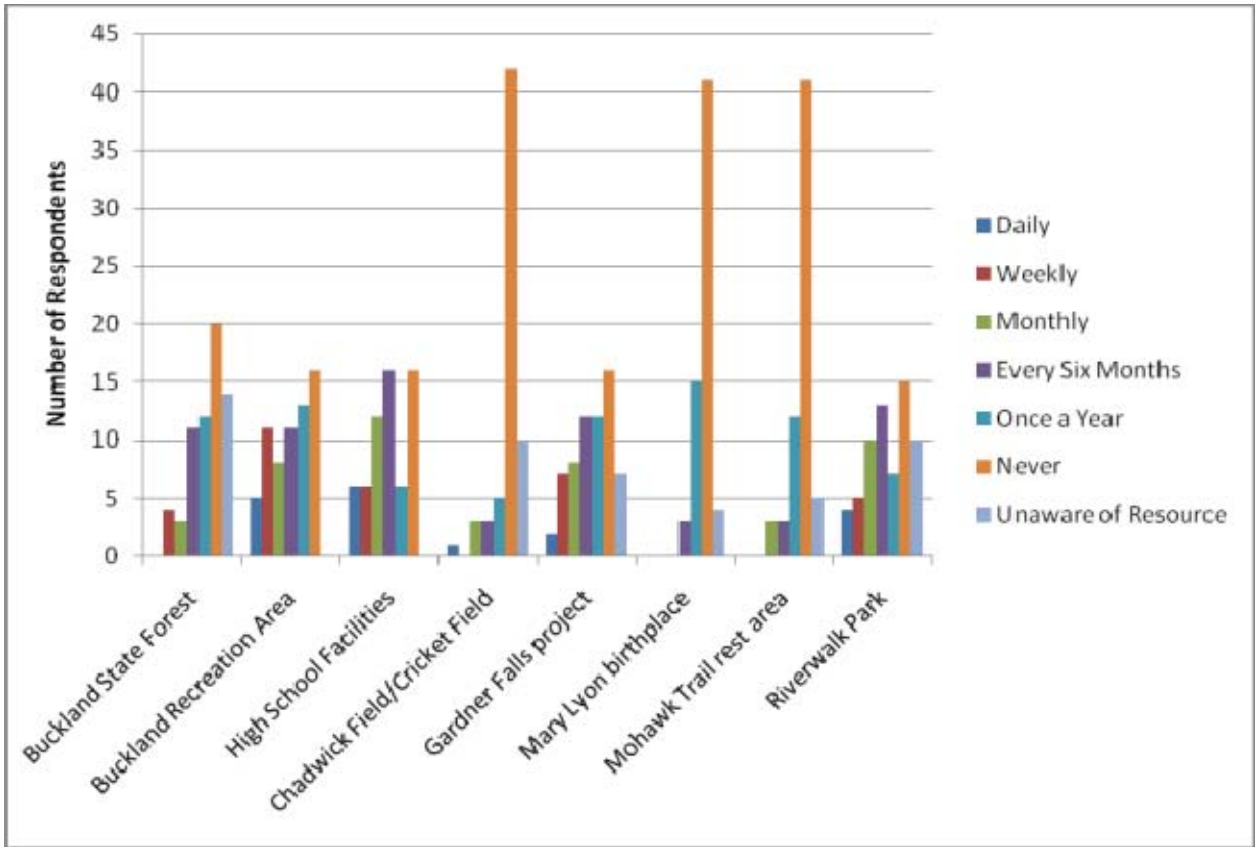
Q10: Which of the following recreational activities do members of your household engage in regularly or in season? Please check all that apply.



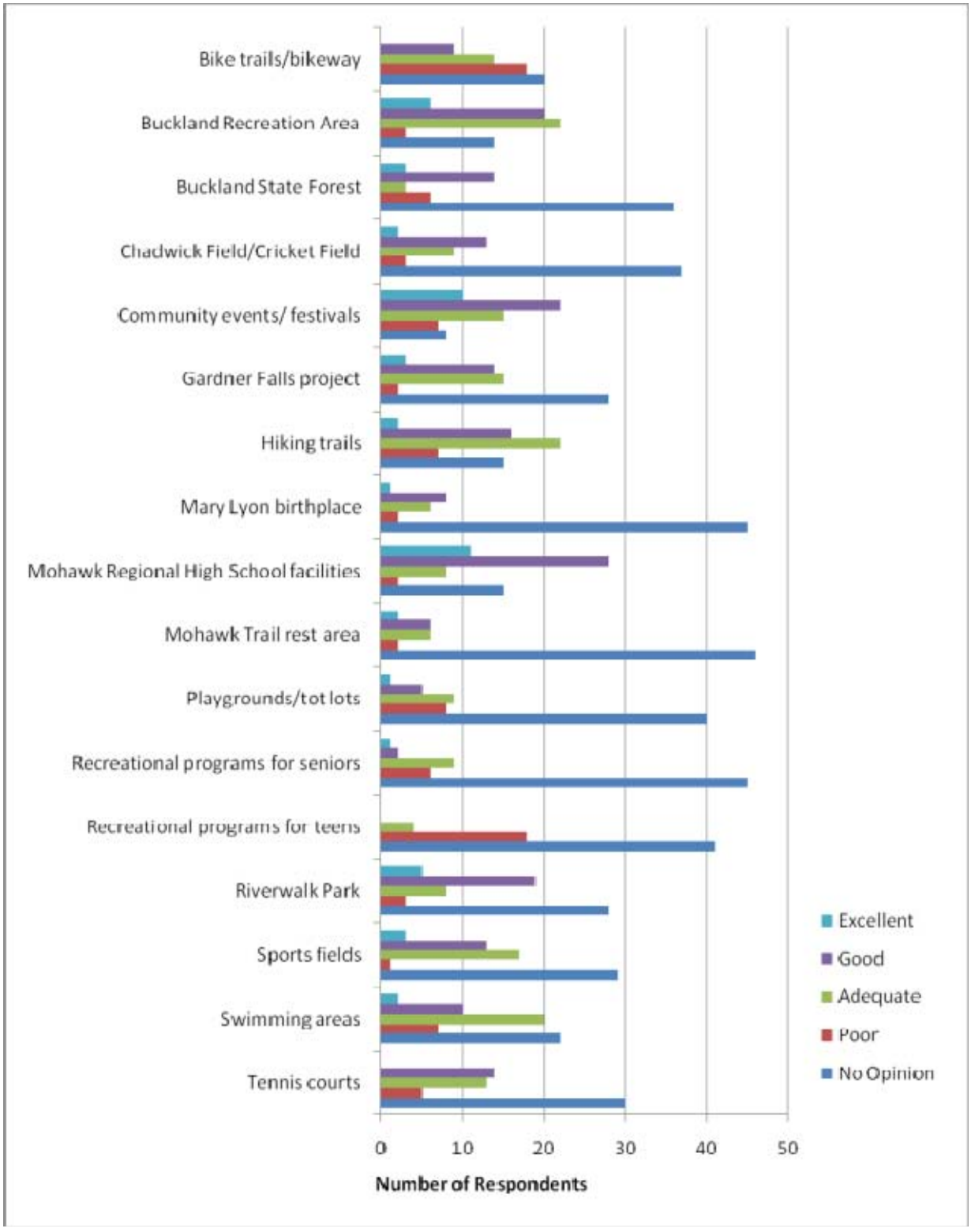
Q10: Other (Please specify):

My family doesn't skateboard but I would love to see a well lit centrally/strategically placed skate park.
Coming together with others in the community for chat, reading, playing music, other exercise.
Sailing, Rowing, Paddling
4-wheeling
Would like to: volleyball, softball/baseball, golf
Playing outside

Q11: Approximately how often do you utilize the following open space and recreational resources?



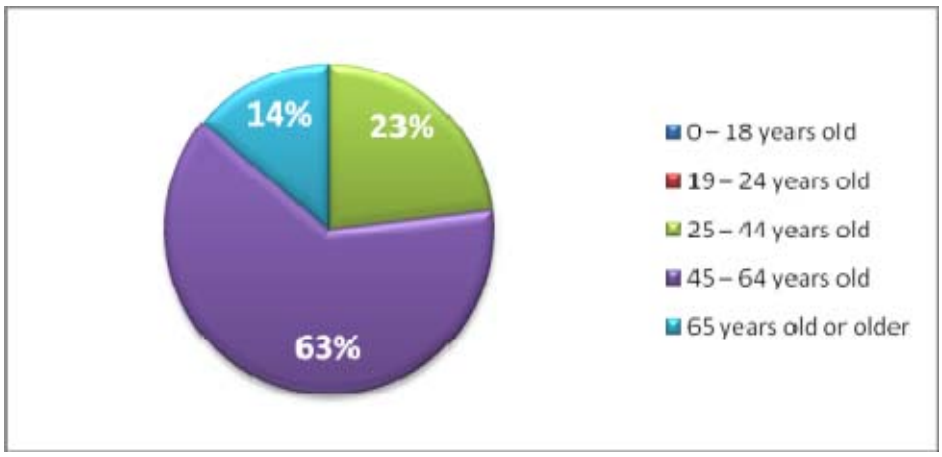
Q12: What is your opinion about the condition of the following open space and recreation areas and the quality of recreational programming in Buckland?



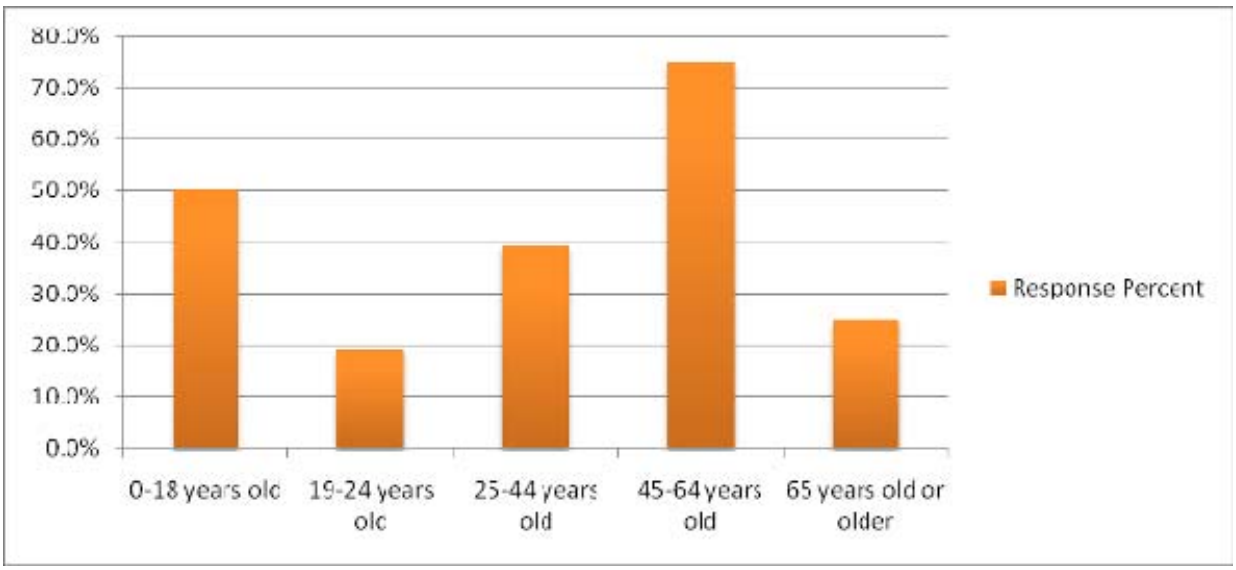
Q13: What types of recreational programming and/or facilities would you most like to see in Buckland?

Facilities for children and youths. Not to lose access to places to walk etc in undeveloped woods & fields
Indoor lap pool, bike trail, rail option for visitors (including tubers and swimmers) from other towns.
I really appreciate that the Buckland Recreation Area is dog friendly (I always clean up after my dog), but if the Highway Dept. doesn't plow it out, it's inaccessible when there's snow. I would like some other safe place in the village where I could let my dog run off-leash and get the exercise she needs.
Hiking/walking trails accessible from Shelburne Falls.
Guided hikes! I have been unable to find the Buckland State Park!
Outdoor performing arts events, concerts, etc.
More publicized trails
Safe bikeway
Playground at the Buckland Recreation Area
Much better marketing of the open spaces and facilities available to residents of Buckland. Only living in the area for two + years - there are places on this survey I have never heard of. Marketing is key!
Have more bike racks in strategic places
More hiking trails in hills of Buckland.
Children's playground
What I would like to see is less of an emphasis on cement and more on natural beauty. For instance the park down by the dam used to be exquisitely beautiful until they came along and "improved" it. Now it is mostly cement and bushes where it used to be like something out of a painting.
I would like to have safe access to the Potholes.
Not aware of any tot lots or bike trails
Volleyball, softball/baseball, cricket, bike trails, hike trails
Maybe more Tennis at the high school than just two weeks a year.
Bring back play structures at Recreation Area
Put some kind of tot lot and swings at trolley museum - it is centrally located for families with small kids
The canal dog walking path is a great resource -- the one by Lamson and Goodnow
We need FAR more outdoor programs for Teens! The Rec Pool needs to be a priority to the town and the Rec Area needs town funding to turn it back into a family gathering place. It is the largest open space in Buckland and COMPLETELY overlooked by the town. There is no excuse for this.
A YMCA with a pool and a skating rink and track and bike track .... all together as a recreation complex over where the old drive in was.
Computer classes...for creating blogs , webpages,
Safe, accessible swimming
Potholes - swimming
Trail system linked to Ashfield trails and other open spaces
Mountain bike trails on all public land
Better sidewalks throughout the village and adding sidewalks where deficient. Would love to see a Gym like the Leading Edge in town.
Better community access points on the Deerfield River between the dams in town.
Bikeway and safe sidewalks connecting the village to the high school.
A public swimming area similar to the Conway Pool
Maintain/repair Buckland recreation facility and pool
Increase community awareness of recreational resources.

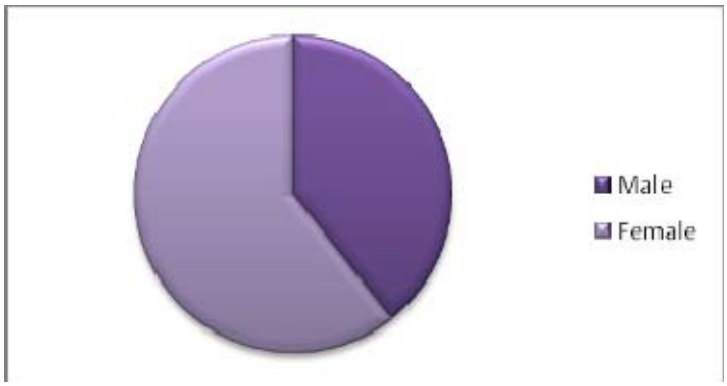
Q14: What is your age?



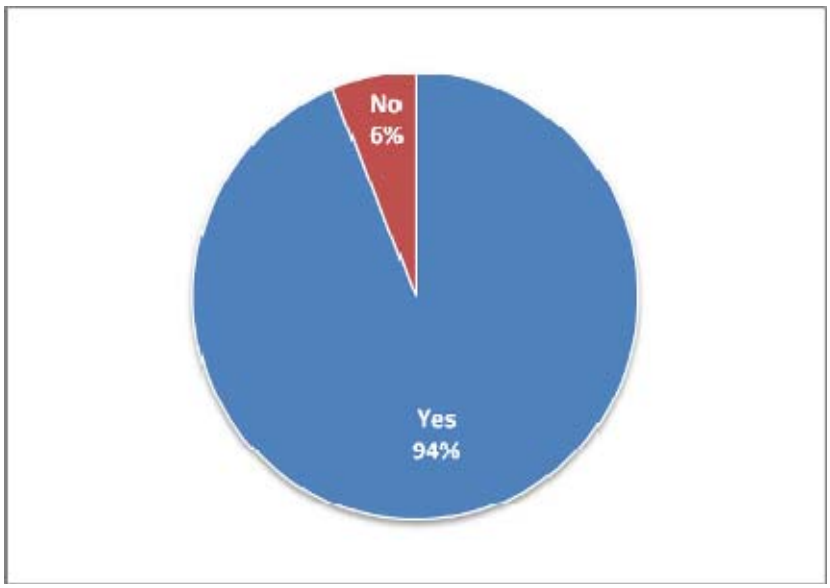
Q15: Please indicate the number of people in your household in each age group:



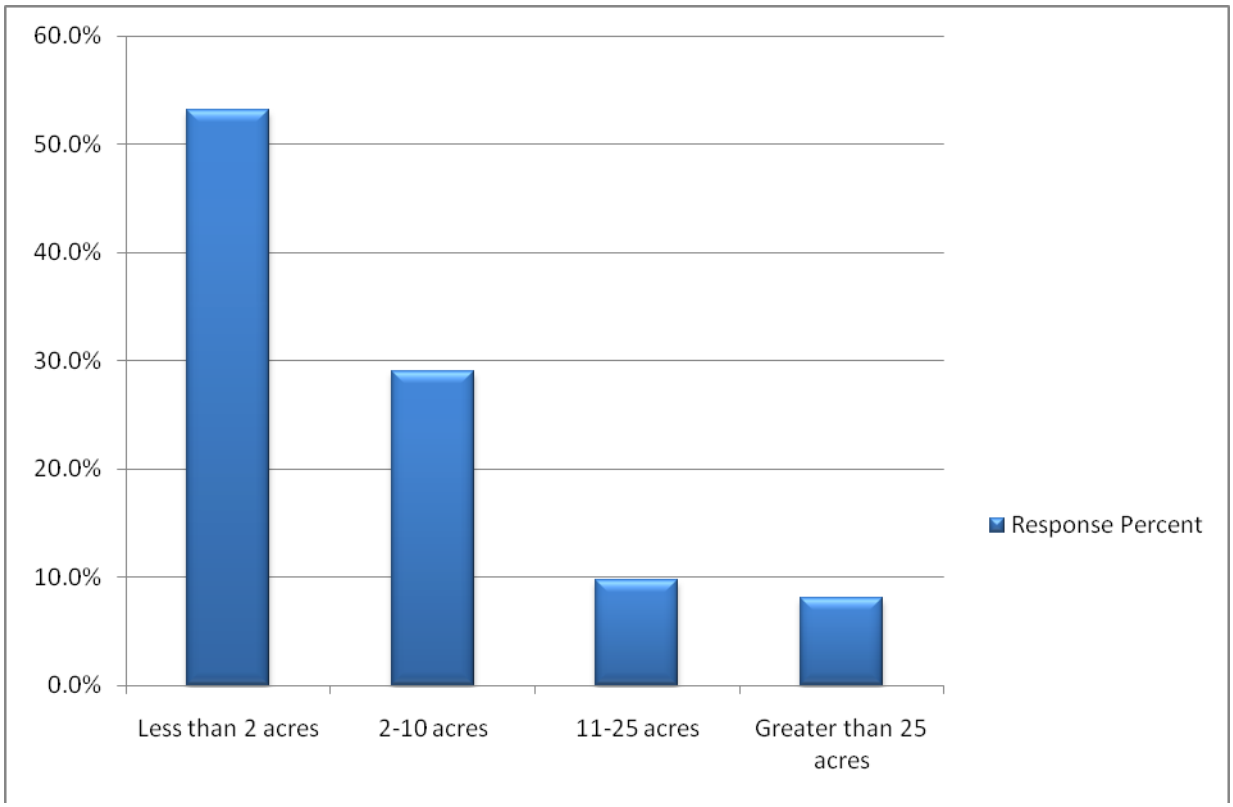
Q16: What is your gender?



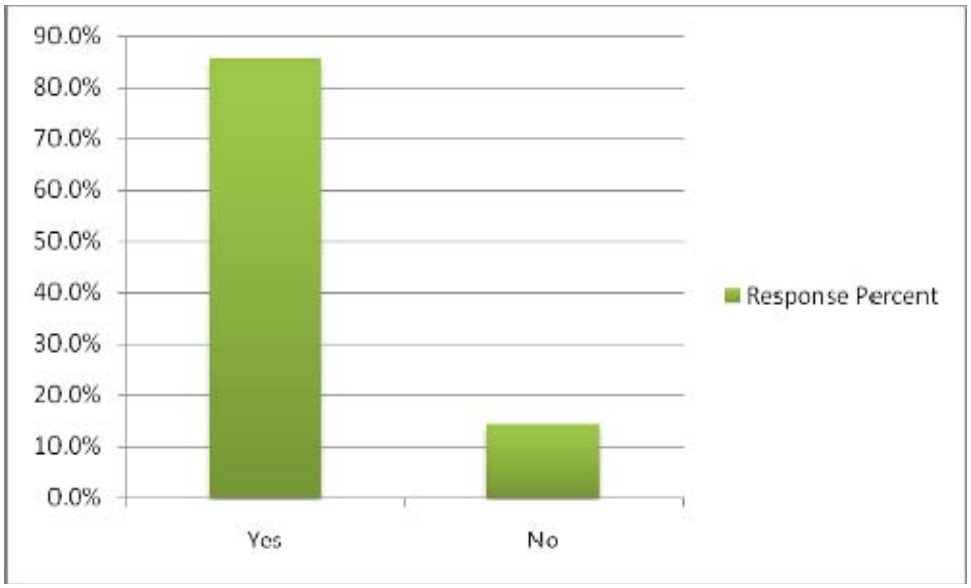
Q17: Do you own your property?



Q18: If you own your property, how many acres do you own?



Q19: The town should provide more information about land conservation and open space protection measures and their potential tax benefits.



Q20: I would like more information about the following:

Buckland State Forest and other hiking areas and trails!
I donate to the Franklin Land Trust. We could use a fund for the town of Buckland to preserve land, and invite town residents to contribute to it. I could make a small donation.
Buckland State Forest - Is there signage and are there trails?
Adult recreational opportunities & sports teams
Programming paid for by our tax dollars.
Trails in the Buckland State Forest
Lamson and Goodnow property and The Dam works property
Zoning bylaw changes; potential APR land being considered and how much money is in that account; what is being suggested or done with CPA (Community Preservation Act) money.
Everything.

APPENDIX D

Deerfield River Watershed 2000 Water Quality Assessment Report

Recommendations from Deerfield River Watershed 2000 Water Quality Assessment Report for segments of the Deerfield River: (*See Table 4-1 in Section 4*)

Recommendations for Deerfield River segment MA33-01:

- Continue to perform DWM water quality and biological monitoring of this segment during the next monitoring year cycle (2005). Refer to recommendations in Appendix C, 1988 and 1995 Deerfield River Watershed Benthic Macroinvertebrate Biomonitoring. Because of the fish consumption advisory in place for Sherman Reservoir immediately upstream of this segment, fish tissue sampling should be conducted in this segment to assess the *Fish Consumption* use.
- Biological surveys designed to assess impacts of hydroregulation on aquatic biota would be useful to investigate concerns voiced by members of the Deerfield Watershed Team that habitat and benthic macroinvertebrates downstream from Fife Brook Dam may be affected by frequent water level changes and rapid ramping rates that result from hydropower production.
- Work with USGen New England Inc. and settlement parties (including Massachusetts Executive Office of Environmental Affairs, Attorney General, MA DEP, MA DCR, MA DFG, US Fish and Wildlife Service, New England F.L.O.W., Trout Unlimited, and the Deerfield River Watershed Association) to ensure that releases from the hydropower dams are meeting the requirements of the FERC licenses, the Offer of Settlement, and the Massachusetts Water Quality Certification requirements.
- Support the recommendations of the Massachusetts Watershed Initiative/Deerfield River Watershed Team's Deerfield River Flow Monitoring Project that enabled volunteers to monitor stream flow below Fife Brook Dam (Gomez and Sullivan 2004). Volunteer monitoring of this gage should continue to assure all river users, the project owners, and regulatory agencies that prescribed minimum flows are being met. Flow data from the gage should continue to be made available through the Massachusetts Department of Fish and Game, Riverways Program website (www.mass.gov/dfwele/river/rifls/sites/deerfield/fifebrook119/rifls_site_page.html).
- The Towns of Monroe, Rowe and Florida should participate in the Deerfield River Watershed Regional Open Space Planning Project, which was funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the Franklin Regional Council of Governments (completed June 2004). Through this project these towns can work cooperatively with other watershed communities to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.
- In order to prevent degradation of water quality in this segment of the Deerfield River it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the impervious cover. The Towns of Rowe and Florida should support recommendations of their recently developed individual municipal open space plans and/or Community Development Plans to protect important open space and maintain their communities' rural character.

- Dunbar, Fife, Cascade, Whitcomb, Reed, Todd, and Smith brooks should be protected as cold water fishery habitat, as recommended by MA DFWELE.
- The rural roads that cross over and/or are in close proximity to watercourses should be identified. Field reconnaissance should be performed to evaluate their potential for impacting the water and habitat quality of these adjacent watercourses. Implementation of best management practices, as described in Unpaved Roads BMP Manual (BRPC 2001), should then be encouraged, as appropriate.
- Encourage local stewardship/resource protection efforts by supporting the DRWA volunteer water quality monitoring program and annual river clean-ups by DRWA, Zoar Outdoor and Trout Unlimited.

Recommendations for Deerfield River segment MA33-02:

- Continue to perform DWM water quality and biological monitoring in this segment during the next monitoring year cycle (2005).
- Biological surveys designed to assess impacts of hydroregulation on aquatic biota would be useful to investigate concerns voiced by members of the Deerfield Watershed Team that habitat and benthic macroinvertebrates downstream from power station dams may be affected by frequent water level changes and rapid ramping rates that result from hydropower production.
- Evaluate the possibility of removing this segment from the 303d List since the WWTP has been improved and NPDES monitoring data indicate improvement over 1995 data.
- Work with USGen New England Inc. and settlement parties (including Massachusetts Executive Office of Environmental Affairs, Attorney General, MA DEP, MA DCR, MA DFG, US Fish and Wildlife Service, New England F.L.O.W., Trout Unlimited, and the Deerfield River Watershed Association) to ensure that releases from the hydropower dams are meeting the requirements of the FERC licenses, the Offer of Settlement, and the Massachusetts Water Quality Certification requirements.
- Encourage local stewardship/resource protection efforts by supporting the DRWA volunteer water quality monitoring program and annual river clean-ups by DRWA, Zoar Outdoor and Trout Unlimited.
- Work with NRCS, MDAR and landowners to protect riparian buffers and encourage use of agricultural BMPs.
- The Towns of Charlemont, Buckland, Florida, Savoy, Hawley, Heath, Rowe, and Monroe should participate in the Deerfield River Watershed Regional Open Space Planning Project, which was funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the Franklin Regional Council of Governments (completed June 2004). Through this project these towns can work cooperatively with other watershed communities to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.
- In order to prevent degradation of water quality in this segment of the Deerfield River it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the levels of impervious cover. The Towns of Charlemont, Buckland, Florida, Savoy, Hawley, Heath, Rowe, and Monroe should support recommendations of their recently developed individual municipal open space plans and/or Community Development Plans to protect important open space and maintain their communities' rural character.

- The rural roads that cross over and/or are in close proximity to watercourses should be identified. Field reconnaissance should be performed to evaluate their potential for impacting the water and habitat quality of these adjacent watercourses. Implementation of best management practices, as described in Unpaved Roads BMP Manual (BRPC 2001), should then be encouraged, as appropriate.
- The results of the volunteer monitoring surveys to locate and map Japanese knotweed stands conducted in 2003 by the DRWA as part of a Massachusetts Watershed Initiative/Deerfield River Watershed Team workplan project in the Avery Brook subwatershed should be consulted to help manage infestations of this invasive plant in this subwatershed (Serrentino 2003). In addition, encourage work by the DRWA, other local groups and agencies, and the power company to address invasive Japanese knotweed already well established along mainstem in this segment.
- Based on MA DFWELE recommendations, the following 12 tributaries to this segment of the Deerfield River should be protected as cold water fishery habitat (Legate Hill, Bozrah, Rice, Mill and its tributaries Heath and Maxwell, Albee, First, Second, Third, Wilder, and East Oxbow Brooks).

Recommendations For Deerfield River segment MA33-03:

- Continue DWM water quality and biological monitoring in this segment during the next assessment monitoring year (2005). In particular, biomonitoring is recommended here to continue to assess biological health in this lower portion of the Deerfield River. Fish population sampling should accompany the macroinvertebrate sampling effort and will require multiple crews or a barge mounted electrofishing unit. Bacteria monitoring to isolate the source(s) of episodic elevated fecal coliform counts is also recommended.
- Address concerns voiced by members of the Deerfield Watershed Team that habitat and fish downstream of Deerfield Dam No. 2 may be affected by frequent water level changes and rapid ramping rates that result from hydropower production. Conduct biological surveys designed to assess impacts of hydroregulation on aquatic biota and/or pursue funding for USGS to study the effects of fluctuating water levels created by hydro-peaking on fish communities and other stream biota (Deerfield Team's FY '04 workplan priority project.)
- Work with USGen New England Inc. and settlement parties (including Massachusetts Executive Office of Environmental Affairs, Attorney General, MA DEP, MA DCR, MA DFG, US Fish and Wildlife Service, New England F.L.O.W., Trout Unlimited, and the Deerfield River Watershed Association) to ensure that releases from the hydropower dams are meeting the requirements of the FERC licenses, the Offer of Settlement, and the Massachusetts Water Quality Certification requirements.
- Two tributaries to this segment of the Deerfield River, Sluice and Hawks brooks, should be protected as cold water fishery habitat as recommended by MA DFWELE.
- Encourage local stewardship/resource protection efforts by supporting the DRWA volunteer water quality monitoring program and annual river clean-ups by DRWA, CRWC, Zoar Outdoor and Trout Unlimited.
- Work with NRCS, Massachusetts Department of Agricultural Resources and landowners to protect riparian buffers and encourage use of agricultural BMPs.
- The Towns of Buckland, Shelburne, Conway, Greenfield, and Deerfield should participate in the Deerfield River Watershed Regional Open Space Planning Project, which was funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the

Franklin Regional Council of Governments (completed June 2004). Through this project these towns can work cooperatively with other watershed communities to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.

- In order to prevent degradation of water quality in this segment of the Deerfield River it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the impervious cover. The towns should support recommendations of the recently developed individual municipal open space plans and/or Community Development Plans to protect important open space and maintain their communities' rural character.
- The rural roads that cross over and/or are in close proximity to watercourses should be identified. Field reconnaissance should be performed to evaluate their potential for impacting the water and habitat quality of these adjacent watercourses. Implementation of best management practices, as described in Unpaved Roads BMP Manual (BRPC 2001), should then be encouraged, as appropriate.
- As part of the five-year review process, MA DEP should continue to carefully monitor Deerfield Fire District's compliance with their WMA registration limit (close to exceeding registration threshold).
- Support the recommendations of the Fuss and O'Neill (2003) landfill assessment study.
  - For management of the Buckland Wood and Demolition Landfill additional field investigation is recommended to further assess the environmental risk posed by the landfill, identify and characterize the extent of any impacts that may be present, and determine the need for corrective/remedial action. Field measurement of hydraulic conductivity, depth to groundwater, confirmation of groundwater flow rate and direction, and collection of upgradient and downgradient groundwater samples and additional seep sampling should be performed.
  - For the Lampson & Goodnow site additional investigation is recommended to address potential contamination associated with the former process wastewater discharge and identified waste disposal area behind the manufacturing building. The vertical and lateral extent of impacted soils in the area should be delineated and remedial alternatives should be identified. Additional inspection and sampling of the historical waste disposal area is also recommended to further identify the nature and extent of the waste.
  - At the Former Conway/Buckland Landfill additional field investigation is recommended to further assess the environmental risk posed by the landfill, to identify and characterize the extent of any impacts that may be present, and to determine the need for corrective action. Field measurement of hydraulic conductivity, depth to groundwater, confirmation of groundwater flow rate and direction, and collection of upgradient and downgradient groundwater samples and additional seep sampling should be performed.
  - The Greenfield tire pile is now serving as a crude form of bank stabilization, but due to its size and proximity to the Deerfield River the tire pile should be removed and the ravine should be stabilized to reduce the potential for erosion and sedimentation in the Deerfield River. This effort should be coordinated with the Greenfield Board of Health and the property owner.

Recommendations Deerfield River segment (MA33-04)

- Continue DWM water quality and biological monitoring in this segment during the next monitoring year (2005). Investigate possible sources of occasional high turbidity.
- Evaluate biota, water and sediment quality impacts to the Deerfield River from the East Deerfield Railyard and WTE site.
- Encourage local stewardship/resource protection efforts by supporting the DRWA volunteer water quality monitoring program and annual river clean-ups by DRWA, CRWC, Zoar Outdoor and Trout Unlimited.
- The Towns of Greenfield and Deerfield should participate in the Deerfield River Watershed Regional Open Space Plan, which was funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the Franklin Regional Council of Governments. Through this plan the communities can work cooperatively with other watershed towns to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.
- In order to prevent degradation of water quality in the Deerfield River it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the levels of impervious cover. The Towns of Greenfield and Deerfield should support recommendations of their recently developed individual municipal open space plans and/or Community Development Plans to protect important open space and maintain their communities' rural character.

Recommendations from Deerfield River Watershed 2000 Water Quality Assessment Report for segments of Clesson Brook: (*See Table 4-2 in Section 4*)

Recommendations for Clesson Brook segment MA33-15:

- Water quality monitoring in Clesson Brook should be conducted during the next monitoring year cycle (2005) to assess whether or not nutrient enrichment is occurring in this subwatershed from nonpoint sources of pollution, including agricultural inputs. In addition, fish population sampling should be conducted in Clesson Brook to document the presence of salmonids.
- Between the 1995 and 2000 year surveys on this stream NRCS worked with several landowners to implement agricultural BMPs in this subwatershed. These activities may have contributed to the drop in coliform bacteria measured in the stream below the agricultural areas. It is recommended that NRCS and DFA continue to work with landowners to maintain and expand the use of BMPS to protect riparian areas and prevent agricultural runoff and streambank erosion.
- Based on MA DFWELE recommendations, Clesson Brook and several tributaries in its subwatershed - Cooley, Ruddock, and Sheperd brooks - should be protected as cold water fishery habitat.
- The Towns of Ashfield, Buckland and Hawley should participate in the Deerfield River Watershed Regional Open Space Planning Projects, which were funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the Franklin Regional Council of Governments and Dodson Associates. Through these projects these towns can work

cooperatively with other watershed communities to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.

- In order to prevent degradation of water quality in the Clesson Brook subwatershed it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the levels of impervious cover. The Towns of Ashfield, Buckland and Hawley should support recommendations of their recently developed individual municipal open space plans and/or Community Development Plans to protect important open space and maintain their communities' rural character.
- The rural roads that cross over and/or are in close proximity to watercourses should be identified. Field reconnaissance should be performed to evaluate their potential for impacting the water and habitat quality of these adjacent watercourses. Implementation of best management practices, as described in Unpaved Roads BMP Manual (BRPC 2001), should then be encouraged, as appropriate.
- The volunteer monitoring surveys to locate and map Japanese knotweed infestations conducted in 2003 by the DRWA as part of a Massachusetts Watershed Initiative/Deerfield River Watershed Team workplan project in the Clesson Brook subwatershed identified and mapped extensive patches of this plant growing between Buckland Four Corners and Clesson Brook's confluence with the Deerfield River. Results of this study should be consulted and local efforts to help manage current and future infestations of this invasive plant should be encouraged (Serrentino 2003).

Recommendations from Deerfield River Watershed 2000 Water Quality Assessment Report for segments Clark Brook: (*See Table 4-2 in Section 4*)

Recommendations Clark Brook (MA33-16)

- Conduct water quality and biological monitoring in Clark Brook during the next monitoring year cycle (2005) to more completely assess the status of designated uses.
- Clark Brook should be protected a cold water fishery habitat as recommended by MA DFWELE.
- The Town of Buckland should participate in the Deerfield River Watershed Regional Open Space Plans, which were funded by the Massachusetts Watershed Initiative/Deerfield River Watershed Team and conducted by the Franklin Regional Council of Governments and Dodson Associates. Through these projects the Town can work cooperatively with other watershed communities to prioritize regional open space and recreational land acquisitions and protection goals, including water resources.
- In order to prevent degradation of water quality in the Clark Brook subwatershed it is recommended that land use planning techniques be applied to direct development, preserve sensitive areas, and maintain or reduce the levels of impervious cover. The Town of Buckland should support recommendations of the recently developed individual municipal open space plan and/or Community Development Plan to protect important open space and maintain their community's rural character.
- The rural roads that cross over and/or are in close proximity to watercourses should be identified. Field reconnaissance should be performed to evaluate their potential for impacting the water and habitat quality of these adjacent watercourses. Implementation of best management practices, as described in Unpaved Roads BMP Manual (BRPC 2001), should then be encouraged, as appropriate.

APPENDIX E

Regional Wildlife Species List

The following lists of wildlife species are representative of those species found in this region of Massachusetts. The lists are based on information presented in *New England Wildlife: Management of Forested Habitats* by R.M. DeGraaf et al (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 Buckland. Species of wildlife which have been observed in Buckland at least once as members of migrating, wintering, or breeding populations have their names followed by an asterisk(*).

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, Pickerel Frog*, Jefferson Salamander, Spotted Salamander*, Northern Dusky Salamander, Mountain Dusky Salamander, Northern Two-lined Salamander.

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

Spotted Salamander*

Fish

These species are found in Buckland:

Salmon, Yellow Perch, Pickerel, Rainbow Trout, Brook Trout, Brown Trout, Small Mouthed, Bluegill, Bullhead/Horn Pout.

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, Northern Black Racer, Northern Brown 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, Midland Painted 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

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*, White-eyed Vireo, Blue-winged Warbler, Pine 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, Hooded 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, Evening Grosbeak*, American Redstart, Red Crossbill, White-winged Crossbill, European Starling*, Sora, Killdeer, Spotted Sandpiper, Common Snipe, Northern Mockingbird*, Eastern Pheoebe*, Mourning Dove*, Pine Siskin, Northern Waterthrush, Virginia Rail, Pine Siskin, House Finch, House Sparrow, Fox Sparrow, Red-winged Blackbird*, Great-crested Flycatcher, Pied-billed Grebe, Red-breasted Merganser, American Bittern, Least Bittern, Black-crowned Night Heron, Northern Bobwhite.

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*, Pine Grosbeak, Brown Creeper*, American Woodcock*, Horned Lark, Muted Swan, Canada Goose, Eastern Meadowlark, Swainson's Thrush.

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, Gray Partridge, Spruce Grouse, and Osprey.

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

American Tree Sparrow*, Bohemian Waxwing, Northern Shrike, Common Redpoll*, Snowy Owl, Snow Bunting, White-crowned Sparrow, Boat-tailed Grackle, Snow Goose, Rough-legged Hawk.

Mammals

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

Eastern Cottontail*, New England Cottontail, Snowshoe Hare, Eastern Chipmunk*, Gray Squirrel*, Red Squirrel*, Northern Flying Squirrel, Beaver*, Deer Mouse, White-footed Mouse*, Shrew, Northern Short-tailed Shrew*, Least Shrew, Masked Shrew, Smoky Shrew, Hairy-tailed Mole*, Meadow Jumping Mouse, Woodland Jumping 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*, Long-tailed Weasel*.

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*, Mink*, Mountain Lion.

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

Little Brown Myotis*, Big Brown Bat*, Red Bat, Hoary Bat, Keen's Myotis.

APPENDIX F

Public Outreach Brochure

APPENDIX G

Letters of Support

Shelburne Falls
The Shelburne Falls Area Business Association
CONNECTING COMMERCE and COMMUNITY

Shelburne Falls Area Business Association
75 Bridge Street, P.O. Box 42
Shelburne Falls, MA 01370
phone (413) 625-2526 *fax* (413) 625-2538
email info@shelburnefalls.com
web www.shelburnefalls.com

December 14, 2010

To Whom It May Concern:

The Shelburne Falls Area Business Association (SFABA) has reviewed the Town of Buckland 2010 Open Space and Recreation Plan (OSRP). Please accept this letter as confirmation that we support the plan and its submission to the Department of Recreation for their review.

The SFABA strives to sustain and enhance economic development within our rural communities. The OSRP plan addresses economic development appropriate to the rural nature of the Town of Buckland which is the home of many farms, farm-related businesses, artisans, and cottage industries that thrive because of the commitment by the Town to preserve the scenic and agricultural landscapes.

The SFABA is pleased to endorse the OSRP and are committed to working with the Town of Buckland to achieve the goals outlined in the plan.

Sincerely,

Mary Vilbon

Mary Vilbon
Executive Director

TOWN OF BUCKLAND
MASSACHUSETTS

December 14, 2010

The Buckland Select Board has reviewed the Town of Buckland 2010 Open Space and Recreation Plan (OSRP). Please accept this letter as confirmation that we are in agreement with the OSRP and that we will continue to work toward the common goals it expresses. Preserving and maintaining our recreational and natural resources is critical to maintaining the special character of our Town. The OSRP provides Buckland with a clear plan for initiating or continuing actions to preserve our Town's resources.

The Buckland Select Board is pleased to give our full support to the OSRP and feel that this Plan is an important planning tool for the future of Buckland.

Sincerely,

Buckland Board of Selectmen

Stefan G. Racz, Chair Kevin P. Fox Robert A. Dean

17 STATE STREET - BUCKLAND • SHELBURNE FALLS, MA •01370
PHONE: (413) 625-6330 • FAX: (413) 625-8570

TOWN OF BUCKLAND
MASSACHUSETTS

December 9, 2010

The Buckland Recreation Committee has reviewed the Town of Buckland 2010 Open Space and Recreation Plan (OSRP) and supports its submission to the Department of Conservation and Recreation for their review. The Plan can be used to help the Town in their deliberations concerning use and development of the land and resources at the Recreation Area in Buckland. The Recreation Area is an important and vital asset that is critical to maintaining the special character of our Town. In addition, once approved by the State, the Plan will make Buckland eligible for land conservation and recreation project funding, more competitive for other types of grants, and better equipped to protect our natural, recreational and cultural resources.

The Buckland Recreation Committee is pleased to give our support to the OSRP and feel that this Plan is an important tool for the future of Buckland.

Sincerely,

Barbara Harris-Fried

Barbara Harris-Fried, Chair
Buckland Recreation Committee

17 STATE STREET - BUCKLAND • SHELBURNE FALLS, MA •01370
PHONE: (413) 625-6330 • FAX: (413) 625-8570

TOWN OF BUCKLAND
MASSACHUSETTS

December 9, 2010

The Buckland Planning Board has reviewed the Town of Buckland 2010 Open Space and Recreation Plan (OSRP) and supports its submission to the Department of Conservation and Recreation for their review. The Plan can be used to help the Town in their deliberations concerning land use and open space decisions and priorities. In addition, once approved by the State, the Plan will make Buckland eligible for land conservation and recreation project funding, more competitive for other types of grants, and better equipped to protect our natural, recreational and cultural resources.

The Buckland Planning Board is pleased to give our full support to the OSRP and feel that this Plan is an important planning tool for the future of Buckland.

Sincerely,

John Gould
Chair,
Buckland Planning Board

17 STATE STREET - BUCKLAND • SHELBURNE FALLS, MA •01370
PHONE: (413) 625-6330 • FAX: (413) 625-8570

TOWN OF BUCKLAND
Conservation Commission
17 State Street
Shelburne Falls, MA 01370

December 3, 2010

Ms. Andrea Llamas
Administrator
Town of Buckland
13 State Street
Shelburne Falls, MA 01370

RE: Town of Buckland 2010 Open Space and Recreation Plan

Dear Ms. ~~Llamas:~~ Andrea

The Conservation Commission reviewed the proposed Open Space and Recreation Plan for the Town of Buckland. We support its submission to the Department of Conservation and Recreation for their review.

We believe the Plan will be an important resource to assist the Town in decision-making concerning land use, open space, and other concerns regarding the ecological and human environment of Buckland. We were pleased to see that the Plan includes spatial data on Riverfront Areas, Priority Habitats, and other resources that will help citizens and policy-makers make informed decisions regarding locations of proposed developments. Public access to this Plan and the information contained within will improve compliance with the Wetlands and Rivers Acts and ultimately the effectiveness of the Conservation Commission.

We commend the Town for being proactive in the development of this Plan, and we look forward to assisting in its implementation.

If you have any questions, please don't hesitate to call.

Sincerely,

John F. Organ
Chairman, Buckland Conservation Commission

TOWN OF BUCKLAND
MASSACHUSETTS

Dec. 14, 2010

The Buckland Historical Commission has reviewed the Town of Buckland 2010 Open Space and Recreation Plan (OSRP). Please accept this correspondence as confirmation that we are in agreement with the OSRP, and that we will continue to work toward the common goals it expresses.

Preserving and maintaining our landscapes, farmlands, wildlife habitats, and historic structures is extremely important to sustaining the special character and vitality of the rural nature of our Town.

The Buckland Historic Commission is pleased to give our full support to the OSRP, and feel that this Plan is an important and necessary tool for protecting the future of the Town of Buckland.

Sincerely,

Roxana L. K. Racz

Roxana L. K. Racz,

Chairman of the Buckland Historical Commission

Town of Buckland

Action Plan

Open Space and Recreation Plan

Protect and improve the Town's drinking water supply and aquifers and encourage landowners and Town to employ best management practices to protect water quality.

Promote and preserve historically significant landmarks, features, and structures.

Promote and maintain recreational resources and opportunities in Town.

Protect forests and riparian corridors from invasive plant species.

Promote partnerships and collaboration between town boards and commissions, land owners and regional organizations to implement OSRP Objectives.

Pursue strategies to protect land with significant natural resource value from development and work with willing landowners to protect their land by pursuing funding for easements or conservation restrictions.

Support local agriculture and land/resource-based businesses with active involvement by the Agricultural Commission and Planning Board.

Develop strategies for identifying and prioritizing scenic viewsheds for the purpose of preserving them

Legend

- Town Boundary
- Major Road
- Road
- Rail Line
- Wetlands
- Stream, River
- Pond, Lake

Open Space

- Permanently Protected
- Limited Protection

Temporary Protection

- Chapter 61

N W E S

0 0.25 0.5 1 Miles

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

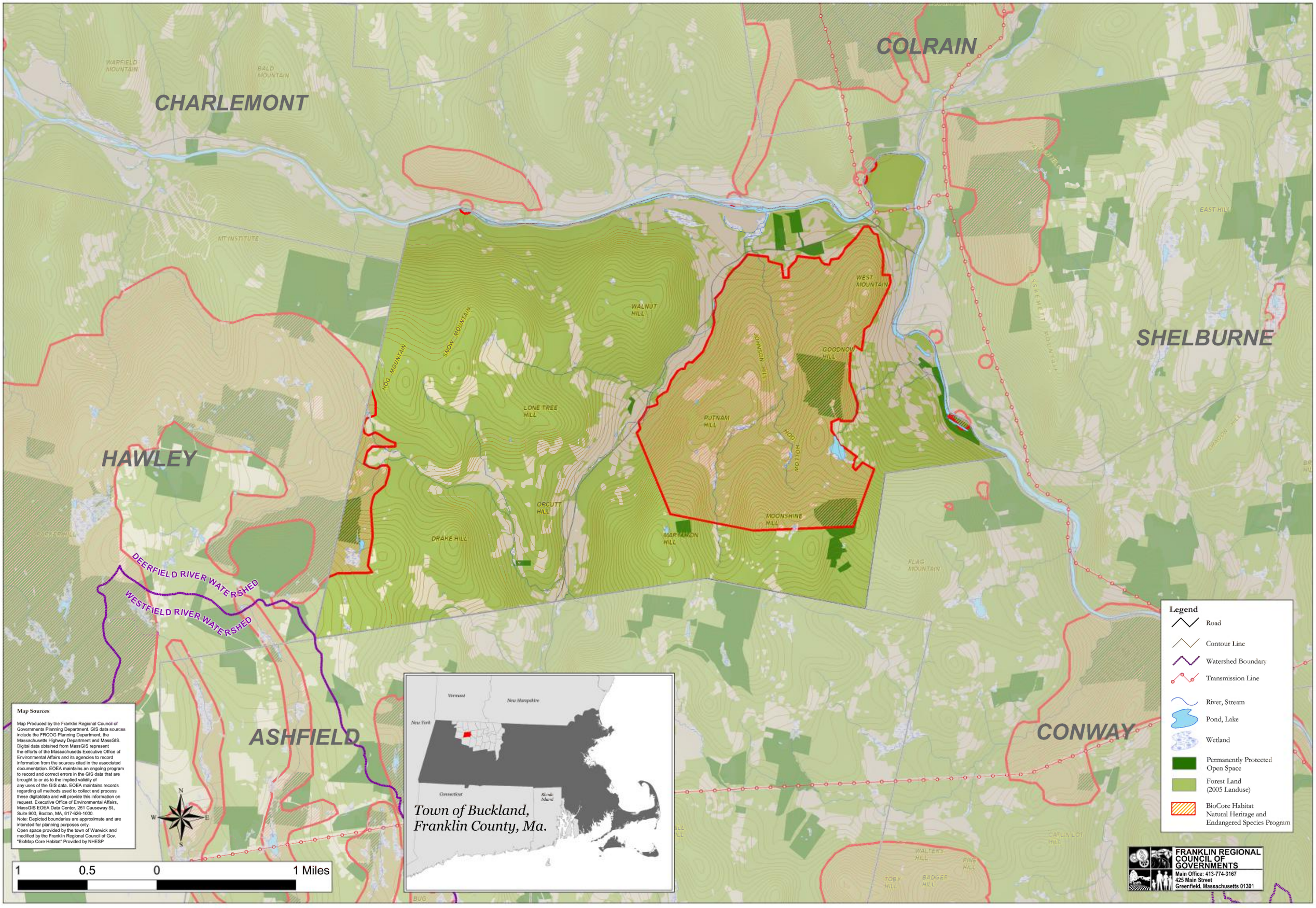
Map Sources:

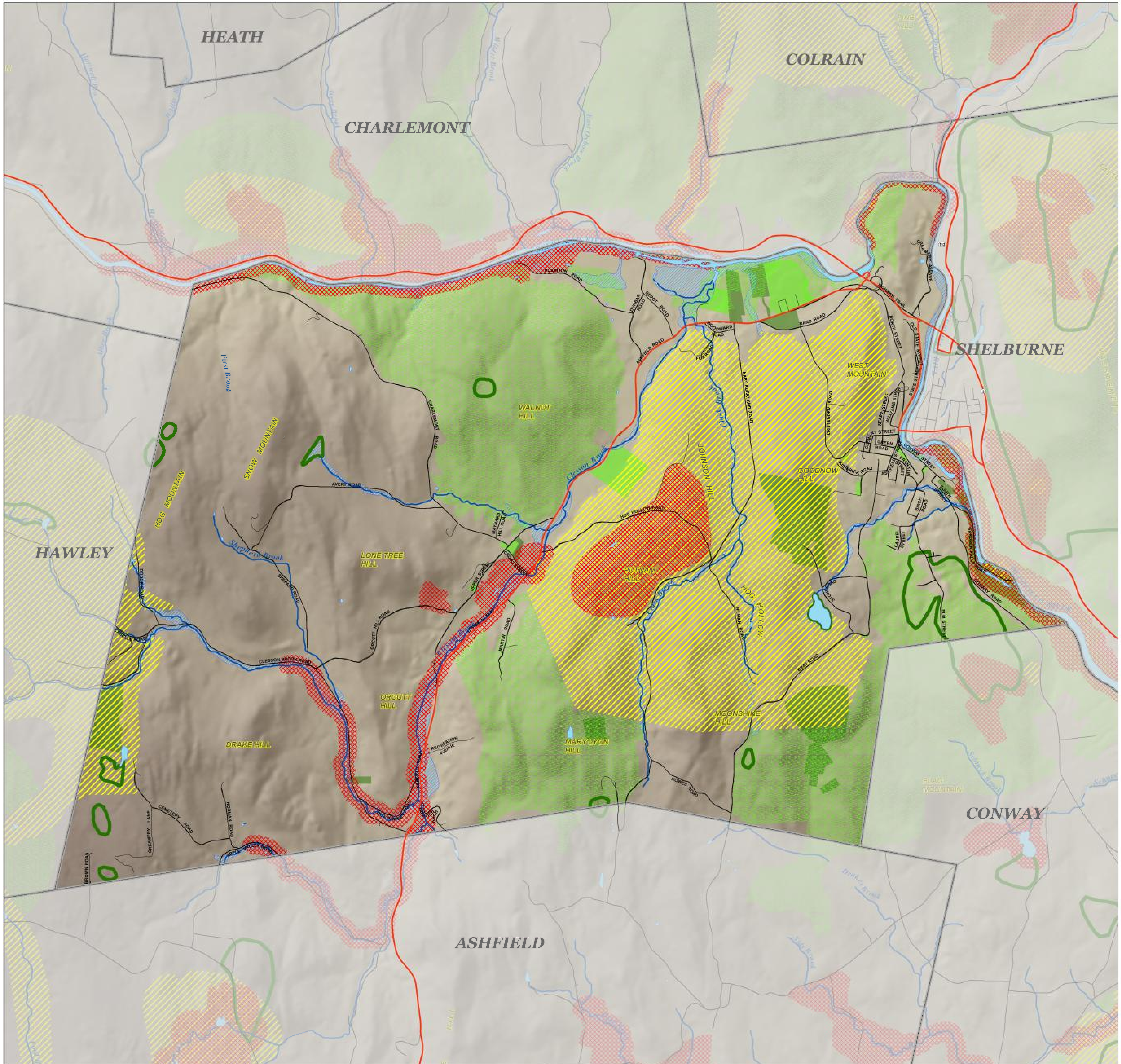
Map Produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs 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 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 digitaldata and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEA Data Center, 251 Causeway St., Suite 900, Boston, MA, 617-626-1000.
Note: Depicted boundaries are approximate and are intended for planning purposes only.
Open space provided by the town of Buckland and modified by the Franklin Regional Council of Gov.
"BioMap Core Habitat" Provided by NHESP

Town of Buckland, Franklin County, MA

Regional Context Map

Open Space and Recreation Plan





Town of Buckland

Environmental Habitat

Open Space and Recreation Plan

Legend

BioMap Core Habitat
BioMap Supporting Natural Landscape
Priority Habitat of Rare Species
1830's Woodland
100 Year Flood Plain

Open Space

Limited Protection
Permanently Protected
Major Road
Road
Stream, River
Pond, Lake

N
W E
S

0 0.2 0.4 0.8 Miles

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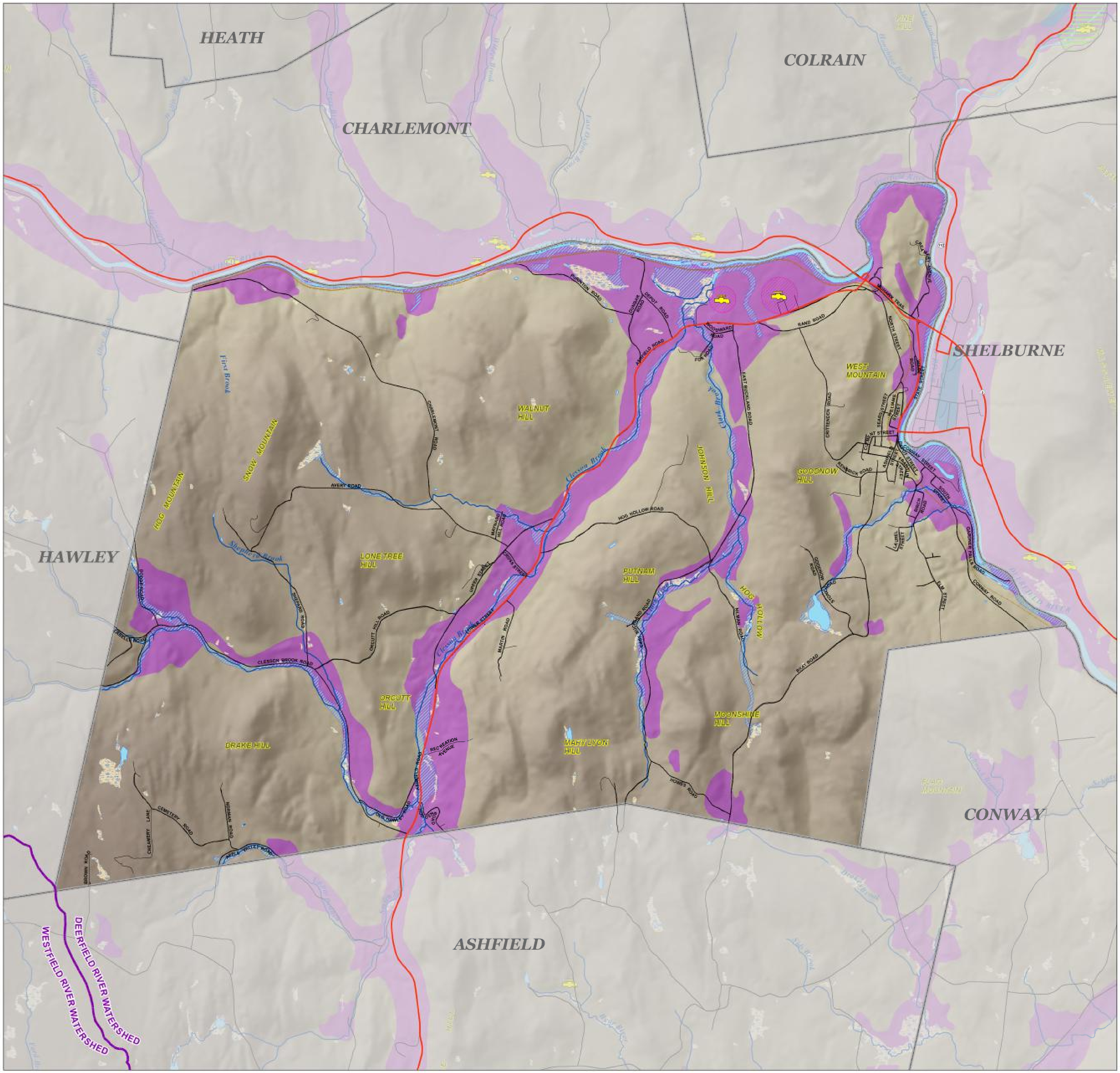

Town of Buckland

Water Resources

Open Space and Recreation Plan

Legend

- Town Boundary
- Major Road
- Road
- Rail Line
- Wetlands
- Stream, River
- Pond, Lake
- Public Water Supplies
- Watershed Boundary
- Interim Wellhead Protection Area
- Aquifer Potential Yield 0 - 50 Gallons Per Minute
- 100 Year Flood Plain

N / E / S / W

0 / 0.25 / 0.5 / 1 Miles

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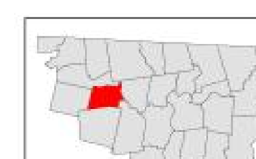
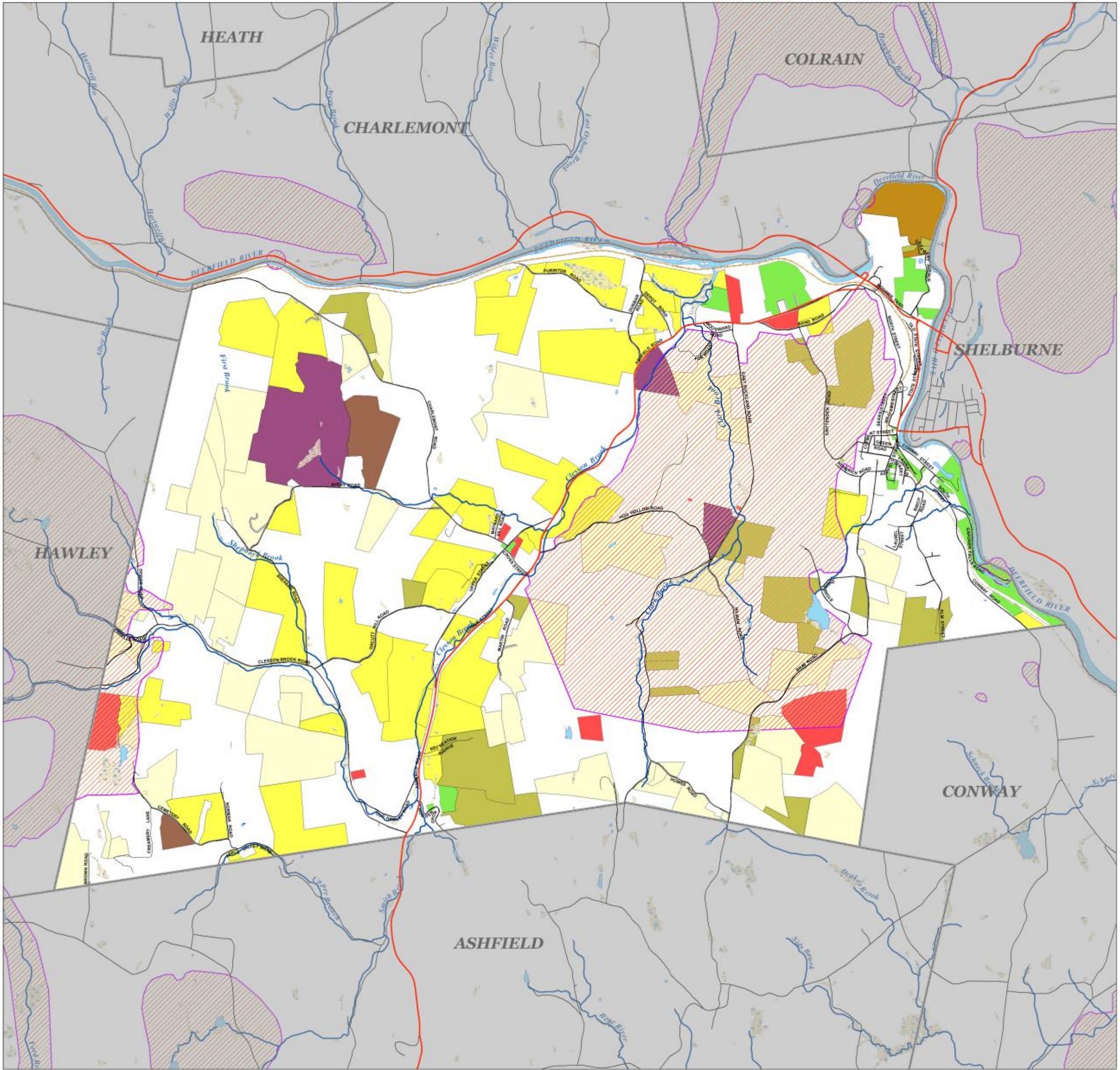


Town of Buckland
Franklin County, Massachusetts

Town of Buckland

Open Space

Open Space and Recreation Plan



Legend

- Town Boundary
- Major Road
- Road
- Rail Line
- Wetlands
- Stream, River
- Pond, Lake
- Biomap Core Habitat

Open Space

- Permanently Protected
- Limited Protection

Temporary Protection

- Chapter 61A (Agriculture)
- Chapter 61B (Recreation)
- Chapter 61F (Forestry)
- Chapter 61A & 61F
- Chapter 61A & 61B

N W E S

0 0.25 0.5 1 Miles

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Town of Buckland

Scenic Resources

Open Space and RecreationPlan

Number	Site	Number	Site
	Historic Buildings		**Historic Buildings (continued)**
1	The Sanderson Ruddock Place	105	Residence (Mowry's)
2	Cranson Place	106	Dunbar House
3	Rood Place	107	The Sweet Place
4	Dodge Place	108	Burdick Place
6	Orta Kenney Place	109	The Otis Field House
7	Residence		**Cemeteries**
8	The Ward Place	5	Cemetery
9	High Street School House	35	Cemetery
11	Auge Place	36	Cemetery
14	Scott House	47	East Buckland Cemetery
16	Enoch Wells Place	53	Cemetery
17	The Kenney Place		**Historic Sites**
18	District No.5 Schoolhouse	12	Historic Mill Sites
19	Hathaway Place	13	Historic Mill Sites
20	The Wood Place	32	Site
25	Keach Place	34	Site
26	The Ward Place	37	Site
27	The Manard Place	41	Mary Lyon Birthplace
29	House	51	Site
30	House	55	Site
31	House	59	Site
38	The Lilly Place	63	Mary Lyon's First School
43	The Drake Place	65	Gardner Falls Station Power
44	Wilder Homestead		House, Canal & Dam
45	Cobbler Shop	95	Boehmer's Mill
46	Goddard Place	98	The Lightning Splitter
48	Purinton House		Historic Bridges
49	Hog Hollow Schoolhouse	22	Cement Bridge
50	Nilman House	66	Boston & Maine Railroad Trestle
52	Johnson House		**Historic Farms**
54	The Bellows Place	10	Guilford Homestead
56	Home of Lois Buell	21	Farm with maple trees
57	Residence	23	Mill's Farm
58	Residence	24	Koonchaug Farm
60	The Elmer Place	28	Orcutt Hill Rd (Farm)
61	Residence	42	FR Bray Farm
62	The Lanfair estate	67	'raehead Farm
64	Residence	89	Patch Farm
68	Salt Box Residence	92	Pine Brook Farm
69	Residence, Greek Revival	104	Walnut Hill Farm
70	Residence		**Destinations**
72	Residence	33	Buckland Center
74	Residence	40	Mary Lyon Birthplace/Putts Hill
80	Catholic Church Parsonage	76	Glacial Potholes
81	Residence, Cape	78	Bridge of Flowers
82	Crittenden School	79	Shelburne Falls (Buckland side)
83	E.B. Sherwin House	93	Purple Forest
84	Slattery House	96	Buckland Recreation Area
85	Nathaniel Lamson House		**Scenic Vistas**
86	Residence	15	Red Gate Farm
88	Spencer-Woodsome House	39	Putts Hill
91	Luther Dunnell House	71	Gardner Falls
94	The Gould Place	73	Vets Field
99	Bert Shaw's House	75	Fishing Overlook
100	Buckland Post Office	76	Glacial Potholes
101	Enos Taylor House	87	West Mountain
102	Cooper's Shop	90	Mohawk Trail Regional High School
103	Silas Trowbridge Place	97	Buckland Recreation Area

HEATH
CHARLEMONT
COLRAIN
SHELBURNE
HAWLEY
CONWAY
ASHFIELD

Legend

Town Boundary
Major Road
Road
Rail Line
Wetlands
Stream, River
Pond, Lake
Natural Heritage and Endangered Species Priority Habitat

Open Space

Permanently Protected
Agricultural Land Use 2005
Farm
Contiguous Forest
Scenic Point

N W E S

0 0.25 0.5 1 Miles

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
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Greenfield, Massachusetts 01301

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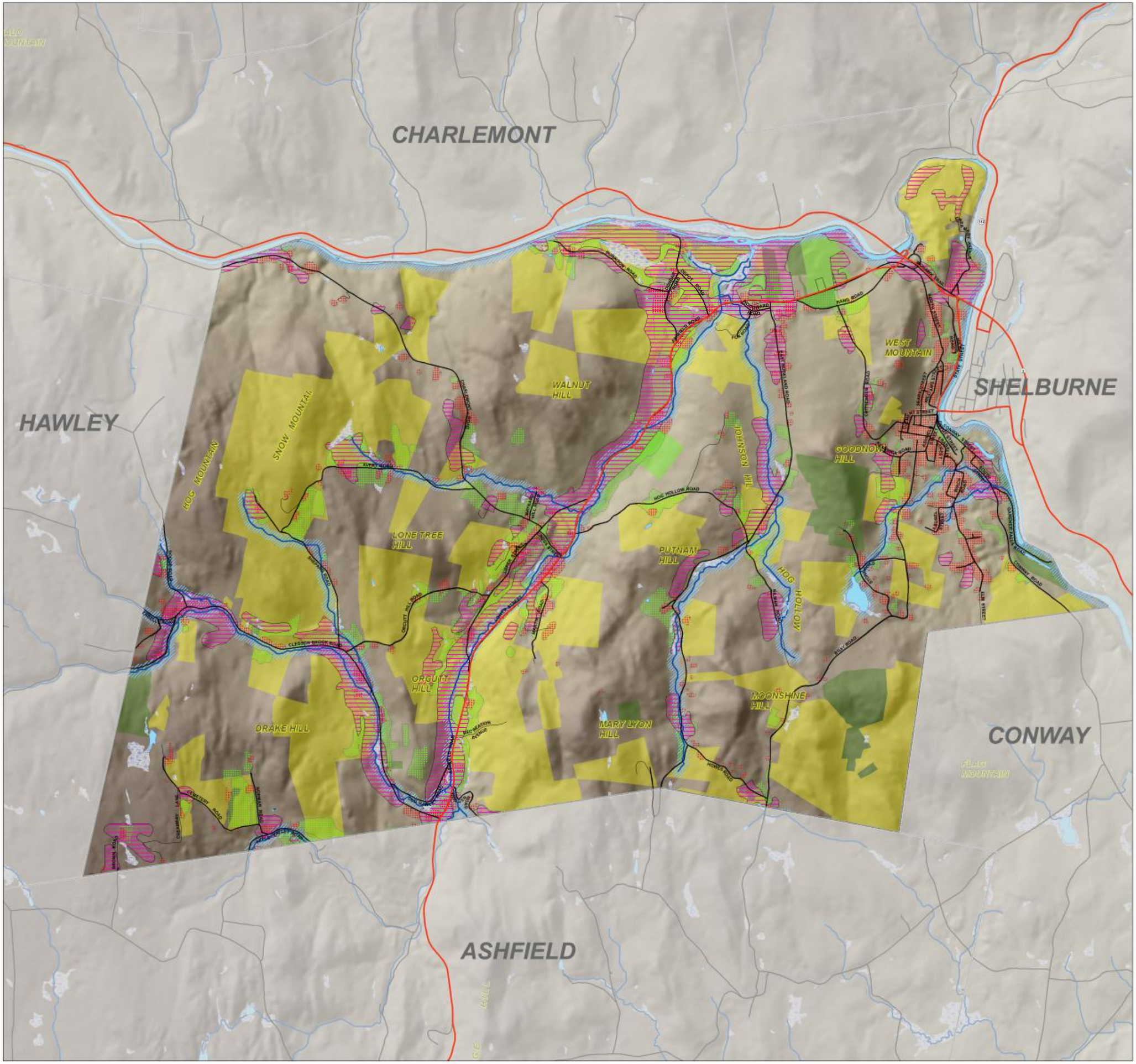
Town of Buckland Franklin County, Massachusetts

Town of Buckland

Prime Farmland and Development Constraints 2010

Open Space and Recreation Plan



Legend

- Town Boundary
- Major Road
- Road
- River, Stream
- Pond, Lake
- Wetland
- Prime Farmland Soils
- River Protection Act 0 - 200 ft from River Bank

Open Space

- Permanently Protected
- Limited Protection
- Temporary Protection Chapter 61 Land

Land Use 2005

- Cropland, Pasture
- Residential

N
W E
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0 12.5 25 50 Miles

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Town of Buckland

Zoning 2010

Open Space and Recreation Plan

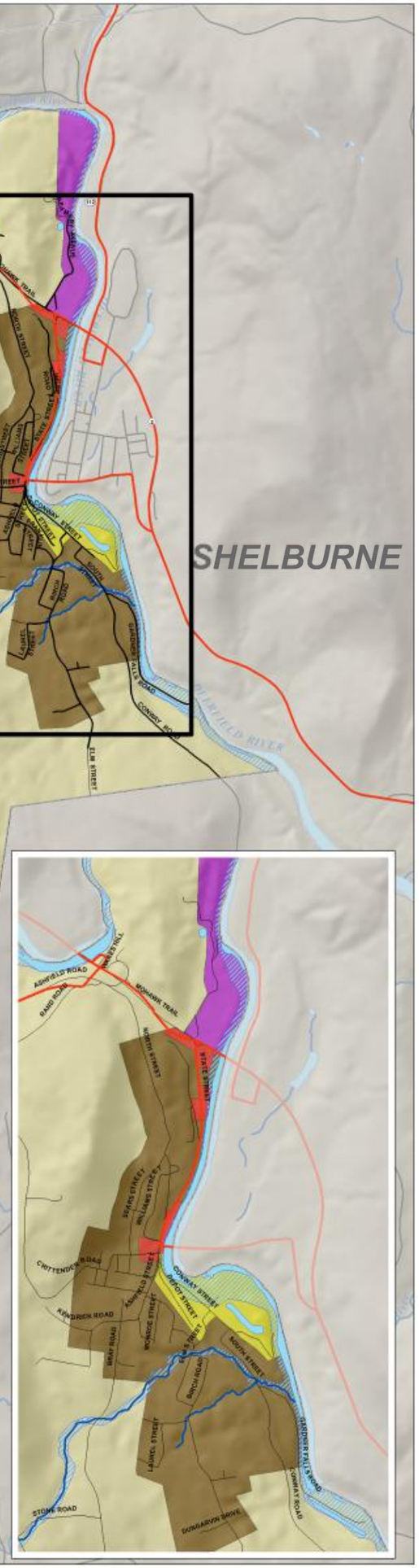
COLRAIN

CHARLEMONT

HAWLEY

SHELBURNE

ASHFIELD



Legend

- Town Boundary
- Major Road
- Road
- River, Stream
- Pond, Lake
- 100 Year Flood Plain
- Farm Building Reuse Overlay District (FBR)

Zoning Districts

- Commercial (C)
- Village Commercial (VC)
- Industrial (I)
- Historic Industrial (HI)
- Village Residential (VR)
- Rural Residential (RR)

N W E S

0 0.25 0.5 1 Miles

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
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"BioMap Core Habitat" Provided by NHESP