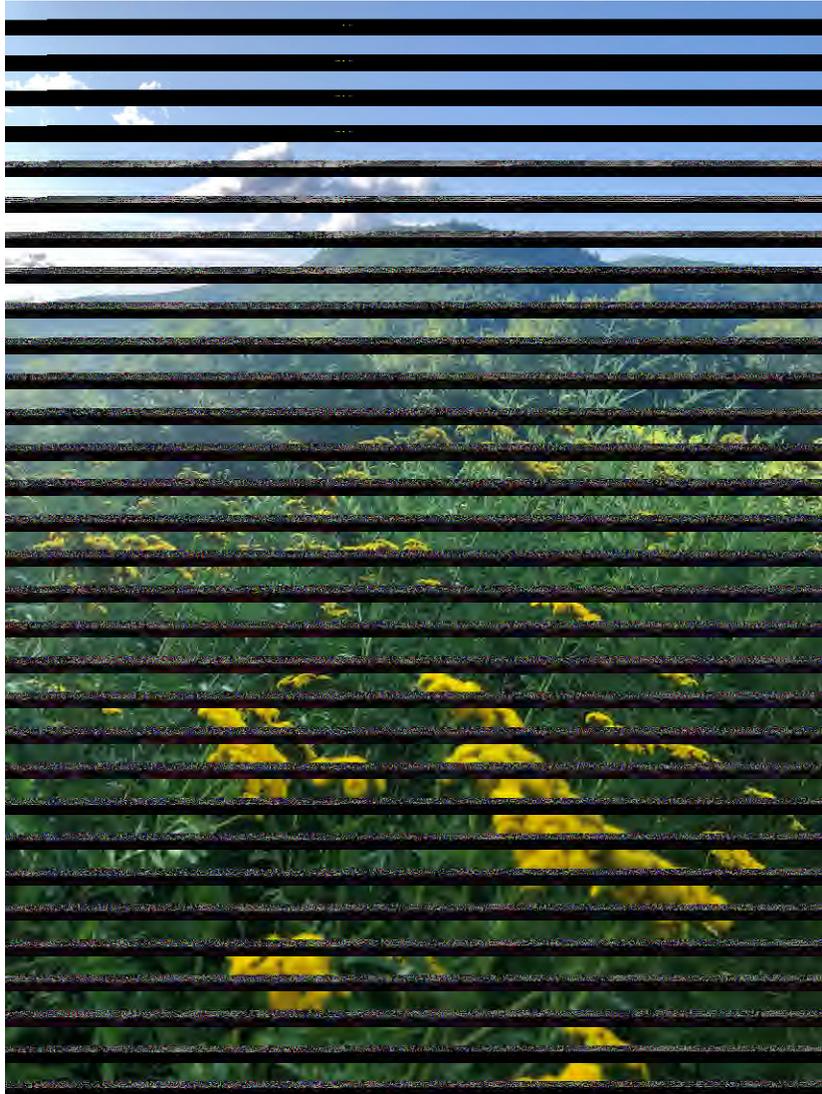


# TOWN OF BUCKLAND OPEN SPACE AND RECREATION PLAN 2021-2028



**FINAL DRAFT**

Prepared by the Buckland Open Space Committee

with assistance from the

Franklin Regional Council of Governments

This project was funded by a Direct Local Technical Assistance Grant provided by the  
Massachusetts Department of Housing and Community Development  
and a Community Compact Grant provided by the Community Compact Cabinet

# TOWN OF BUCKLAND OPEN SPACE AND RECREATION PLAN 2021-2028

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# SECTION 1

## PLAN SUMMARY

The 2020 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.



**A unique trail marker in Buckland State Forest** (*Phoebe Walker*)

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

- Prime farmland soils and active farms;
- Large blocks of contiguous forest;
- Buckland State Forest;
- BioMap2 Habitats for rare and endangered 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 Purple Forest adjacent to Buckland Recreation Area** (*Phoebe Walker*)

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 forests and farmlands remain 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 and by a Community Compact Grant provided by the Community Compact Cabinet. 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 Franklin Regional Council of Governments (FRCOG) and the Buckland Open Space and Recreation Committee (the Committee). The survey was posted online with paper copies available at the Town Hall, the Public Library, and the Senior Center. Survey results of the 80 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 Forum and Public Input Session, held on January 28, 2021, there have been nine (9) public meetings of the Buckland Open Space and Recreation Committee. The Public Forum was a standalone meeting held via zoom, drawing more than 20 residents, many of whom viewed and commented upon drafts of the OSRP maps and Goals and Objectives. During and after the Powerpoint presentation given by members of the Committee and FRCOG staff, residents 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 on the Town website.



**View of ridgeline with McCuskers** (*Phoebe Walker*)

Comments expressed at the Public Forum were recorded and included in Section 10 – Public Comments. Any ideas, comments, and corrections pertaining to different sections of the plan have also been included in the final version of the Buckland Open Space and Recreation Plan.

Committee members representing the public and different town boards and commissions included:

- Town Administrator
- Select Board
- Planning Board
- Board of Health
- Recreation Committee
- Finance Commission
- Cultural Council

Regional organizations represented included:

- Buckland Shelburne Trails Alliance
- Franklin Land Trust
- Connecticut River Conservancy
- MassWildlife

## 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.



**Young person on the Deerfield River in Buckland** (*Phoebe Walker*)

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.

### **Regional Sustainability, Open Space, Natural Resources and Recreational Planning**

In 2013, *Sustainable Franklin County: Franklin County's Regional Plan for Sustainable Development* (RPSD) was completed by the Sustainable Communities Consortium including Community Action, Franklin County Regional Housing and Redevelopment Authority (HRA), North Quabbin Community Coalition (NQCC), Franklin County Community Development Corporation (FCCDC), the City of Greenfield, and the Towns of Deerfield, Montague, and Orange. The RPSD is a long-term guide for Franklin County municipal governments, regional organizations, businesses, non-profits, and individuals. Through extensive public participation, individual residents and representatives of many organizations contributed to the creation of the plan. The plan identifies issues and constraints, goals, and recommendations and strategies in seven subject areas: housing, transportation, economic development, energy, natural resources, cultural resources, and land use and infrastructure. The overall sustainable development goals that came out of the public participation process are as follows:

- ❖ Increase and improve the housing stock, while focusing on affordability;
- ❖ Provide additional options for alternative transportation;
- ❖ Encourage economic development, by redeveloping vacant sites;
- ❖ Promote energy conservation and efficiency;
- ❖ Protect natural resources, including farmland and drinking water supplies;
- ❖ Foster the growth of arts and culture;
- ❖ Concentrate new growth near town centers and focus on infill development; and
- ❖ Improve infrastructure, particularly high speed internet.

The plan notes that the predominant residential development patterns in the county are converting farms and forests to residential lots, and fragmenting the remaining farmland and forestland. The Approval Not Required (ANR) provision of the Subdivision Control Law allows for residential development along existing roads without Planning Board approval when frontage and lot size requirements are met. Combined with large lot zoning in many towns, which can require anywhere from one to four acres of land per home, the result is continual residential development spaced along town roadways, away from town centers. New subdivisions, while less common than ANR development, are also often located outside of existing town centers, further fragmenting the land and converting green spaces to development.



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

### ***Scenic Byways***

There are two state designated scenic byways in Buckland. The Mohawk Trail Scenic Byway and the Route 112 Scenic Byway. The National Scenic Byways Program recognizes certain roads as scenic byways based on archeological, cultural, historic, natural, recreational and/or scenic qualities. It is a grass-roots collaborative effort to recognize, preserve and enhance the intrinsic qualities of the selected roads. In Massachusetts, eligible roads are officially designated as scenic byways through an act of the Legislature, and the designation is honorary and intended to recognize the special nature of these roads. Until 2011, funding was available through an annual discretionary grant program, and a number of projects that were intended to enhance, protect and promote the intrinsic qualities of the Scenic Byways in Franklin County received funding. While there has been no new Scenic Byway funding since Federal Fiscal Year 2012, previously funded projects have enhanced existing tourism activities, and laid the groundwork for continued tourism.

The Mohawk Trail Scenic Byway is Route 2 and on Route 2A in Shelburne Falls, and was one of the earliest scenic byways in New England receiving its designation in 1953. In 2002, the FRCOG

and the Berkshire Regional Planning Commission worked collaboratively to complete a corridor management plan 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.

The Route 112 Scenic Byway was officially designated as a scenic byway by the Massachusetts Legislature in 2004. The Route 112 Scenic Byway travels through the Towns of Colrain, Buckland, Shelburne, and Ashfield in Franklin County and the Towns of Goshen, Cummington, Worthington and Huntington in Hampshire County. A Corridor Management Plan for the Route 112 Scenic Byway was completed in 2009.

### ***Mahican Mohawk Trail***

The Mahican Mohawk Trail is a planned hiking/walking trail that spans from the Connecticut River in Massachusetts to the Hudson River in New York. It is historically significant because it generally follows the path that was used by Native Americans for centuries to traverse the region. The Trail travels through or is envisioned to travel through the Towns of Deerfield, Conway, Shelburne, Buckland, and Charlemont in Franklin County. Currently, a section of the trail is open between Deerfield and Shelburne and from the Mohawk Trail State Forest in Charlemont west to North Adams. The section of the trail through Buckland and Charlemont is considered a water trail on the Deerfield River. A trail guide/map was completed in 2018 that details the sections of trail that are open for hiking/walking. There is also planning underway to connect the trailhead in Shelburne Falls on Route 2 to the village of Shelburne Falls.

### **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.

### ***Woodland and Water Resources***

Forests constitute one of the most important renewable natural resources in the Town of Buckland and the region. While approximately 84 percent (10,725 acres) of the Town's lands are forested,<sup>1</sup> much of that land is privately owned. Only 2.5% of Buckland's forestland (approximately 318 acres) is owned and protected by the Commonwealth of Massachusetts. These forestlands include two Buckland State Forest parcels (92 acres and 103 acres), and the 44-acre Kenneth Dubuque

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<sup>1</sup> 2016 MassGIS Land Use-Land Cover data, <https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>

Memorial State Forest. These state forestlands are overseen by the Department of Conservation and Recreation.

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 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.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) uses BioMap2<sup>2</sup> Core Habitat and Critical Natural Landscapes to identify exemplary natural communities, areas in Massachusetts that are critical for rare and other native species and their habitats, ecosystems most in need of protection, and landscapes that support ecological processes and a wide array of terrestrial and wetland plant and animal species and natural communities over long time frames. BioMap2 data focuses primarily on state-listed rare species and exemplary natural communities and was developed to guide strategic biodiversity conservation in the state by focusing land protection and stewardship efforts. Core Habitat areas include the most viable habitat for rare plants and rare animals and exemplary natural communities. Critical 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 identified, through field surveys, as supporting viable populations of rare plant and animal species while the Critical Natural Landscape areas were determined through analyses using Geographic Information Systems (GIS) mapping programs. NHESP also uses Priority Habitats of Rare & Endangered Species data to identify the geographic extent of habitat of state-listed rare species in Massachusetts, which is based on observations documented within the last 25 years in the database of the Natural Heritage & Endangered Species Program (NHESP).<sup>3</sup> BioMap2 Core Habitat and NHESP Priority Habitats for Rare & Endangered Species are shown on the *Soils & Environmental Constraints Map* at the end of Section 4.

NHESP BioMap2 Core Habitat, Critical Natural Landscape (CNL), and Priority Habitats of Rare Species in Buckland can be summarized as follows:

- ❖ The largest patch of BioMap2 Core Habitat in Buckland is located between Johnson Hill and Putnam Hill; and area that also includes Buckland State Forest land.
- ❖ Several riparian buffer areas in the town are identified as BioMap2 Core Habitat, including the full lengths of Clark Brook and Clesson Brook, and distinct reaches of Drakes Brook, Cooley Brook, Second Brook, and the Deerfield River.
- ❖ Clesson Brook represents a contiguous, north-south stretch of Aquatic Core habitat (a component of BioMap2 Core Habitat) that spans the town, from its headwaters across town line in Ashfield, to its convergence with The Deerfield River on the Charlemont town line. Clark Brook, and its tributaries, also comprise a stretch of Aquatic Core habitat that spans nearly the entire town from north to south. Both waterways are buffered by BioMap2 Critical Natural Landscapes that help link Core Habitat to far reaching habitat resources into surrounding towns, including south into Ashfield, west into Hawley, and north in Charlemont, Heath and Colrain.
- ❖ A vast area of BioMap2 Critical Natural Landscape is located in the northwest region of town and extends west into Hawley and Charlemont. This CNL largely consists of contiguous deciduous and evergreen forests and includes Walnut Hill and Snow Mountain.

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<sup>2</sup> 2010 BioMap2 data, <https://docs.digital.mass.gov/dataset/massgis-data-biomap2>

<sup>3</sup> 2017 NHESP Priority Habitats of Rare Species data, <https://docs.digital.mass.gov/dataset/massgis-data-nhesp-priority-habitats-rare-species>

- ❖ A stretch of the Deerfield River along the northeast town line with Charlemont, from South River Road in Charlemont in the west to the Clesson Brook confluence in the east, is designated as BioMap2 Core Habitat and is also buffered by a CNL. This reach of the Deerfield River receives several tributaries that are also designated as BioMap2 Core Habitat and buffered by a CNL, including Avery Brook, Second Brook, and East Oxbow Brook.
- ❖ Two other small Core Habitat areas are located along the Deerfield River in Buckland. One is the ‘loop’ of the Deerfield River, which forms the northeast corner of the town, which is buffered by CNL and continues north far into Colrain. Another is the stretch along the eastern town boundary with Shelburne, which extends from the Glacial Potholes below the dam in Shelburne Falls, southward to the Conway town line, and continues on into Conway and Shelburne.

The 14th edition of the NHESP Natural Heritage Atlas (effective August 2017)<sup>4</sup> displays the boundaries of Priority Habitat of Rare Species 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. According to the 2017 Atlas, NHESP Priority Habitats in Buckland occur:

- ❖ Along the Deerfield River on the northeast town line with Charlemont and the eastern town line with Shelburne, **except** for the reach above the dam in the village of Shelburne Falls, and **except** for the reach above Gardner Falls dam in the southeast corner of town.
- ❖ The full extent of Clesson Brook within town boundaries.
- ❖ Small patches on Lone Tree Hill and Walnut Hill in the central, upland areas of town.
- ❖ A small patch north of Route 2, within the ‘loop’ of the Deerfield River, which forms the northeast corner of the town.

### ***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. 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.

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<sup>4</sup> <https://www.mass.gov/service-details/regulatory-maps-priority-estimated-habitats>

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 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.

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, promote the conservation of regionally important natural resources, plan growth, and monitor and participate in the cleanup of brooks and rivers.

In 2017, The Franklin Regional Council of Governments (FRCOG) completed a Watershed-Based Plan for the Deerfield River Watershed in which Buckland is located.<sup>5</sup> This plan focused on ways to maintain the health of the watershed in the face of a changing climate, and how towns can become more resilient by working across municipal boundaries to address shared issues and implement mutually beneficial solutions at watershed scale. The findings and recommendations from that plan that are relevant to the Town of Buckland have also been incorporated into Section 4 of the OSRP.

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<sup>5</sup> A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed, 15-04/319. Franklin Regional Council of Governments. 2017.

## **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 20<sup>th</sup> 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 2010, the Town of Buckland's population declined by 4.5%, from 1991 residents, to 1902 residents. However, the Town's population has grown by 1.8% since 1970, when 1,892 people resided in Buckland, compared to the 2017 population estimate of 1,927 people, according to the U.S. Census, American Community Survey. 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. 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. A very low population growth rate is a factor, Buckland also has property values just slightly higher than the neighboring Towns of Charlemont and Colrain, (The Warren Group, 2010), so it's location has helped to discourage a building boom in the past. Currently, due to the local economy and lower property values relative to other areas to the south and east in Franklin 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. 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.

## **B. HISTORY OF THE COMMUNITY**

Buckland's history can be seen in the many scenic roads, homesteads, farms, old-field forests, and village centers. It is home to approximately 170 historic structures, including significant examples of period architecture. Its historic and cultural landscapes include distinctive settlement and farming patterns from as early as the 1760s. Preservation of the community's historic and scenic

resources is one of the reasons people choose to live in Buckland. 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.

### **Historic Context<sup>6</sup>**

Native Americans had a strong, if nomadic, presence in Buckland prior to European contact. Many archeological sites from the Late Archaic period of 6,000 to 3,000 years ago found in Shelburne and Charlemont belong to a cultural tradition that appeared to use the area seasonally and demonstrate early horticultural practices.<sup>7</sup> At the time of European contact with Native Americans, Buckland comprised the shared territory of the Pocumtuc, Nipmuc, and Wabanaki Confederacy, and Mahican territory lied nearby to the west.<sup>8</sup> During the Contact and Plantation Periods (1500-1675), Shelburne Falls was very productive for shad and salmon fishing and was most likely an important fishing and hunting site for the Deerfield Pocumtucks, especially during spring spawning runs; the falls on the Deerfield River where the Shelburne Falls was settled is said to have been called Salmon Falls by Native Americans. 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 throughout Buckland.

During the Colonial Period (1675 – 1775), Native American use of the area for fishing and hunting continued until the French and Indian Wars ca. 1755. Because Anglo-Indian warfare remained a threat until fighting ended, Buckland remained unoccupied except for sporadic settlement until 1769, when Capt. Nahum Wood established a home on Clesson Brook Road. Between 1769 and 1775, there may have been 10 families living in Buckland. 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,

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<sup>6</sup> Much of 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).

<sup>7</sup> FRCOG, Mohawk Trail Scenic Byway Plan,

<sup>8</sup> Native-land.ca

along Clesson Brook and Ruddock Brook. Given the lack of industry in Buckland at the time, Deerfield was probably the primary commercial resource area.



**The stately 1775 Wilder Homestead stands against a wooded backdrop** (*courtesy of Magicpiano, Wikimedia Commons 2011*)

Buckland was incorporated as a Town in 1779, the beginning of the Federal Period (1775 – 1830). By this time, 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, including the Grange Hall, a school at Four Corners (1829), and two of the four taverns that were operating at that time period: 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.**

The Buckland population remained almost unchanged during the Early Industrial Period (1830 – 1870), but settlement patterns shifted in 1851 with the expansion of Lamson & Goodnow. The prosperity of The Lamson & Goodnow Company, 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).

Lamson & Goodnow remained dominant in Buckland and Shelburne Falls through the Late Industrial Period (1870 – 1915). The Victorian iron truss bridge was constructed 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. 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.

Buckland's population declined to its lowest point in 1920 with 1,433 residents. Population 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 and still remains. 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.

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. Historic district potential<sup>9</sup> 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.

## **Historic Resources**

The following description of historic structures, landscapes and scenic roads references 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. In addition to the structures and sites within the Shelburne Falls National Historic District, there is an historically significant landscape: 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.

<sup>9</sup> Massachusetts Historical Commission's 1982 *Reconnaissance Survey Report for Buckland*

### ***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. Here, the National Historic District could be expanded to include over 40 additional structures that occur in clusters within the central village district. 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.

### ***Buckland Center***

Buckland Center has a wealth of historic resources, including 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. Additional fieldwork will be needed prior to district nomination of Buckland Center to the National Register.

### ***Historically Significant Landscapes***

Historic landscapes described below are another great resource in Buckland. Many are tied to the agricultural history and remain largely intact but are at risk from Approval Not Required (ANR) development.

### **Early Industrial Areas along the Deerfield River**

The 19<sup>th</sup> Century Lamson Goodnow Manufacturing complex remains largely intact and provides a rare example of an historic manufacturing landscape. There are excellent views of this site 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, 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.

### **Demographic Information**

#### ***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 2010 was far less than the county and state (See Table 3-6). During this time period, Buckland's population fluctuated, with an overall increase of only 0.5%, compared to a 20.5% and 15.1% population growth rate at the county and state level, respectively. Within the 1970 to 2010 timeframe, there were two periods of population decline: 1970-1980 and 2000-2010 (See Figure 3-1). Buckland has a population density of 95.6 people per

square mile.<sup>10</sup> To compare with several neighboring Franklin County towns<sup>11</sup>, Shelburne has 79.3 persons per square mile, Colrain has 38.4 per square mile, Charlemont has 47.5 per square mile, and Montague has 271 per square mile.

According to the U.S. Census American Community Survey 2013-2017 five-Year Population Estimates, Buckland’s population has increased by 1.3% from 2010 to 2017. Franklin County’s population is estimated to have declined by less than 1%, while the State’s population is estimated to have grown by 5.4% percent in the same period (see Table 3-1).

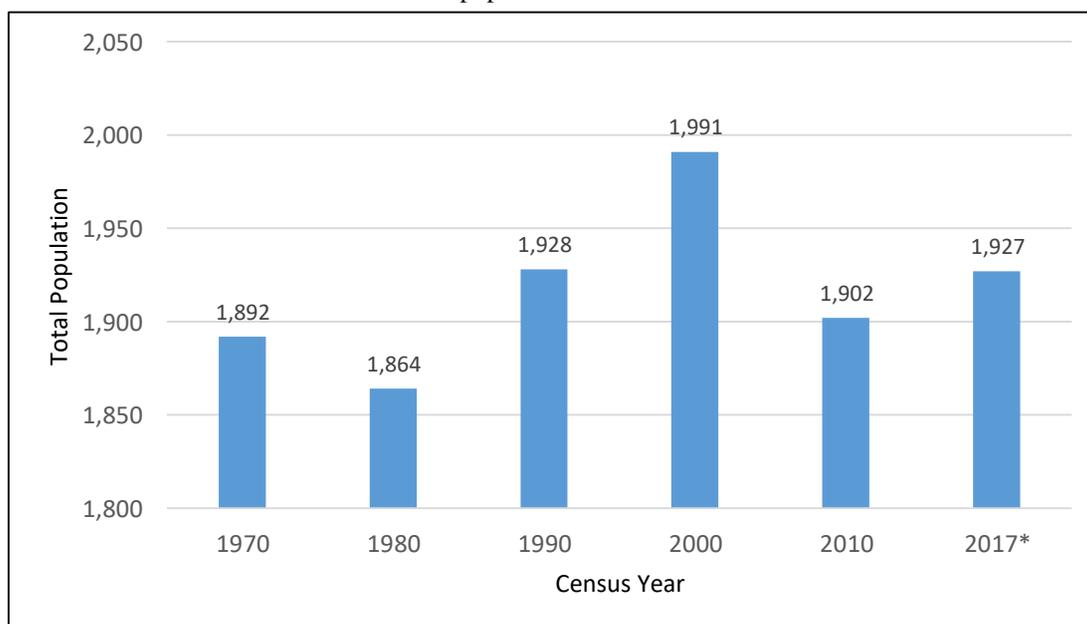
**Table 3-1: Population for Buckland, Franklin County and Massachusetts 1970-2017**

Geography	U.S. Census Population						Percent Change	
	1970	1980	1990	2000	2010	2017* estimate	1970 - 2010	2010 - 2017
Buckland	1,892	1,864	1,928	1,991	1,902	1,927	0.5%	1.3%
Franklin County	59,233	64,317	70,092	71,535	71,372	70,963	20.5%	-0.6%
Massachusetts	5,689,377	5,737,037	6,016,425	6,349,097	6,547,629	6,902,149	15.1%	5.4%

Source: U.S. Census Bureau, Decennial Census and 2013-2017 American Community Survey 5-Year Estimates.

**Figure 3-1: Buckland Population, 1970 – 2017.**

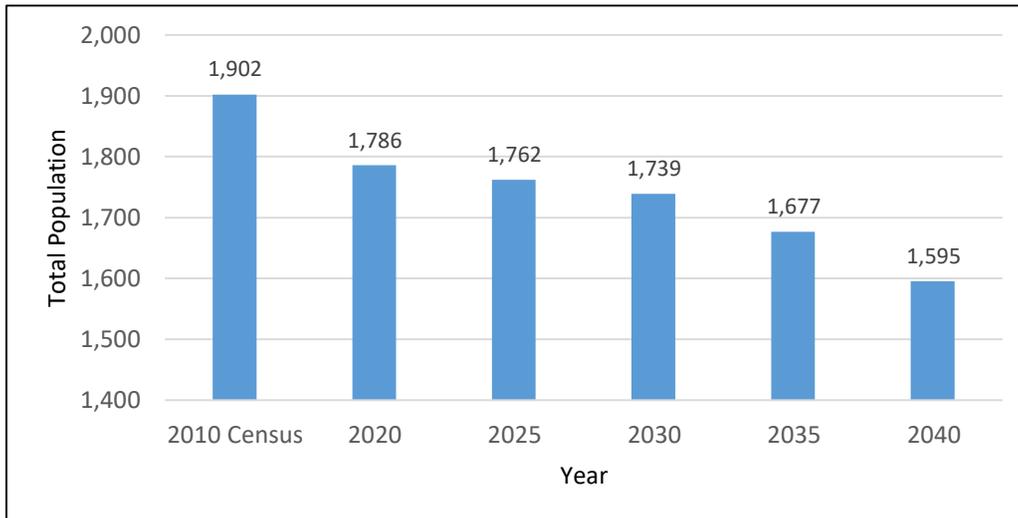
\*2017 population is an estimate



Source: U.S. Census Bureau, Decennial Census and 2013-2017 American Community Survey 5-Year Estimates.

<sup>10</sup> Population Division, U.S. Census Bureau, <http://www.census.gov/popest/index.html>, 2017

<sup>11</sup> Population Division, U.S. Census Bureau, <http://www.census.gov/popest/index.html>, 2017

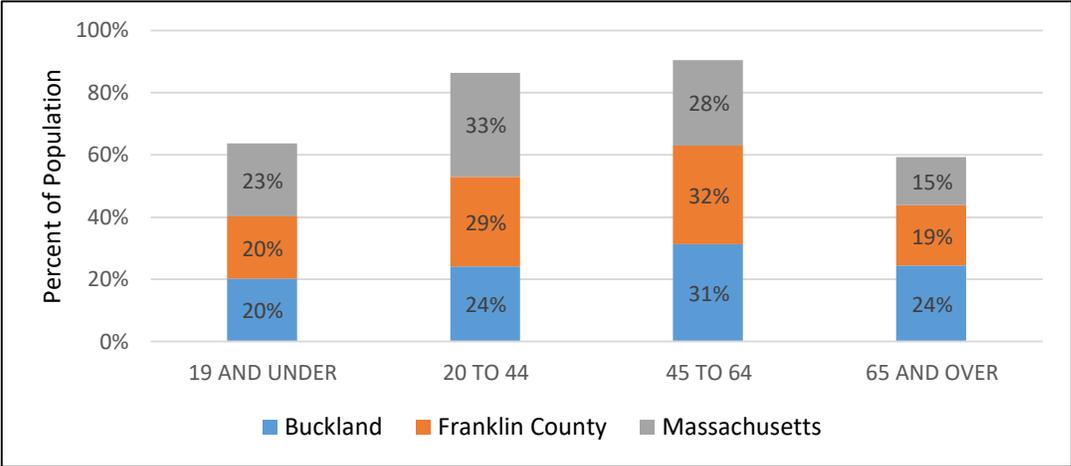
**Figure 3-2: Buckland Population Projections through 2040**

Source: UMASS Donahue Institute Population Projections, November 2018.

In 2018, the UMass Donahue Institute published population projections for all Massachusetts cities and towns, projected from 2010 to 2040 at five-year increments. Buckland’s population is projected to decrease steadily in the next 20 years with an overall decline of 16 percent by 2040 (Figure 3-2). During the same period, Franklin County’s population is projected to decline by 3 percent, while the State population is projected to increase by 13 percent.

Although Buckland’s population may not be growing in numbers, it is 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. Buckland has a larger percentage of residents in the 65 and over age cohort (24 percent) in 2017 compared to the County (19 percent) and the State (15 percent). Approximately 55 percent of the town is 45 years or older, while less than half of the town is 44 years old or younger (See Figure 3-3).

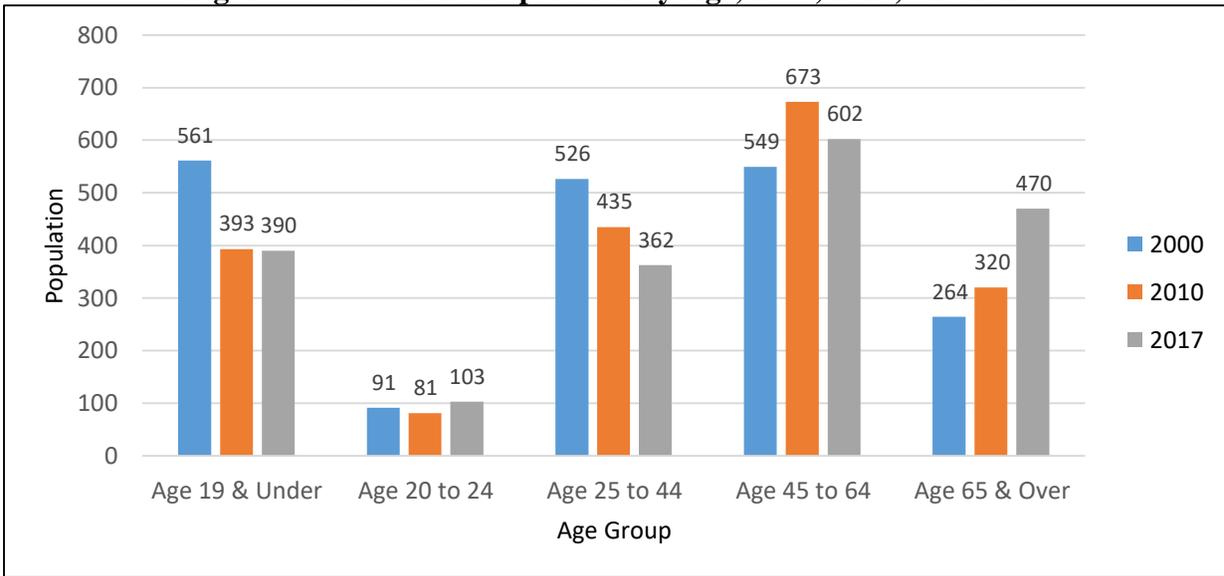
**Figure 3-3: 2017 Population Estimate by Age, Buckland, Franklin County, and Massachusetts**



Source: U.S. Census – 2013-2017 American Community Survey (ACS) Five-year Estimates

Figure 3-4 on the next page displays changes in the age make-up of Buckland residents since 2000. Between 2000 and 2010, the population increase occurred for residents in the 45 to 64 age group. This increase was driven by the aging of the baby boomer generation (born 1946-1964) whose members began turning 55 in 2001. The largest population decrease was in the 19 and under age group. This corresponds with a decrease in the child-bearing age group of 25 to 44 year-olds. Between 2000 and 2010, the number of residents age 20 to 24 declined slightly, while the population age 65 and older increased. More recently, 2017 population estimates show a continued decline in population within the 25 to 44 age group, but also a decline in the population age 45 to 64. This is likely attributed to baby boomer generation moving into the age 65 and over category, which experience a significant increase between 2010 and 2017. During this period, the population under the age of 25 remained stable.

**Figure 3-4: Buckland Population by Age, 2000, 2010, and 2017**

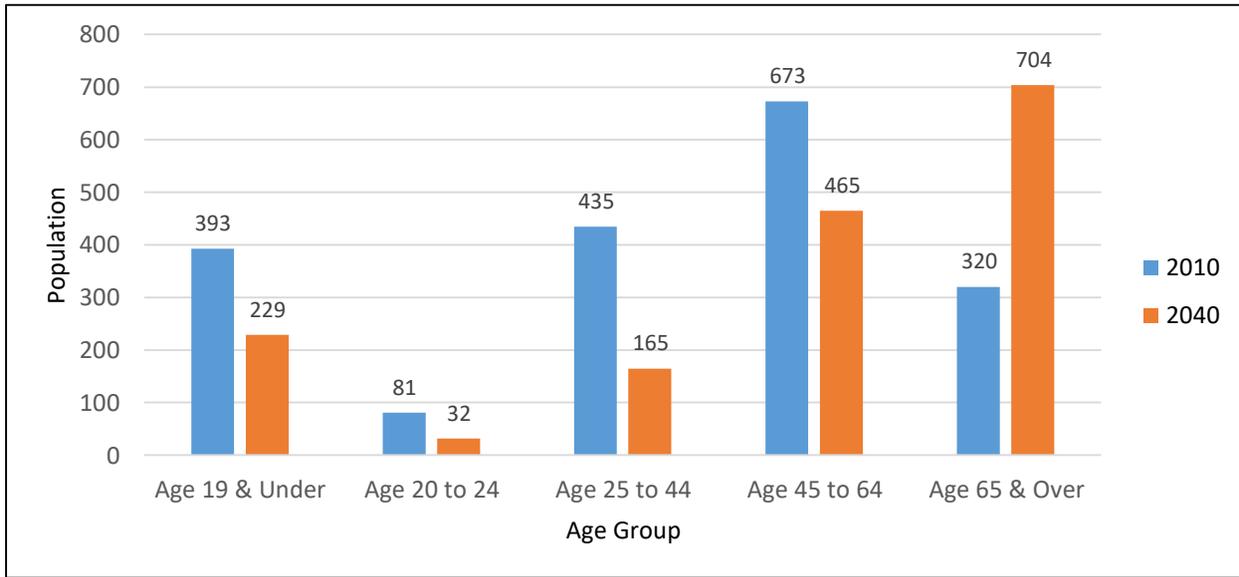


Source: U.S. Decennial Census; U.S. Census 2013-2017 American Community Survey (ACS) Five-year Estimates; UMASS Donahue Institute Population Projections, November 2018.

Past trends offer clues as to how Buckland’s population is changing, and what this may mean for open space and recreation planning. Data from the 2020 census, when available, will help determine exactly how Buckland’s population has changed since 2010. Meanwhile, population projections available from the UMASS Donahue Institute reinforce the age distribution trends identified in the analysis of change between 2000 and 2017 (Figure 3-4), in which age cohorts 64 and younger are projected to decrease and the 65 and older population is projected to increase. By 2040, it is projected that 44 percent of Buckland’s population will be age 65 or older, compared to 24 percent in 2017. Buckland’s population is projected to be much older than the County and State’s. During this timeframe, Franklin County and Massachusetts are both projected to grow in the number of residents age 65 and over, however, the percent of the population over the age of 65 is projected to be 35 percent in Franklin County, and 23 percent in Massachusetts.

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 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.

**Figure 3-4: Buckland Population Projections by Age**



Source: U.S. Census; UMass Donahue Institute Population Projections, November 2018.

Based on population projections for the next two decades, the Town of Buckland will need to provide for an aging population in its open space and recreation programming. Seniors require different recreational facilities and services, including accessible walking paths, arts, and leisure programs. At the same time, youth and other age groups will continue to need facilities and programs that can provide safe spaces for recreation as well as access to open space.

***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 3-2 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, 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 \$50,899, which is lower than the median for the County (\$57,307), and the State (\$74,167). The per capita income for the town (total income for all residents divided by the total population) is also lower than the County and the State. However, the percentage of people living below the poverty level in Buckland is slightly lower than both the County and the State, at 10.8 percent. Overall, it appears that the financial well-being of Buckland residents is lower than average for households in the County and State.

**Table 3-2: Median Household Income, Per Capita Income, and Percentage of Residents Living Below Poverty**

Municipality	Per Capita Income Estimate	Median Household Income Estimate	Percent of Individuals Below Poverty Level*
Buckland	\$28,667	\$50,899	10.8%
Franklin County	\$33,010	\$57,307	10.9%
Massachusetts	\$39,913	\$74,167	11.1%

\* For whom poverty status was determined.

Source: U.S. Census - 2017 American Community Survey (ACS) Five-year Estimates

Although Buckland’s resources today are both its community 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. However, in towns that are losing population, encouraging families with children to stay in town can help maintain the school population at a level that is financially sustainable. Where and how new development occurs also affects how much of a tax burden or benefit the development might be to the town. 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 small amount of tax revenues, but reduces the amount of housing that can occur. This relationship is explored in more detail in Section D. Growth and Development Patterns.

**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.



**Citizens volunteering in Buckland to help with fall clean-up on the Bridge of Flowers.**

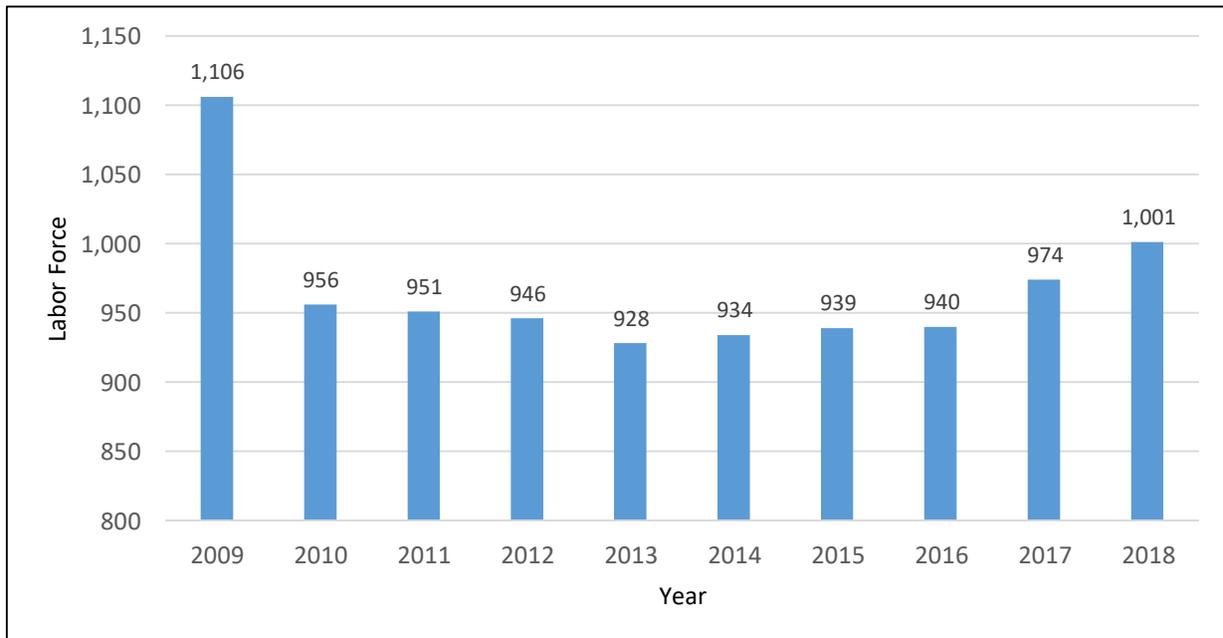
The Town may decide to encourage business development to supply local jobs and to build taxable value, which can help pay for municipal services and facilities, including recreational parks and programming as well as protected open space.

***Labor Force: Buckland workers***

In 2018, the Town of Buckland had a labor force of 1,001, with an unemployment rate of 2.4, lower than the rate for the County (3.0) and the State (3.3).<sup>12</sup> 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 2009 to 2018, Buckland’s labor force has fluctuated, with an overall decline of nine percent, or just over 100 people (Figure 3-5). As the population ages in Buckland, it is likely that the size of the labor force in town will continue to decline over time.

**Figure 3-5: Buckland Labor Force, 2009 – September 2019**



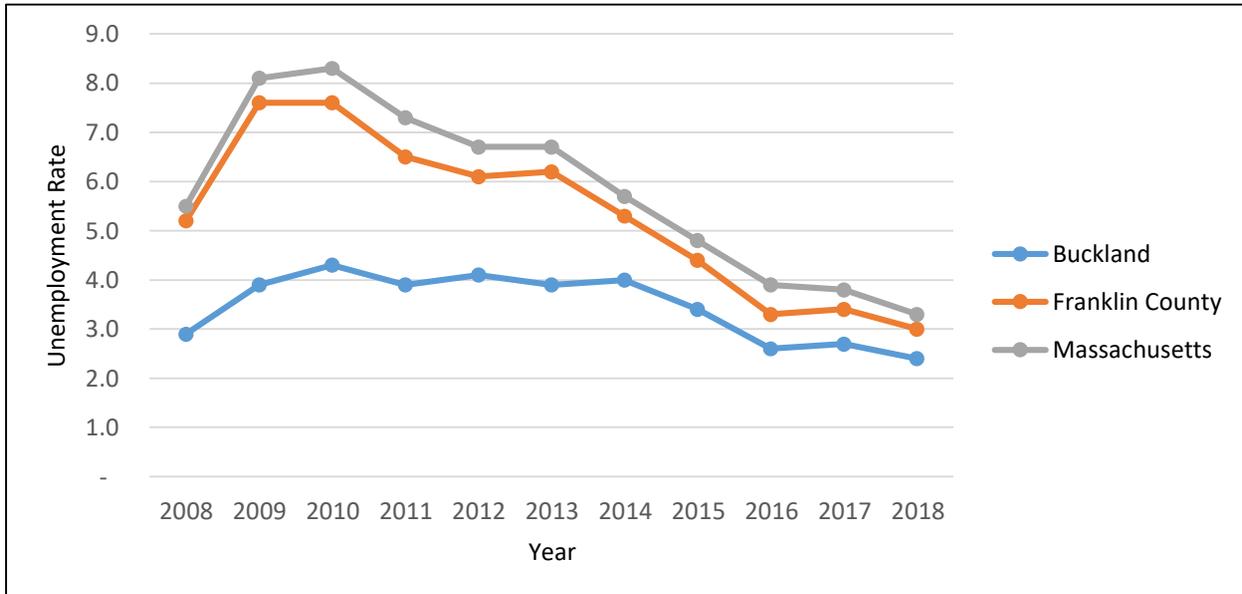
Source: Massachusetts LAUS Data, 2018.

Buckland’s unemployment rate has consistently been lower than both the County and State rates (Figure 3-6). From an unemployment standpoint, it appears the Town was not impacted as severely by the Great Recession in the late 2000s as the County and State. Unemployment data, however, does not account for underemployment (someone may be employed only part-time, but wants to

<sup>12</sup> <https://www.mass.gov/find-unemployment-rates>

be employed full-time), or for those who may drop out of the labor force altogether. As shown above, Buckland’s labor force declined by 150 people between 2009 and 2010.

**Figure 3-6: Annual Unemployment Rates, 2008 - 2018**



Source: Massachusetts LAUS Data, 2018.

In 2017, an estimate 4 percent (45 people) of Buckland employed labor force worked from home. For those who commuted to work, the average travel time to work for Buckland residents was 27 minutes, slightly higher than the County average of 24 minutes. This suggests that many Buckland residents work outside of town, in nearby employment centers such as Greenfield, Deerfield, Montague, Amherst, and Northampton. The following section explores the availability of jobs located within Buckland.

***Jobs in Buckland***

It is important to examine employment within the state and county, even though the number of employers currently in Buckland is limited. According to the 2019 Comprehensive Economic Development Strategy (CEDS) Annual Report for Franklin County, the top five private sector industries<sup>13</sup> for employment in Franklin County were:

1. Healthcare and Social Assistance (18.6%)
2. Manufacturing (18.1%)
3. Retail Trade (14.6%)
4. Accommodations & Food (10.1%)
5. Education Services (7.0%)

<sup>13</sup> Data only includes private-sector establishments with at least five employees

Healthcare & Social Assistance Services gained 450 employees from 2015 and overtook Manufacturing as the leading private sector industry in employment. The Health Care & Social Assistance industry includes employers, such as hospitals, doctors' offices, non-profit human services organizations, and elder care facilities. This industry offers a range of job opportunities and pathways to grow within the industry. The percentage of employment in Franklin County in this industry is lower than the state's rate and higher than national rate. Trends indicate this industry will continue to grow as the population ages, requiring greater services.

The second largest private-sector industry in employment was Manufacturing with 3,659 employees or 18.1% of total employment in this data set. This percentage of manufacturing employment is over 2.5 times the state rate and nearly twice the national rate. While the number employed in manufacturing in 2016 is significantly less than it was ten years ago, there are signs of strength. Franklin County's percentage of Manufacturing employment is consistently greater than the other 13 counties in Massachusetts that have data available. According to annual payroll information associated with this data set, the Manufacturing industry has a high average pay per employee (\$54,020) of the nineteen industries with information available for Franklin County. The annual payroll amount has increased each year, even as the number of establishments and employment levels fluctuated. From 2012 to 2016, the number of establishments increased by twelve firms, the number of employees increased by 127 workers, and the annual payroll increased by \$37 million. This annual payroll figure indicates that there are increases in wages being offered, and not just as the result of more employees being added to the sector.

The Retail Trade industry and Food & Accommodations industry together account for 25% of the total employment in this data set for Franklin County. These industries have among the lowest average pay per employee of the sixteen industries with data available. While often not high paying jobs, these industries offer a range of job opportunities, including entry level employment. These industries also play an integral part of the economy and are important to an area's quality of life and ability to attract new residents and visitors.

Given that this data set does not include government workers, Education Services industry data is only for private-sector institutions, businesses and organizations (i.e. not public educational institutions). A significant part of this industry is the independent, private K-12 schools located in Franklin County. Of these schools, six board approximately 2,000 students annually. In addition to the range of employment options these institutions provide, their presence brings families to visit the area and creates opportunities for institutional buying from local businesses.

Since County Business Pattern data does not include self-employed workers or employees in firms with fewer than five employees, the agricultural industry is not prominent in this data set. However, the U.S. Department of Agriculture's Census of Agriculture shows that from 2002 to 2012, the number of farms in Franklin County increased by 33% (from 586 to 780) and the amount of land in farms increased by 21% (from 74,281 acres to 89,772 acres).

Table 3-3 shows the number of establishments and average monthly employees working for Buckland employers from 2009 through 2018. This includes residents as well as those who reside

elsewhere but commute to Buckland for work. The number of establishments has grown throughout the time period, beginning at 34 establishments in 2009, and peaking at 76 establishments in 2017. The number of total employees working in town fluctuated between 2009 and 2015, and then grew significantly in 2016, 2017, and 2018, corresponding with the increase in employers during this period.

**Table 3-3: Total Establishments and Average Monthly Employment in Buckland, 2009-2018**

Year	# of Establishments	Average Monthly Employment	Average Weekly Wage
2009	34	367	\$503
2010	34	351	\$548
2011	33	361	\$539
2012	35	369	\$557
2013	41	382	\$547
2014	44	360	\$563
2015	42	339	\$580
2016	63	432	\$546
2017	76	556	\$577
2018	73	561	\$597

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 3-4 shows number of establishments, average monthly employment, and average weekly wages for industry sectors in Buckland in 2009 and 2018. 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.

In 2018, Retail Trade was the largest industry in Buckland accounting for 12 percent of employment, followed by Construction (10%), Manufacturing (9%) and Accommodation and Food Services (9%). Construction jobs had the highest average weekly wage of \$986, contrasted by Accommodation and Food Services, which had the lowest average weekly wage of \$299. While average weekly wages for all industries increased overall between 2009 and 2018, Retail Trade actually experienced a decrease in average weekly wages. This is significant due to growth in the number of jobs in town within this industry sector.

**Table 3-4: Employment in Buckland by Industry 2009 and 2018**

Description	No. of Establishments		Average Monthly Employment		Average Weekly Wages	
	2009	2018	2009	2018	2009	2018
Total, All Industries	34	73	367	561	\$503	\$597
Construction	3	9	14	57	\$604	\$986

Manufacturing	nd	6	nd	53	nd	\$522
Retail Trade	3	8	21	69	\$511	\$401
Transportation and Warehousing	nd	4	nd	4	nd	\$412
Professional and Technical Services	3	3	13	16	\$370	\$560
Administrative and Waste Services	nd	3	nd	13	nd	\$616
Health Care and Social Assistance	4	12	21	41	\$353	\$452
Accommodation and Food Services	nd	4	nd	50	nd	\$299
Other Services, Except Public Administration	4	10	14	41	\$291	\$562
Public Administration	nd	4	nd	45	nd	\$357

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

\*n/d = data withheld for confidentiality reasons.

## Analysis

Buckland's population is estimated to have remained stable over the past five decades with a 1.8 percent population increase since 1970. However, its population is projected to decline by as much as 16 percent by 2040 with the majority of residents in the 65 and over age cohort by that time<sup>14</sup> if older residents continue to reside in town. This potential demand for new and different housing options for seniors will impact the available open space in Buckland. The 2016, *Buckland Housing Plan and Survey* prepared by the Buckland Housing Plan Committee with assistance from the FRCOG identified that the Town needs: senior housing, housing for first-time homebuyers, rental housing, and housing for persons with disabilities. The Town is currently working to implement zoning recommendations to help meet those housing needs for future and projected populations and determine the best locations for development, taking into consideration the need to protect open space and natural resources. All residents of Buckland benefit from open space and recreation opportunities, which should be available to all age and income groups and should be evaluated as Buckland's population continues to grow and change. Recent zoning changes have also been designed to promote village, agricultural and rural residential uses, as well as commercial and industrial uses, and to steer new development into developed parts of town in order to preserve open space and recreational opportunities.

Residents may continue to depend on jobs in other communities and counties, while jobs within Buckland are changing. A small percentage of Buckland residents are self-employed and/or work from home in small business home occupations. This trend supported by the recent expansion of internet service in town, described in Section D.2 Infrastructure. An additional small percentage of residents are engaged in farming and forestry enterprises. 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 relatively small percentage of employees that farms may employ,

<sup>14</sup> Source: UMASS Donahue Institute Population Projections, November 2018.

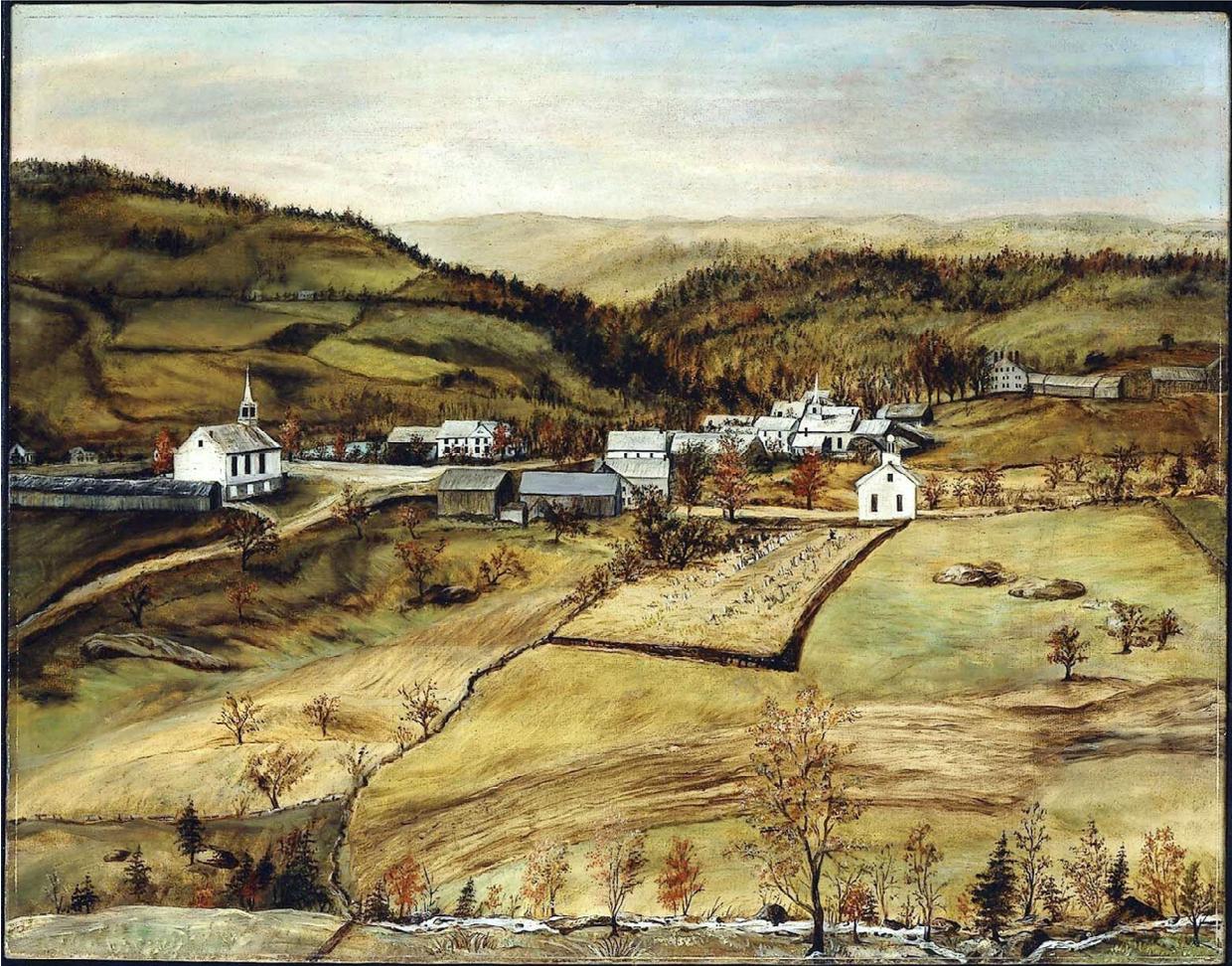
agriculture is still an important industry in Buckland. Agriculture provides many public benefits beyond employment. Fresh food, preservation of significant historical landscapes, scenery, and rural character are just a few of the benefits that active agricultural businesses provide to Buckland residents.

While Buckland's population is projected to decline, Massachusetts population as a whole is growing. Factors such as sea level rise and stronger storms on the coast are hard to integrate into population projections. With improved broadband service and passenger rail service in the region, Buckland may become an attractive place for new residents to locate. Planning for growth before it happens will help to protect open space and recreation resources into the future while providing a vibrant, livable community for people of all ages.

## **D. GROWTH AND DEVELOPMENT PATTERNS**

### **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. Today, a small number of Buckland residents are working from home with the aid of high-speed internet or on the land in agriculture or forestry enterprises.



**Buckland 1850-1868** (*Unidentified Artist, Museum of Fine Art Boston, Wikimedia Commons*)

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 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. These land use figures are based on 2005, 1999, 1985, and 1971 land use data provided by MassGIS, which classified land uses based on aerial photograph interpretation conducted by the Department of Forestry's Resource Mapping Project at the University of Massachusetts, Amherst. Their data collection and analysis methodologies evolved over those decades, and as a result, comparisons can provide only an *estimation* of the trends in land use change over the years. Direct comparisons between the various datasets cannot be made with precision.

The following land use figures are based on a new land cover/land use dataset provided by MassGIS and released in May 2019. This statewide dataset contains a combination of land cover mapping from 2016 aerial and satellite imagery, LiDAR and other data sources. Land use mapping is derived from standardized assessor parcel information for Massachusetts. This land cover/land use dataset does not conform to the classification schemes or polygon delineation of previous land use data from MassGIS (1951-1999; 2005) so comparisons of land use change over time can't be made using this current data.<sup>15</sup>

However, the 2016 land cover/land use dataset does reveal interesting information about Buckland that most residents probably already know. For example, most of the land cover is forests but the land use is primarily residential.

**Table 3-5: Buckland 2016 MassGIS Land Cover and Land Use Data**

Land Cover	Acres	Land Use	Acres
Bare Land	55.47	Agriculture	840.60
Cultivated	263.25	Commercial	51.20
Deciduous Forest	4830.70	Forest	1072.80
Developed Open Space	363.75	Industrial	113.97
Evergreen Forest	5801.62	Mixed use, other	461.05
Grassland	315.22	Mixed use, primarily residential	2117.01
Impervious	306.57	Open land	2320.48
Palustrine Aquatic Bed	0.77	Recreation	192.52
Palustrine Emergent Wetland	44.67	Residential - multi-family	680.83
Palustrine Forested Wetland	92.49	Residential - single family	3264.68
Palustrine Scrub/Shrub Wetland	5.77	Right-of-way	436.46
Pasture/Hay	484.11	Tax exempt	329.88
Scrub/Shrub	39.25	Unknown	15.92
Water	130.87	Water	117.27

<sup>15</sup> <https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>

According to the 2016 MassGIS data in Table 3-5, approximately 83.5 percent of Buckland's land cover is forest (a combination of Deciduous Forest, Evergreen Forest, and Forest land use categories). Of the total 12,734.5 acres in Buckland, approximately 6.6 percent of the town is classified as agricultural land use, and 36 percent of the town is classified as residential land use. Although the Town developed as a farming and industrial center, there are only a few commercial, commercial farming, or industrial businesses located in the center of town. Less than 1 percent of the total area in town is comprised of commercial or industrial land uses.

From 2000 through 2019, 51 permits were issued for new residential development in Buckland, plus 4 permits for conversions to dwelling units<sup>16</sup>. Roughly half of the new units created were located within the village of Shelburne Falls (on the Buckland side) or just outside of the village. The other half were spread out along existing roads in town. While many of the permits are for new single family homes, nine building permits were issued to convert an existing building into a housing unit, either by converting a single family home to a two family home (four permits), adding an apartment to a garage or barn (three permits), or converting commercial space to apartments (two permits). Almost all of these conversions took place in the village, showing a trend for housing infill through the creative modification of the existing building stock. Overall, building permit activity has declined since 2008, reflecting the economic recession and slowdown in the housing market nationwide during this time period.

Buckland may be experiencing development pressure from new large-scale ground-mounted solar electric generating installations and recreational marijuana cultivation facilities. The Town has enacted zoning in recent years to regulate ground-mounted solar installations, which can majorly impact natural resources, ecosystems, wildlife habitat, agriculture, forestry, and the Town's scenic beauty. Also, as forest and remaining pastureland acres are converted to other uses, the landscape becomes more fragmented. The Buckland Energy Committee began exploring possible sites for a 5-acre community solar electric generating installation project with Northeast Solar, but the project has been put on hold since the start of the Covid19 pandemic in early 2020.

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.

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<sup>16</sup> The Franklin County Cooperative Inspection Program

The 2016 Buckland Housing Plan included a public survey that asked residents how and where new housing should be developed in Buckland. The top two choices of survey respondents were “reuse of existing buildings within the village” and “on vacant or oversized lots in the village.” The plan included potential zoning changes that would better support reuse of buildings and infill housing within the village. The Planning Board is currently gathering additional public input into some of these possibilities in order to refine zoning change proposals.

While large industrial and commercial growth in the town has been limited, tiny startups can be found in the village, including a new brewery on State Street. In addition, the adaptive reuse of a former Lamson and Goodnow factory building into studio and commercial rentals has sparked business-incubator type activities in that location in recent years. The attraction of the village center as a desirable place for both living and working reduces the pressure to develop rural areas outside of town. The limit to this kind of growth will be the amount of infill development that can be gracefully integrated and that zoning will allow.

## **Infrastructure**

### ***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 buses a day, Monday through Friday, between Greenfield, Shelburne Falls, Buckland, and Charlemont. However, stops in Buckland are limited to one stop in the morning and one in the afternoon at Mohawk Trail Regional School. All four buses do stop in Shelburne Falls at the Arms Library and at the Federated Church in Charlemont. FRTA also provides on-demand transportation for the elderly and people with disabilities with scheduling done through the Shelburne Falls Senior Center.

In Fall 2017, The FRCOG Planning Department, supported by the Mass In Motion Program, collaborated with Public Health Nurse Lisa White to provide training for walkability audits at the Shelburne Falls Senior Center, which serves Ashfield, Buckland and Shelburne. Senior Center members then gave input on the *Walk Franklin County* map for Shelburne Falls. Mass in Motion, which is a statewide movement to increase opportunities for healthy eating and active living<sup>17</sup>, also works to promote complete streets planning and projects. The effort helped to engage seniors in the process of prioritizing pedestrian improvements in the downtown area.

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<sup>17</sup> <https://www.mass.gov/orgs/mass-in-motion>

In 2018, The FRCOG worked with The Town of Buckland to develop the *Complete Streets Funding Program Project Prioritization Plan* that allows the Town to apply for MassDOT funding to implement transportation improvements that promote complete access to transit, pedestrian, and bicycling transportation options in the town. The plan identified projects for pedestrian improvements on State, Williams, School, Elm, Conway, Upper, Sears, and Ashfield Streets, and on Birch, Walker, and Round House Hill Roads, and on Kratt and Monroe Avenues. Bicycle and Pedestrian improvements were identified on Green Street, Charlemont Road, and Route 112. The plan also identifies the need for Franklin County Bikeway route signs on bikeway routes throughout the town. The Town is working to secure project implementation funding from the MassDOT Complete Street Grant Program.

In addition to needed construction upgrades for Buckland's sidewalks, the lack of snow removal is hindering pedestrian access in the village area during the wintertime. According to the Open Space Committee, sidewalks are not cleared and maintained on the Buckland side of the village, causing people to walk in the road to get where they need to go, to drive a car instead of walking, or opt to stay inside. Buckland residents wanting to take a walk during the wintertime regularly drive to Upper Buckland or cross the river to the Shelburne side of the village because sidewalks are kept clear and safe for walking in those areas. Respondents to the 2020 OSRP Survey indicated their favorite streets in town for walking.

In 2019, The FRCOG developed the *Buckland Green Streets Project*, which assessed the potential for Green Infrastructure on 9 sites in the Buckland side of Shelburne Falls to improve water quality in the Deerfield River, to help the village and surrounding watershed become more resilient to increasingly frequent and intense precipitation, and to mitigate the flood hazards resulting from heavy rain events. FRCOG staff worked with the Town Highway and Water Superintendents to develop a stormwater management concept for Crittenden Hill Road where GI can be implemented in conjunction with planned municipal road work currently needed to repair the road and address stormwater erosion hazards that threaten residential properties and steep slopes flanking the road. The concept proposes to retrofit and utilize an abandoned water tank and implement a new bioretention basin to capture and clean large volumes of stormwater before it enters the storm sewer and outlets to the Deerfield River. In 2020, FRCOG will work with the Town on a RFP-Q to have the design developed to 25% with cost estimates by a professional engineer. Crittenden Hill Road was also identified in the 2020 OSRP survey as an important recreational asset used extensively by locals and a celebrated feature of the annual Bridge of Flowers Road Race, which draws an international crowd. The *Green Streets Project* on Crittenden Hill Road may double as an opportunity for the Town to upgrade the recreational value of the road by integrating a pedestrian and/or cycling lane into the engineering plans.

### ***Internet Service***

The Town of Buckland has cable television and broadband service provided by Comcast. In 2018, a project through the Massachusetts Broadband Extension Project was completed that

extended access to Comcast service to at least 96% percent of the households in the town.<sup>18</sup> Previous to this project, Buckland was consider an underserved community in terms of broadband access. In addition to Comcast, the *MassBroadband 123* middle-mile fiber network travels through the Town of Buckland, with connections at seven Community Anchor Institutions, such as at libraries, and public safety locations.<sup>19</sup>

### ***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. The well field flooded during Tropical Storm Irene in 2011, and the District lost power for 3 days. The Fire District received a Hazard Mitigation grant in 2013 to move the electrical controls to a new building out of the flood plain. The project was completed in 2018.

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.

Drinking Water supplied by the District crosses the Deerfield River in a conduit on the Bridge of Flowers. Flood waters from Hurricane Irene in 2011 reached the deck of the Bridge of Flowers, damaging the bridge. Though the water main remained intact, damage from a flood event could cut off water service to the village where residents do not have private wells. Infrastructural repairs and reinforcement may be needed for the Bridge. Possible temporary or permanent backup connections could also be explored for the Iron Bridge or the Route 2 Bridge. A Cost/Benefit Analysis is needed to better understand backup water supply options.

The Fox Brook Reservoir in Colrain serves as an emergency back-up water supply for District customers and there are also two 500,000 gallon water tanks that store approximately 6 days of back-up supply. The Fox Brook Reservoir has a surface area of approximately 3 acres and a total storage capacity of 12 million gallons. The District also has a backup propane generator allowing it to pump 130,000 gallons/day for up to one week. The Fire District is also exploring locating a water source on the Buckland side of the Deerfield River, which would provide additional resiliency for Buckland in the event that the water main over the Bridge of Flowers is compromised.

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<sup>18</sup> <https://broadband.masstech.org/press-releases/baker-polito-administration-celebrates-completion-comcast-broadband-expansion-project>

<sup>19</sup> <https://broadband.masstech.org/sites/mbi/files/documents/map-gallery/community-network-maps/massbroadband123-network-buckland.pdf>

Residents living outside of the village of Shelburne Falls rely on private wells for drinking water. When power outages occur, these residents may lose access to drinking water. During prolonged power outages, the Buckland Fire Station serves as a location for residents to fill containers to use for drinking water. During times of drought, some wells may dry up, necessitating the drilling of a new well.

### ***Septic and Sewer Systems***

Sewage disposal in Buckland is primarily by private systems, except for the small number of buildings and homes in the village of Shelburne Falls on the Buckland side. These homes and businesses utilize the Shelburne Falls Wastewater 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.

### **Long-Term Development Patterns**

#### ***Land Use Controls***

According to the Town of Buckland's Zoning Bylaws, which approved at Special Town Meeting, June 7, 2017, there are six zoning districts established in Buckland. They are: Rural Residential, Village Residential, Village Commercial, Commercial, Industrial, and Historic Industrial, Floodplain, and Farm Building Reuse Overlay District. 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. 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.

Use regulations for each district are specified with a Table of Use, where specific uses are allowed by right, allowed with a special permit, or not allowed in a district.

The purpose of the Farm Building Reuse Overlay 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. Within the Farm Building Reuse Overlay District, farmers will have the option to sell or lease existing historic farm buildings for professional business uses, office space, or artisan/craft ventures. The intent of the bylaw is 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. The bylaw should also help to balance new development in rural areas with the permanent protection of farmland. 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 Floodplain 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.

The current Cluster Development/Conservation Bylaw provides a bonus incentive for Senior Housing Cluster Development to promote the provision of senior housing (age 55 and over) using the cluster form of development under Section 6-2 of the Town of Buckland's Zoning Bylaws. Provision of this type of housing is intended to diversify the Town's housing stock and

provide options for residents wanting to down-size from a single-family home but still wishing to remain in the community. To encourage the creation of senior housing, a building lot bonus of up to 25% is provided. The Senior Housing Cluster Development Bylaw and bonus incentive may help the Town prepare for future housing needs, as discussed previously. The 2016 Buckland Housing Plan included zoning recommendations that would strengthen the current Cluster Development/Conservation Bylaw to better protect natural resources while allowing for flexible housing development. These changes include increasing the percent of required open space from 40% to 60%, making cluster development the only by-right subdivision choice in the Rural Residential zoning district (a “conventional” subdivision would require a Special Permit), and adding a density bonus for inclusion of Affordable homes in the development to provide for “starter homes” in addition to senior housing. These changes would align Buckland’s bylaw with current best practices promoted by Mass Audubon and the MA Smart Growth Toolkit.

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.

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.”

### *Planning for the future*

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. The 2016 Buckland Housing Plan surveyed and assessed housing needs in the community and looked at zoning changes that could help address some of the needs identified and support certain types of housing according to the community’s needs. 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.

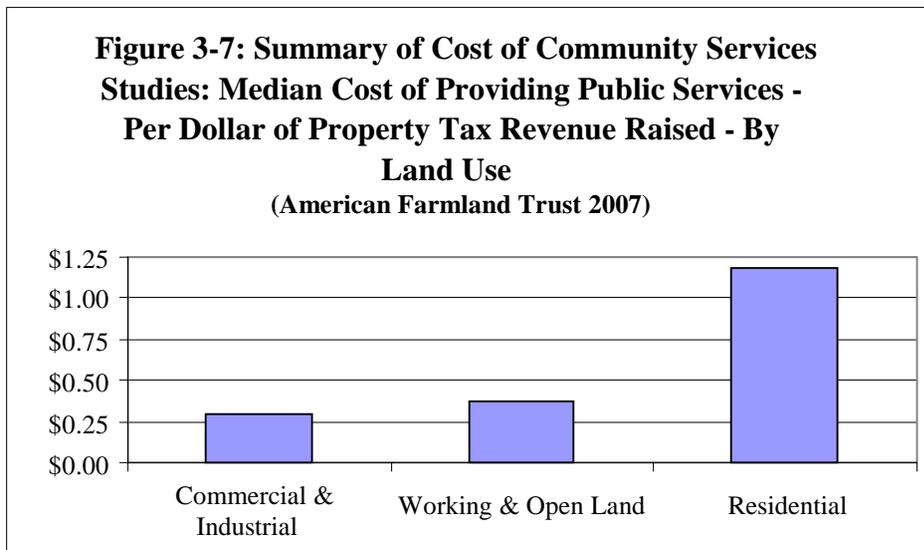
The challenge for Buckland will be to find a model for growth that protects vital natural resource systems like aquifers and prime farmland soils while promoting a stable property tax rate. In designing the model, it is important to understand the measurable fiscal impacts of different land uses. For 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 3-7 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.

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, Buckland’s population has grown very little in recent decades and is projected to decline significantly by midcentury. New home construction has tapered off, and with the majority of residents projected to be in the 65 and over age cohort by midcentury, senior housing is likely to be the greatest need. Zoning that supports diverse housing choices will help meet the housing needs of Buckland’s changing demographics and encourage a stable, sustainable population base. Buckland residents have lower incomes than the average County resident. 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, achieve recreational priorities identified by residents, and generate revenue:

- ❖ Increase access to the Town’s water resources for recreation.
- ❖ Implement *Complete Streets Funding Program Project Prioritization Plan* projects identified for pedestrian improvements in the village center, for example, on State, Williams, and Ashfield Streets and form a “Sidewalks Committee” to help keep town sidewalks clear and safe for walking year-round.
- ❖ Look for opportunities to integrate walking and biking access lanes into upcoming planned roadwork or stormwater infrastructure upgrades on Crittenden Hill Road or other desirable streets for recreation in the village identified in the 2020 OSRP Survey.
- ❖ Explore recreational easements with Franklin Land Trust and private land owners for recreational trail access in desirable places in town.
- ❖ Examine Clesson Brook watershed and river corridor for recreational river access, as well as opportunities for land protection and attenuation assets projects for climate resiliency in Clesson Brook and Deerfield River Watersheds.
- ❖ 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.
- ❖ Continue to implement and follow new zoning measures to develop housing identified in the 2016 Buckland Housing Plan as needed in the community, including senior housing, starter homes, and rentals, with development concentrated in the village centers to protect open space.
- ❖ Adopt the Community Preservation Act (CPA) for open space protection, historic preservation, community housing, and recreation.
- ❖ 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.



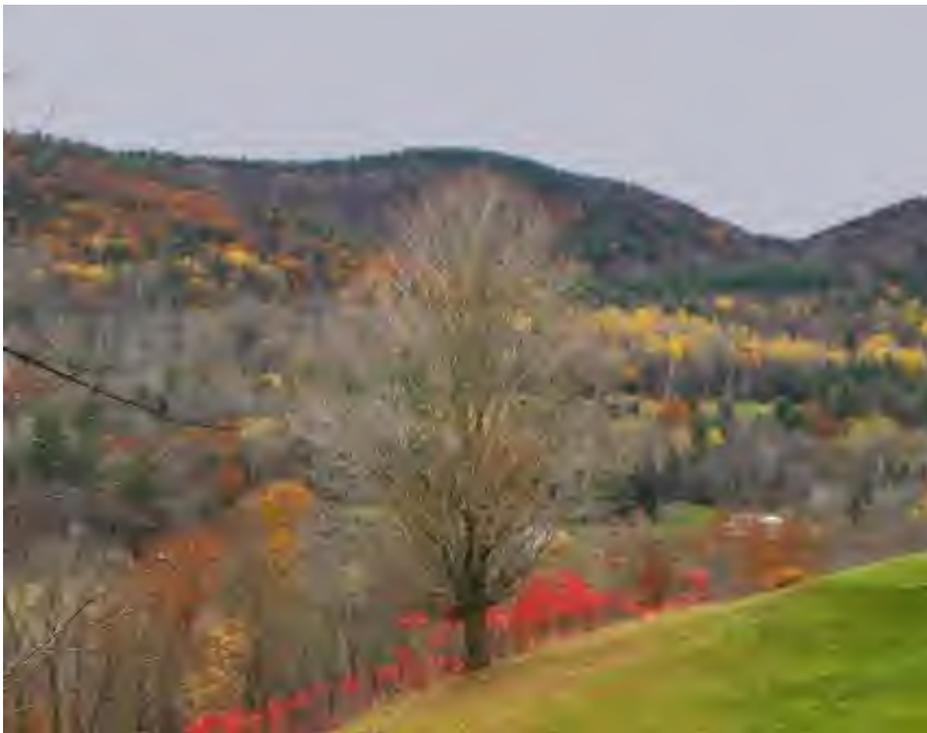
The steel bridge on Main Street in Buckland (*Phoebe Walker*)

## 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.**

## **A. CLIMATE CHANGE IMPACTS**

Natural resources, including wildlife and habitats, are being impacted from a changing climate in Massachusetts, and will continue to be impacted as temperatures rise and precipitation amounts change over the coming decades. According to the Massachusetts Wildlife Climate Action Tool,<sup>1</sup> warming is occurring in all seasons, with the greatest changes in winter, at higher latitudes, and potentially at higher elevations. Seasonal warming is extending the growing season, particularly with more frost free days occurring earlier in spring. Precipitation amounts are increasing, especially in winter. Warmer winters are also resulting in more precipitation falling as rain instead of snow, leading to reduced snowpacks - though stronger blizzards may lead to locally higher snowpacks in Massachusetts and New England. In the summer, heavier downpours combined with longer dry periods are expected, increasing the risk of both droughts and floods.

Natural resources play an important role in mitigating future climate change, but are also vulnerable to its impacts. Local decisions about how natural resources are managed and conserved will play an important role in the ability of people, habitats, and wildlife species to cope with future climate changes. Following is an overview of the two major impacts of climate change for Massachusetts and Buckland: changes in temperature and precipitation. More information about specific climate change vulnerabilities due to these impacts as well as adaptation strategies are incorporated into each section of the Environmental Inventory and Analysis.

The Franklin Regional Council of Governments (FRCOG) recently completed a Watershed-Based Plan for the Deerfield River Watershed in which Buckland is located.<sup>2</sup> This plan focused on ways to maintain the health and resiliency of the watershed in the face of a changing climate. The findings and recommendations from that plan have also been incorporated into this section of the OSRP.

### **Temperature Changes**

The northeast United States has experienced an increase in annual temperatures of 1.6°F over the last century, with the greatest warming happening in the winter.<sup>3</sup> Depending on future global greenhouse gas (GHG) emissions scenarios, average annual temperatures in Massachusetts are expected to be 2.8°F to 6.2°F warmer by 2050 than in the past several decades (when the average annual temperature was observed to be 47.5°F). By 2090, the average annual temperature in the state is expected to increase by 3.8°F to 10.8°F, depending on varying emissions scenarios.<sup>4</sup>

In the Deerfield River Watershed, in which Buckland is located, overall observed average annual temperature between 1971 and 2005 was 44.8°F. Average annual temperatures in the watershed

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<sup>1</sup> <http://climateactiontool.org/content/learning-about-climate-change>.

<sup>2</sup> A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed, 15-04/319. Franklin Regional Council of Governments. 2017.

<sup>3</sup> Massachusetts Wildlife Climate Action Tool, <http://climateactiontool.org/content/temperature-changes>.

<sup>4</sup> Resilient MA: Climate Change Clearinghouse for the Commonwealth, <http://www.resilientma.org>. Accessed on August 29, 2018.

are expected to increase between 2.3°F and 6.9°F by 2050 depending on future GHG emissions levels (Figure 4-1). By 2090, average annual temperatures in the watershed could increase by 2.9°F to as much as 14.2°F depending on global emissions.<sup>5</sup>

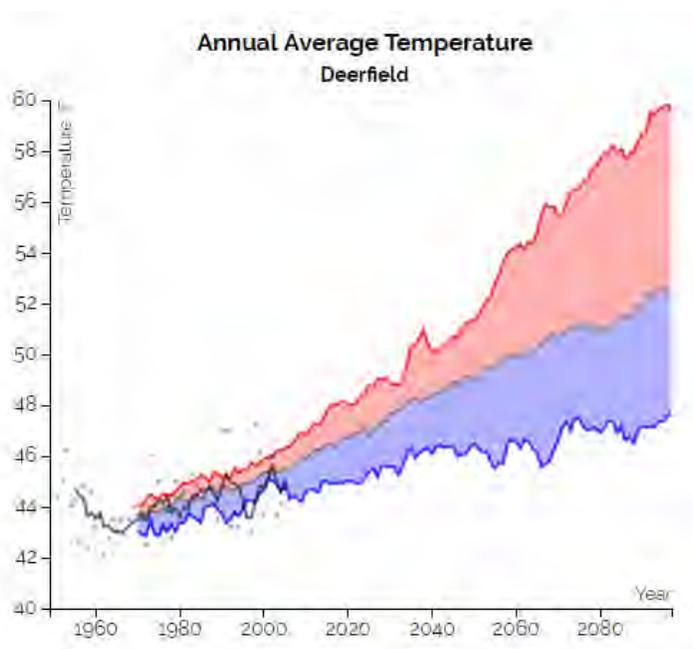
In addition to overall warming temperatures, it is expected that an increase in extreme high temperatures will occur. For example, in Massachusetts there will be between 7 to 26 more days over 90°F in 2050 compared to the past several decades. In the Deerfield River Watershed, it is expected that by 2050, there will be anywhere from 4 to 40 more days with temperatures over 90°F. From 1970 to the mid-2000s, the watershed averaged less than 5 days per year when temperatures reached over 90°F.<sup>6</sup> Conversely, the watershed is expected to experience fewer days when temperatures drop below freezing (32°F).

### Precipitation Changes

In Massachusetts, annual precipitation amounts have increased at a rate of over 1 inch per decade since the late 1800s, and are projected to continue to increase largely due to more intense precipitation events. The Northeast has experienced a greater increase in extreme precipitation events than the rest of the U.S. in the past several decades (Figure 4-2). Although overall precipitation is expected to increase, it will occur more in heavy, short intervals, with a greater potential for dry, drought conditions in between.

Observed annual precipitation in Massachusetts for the last three decades was 47 inches. Total annual precipitation in Massachusetts is expected to increase between 2% to 13% by 2050, or by roughly 1 to 6 inches. In the Deerfield River Watershed, annual precipitation has averaged around 45 inches in recent decades. By 2050, the annual average could remain relatively the same (but occur in more heavy, short intervals) or increase by up to 12 inches a year. In general precipitation projections are more uncertain than temperature projections.<sup>7</sup>

**Figure 4-1: Observed and Predicted Change in Annual Average Temperature, 1971-2090**



Source: Resilient MA: Climate Change Clearinghouse for the Commonwealth.

<sup>5</sup> Ibid.

<sup>6</sup> <http://www.resilientma.org/datagrapher/?c=Temp/basin/tx90/ANN/Millers/>. Accessed on August 29, 2018.

<sup>7</sup> <http://resilientma.org/datagrapher/?c=Temp/basin/pcpn/ANN/Millers/>. Accessed on August 30, 2018.

## Effects of Climate Change

Climate change is already altering natural habitats and impacting communities in various ways. Ecosystems that are expected to be particularly vulnerable to climate change include coldwater streams and fisheries, spruce-fir forests, hemlock forests, northern hardwood forests, vernal pools and street trees in town centers. Warming temperatures and changes in precipitation will push plant and animal species northward or to higher elevations. Higher temperatures, along with changes in stream flow, will degrade water quality. Coldwater species will decline, while an increase in stronger storms leads to more flooding and erosion. A shift to winter rains instead of snow will potentially lead to more runoff, flooding, and greater storm damage along with less spring groundwater recharge.

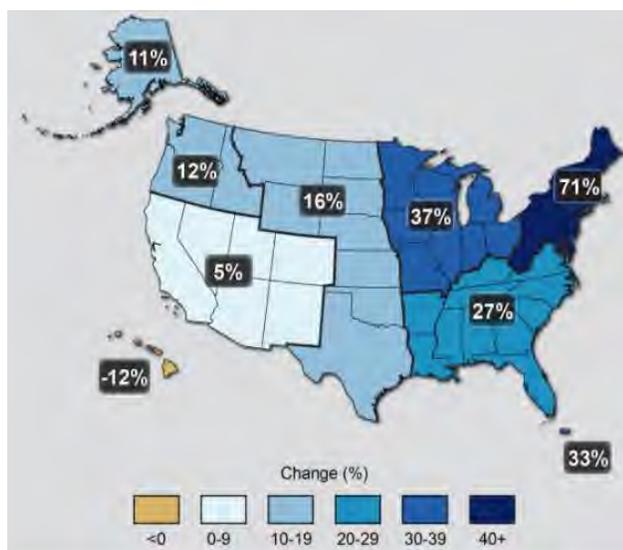
An increase in extreme weather events, including heavy rains, ice storms, microbursts and hurricanes, will impact natural resources and human communities. Loss of roads, bridges, culverts, buildings, farmland and crops are a few impacts that have already been experienced in the region from increased extreme weather. Sea level rise and more extreme storms on the coast may not directly impact Buckland, but may begin to push some of the millions of people living along the north Atlantic seaboard to move inland, placing development pressure on rural areas.

While climate change will continue to be a major challenge globally, local efforts and decisions have real and lasting impacts on mitigating and adapting to future climate change. One of the most effective, and least costly, strategies is to preserve existing natural areas and manage them for increased resilience to climate change.

## **B. DOCUMENTING AND MAPPING ECOSYSTEMS**

Just as the Town of Buckland contains multiple and varied ecosystems, the State of Massachusetts, while relatively small, has many diverse ecosystems and habitats. Documentation and mapping of such ecosystems and habitats can be a first step toward protecting and preserving these resources.

**Figure 4-2: Observed Change in Very Heavy Precipitation, 1958-2012**



*The northeast has seen a greater increase in heavy precipitation events than the rest of the country. Source: updated from Karl et al. 2009, Global Climate Change Impacts in the United States.*

## BioMap2

In 2010, the Massachusetts Department of Fish and Game and The Nature Conservancy launched *BioMap2: Conserving the Biodiversity of Massachusetts in a Changing World*. This project, produced by the Natural Heritage and Endangered Species Program (NHESP), is a comprehensive biodiversity conservation plan for Massachusetts, and endeavors to protect the State's biodiversity in the context of projected effects of climate change.

*BioMap2* combines NHESP's 30 years of rare species and natural community documentation with the Division of Fish and Wildlife's 2005 State Wildlife Action Plan (SWAP). It also integrates The Nature Conservancy's assessment of ecosystem and habitat connections across the State and incorporates ecosystem resilience in the face of anticipated impacts from climate change. *BioMap2* identifies and categorizes lands into two classes of sensitive lands, which are described below:

*Core Habitat Statewide Summary:* Core Habitat consists of land that is critical for the long-term persistence of rare species and other species of conservation concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. Core Habitat includes:

- ❖ Habitats for rare, vulnerable, or uncommon mammal, bird, reptile, amphibian, fish, invertebrate, and plant species;
- ❖ Priority Natural Communities;
- ❖ High-quality wetland, vernal pool, aquatic, and coastal habitats; and
- ❖ Intact forest ecosystems.

*Critical Natural Landscape Statewide Summary:* Critical Natural Landscape (CNL) consists of land complementing the Core Habitat, including large natural Landscape Blocks that provide habitat for wide-ranging native species, support intact ecological processes, maintain connectivity among habitats, and enhance ecological resilience. The areas include buffering uplands around coastal, wetland and aquatic Core Habitats to help ensure their long-term integrity. CNL, which may overlap with Core Habitat, includes:

- ❖ The largest Landscape Blocks in each of 8 ecoregions; and
- ❖ Adjacent uplands that buffer wetland, aquatic, and coastal habitats.

## NHESP Priority Habitats

Priority and Estimated Habitats is a program administered by NHESP. Identification and mapping of Priority and Estimated Habitats is based on the known geographical extent of habitat for all state-listed rare or endangered species, both plants and animals, and is codified under the Massachusetts Endangered Species Act (MESA). Habitat alteration within Priority Habitats is subject to regulatory review by the Natural Heritage & Endangered Species Program. Priority Habitat maps are used for determining whether or not a proposed project must be reviewed by the NHESP for MESA compliance.

On the statewide level, mapping Core Habitat and Critical Natural Landscapes helps to guide strategic conservation to protect those areas that are most critical to the long-term survival and

persistence of rare and other native species and their related habitats and ecosystems. On the local level, Buckland can use this information to better understand where the town's ecosystems and habitats fit into the bigger picture. For example, a small parcel of land could be a key link to two larger, intact ecosystems.

On an individual landowner level, *BioMap2* – as well as NHESP Priority and Supporting Habitats – is an important tool that can be used to apply for grants to help improve, manage and monitor certain lands. An example is the MassWildlife Habitat Management Grant Program, which helps fund efforts to enhance wildlife habitat and increase recreational opportunities on private properties, with preference given to land that is classified as, or located nearby, NHESP areas.

Information and mapping from *BioMap2* and NHESP Priority Habitats will be referenced throughout the Environmental Inventory and Analysis Section. *BioMap2* Core Habitat and NHESP Priority Habitats for Rare & Endangered Species are shown on the *Soils & Environmental Constraints Map* at the end of this section.

### **C. 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.

#### **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.

#### **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.

## 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 subsection 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.

### ***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.

### ***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.

### *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.

### **Analysis**

Buckland is 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 and the Buckland side of the Shelburne Falls Village, but also along rural roads, where farmland corridors, such as those located along Route 112, offer scenic open fields and historic barns. Upland soils support orchards and pasture land, 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.

Clesson Brook and the Deerfield River have historic, ecological scenic, and recreational importance in Buckland. Improved recreational access to these waterways, especially the Deerfield River, was a top priority of respondents to the 2020 OSRP Community Survey. While residents understand the value of their rivers as ecological and recreational assets, they are also aware that both Clesson Brook and the Deerfield River present significant potential natural hazards to adjacent areas. For instance, the Deerfield River flows around the athletic fields at Mohawk Trail Regional High School, and Clesson Brook flows past Buckland Recreation Area. Between the High School and the Recreation Area is an extensive network of trails woven through privately-owned land flanking the confluence of Clesson Brook with the Deerfield River. These areas are at risk of periodic inundation by floodwaters and fluvial erosion hazards resulting from the heavy precipitation events occurring more frequently and with greater intensity due to climate change. Such flooding hazards would hinder recreational activities at these key athletic facilities and cause them to be inaccessible for short term or longer periods of time. Currently, streambank erosion on Clesson Brook is undermining trails used by the High School cross county team, raising awareness and concern for the safety of runners and the future of access in the area. The Town is looking for funding for stream stabilization work to address the issue.

Extreme temperatures during the summer months are another climate change impact with the potential to affect recreation at the Buckland Recreation Area. Summer camps may need to set up an air conditioned space during extreme high temperature days and/or heat waves in order to mitigate the risk of heat-induced illness among campers.



**Recreational stretch of the Deerfield River below Shelburne Falls and the power plant (Phoebe Walker)**

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 enacted zoning bylaws that work to steer new development into existing urban areas, balance new development in rural areas with the permanent protection of farmland, 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. Buckland has enacted a Solar Bylaw and a Marijuana Bylaw which protects land and open space from the development of these large-scale operations in undesirable areas. It could also continue efforts to adopt 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.

The Town's Planning Board, Agricultural Commission, and Open Space Committee could work together to encourage residents to support land based businesses in town. Town committees could also provide information to farm and forest land owners about programs and protection options to preserve their land and businesses and work to engage Franklin Land Trust (FLT) and other

appropriate land preservation partners. The FLT has a Voluntary Public Access program<sup>8</sup> available for Buckland, which would allow for public recreational access on privately owned land within designated trail easements. Areas in town where this model may be appropriate include, riverfront areas on the Deerfield River and Clesson Brook with good access to the water, especially parcels on Creamery Avenue with access to near “Sunburn Beach”, the privately owned land between Buckland Recreation Area and Mohawk Regional High School known as the “Purple Forest” with contains possibly the largest contiguous network of trails in region, and Goodnow Pond.

#### **D. 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. The village of Shelburne Falls, which straddles the Deerfield River and is located in Buckland and Shelburne, is the primary town center for Buckland and neighboring Shelburne. 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.

#### **E. 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.

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<sup>8</sup> <http://www.franklinlandtrust.org/vpa>

## **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 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, it's cold and clean waters make it one of the best fisheries in the state. The river 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).

### ***The Deerfield River Watershed-Based Plan***

In 2017, FRCOG released *The Deerfield River Watershed-Based Plan*<sup>9</sup>, which outlines evidence-based recommendations to protect watershed health, restore impaired water bodies, and increase the watershed's resiliency to climate change. This plan focused on ways that towns can become more resilient by working across municipal boundaries to address shared issues and implement mutually beneficial solutions at watershed scale. The plan outlines a wide range of stewardship and management recommendations for public and privately owned forests and agricultural land. Many of these recommendations are relevant to, and support of, goals and action items identified in the 2020 OSRP. They include:

- ❖ Update and align land use regulations across the 14 watershed towns, with a focus on mapping and managing the river corridor,
- ❖ Identify sediment storage, water quality protection and conservation opportunities in the upland areas of the watersheds, and
- ❖ Conduct conservation and restoration projects that protect green infrastructure, improve flood resiliency and reduce sediment inputs to streams and rivers.

The plan also outlines more specific landscape scale, conservation and protection, and river corridor and floodplain recommendations that can be implemented throughout the Deerfield River Watershed and can involve many watershed communities and a variety of stakeholders. These recommendations are intended to protect and restore watershed health and engage and educate watershed residents.

### **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.

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<sup>9</sup> A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed, 15-04/319. Franklin Regional Council of Governments. 2017.

## *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.

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

The Massachusetts Surface Water Quality Standards (SWQS)<sup>10</sup> 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.

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<sup>11</sup> 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 most current source of water quality information is the *Massachusetts Year 2016 Integrated List of Waters*, which includes proposed listing of the condition of the State's waters pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act<sup>12</sup>. The most current information on watershed and land use stewardship strategies for fostering improved water quality can be found

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<sup>10</sup> <https://www.epa.gov/sites/production/files/2014-12/documents/mawqs-2006.pdf>

<sup>11</sup> <https://www.mass.gov/total-maximum-daily-loads-tmdls>

<sup>12</sup> <https://www.mass.gov/files/documents/2017/08/zu/16ilwplist.pdf>

in *The Deerfield River Watershed-Based Plan*<sup>13</sup>, and *A Framework for Resilience: Responding to Climate Change in the Deerfield River Watershed*.<sup>14</sup>

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.

### ***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 Trail 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.

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<sup>13</sup> A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed, 15-04/319. Franklin Regional Council of Governments. 2017.

<sup>14</sup> <https://frcog.org/wp-content/uploads/2019/03/Framework-for-Resilience-in-the-Deerfield-River-Watershed.pdf>

### 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.



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

### *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.

### *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.

### 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.

***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.

**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 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).

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.

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.

Tropical Storm Irene in 2011 demonstrated the extent and severity of the types of extreme weather and increased rain that is predicted to become more frequent in the coming years. Flooding fueled by heavy rains was widespread after Irene and impacted the downtown area of Buckland, where floodwaters swept away a quilt shop and flooded businesses. Clesson Brook jumped its banks and washed out roads, including parts of Route 112. In the aftermath of Irene, some bridges were shut down, many roads were damaged and some were rendered impassable. Many businesses were shut down in Buckland and surrounding communities, and some did not reopen for several months.

Workshop participants at the 2018 Municipal Vulnerability Preparedness (MVP) Program<sup>15</sup> expressed concern about heavy rain events and potential future flooding, particularly in downtown Buckland located right next to the Deerfield River. Buckland's Town Hall, Police and Fire are all in the downtown area and in the 100-year floodplain along with most businesses and vulnerable, low-income populations. Localized flooding due to riverine flooding as well as stormwater drainage issues is also problem, and there are areas of town where residences and entire neighborhoods can become isolated due to flooding hazards.

Buckland could strengthen its existing land use regulations related to flood mitigation and prevention by adding flood prevention and mitigation to the Purpose section of the Zoning and Subdivision Regulations and implementing standards to require temporary and permanent erosion control measures for streams and surface water bodies and prohibiting permanent alterations of watercourses or streams. The Town of Buckland has a Floodplain Overlay District in place 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. The Town could strengthen this regulation by further limiting new development with the 100-year floodplain. Meanwhile, the development of a model Floodplain Bylaw for communities participating in the National Flood Insurance Program is underway by The Commonwealth of Massachusetts. Once the State releases its model Floodplain Bylaw, Buckland can use it to update their existing floodplain bylaw. 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.

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). The Town could also use the 2017 *Deerfield River Watershed-Based Plan* to guide local and regional, watershed-wide open space protection efforts, particularly in floodplain areas.

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<sup>15</sup> <https://frcog.org/wp-content/uploads/2018/06/Buckland-MVP-Summary-of-Findings-March-2018-rev-4.pdf>

## River Corridor Mapping and Management

In 2019, FRCOG released *The River Corridor Management Toolkit*, which developed and piloted innovative practices for delineating river corridors using a scientifically defensible mapping protocol. The toolkit outlines two management tools to accompany the mapping: a River Corridor Protection Overlay Zoning District Bylaw and a River Corridor Easement Restriction. The goal of the River Corridor Management Toolkit is to equip communities and landowners interested in river restoration and protection, climate resilient land use, and the reduction of harm to land, water, habitat, people and infrastructure caused by increasingly severe and frequent flood events. In this way, Buckland is well-positioned as a steward of the Deerfield River and its mapped river corridor.

Rivers and streams are dynamic systems in a constant state of change. Fluvial erosion is a natural process of wearing away of soil, vegetation, sediment, and rock through the movement of water in rivers and streams. While erosion is a natural process, the rate of erosion is affected by human alterations of river channels or land as well as a changing climate. Sometimes buildings and roads are located too close to river banks and areas of active river processes, placing them at risk to erosive forces while at the same time increasing the rate of erosion within the river corridor due to loss of flood storage in the floodplain. The most severe fluvial erosion events in recent years have resulted from heavy rain, such as Tropical Storm Irene in 2011.

Buckland could apply the river corridor mapping protocol to Clesson Brook and the Deerfield River, which were heavily impacted by Tropical Storm Irene, washed out roads across Franklin County, and destroyed several buildings in Buckland. Newly mapped river corridor areas for Clesson Brook and the Deerfield River would guide planning efforts involving flood resilience and land conservation, which may foster opportunities to meet some of the Town's priority recreational objectives in addition.

## 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*).

### **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.

Three certified vernal pools have been identified and certified in Buckland according to 2020 NHESP data<sup>16</sup>. Two vernal pools are located in the northeast part of town, north of Route 112 and south of Route 2. A third is located in the eastern part of town on Elm Street. NHESP certified vernal pools are shown on the *Soils & Environmental Constraints Map* at the end of this section. In order to identify vernal pools, Buckland should encourage its residents to work with experts (and/or residents with expertise) to document and report vernal pools according to NHESP's guidelines and standards and request verification from NHESP. This could be a project for the Conservation Commission or the Planning Board.

### **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

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<sup>16</sup> <https://docs.digital.mass.gov/dataset/massgis-data-nhesp-certified-vernal-pools>

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.

## 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.

## 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.

## F. 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 84 percent of the Buckland's total land cover<sup>17</sup> 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.

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<sup>17</sup> 2016 MassGIS Land Use Land Cover Data

## 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 tremuloides* and *P. grandidentata*), eastern white pine (*Pinus strobus*), red spruce (*Picea rubens*) and red oak (*Quercus rubra*).



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

Buckland contains areas in the eastern part of town identified by the Harvard 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.<sup>18</sup> 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. Harvard 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*).

### **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

<sup>18</sup> Primary Forests are not the same as Old Growth forests, as they have likely been pastured and/or harvested over time.

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)<sup>19</sup> would be a good first step in planning for and maintaining public shade trees. The MUCFP also offers training and public education resources.

### **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.

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<sup>19</sup> <http://www.mass.gov/dcr/stewardship/forestry/urban/index.htm>

### ***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.

### **Agricultural Land**

According to the 2016 MassGIS Land Cover/Land Use data<sup>20</sup>, 6.6 percent of the town is classified as agricultural land use. 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**

<b>Family</b>	<b>Farm Name</b>	<b>Primary Products</b>
Paul Willis	Clesson Brook Farm	Dairy
Ben Hay	Maple Row Farm	Vegetables, Hemp
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 Cardinal	Johnson Hill Farm	Lavender/Recreation

<sup>20</sup> <https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>

Family	Farm Name	Primary Products
Dennis Bruffee	Buckboard Veggies	Vegetables and Flowers
Sam Purington	Purington	Maple Syrup, Beef, Hay
Charles Patnode	Patnode	Goats, Cattle, Chicken
Francis Trow	Clock Hollow Farm	Beef, Hay
Sue Roberts	Sue Roberts Farm	
Marti Ferguson	Walking Cloud Farm	Sheep, Lamb, Wool
Gary Shaw	Shaw Farm	Hay
Residents	*Assorted subsistence and other small farms	Vegetables, eggs, etc.

Source: Buckland Agricultural Commission and Open Space and Recreation Committee, 2020.

\*Update forthcoming from the Ag Commission.

Massachusetts Department of Agricultural Resources [www.mass.gov/agr/massgrown/map.htm](http://www.mass.gov/agr/massgrown/map.htm), Communities Involved in Sustaining Agriculture [www.buylocalfood.org](http://www.buylocalfood.org).

In addition to the commercial farms, a couple of Buckland residents have started a community gardens and community orchard on their property. The Salmon Falls Land Association Community Garden is a 72' x 40' garden space with 8 community garden plots funded by a small grant from the New England Grassroots Foundation. Established with the help of two private donors, the Salmon Falls Land Association Community Orchard/Food Forest contains 25 fruit trees (mixed varieties apple, pear, peach, plum) and 55 fruiting bushes. An understory of perennial herbs, medicinal herbs and pollinators will be expanded in the coming years. The intention for the orchard is that 100% of the fruit will go to anyone who is food insecure in the Buckland-Shelburne community, free of charge. The organizers hope to build distribution partnerships in town in the coming years.

Though farming is an important part of Buckland's history, economy, and scenic beauty, only 41 acres of agricultural land in the town are protected from development. An effective way of conserving farmland is to prioritize the parcels of those landowners that want their land protected. The Agricultural Preservation Restriction (APR) Program is a voluntary program that provides a non-development alternative to farmers and other owners of "prime" and "state important" agricultural land. The program offers to pay farmland owners the difference between the "fair market value" and the "agricultural value" of their farmland in exchange for a permanent deed restriction, which restricts any use of the property that will have a negative impact on its agricultural viability.<sup>21</sup> The APR program requires a local match for the program that can come from any combination of three sources: the municipality, a non-governmental organization such as a land trust, and from a bargain sale conducted by the landowner. The local match requirement is 20 percent, however this percent is reduced if the Town has implemented certain policies, including establishing an Agricultural Commission and adopting a Right-to-Farm bylaw. Buckland has both an Agricultural Commission and a Right-to-Farm bylaw. Additionally, 78% of respondents the 2020 OSRP survey were in favor of land protection in Buckland, indicating that the Town should work with Land Trusts and State Agencies to educate and support landowners in using land protection programs such as APR.

<sup>21</sup> <https://www.mass.gov/service-details/agricultural-preservation-restriction-apr-program-details>

In 2015, the Franklin Regional Council of Governments (FRCOG) published the *Franklin County Farm and Food System Project* report. The project summarizes the needs of Franklin County farmers to increase food production, as well as how to make more local food accessible to Franklin County residents, particularly low and moderate income people. Results of a survey of farmers showed a need for access to more farmland, and that farmland is currently too expensive. The report includes recommendations for increasing farmers' access to land, such as through land matching and leasing as well as by making public-owned land available for farming, where appropriate. Other land recommendations from the report include increasing the amount of farmland under permanent protection, and preventing land from being converted from farming to other uses, in part by offering farmers more technical assistance with farm transition and estate planning. Ensuring that good farmland remains available and affordable for farming will help continue to support the growth of this important part of the region's rural economy. This is certainly true for the Town of Buckland. These land recommendations are also supportive of open space and recreational planning in the town.

### **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 *Soils & Environmental Constraints Map* for priority habitat for Rare & Endangered Species at the end of this Section.

NHESP has identified 259 native plant species as rare in the Commonwealth, and thirteen 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
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	Threatened	1913
<i>Celastrus scandens</i>	American Bittersweet	Threatened	2017
<i>Corallorhiza odontorhiza</i>	Autumn Coralroot	Special Concern	2014
<i>Symphotrichum prenanthoides</i>	Crooked-stem Aster	Special Concern	2017
<i>Carex hitchcockiana</i>	Hitchcock's Sedge	Special Concern	2017
<i>Platanthera dilatata</i>	Leafy White Orchis	Threatened	1932
<i>Sanicula odorata</i>	Long-styled Sanicle	Threatened	1907
<i>Alnus viridis ssp. crispa</i>	Mountain Alder	Special Concern	2009
<i>Huperzia selago</i>	Mountain Firmoss	Endangered	1899
<i>Aplectrum hyemale</i>	Putty-root	Endangered	1904
<i>Amelanchier sanguinea</i>	Roundleaf Shadbush	Special Concern	1911
<i>Prunus pumila var. depressa</i>	Sandbar Cherry	Threatened	2012
<i>Symphotrichum tradescantii</i>	Tradescant's Aster	Threatened	2002

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2019.  
<https://www.mass.gov/info-details/rare-species-viewer-by-town>

## 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 producing 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.

## **G. 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 Massachusetts Natural Heritage and Endangered Species Program (NHESP) uses BioMap2<sup>22</sup> Core Habitat and Critical Natural Landscapes to identify exemplary natural communities, areas in Massachusetts that are critical for rare and other native species and their habitats, ecosystems most in need of protection, and landscapes that support ecological processes and a wide array of terrestrial and wetland plant and animal species and natural communities over long time frames. BioMap2 data focuses primarily on state-listed rare species and exemplary natural communities and was developed to guide strategic biodiversity conservation in the state by focusing land protection and stewardship efforts.

Core Habitat areas include the most viable habitat for rare plants and rare animals and exemplary natural communities. Critical 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 identified, through field surveys, as supporting viable populations of rare plant and animal species while the Critical Natural Landscape areas were determined through analyses using Geographic Information Systems (GIS) mapping programs. NHESP also uses Priority Habitats of Rare & Endangered Species data to identify the geographic extent of habitat of state-listed rare species in Massachusetts, which is based on observations documented within the last 25 years in the database of the Natural Heritage & Endangered Species Program (NHESP).<sup>23</sup> BioMap2 Core Habitat and NHESP Priority Habitats for Rare & Endangered Species are shown on the *Soils & Environmental Constraints Map* at the end of Section 4.

NHESP BioMap2 Core Habitat, Critical Natural Landscape (CNL), and Priority Habitats of Rare Species in Buckland can be summarized as follows:

- ❖ The largest patch of BioMap2 Core Habitat in Buckland is located between Johnson Hill and Putnam Hill; and area that also includes Buckland State Forest land.
- ❖ Several riparian buffer areas in the town are identified as BioMap2 Core Habitat, including the full lengths of Clark Brook and Clesson Brook, and distinct reaches of Drakes Brook, Cooley Brook, Second Brook, and the Deerfield River.
- ❖ Clesson Brook represents a contiguous, north-south stretch of Aquatic Core habitat (a component of BioMap2 Core Habitat) that spans the town, from its headwaters across town line in Ashfield, to its convergence with The Deerfield River on the Charlemont town line. Clark Brook, and its tributaries, also comprise a stretch of Aquatic Core habitat that spans nearly the entire town from north to south. Both waterways are buffered by BioMap2 Critical Natural Landscapes that help link Core Habitat to far reaching habitat resources into surrounding towns, including south into Ashfield, west into Hawley, and north in Charlemont, Heath and Colrain.
- ❖ A vast area of BioMap2 Critical Natural Landscape is located in the northwest region of town and extends west into Hawley and Charlemont. This CNL largely consists of

<sup>22</sup> 2010 BioMap2 data, <https://docs.digital.mass.gov/dataset/massgis-data-biomap2>

<sup>23</sup> 2017 NHESP Priority Habitats of Rare Species data, <https://docs.digital.mass.gov/dataset/massgis-data-nhesp-priority-habitats-rare-species>

contiguous deciduous and evergreen forests and includes Walnut Hill and Snow Mountain.

- ❖ A stretch of the Deerfield River along the northeast town line with Charlemont, from South River Road in Charlemont in the west to the Clesson Brook confluence in the east, is designated as BioMap2 Core Habitat and is also buffered by a CNL. This reach of the Deerfield River receives several tributaries that are also designated as BioMap2 Core Habitat and buffered by a CNL, including Avery Brook, Second Brook, and East Oxbow Brook.
- ❖ Two other small Core Habitat areas are located along the Deerfield River in Buckland. One is the ‘loop’ of the Deerfield River, which forms the northeast corner of the town, which is buffered by CNL and continues north far into Colrain. Another is the stretch along the eastern town boundary with Shelburne, which extends from the Glacial Potholes below the dam in Shelburne Falls, southward to the Conway town line, and continues on into Conway and Shelburne.

A Priority Habitat is an area where plant and animal species that are protected by the Massachusetts Endangered Species Act regulations may occur. According to the 2017 Atlas, NHESP Priority Habitats in Buckland occur:

- ❖ Along the Deerfield River on the northeast town line with Charlemont and the eastern town line with Shelburne, **except** for the reach above the dam in the village of Shelburne Falls, and **except** for the reach above Gardner Falls dam in the southeast corner of town.
- ❖ The full extent of Clesson Brook within town boundaries.
- ❖ Small patches on Lone Tree Hill and Walnut Hill in the central, upland areas of town.
- ❖ A small patch north of Route 2, within the ‘loop’ of the Deerfield River, which forms the northeast corner of the town.

### **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.

### **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
<i>Erora laeta</i>	Early Hairstreak	Butterfly/Moth	Threatened	1988
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	Amphibian	Special Concern	1989
<i>Catostomus catostomus</i>	Longnose Sucker	Fish	Special Concern	2016
<i>Clemmys insculpta</i>	Wood Turtle	Reptile	Special Concern	2012
<i>Cicindela duodecimguttata</i>	Twelve Spotted Tiger Beetle	Beetle	Special Concern	2001
<i>Boyeria grafiana</i>	Ocellated Darner	Dragonfly/Damselfly	Special Concern	2016
<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	Dragonfly/Damselfly	Special Concern	2004
<i>Neurocordulia yamaskanensis</i>	Stygian Shadowdragon	Dragonfly/Damselfly	Special Concern	2004
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Bird	Threatened	2018
<i>Oporornis philadelphia</i>	Mourning Warbler	Bird	Special Concern	2010

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2019.  
<https://www.mass.gov/info-details/rare-species-viewer-by-town>

Of the species in Table 4-6, 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 Spine-Crowned Clubtail was listed as an endangered dragonfly/damselfly in 2009, but it's current MESA status is special concern. This species 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.



Photo courtesy of Denis Doucet

**The Ocelated Darner is a species of Special Concern in Buckland**  
(courtesy of Dennis Doucet)

### Conserving Buckland's Biodiversity

The most important areas to protect within Buckland include those identified on the *Soils & Environmental Constraints Map* at the end of Section 4 as Priority Habitats for Rare & Endangered Species and BioMap2 Core Habitat. 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 NHESP and BioMap2 (*see Soils & Environmental Constraints 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.

## **H. 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 *Scenic Resources & Unique Environments 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 Open Space Committee in the course of preparing the 2020 Open Space and Recreation Plan and the 2020 Update (*see Table 4-7*). The table distinguishes between types of landscapes, identifies in general terms the locations of rural historic landscapes in each town, and provides a description of its value to the community.

**Table 4-7: Significant Scenic/Ecological/ Recreational & Historic Landscapes in Buckland**

Resource Type	Ecological Value	Recreational Value	Historical Value
<b><i>Stream Corridors</i></b>			
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
<b><i>Ponds and Lakes</i></b>			
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

<b>Resource Type</b>	<b>Ecological Value</b>	<b>Recreational Value</b>	<b>Historical Value</b>
<b><i>Recreation Areas</i></b>			
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
Red Gate Farm	Potential vernal pools	Hiking trails, camp, educational and recreational programs	Unique barn structure (Barn Restoration Program), researching history of farm
<b><i>Scenic Roads</i></b>			
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	
<b><i>Historical Religious Landscape</i></b>			
Mary Lyon Birthplace (1818)		Tours available to public	Birthplace and Home of Mary Lyon, founder of Mt. Holyoke College

<b>Resource Type</b>	<b>Ecological Value</b>	<b>Recreational Value</b>	<b>Historical Value</b>
Mary Lyon Church		Community dinners, outdoor fair	Yes
St. Joseph's Church			Yes
7 <sup>th</sup> Day Adventist Church			Yes
<b><i>Historical Community Development/ Industrial Landscape</i></b>			
Shelburne Falls (the Buckland side)	Salmon Falls, Potholes	Road races, Trolley Museum, Street festivals, River festivals, Bridge of Flowers	National Register of Historic Places
Four Corners			Compact (make-up) Factory; Historic houses
Buckland Center		Historic Museum, Church, Buckland Public Hall (hosts shows and contradances), Library and cemeteries. Historic houses; Downtown area; Studio of Robert Strong Woodward, famous 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
<b><i>Historical Transportation Landscape</i></b>			
Route 2		Scenic views of Deerfield	Historic Mohawk Trail, Early automobile route,
Route 112	Scenic Corridor along Clesson Brook	Potential Scenic Farm Byway	

Resource Type	Ecological Value	Recreational Value	Historical Value
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
<i>Unusual Geologic Features</i>			
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

## **I. 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.

### **Landfills and Hazardous Waste Sites**

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.

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<sup>24</sup> 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

### **Erosion and Sedimentation**

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 does not

<sup>24</sup> [www.franklincountywastedistrict.org/hazardouswaste.html](http://www.franklincountywastedistrict.org/hazardouswaste.html)

maintain any. However, the FRCOG has produced a guide to gravel roads<sup>25</sup> and Berkshire Regional Planning Commission has produced a best management practices guidebook.<sup>26</sup>

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.

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

Though residents view land protection favorably in Buckland, the Town may need to prioritize open space resources and be more proactive about land acquisition and funding. The Town should collaborate with regional entities like the Franklin Land Trust to leverage funding and develop outreach programs targeted to landowners. Buckland should also harness resident's interest in developing a local trail network and follow Ashfield's example by establishing a committee of local residents to negotiate access rights to a trail system in town. According to the Buckland OSRP Committee and Recreation Committee, the area known as the "Purple Forest" between Mohawk Regional High School and Buckland Recreation Area contains the largest contiguous network of trails in the region and would be a prime location to pursue this strategy. The land is all privately owned and is currently enjoyed for skiing, walking, hiking, and training for the Mohawk cross county team.

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.

## **Chronic Flooding**

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<sup>25</sup> Answers to Frequently Asked Questions About Gravel Roads, FRCOG, September 2001.

<sup>26</sup> The Massachusetts Unpaved Roads BMP Manual, Berkshire Regional Planning Commission, 2001.

The Buckland Recreation Area adjacent to Clesson Brook has had chronic issues with flooding and riverbank erosion. The access road, parking lot, and pool house are located close to the stream banks and are very vulnerable. Relocation of these facilities outside of the 200 foot river buffer zone is underway, and will also protect water quality by reducing the amount of runoff from these impervious surfaces entering the brook. The 2010 Buckland Open Space and Recreation Plan listed an action item to “follow up on work already done to secure funding to address stream bank erosion at Buckland Recreation Area.” Potential funding sources for completing this project include MEMA, DEP s.319 Program and NRCS. Responsible groups identified to manage this project include the Recreation Committee, the Select Board, and the Conservation Commission with a projected completion date of 2011. Currently, the Buckland Recreation Committee has a comprehensive site plan to address site design and stormwater engineering, and they have completed some site improvements, including moving the access road, raising elevations, regrading the site, and undergrounding utilities. The Recreation Committee is actively working to raise money to reopen the pool and completed remaining site work. The Town currently is looking for funding to complete the streambank stabilization needed on Clesson Brook to help protect the site from erosion.

South Street Culvert for Bray Brook chronically floods and requires periodic repairs. This culvert has been identified to receive funds for repair through MEMA. According to the 2018 MVP Plan, the Nilman Road, Elm Street, and Charlemont Road culverts are major culvert that are at a “critical” risk from flooding and are in need of repair. Failure of these culverts threatens to cut off communities and important infrastructure during emergencies. These culverts are too expensive for the Town to repair and too large for the State’s Culvert Replacement Municipal Assistance Grant Program. Many culverts in Buckland were replaced after Tropical Storm Irene, but some have been identified as having “High” to “Medium” risk of failure through the MassDOT Stream Crossing Study for the Deerfield River Watershed. These culverts pose a future risk to transportation and emergency response and should be prioritized for replacement with right-sized infrastructure to anticipate future rain events.

A private dam on Clark Brook off Fox Road floods chronically. A considerable portion of Route 112, the road that runs adjacent to Clesson Brook for most of its length through Buckland lies in the floodplain. Sections of the road have experienced fluvial erosion, culvert damage, and washouts in the past and it continues to be at risk from flood events. During Irene, a section of Route 112 caved in, taking out several telephone poles and causing power outages.

Also situated along Clesson Brook are working farms which lost valuable farmland soils to washouts and erosion during Irene. These areas continue to be at risk for erosion, according to the 2018 Buckland MVP Plan. Farmers were not able to find funding to help them recover from their farmland losses after Irene.

### **Impacts of Development**

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.

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

Section 3 describes the current regulatory work that the Town of Buckland has undertaken with help from the Franklin Regional Council of Governments to assess existing zoning and develop strategies for directing growth to areas of the town with existing infrastructure and away from sensitive resource areas, including the 2016 Housing Plan.

### **Ground and Surface Water Pollution**

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.

### 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.

### **Impaired Water Bodies**

Impaired water bodies in the Town of Buckland can be viewed with the 2014 Integrated List of Waters Map Viewer<sup>27</sup>.

### **Invasive Species**

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. Riverbanks of large and small waterways throughout the town, including the Deerfield River and Clesson Brook, are now dominated by Japanese knotweed in many places, compromising their stability and habitat value, and significantly hindering human access to the rivers for recreation. Another issue that has been identified by members of the community is the threat to the survival of tree species such as the Eastern hemlock and 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.<sup>28</sup> The project organized a community elm tree planting program, 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.

Climate models project rising temperatures and increased precipitation in the Northeastern United States in coming years, which is likely to impact local forests as well other vegetation and public health partially as a result of related impacts on pests, pathogens, and nuisance species. Periods of rapid climate change, such as we are presently experiencing, are especially favorable for rapidly reproducing species such as insects and diseases and promote conditions that can enhance the spread of problematic species. By contrast species with longer life cycles, such as trees, are inherently less well equipped to adapt to rapid climate change.

<sup>27</sup> <http://maps.massgis.state.ma.us/images/dep/omv/il2014viewer.htm>

<sup>28</sup> (<http://hilltownlegacytreeproject.wordpress.com>)

The following Table 4-3 is a list of invasive species that have been documented in Buckland by the Franklin County Flora Group as of March 2019.

**Table 4-3: Invasive Species Observed in Buckland**

<b>LatinName</b>	<b>Common Name</b>
<i>Acer platanoides</i>	Norway Maple
<i>Aegopodium podagraria</i>	Bishop's goutweed
<i>Alliaria petiolata</i>	Garlic mustard
<i>Berberis thunbergii</i>	Japanese barberry
<i>Celastrus orbiculatus</i>	Oriental / Asian bittersweet
<i>Cynanchum louiseae</i>	Black swallow-wort
<i>Elaeagnus umbellata</i> var. <i>parvifolia</i>	Autumn olive
<i>Euonymus alatus</i>	Burning bush
<i>Fallopia japonica</i> var. <i>japonica</i>	Japanese knotweed
<i>Frangula alnus</i>	European buckthorn
<i>Hesperis matronalis</i>	Dame's rocket
<i>Iris pseudacorus</i>	Yellow iris
<i>Lonicera xbella</i>	Bell's honeysuckle
<i>Lonicera morrowii</i>	Morrow's honeysuckle
<i>Lysimachia nummularia</i>	Creeping jenny / moneywort
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Phalaris arundinacea</i>	Reed canary-grass
<i>Phragmites australis</i> ssp. <i>australis</i>	Common reed
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Robinia pseudoacacia</i>	Black locust
<i>Rosa multiflora</i>	Multiflora rose

Source: Matthew Hickler, Botanist and Ecologist, Franklin County Flora Group. March 2019.

The Town would be wise to take a proactive approach to environmental problems related to the spread of introduced pests, including invasive species, and stay abreast of the latest information about related problems that may impact local vegetation, agriculture, forestry wildlife, and public health, as well as related strategies for sustainable management. Such efforts will require cooperation with state and regional efforts and may involve several town boards and departments including the open space committee, the board of health, and the conservation commission, as well.

### **Environmental Justice**

Environmental Justice is based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment. The Environmental Justice Executive Order No. 552 requires EEA agencies to take action in promoting environmental justice. The Executive Order requires new environmental justice strategies that promote positive impacts in environmental justice communities and focus on several environmental justice initiatives. EJ communities are defined as being low income,

having a high minority population, and/or to have a high rate of English language isolation, based on the 2010 U.S. Census data.

According to the MassGIS Environmental Justice Viewer<sup>29</sup>, there are no Environmental Justice populations identified in the Town of Buckland. However, only a small percentage of existing open space in town, approximately 2.5 percent, is permanently protected. Land protection helps to ensure a clean and healthy environment for the long term.

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<sup>29</sup> [http://maps.massgis.state.ma.us/map\\_ol/ej.php](http://maps.massgis.state.ma.us/map_ol/ej.php)

# SECTION 5

## INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

### A. INTRODUCTION

Open space in Buckland consists of forests, farms, conservation lands, and recreation areas under both public and private ownership and management. This section of the Buckland Open Space and Recreation Plan (OSRP) inventories and categorizes parcels of undeveloped land and open space by ownership, use, and level of protection from development. It identifies parcels of undeveloped land that are individually, or in the aggregate, considered to be of interest because they help conserve ecosystems and ecosystem services, scenic landscapes, the area's rural character, and current and future recreation resources for Buckland's residents. Lands of conservation interest are those parcels of land that are considered important because they are already protected from development or because they could be a priority for protection.

Communities across the country have determined that protecting land from development is a means to ensure certain aspects of their landscape are conserved. Open space and recreation plans typically identify areas of undeveloped land that contain precious natural and recreational resources and prioritize them for protection. This includes undeveloped land, which provides actively managed farm and forestland, wildlife habitat, protection and recharge of groundwater, public access to recreational lands and trail systems, important plant communities, structures and landscapes that represent the community's heritage, flood control, and scenery.

Protected land has legal restrictions that prohibit the parcel from being developed for residential, commercial, or industrial uses. Permanently protected land enjoys the highest degree of protection from development. In Massachusetts, there are a number of ways in which land can be considered permanently protected: the land may be owned by a state conservation agency, a conservation land trust, or a municipal conservation commission; or, a conservation restriction may be attached to the deed. Town-owned land with recreational purposes stated in its deed is permanently protected under Article 97. A vote of two-thirds of the State legislature is required for any development to occur on these protected parcels.

The only truly protected land is that land which is preserved in perpetuity, such as that land protected by an Agricultural Preservation Restriction (APR) or a Conservation Restriction (CR). Total land under permanent protection through APR and CR in Town is equal to approximately 726.68 acres, or 5.7 percent of the total land area of Buckland and 11.8 percent of the total open space in Buckland. While there is significantly more land under temporary protection (a total of approximately 5,269 acres, including privately owned and town owned property), that land is subject to possible future development once the manner of temporary protection has expired.

A conservation restriction (CR) 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. Income, estate or real estate tax benefits may be available to the grantor of a conservation restriction.

There are several types of CRs. 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 state’s Agricultural Preservation Restriction (APR) Program. The APR program purchases development rights and attaches a restriction to the deed, which legally bars development, keeping land permanently available for agriculture.

Removing permanent protection from any parcel of land that is in the APR Program, protected with a conservation restriction, owned by a state conservation agency, a land trust or a town for conservation purposes, or acquired by a fire or water district for the purpose of water supply protection requires a vote by two thirds of the State Legislature as outlined in Article 97 of the Amendments to the Massachusetts State Constitution. For the purposes of this Open Space and Recreation Plan, cemeteries are also considered to be permanently protected from development.

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

Other land in Massachusetts owned by towns may be considered to have limited protection from development. If a town-owned parcel of land is under the legal authority of the Select Board rather than the Conservation Commission, it is considered to have limited protection from development. The parcel could be called a wildlife sanctuary or a town forest, but not have the long-term protection afforded by Conservation Commission ownership. In this case, converting a town forest to a soccer field or a school parking lot could be decided at Town Meeting.

This section provides a comprehensive inventory of the lands that provide open space, wildlife habitat, agricultural and forest products, watershed protection, scenic beauty, and recreation opportunities for the benefit of all of Buckland's residents. The inventory accompanied by the Open Space Map shows the location, types, and distribution of conservation lands in Buckland. This inventory is divided into two main sections based on type of ownership: 1) private, and 2) public and non-profit. Within each of these major

categories, parcels are differentiated by use (farm or forestland), by ownership and management, and by level of protection: permanent, limited, and temporary (See Table 5-1).

The portion of the total land area that is protected as open space is summarized in Table 5-1. It is divided into two main sections based on type of ownership: private and public. Within each of these major categories, parcels are differentiated by use (farm or forestland), by ownership and management, and by level of protection: “protected,” limited, and temporary.

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

<b>PRIVATELY OWNED PROTECTED OPEN SPACE</b>	<b>Area in Acres</b>
<b>Farmland</b>	
<i>Permanently Protected by Agricultural Preservation Restriction</i>	40.15
<i>Temporary Protection under Ch. 61A</i>	1,748.52
<b>Forestland</b>	
<i>Permanently Protected by a Conservation Restriction</i>	686.53
<i>Temporary Protection under Ch. 61</i>	3,928.30
Chapter 61	2,576.14
Chapter 61B	1,352.16
<i>Limited Protection Religious Institution Land</i>	7.31
<b>Total Permanently Protected</b>	<b>726.68</b>
<b>Total Temporary or Limited Protected</b>	<b>5,684.12</b>
<b>TOTAL PRIVATELY OWNED PROTECTED OPEN SPACE</b>	<b>6,410.80</b>
<b>PUBLICLY OWNED PROTECTED OPEN SPACE</b>	
<i>Permanently Protected by State Conservation Agencies</i>	152.00
<i>Land with Limited Protection Owned by Town of Buckland</i>	192.46
<i>Land Permanently Protected Owned by Town of Buckland (Cemetery)</i>	9.2
<b>Total Permanently Protected</b>	<b>161.20</b>
<b>Total Temporary or Limited Protected</b>	<b>192.46</b>
<b>TOTAL PUBLICLY OWNED PROTECTED OPEN SPACE</b>	<b>353.66</b>
<b>TOTAL OPEN SPACE</b>	<b>6,764.46</b>

Source: Town of Buckland Assessors Records; November 2020.

### **A.1 Permanently Protected Land**

Land permanently protected from development may be owned by a state agency or by the town. For example, Kenneth Dubuque Memorial, Catamount, and Buckland State Forests are owned by the Commonwealth of Massachusetts, and are under the management of the Department of Conservation and Recreation (DCR). Land owned by the Town of Buckland under the authority of the Conservation Commission is also considered to be permanently protected from development under Article 97 regulations, which requires a two-thirds majority vote of the State Legislature to convert open space to another use.

Farmland can be permanently protected from development when a landowner chooses to sell his/her development rights to a land trust or state agency. The Massachusetts Department of Agricultural Resources (MDAR) purchases the development rights of farmland through their

Agricultural Preservation Restriction (APR) Program. The APR Program typically pays the landowner the difference between the market value and the agricultural value of the land. MDAR favors towns that provide matching funds, which are typically 5 percent of that amount or up to \$500 per acre. Buckland's Community Preservation Act Funds can be used as a match for this program. In this way towns can leverage 95 percent of the cost of purchasing development rights towards protecting the farmland of willing landowners. Currently there are 3 farms in the APR program in Buckland with a total of 40.15 acres of permanently protected farmland.

## **A.2 Temporarily Protected Land**

Land considered to be of 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 cemeteries, small parks, and old landfills. In Buckland, temporarily protected town-owned properties include land around town buildings such as the Town Hall, as well as properties acquired as tax takings.

The Chapter 61, 61A and 61B lands are also considered to have a temporary level of protection from development. The Chapter 61 programs offer a reduced tax assessment on privately owned working land. Landowners that choose to participate in this program therefore receive a reduction in property taxes 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.

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 parcels 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, but the tax savings are smaller. Commercial timber harvesting is not allowed on lands in the Ch. 61B program.

Lands in the Chapter 61 program are considered to be only temporarily protected because a landowner may remove land that is enrolled in the Ch. 61 Program at any time by paying a penalty tax. If the landowner receives a formal offer from another party to purchase a parcel of land that is currently in one of the Ch. 61 Programs (61, 61A, 61B), the landowner must notify the town. The town then has 120 days to exercise its right of first refusal by matching the bona-fide offer, or to transfer this right to a conservation organization.

The ability to transfer the right of first refusal to a conservation organization enables the town to create more protected open space without being burdened by the relatively short time frame for action. Private conservation land trusts often have the ability to produce creative and successful fundraising campaigns in short periods of time, while DCR and the Massachusetts Division of Fisheries and Wildlife (MassWildlife) may be interested in purchasing the land in the near future. While it may be difficult to bring a decision on a land purchase to a Special Town Meeting within 120 days, the negotiating process between a land trust, a state conservation agency, and a landowner can be often completed in a shorter period of time. It is therefore helpful for town officials and/or committees to maintain established relationships with conservation organizations such as DCR, MassWildlife, New England Forestry Foundation (NEFF), and local land trusts such as the Franklin Land Trust (FLT).

## **B. PRIVATE & NON PROFIT PARCELS**

Approximately 6,410.80 acres, or 50.6 percent of Buckland's 12,678 total acres is privately owned protected open space. Most of this land 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. 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.

The major disadvantage of private ownership of open space is that most privately owned land can easily be converted to other uses. Only about 5.7 percent of privately owned open space in Buckland has been permanently protected through APR or CR. The remaining privately owned lands are only temporarily protected, and are therefore vulnerable to development. Some landowners acquire land specifically for the purposes of development, but others are forced to sell property due to circumstances beyond their control. Aging, the death of a parent or spouse, financial needs of family and rising costs or declining profits of farming and forestry are common reasons why landowners decide to put their property on the market. The high value of land for residential development is both a powerful incentive to sell property, and a formidable obstacle to people who might otherwise want to buy it for agriculture or forestry. They are discussed in this Open Space and Recreation Plan because privately owned open space may contain important wildlife habitat, offer unique recreational opportunities, or provide a potential connection between other permanently protected parcels. In some cases, parcels may be deemed valuable enough by the community to consider purchasing, if available for sale, or helping to protect through conservation easements or other options.

The following tables show temporarily protected, privately owned agricultural and forest land in Buckland identified by assessors' map and lot numbers. Some of this privately owned land is in pasture but most is in forest. These open space parcels are still on the tax rolls,

whether the land is permanently protected or not. Many landowners have taken advantage of the Chapter 61 programs as evidenced by the fact that there are 5,676.82 acres of open space (44.8 percent of the total land area) in the 61A, 61B and 61 Programs combined.

In the following tables, Privately Owned Agricultural, Recreational, and Forest Lands are listed by level of protection from development. The ownership of the land is provided with the associated assessors map-lot number and acreage. The current use is based on the vegetation. Farmland may be pasture in Buckland, while forest is presumed to be used as such, whether it is managed for timber or not. Public access on private land may not be permitted, and if it is, is subject to change. State conservation agencies often require some level of public access before paying for, or accepting conservation restrictions. Public access is not a requirement for enrollment in any of the Ch.61 programs including the Ch.61B Recreation Program. It is assumed that given the nature of these open space parcels, access to them by people with disabilities is also not guaranteed.

Important characteristics that could motivate the Town to consider acting on their right of first refusal for a Ch.61 parcel, or negotiating with a willing landowner for a fair purchase price, may include the presence of prime farmland soils, pasture, wetlands, a portion of the land that is above an aquifer, or rare or endangered species habitat. In addition, the parcel may be deemed very important as a link in a potential greenway or trail network, or as a component of a large block of contiguous forest.

**B.1 Privately Owned Agricultural Land**

According to the Buckland Assessor’s records, 40.1 acres of agricultural land, or 0.32 percent, of total land area in town is permanently protected under APR (Table 5-2), while 1,748.5 acres of land, or 13.8 percent, of total land area in town is temporarily protected by being enrolled in the Chapter 61A program (Table 5-3). The zoning of all of the parcels is Rural Residential.

**Table 5-2: Permanently Protected by Agricultural Preservation Restriction**

Owner/Manager	Holder of the Conservation Easement	Map-Lot	Acres	Important Characteristics
Gutierrez, Purple Forest, Route 112	Franklin Land Trust	2 0 21	23.00	Prime farmland soils
Vallee	Franklin Land Trust	3 0 15-1	11.347	Landmark, scenic vista
Laursen/Dearborn	Franklin Land Trust	7 0 58	5.80	unknown
<b>Total Acres</b>			<b>40.15</b>	

Source: Town of Buckland Assessor’s Records, 2020

**Table 5-3: Privately Owned Agricultural Land with Limited Protection from Development**

Owner	Chapter Program	Map-Lot	Acres
ATHERTON SUSAN	61A	5 0 32	72.50
BARGERON RICHARD J/ SPOONER JANE	61A	3 0 17-1	9.99
CLARK MALCOM / CLARK DANA	61A	7 0 51	44.60

CLARK DANA BRIAN & AARON	61A	7 0 56	94.00
COSBY CAMILLE	61A	2 0 11	28.96
COSBY CAMILLE	61A	2 0 12	66.30
COSBY CAMILLE	61A	2 0 51	9.80
JAMES NED/ ZELLER MARILYN	61A	7 0 106	2.30
JAMES NED/ ZELLER MARILYN	61A	7 0 108	11.00
LABELLE FRANKLIN TRUSTEE	61A	7 0 103	14.50
LABELLE FRANKLIN TRUSTEE	61A	7 0 15	2.80
LABELLE FRANKLIN TRUSTEE	61A	7 0 22	41.40
LABELLE FRANKLIN TRUSTEE	61A	7 0 97-1	0.57
LANGFORD G LAWRENCE	61A	4 0 9-3	2.01
PATENAUE JR CHARLES R	61A	2 0 1	22.80
ROTIMA SA INC	61A	8 0 63	0.82
SCOTT COLIN	61A	5 0 56	6.80
SCOTT COLIN	61A	5 0 57-1	18.00
SCOTT COLIN	61A	5 0 58	1.40
SCOTT COLIN	61A	5 0 59	6.80
SCOTT COLIN	61A	5 0 62-1	48.77
SMITH THERESA J	61A	8 0 50	8.00
SMITH THERESA J	61A	8 0 51	106.00
THIBAUT DAVID	61A	9 0 37	7.30
TOWNSLEY	61A	7 0 70	50.00
WILLIS PAUL L & JUDY	61A	2 0 19	5.00
WILLIS PAUL L & JUDY	61A	7 0 82	51.50
WILLIS PAUL L & JUDY	61A	4 0 24	93.00
WILLIS PAUL L & JUDY	61A	5-1 0 18	5.00
WILLIS PAUL L & JUDY	61A	5-1 0 37	7.00
WILLIS PAUL L & JUDY	61A	7 0 71	18.00
WILLIS PAUL L & JUDY	61A	8 0 49	14.60
WILLIS PAUL L & JUDY	61A	8 0 58	88.00
WILLIS PAUL L & JUDY	61A	8 0 59	45.20
ATHERTON SUSAN	61A	5 0 5	67.20
BARGERON RICHARD J/ SPOONER JANE	61A	3 0 16	13.57
LABELLE FRANKLIN TRUSTEE	61A	7 0 14	21.50
LANGFORD G LAWRENCE	61A	4 0 9	13.95
MOSS DALE C	61A	2 0 46	10.00
NAYAK MAYA/ LANGFORD GEORGE	61A	4 0 8	12.40
PATENAUE JR CHARLES R	61A	2 0 3	4.20
PURINGTON SAMMY W & JANICE	61A	4 0 33	145.00
ROBERTS SUSAN B / TRUSTEE	61A	6 0 20	46.02
SCHAKTMAN HARVEY Z TRUSTEE	61A	6 0 12-1	105.52
TAFT-FERGUSON HORACE	61A	8-1 0 14	7.60
TROW JR FRANCIS	61A	5 0 39-2	16.80
THERESA SMITH	61a	7 0 83	94.00
COLIN SCOTT	61a	5 0 64	17.50

COLIN SCOTT	61A	5 0 63	38.00
ANTHONY KWAME HARRISON	61A	9 0 6	25.74
ANTHONY KWAME HARRISON	61A	9 0 7	29.80
CHARLES PATENAUDE & TERESA HAIRE	61A	2 0 4	75.00
<b>Total Acres</b>			<b>1,748.52</b>

Source: Town of Buckland Assessors Records; November 2020.

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.



**Barn in Buckland 2016** (*Phoebe Walker*)

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.

**B.2 Privately Owned Forested Land**

Some of the largest tracts of unbroken forest land in Buckland are privately owned. Large blocks of contiguous forest support and sustain woodland species with specialized habitats that can be irreparably lost once a forest is fragmented by roads and development.

The following two tables list privately owned forestland with different levels of protection from development. 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 these taxes are lower due to the reduced value of their land. 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. Buckland currently has almost 687 (5.4 percent of town) privately owned properties that are permanently protected from development with a conservation restriction (see Table 5-4).

**Table 5-4: Forestlands with Permanent Protection from Development**

Owner	Conservation Restriction	Map/Lot	Acres
FRANKLIN LAND TRUST, INC.	Fee	2 0 43	79.20
MARK SURYA BROWN	CR	3-1 0 1	80.12
MARK SURYA BROWN	CR	3-1 0 3	2.18
MARK SURYA BROWN	CR	3-1 0 4	2.03
MARK SURYA BROWN	CR	3-1 0 6	2.64

MARK SURYA BROWN	CR	3-1 0 7	2.10
ROSE BRIAN C & RACHEL	CR	5 0 18	108.66
ROSE CHRISTOPHER & SHARON	CR	5 0 18-1	26.93
ROSE JEFFREY H & ANDREA	CR	5 0 19	46.50
ROSE BRIAN & RACHEL	CR	5 0 19-1	2.00
ROSE JEFFREY H & ANDREA	CR	6 0 10	19.93
ROSE JEFFREY H & ANDREA	CR	6 0 10-1	4.53
DVORAK JEFFREY P	CR	6 0 2	26.83
PEASE THEODORE M JR & CLAIRE V	CR	7 0 34	30.75
DANA M. & COLLEEN CLARK	CR	7 0 36	8.00
DANA M. & COLLEEN CLARK	CR	7 0 37	8.80
SEWARD CHRISTOPHER	CR	7 0 35	21.00
MOUNT HOLYOKE COLLEGE TRUSTEES	CR	8 0 30	11.60
NEW ENGLAND FORESTRY FOUNDATION, INC.	CR	9 0 22	64.00
NEW ENGLAND FORESTRY FOUNDATION, INC.	CR	9 0 25	49.80
BAUERLEIN ANTOINETTE & JIM	CR	6 0 19	88.93
<b>Total Acres</b>			<b>686.53</b>

Source: Town of Buckland Assessors Records; June 2020.

There is a new program that guarantees payment to private landowners for public access. The Voluntary Public Access and Habitat Improvement Program<sup>1</sup> is led by the Franklin Land Trust (FLT), in partnership with the MA Department of Conservation and Recreation, Berkshire Natural Resources Council (BNRC), and the MA Forest Alliance (MFA). This program is funded by the USDA Natural Resources Conservation Service. Through this program, FLT and BNRC will purchase either temporary or permanent public access easements for hunting, fishing, wildlife viewing, and hiking from willing landowners in a 28 town region in northwestern Massachusetts. Buckland is part of this region and eligible for the program. The trail easement at Dancing Fiddle Farm on Dodge Road is an example of public access made possible through the program.

Landowners participating in the Voluntary Public Access and Habitat Improvement Program must provide access for hunting, fishing, wildlife viewing, or hiking. Landowners can choose between temporary or permanent public access easements, designating public access for either a linear foot trail or for full access to the entire property. Full access easements will allow public access on all or part of the land, minus a privacy exclusion. Full access easements are not required to include hunting. A trail easement will only allow public access within a designated trail easement area. Trail easements will only be considered on existing trails contained within one ownership, or for trails that make important connections to trails on permanently protected lands that are open to the public. Funding rates will vary depending on how much land is enrolled, the duration of the easement, and if hunting is included.

Forest land that is considered temporarily protected from development includes those lands enrolled in the Ch.61 and Ch. 61B Programs. Shown in Table 5-5 is 3,928 acres of privately

<sup>1</sup> <http://www.franklinlandtrust.org/VPA%20Program%20Guide%2012-7.pdf>

owned forestland, approximately 30.9 percent of the town, with temporary protection in Buckland; 2,576, acres or 20.3 percent of the town, is privately owned forest that is enrolled in the Chapter 61 (Forestry) program while 1,352.16 acres, or 10.6 percent of the town, is enrolled in the Chapter 61B (Recreation) program. Many of the temporarily protected farms shown in Table 5-5 include farm woodlots.

All of the parcels in Table 5-5 are temporarily protected in the Ch. 61B Recreational Open Space and the Ch. 61 Forestland Classification and Taxation Program, and the degree of protection of these parcels is short term. The owner noted is also the manager of the parcel. There are no public grants awarded as a result of the Program; however, the owner does receive a property tax break over a ten-year period. All zoning in Buckland is either Rural Residential, Village Residential, Historic Industrial, Industrial, Commercial, Village Commercial, or Farm Building Reuse Overlay District.

**Table 5-5: Forestlands with Temporary Protection from Development Enrolled in the Ch.61 B Recreational Open Space and Ch. 61 Forestland Taxation Program**

Owner	Chapter Program	Map-Lot	Acres
DUVAL ANDREE M	61B	1 0 12	55.70
ISHII CATHARINE FORBES	61B	1 0 17	26.45
SINCLAIR JANET / SINCLAIR JEFFREY	61B	1 0 19	22.25
SEAVY TODD	61B	1 0 22	125.60
COSBY CAMILLE O	61B	2 0 7	59.36
MASCOLINO PAUL & APRIL	61B	3 0 19	4.40
MASCOLINO PAUL & APRIL	61B	3 0 20	11.00
HARLOW JUDY ANN TRUSTEE	61B	3 0 36	13.00
THIERINGER DONALD E	61B	3 0 36-2	31.67
RUTZ AARON F / LYDIARD SAMANTHA	61B	4 0 13	33.00
REYNOLDS TRUSTEE MONICA	61B	4 0 13-1	45.43
TAFT-FERGUSON MARTHA & HORACE	61B	4 0 15	84.90
LEE MARY K Y TRUSTEE, ORCUTT HILL REALTY TRUST	61B	4 0 20	12.40
SCALISE JOSEPH P	61B	5 0 53	15.17
SCALISE JODY	61B	5 0 54	7.70
GOODMAN LEE MARIE / TOY NORMAN P	61B	5 0 9	5.60
WOOD ROBERT A / WOOD HEATHER E	61B	5-1 0 34	38.70
ZAGRUBSKI GREGORY	61B	6 0 13	59.60
ZAGRUBSKI JOANNE R	61B	6 0 17	28.20
ORGAN JOHN F	61B	7 0 54	19.00
VALITON JAMES E	61B	7 0 69-2	10.83
TUOMINEN AMY E	61B	8 0 17	5.00
CONKLIN RICHARD L & DARLEEN	61B	8 0 21	13.42
JONAS A ROBERT	61B	8 0 36	3.00
NATURAL LIGHT RETREAT LLC	61B	8 0 38	61.00
MENDELSONH BETSY	61B	8 0 40	68.38
KHANDROLING PROPERTIES INC	61B	8 0 52	30.00
KHANDROLING PROPERTIES INC	61B	8 0 53	83.40

Owner	Chapter Program	Map-Lot	Acres
HOPKINS DAVID P / DICKSON JOAN	61B	9 0 11	9.90
173 MAIN ST LLC	61B	9 0 16	26.00
MULLEN SALLEY ROBERTS/C/O CARLTON	61B	9 0 2	2.00
MULLEN SALLEY ROBERTS/C/O CARLTON	61B	9 0 3	17.00
EARL MICHAEL P TRUSTEE	61B	9 0 34	40.00
ANDREWS BETSY ROBERTS/ CO CARLTON	61B	9 0 43	11.00
GRADER, DAVID & SUSAN	61B	5 0 21	22.24
GRADER, DAVID & SUSAN	61B	6 0 11	42.80
MOSS DALE	61B	2 0 46	22.60
MURRAY, EDWIN & CAROLINE	61B	7 0 48	60.00
HAYDEN, CIARA & JACK	61B	4 0 12	32.40
FARROW, RICHARD	61B	4 0 3-2	20.06
DZOG CHEN COMMUNITY IN AMERICA	61B	8 0 32	72.00
<b>Subtotal Ch. 61B</b>			<b>1,352.16</b>
TROW FRANCIS	61	1 0 20	20.00
YOST HEDLEY E / DEAN GORDON J	61	2 0 47	18.80
MARCH TRUSTEE MILDRED C	61	2 0 48	58.00
SIDORSKY ROBERT G & LINDA	61	3 0 18	32.90
SESSIONS CRAIG / SESSIONS JONI	61	3-1 0 8	47.90
ALLEN JOHN F	61	4 0 10	86.00
HAYDEN JACK P & CIARA R	61	4 0 12	248.60
LORD ROBERT J & LUANN	61	4 0 18	38.60
HOLDEN JOHN R / CUNNINGHAM LAURA E	61	4 0 22	50.38
FARROW RICHARD L	61	4 0 3	67.84
DODGE RUSSELL M /DODGE CHERYL	61	4 0 3-1	25.11
CROSS MELINDA	61	4 0 43	36.20
DODGE RUSSELL M TRUSTEE / DODGE LIVING TRUST	61	4 0 48-1	80.00
STEINBAUER JOHANN / MEISHER MARIA	61	4 0 5-1	20.00
LABELLE CURTIS W & NORMA J	61	4 0 54-2	5.42
LABELLE CURTIS W & NORMA J	61	4 0 58	12.90
STEINBAUER JOHANN / MEISHER MARIA	61	4 0 6	37.90
STEINBAUER JOHANN / MEISHER MARIA	61	4 0 6-1	78.00
STEINBAUER JOHANN / MEISHER MARIA	61	4 0 7	111.50
STEINBAUER JOHANN / MEISHER MARIA	61	4 0 7-1	0.60
COTE CYNTHIA A	61	5 0 12	40.00
ROSE CHRISOTPHER C & SHARON	61	5 0 18-1	24.93
CHAPMAN WALTON F TRUSTEE	61	5 0 23	20.02
TROW FRANCIS JR	61	5 0 39-1	43.70
AMSTEIN MARK A / CUMMINGS SARAH	61	5 0 68	30.10
CHAPMAN WALTON F TRUSTEE	61	6 0 12	10.97
BUELL PETER F / JUDD HONOR B	61	6 0 25	33.60
PETERS TINA	61	7 0 1	12.50
CROSS MELINDA	61	7 0 19	50.40
PETERS TINA	61	7 0 2-1	6.67

Owner	Chapter Program	Map-Lot	Acres
BROWN SANDRA J TRUSTEE / SANDRA J BROWN	61	7 0 23	12.70
COLE ROBIN	61	7 0 26	51.60
RODLEY JAMES J & LAURA	61	7 0 30	35.56
CLARK DANA M / CLARK COLLEEN M	61	7 0 32	8.00
LORD ROBERT J & LUANN	61	7 0 40	5.17
LORD ROBERT J & LUANN	61	7 0 41	20.00
LORD ROBERT J & LUANN	61	7 0 42	14.49
HUMPHREY GORDEN M TRUSTEE	61	7 0 95	41.80
MILT ELLEN M TRUSTEE / ELLEN M MILT TRUST	61	7 0 104	3.00
CONLIN, KATE & PATRICK	61	8 0 10	6.20
COTE CYNTHIA A & DONALD D	61	8 0 1-3	6.30
COTE CYNTHIA A	61	8 0 1-5	11.71
KAUFMAN MARC R / LAVINE ELLEN R	61	8 0 33	1.54
KAUFMAN MARC R / LAVINE ELLEN R	61	8 0 33-1	5.61
KAUFMAN MARC R / LAVINE ELLEN R	61	8 0 34	16.30
SALLEE BRETT W	61	8 0 4	39.60
SHIPPEE MURIEL P TRUSTEE	61	8 0 55	120.50
SHIPPEE MURIEL P TRUSTEE	61	8 0 57-1	2.00
COWLS W S INC	61	9 0 12	48.00
PECK WILLIAM A & MARY P	61	9 0 13	70.90
SIDORSKY ROBERT G & LINDA	61	9 0 17	75.00
MINER RICHARD & LORI M	61	9 0 41-1	23.50
PECK MARY P & A WILLIUM TRUST	61	8 0 9-1	21.97
TROW	61	5 0 39-2	61.13
HOLDEN, JOHN/CUNNINGHAM LAURA	61	7 0 85	6.67
LABELLE, CURTIS/NORMA	61	4 0 54	2.00
HEIRS OF LOIS BUELL	61	6 0 19	88.94
RODLEY, JAMES/LAURA	61	7 0 31	0.70
CLARK, DANA & COLLEEN	61	7 0 36	8.80
CLARK, DANA & COLLEEN	61	5 0 10	41.80
TOY/GOODMAN	61	5 0 10	85.40
CONLIN/LINDROOS	61	9 0 11	9.95
ORGAN, JOHN	61	7 0 54	107.80
ORGAN, JOHN	61	7 0 90	8.00
PEASE	61	7 0 34	30.75
RICHARDSON, KEVIN	61	4 0 4	57.60
RICHARDSON, KEVIN	61	4 0 5	33.60
ROBERTS, EDWARD	61	7 0 77	25.99
SHEA/KYUNO	61	8 0 15	10.21
SHEA/KYUNO	61	8 0 16-3	5.81
		<b>Subtotal Ch. 61</b>	<b>2,576.14</b>
		<b>Total Acres</b>	<b>3,928.30</b>

Source: Town of Buckland Assessors Records; November 2020.

Lands in Chapter 61A and 61 (forestry) are not required to provide public access. Chapter 61B lands in the “natural, wild, or open” category can post their land to exclude public access, however “recreation” lands must be open to public access unless the landowner is an organization with paying members.

**Table 5-6: Religious Institution Land with Limited Protection**

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condition	Recreation Value	Public Access	Acres	Zoning	Degree of Protection
Mary Lyon Church	Church	5-1 0 15	Worship	Excellent	N/A	Good	0.47	Rural Residential	Limited Protection
Southern NE Conf. 7th Day Adventist	Church	6-2 0 13	Worship	Good	N/A	Good	0.37	Rural Residential	Limited Protection
Roman Catholic Bishop	Church	6-2 0 89	Worship	Good	N/A	Good	6.00	Rural Residential	Limited Protection
Shambala International	Lodge	6-2 0 95B	Meetings	Good	N/A	Good	0.47	Rural Residential	Limited Protection
<b>Total Acres</b>							<b>7.31</b>		

**B.3 Significance of Private Land Holdings with Protection in Buckland**

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.

**C. PUBLIC 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 354 acres of publicly owned open space in Buckland, accounting for about 5.2 percent of total open space in Buckland and 3.7 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 152 acres. The Kenneth Dubuque Memorial State Forest (formerly the Hawley State Forest) parcel contains 60 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 one parcel that is owned by the Commonwealth of Massachusetts. The parcel located in the southeastern corner of Buckland is comprised of 92 acres of land with hiking and cross-country skiing trails.

**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	60.00
DCR	Buckland State Forest	9 0 23	State Park	Hiking, cross-country skiing, nature study. No facilities.	Fair	92.00
<b>Total Acres</b>						<b>152.00</b>

Source: Town of Buckland Assessor’s Records and Maps, 2020

The Town of Buckland owns approximately 202 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 set aside for 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 Town-owned Buckland Recreation Area offers a variety of facilities, including a basketball court, a baseball diamond, trails, and a playground. Constructed in 1963, the Rec Area’s beloved 50-year-old swimming pool had to be demolished in 2016 due to unreparable leaks. Since 2016, the Buckland Recreation Committee has been overseeing the planning, fundraising, and implementation of a number of improvement projects for the facility. In 2016, the Town received a \$32,000 PARC grant to install a playground that will enhance community use of the property in the absence of a pool. This new playground was installed in 2018 with the help of Franklin County Technical School students. In 2017, a generous

\$500,000 gift from an anonymous donor launched the planning process for a new pool, leading to a site analysis and development of feasibility assessment of design alternatives. As the result of several public meetings, the Recreation Committee voted to pursue the construction of a new pool house and pool—one designed to better accommodate the accessibility needs of children and seniors. With the help of the Franklin County Sheriff’s Office’s Community Service Crew, the Town renovated the existing pool house into an operations center for the Buckland Recreation Area summer camp in 2018. Phase 1 of the project commenced in 2019, which involved rerouting the access road farther away from the eroding banks of Clesson Brook and installing new underground electric service. Fundraising for the remaining \$600,000 of the \$1.1 million project began in 2020 once the committee received non-profit status approval for the Friends of the Town of Buckland, MA Recreation Area. Later in the year the Rec Area’s pavilion and pedestrian facilities were upgraded to make the pavilion handicap accessible. A new basketball court, which will also accommodate pickle ball, four square, and hopscotch, is also now in the works for the Rec Area thanks to another anonymous donation.



**Buckland Recreational Area Pool in 2016** (Paul Franz)

**Table 5-8: Town-Owned Parcels of Land with Limited Protection from Development**

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condi tion	Recreation Value	Public Access	Acres	Zoning	Degree of Protection
Town of Buckland	Buckland Recreation Area	2 0 18	Swimming baseball basketball picnicking playground hiking	Good	Excellent	Good	32.50	Rural Residential	Limited Protection
Town of Buckland	Buckland Town Hall	6-1 0 34	Municipal	Excell ent	Excellent	Excellent	0.15	Village Commercial	Limited Protection
Town of Buckland	Town Of Buckland, William Street	6-1 0 35	Parking lot	Good	Poor	Excellent	0.13	Village Residential	Limited Protection
Town of Buckland	Town Of Buckland	6-2 0 118	Freight Yard	Fair	Fair	Good	0.70	Historic Industrial	Limited Protection
Town of Buckland	Town Garage and Sheds, Conway St.	6-2 0 122	Buckland DPW	Poor	Poor	Poor	0.36	Rural Residential	Limited Protection

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condi tion	Recreation Value	Public Access	Acres	Zoning	Degree of Protection
Town of Buckland	Wastewater Treatment Plant	6-5 0 15	Wastewater Treatment	Good	N/A	Good	4.47	Village Residential	Limited Protection
Town of Buckland	Buckland Landfill Site	8 0 62	Landfill capped, Transfer station	Excell ent	N/A	Good	11.00	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	Rural Residential	Limited Protection
Town of Buckland	Town Common	5-1 0 14	Parking lot, Open air events	Good	Good	Good	0.72	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	Excell ent	Excellent	Excellent	64.99	Rural Residential	Limited Protection
Shelburne Falls Fire District	State Street	3-3 0 40	Fire station	Very Good	N/A	N/A	0.845	Village Residential	Limited Protection
Shelburne Falls Fire District	Walker Road	6 0 20-1	Water tank site	Excell ent	N/A	N/A	1.38	Rural Residential	Limited Protection
Buckland Fire District	Hodgen Road	8 0 48	Fire station	Good	N/A	Good	1.00	Rural Residential	Limited Protection
Shelburne Falls Fire District	Crittenden Hill Road	6-2 0 154	Abandoned water tank	Fair	N/A	N/A	0.22	Rural Residential	Limited Protection
Buckland Public Library	Buckland Public Library	5-105	Library	Good	Excellent	Good	0.32	Rural Residential	Limited Protection
Buckland Public Hall Association	Grange Hall	5-1 16	Community gatherings	Excell ent	Excellent	Good	0.49	Rural Residential	Limited Protection
Buckland Historical Society	T/B Buckland Center School	5-1 0 1	Historical Society	Good	Excellent	Good	0.32	Rural Residential	Limited Protection
Town of Buckland	Chadwick Memorial (Cricket) Field	6-3 0 12	Ball field, horseshoes	Excell ent	Excellent	Excellent	3.50	Historic Industrial	Limited Protection
Buckland Historical Society	Wilder Homestead	5 0 4	Recreation destination	Good	Excellent	Good	45.20	Rural Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 119	Recreation destination	Good	Good	Good	0.57	Village Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 120	Recreation destination	Good	Good	Good	1.68	Village Residential	Limited Protection
Shelburne Falls Trolley Museum	Museum	6-2 0 120-1	Recreation destination	Good	Good	Good	0.01	Village Residential	Limited Protection
Town of Buckland	Police Station	6-3 0 25	Municipal	Good	N/A	N/A	0.60	Village Residential	Limited Protection
Town of Buckland	Town Of Buckland	5 0 69	Vacant	N/A	N/A	N/A	9.70	Rural Residential	Limited Protection
Town of Buckland	Town Of Buckland	9 0 19	Vacant	N/A	N/A	N/A	2.00	Rural Residential	Limited Protection
Town of Buckland	Town Of Buckland	9 0 21	Vacant	N/A	N/A	N/A	2.00	Rural Residential	Limited Protection

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condi tion	Recreation Value	Public Access	Acres	Zoning	Degree of Protection
<b>TOTAL</b>							<b>192.46</b>		

Source: Town of Buckland Assessor’s Records and Maps, 2020.

Table 5-9 lists the cemeteries in Buckland, which are owned by various cemetery association, private landowners, 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, though in Buckland’s case some of that responsibility falls on private landowners.

**Table 5-9: Permanently Protected Land – Cemeteries**

Owner/Property Manager	Site Name	Map-Lot	Acres
Private landowner	Buckland Cemetery, Hog Hollow Road	5 0 17	0.5
East Buckland Cemetery Association	Buckland Cemetery, East Buckland Road	5 0 20	0.5
Buckland Union Cemetery Association	Taylor Cemetery & Trow Cemetery, Charlemont Road	5 0 38/38-1	2.13
Buckland Union Cemetery Association	Center Cemetery/Mary Lyon Cemetery, Upper Street	5-1 0 17	3.6
Town of Buckland	Old Cemetery #3, Upper Street	Part of above parcel	
Buckland Union Cemetery Association	Upper City Cemetery, Cemetery Road	7 0 12	1.6
<b>TOTAL</b>			<b>9.2</b>

Source: Town of Buckland Assessor’s Records and Maps, 2020; MassGIS Open Space data, 2020.

Two large, privately owned parcels have conservation value and are used by the public but are currently unprotected (Table 5-10).

**Table 5-10: Unprotected Land of Conservation or Recreation Interest**

Owner/ Property Manager	Site Name	Map / Lot	Current Use	Condition	Recreation Value	Public Access	Acres	Zoning	Degree of Protection
Central Rivers Power	Gardner Falls Project	6-7 0 2	Trails, river access	Good	Excellent	Excellent	30.65	Historic Industrial	Limited Protection
Association for Community Living	Creamery Avenue	3-1 0 15	Foundation	N/A	N/A	N/A	23.32	Rural Residential	Limited Protection
<b>Total Acres</b>							<b>53.97</b>		

**D. Recreational Resources and Open Space Equity**

Open Space Equity means taking a look at conservation and recreation opportunities available in the town and seeing if there is an area of the town that seems to be lacking resources. There is a heavier concentration of people around the center of town, but most other residences are spread out along the rural roads in town. There are a host of activities that people do both within town and out of town. The most popular activities according to the Open Space Survey are walking and hiking, swimming, biking, boating/kayaking, running, nature/birdwatching, and camping. Most of these activities can be done throughout Buckland.

Much of these recreational resources are on public land, owned by the Town and the State, including Buckland State Forest, Buckland Recreation Area, Veterans/Cricket Field, and village streets and scenic byways. Privately owned lands town wide, including destinations such as Malley Park, Gardner Falls, and Walnut Hill, also offer residents access to their favorite outdoor recreation activities, such as swimming in the Deerfield River, strolling along the village sidewalks, and hiking through forests. However, most respondents to the 2019 Buckland Open Space and Recreation Survey acknowledged that the reduced access to recreational programs and facilities at Buckland Recreation Area, in particular the closure of the pool, represented a major loss for the community. In addition to bringing back the pool at Buckland Recreation Area, survey respondents indicated that access to the Deerfield River for swimming has diminished, and that the Town’s roadways had become less safe for walking and road bicycling.

Lack of public access to the Deerfield River, other large waterways in town including Clesson Brook, is a major drawback for Buckland residents. The frustration is greatest in the context of the village center. Committee members, survey respondents, and residents alike expressed a strong desire to be able to access the Deerfield River, especially along the reach through the village where the scenic view of the flowing water and majestic glacial potholes have an alluring draw. However, for this vision to be realized, several challenges will have to be addressed, including accessing river frontage, providing universal accessibility with ADA complaint amenities wherever possible, and minimizing parking and traffic issues associated with extra visitors in town to enjoy the river.

Another idea is to create river access on the Clesson Brook upstream of its convergence with the Deerfield River. Such a project is away from the village center at the Town’s other key recreational site, Buckland Recreation Area, which is adjacent to the lower reach of Clesson

Brook. A public river access project here could provide some of the desired opportunities for swimming and could address urgently needed streambank stabilization and riparian buffer restoration on Clesson Brook. This idea was discussed favorably by the landowners on both sides of the brook in this location: the Town of Buckland and Great River Hydro (GRH), at the February 19, 2021 zoom meeting which was convened after the Public Forum to follow up on the discussion about increasing river access in town. The Open Space and Recreation Committees, together with the Town Administrator, residents, and GRH, intend to continue exploring potential river access opportunities for Buckland. The group is considering where public river access is desired and/or already occurring in town, where it may be possible to engage parcel owners in planning for public access on their property, where the Town could create river access on town-owned land, and where recreational river access projects could be combined with streambank stabilization and riparian habitat improvement.

### **E. OPPORTUNITIES FOR FUNDING OPEN SPACE AND CONSERVATION PROJECTS IN BUCKLAND**

The opportunities for the Town of Buckland to procure funding for open space projects can be a challenge. Buckland is a small town with limited financial resources available for funding open space projects. The following paragraphs provide a brief description of some of available resources for funding open space and conservation projects, with applicant type noted below the grant name. Many of these grants are offered by the Department of Conservation Services and Towns are eligible for the funding with an approved and updated 7-year Open Space and Recreation Plan. In addition, two reports from the Highstead Foundation and Harvard Forest provide additional information on recent trends in private and public funding of land conservation in New England:

*Foundation Funding for Land Conservation in the Northeast: Trends in Grant Making between 2004 and 2014 -*

<https://www.wildlandsandwoodlands.org/sites/default/files/Foundation%20Report%202019%20-%20FINAL.pdf>

*Public Conservation Funding in New England: Recent Trends in Government Spending on Land Protection -*

<https://www.wildlandsandwoodlands.org/sites/default/files/Public%20Funding%20LR.pdf>

#### **E.1 Regional and Statewide Conservation Organizations**

Local and statewide conservation organizations exist to conserve and steward land in partnership with municipalities and landowners. In addition to providing various paths toward protecting land from development, they are also experienced partners in many of the following funding opportunities.

The Franklin Land Trust (FLT) works with farmers and other landowners to protect their land from unwanted development. The organization works to conserve farms, forests, wildlands, and other natural resources through the values of regional sustainability (through local economy and balanced community growth, land stewardship, community

involvement, and support for the goals of landowners. FLT serves landowners in towns in western Franklin and Hampshire counties, protecting land by holding CRs and APRs on private property and purchasing property in fee

<http://www.franklinlandtrust.org/>

In addition to FLT, several other regional and statewide conservation organizations have completed conservation projects in Warwick and continue to be available for partnership conservation projects. The New England Forestry Foundation (NEFF) owns Lucky Dog Forest in Buckland (and Conway). NEFF's focus is conserving managed forest lands. Additional organizations include the Trustees of Reservations, Massachusetts Audubon Society, and The Nature Conservancy. Each of the conservation organizations identified above have 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 funding programs.

<https://newenglandforestry.org/>

## **E.2 Grant Opportunities**

### **Local Acquisitions for natural Diversity (LAND) Grant Program (formerly the Self-Help grant program)**

#### ***Municipal conservation and agricultural commissions***

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. This program was formerly known as the "Self Help" grant program and is now entitled the LAND grant program (Local Acquisitions for Natural Diversity). Conservation or Agricultural Commissions from communities with an up-to-date Open Space and Recreation Plan are eligible to apply for reimbursement grants to acquire land for conservation and passive recreation in fee or for a conservation restriction. The grant supports the purchase of forests, fields, wetlands, wildlife habitat, unique natural, cultural, or historic resources, and some farmland. The public must have reasonable access to the land. Reimbursement rates are between 52-70%, with a maximum grant award of \$400,000.

<https://www.mass.gov/service-details/local-acquisitions-for-natural-diversity-land-grant-program>

### **PARC Grant Program**

#### ***Municipalities***

The Parkland Acquisitions and Renovations for Communities (PARC) Grant Program, offered by the Executive Office of Energy and Environmental Affairs, Division of Conservation Services, was established to assist cities and towns in acquiring and developing land for park and outdoor recreation purposes. These grants can be used by municipalities to acquire parkland, build a new park, or to renovate an existing park. Applications are open to all municipalities that have submitted an up-to-date Open Space and Recreation Plan, however, the number of residents in a town may affect the grant amount. Reimbursement rates are between 52-70%, with a maximum grant award of \$400,000.

<https://www.mass.gov/service-details/parkland-acquisitions-and-renovations-for-communities-parc-grant-program>

### **Massachusetts Land and Water Conservation Fund Grant Program**

#### ***Municipalities***

The Massachusetts Land and Water Conservation Fund Grant Program is offered through the Executive Office of Energy and Environmental Affairs, Division of Conservation Services, and is funded from the Federal Land and Water Conservation Fund. The program provides up to 50% reimbursement for the acquisition of parkland or conservation land, creation of new parks, renovations to existing parks, and development of trails. Municipalities with up-to-date Open Space and Recreation Plans are eligible to apply.

<https://www.mass.gov/service-details/massachusetts-land-and-water-conservation-fund-grant-program>

### **Conservation Partnership Grant Program**

#### ***Non-profits***

This is a State grant program that is designed to help land trusts and other non-profit conservation organizations acquire interests in land for conservation or recreation purposes. Potential projects fall into one of two categories: acquisition of the fee interest in land or a conservation restriction; or due diligence for land or a conservation restriction that was donated to the organization. The maximum reimbursement amount available for a single project is 50% of the total eligible project cost up to the grant award maximum of \$85,000. This is a resource that could be helpful to Buckland because there are so many parcels in Town with high conservation value and only temporary protection status that organizations such as FLT would be interested in working with the Town to conserve. The challenge is finding funds for the remaining 50% of the project.

<https://www.mass.gov/service-details/conservation-partnership-grant-program>

### **Landscape Partnership Grant Program**

#### ***Federal, state, local governments and non-profits***

This State grant program provides funding for large-scale (minimum of 500 acres), joint conservation projects completed in partnership with federal, state, and local governments, and non-profits. The grant is a reimbursement for up to 50% of the project cost with a maximum grant award of \$1,250,000. Eligible projects include: purchase of land in fee simple for conservation, forestry, agriculture, or water supply purposes; purchase of a Conservation Restriction, Agricultural Preservation Restriction, or Watershed Preservation Restriction; and construction of a park or playground in communities with less than 6,000 residents. Applications must be submitted jointly by two or more applicants including municipalities, non-profits, and State agencies.

<https://www.mass.gov/service-details/landscape-partnership-grant-program>

### **Agricultural Lands Conservation Program / Wetlands Reserve Easements**

#### ***Landowners***

This is a federal funding program through the United States Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS). The program provides financial and technical assistance to help conserve agricultural lands and wetlands. Under the

Agricultural Land Easements component of the program, NRCS helps state and local governments and conservation organizations protect working agricultural lands and limit non-agricultural uses of the land. NRCS provides up to 50% of the fair market value of the agricultural land restriction. Under the Wetlands Reserve Easements component of the program, NRCS helps to restore, protect and enhance wetlands. Depending on the length of the restriction, NRCS may pay up to 100% of the cost of the restriction as well as wetland restoration costs.

[https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ma/home/?cid=nrcs143\\_008419](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ma/home/?cid=nrcs143_008419)

### **MDAR Stewardship Assistance and Restoration on APRs**

#### ***APR landowners***

This grant is intended to help APR landowners restore APR land that was once in agricultural production to be put back into production. In addition, funds may be used to restore farm resources that have been negatively impacted by flooding, erosion, storms, tornadoes and other natural disasters or for restoration on land impacted by a third party.

<https://www.mass.gov/service-details/stewardship-assistance-and-restoration-on-aprs-sara>

### **Recreational Trails Program**

#### ***Municipalities, non-profits, and landowners***

This grant is a federal assistance program of the United States Department of Transportation's Federal Highway Administration (FHWA), administered at the State level through MassTrails, part of the DCR. It provides funding for the development and maintenance of both motorized and non-motorized recreational trail projects.

<https://www.mass.gov/guides/recreational-trails-program>

### **Community Forest and Open Space Conservation Program**

#### ***Municipalities, non-profits, federally recognized Indian tribes***

This grant provides funds to establish community forests through fee simple acquisition of private forest land from a willing seller. The program aims to establish community forests by protecting forest land from conversion to non-forest uses and providing community benefits.

<https://www.mass.gov/guides/community-forest-grant-program>

### **Partners for Fish and Wildlife**

#### ***Municipalities, non-profits, landowners, and tribal organizations***

This grant program supports fish and wildlife conservation projects on private lands. Eligible projects include restoring trust with local communities, modernizing fish and wildlife infrastructure, conservation projects near National Wildlife Refuge lands, expansion of priority habitats and wildlife corridors, and regional strategic conservation plans. Awards of up to \$750,000 are available. Consult with your Regional Partners for Fish and Wildlife Program office before submitting an application.

<https://www.fws.gov/partners/>

### **Clif Bar Family Foundation Small Grants Program**

#### ***Non-profits and other small- or medium-sized organizations***

The Foundation supports innovative small and mid-sized groups working to protect the Earth's beauty and bounty, create a healthy food system, increase opportunities for outdoor activity, reduce environmental health hazards, and build stronger communities.

<http://clifbarfamilyfoundation.org/Grants-Programs/Small-Grants>

### **Mass Wildlife Habitat Management Grant Program**

#### ***Municipalities and landowners***

This provides funds to owners of conserved lands to enhance wildlife habitat, while promoting public access for outdoor recreation. The grant encourages landowners to engage in active habitat management on their properties to benefit many types of wildlife, including species of greatest conservation need and game species. Over the past 5 years, the MHMGP has awarded over \$1.9M in funding for 74 habitat projects.

<https://www.mass.gov/guides/masswildlife-habitat-management-grant-program-mhmgp>

### **Municipal Vulnerability Preparedness Action Grants**

#### ***Municipalities***

This grant offers financial resources to municipalities that are seeking to advance priority climate adaptation actions to address climate change impacts resulting from extreme weather, sea level rise, inland and coastal flooding, severe heat, and other climate impacts. Municipalities who have received designation as a Climate Change Municipal Vulnerability Preparedness (MVP) Community map apply. All projects are required to provide monthly updates, project deliverables, a final project report, and a brief project summary communicating lessons learned. The municipality is also required to match 25% of total project cost using cash or in-kind contributions.

<https://www.mass.gov/service-details/mvp-action-grant>

### **Community Preservation Act**

#### ***Municipalities and Non-profits***

The Community Preservation Act is legislation that allows cities and towns to raise funds for use in local open space, historic preservation, community housing, and outdoor recreation projects. The Community Preservation Act (CPA) provides new funding sources which 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 state matching fund, which serves as an incentive to communities to pass the CPA. . Municipalities must adopt the Act by ballot referendum. Communities can choose to exempt the first \$100,000 of taxable residential real estate value, as well as low income households, from the surcharge. Buckland voted down adoption of the CPA at a 1% surcharge in 2002. The issue has not been brought to town vote since.

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.

<https://www.communitypreservation.org/about>

# SECTION 6

## **COMMUNITY GOALS**

### **A. DESCRIPTION OF PROCESS**

The Town of Buckland's open space and recreation goals were developed through the following planning process:

- In 2010, the Town of Buckland completed an Open Space and Recreation Plan.
- In 2020, the Town updated the Open Space and Recreation Plan to reflect existing conditions in Buckland and public consensus.
- Beginning in August 2019 to March 2021, the Open Space Planning Committee and the Franklin Regional Council of Governments Planning Department developed and updated the Open Space and Recreation Plan using several methods for involving public participation:
  - The Open Space and Recreation Survey results were used to support the development of Section 8 Goals and Objectives as well as the overall open space and recreation goals and vision.
  - A total of nine (9) public meetings were held by the Open Space Planning Committee and were open to the public.
  - Drafts of each section of the plan were sent to the Open Space Planning Committee members representing key Town boards and community groups.
  - A public forum was held on January 28, 2021, where residents reviewed and discussed the inventory, analysis, community goals, objectives, and seven-year action plan. All public comments were recorded and incorporated into the plan.

### **B. STATEMENT OF OPEN SPACE AND RECREATIONAL GOALS**

Its distinctive natural beauty and rural character, shaped by a long history of agriculture and industry, make Buckland a desirable place to live today. Residents are surrounded by incredible environmental and scenic resources, including streams and rivers, bountiful open fields and forests. Several public spaces and recreational facilities are located in the village center in Shelburne Falls, and public services and recreational programming are available.

According to the 2019 Open Space and Recreation Survey and the Open Space and Recreation Committee, the overarching vision for the future of open space and recreation in Buckland is to improve physical access to, and quality of, the Town's current open

space amenities and to expand opportunities for people of all ages to engage in programmed and passive recreation activities. Buckland will achieve a balance between conserving land and natural resources to ensure the presence of diverse wildlife habitats, the purity of water and air, and the continued scenic and historic character of the town with the need for commercial and industrial growth, a vibrant tourist economy, and a mix of new housing. New housing would be encouraged in and around the existing village centers and developed areas. Development along the rural roads would occur in a manner that protected open fields and habitat areas where possible and ensured the continued quality of the Town's groundwater, wetlands, swamps, and aquifers.

The 2019 Open Space and Recreation Survey and the Open Space and Recreation Committee indicated that a particular focus is needed on upgrading and maintaining and existing Town-owned recreational facilities at Buckland Recreation Area and other public parks in town, but that it would be balanced with efforts to connect public and privately owned open space offering places to swim, hike, cycle, and ski. Residents would be able to gain universal access to the Deerfield River for swimming, fishing and boating by way of Town-owned waterfront lands. A multi-use trail network would connect nearby scenic destinations including the Potholes, Bardwells Ferry, and Buckland State Forest through town with loops trails to neighboring towns.



**Buckland Recreation Area** (*Phoebe Walker*)

# 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 most important parcels of land 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 section, the recreation and open space needs of residents are identified using the 2019 Open Space and Recreation Survey, data from Sections 3, 4, and 5, and committee input. Finally, the obstacles to the effective resolution of these needs are addressed including organizational barriers and the most significant land use conflicts concerning open space and natural resource use.



**Paddlers on the Deerfield River under the Bridge of Flowers** (*Phoebe Walker*)

### A. SUMMARY OF NATURAL RESOURCE PROTECTION NEEDS

Buckland residents value their forests, water bodies, and the quality of the air, water, and wildlife habitat in the Town’s natural areas. According to the 2019 Open Space Survey, nearly 80 percent or more of survey respondents stated that it was important or very important to protect land along rivers and streams, 69 percent felt that forestland should be protected, and 69 percent felt that land should be protected for wildlife habitat and other natural resources. Fortunately, these priorities are highly compatible. The protection of forestland and land along rivers and streams has the added benefit of also protecting wildlife habitat.

According to the 2019 Open Space survey results, respondents’ highest open space protection priorities are:

- 1) Protect land along rivers and streams from severe storms, flooding hazards, and proliferation of invasive species (80%);
- 2) Protect land for wildlife habitat and other natural resources (69.2%);
- 3) Protect forestlands (68.8%);

The percentage of respondents who felt that protecting land for passive recreation such as hiking and biking (61.7%) should be considered high priority was approximately equal to those who felt that protecting productive farmland and encouraging active agriculture (60.7%) should be considered high priority on the same question. Protecting scenic views was favored the least (53%) as a high priority for the town.

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

- Mitigating expanses of Japanese knotweed along the banks of the Deerfield River and new areas of spread;
- Addressing flooding issues;
- Addressing fluvial erosion hazards on Clesson Brook at Buckland Recreation Area and upstream of the Rte. 112 bridge;
- Protecting and managing river corridor areas around Clesson Brook and the Deerfield River to help prepare for more frequent and intense precipitation driven by climate change;
- Protecting surface waters and potential sources of drinking water (aquifers); and
- Protecting and increasing habitat resource areas for wildlife and pollinators.

### **A.1 Riverfront Areas**

Protecting land along rivers and streams provides multiple benefits. Riparian buffer areas help protect water quality by filtering and slowing stormwater runoff from adjacent land uses and support habitat for species that rely on cool water temperatures. Permanently protected land along rivers can help attenuate flood waters and protect life and property downstream from the impacts of a hurricane or Tropical Storm. Riverfront areas can provide public access, depending on whether the land is publicly or privately owned, and the details of the restriction on the property. Improving and expanding river access in Buckland is a priority for the Town and was noted by many respondents in the Buckland Open Space and Recreation Survey. Several sites on the Deerfield River would provide ideal river access for town residents and river recreationalists.

### **A.2 Forestland and Wildlife Habitat**

A total of 84 percent of Buckland's land is forested and provides a rich habitat for wildlife while helping maintain healthy watersheds for the Town's water bodies. Large blocks of contiguous forest, wetlands, and streams create a diversity of habitats for a large variety of common, specialized and endangered wildlife species. Forestlands provide recharge to the aquifers that supply drinking water to residents and provide extensive, desirable places for people to recreate.

The challenge for many rural towns like Buckland is to grow in population without diminishing natural resources like clean 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. 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 could help provide jobs and small-scale commercial enterprises that serve the community, and careful and appropriate housing development can better meet the variable, and sometimes specific, needs of residents urgently in search of suitable dwellings in town. Most Buckland residents understand the need for balance and respect the rights of property owners, including their right to develop or to conserve their 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 as well as meeting their day-to-day needs. In 2016, the Buckland Housing Plan Committee, with assistance from the FRCOG, conducted a housing study with input from a public forum and survey. The plan identified different types of housing needs in Buckland and provided the Planning Board with a basis for considering amending the zoning bylaws to better accommodate the current demand. The potential zoning changes would support the development of dwelling types that address primary housing needs – those of first-time homebuyers, rentals, seniors, and persons with disabilities – and would accommodate them in suitable zoning districts across the town. The plan included recommendations for zoning changes in rural and village districts that would address primary housing needs in both settings.

When respondents to the 2016 Housing Plan Survey were asked how and where new housing should be developed in Buckland, 87 percent favored reuse of existing buildings in the village, 52 percent favored infill on vacant or oversized lots in the village, and 36 percent favored new housing along existing roads outside of the village. 24 percent favored the creation of new roads and building lots where at least half of the development is preserved as open space, and just 5 percent favored new roads and building lots in town without any preserved open space in the development. Responses to the 2019 Open Space survey housing question reflect opinions of the 2016 housing survey, with 73 percent of responses in favor of new housing in existing buildings and lots downtown, 72 percent favoring new housing in the village centers and surrounding neighborhoods, and 23 percent indicating that they would like to see new housing in rural areas.

Buckland's Farm Building Reuse Bylaw is designed to help balance new development in rural areas with the permanent protection of farmland. The idea is that by using existing buildings for new commercial or residential development, Buckland could see an improved tax base while forest or farmland would remain undeveloped. The Farm Building Reuse Bylaw supports local farming by allowing an additional revenue source for farmers with the addition of commercial uses, local jobs and direct sales at local farms. This strategy works well in combination with heritage-based eco-tourism in the town and surrounding region that draws on interest in historic preservation, bicycle and hiking trail systems, and sustainable agriculture. There is also an awareness that 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.

Nearly 78 percent of respondents to the 2019 Open Space survey were in favor of the Town working with land trusts and state agencies to educate and support landowners in protecting their land from development. Informing landowners about land protection options was not important to 10 percent of respondents, and approximately 12 percent expressed concern for restrictive zoning and finding a balance between land protection and the need for housing and economic growth.

Of respondents who own at least 5 acres of undeveloped land who were asked what private landowner initiatives they would personally be willing to do where their own land was concerned, responses were as follows:

- I would do none of these private landowner initiatives (17%)
- Rewrite my deed to limit future development on my land (14%)
- Sell or donate a conservation restriction to the Town, State or land trust (13%)
- Donate my land to a land trust (4%)
- Sell my land to the Town at fair market value (3%)
- Sell my land to the Town for a less than appraised value (3%)
- Donate my land to the State Division of Fisheries & Wildlife or DCR (3%)

When asked about utilizing the Community Preservation Act to raise money for land conservation and recreation as well as community housing and historic preservation in Buckland, responses were primarily positive. The most respondents (33 percent) supported a 3% property tax surcharge, 25 percent supported a 2% property tax surcharge, 22 percent supported a 1% property tax surcharge, and 22 percent indicated that they need to know more about the CPA, and 16.5 percent did not want CPA.

Specific parcels of land or areas of town that the 2019 Open Space survey respondents felt should be protected from development are summarized as follows:

- Farm land along Route 112
- Frontages on main roads
- Deerfield River and adjacent parcels of land
- Pastoral lands and forests
- Clesson Brook and surrounding open space and farmland
- Creamery Avenue and Crittenden Hill Road and surrounding land
- All open space should be protected

## **B. SUMMARY OF COMMUNITY'S NEEDS**

Planning for a community's open space and recreation needs must work to satisfy the present population's desires for new facilities, spaces, and services and also 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 years, the types of actions that are identified in Section 9 take into account the needs of the next generation as well.

The Commonwealth completed The Statewide Comprehensive Outdoor Recreation Plan (SCORP), *Massachusetts Outdoors 2017*, an update of the SCORP 2012 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. As part of the update process to the 2017 SCORP, a survey of Massachusetts residents was conducted to assess their desires and needs for outdoor recreation. The surveys show that the top priority for survey respondents is the desire for more trails of all kinds, including more town-wide trail systems, hiking trails, and multi-use trails for both walking and bicycling.

The 2019 Open Space and Recreation Survey, discussions at Open Space Planning Committee meetings, and research into the ownership, protection status, and use of existing open space parcels in Buckland helped to identify several community needs relating to open space and recreation resources. The priorities of the SCORP were reflected in responses from the Buckland Open Space Survey, which specified the need for safety improvements, reconstruction, and signage on roads and sidewalks for walking and bicycling, as well as trails for hiking, skiing, snow shoeing, and horseback riding. Respondents identified the need for trail access between existing natural area destinations in Buckland and neighboring towns and increased access to natural areas in town for camping, bird watching, and riding recreational vehicles. Water activities were the top priority and focused on bringing back the municipal pool for swimming, and increasing access to local rivers, particularly the Deerfield River for swimming, fishing and boating. The current survey reflects the needs expressed by residents in the 2010 Open Space and Recreation Survey.

The overarching goals are: increased river access; installation of a new pool at Buckland Recreation Area, maintenance of existing recreation facilities and open space; pedestrian, cyclist, and universal accessibility improvements to roads and sidewalks; expanded multi-use trail system within and across town; expanded recreational programs for seniors and children; improved signage and wayfinding for hikers; and increased community outreach informing resident of existing recreational resources.

According to the 2019 Open Space Survey, and Committee Meeting discussions, the ten (10) most popular recreational activities in town are:

- 1) Walking (94%)
- 2) Hiking (74%)
- 3) Swimming (66%)
- 4) Biking (60%)
- 5) Boating/kayaking (53%)
- 6) Skiing (51%)
- 7) Nature/Birdwatching (45%)
- 8) Running (40%)
- 9) Camping (36%)
- 10) Fishing (31%)

According to the 2019 Open Space Survey, and Committee Meeting discussions, the top recreation priorities for Buckland are:

- 1) Replace the pool at Buckland Recreation Area (identified by numerous “other” comments in survey)
- 2) Address lack of public river access on the Deerfield River (58%)
- 3) Develop more trails for passive recreation such as hiking, cycling, cross-county skiing, and horseback riding, and to increase connectivity of existing trails (50%)
- 4) Continue work addressing streambank erosion on Clesson Brook at Buckland Recreation Area (46%)
- 5) Add more recreational programs for kids and teenagers (41%)
- 6) Develop opportunities for winter exercise including walking paths that are safe and well-lit year-round (40%)
- 7) Develop river access on Clesson Brook at Buckland Recreation Area (35%)
- 8) Create small parks, playgrounds, and community gardens around downtown (32%)
- 9) Add more recreational programs for adults and older adults (23%)
- 10) Develop more trails for motorized recreation, such as snowmobiling and ATV’s and to increase connectivity of existing trails (4%) Conversely, 80 percent of respondents felt this was a low priority for the town with one voicing strong opposition to motorized vehicles on trails and citing noise, pollution, and land and wildlife disruption that they cause.

Action items related to these popular activities include developing a network of trails as well as maintaining and creating bike and pedestrian paths, building the new pool at Buckland Recreation Area, exploring options for access to the Deerfield River, and identifying key wildlife corridors for preservation.

Increased public river access to the Deerfield River for swimming, fishing, and boating was the top recreation priority for Buckland in 2019 Open Space Survey as well as a top need expressed by residents in the 2010 Survey. Actions items that support this objective include working to identify potential access points to river frontage on the Deerfield River and Clesson Brook and work with local organizations and groups to create public trails leading to waterfront access. Proposed locations for new trails and river access

identified in the 2019 Open Space survey and discussions at Open Space and Recreation committee meetings include the following:

- Deerfield No.3 powerhouse
- Behind Lamson and Goodnow Manufacturing complex
- At the end of Creamery Ave
- Clesson Brook at Buckland Recreation Area

The Deerfield River Watershed Association's (DRWA) bacteria sampling program is a great benefit for the town. Data collection lets river users know whether a place is generally clean enough to swim in or not. Bacteria results indicate that Clesson Brook does tend to meet water quality standards for swimming. An important guideline for swimming, however, is to stay out for about 24 hours after rainfall. DRWA's ongoing water quality testing program is an asset that should be supported by the Town.

River Corridor mapping and prioritized land protection actions, especially involving recreational trail easements and river corridor easements on important privately owned properties in Buckland also support the goal of increasing public river access. Invasive species mitigation that targets knotweed in the riparian buffer of the Deerfield River is the focus of additional actions and includes working with Deerfield River Watershed Association to establish a knotweed removal and management area that also provides new river access.

Formed in 2019, the Buckland Shelburne Trails Alliance addresses community needs for recreation trails and land access that were identified in the 2010 OSRP Action Plan and are echoed in the 2019 Open Space survey. The group is interested in mapping and developing a network of local trails and footpaths for non-motorized public use, utilizing existing corridors, creating new trails and linking these to surrounding communities. The group intends to collaborate with landowners that offer public access through their property and partner with interested governmental, recreational, educational and environmental organizations. Proposals for new trails identified in the 2019 Open Space survey include the following locations:

- Ridgeline connecting to Ashfield Trails (Old Road and Hog Hollow Road)
- Cross Street along Clesson Brook to the Post Office.
- Along Route 112 and Clesson Brook
- From the Potholes to Bardwell's Ferry

Buckland's recreational trails could link with the New England Scenic Trail and with the Franklin County Bikeway. The Franklin Regional Council of Government's 2009 Bikeway Plan recommends that potential connections from the Franklin County Bikeway to other bicycle trails and paths in the greater region should be further investigated in terms of viability. One major limiting factor in terms of feasibility is that there are a number of private properties that the proposed trail would potentially cross.

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 2020 and remain on the list of objectives and action items.

Town land may be needed in the future, such as parcels with river frontage for creating river access, for developing playgrounds and sports facilities for youth and recreational amenities for seniors, and for expanded access and connectivity to a network of multi-use recreational trails. There are roughly 201 acres of open space owned by the Town of Buckland, of which only the cemeteries are protected from development. It would be important to determine if the potential future uses of these parcels could include parks, playgrounds, or sports fields. If parcels were to be developed as parks, there would be a need for making them accessible to the physically handicapped and the elderly. Some community members have also expressed interest in a dog park. In addition to recreational trails and playgrounds, other potential future uses could be a community garden, recognized by 32 percent of respondents as a high recreation priority in the 2019 survey, or a dog park, which was desired by two 2019 survey respondents.

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. 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 and 2010 plans and is included in this plan's Seven Year Action Plan along with consideration of a River Corridor Overlay District to ensure healthy watershed function and public safety.

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 importance of the Bridge of Flowers as a conduit for

drinking water and its popularity with tourists and residents alike, the Town of Buckland should follow up on action items to assess repairs the Bridge of Flowers and temporary or permanent backup connections for the Iron Bridge or the Route 2 Bridge and to identify any aquifers and potential water supply sources within town boundaries to provide additional resiliency for Buckland in the event that the water main over the Bridge of Flowers is compromised.

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. Protection of farmland through the APR program and MDAR's Stewardship Assistance and Restoration on APRs grant program that helps landowners restore APR land once in production back to production.

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.

The 2019 Survey and Open Space Committee meetings identified the issue that certain open space resources in town, including Buckland State Forest and Walnut Hill (owned by Franklin Land Trust) are not well-marked and are poorly promoted to the public, and therefore, remain known only to some. Action items for addressing the 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).

The Open Space Committee and the Recreation Commission discussed the existing condition of the Town's recreation and sports facilities, noting that although several upgrades have been accomplished, and planning is underway for more improvements, including building the new pool at Buckland Recreation Area (see Table 9.2 in Section 9), other facilities will need continued improvement and/or need to be better maintained moving forward. Promoting usage of some public facilities will depend on their existing condition and the timing of planned maintenance and upgrades, while other resources and amenities should be a more immediate focus for outreach.

When planning for the recreational needs of a community, all age groups and populations need to be considered. As the population of Buckland continues to age, as is the trend in

Town and throughout the country, there may be more pressure placed upon the Town to provide open space and recreational activities for older citizens. Any future development of land or facilities for open space and recreation should include careful consideration of access for older citizens, as well as for the disabled. Handicap accessibility was assessed at Cricket Field and Buckland Recreation Area, and these needs should be addressed under ADA requirements documented in the ADA Self-evaluation in Appendix A. Specific programs could be targeted for those citizens with special needs. In addition, several respondents to the Buckland 2019 Open Space Survey said that more recreational programming is needed for the Town's teens and younger people.

### **C. MANAGEMENT NEEDS**

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 2020 and remain on the list of objectives and action items.

In the 2019 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)

Buckland is fortunate to have a great number of residents and organizations interested in the environment in, and around, town. There are a number of federal, state, and regional environmental organizations sponsoring land and natural resource protection projects including Franklin Land Trust, Deerfield River Watershed Association, Trout Unlimited, Massachusetts Audubon Society, Trustees of Reservations, New England Forestry Foundation, Department of Conservation and Recreation, Division of Fisheries and Wildlife, Department of Agricultural Resources, Harvard University, and the U.S. Army Corps of Engineers. The Conservation Commission should continue to work with these organizations on land protection projects in Buckland. Additionally, there may be a need for the Town to have the ability to facilitate and coordinate the activities that occur within the town so that they most benefit local residents. An appointed Open Space Committee could be given the responsibilities to act as the liaison to these organizations reporting back to Town Officials as necessary. Similarly, if Town Officials were kept abreast of these local and regional efforts, there would be more opportunities for cooperation with adjoining towns.

How a community chooses to spend its fiscal resources is often decided at Town Meeting. But in many communities the warrant articles prepared ahead of time are often the result of policy discussions among boards and a small proportion of the total population. A major obstacle to implementing the recommendations of this Open Space and Recreation Plan will be the effective coordination of all Town Boards and Commissions in a manner that promotes communication and discussion of open space and recreation issues between Boards and among the general public. An important example of this collaborative work is that the results of the Municipal Vulnerability Preparedness workshop and report the community completed in 2018 should be reviewed and updated annually by an interdisciplinary committee with input from the public. The open space committee should actively participate in this process and identify synergies between open space and recreation goals and the development of MVP-funded projects.

One general open space issue relates to the different ways people believe land should be used. When these different uses are successfully planned, so that the value of each use is represented in the action plan, it is often the result of consensus building among people holding different positions. Gaining consensus among people with strong positions and feelings can take time, resources, and the commitment of each participant in the group. Gaining consensus requires good leadership that understands that tradeoffs on both sides are required to resolve conflict. In open space planning, determining the most important areas to protect is an important step in determining locations to send growth. A balanced and sustainable land use plan will encourage both economic and residential development where appropriate and open space protection where needed.



**Site of future pool at Buckland Rec Area** (*Phoebe Walker*)

# SECTION

## 8

### GOALS AND OBJECTIVES

The following preliminary draft goals and objectives were formulated from the results of the 2019 Buckland Open Space and Recreation Planning Survey and reviewed and modified through the public meetings of the Open Space Planning Committee, the public forum process, and associated public comment.

#### **Goals and Objectives**

- Ensure that the Town of Buckland maintains or improves the quality, quantity, and accessibility of its parks, playgrounds, and other recreational facilities as well as programming for current and future generations, especially for teens, adults and seniors.
  - Support the Recreation Commission in providing needed recreational facilities and programming for all of Buckland’s residents, especially teens, adults, and seniors.
  - Improve access to parks and open space for all residents, including those with disabilities.
- Increase and maintain the quantity and quality of outdoor recreational experiences in order to improve quality of life for residents and to promote recreational tourism within the Town of Buckland.
  - Improve recreational access to the natural area destinations in town, especially the Deerfield River and Buckland State Forest.
  - Develop multi-user (walking, hiking, bicycling, cross country skiing, paddling) trail systems that tie into existing ones, which can be safely accessed from publicly owned land or private lands with trail easements.
  - Increase public outreach, signage, and way finding to foster local and regional engagement with existing recreational and open space resources in Buckland.
- Ensure that the Town of Buckland maintains or improves the quality of its air and water, and the diversity and integrity of native wildlife populations and plant communities through the protection of important rivers, streams, ponds forests, fields, lakes, scenic views and wildlife habitat.
  - 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.
  - Coordinate with regional and state land protection efforts, in and around Buckland, to ensure the continued conservation of important recreational and open space resources and active river corridors.

- Take advantage of the Town’s right-of-first refusal with Chapter 61 parcels or assign the right to a third party, such as Franklin Land Trust.
- Protect and improve the Town’s drinking water supply and aquifers.
- Protect forests and riparian corridors from invasive plant species.
  
- 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.
  
- 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 view sheds for preserving them.
  - Promote and historically significant landmarks, features, and structures.



**View from upper Buckland** (*Phoebe Walker*)

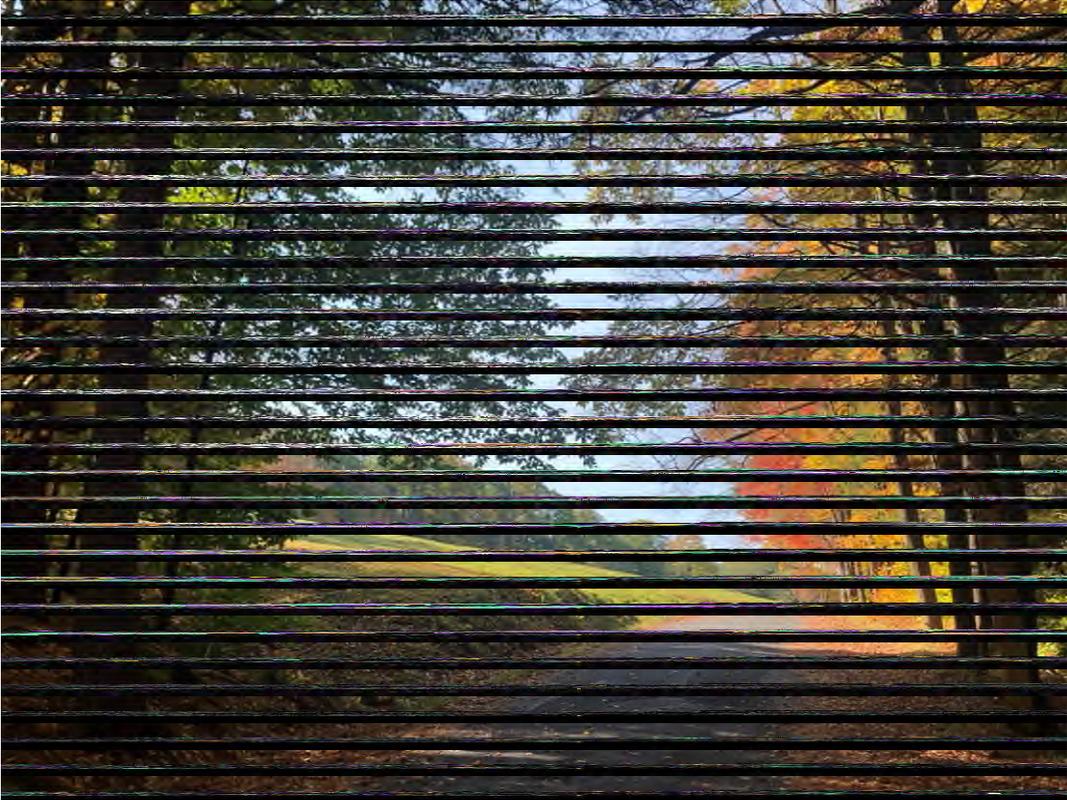
**SECTION  
9**

**SEVEN – YEAR ACTION PLAN**

The Seven-Year Action Plan fulfills the Open Space and Recreation Plan objectives. The objectives address open space, natural resources, recreation, and community development needs because the quantity and quality of accessible open space relates directly to the state of Buckland’s environment; the Town’s recreational opportunities; and the quality of future development in Buckland.

The objectives are listed in the far left column of Table 9-1 in order of priority and are followed in the same row by recommended actions, responsible board or group, start date, and potential funding sources. By implementing the recommended actions, each objective will begin to be realized.

Implementing the Open Space and Recreation Plan will not only require the participation of the Open Space Committee, but it will also necessarily involve many other Town groups, including: the Board of Selectmen, Planning Board, Board of Health, Conservation Commission, Recreation Commission, and the Historical Commission.



**Foliage along Rand Road** (*Phoebe Walker*)

Most of these actions may be constrained by a lack of volunteer time, in addition to funding limitations. Where money is required, such as to permanently protect open space, it does not have to be provided by the Town alone. State and federal governmental agencies, private non-profit conservation agencies, and foundations are potential sources of funding. These sources are more likely to invest in land protection projects that have a broad base of community support.

Buckland became a state-designated Municipal Vulnerability Preparedness (MVP) Community in 2018, making the Town eligible to apply for funding from the Massachusetts MVP Action Grant program. MVP Action Grants target climate resiliency projects, which often have strong intersections with Open Space and Recreation planning objectives. Several action items identified in this OSRP align well with MVP grant opportunities, including river corridor mapping, applying land protection prioritization methods, protecting upland watershed open space and habitat, mitigating invasive species, and managing stormwater for climate resiliency. Actions with these intersections represent opportunities to leverage work with MVP funds.

A successful Open Space and Recreation Program, under the primary stewardship of an Open Space Committee, can achieve all of the action steps listed below over time. However, it will be important to establish priorities for the first seven years. The Open Space Planning Committee has prioritized action steps by the objectives. These action steps are represented on the Seven-Year Action Plan Map and are outlined in greater detail in Table 9-1. The most important objectives are:

1. Ensure that the Town of Buckland maintains or improves the quality, quantity, and accessibility of its parks, playgrounds, and other recreational facilities as well as programming for current and future generations, especially for teens, adults and seniors.
2. Increase and maintain the quantity and quality of outdoor recreational experiences in order to improve quality of life for residents and to promote recreational tourism within the Town of Buckland.
3. Ensure that the Town of Buckland maintains or improves the quality of its air and water, and the diversity and integrity of native wildlife populations and plant communities through the protection of important rivers, streams, ponds forests, fields, lakes, scenic views and wildlife habitat.
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.
5. 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.

**Table 9-1: Recommended Actions of the Buckland Open Space and Recreation Plan**

<b>OBJECTIVE</b>	<b>ACTION</b>	<b>POTENTIAL FUNDING SOURCES</b>	<b>LEAD BOARD/ GROUP</b>	<b>START DATE</b>
Support the Recreation Commission in providing needed recreational facilities and programming for all of Buckland's residents, especially teens, adults, and seniors.	Support Friends of Buckland Recreation to complete remaining fundraising and implementation planning work needed to build the new pool at Buckland Recreation Area.	Town Funds, Friends of Buckland Recreation, Volunteer time	Recreation Commission, Select Board	2021
	Evaluate adequacy of recreational resources and programming based on the current population of Buckland.	Town Funds, Volunteer time	Recreation Commission, Open Space Committee,	2022
	Develop a website and newsletter for publishing current information on existing recreational resources, facilities, and programs in town.	Town Funds, private donations, Volunteer Time	Recreation Commission, Open Space Committee	2023
Improve access to Buckland's parks and open space for all residents, including those with disabilities.	Use the results of the ADA Accessibility Self-evaluation to prioritize projects that increase accessibility for those with disabilities and implement them.	Town Funds, PARC grant, private donations	Recreation Commission, Board of Selectmen, Open Space Committee	2021
Improve recreational rivers access from publicly owned land or private lands with trail easements.	Identify and map potential access points to river frontage on the Deerfield River and Clesson Brook and work with local groups to create public waterfront access and trails leading to the Deerfield River in town, including at Deerfield No.3 powerhouse, behind Lamson and Goodnow, and at the end of Creamery Ave.	Volunteer time, Town funds, private donations, FLT, DRWA	Open Space Committee, Board of Selectmen	2021
Develop multi-user (walking, hiking, bicycling, cross country skiing, paddling) trail systems that tie into existing ones, which can be safely accessed from publicly owned land or private lands with trail easements.	Create a GIS map of existing trails in Buckland and Shelburne to use as a starting point to map potential new trails that increase connectivity to regional trail networks already in place.	Volunteer time, FLT	Buckland Shelburne Trails Alliance, Open Space Committee	2021

OBJECTIVE	ACTION	POTENTIAL FUNDING SOURCES	LEAD BOARD/ GROUP	START DATE
	Encourage landowners to partner with land trusts, conservation and recreational groups to develop public access trails on protected private land, including Walnut Hill and Buckland State Forest.	Volunteer time, FLT/Voluntary Public Access and Habitat Improvement Program	Buckland Shelburne Trails Alliance, Open Space Committee	2022
	Promote walking and bicycling through year-round maintenance and creation of sidewalks and trails in town. Explore options to improve winter access to sidewalks in the village.	Town, Recreational Trails Program	Open Space Committee, Recreation Commission, Selectboard	2021
	Inquire with Walk Boston for a pedestrian assessment. Follow up on projects identified in Buckland's Complete Streets Prioritization Plan.	Complete Streets (MASSDOT), CDBG, Town, DCS grants	Open Space Committee, Recreation Commission, Selectboard	2021
	Maintain rural roads town wide for road cycling.	Town	DPW	2021
	Pursue funding for the recreation components of the Crittenden Hill Road Stormwater Green Infrastructure project (GZA, FRCOG, 2020).	MVP, Town, Complete Streets, DCS	Selectboard, FRCOG	2021
Increase public outreach, signage, and way finding to foster local and regional engagement with existing recreational and open space resources in Buckland.	Install wayfinding signage, information kiosks, and other amenities at popular walking, hiking trails, and cycling routes.	Volunteer time, Town funds, private donations	Open Space Committee, Recreation Commission	2023
	Explore options for addressing misuse and closure of open spaces and recreational opportunities in town due to problematic dog ownership.	Volunteer time	Open Space Committee	2021

OBJECTIVE	ACTION	POTENTIAL FUNDING SOURCES	LEAD BOARD/ GROUP	START DATE
Pursue strategies to protect land with significant natural resource value from development and work with willing landowners to protect their land.	Evaluate parcels for their natural resource value using methods from MassAudubon’s MAPPR program, The Nature Conservancy’s Resilient Landscapes mapping, and FRCOG’s Watershed-Based Plan. Adopt and apply criteria to identify and prioritize protection of land in town with high-conservation value, such as scenic ridges, farmland, rivers, drinking water, wildlife habitat, and upland watershed areas with climate resiliency benefits, such as flood storage.	MVP, Volunteer Time, Conservation Commission	Open Space Committee, Agricultural Commission, FRCOG, Board of Assessors	2024
	Hire a consultant to create river corridor maps of major waterways, especially Clesson Brook. Use the river corridor mapping and fluvial erosion hazard potential information in conjunction with the tools listed above to identify and prioritize parcel protection in active river corridors and in upland watershed areas in Buckland.	MVP, Town	Town, FRCOG	2024
	Encourage landowners to work with FLT on Voluntary Public Access (VPA) for recreational trail easements on private land, and Conservation Restrictions or River Corridor Easements (RCE) for open space protection, passive recreation, and climate resiliency (flooding mitigation) on important privately owned properties in Buckland.	MVP, FLT, Town, DCS grant programs	Open Space Committee, Franklin Land Trust, Select Board, Town, FRCOG, Buckland Shelburne Trails Alliance	2022
	Consider zoning changes to add a River Corridor Overlay District to ensure public safety and healthy watershed function along the Deerfield River and Clesson Brook.	Town Funds, DLTA, MVP, MEMA	Planning Board	2024

OBJECTIVE	ACTION	POTENTIAL FUNDING SOURCES	LEAD BOARD/ GROUP	START DATE
	Consider zoning changes proposed by the 2016 Buckland Housing Plan to address housing needs and conserve open space.	Town funds, DLTA, MVP	Planning Board	2021
	Hire a consultant to develop geomorphic river restoration concept designs that address bank erosion on Clesson Brook at Buckland Recreation Area and upstream of the Rte. 112 bridge and improve stream habitat and flood resilience in the watershed.	Town Funds, Volunteer Time, MVP, DCS grant programs	Open Space Committee, Recreation Commission, Conservation Commission	2024
	Take advantage of the Town’s right-of-first refusal with Chapter 61 parcels or assign the right to a third party, such as Franklin Land Trust. Prioritize parcels in river corridors and those evaluated and prioritized for their natural resource value and climate resiliency benefits.	Town Funds, Volunteer Time	Open Space Committee, Select Board, FLT	2025
Protect forests and riparian corridors from invasive plant species.	Develop an invasive species eradication strategy, concentrating first on areas identified as having high-conservation value and where particular species, including Oriental bittersweet and Japanese knotweed, have overrun the native ecosystem.	Volunteer Time	DRWA, Volunteers, Conservation Commission	2023
	Establish a knotweed removal trial area that also creates river access to the Deerfield River.	Volunteer Time	DRWA, Volunteers, Conservation Commission	2021
	Employ public outreach and education strategies to familiarize property owners with safe invasive species eradication strategies and ecological land stewardship.	Volunteer Time	DRWA, Volunteers, Conservation Commission	2024

OBJECTIVE	ACTION	POTENTIAL FUNDING SOURCES	LEAD BOARD/ GROUP	START DATE
Support local agriculture and land/resource-based businesses with active involvement by the Agricultural Commission and Planning Board.	Promote tours of working farms in area.	Volunteer Time, SFABA, CISA, MDAR	Agricultural Commission, CISA	2024
	Continue to support SFABA in their effort to promote local agricultural products and to encourage small businesses and artisans in the community.	Town Funds, Volunteer Time	Select Board	2024
	Encourage the preservation of farmland by promoting leasing of farmland, community gardens, and CSAs.	CISA, MDAR	Agricultural Committee, CISA	2023
Promote collaboration between Town boards, land owners, stakeholders, and regional organizations to implement OSRP Objectives.	Hold annual meetings to discuss and give status on OSRP issues and action items.	Town Funds, Volunteer Time	Town Administrator, Open Space Committee, Select Board	2021
	Review the MVP project list each year after its yearly update to identify and support actions that intersect with OSRP goals & objectives.	Volunteer Time	Open Space Committee	2021, annually
	Organize and facilitate a regional meeting of Open Space Committees, Trail Committees, and Land Trusts of West County.	Volunteer Time	Open Space Committee, TT, FLT, FRCOG	2025
	Collaborate with Franklin Land Trust and other conservation organizations to promote and implement their land protection programs in Buckland, including the Voluntary Public Access Program, RCEs, APRs and CRs.	Town Funds, private donations, FLT, TT	Open Space Committee, Agricultural Commission	2021
Promote collaboration between town boards, land owners, stakeholders, and regional organizations to protect scenic view sheds.	Develop strategies for identifying and prioritizing scenic viewsheds for preserving them.	Town Funds, Volunteer Time, FLT, TT	Open Space Committee	2022

OBJECTIVE	ACTION	POTENTIAL FUNDING SOURCES	LEAD BOARD/ GROUP	START DATE
	Adopt Ridge Protection Overlay District to regulate development of highly visible ridges, to project scenic viewsheds and to protect natural resources.	Town Funds	Open Space Committee, Planning Board	2021
	Identify funding sources for ridgeline and scenic viewshed protection.	Volunteer Time, FLT, TT	Open Space Committee, Franklin Land Trust, FRCOG	2025
Promote and preserve historically significant properties, buildings, agricultural land, and cultural landscapes.	Identify historic properties through a historic property survey plan and document historic properties on MHC survey forms.	Volunteer Time, MHC	Historical Society, Historical Commission	2025
	Pursue national register listing for areas on the Buckland side of Shelburne Falls and Buckland Center.	Volunteer Time	Historical Society, Historical Commission	2025
	Create self-guided historic walking, biking, and/or driving tours with wayfinding markers and brochures to identify historic places / properties.	Volunteer Time	Historical Society, Historical Commission, Buckland Shelburne Trails Alliance,	2025
	Identify funding sources for historic property protection and maintenance.	TT, MHC, Volunteer Time	Historical Society, Historical Commission	2026

**Table 9-2: Work Accomplished since the 2010 Buckland Open Space and Recreation Plan**

2010 OBJECTIVE	ACCOMPLISHMENT	FUNDING SOURCES	LEAD BOARD/ GROUP	COMPLETED DATE
<b>Promote and maintain recreational resources and opportunities in Town.</b>				
<u>ACTION ITEMS:</u>	Beloved 50+ year old pool demolished due to unrepairable leaks		Town, Recreation Committee	2016

Maintain and improve the Buckland Recreation Area, particularly the aging pool facilities.	Summer camp transitioned to new leaders, continued to serve families from throughout West County		Recreation Committee	2017
	Program developed allowing Buckland residents to purchase summer memberships for Ashfield Lake access		Recreation Committee	2017
	\$500,000 gift to Town of Buckland for construction of new pool; local architects and engineers conducted site analysis and feasibility study of option to renovate existing or build new pool house	Anonymous donor	Town, Recreation Committee	2017
	Purchase of Cricket Field	\$50,000 gift from TransCanada; \$50,000 PARC grant	Town, Recreation Committee	2017
	Playground installed to enhance community use of the Buckland Recreation Area property without a pool.	\$32,000 PARC grant; FCTS student volunteers	Recreation Committee	2018
	Pool house renovated	Subsidized by Franklin County Sheriff's Office's Community Service Crew	Recreation Committee	2018
	Increased little league programming at Cricket Field and Recreation Area.		Recreation Committee	2018
	Cricket Field and Buckland Recreation Area infields renovated.	FCTS student volunteers	Recreation Committee	2018
Follow up on work already done to secure funding to address stream bank erosion at Buckland Recreation Area.	Phase 1 of Buckland Recreation Area project commenced with installation of underground electric service, new access road, and appropriate drainage.		Town of Buckland, Recreation Committee	2019
	Friends of the Town of Buckland MA Recreation Area received non-profit status to streamline fundraising.		Friends of the Town of Buckland	2020

Maintain and improve the Buckland Recreation Area, particularly the aging pool facilities.	Completed sidewalk upgrade to accommodate universal accessibility to the Pavilion at Buckland Recreation Area.		Town of Buckland, Recreation Committee	2020
	New basketball/pickle ball court installed at Buckland Recreation Area.	Anonymous donor	Town of Buckland, Recreation Committee	2020
Form a trail committee to oversee the evaluation and development of a network of trails as well as bike and pedestrian paths and connections.	Trail committee formed, Communication with the Franklin Land Trust, Shelburne Open Space Committee and Ashfield Trails helped in developing preliminary goals.	Volunteer Time	Buckland Shelburne Trails Alliance, Open Space Committee	2020
	Cricket Field infield renovated and enlarged.	Youth Baseball League	Recreation Committee	2020

**List of Abbreviations:**

- ADA – Americans with Disabilities Act
- APR – Agricultural Protection Restriction
- CDBG – Community Development Block Grant
- CISA – Community Involved in Sustaining Agriculture
- CR – Conservation Restriction
- CSAs – Community-supported Agriculture
- DCS – Department of Conservation Services
- DLTA – District Local Technical Assistance (Program)
- DRWA – Deerfield River Watershed Association
- FLT – Franklin Land Trust
- FTCS – Franklin County Technical School
- MASSDOT – MA Department of Transportation
- MAPPR – Mapping and Prioritizing Parcels for Resilience
- MDAR – MA Department of Agricultural Resources
- MEMA – MA Emergency Management Agency
- MHC - MA Historic Commission
- MVP – Municipal Vulnerability Program
- PARC – Parkland Acquisition and Renovation for Communities
- RCE – River Corridor Easement
- SFABA – Greater Shelburne Falls Area Business Association
- TT – The Trustees
- TU - Trout Unlimited
- VPA – Voluntary Public Access and Habitat Improvement Program

## SECTION 10

### PUBLIC COMMENT

Public feedback, sought throughout the entire open space and recreation planning process, is difficult to document due to the fact that the draft plans constantly incorporated these changes and enhancements. A more direct request for feedback was presented in the public forum, which was held on January 28, 2021 via virtual public meeting hosted by the Town from 6:30-8:00p.m. An agenda advertising the meeting was distributed to all town boards and committees two weeks prior to the meeting and posted on the town website. Over 20 residents attended the forum, including members of the Select Board, Planning Board, Open Space Committee, Recreation Committee, Conservation and Agriculture Commissions. Comments received during the public input session and the comment period after the forum have all been incorporated into the Plan.

Several of the comments led to discussions that supported the goals and actions of the plan, including continuing with facility upgrades at Buckland Rec Area. People emphasized the importance of constructing the new pool and recalled how much they valued the previous pool and feel its absence since it fell into disrepair and had to be removed. It was also acknowledged at the meeting that promotion of the recreational facilities needs to also be focused on current residents. There were several ways of marketing and promotion that were discussed at the meeting. These include through the Town website, Town newsletter, publication of maps, signage and kiosks, and the creation of a tourist brochure. The frustration felt by many residents about lack of river access for swimming and water-based recreation was also echoed at the public forum. The discussion centered on the fact that there is significant amount of interest among residents in being able to access the river and highlighted some of the challenges to increasing river access, including how to handle extra traffic in the village and accommodate cars looking for parking. The discussion prompted the Open Space and Recreation Committees, the Town Administrator, FRCOG, Great River Hydro, and interested residents to convene a follow-up discussion on February 19, 2021 focused on opportunities for expanding river access in town. The group identified priority parcels in Buckland where public river access is desired and/or already occurring, where it may be possible to engage parcel owners in planning for public access on their property, where the Town could create river access on town-owned land, and where recreational river access protects could be combined with urgently needed streambank stabilization and riparian buffer restoration projects on public land.

Additional substantive comments came through during a 3 week comment period after the meeting. Comments included:

- Much of Buckland's dog-friendly open space and recreational areas requires dogs to be on leashes, so a dog park would be beneficial
- The future of Crittenden Hill, a scenic ridgeline overlooking the Shelburne Falls village in Buckland, may be at risk of development. A Ridge Protection Overlay

district developed by the Planning Board would be beneficial for preventing further tree clearing and development that could interrupt the scenic and ecological continuity of this ridgeline and others like it in town.

- An update seeking to let Buckland residents know about Salmon Falls Land Association Community Garden: a 72' x 40' garden space with 8 community garden plots, funded by a small grant from the New England Grassroots Foundation, which can serve to meet the goals of the OSRP. The garden was a big success in its first year with 8 local residents who came to grow food for their families. One 16' x 16' plot available for the 2021 season.

Copies of the final version of the Buckland Open Space and Recreation Plan were sent to the Massachusetts Division of Conservation Services (DCS), the Buckland Select and Planning Boards, the Recreation Committee, Conservation Commission, and the Franklin Land Trust for comment. Their letters are inserted into the plan at the end of this section.

# SECTION 11

## REFERENCES

- American Farmland Trust Information Center. Fact Sheet Cost of Community Service Studies. 1991.
- Berkshire Regional Planning Commission, *The Massachusetts Unpaved Roads BMP Manual*, 2001. <https://www.mass.gov/doc/unpaved-roads-bmp-manual/download>
- Executive Office of Energy and Environmental Affairs, *Massachusetts Climate Change Adaptation Report*, <http://www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html>, 2018.
- Executive Office of Energy and Environmental Affairs, *The Open Space Planner's Workbook*, 2008.
- Franklin Regional Council of Governments, *Franklin County Bikeway Plan*, 2009.
- Harper, Rick W., Realizing the Benefits of our Urban Trees, [https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/mass\\_clean\\_energy\\_conference\\_-\\_session\\_1\\_-\\_harper.pdf](https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/mass_clean_energy_conference_-_session_1_-_harper.pdf), 2016.
- Harvard Forest. *Changes to the Land: Four Scenarios for the Future of the Massachusetts Landscape*, <http://harvardforest.fas.harvard.edu/changes-to-the-land>. 2014.
- MassWildlife, Natural Heritage & Endangered Species Program. BioMap2, <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/land-protection-and-management/biomap2/>, 2018.
- Massachusetts Endangered Species Act, <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/>, 2019.
- Massachusetts Climate Change Adaptation Report, <https://www.mass.gov/service-details/2011-massachusetts-climate-change-adaptation-report>, 2011.
- Massachusetts Fish and Game Department, Division of Fish and Wildlife, Natural Heritage and Endangered Species Program Website, <https://www.mass.gov/orgs/masswildlifes-natural-heritage-endangered-species-program>, 2019.
- Massachusetts Fish and Game Department, Division of Fish and Wildlife, Cold Water Fisheries Resources, web app viewer, <https://mass->

[eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=56ddeb43ffc642feb3117ce7ebd1a43](http://eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=56ddeb43ffc642feb3117ce7ebd1a43), 2020.

Massachusetts Executive Office of Energy and Environmental Affairs, *Massachusetts Statewide Comprehensive Outdoor Recreation Plan*, 2017.

Massachusetts Executive Office of Labor and Workforce Development, <https://www.mass.gov/orgs/executive-office-of-labor-and-workforce-development>, 2019.

The Massachusetts Executive Office of Energy and Environmental Affairs, *Smart Growth/Smart Energy Toolkit*, [http://www.mass.gov/envir/smart\\_growth\\_toolkit/](http://www.mass.gov/envir/smart_growth_toolkit/).

MassGIS (Bureau of Geographic Information), MassGIS Data: 2016 Land Cover/Land Use, <https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>, 2016.

Massachusetts Historical Commission, *Reconnaissance Survey Report for Buckland*, 1982.

Town of Shelburne, *Buckland-Shelburne Master Plan*, 1999.  
[https://www.townofshelburne.com/files/MPH\\_6\\_Economic\\_Development.doc](https://www.townofshelburne.com/files/MPH_6_Economic_Development.doc)

The Nature Conservancy, *Resilient Sites for Terrestrial Conservation in the Northeast and Mid-Atlantic Region*, <https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx>, 2013.

Northeast Climate Science Center, *Massachusetts Climate Change Projections, UMass Downscaled Projections for Major Basins in MA.*, 2017.

Sustainable Communities Consortium, *Sustainable Franklin County: Franklin County's Regional Plan for Sustainable Development*, 2013. [www.frcog.org](http://www.frcog.org).

Town of Buckland, Franklin Regional Council of Governments, *Town of Buckland Open Space and Recreation Plan*, 2013.

Town of Buckland Open Space and Recreation Survey, 2019.

Franklin Regional Council of Governments, *Town of Buckland 2013 Multi-Hazard Mitigation Plan*, 2014 (Update in process, 2021).

Franklin Regional Council of Governments, *Municipal Vulnerability Plan*, 2018.

Franklin Regional Council of Governments, *Buckland Housing Plan*, 2017.

Franklin Regional Council of Governments, *Deerfield River Watershed-Based Resiliency Plan*, 2017. <https://frcog.org/publication/deerfield-river-watershed-based-resiliency-plan/>

Franklin Regional Council of Governments, *Complete Streets Prioritization Plan*, 2019.

Franklin Regional Council of Governments, *A Framework for Resilience: Responding to Climate Change in the Deerfield River Watershed report just released*, 2018. <https://frcog.org/wp-content/uploads/2019/03/Framework-for-Resilience-in-the-Deerfield-River-Watershed.pdf>

Franklin Regional Council of Governments, *River Corridor Toolkit*, 2019.  
<https://frcog.org/river-corridor-toolkit-released/>

Franklin Regional Council of Governments, *Buckland Green Streets Project*, 2019.  
<https://frcog.org/buckland-green-streets-project-information/>

Franklin Regional Council of Governments, *Answers to Frequently Asked Questions about Gravel Roads*, 2001. <https://frcog.org/publication/answers-frequently-asked-questions-gravel-roads/>

Town of Buckland. Assessors Records and Maps. 2020.

Town of Buckland Zoning By-Law, 2017.

U.S. Bureau of the Census, 2017 American Community Survey (ACS) Five-year Estimates.

United States Department of Agriculture Soil Conservation Service, *Soil Survey Franklin County Massachusetts*, 1967.