

TOWN OF HEATH 2020 OPEN SPACE AND RECREATION PLAN

DRAFT
August, 2020



Prepared by the
**HEATH OPEN SPACE & RECREATION PLAN UPDATE
COMMITTEE**
and the
FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS

*This project was funded by a District Local Technical Assistance Grant provided by the
Massachusetts Department of Housing and Community Development*

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SECTION 1

PLAN SUMMARY

The Heath Open Space and Recreation Plan (OSRP) focuses the interest and motivation of community members towards the maintenance and promotion of existing recreational resources and the identification and protection of Heath's natural, recreational, and historical resources. The OSRP acknowledges the balance between conservation and economic development, and how these work together to promote the long-term vitality of the town. The OSRP's purpose is to provide a framework for decisions dealing with land uses that may impact valuable natural resources and the lands that contain unique historical, recreational, scenic, and wildlife habitat values.

The 2020 Heath Open Space and Recreation Plan (OSRP) represents the understanding of Heath residents of the interdependence of forests, streams, swamps, wetlands, agricultural fields, scenic views, and significant historical structures and landscapes with the town's rural character. The OSRP illustrates the roles of open spaces in a community: public recreational amenities provide safe spaces to recreate, and undeveloped areas provide wildlife habitat and ensure that residents have access to forests and fields to walk, hike, and view nature.

The Seven-Year Action Plan (Section 9) gives concrete substance to the goals and objectives that were developed from the results of the 2019 Open Space and Recreation Survey and from community members' understanding of and input regarding their town's natural resource base. The 2020 Heath Open Space and Recreation Plan prioritizes actions that will:

- ❖ Preserve the rural character of the town and strengthen community connections;
- ❖ Protect and preserve natural resources in preparation for a changing climate;
- ❖ Maintain and improve recreational amenities; and
- ❖ Promote wide recreational usage of Heath's natural resources.

SECTION 2

INTRODUCTION

A. STATEMENT OF PURPOSE

The purpose of this plan is to provide an accurate and thorough basis for decision-making involving the current and future open space and recreation needs of the residents of Heath. This plan brings together and builds upon past planning efforts including the *1999 Visioning Study*, previous Open Space and Recreation Plans (OSRP), and Multi-Hazard Mitigation Plans that have been periodically completed by the town through the years. This 2020 OSRP update builds on the most recent 2004 OSRP.

While this 2020 OSRP is based on the 2004 OSRP, it has been revised and updated to reflect current thinking and consensus in town on the most important recreation and natural resource needs and the best solutions for addressing them. The detailed Seven-Year Action Plan provides a step-by-step guide that, when carried out by town boards and commissions, will successfully implement the town's open space and recreation goals and objectives.

Since the 2004 OSRP, the Town of Heath has worked hard to implement some of the Plan's recommendations, including the capping of the landfill; implementation of changes to the zoning bylaw; documentation of farms within town; acquisition of conservation properties; and the establishment and expansion of the Heath Center historic district;;

B. PLANNING PROCESS AND PUBLIC PARTICIPATION

An Open Space and Recreation Survey was developed and reviewed by the Open Space Committee. A survey was mailed to all households in town in the Fall of 2019. Residents could respond via online or by paper copy. The number of completed surveys was a total of 69 surveys or 25% of all households in town. The results were used to inform discussions by the Open Space Planning Committee in its development of Sections: 6 – Community Goals, 7 – Analysis of Needs, and 8 – Goals and Objectives.

There have been four public meetings of the Heath Open Space Planning Committee, including the Public Forum, scheduled to be held on September 3, 2020. The following boards and commissions were represented on the Open Space Planning Committee:

- Conservation Commission;
- Historical Commission;
- Parks and Recreation Committee;
- Select Board;
- Board of Health; and
- Planning Board.



The Franklin Regional Council of Governments (FRCOG) provided assistance to Heath in updating the Plan by coordinating meetings, producing maps, and writing sections of the Plan based on input received at the Open Space Committee

Levitch Property (Franklin Land Trust)

meetings, via the survey, and at the Public Forum. Before each meeting, members were sent drafts of sections of the Plan to read. This form of work review was a significant and consistent vehicle for public participation in the development of the OSRP. Comments on these sections were discussed at the meetings and incorporated into the revised versions of the chapters.

Any 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 and the action steps have also been included in the final version of the Heath Open Space and Recreation Plan. As part of additional public outreach, the draft Plan was posted on the Town of Heath’s website and made available at the Town Hall to obtain further feedback from the community, especially for those residents who were not able to attend the Public Forum.

The Town of Heath does not have any Environmental Justice populations or a significant population of non-English speaking residents. As a result, the survey and outreach materials were not translated and enhanced outreach was not conducted.

SECTION 3

COMMUNITY SETTING

Over the past several hundred years, human settlement and development has slowly changed and shaped the landscape of the Town of Heath. Planning for open space in Heath must account for the complex relationships between people, open spaces, and the natural resources upon which both depend.

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 gives a snapshot of Heath today, and identifies ways in which the location of town within the wider region has affected its growth, its quality of open space, and its recreational resources. History of the Community looks back on at the manner in which the human inhabitants settled and developed the landscape. Next, using statistical information and analysis, Population Characteristics shows the reader who the people of Heath are today and how population and economic trends may affect the town in the future. Finally, Growth and Development patterns describes how Heath has developed over time and the potential future impacts that the current zoning may have on open space, drinking water supplies, and municipal services.

A. REGIONAL CONTEXT

The Town of Heath is considered a western hill town, located in the northwestern corner of Franklin County, midway between the Connecticut River and the New York state line, along the Vermont border. It is bordered by the towns of Rowe on the west, Charlemont on the south, and Colrain on the east with the Vermont towns of Whitingham and Halifax on the north. The town is relatively remote from large population centers, located seventeen miles from Greenfield and twenty-six miles from North Adams.

From any direction it is a steep climb to reach Heath's town center, which consists of the Heath Union Church, the Community Center, Town Offices in the old Grange building including the Heath Public Library and Post Office. Located also on the town common are: the old general store, which now serves as a home; the 1834 Town Hall; Veterans Memorial; the 1844 one-room schoolhouse (both traditional white clapboard New England style buildings); and a large colonial house and barn. A mile to the north and higher on the hill are the Heath Fairgrounds. In mid-August each year, one of the last old-time country fairs still occurs here. In 2019, the town held its 102nd annual fair.



Heath Fairgrounds (source: Heath Fair website)

Scenic vistas can be accessed from many spots in Heath: west to Mount Greylock, north to the Green Mountains of Vermont, northeast to Mount Monadnock, and south to the Mount Holyoke Range. The beauty of Heath's setting has attracted summer residents looking for country living in an attractive location. Many summer residents decide to retire to Heath. Other residents include local craftsmen and those who want to make their homes in Heath despite the typical demanding commute.

The total land area of Heath is approximately 15,932 acres, with roughly 480 acres of developed lands. Of these developed lands, 378 acres, or a little over 2%, are classified as residential. Forested land is the largest category of undeveloped land consisting of 13,325 acres or about 84% of the town. Agricultural uses (cropland, woody perennials, and pasture) compose 1,386 acres or nearly 9% of the total land area.

A.1. Natural Resources Context

The Town of Heath's most noteworthy natural features are its abundant forestland and scenic vistas. The town possesses a rugged landscape with steep hills and deep ravines, which are extensions of the Green Mountains. Elevations range from 900 feet above sea level, at the mouth of West Branch of the North River, to 1,909 feet, at the peak of Underwood Hill. Heath's most rugged landforms are on the east side of town, along Burnt Hill and the lower valley of the West Branch of the North River. The great variation of Heath's landscape creates many areas of scenic value. There are views to mountains near and far in all directions, dams and dam remnants as reminders of the town's past, and numerous waterfalls.

Heath's surface water is found in streams, ponds, and wetlands. Both isolated wetlands and wetlands adjacent to waterbodies are found in Heath and are the sources of many of Heath's streams. According to MassGIS 2005 Land Use Data, there are approximately 327 acres of wetlands in town and approximately 23 acres of streams and ponds.

The Town of Heath contains the headwaters of a number of streams which flow into the surrounding towns of Colrain, Rowe, and Charlemont. Those streams originate in the central uplands of Heath and flow through the southern part of town. All of Heath's streams are Class B

waters and are protected under the Massachusetts Wetlands and Rivers Protection Act. The Town of Heath is located within the Deerfield River Watershed.

Ponds in Heath include Papoose Lake, which lies in the headwaters of Davenport Brook, and other smaller ponds in the vicinity of the north loop of Hosmer Road. Dams remaining along Mill Brook form a series of small reservoirs. Beaver dams are also prevalent along many of Heath's streams.

Heath has ample groundwater, which collects between tilted layers of bedrock. Heath recharges its underground aquifers through sandy glacial deposits lying along the West Branch Brook, Mill Brook, Avery Brook, and Taylor Brook.

The Town of Heath's zoning has a Wetlands Protection Bylaw, which applies stricter standards and provides an additional level of protection to surface water bodies, waterways, wetlands, and also banks and beaches than the State's Wetlands Protections. With this bylaw, isolated wetlands also achieve protected status. Since 1989, Heath's zoning bylaw has included a Water Supply Protection Overlay District to limit the possibility of groundwater contamination. Of the five areas which are subject to the regulations, two are at the edge of town. These associated aquifers may not be subject to the same level of protection across the town border. Also a number of aquifer recharge areas are located outside of the Water Supply Protection Districts. Heath's zoning bylaws also include a Floodplain Overlay District in two locations, both along West Branch Brook. Within the Floodplain District, property owners must comply with state regulations for floodplain development, and must show that their plans will not adversely affect water flows or water levels during floods.

A.2. Socio-Economic Context

European settlement of the town began in the early 1740s. Most initial settlers bought land in what is currently Charlemont and southern Heath. The rest of the land in current day Heath was sold to a partnership of Boston businessmen in 1741 and is where the initial settlements in Heath were located, though the town was not permanently settled until after the French and Indian Wars. Settlement first occurred on Charlemont Hill and Burnt Hill in southwestern and southeastern parts of town, reaching Colrain Stage Road by 1785, which was the year Heath was incorporated as a municipality. Due to the difficulty of crossing the West Branch Brook, settlement of northern Heath took place later, mostly from the direction of Colrain and Vermont. By 1830, northern Heath was well populated with approximately 1,200 people and virtually all of the roads that currently exist had been built, along with some that have now fallen into disuse and blended into the landscape.

Farming has been the main occupation throughout Heath's history despite very rocky soils, many steep slopes, a relatively short growing season, and too few animals to fertilize the soil after its initial depletion. Heath farms were most productive during the sheep-raising period of New England history. Today, several farms are active, with products such as blueberries, grass-fed beef, grains, vegetables, honey and maple syrup. A few saw and grist mills were built in the past, but these were always small operations because of limited water resources in the town's streams. Some small logging operations currently operate in town.



A.3. Regional Open Space and Recreation Opportunities and Issues

A parcel of land that is permanently protected from development can create real value for a community by being a potential site for recreation activities, by conserving habitat for wildlife and fisheries, and by protecting the integrity of first and second order streams, which are the most extensive and vulnerable water resources within a watershed. If the parcel of land is located within the recharge areas of the public water supply it can also contribute to protecting wells from contamination by point and non-point source pollution. When abutting parcels of land are permanently protected over time, based on a plan, the result can be a network of open spaces that can cover thousands of acres. When land is protected to link the open spaces of each community, together this can create a regional greenway.

Currently, Heath is part of a potential regional greenway due to its proximity to the large Green Mountain National Forest in Vermont and a number of smaller state forests in the nearby Berkshires, including the H.O. Cook State Forest, Catamount State Forest, and Savoy Mountain State Forest. This potential greenway runs north-south along the Berkshires into Vermont.

Other protected open space and natural resources in the region, of which Heath residents may take advantage include the Mahican-Mohawk Trail, the Deerfield River, and trail systems in the H.O. Cook State Forest. There are many privately owned hiking, cross-country skiing, and snowmobiling trails that have been established both in Heath and in the region that are also available to residents through trail agreements, mostly with the Indian Head Snowmobile Club.

A.4. Regional Strategies for the Protection of Open Space, Natural and Recreational Resources

Actions that impact the quality of open space, natural, and recreational resources in Heath and surrounding communities take place at different political levels. Regional efforts are needed

because regional planning agencies, land trusts, and watershed/ landscape planning groups together can attract political and funding resources of which individual towns may not be capable. Towns on the other hand have the power to implement changes in land use patterns directly through local zoning and open space protection. Land protection opportunities currently exist within the Town of Heath and the region as a whole because of two factors: low property values, and the presence of large blocks and corridors of protected open space. Regional groups like the Franklin Land Trust, Connecticut River Conservancy, and Trout Unlimited have the attention of state conservation agencies like the Department of Conservation and Recreation because these groups represent many local constituencies and the region currently is one of the last areas in the State with large contiguous forested blocks with significant biodiversity. In addition, Heath is located within the Deerfield River watershed, which is one of the coldest and cleanest rivers in Massachusetts.

B. HISTORY OF THE COMMUNITY

The rugged terrain and absence of major water sources in Heath suggests that Native American populations did not occupy Heath intensively besides small hunting and fishing encampments scattered throughout town. High quality cropland was found in the present towns of Charlemont, Colrain and Greenfield, making it highly unlikely Native Americans practiced agriculture in Heath. Hunting, however, likely occurred throughout Heath's uplands.

Colonial occupation of Heath did not take place until the 1740's. In 1744, Fort Shirley was constructed approximately one mile northwest of the Colrain Stage and Hosmer Roads intersection as part of the line of forts built on Massachusetts northern Frontier. Fort Shirley was occupied until 1754 when it was abandoned. A civilian community was established in 1752 when homes were built on Royer Road, with most inhabitants coming from Charlemont. Livestock production and lumbering were the primary occupations for these early residents, as there was a lack of good cropland and local waterways to provide power.

Heath Center was established in 1789, requiring the development of a radial roadway system. For this, many roads which exist today was established including: Dell Road, Hill Road, Bray Road, Swamp Road, Royer Road, Stetson Road, and Colrain Road. The population of Heath grew very rapidly from 1790 – 1830, with a growth rate of 216%. The population peaked in 1830 at 1,199 beginning a decline which lasted until 1965. Despite the increase in population, livestock production (cattle, sheep, and dairy) continued to dominate the economy of Heath, with mills nearby in Charlemont.

The period from the 1830's to the Civil War brought on unlikely major industry to Heath – the braiding of palm-leaf hats. Palm leaves were brought from the Carolinas and women and children would bleach the leaves, split them into two, and braid them for extra income. In one day, a skilled braider could make six hats a day, sold for a price of 6 to 12 cents per hat. In his "Historical Collections" published in 1939, John Warner Baber, wrote that about 30,000 hats had been made in Heath by 1837, for a total value of \$5,000.¹

¹ <http://franklincc.org/about/our-towns/39-heath>

Through the mid 1800's, Heath remained a considerable producer of livestock, while also expanding industrial operations at Dell Hollow on the Mill River. In 1845, Heath led the county in the quantity of cheese produced. Local industrial products included two tanneries, five sawmills, one grist mill, and a maker of hand rakes. Heath Center remained the civic focus with some expansion to North Heath with the development of Jacksonville Stage Road (now Route 8A) heading north.

Heath did not change much throughout the late 1800's to mid 1900's, remaining a small hill town focused on livestock production with a few mills. The population was relatively stagnant during this period. The Dell Hollow mill site saw a gradual decline in economic activity, while the Cold Spring Creamery developed in North Heath in 1913. Production of maple sugar, cider, and vinegar increased in Heath. In 1938, a hurricane struck the region, washing out three sawmills in Heath.

For more detailed information on the history of Heath, visit the Heath Historical Society or the website of the Massachusetts Historical Commission Town Report on Heath (1982) at <http://www.sec.state.ma.us/MHC/mhcpdf/townreports/CT-Valley/hea.pdf>.

Table 3-1: Significant Historical Structures in Heath

Inv. No.	Property Name	Street	Year
HEA.38	Elmer, O. Oric - Rugg, David House	12 Avery Brook Rd	c 1800
HEA.39	Gleason, Ezra - Tilden, Benjamin House	23 Avery Brook Rd	c 1790
HEA.2	White, Dea. James House	21 Bassett Rd	c 1771
HEA.1	Leavitt, Rev. Jonathan House	93 Bassett Rd	1767
HEA.11	Strong, Rev. Joseph Jr. House	1 Bray Rd	c 1791
HEA.18	North School, The	118 Brunelle Rd	1825
HEA.22	Spooner, Daniel House and Store	3 East Main St	c 1793
HEA.23	Strong, Dr. Simeon - Emerson, Dr. Joseph House	4 East Main St	c 1840
HEA.12	Heath Union Congregational Church	5 East Main St	1833
HEA.9	Heath Old Town House	6 East Main St	1834
HEA.27	Gould, Isaac House	13 East Main St	c 1790
HEA.34	Gould, Samuel House	27 East Main St	c 1779
HEA.61	Heath Fairgrounds - Temple, Solomon English Barn	Hosmer Rd West	c 1771
HEA.58	Barker, Stephen House	44 Hosmer Rd West	c 1795
HEA.49	Burrington, William English Barn	341 Jacksonville Stage	c 1818
HEA.42	Thayer, David L. House	5 Ledges Rd	c 1829
HEA.35	Miller, Caleb House	11 Ledges Rd	1829
HEA.36	White, Ruth House	15 Ledges Rd	1829
HEA.19	Tucker, Ebenezer House	44 Sadoga Rd	c 1798
HEA.3	White, Jonathan House	South Rd	r 1785
HEA.4	Maxwell, Benjamin House	15 South Rd	c 1780
HEA.37	Miller, Rev. Moses House	48 South Rd	1804
HEA.59	Temple, Seth House	55 South Rd	r 1785
HEA.56	Hunt, Samuel House	59 South Rd	c 1771
HEA.45	Spooner, Phillip House	7 Underwood Hill Rd	1812

Inv. No.	Property Name	Street	Year
HEA.38	Elmer, O. Oric - Rugg, David House	12 Avery Brook Rd	c 1800
HEA.39	Gleason, Ezra - Tilden, Benjamin House	23 Avery Brook Rd	c 1790
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HEA.27	Gould, Isaac House	13 East Main St	c 1790
HEA.34	Gould, Samuel House	27 East Main St	c 1779
HEA.61	Heath Fairgrounds - Temple, Solomon English Barn	Hosmer Rd West	c 1771
HEA.8	Heath Episcopal Methodist Church	1 West Main St	1872
HEA.31	Cowles, Augustus House	7 West Main St	1797
HEA.50	Hill, Dr. George House	14 West Main St	1821
HEA.46	Marsh, Sally House	16 West Main St	c 1829
HEA.29	Stone Cottage	17 West Main St	1933
HEA.30	Rugg, Reuben House	24 West Main St	c 1794
HEA.47	Nash, Dr. Rivera - Hayden, Dr. Elijah House	27 West Main St	c 1798

Source: Massachusetts Historical Commission; MA Cultural Resource Information System (MACRIS) 2018.

C. POPULATION CHARACTERISTICS

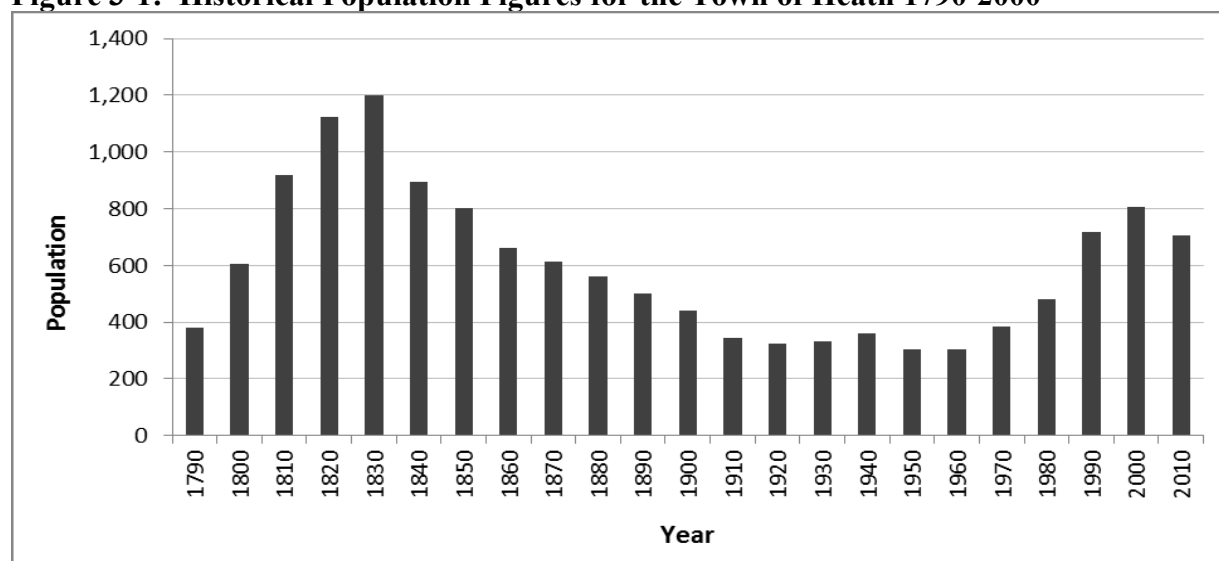
In this section, Population Characteristics, Heath's needs for open space and recreational resources are assessed based on an analysis of demographic and employment statistics. The demographic information includes changes in total population, the relative importance of different age groups in Heath, and development patterns. In small towns like Heath, traditional sources of employment figures rarely provide an accurate description of the economic base and labor force. However, federal and state statistics have been combined with informal surveys of local officials and anecdotal information to provide a more accurate representation of the local economy.

C.1. Demographic Information

In 1790, an official census for the Town of Heath recorded 379 inhabitants (Figure 3-1). Subsequently, Heath's population began to increase dramatically. Land was inexpensive and residents of surrounding towns wanting to purchase a homestead, acquire land for pasture, or ply their trade in a new location turned to Heath. By 1810, the Town of Heath boasted 917 inhabitants. As new roads were built, Heath's population rose further as outlying areas in town became accessible. In 1830, the population of the Heath peaked at 1,199 but thereafter began a steady decline. The population plummeted to 325 in 1920, and stayed around that amount until 1960.

Poor farming conditions, emigration west, bad business decisions causing bankruptcy, and the lack of modern modes of transportation such as a rail line, were all factors contributing to this decline. The population of Heath began to rise again during the decades between 1970 and 2000, which saw an overall increase of 422 people (110 %) for Heath, while Franklin County's growth was only 36%. From 2000-2010 (Table 3-2) Heath's population decreased 12%, from 805 to 706, a rate of loss comparable to nearby Charlemont and Colrain. More recently, based on the 2012-2016 American Community Survey estimate, population in Heath has increased slightly from 2000 at a rate of 3.4% bringing the 2016 population to 730. During the same period from 2010 to 2016, nearby communities of Buckland and Charlemont lost population, as did Franklin County as a whole.

Figure 3-1: Historical Population Figures for the Town of Heath 1790-2000



Source: US Census and Massachusetts Census, various years.

Table 3-2: Comparison of Population Growth Rates for Heath, Franklin County and Massachusetts 1990 – 2000

Location	2000 Census	2010 Census	% Change from 2000 - 2010	2016 estimate	% Change from 2010-2016
Heath	805	706	-12.3%	730	3.4%
Buckland	1,991	1,902	-4.5%	1,796	-5.6%
Charlemont	1,358	1,266	-6.8%	1,173	-7.3%
Colrain	1,813	1,671	-7.8%	1,682	0.7%
Franklin County	71,535	71,372	-0.2%	70,916	-0.6%
Massachusetts	6,349,097	6,547,629	3.1%	6,742,143	3.0%

Source: U.S. Census 2000 and 2010 Population Data; American Community Survey 2012-2016

According to the American Community Survey 2012-2016, the Town of Heath has a relatively middle-aged population with the median age of residents being 43.8 years. When comparing age groups, or cohorts, between 2010 and 2016 (Figure 3-2), a significant change in population

occurred with the 45-64 years cohorts. By the year 2016, the number of people who were between the ages of 45 and 64 years dropped 23 percent from 2010 levels. This occurred while the numbers of Heath’s youth under 19 years of age increased by 40 percent and those over 65 years increased 5 percent.

In comparing the Town of Heath’s age distribution characteristics to that of Franklin County and the State in 2016, they were found to be quite similar. Franklin County’s median age, 45.4, is slightly more than Heath’s at 43.8 years, while that of Massachusetts’s residents is 39.4 years.

Figure 3-2: Heath Population by Age Group, 2000, 2010, and 2016

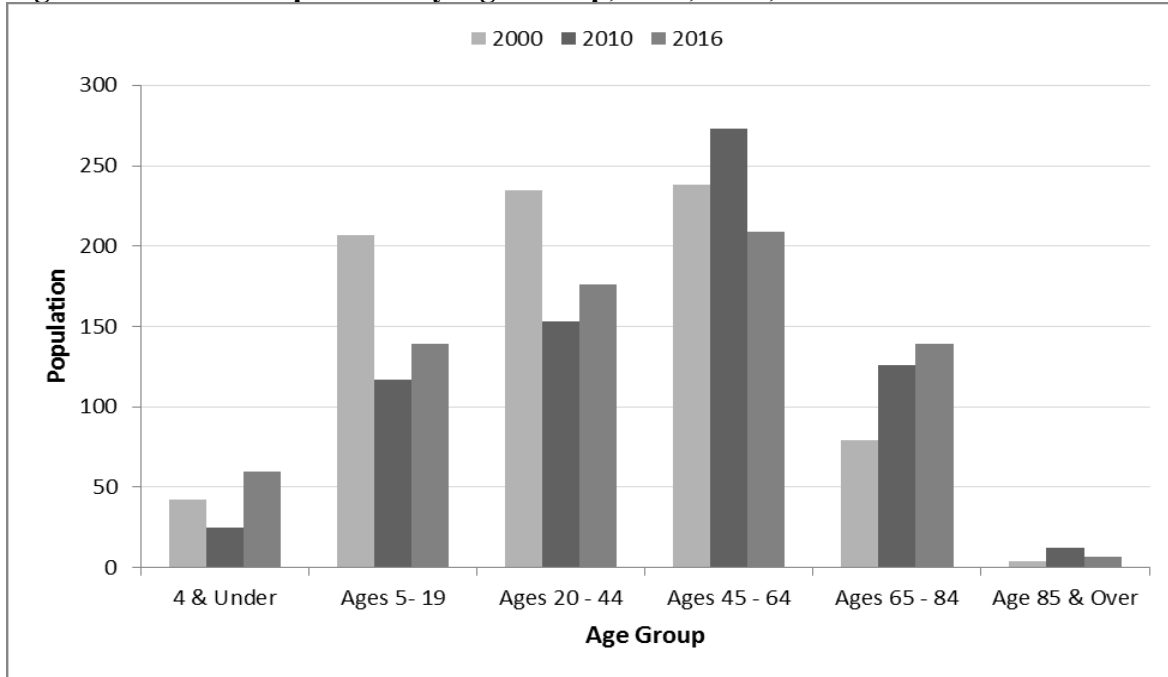


Table 3-3: Age Distribution of Heath’s Population in 2016

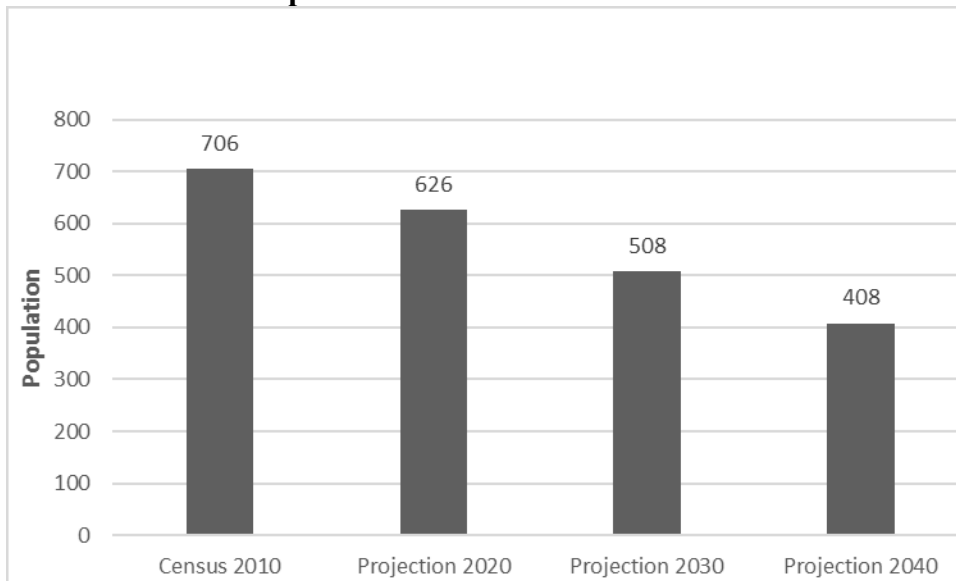
	4 & Under	Ages 5-19	Ages 20-44	Ages 45-64	Ages 65-84	Age 85 & Over
Heath	8%	19%	24%	29%	19%	1%
Franklin County	5%	16%	29%	32%	16%	2%
Massachusetts	5%	18%	33%	28%	13%	2%

Source: American Community Survey, 2016

In 2018, the UMass Donahue Institute with the Massachusetts Department of Transportation published population projections for all Massachusetts cities and towns, projected from 2010 to 2040 at ten year increments. Figure 3-4 shows the projections for Heath’s population. Heath’s population is projected to decrease steadily from 2010 to 2040 by 408 people over that time span, a 42% decrease. The 2016 population estimate from the American Community Survey indicates a population of 730, and while this number differs from the projection here, it is within the margin of error for the projected value.

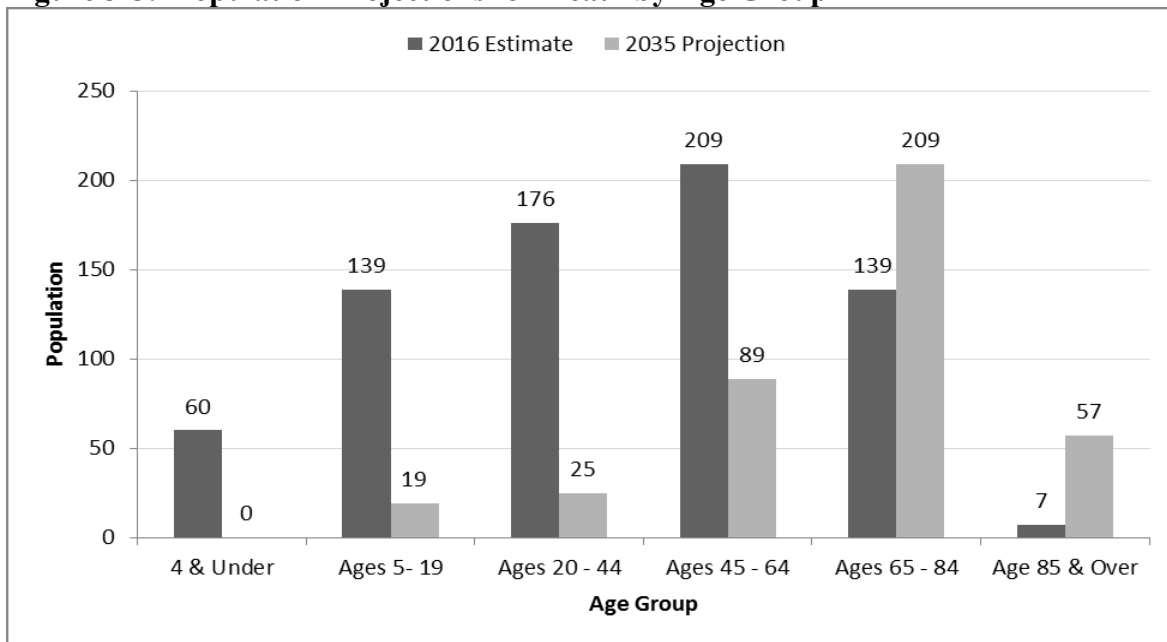
In addition to the change in the overall population numbers, the age make-up of the population is also projected to shift significantly in the next two decades. Figure 3-5 shows the projected population by age group for 2035, compared to the 2016 estimate. By 2035, it is projected that the senior population, age 65 and over, will dramatically increase, representing 67 percent of the population, compared to 20 percent in 2016.

Table 3-4: Heath Population Count and Estimates



Source: U.S. Census; UMass Donahue Institute with MassDOT Population Projections. 2018.

Figure 3-5: Population Projections for Heath by Age Group



Source: American Community Survey 2012-2016 (2016 data); UMass Donahue Institute Population Projections 2015.

Based on population projections for the next two decades, the Town of Heath 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.

In identifying the best location for new recreation fields, trails and facilities, the town should consider sites accessible to current populations as well as locations where population growth may occur. Future growth (density and location) will depend in large part on soil and groundwater constraints, town zoning, and which lands are permanently protected from development. It is best to have parks and walking/hiking trails that are close to concentrations of development and areas that would be developed for residential use. Town officials could be looking for opportunities to conserve land in Heath that protects valuable scenic and natural resources and provides public access to trail networks and open spaces.

To assess the ability of Heath residents to pay for additional recreation resources and access to open space, its income level is compared to that of Franklin County and the State. The income figures for Table 3-5 are from the 2012-2016 American Community Survey.

Table 3-5: 2016 Census Median Household Income Statistics

Location	Per Capita Income	Median Household Income	% Below Poverty Level
Heath	\$29,272	\$52,875	18.7%
Franklin County	\$31,689	\$56,347	11.3%
Massachusetts	\$38,069	\$70,954	11.4%
United States	\$29,829	\$55,322	15.1%

Source: 2012-2016 American Community Survey, Five-Year Estimates.

In 2016, Heath's median household income was \$52,875. Based on these figures, Heath's households earn both less than the Franklin County median and less than those of the State. Given the modest wealth of its residents, how will the town create these services and facilities in an inexpensive manner for its residents? The answers to these questions may depend in part on the current and potential economic and financial well being of Heath.

Heath's most valuable resources are its people and landscapes. Both make Heath what it is today, and the town's economic well being depends on the interdependent relationship between the two. Community services are paid for by taxes which differ in amount based on the land use (agricultural, residential, commercial, or industrial) and acreage. Developed properties have higher valuations than undeveloped lands, because they require more community services – waste disposal, road maintenance, etc. Even then, some properties may not pay for all the services they are provided, e.g. the annual cost of schooling one household with three children is more than the taxes paid by that same household based on the property's assessed valuation. On the other hand, protected open space requires few services and could provide a share of tax revenues from increased recreational activity and associated tourism. This relationship is explored in more detail in subsection D. Growth and Development Patterns.

Heath has a total area of 15,932 acres and a population of 730 people, which gives a population density of one person per 22 acres. The town has four zoning districts: Agricultural and Residential, Residential and Recreational (Mohawk Estates), Heath Center, and Agricultural and Forestry. Residential development in Heath has occurred in disparate clusters of small frontage lots such that the extent of development varies from one stretch of road to another and from one side of a road to another. Throughout Heath, distances between intersections are long, generally between a half-mile and a mile. No part of town stands out as a center of population density, except for the private subdivision called Mohawk Estates. Located in the southeast corner of town, Mohawk Estates is organized around Papoose Lake, an old beaver pond which is maintained as open water by controlling the population of aquatic plants. Mohawk Estates was originally created for summer camping and land surrounding the lake is occupied by trailers, hunting cabins, and small, year-round homes. Parcel sizes are commonly a quarter acre, but may be up to two acres. Mohawk Estates is by far the most extensive and intensive subdivision in Heath, and the only place where private roads have been built to accommodate recent residential development.

Heath is a low income community and the home prices show this. Most houses are assessed in the \$150,000 to \$300,000 range with a 2016 median value of \$205,400, according to the American Community Survey 2012-2016. The more valuable homes tend to be the old colonial homes which are scattered around town. The village center has a larger concentration of homes and many of them are colonial houses.

A topic of concern for many current residents is that many of the large colonial homes are inhabited by elderly people often living alone. The days of multi-generational families living in these homes seems to be gone, so zoning amendments have been passed to make it easier to establish apartments within these structures. The hope is that these apartments could provide some cash flow or could provide housing for a care giver. A related concern is the steady decline of household size, which results in many houses with only one inhabitant, and the steady increase in home ownership costs which are proving to be a particular burden to those on fixed incomes.

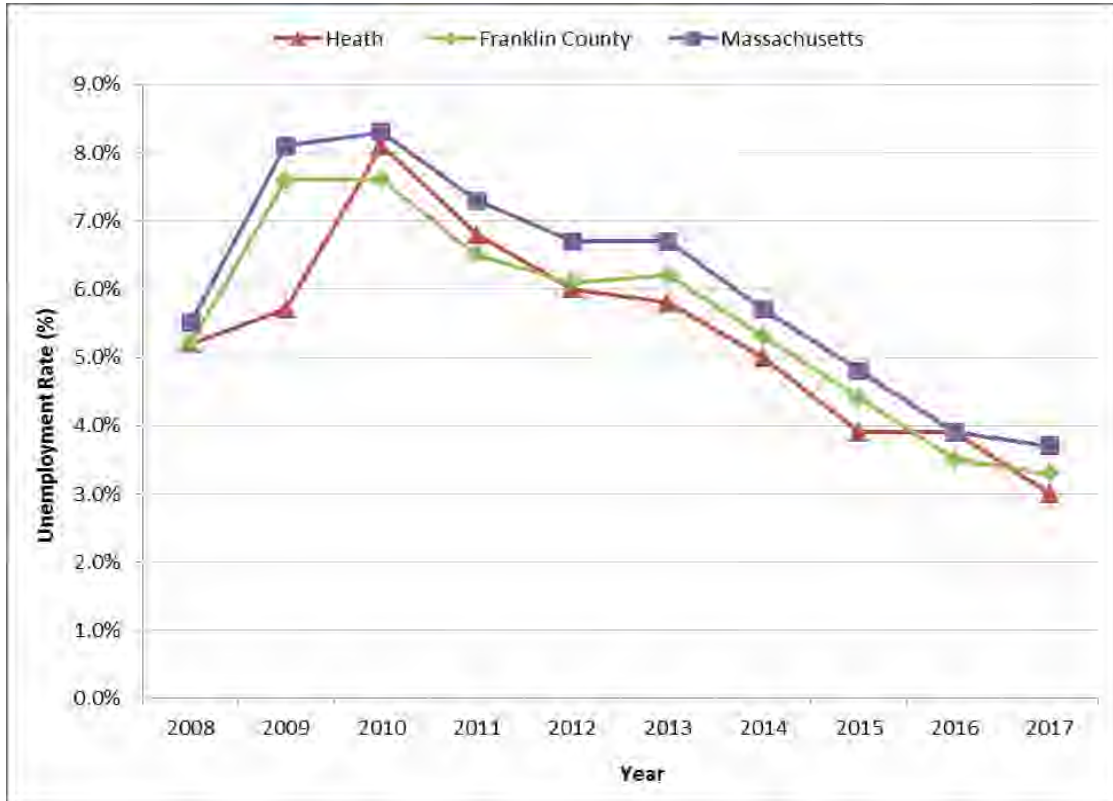
C.2. Employers and Employment Statistics

In 2017, the Town of Heath had a labor force of 365, which has remained consistent since 2010, according to the MA Department of Workforce Development: Labor Force and Unemployment Data. Heath's unemployment rate compared to the County and the State is shown in Figure 3-6. The town experienced the same fluctuations in unemployment as the County and State over the last 10 years. However, Heath's unemployment rates have been consistently lower than the County and State. In 2017, the unemployment rate for Heath residents was 3.0% while it was 3.3% for the County and 3.7% for the State.

Table 3-6 shows the number of establishments and average monthly employees working for Heath employers from 2007 to 2016. The Town of Heath had 8 establishments in 2007 with an average of 27 people employed monthly. Since 2007, the number of establishments has increased to 19 and the average monthly employment has also increased to 73. Weekly wages for workers

at Heath establishments have fluctuated between a 2016 low of \$426 and a 2009 high of \$550. The average weekly wage in 2016 for Heath establishments was \$426 while the weekly wages for Franklin County were \$781 and \$1,297 for the State.

Figure 3-6: Unemployment Rates for Heath, Franklin County, and Massachusetts, 2008-2017



Source: Massachusetts Executive Office of Labor and Workforce Development, Labor Force and Unemployment Data.

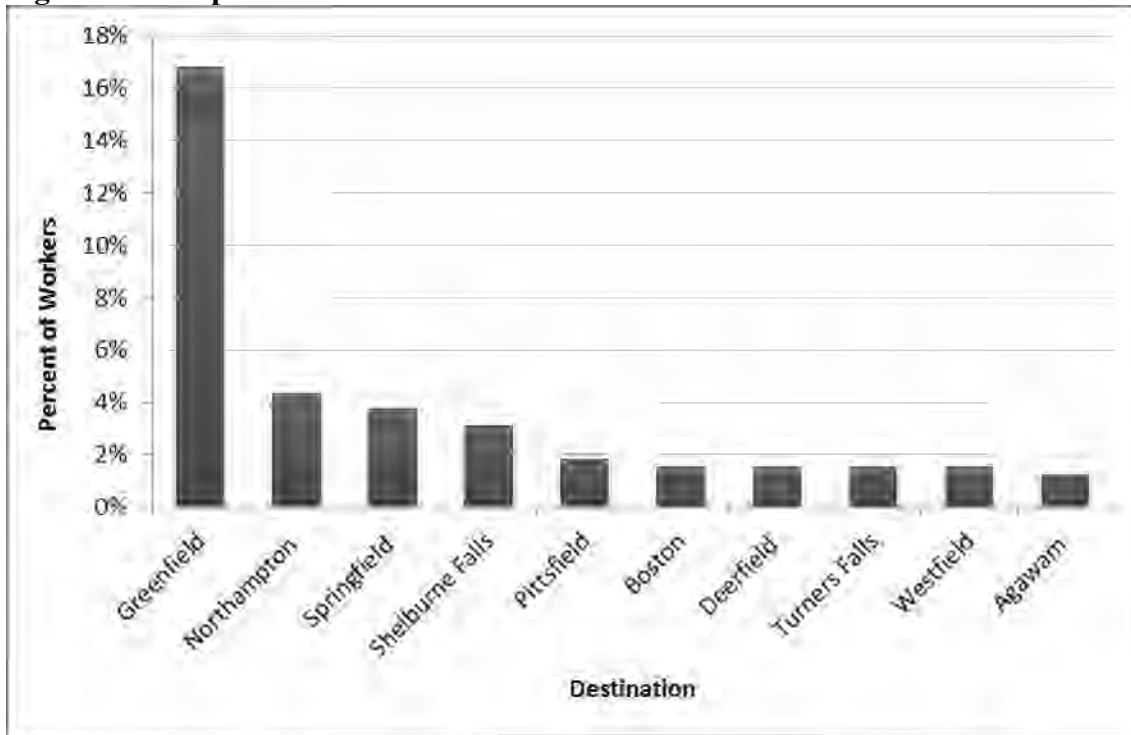
Table 3-6: Total Establishments and Employment in Heath, 2007-2016

Year	Number of Establishments	Average Monthly Employment	Average Weekly Wages
2007	8	27	\$530
2008	8	21	\$509
2009	9	18	\$550
2010	13	64	\$452
2011	12	55	\$499
2012	12	58	\$457
2013	14	55	\$489
2014	16	53	\$522
2015	19	68	\$445
2016	19	73	\$426

Source: MA Department of Workforce Development: Employment & Wages, ES-202.

Figure 3-7 indicates the top destinations for Heath’s labor force in 2015 according to the U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD). The top five destinations of Heath’s labor force include Greenfield, Northampton, Springfield, Shelburne Falls, and Pittsfield. Overall, 99% of Heath’s labor force was employed outside of town. The mean travel time to work for Heath residents was 35 minutes. Meanwhile, only 35 residents worked at home. The top industries in which Heath residents work are listed in Table 3-7, with education, retail and health care, and manufacturing comprising over 50% of employment.

Figure 3-7: Top Worker Destinations of Heath Residents in 2017



Source: U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD), 2015

Table 3-7: Top Industries for Heath Residents

Industry	Total Workers	Percentage of Total
Educational Services	54	16.8%
Retail Trade	43	13.4%
Health Care and Social Assistance	42	13.1%
Manufacturing	39	12.1%
Accommodation and Food Services	24	7.5%
Construction	17	5.3%
All Others	102	31.8%
Total	321	100.0%

Source: U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD), 2015

The data shows that Heath is a rural community with 99% of its working residents earning their living outside of town. The lack of small businesses outside of home-based companies in Heath means that municipal expenses incurred for community/public services must be paid for with revenues generated from taxing residential uses and open space.

A current obstacle for the town's ability to attract new cottage industries and small business is the lack of phone and internet service. However, the Massachusetts Broadband Institute (MBI) and Last Mile Infrastructure Grant Program, working with Heath and Westfield Gas and Electric, are funding, designing, and constructing a high speed broadband network to serve all residences in town. It is estimated the system will be fully functional by 2020-2021. The town will own the network and hire an internet service provider (ISP) to operate the network. The arrival of high speed internet may make the town more attractive for new residents and businesses to relocate to the community.

C.3. Environmental Justice Populations

There are very few minority residents in Heath. This results in a very uniform population spread over the town with income about evenly divided among the several sections and no areas of environmental justice concern. In 2016, of the 730 people in town, 711 of them identify as White and only 29 individuals identify as Hispanic or Latino. Limited English proficiency is a rare issue in Heath with only 4 individuals that have limited proficiency according to the latest 2016 American Community Survey.

D. GROWTH AND DEVELOPMENT PATTERNS

D.1. Pattern and Trends

The Town of Heath is a sparsely populated community. Its population peaked in 1830 when it began a slow steady decline until the 1970s when residential development began to grow by following early patterns. Historic development patterns included agricultural, manufacturing activities, and the construction of roadways.

Today's development patterns echo the past where farms were set apart along or near roadways and civic, commercial and industrial activities clustered at a crossroads, along main routes, and often near a river or brook becoming the town center or forming a neighborhood.

Heath's early settlement (1760s and 1780s) saw most development occur around Heath Center and along Mill Brook at Dell village. Meanwhile, upland agriculture extended along the highland plateau along Jacksonville Road, where a small community developed in North Heath. This pattern subsisted for the remainder of Heath's history. The center of civic activity remained in Heath Center, with a secondary center in North Heath for upland farming activity. Meanwhile, mills subsisted at Dell Hollow on the Mill River.

According to the Franklin County Cooperative Inspection Program, between 2006 and 2017, twenty new homes were built in Heath:

YEAR	Single Family	Two Family
2006	5	0
2007	2	0
2008	0	0
2009	2	0
2010	1	0
2011	1	1
2012	2	0
2013	1	0
2014	0	0
2015	2	0
2016	2	0
2017	1	0

Most of this development is considered to be large lot residential development and has occurred as Approval-Not-Required (ANR) lots. ANR lots meet Heath's required minimum lot size and frontage on an existing public way and therefore do not need to comply with State subdivision regulations.

There are two residential zoning districts in Heath, both of which require a minimum lot size of two acres. The main reason that the two-acre lot size is required is to insure that a minimum distance between private wells and septic systems is met. Clean drinking water is dependent on locating the septic field in soils that clean the wastewater effectively before reaches the groundwater. The drawback of 2-acre zoning is that it may be encouraging a sprawling pattern of development, currently the most common way towns are being developed across the Commonwealth.

There are a number of ways to address the "sprawl" (development spread along rural roads and across the forested/farmed landscapes) created by ANR lots. One way Heath has attempted to do this is to enact a conservation development provision for new subdivision in its zoning bylaw. The new single and/or two family dwellings can be clustered in one or more groups within a development. Building lots are of reduced in size and concentrated together with a permanent conservation restriction place on the remaining open space to prevent future development. Heath also allows the construction of accessory apartments by right in three out of the four zoning districts, another method to increase density in already developed areas.

D.2. Infrastructure

D.2.1. Transportation

There are no major highways running through Heath. State Route 2, the closest major roadway, is accessed via the Towns of Charlemont and Florida. It connects the area to nearby towns and urban centers. The closest access to I-91, Franklin County's major north/south route, is in Greenfield. The principal highway in town is State Route 8A running north/south, which

intersects Route 2 in neighboring Charlemont. Road building in Heath is constrained by the town's rugged landforms. The network of roads is more extensive in the central and western portions of town, where slopes are longer and gentler. The number of public roads in use in Heath has actually declined since the population peaked in 1830. Roads still in use are those which have access to the best agricultural soils, often located on the saddles and plateaus of the ridges. Heath has approximately 64 total miles of roads, of which approximately 36 miles, or nearly 56 percent, are gravel.²

There is neither passenger nor freight rail service in the Town of Heath.

Heath is a member of the Franklin Regional Transit Authority (FRTA). There is no fixed route service, but FRTA provides paratransit services for the elderly and disabled through the Shelburne Council on Aging. There is no other public transportation available in Heath. There are also no formal bikeways in Heath.

D.2.2. Water Supply

The Town of Heath does not have a municipal water supply system. Private wells serve all residences in Heath. Drinking water for the former Heath School building comes from an on-site public well, categorized by DEP as a non-transient, non-community water source for testing purposes.

D.2.3. Septic Systems

In Heath, all sewage is disposed of via private systems. The effectiveness of septic 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 Heath are wet, shallow-to-bedrock, or are coarse and stony which provide very little filtration to septic leachate since water passes through soils very quickly. While not precluding development in Heath, the density and total amount of new development in the near future will in large part be determined by soils and their ability to pass percolation tests.

In many communities across the region, development follows infrastructure improvements. Given Heath's lack of a community 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 remains static, development may be limited to those areas that are already developed. As population increases and the land most able to accommodate 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 unsuitable for development.

² Massachusetts Department of Transportation, 2007.

D.3. Long Term Development Patterns

Long-term development patterns will likely depend on a combination of land use controls, the amount of permanently protected land, population trends, and the willingness of people to commute relatively long distances to work. With the addition to the town of a high speed broadband network, it is conceivable that normal long term development patterns will be affected. Quality of life issues that Heath provides (open spaces, lower home prices, clean air and water, community involvement, etc) coupled with high speed internet, can bring urban based people to the area who can utilize this service. Population trends, housing costs, and demographic make-up could markedly change from existing long term predictions.

D.3.1. Land Use Controls

The Town of Heath has three local land use controls: zoning districts, Board of Health regulations, and the inclusion of conservation development in its zoning bylaws.

Zoning District

The Town of Heath has four use districts: Residential and Agricultural, Residential and Recreational (Mohawk Estates), Heath Center, and Agricultural and Forestry and two overlay districts: Water Supply Protection District and the Floodplain Overlay District. All four districts allow single-family homes and commercial office buildings by right.

The Water Supply Protection District is meant to protect, preserve and maintain present and potential sources of water supply for the public health and safety. The district is defined as all the lands within the Town of Heath lying within the primary and secondary recharge areas of groundwater aquifers which could provide public water supply. Certain uses are prohibited within the WSPD, including business and industrial uses that use hazardous materials and any other uses that typically use materials potentially harmful to drinking water supplies. The Planning Board may grant a Special Permit for the following uses within a WSPD: rendering impervious of more than 5,000 sq. ft. of a single lot; disposal of solid wastes, other than brush and stumps; and commercial and industrial uses permitted in the underlying district, except those strictly prohibited in the WSPD.

There are prohibited uses and uses allowed by special permit in the Residential-Agricultural district. Heath's Planning Board assumes that future development will be predominantly residential. Table 3-7 lists the dimensional requirements for single- and two-family houses. According to the U.S. Census's American Community Survey, in 2016 there were a total of 267 housing units with 90% owner-occupied. Most of the housing in Heath is single family (95%) with a few multi-family units. Three percent of the housing is composed of mobile homes, primarily located in the Mohawk Estates area. The mobile homes have a much higher renter rate of 24%.

Table 3-7: Selected Features for the Residential-Agricultural Zoning District

Dimensional Requirement	Single-Family House	Two-Family House	Conservation Development
Min. Lot Area	87,120 sq. ft. (2 acres)	87,120 plus 65,340 per dwelling unit in excess of 2	32,670 sq. ft. (3/4 acre)
Min. Lot Frontage	250 feet	300 feet	125 feet
Min. Front Yard	50 feet	50feet	20 feet

Source: Town of Heath Zoning By-Law; May 12, 2008.

A two-acre minimum lot size may be too small given the soil, ledge, steep slopes and high water characteristics that presently constrain development in many areas of town. On the other hand, a two-acre lot size helps to restrict development on unsuitable lands, conserves private drinking water supplies, and provides a better safety margin for protecting water supplies from cross contamination from on-site septic systems.

Conservation Development

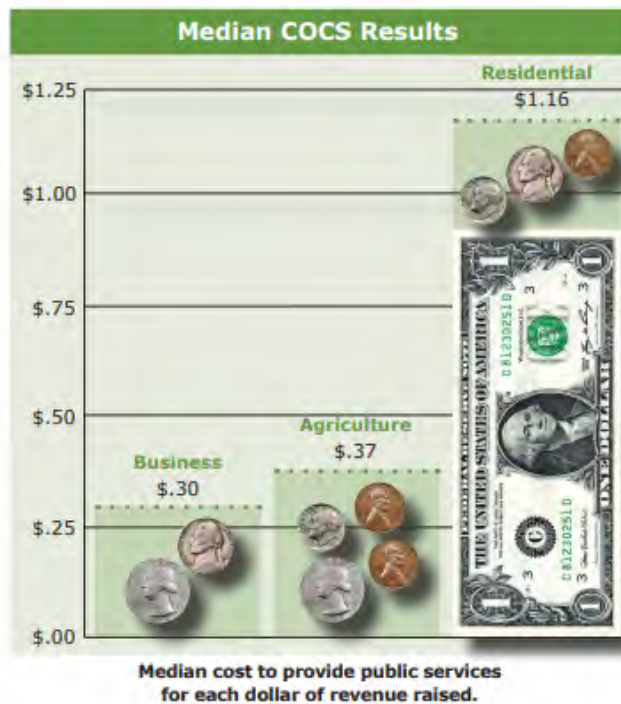
Conservation Development as described in Heath’s Zoning Bylaws is described as: “single and/or two-family residential development in which the houses are arranged together into one or more groups within the development, and separated from adjacent properties and other groups by undeveloped land. This type of development may occur as either a subdivision or as lots being created on an existing public way.” The minimum area for a conservation development is ten (10) acres which does not have frontage on an existing way or six (6) acres for lots on an existing public way. A development would cluster the same number of houses allowed in a standard subdivision of the same gross acreage with the remaining land held as common open land that is permanently protected, unless a density bonus is granted. There are a number of methods of determining the number of houses that are allowed and open space that must be protected.

Given the anticipated population decline expected for Heath over the next couple decades, the challenge will be to find a model for development that protects the town’s rural character and promotes a stable property tax rate. In designing the model it is important to understand the measurable values of different land uses. 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.

The American Farmland Trust (AFT) and other organizations have conducted Cost of Community Services (COCS) analyses for many towns and counties across the country. A COCS analysis is a process by which the relationship of tax revenues to municipal costs is explored for a particular point in time. These studies show that open spaces, while not generating the same tax revenues as other land uses, require less public services and result in a net tax gain for a

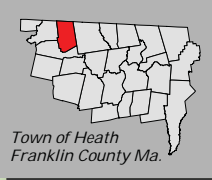
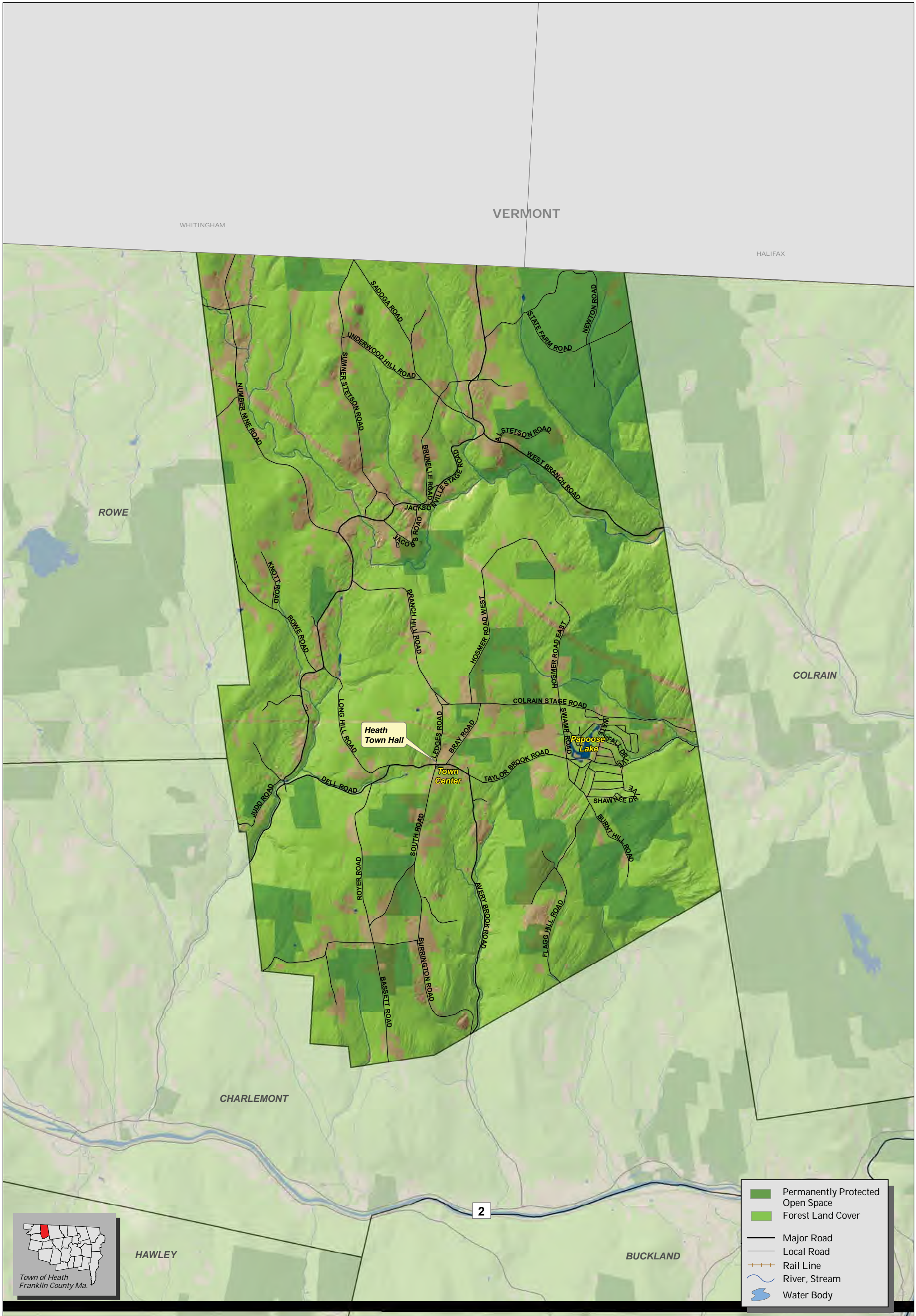
community. Residential uses require more in services than they provide in tax revenues compared to open space, commercial, and industrial land uses. Communities, at the time of the study, were balancing their budgets with the tax revenues generated by other land uses like open space and commercial and industrial property.

Figure 3-9 demonstrates the summary findings of 151 COCS studies from around the country. For every dollar of property tax revenues received from open space, the amount of money expended by the town to support farm/forestland was under fifty cents while residential land use cost over a dollar. Taxes paid by owners of undeveloped farm and forestland help to pay for the services required by residential land uses. When a town has few land uses other than residential, homeowners and renters pay the full cost of the services required to run a municipality, maintain public ways, and educate young people. In this way, local property real estate taxes tend to rise



Source: American Farmland Trust; 2016.

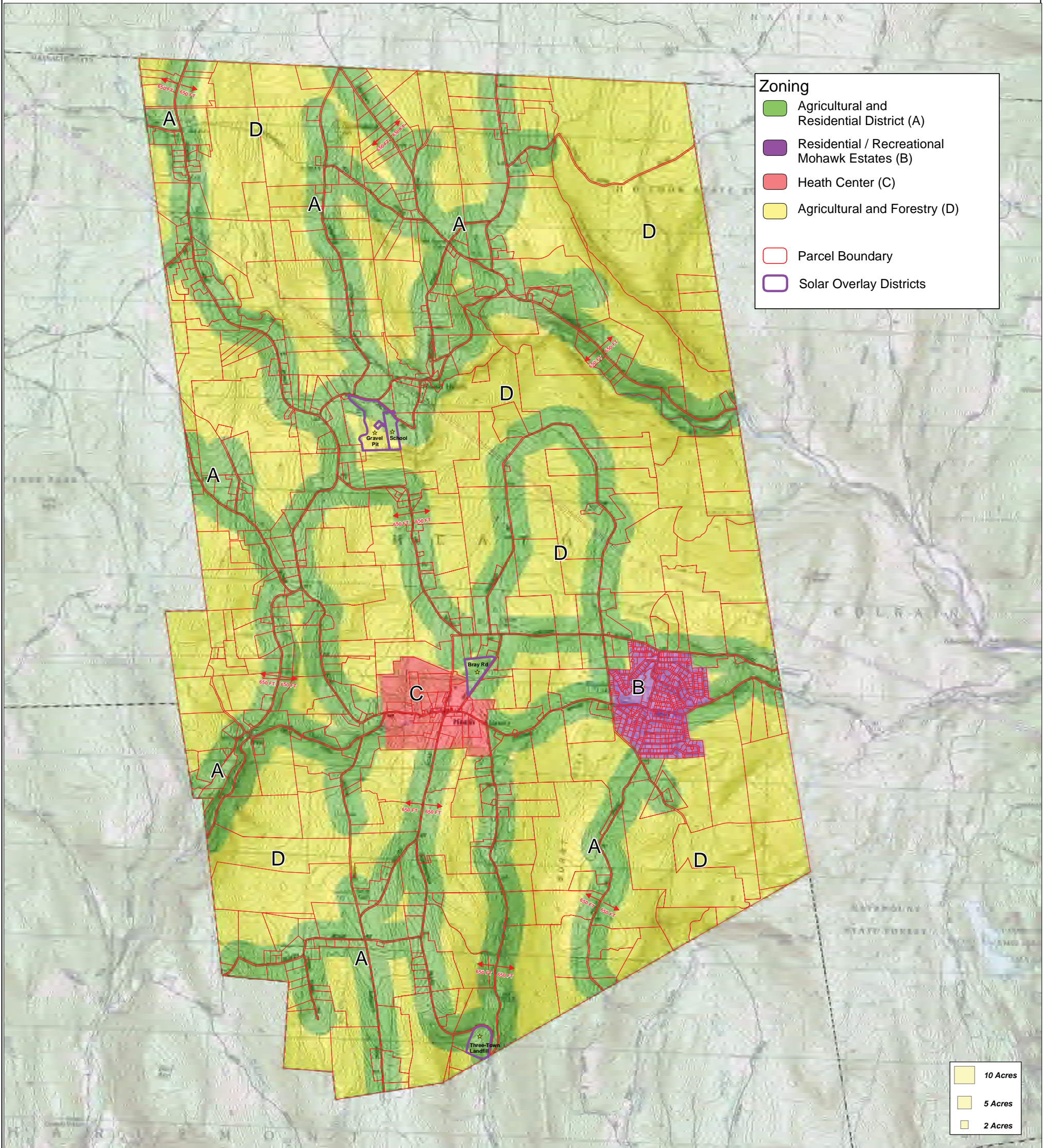
The challenge for Heath and other communities is to define what "well balanced" looks like in their community. A land use plan that supports a stable tax base would also need to respect the capacity of the natural resource base. It might allow for the development of small home businesses in a way that encourages local entrepreneurship and modest business expansion, concentrates residential development where possible, and protects forests, remaining farmland, and the most significant scenic, ecological, and historic resources.



Official Zoning Map & Solar Overlay Districts

Town of Heath Massachusetts

September 7, 2012

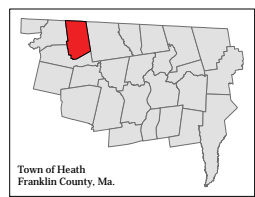
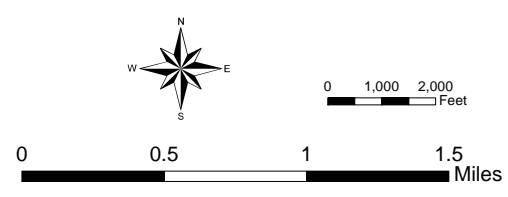


Zoning

- Agricultural and Residential District (A)
- Residential / Recreational Mohawk Estates (B)
- Heath Center (C)
- Agricultural and Forestry (D)
- Parcel Boundary
- Solar Overlay Districts

10 Acres
5 Acres
2 Acres

Map composed by FRCOG Planning Department. c:\a_projects\updated_zoning2012a_projects\heath\star\official_solar_town.mxd



Map Sources:
Map produced by The Franklin Regional Council of Governments Planning Department. GIS data sources include the FRCOG Planning Department, the Massachusetts Highway Department and MassGIS. Digital data obtained from MassGIS represent the efforts of the Massachusetts Executive Office of Environmental Affairs and its agencies to record information from the sources cited in the associated documentation. EOEIA maintains an ongoing program to record and correct errors in the GIS data that are brought to its attention. EOEIA makes no claims as to the reliability of the GIS data or as to the implied validity of any uses of the GIS data. EOEIA maintains records regarding all methods used to collect and process these digital data and will provide this information on request. Executive Office of Environmental Affairs, MassGIS EOEIA Data Center, 251 Causeway Street, Suite 900, Boston, MA, 02142-1000
USGS 7.5 minute series topographic quadrangles scanned to create digital USGS 7.5 minute ArcInfo coverages. The resulting scanned map is projected into NAD83 Massachusetts State Plane meters. Data provided by MassGIS
Zoning Districts prepared by the Town of Heath and the Franklin Regional Council of Governments.
Note: Depicted boundaries are approximate and are intended for planning purposes only. Portions of the source data were obtained from 1:100,000 scale maps, therefore the accuracy of the line work on this map is +/- 100 feet.

September 7, 2012

SECTION 4

ENVIRONMENTAL INVENTORY AND ANALYSIS

This section of the Heath Open Space and Recreation Plan provides a comprehensive inventory of the natural resources and significant cultural assets within the town. The inventory identifies and qualifies Heath's soils, special landscape features, surface waters, aquifers, vegetation, fisheries and wildlife, and unique environments and scenic landscapes.

Each of these resource areas is analyzed from two perspectives. First, the town's natural resources provide Heath residents with basic ecological services and cultural amenities. Ecological services include drinking water filtration, flood storage capacity, maintenance of species diversity, carbon sequestration and climate change mitigation, 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 beneficial impacts that well-conserved natural resources, such as good drinking water and open spaces, have on the local economy. Second, it is important to determine whether the resources require conservation so that the quantity and quality required by the citizenry is sustained.

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,¹ 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 Heath: 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.

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

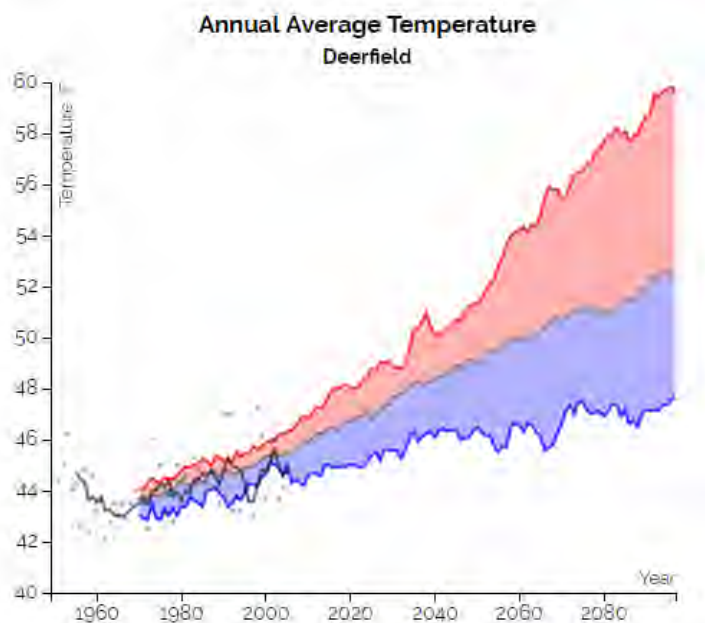
The Franklin Regional Council of Governments (FRCOG) recently completed a Watershed-Based Plan for the Deerfield River Watershed in which Heath is located.² This plan focused on ways to maintain the health and resiliency of the watershed in the face of a changing climate. The findings and recommendations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

A.1. 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.³ 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.⁴

In the Deerfield River Watershed, in which Heath is located, overall observed average annual temperature between 1971 and 2005 was 44.8°F. Average annual temperatures in the watershed 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.⁵

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



Source: Resilient MA: Climate Change Clearinghouse for the Commonwealth, <http://www.resilientma.org/datagrapher/?c=Temp/basin/avg/ANN/Deerfield/&c=Temp/basin/avg/ANN/Deerfield/>

² 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.

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

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

⁵ Ibid.

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.⁶ Conversely, the watershed is expected to experience fewer days when temperatures drop below freezing (32°F).

A.2. Precipitation Changes

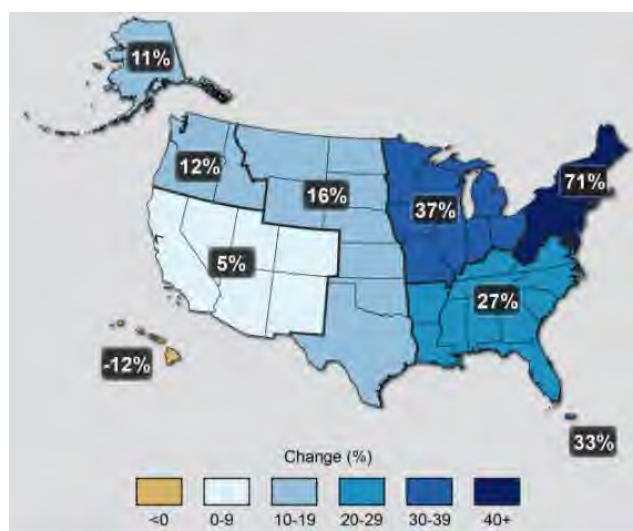
In Massachusetts, annual precipitation amounts have increased at a rate of over 1 inch per decade since the late 1800s, and are projected to continue to increase largely due to more intense precipitation events. The Northeast has experienced a greater increase in extreme precipitation events than the 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.⁷

A.3. 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

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.

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

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

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 Heath, 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 Heath 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.

B.1 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.

B.2 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, Heath 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 this section on Environmental Inventory and Analysis. BioMap2 Core Habitat Landscapes and NHESP Priority Habitats are shown on the Scenic, Recreation, & Environmental Resources Map at the end of this section.

C. TOPOGRAPHY, GEOLOGY, AND SOILS

Decisions about land use must take into consideration the inherent suitability of a site for different kinds of development. Understanding the geology, soils, and topography of Heath are

essential for determining the suitability of sites for residential, commercial and industrial development as well as new parks, hiking trails and open space.

C.1 Topography

Heath's landform consists primarily of high, wind-swept hills and steep descents into deep stream valleys with relatively small fast-moving rivers and frequent waterfalls. Interspersed among these features are some flatter but still rolling areas which, when combined with the soil types and associations, provide the opportunity for numerous wetlands.

Heath's most obvious landforms are its hills, from Underwood Hill in the northwest (the highest point at 1,909 feet) to Burnt Hill in the southwest with many others in between. The lowest elevations are the valleys where West Branch Brook, Avery Brook, and Mill Brook leave Heath on the east, south, and west respectively.

The high elevation of the hills and steep descents into many of the valleys has strongly influenced the development of Heath. No roads bridge the valley of the West Branch Brook which separates north and south Heath except in one narrow band on the west side of the town. The landforms also combine with soils, strong winds, and a short growing season to limit the arable areas of Heath.

C.2 Geology

The Town of Heath's distinctive physical base has determined the distribution of its water bodies, the types of soils and vegetation, and the settlement patterns, both prior to and since colonial times. The bedrock of Heath consists almost entirely of metamorphic rock derived from both sedimentary and igneous rocks. These rocks consist primarily of schists, phyllite, quartzite, and gneiss of the Waits River, Goshen, Hawley, and Moretown Formations. All of these formations contain rocks which have been highly folded resulting in the many hills, valleys, and bedrock outcrops (and therefore shallow soils) characteristic of Heath. These formations also run generally from southwest to northeast, and their influence is evident in the same pattern being reflected in soil and vegetation patterns.

Surficial geology consists of the combination of boulders, rocks, and other particles between the bedrock and soil. In Heath, two types of surficial geology exist, glacial till and areas of sand and gravel. Glacial till, which covers the vast majority of Heath, is composed of the assorted particles picked up by glaciers as they move and then are deposited directly by the glaciers as they melt. Glacial till is relatively unsorted, meaning different sized particles are distributed randomly throughout the soil, and is often very compacted, making water movement through it problematic and helping to create Heath's many wetlands.

Sand and gravel were deposited through various water movements, either originating from glaciers or more recent (the 10,000 years since the glaciers receded) rivers and streams. The manner in which these deposits are formed results in areas very permeable to the movement of water and large spaces between particles where water can be stored. Because of this permeability and storage capacity, these zones are where aquifers are usually located. Aquifers are areas of

groundwater that can supply an appreciable amount of water to wells. In Heath, sand and gravel aquifers are relatively small and located mostly along the West Branch and Mill Rivers and a few other scattered areas.

Due to the lack of any large surface water reservoirs in Heath, the town's water supply is drawn exclusively from groundwater sources. Metamorphic rocks generally have low porosity and permeability and do not form good aquifers. In Heath, due to the particular tilting of the bedrock and system of cracks in the bedrock, the supply of water from these cracks is significantly better than normal.

C.3 Soils

Soil is a complex combination of biotic (living or once living) and abiotic (stones, gravel, sand, silt, and clay) components arranged in layers. The combinations of the various layers, their depth, mineral composition, assortment of particle sizes, slope, position on a slope, and parent material all determine the characteristics of a soil and what can be done on it. Soils suitable for recreation may not be so for development, or those ideal for pasture might erode if plowed. Soil qualities can also lead to difficult decisions because potential uses can conflict. For example, the best soils for farming are often the best for development.

Soils are classified into associations, series, and types, with associations being the most general. Soil associations are determined by the occurrence, within a particular area, of soils with consistent patterns and proportions. While much variation exists within soil associations they provide a general set of characteristics. Three soil associations exist in Heath: Westminster-Marlow, dark subsoil Peru; Merrimac-Ondowaw; and Westminster-Colrain-Buckland.

B.3.1 Soils for Development

Over 80% of the approximately 90 soil types, and a similar amount of area, in Heath have characteristics making them unsuitable for development. These factors include bedrock within 18 inches of the surface, seasonal or year-round high water tables, or slopes greater than 15%. Each attribute makes siting a leaching field difficult to impossible. Other soils act as poor filters for septic system leachate, meaning a septic system placed in such a soil, though legally possible, would allow contamination of any nearby surface or groundwater, and therefore should not be installed. The steep and shallow bedrock soils also make development difficult because of severe erosion caused if these soils are disturbed.



Soil with moderate constraints compose another 10% of those in town and include those with both slow percolation rates and slopes between 8-15%. These areas are sensitive to erosion and make siting septic systems difficult. If growth is controlled carefully in these regions, siting them systems may be possible. This leaves only 10% of the soils as capable of being developed relatively easily, but even in this group, some soils are susceptible to erosion.

Though Heath's soils are generally inhospitable to development, this alone cannot be counted on to protect the town from development.

B.3.2 Soils for Agriculture

Some prime agricultural soils exist in Heath, but they are scattered and mostly too small to support agricultural activities by themselves. Most are contiguous with less-than-prime, but productive, agricultural soils, and thus form areas large enough to support active agriculture. A number of areas of specialty soils exist in Heath, that is, soils not normally considered farmable but which can support specialty crops, such as, in Heath's case, low-bush blueberries. About half of the traditionally good agricultural soils are also in soil categories with a few or moderate constraints to development thereby creating possible use conflicts.

B.3.3 Soils for Forestry

Forestland in Heath is extensive, covering 83 percent of the community. The University of Massachusetts, Department of Forestry and Wildlife Management in cooperation with state and federal conservation agencies have identified the Commonwealth's prime forest soils and developed nine different categories including: Prime 1, 2, and 3, Statewide, Local Importance, and Unique.⁸ Prime forestland soils support a production of wood fiber at a rate greater than eighty-five cubic feet per acre per year. Only forestland with Prime 1, 2, and 3 soils would be worthwhile to manage intensively for wood products. Soils of statewide and local importance still have the potential for producing wood products but the potential financial return is not as high. Almost the entire town is composed of Prime 1, 2, 3 soils with some statewide and local importance soils. Prime forestland soils are not the only criteria for choosing land to manage for timber production. Three important other factors include: the forest's condition, its accessibility, and its slope.

B.3.4 Soils for Recreation and Open Space Preservation

Different recreational uses are constrained by different soil and topographical characteristics. For instance, sports fields require well-drained and level soils. Lands with slopes over 25 percent may be attractive to mountain biking and hiking enthusiasts. However, such soils should only be used for these purposes if the soils are not easily eroded.

D. LANDSCAPE CHARACTER

The land within Heath is a system of hills and valleys, which are extensions of the Green Mountains. Elevations range from 900 feet above sea level, at the mouth of the West Branch Brook, to 1,909 feet, at the peak of Underwood Hills. Heath's most rugged landforms are on the east side of town, along Burnt Hill and the lower valley of the West Branch Brook.

⁸ The University of Massachusetts, Department of Forestry and Wildlife Management. "Prime Forestland Classification for Forest Productivity in Massachusetts" October 1985.

Though mostly forested, Heath contains scattered areas of cleared land. Most are associated with agricultural activities, ranging from cattle raising to growing blueberries.

The great variation of Heath's landscape creates many areas of scenic and recreational value. There are views to mountains near and far in all directions, dams and dam remnants as reminders of the town's past, waterfalls to delight both eyes and ears, slopes to either challenge the hiker and cross-country skier or allow a leisurely stroll, and habitat for a large variety of wetland and upland species. Many of these areas are sensitive to disturbances that could diminish or destroy their valuable properties.

Development, though generally slow in Heath, is one potential threat. For example, loss of farmland to development could interfere with many distinctive landscape features, with views blocked by houses and forest taking over former farm fields. Another threat to Heath is climate change and its potential impact on native animal species and vegetation. Cataloging areas of particular value to the landscape character of Heath and devising ways to preserve them whether by zoning, acquisition, or other means is important if Heath is to remain the town its residents know and love.

E. WATER RESOURCES

Heath's surface water is found in streams, ponds, and wetlands. According to MassGIS 2005 Land Use Data, there are approximately 327 acres of wetlands in town and approximately 23 acres of streams and ponds. The Town of Heath contains the headwaters of a number of streams which flow into the surrounding towns of Colrain, Rowe, and Charlemont. Those streams originate in the central uplands of Heath and flow through the southern part of town. Streams in Heath which have sources outside of Heath's borders originate less than two miles away in Rowe or in Whitingham, Vermont. These streams flow from north to south and from west to east to feed the West Branch of the North River. All of Heath's streams are Class B waters and are protected under the Massachusetts Wetlands and Rivers Protection Act. Heath's water quality is generally quite high. The only surface water open to public use is a length of stream in the H.O. Cook State Forest.

Ponds in Heath include Papoose Lake, which lies in the headwaters of Davenport Brook, and other smaller ponds in the vicinity of the north loop of Hosmer Road. Dams remaining along Mill Brook form a series of small reservoirs. Beaver dams are also prevalent along many of Heath's streams.

Heath has ample groundwater, which collects between tilted layers of bedrock. Heath recharges its underground aquifers through sandy glacial deposits lying along the West Branch Brook, Mill Brook, Avery Brook, and Taylor Brook.

The Town of Heath's zoning has a Wetlands Protection Bylaw, which applies stricter standards and provides an additional level of protection to surface water bodies, waterways, wetlands than the State's Wetlands Protections. Since 1989, Heath's zoning bylaw has included a Water

Supply Protection Overlay District to limit the possibility of groundwater contamination. Of the five areas which are subject to the regulations, two are at the edge of town. Heath's zoning bylaws also include a Floodplain Overlay District in two locations, both along West Branch Brook. Within the Floodplain District, property owners must comply with state regulations for floodplain development, and must show that their plans will not adversely affect water flows or water levels during floods.

E.1 Watersheds

The Town of Heath lies in the major Deerfield River watershed, which encompasses the smaller North River subwatershed and the Deerfield River - Cold River to North River subwatershed. The Deerfield River is a major tributary of the Connecticut River and is widely regarded as one of the coldest and cleanest rivers in Massachusetts. The watershed supports a wide variety of ecological, recreational, and commercial uses and there are many active stakeholders that have a vested interest in maintaining the high quality and resiliency of the watershed resources. The 2017 publication, "A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed" prepared by FRCOG for the U.S. EPA and MA DEP, outlines the management plan for the entire watershed, including sites in Heath.

E.1.1 North River Mainstem Subwatershed

The North River Mainstem Subwatershed spans 22,500 acres and falls mostly within Heath and Colrain. Overall, this subwatershed is quite healthy but may be vulnerable to water quality degradation due to the large quantity of first order streams and high quality waters present. During Tropical Storm Irene in 2011, this subwatershed experienced extensive damage to roads from flooding, with the most roads damaged or closed in the entire Deerfield River Watershed. Though there are not many homes or farms within the stream corridors, many of the roads in this subwatershed are at risk because of the significant slopes. Also noteworthy, is the density of hazardous dams in this subwatershed, which could be dangerous if they were to fail. Management of the North River subwatershed should focus on maintaining its current high quality resources. One way to do this is to increase permanent protection of the upland tributary areas and forests, which regulate flow and water quality.



**Fly Fisherman Angling for Brook Trout on West Branch North River
(Source: Franklin Land Trust)**

E.1.2 Deerfield River – Cold River to North River Subwatershed

The Deerfield River – Cold River to North River Subwatershed comprises 29,182 acres and falls within Buckland, Charlemont, Hawley, Rowe, and Heath. This subwatershed ranks low in terms of overall health, primarily due to the impact of hydropower facilities within the Deerfield River mainstem. Much of the developed areas in this subwatershed occur along the Route 2/Deerfield River Corridor outside of Heath. Overall, most of the watershed is forested and seven percent is in agricultural uses. Only fifteen percent of the upland tributary areas (where Heath lies) are permanently protected, which is the lowest in the entire Deerfield River watershed.

E.1.3 Upland Watershed Resiliency

An important component of watershed health are the conditions of the upland tributaries of a watershed and using these resources to increase sediment storage within the watershed. Heath is located in the upland area of the Deerfield River Watershed and the recently purchased 96-acre Crowningshield Conservation Area in town by the Franklin Land Trust will be used as a model for conservation and stream management for the Deerfield Watershed. The Franklin Land Trust has partnered with Trout Unlimited and local biologists to implement wood addition treatments on this managed parcel to trap stream sediment and enhance aquatic habitat on the West Bank of the North River. Pre and post-treatment monitoring of the conservation area will be conducted to assess how well this land conservation and stream management model works to improve watershed resiliency.

E.2 Surface Water

Heath's surface water is found in streams, ponds, and wetlands. Both isolated wetlands and bordering vegetated wetlands are found in Heath and are the source of many of Heath's streams. According to MassGIS 2005 Land Use Data, there are approximately 327 acres of wetlands in town and approximately 23 acres of streams and ponds. Vernal pools abound in Heath, but only one, within the Maitland Memorial Forest, has been certified by the Massachusetts Natural Heritage and Endangered Species program as of 2018.

Heath relies on groundwater for its water supply. Drinking water for the Heath School (now closed) comes from an on-site public well. Otherwise, all of Heath's drinking water comes from private wells. The MA DEP carried out a Source Water Assessment Program (SWAP) Report for the Heath Elementary School in 2016. The report found that the water does not require treatment and that very few land uses closeby could be potential sources of contamination.

In general, Heath has few ponds, reservoirs, or other water bodies. Papoose Lake lies in the headwaters of the Davenport Brook, which joins Klinzman Brook to form Taylor Brook just downstream of the Lake. Other, smaller ponds lie in the vicinity of the north loop of Hosmer Road. Dams remaining along Mill Brook form a series of small reservoirs. Beaver dams are also prevalent along many of Heath's streams.

E.2.1 Major Rivers and Brooks

- West Branch of the North River is 7.1 miles long and forms at the confluence of the West Branch Brook and Berrington Brook in North Heath.
- Sanders Brook flows within and alongside H.O. Cook State Forest in the northeast corner of Heath. In total, it is 2.8 miles long and connects with the North River directly over the Heath border in Colrain.
- The West Branch Brook is 5.4 miles in length and flows east-west across the northern portion of Heath before connecting to the North River.

E.2.2 Papoose Lake

Papoose Lake is a man-made pond that is privately owned by the Mohawk Estates subdivision. It is maintained as open water through the use of a herbicide for aquatic plant life. There has been an ongoing concern related to beaver waste (*Giardia*) potentially contaminating the water for human use.

E.3 Wetlands

Both isolated wetlands and wetlands adjacent to waterbodies are found in Heath and are the sources of many of Heath's streams. The Town of Heath Wetlands Protection Bylaw applies stricter standards and provides an additional level of protection to surface water bodies, waterways, wetlands, and also banks and beaches. With the town bylaw, isolated wetlands achieve protected status.

E.4 Aquifer Recharge Areas

Since 1989, Heath's zoning bylaw has also included a Water Supply Protection Overlay District to limit the possibility of groundwater contamination. Of the five areas that are subject to the regulations, two are at the edge of town. The associated aquifers may not be subject to the same level of protection across the town border and there are also a number of aquifer recharge areas located outside of the Water Supply Protection Districts.

Heath has ample groundwater, which collects between tilted layers of bedrock. Heath recharges its underground aquifers through sandy glacial deposits lying along the West Branch Brook, Avery Brook, and Taylor Brook.

Although climate change is resulting in an increase in precipitation overall, it is occurring in heavier, shorter periods, with more intense dry spells in between. More intense rainfall leads to greater amounts of water running off the land into rivers and streams instead of infiltrating into the ground. In addition, more rain is expected in the winter, reducing snowpack and spring melting that helps recharge aquifers. Higher risk of drought may stress underground water resources.

Conserving natural areas in aquifer recharge areas is critical to help ensure groundwater recharge. Forested areas capture and slow precipitation, allowing more water to infiltrate the ground. In addition to land conservation, zoning and subdivision regulations can regulate impervious surface area and the amount of natural vegetation clearing allowed with new development. Regulations can also encourage or require green infrastructure stormwater techniques that infiltrate water runoff on site.

E.5 Flood Hazard Areas

Franklin County has several major rivers and numerous tributaries that are susceptible to flood events. The major rivers in the region include the Connecticut, the Deerfield, and the Millers. None of these rivers are located in Heath, but the West Branch of the North River flows through Heath. In Heath, the 100-year floodplain covers about 53 acres, or less than one percent of the town, including only about one acre of developed residential land.⁹ In Franklin County, most floodplain maps are several decades old, and may not represent an accurate picture of the floodplain on the ground today. Greater storm intensities as a result of climate change means that flooding that was once considered to have a one percent chance of occurring in any given year is now occurring on a much more frequent basis. In addition to the 100-year floodplain, there are a number of rivers and feeder brooks in Heath with the potential to cause localized and/or chronic flooding. Although the town has no major rivers flowing through it, its steep terrain and deeply cut stream valleys make parts of the town – especially those located along streams and in valleys – vulnerable to localized flooding events.

⁹ 2005 MassGIS land use data.

The most recent and dramatic example of flooding occurred in the area during and after Tropical Storm Irene, which struck Franklin County on August 28, 2011. Route 8A, Number Nine Road and Stone Hill Road, all paved roads, had significant sections of washouts from Irene's flood waters. In addition to these washouts, eleven other non-paved roads also experienced significant washouts. Floodwaters washed away large sections of road in some cases. In other cases, the roads became channels for rushing water and were subjected to severe scouring, with much of the fill washed away, leaving large rocks and boulders exposed. In many cases, culverts did not have the capacity to handle the onslaught of floodwaters, and water rushed up and over road ways.



Sadoga Road after Tropical Storm Irene

In addition to the dramatic examples of flooding due to tropical storms, Heath also has several areas of chronic flooding. These are areas that regularly flood during heavy rains. As well as these chronic flooding areas, there are several places in town where the culverts are too small to handle heavier rain events. The locations of chronic flooding are listed in Section H.2 of this chapter.

Heath's zoning bylaws include a Floodplain Overlay District in two locations, both along West Branch Brook. Within the Floodplain District, property owners must comply with state regulations for floodplain development, and must show that their plans will not adversely affect water flows or water levels during floods.

E.6 River Corridor Mapping and Management

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, which washed out roads across Franklin County and destroyed several buildings in Buckland.

In 2019, the Franklin Regional Council of Governments (FRCOG) created a River Corridor Management Toolkit to provide communities help with delineating and managing river corridors. These tool outlined in the Toolkit can promote river restoration and protection, create climate resilient land uses, and reduce the harm to land, water, habitat, people, and infrastructure caused by increasingly severe and frequent flood events. They include a river corridor mapping protocol, examples of river restoration projects, a Model River Corridor Protection Overlay Zoning District, and a Model River Corridor Easement Restriction.

F. VEGETATION

Heath lies within the Berkshire Highland/Southern Green Mountains Ecoregion, with deep soils that support northern hardwoods and spruce-fir forests. Approximately 85% of Heath is forested, including many of the wetlands. These forests consist of stands of primarily evergreen or mixed evergreen/deciduous trees with smaller stands of deciduous trees. Most of the unforested areas are associated with farms and will only remain open through continued farm activity or other types of management.

The varied vegetation has high recreational value, primarily for hunting, and scenic value which is enjoyed by hikers, cross country skiers, off-road wheeled vehicle users, and snowmobilers. This recreational value is tempered by fragility of certain habitats. Since many of Heath's soils are sensitized to disturbance, activities that damage the vegetation and its capacity to stabilize soils need to be carefully sited to avoid damage. Intensive off-road vehicle use and large-scale athletic facilities are examples of such vegetation disturbing activity.

F.1 Forests

As with most of the rest of New England, the vast majority of the land in Heath would be forested if left unmanaged. Most of the forest in Heath is relatively new, having grown up in the last 100 years or so as farming and raising of livestock have decreased and the fields associated with those activities have become reforested.

Heath's forests have a wide variety of species. The evergreen overstory consists primarily of white pine, hemlock, balsam fir, and, above about 1,200 feet elevation, red spruce. The deciduous components are mostly sugar maple, yellow and black birch, red oak, black cherry, and white ash. Aspens and paper birches are also common, primarily along roads and field edges. This combination of trees make up a forest association generally known as Northern Hardwood Forests, and accounts for about 70 percent of all of Heath's forests. Relatively pure stands of evergreens dominate in the north of town, on north-facing slopes, and in the higher elevations. Mixed evergreen/deciduous forest increases as one moves south. The understory is generally sparse and consists primarily of striped maple, hobblebush, and saplings of the overstory trees.

A resource that will be available to private forest owners in 2020 is the “Forests for the Fish” toolkit that is currently under development by the Franklin Land Trust, Massachusetts Woodlands Institute, and Trout Unlimited. The toolkit can be used by private landowners who have forested land along coldwater streams and would like to work with a licensed forester and fisheries consultant to prepare a Forest Stewardship Plan that includes practices for enhancing habitat and improving climate resiliency. The toolkit will include information about invasive species control, management of forest cover in the riparian zone, native planting for species for bank stabilization, and more.

F.1.1. Large Blocks of Contiguous Forestland

While Heath is mostly forested, much of it is privately owned. However, there are several protected forests within town. The Betty Maitland Memorial Forest is a 40 acre woodlot under permanent protection by the Franklin Land Trust since 1992. The forest is managed for wildlife habitat and passive recreation, including a three-quarter mile trail system which winds through a variety of habitat types.

The New England Forestry Foundation manages three conservation properties in Heath – the Warren W. Smith Forest (125 acres), Howland Memorial Forest (67 acres), and Harriet Carpenter Read Forest (20 acres).

In North Heath, H.O. Cook State Forest is a 913-acre recreation ground owned by the MA Department of Conservation and Recreation (DCR). The property is open to the public but does not have any public trails.

There is also the 96 acre Crowningshield Conservation Area and 298 acre Shapiro Land which are both open to passive public recreation.

In addition to these forests within town, there are several large blocks of contiguous forests in the surrounding region. These blocks run north and south along the Berkshires mountain range and include the Savoy State Forest and the Catamount State Forest in Colrain.

F.2 Agricultural Land

There is very little active agricultural land in Heath. As mentioned previously, the soils in town are not well-suited for agriculture, but can support specialty crops such as blueberry bushes. The existing agricultural lands in town are valued by residents for the scenic views that they provide.

F.3 Wetland Vegetation

Approximately 70 percent of the town’s wetlands are forested, while the unforested wetlands are mostly wet meadows associated with farms. One large unforested wetland exists just northwest of Papoose Lake.

F.4 Rare, Threatened and Endangered 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 Heath. A Priority Habitat is an area where plant and animal populations protected by the Massachusetts

Endangered Species Act Regulations (MESA; 321 CMR 10.00) may occur. Rare species habitat is located in the following areas in Heath:

- Around Papoose Lake
- Along the West Branch Brook
- Sanders Brook

The 14th edition of the Natural Heritage Atlas (effective August 1, 2107) displays the boundaries of the MESA-protected Priority Habitats and Estimated Habitats throughout the Commonwealth. Estimated Habitats are a sub-set of the Priority Habitats, and are based on the geographical extent of habitat of state-listed rare wetlands wildlife as codified under the Wetlands Protection Act, which does not protect plants. The 2017 Atlas is the product of a statewide revision of Priority Habitat and Estimated Habitats to reflect the latest state-listed species data, understanding of species biology and habitat requirements, and GIS technology and data.

NHESP has identified 258 native plant species as rare in the Commonwealth, and a number of rare plants have been documented in the Town of Heath. 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 their 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, 2017). Rare plant species in the Town of Heath are listed in Table 4.1.

Table 4.1 Rare, Threatened, Endangered Plant Species in Heath

Taxonomic Group	Scientific Name	Common Name	MESA Status*	Most Recent Observation
Vascular Plant	<i>Alnus viridis ssp. crispa</i>	Mountain Alder	SC	2011
Vascular Plant	<i>Arceuthobium pusillum</i>	Dwarf Mistletoe	SC	2017
Vascular Plant	<i>Equisetum scirpoides</i>	Dwarf Scouring-rush	SC	2016
Vascular Plant	<i>Linnaea borealis ssp. americana</i>	American Twinflower	SC	2017
Vascular Plant	<i>Mimulus moschatus</i>	Muskflower	T	2017
Vascular Plant	<i>Myriophyllum farwellii</i>	Farwell's Water-milfoil	E	2012
Vascular Plant	<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T	1940
Vascular Plant	<i>Panicum philadelphicum ssp. Gattingeri</i>	Gattinger's Panic-grass	SC	1977
Vascular Plant	<i>Ribes lacustre</i>	Bristly Black Currant	SC	2001

* SC = Special Concern; T = Threatened; E = Endangered.

Source: Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2017, <https://www.mass.gov/service-details/rare-species-by-town-viewer>

F.5 Public Shade Trees

In a town as heavily forested as Heath, preserving public shade trees may seem unnecessary; however, loss of trees in public spaces can significantly change the character of that place. Some methods towns use to protect shade trees include adopting a scenic roads bylaw, limiting the amount of salt used on roads, and requiring replacement of any trees that are lost.

The Franklin Regional Council of Governments has also compiled a list of Climate Resilient Trees for Streetside Tree Belt Planting, including both shade and ornamental trees. The list provides information on the characteristics of 28 species of trees, including height and spread of the mature tree, whether it is native to North America, the USDA grow zone, light and watering requirements. In addition, the list indicates whether each species is tolerant to drought, salt, air pollution and clay soils; whether it has showy fall foliage or flowers; and whether it is appropriate to plant under utility lines.

G. FISHERIES AND WILDLIFE

Heath's 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.

In 2012, the Massachusetts Department of Fish & Game, through the Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP), and The Nature Conservancy's Massachusetts Program, developed *BioMap2* to protect the State's biodiversity in the context of climate change. *BioMap2* divides the state into thirteen distinct ecological regions based on geology, soils and plant and animal communities. Heath falls into the Berkshire Highlands/Southern Green Mountains Ecoregion. This region is distinguished from surrounding areas by deep soils that support northern hardwoods and spruce-fir forests. *BioMap2* maps "Core Habitats" and "Critical Natural Landscapes" that support the long-term persistence of rare and native species. The *BioMap2* project identified 1,642 acres of Core Habitat and 7,711 acres of Critical Natural Landscapes (the two types of landscapes overlap in many areas) in Heath that currently support a broad range of wildlife and plant species. These areas include the West Branch Brook and North River corridors and the H.O. Cook State Forest.

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

Heath is home to a great variety of wildlife species, aquatic, wetland and upland, ranging from small invertebrates to large mammalian predators. These animals add to the rural character of the town, provide hunting and fishing opportunities for the residents, and act as indicators of the overall health of the ecosystems in Heath. The terrestrial upland species include a variety of rodents ranging from voles to porcupines, and many members of the weasel family, including fishers, bobcats, white-tailed deer, coyotes, moose, and black bears. Among bird species, owls are common. Wetland species include great blue herons, beavers, river otters, and many insects and amphibian species associated with the many vernal pools. Brook trout thrive in Heath's West Branch of the North River. There is a large heron rookery near Papoose Lake.

G.2 Vernal Pools

Vernal pools are temporary bodies of freshwater that provide critical habitat for many vertebrate and invertebrate wildlife species. Vernal pools are found across the landscape; anywhere there are small woodland depressions, swales or kettle holes collect spring runoff or intercept seasonally high groundwater tables. Certified Vernal Pools, those that meet the criteria established by the Natural Heritage and Endangered Species Program, are protected to some extent by the Massachusetts Wetlands Protection Act and also are protected by additional state and federal regulations. The Town of Heath has an undetermined number of vernal pools. Heath currently has one Certified Vernal Pool, and efforts are currently underway to certify others. According to the NHESP, Heath also has 24 Potential Vernal Pools.

G.3 Corridors for Wildlife Migration

Many species of wildlife in Heath have home ranges greater than 50 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 that is experiencing development pressure to ensure that animals have the ability to travel across vegetated areas between large blocks of habitat.

Heath is located within several regional belts of protected open space that contribute to the value of protected land in town. One relatively small zone in the southeast corner of Heath is especially important because it is one corner of a total of approximately 19,000 undisturbed acres primarily located in Colrain and Charlemont. Given the relative lack of major roads and extensive developments, movement of animals throughout the town is relatively unrestricted.

Connections between bodies of water and sub-watersheds are also important for wildlife and fish. 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 Heath.

G.4 Rare, Threatened, and Endangered Wildlife Species

NHESP has identified 169 wildlife species as rare in the Commonwealth, and a five rare wildlife species have been documented in the Town of Heath. Heath's rare, threatened and endangered wildlife species are listed in Table 4-2. With conservation of remaining wildlife and restoration efforts, Heath's diversity of wildlife can be maintained, and populations of rare species stabilized, and hopefully increased over time.

Table 4-2: Rare, Threatened, Endangered Species in Heath

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Amphibian	<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	SC	2012
Bird	<i>Oporornis philadelphia</i>	Mourning Warbler	SC	2009
Bird	<i>Podilymbus podiceps</i>	Pied-billed Grebe	E	2009
Fish	<i>Catostomus catostomus</i>	Longnose Sucker	SC	2015
Reptile	<i>Glyptemys insculpta</i>	Wood Turtle	SC	2013

* SC = *Special Concern*; T = *Threatened*; E = *Endangered*.

Source: *Natural Heritage and Endangered Species Program, Mass. Division of Fisheries and Wildlife, 2017*, <https://www.mass.gov/service-details/rare-species-by-town-viewer>

G.5 Biodiversity

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 ignore 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 food. If land within Heath is 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.

The Nature Conservancy (TNC) released a report in 2013 entitled “Resilient Sites for Terrestrial Conservation in the Northeast and Mid-Atlantic Region.”¹⁰ According to the TNC report, climate change is expected to alter species distributions. As species move to adjust to changing conditions, federal, state and local agencies and entities involved in land conservation need a way to prioritize strategic land conservation that will conserve the maximum amount of biological diversity despite shifting species distribution patterns. Current conservation approaches based on species locations or on predicted species’ responses to climate, are necessary, but hampered by uncertainty. TNC states that it offers a complementary approach, one that aims to identify key areas for conservation based on land characteristics that increase diversity and resilience. The central idea of this project is that by mapping key landscapes and evaluating them for characteristics that buffer against climate effects, conservationists can identify the most resilient places in the landscape.

The Nature Conservancy’s resilience analysis aims to identify the most resilient examples of key landscapes to provide conservationists with locations where conservation is most likely to succeed over centuries. The Massachusetts Division of Conservation Services’ Landscape Partnership Grant Program, which seeks to preserve large, unfragmented, high-value

¹⁰<https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx>

conservation landscapes, including working forests and farms of at least 500 acres in size, specifically references the TNC report and mapping.¹¹ The *BioMap2* project, discussed above, and The Nature Conservancy's resiliency mapping are two resources that can be consulted when working to prioritize conservation for species diversity and health.

Conservation strategies for the town to consider include the protection of core habitat and critical natural landscapes as identified by *BioMap2*; the continued protection and linkage of large blocks of contiguous forestland; the retention of early successional habitats like fields and grasslands; the protection of vernal pools, wetlands, and riparian corridors that sustain the greatest diversity of life in Heath, and the restoration of resources damaged by use, development or natural events.

H. SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

At 1,680 feet above sea level, it is a climb to reach Heath's town center. The center consists of the Heath Union Church, the Community Center, and the Old Grange, which now serves as the town hall, library and post office. Also on the windswept common are the old general store, now a home, the 1834 Town Hall, and the 1844 one-room schoolhouse.

A mile to the north and higher on the hill are the Heath Fairgrounds which in mid-August, one of the last old-time country fairs takes place where oxen teams or draft horses strive mightily to pull the greatest weight. Local cooks, gardeners, and artisans compete for prizes, too.

Heath's highest elevation is 1,909 feet at the crest of Underwood Hill. This is just one of many large hills in Heath, which along with the cleared fields associated with Heath's agricultural activities, result in panoramas to many areas including west to Mt. Greylock, north to Vermont's Green Mountains, northeast to Mt. Monadnock, and south to the Holyoke Range. Just as important to town residents are the valleys, containing fast-moving streams and waterfalls and environments very different from the hilltops.

Many buildings and other structures throughout Heath add to its unique character and the resident's sense of place. Some are historic, like Fort Shirley, old dams of now defunct mills, numerous stone walls, and former one-room schoolhouses. Others are purely unique community institutions like Peters General Store on Number Nine Road.

H.1 Scenic Landscapes

There are no scenic landscapes listed by DCR Scenic Landscape Inventory. However, there are several notable views in town. The Crowningshield Conservation Area is owned by the Franklin Land Trust in partnership with Trout Unlimited. It is a beautiful 96 acre area along the West Branch of the North River with striking views from various parts. Another location to see scenic views is the Benson Blueberry Trail. The view from this trail is a panorama that includes many

¹¹ <http://www.mass.gov/cea/grants-and-tech-assistance/grants-and-loans/dcs/grant-programs/landscape-partnershipprogram.html>

long distance points such as: Berkshire East Ski Area, Mt. Peak, Borden Mountain, Mt. Greylock, Whitcomb Summit area, and Florida Mountain.

Another protected area in Heath with potential for scenic views is the town-owned Shapiro lands. At this point in time, however, the land has not been developed for any recreational uses or scenic views. There is town interest in creating formal trails and viewsheds on this land for the community. The Franklin Land Trust has received grant funding to survey the land with a forester and birder in order to determine how best to use and improve the land for recreational and natural uses.

H.2 Unusual Geologic Features

In Heath, there is an unusual landscape habitat called the upland Blueberry Barrens. Located on Burnt Hill, this habitat is composed of native, fire enhanced plant species, including lowbush blueberry. The lowbush blueberries thrive on rocky terrain and in sandy soils that range from acidic to neutral. The land there is burned by farmers every year to promote growth.



The Blueberry Barrens burning for new growth

H.3 Significant Cultural, Archaeological, and Historic Areas

Heath Center has been identified and designated as a Historic District in 2008 and expanded in 2017. The Historic District acknowledges the cultural and historic importance of this area in town. However, it does not provide any protections to the structures and sites within this area. Related to preserving the architecture, history, and character of the community, a need has been identified in town to help with abandoned or distressed housing units. There are a number of homes that are in derelict or distressed condition and strategies regarding rehabilitation and/or demolition need to be formalized by town governance.

There are three historic cemeteries documented in Heath: South Cemetery, Center Cemetery and North Cemetery. Burial grounds are very important resources rich in historic monuments, art, genealogical data, and town history.

Fort Shirley is a former colonial fort established in 1744 in North Heath and named after the Massachusetts Royal Governor Shirley at the time. The former fort was archeologically excavated in 1974 and has an information kiosk at the site.

Another historical feature in Heath are the standing stones located on Burnt Hill. There are 21 stones, some weighing as much as 500 pounds, at the top of the hill. The origin of the standing stones is not known, with theories ranging from 19th century famers to Native Americans.

H.4 Unique Environments

The Natural Heritage and Endangered Species Program has identified BioMap2 Core Habitats within the town. Specifically, there is a large BioMap2 Forest Core located in the southeastern corner of town, of which Heath has permanently protected a portion. Forest Core Habitat identifies the best examples of large, intact forests that are least impacted by roads and development, providing critical “forest interior” habitat for numerous woodland species. There are no areas of Critical Environmental Concern in Heath.

I. ENVIRONMENTAL CHALLENGES

I.1 Landfills and Hazardous Waste Sites

The one landfill in Heath has been closed and capped. Residents dispose of garbage and recycling via the town’s Transfer Station located on Branch Hill Road. Waste is then transported to the Franklin County Solid Waste Management District which handles recycling and hazardous waste disposal for the Town of Heath. According to the MassGIS 2018 data, there are no hazardous waste sites in Heath.

I.2 Chronic Flooding

The 2014 Local Multi-Hazard Mitigation Plan for Heath identified several areas of chronic flooding in town. These are areas that regularly flood during heavy rains and are listed below. In addition to these areas, there are several locations where the culverts are undersized and cannot handle heavier rain events. As a result, they are routinely overwhelmed and rain water rushes up over the roads in which they are located.

- Hosmer Road
- Sadoga Road
- Flagg Hill Road
- Brunelle Road (this road has several undersized culverts)
- Swamp Road
- Number Nine Road (this road has several undersized culverts)

I.3 Erosion and Sedimentation

There are 35 miles of gravel roads (55%) in Heath and sediment from spring re-grading of these roads and stormwater runoff collects in large quantities in the town's rivers and streams, which places the water quality of the upland headwater streams at high risk.

I.4 Impacts of Development

New residential development across town could increase the prevalence of nonpoint source pollution, reduce the rural character, and cause a reduction in the acreage and value of remaining wildlife habitat. "Sprawl" can increase runoff (potentially including contaminants such as road salt), decrease the amount of water available as ground water, decrease stream flow, and result in excess erosion. Also, it could diminish biodiversity in first and second order streams and reduce water quality town-wide. Unplanned residential development also can negatively impact wildlife habitat by fragmenting wildlife corridors and reducing food supply. To mitigate these effects, Heath has created a Conservation Development zoning bylaw that requires "an analysis of the site, including wetlands, water bodies, slopes, the capability of soils to support the proposed development, areas within the 100-year floodplain, and such natural features as the Planning Board may request."

Heath's rural character is mostly dependent on the vast stretches of forest, mostly owned by private citizens. Contiguous forests benefit the community by providing scenic views, wildlife habitat, and protection of water quality. These resources would be diminished if large blocks of forest were to be fragmented by development.

I.5 Ground and Surface Water Pollution

Another critical environmental issue is the danger of contaminating the aquifers that supply drinking water to Heath. There is a direct link between aquifers and above ground land use. Heath has adopted the Water Supply Protection District zoning bylaw, which regulates land uses near the aquifers, but many of aquifers and bedrock recharge areas lie outside of either these districts or outside of the town's boundaries. Other potential threats to water supplies are older, failing septic systems and the use of salt on the roads during the winter.

I.6 Impaired Water Bodies

There are no impaired water bodies within Heath.

I.7 Invasive Species

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.

A 2008 study used ecological principles to predict the potential response of several pests, pathogens, and invasive species to climate change in the forests of North America. Of the six species studied the authors were most confident in their ability to predict that the Hemlock woolly adelgid, a small insect that attacks and kills Hemlocks and has been sighted at several locations in Franklin County (Town of Wendell), may spread unimpeded, leading to widespread hemlock mortality. The following Table 4-3 is a list of invasive species that have been documented in Heath by the Franklin County Flora Group as of March 2019.

Table 4-3: Invasive Species Observed in Heath

LatinName	Common Name
<i>Aegopodium podagraria</i>	Bishop's goutweed
<i>Berberis thunbergii</i>	Japanese barberry
<i>Celastrus orbiculatus</i>	Oriental / Asian bittersweet
<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>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

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.

While native to the region, ticks and mosquitos are spreading diseases such as Lyme disease and Eastern Equine Encephalitis that are not local and can be quite harmful to humans. As the winters continue to shorten, this issue will continue to increase and public education about ways to protect public health will become more important. Similarly, this will involve town officials, such as the board of health and others.

I.8 Environmental Equity Issues

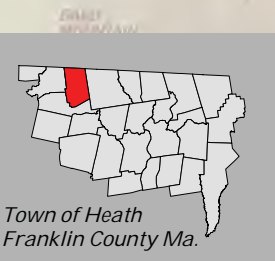
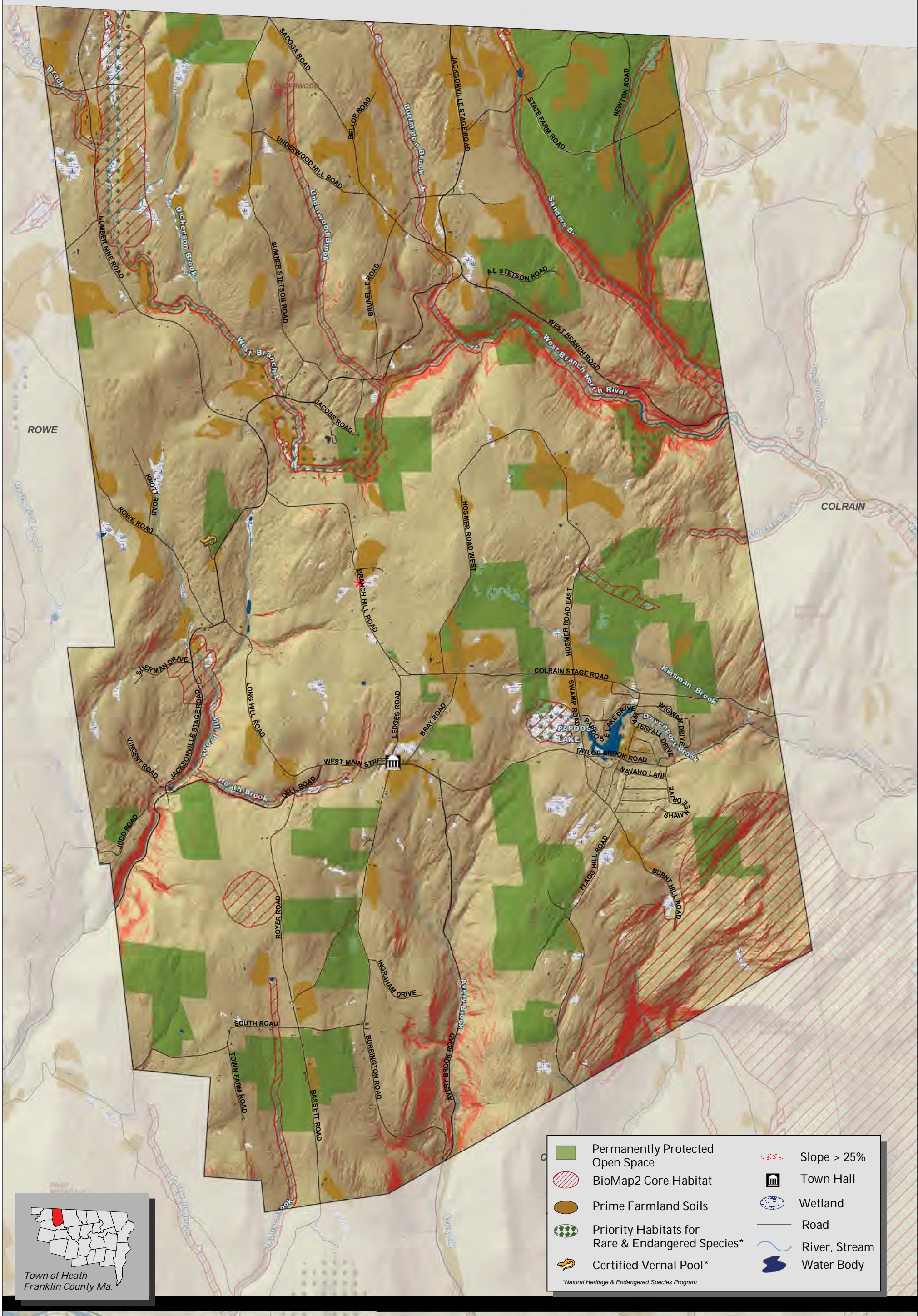
Environmental equity is not an issue within the town in terms of open space. There is permanently protected open space located throughout town and there are no identified environmental justice areas (either in terms of race or income) within Heath.

J.1 Analysis

It is clear from the above sections that Heath's geology, soils, waters, and vegetation provide both ecological services (such as specialty crop production and water purification) and cultural amenities (such as scenic views and hiking trails). Underwood Hill, Burnt Hill and its blueberries, and the West Branch Brook and its valley are emblematic of Heath's landscape. So too are the cleared fields of former and current farms and the innumerable wetlands dotting the town. The residents seek to preserve these features.

The ecological services and cultural amenities that Heath's ridgelines, hills, and soils provide cannot be replaced. They will be diminished, however, with neglect and poor planning. Adopting conservation bylaws and exploring ways to conserve habitat will be required if residents want to sustain Heath's rural character and improve its local recreational and agricultural economy.

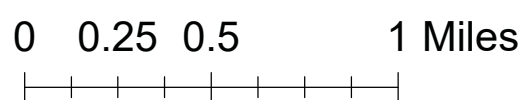




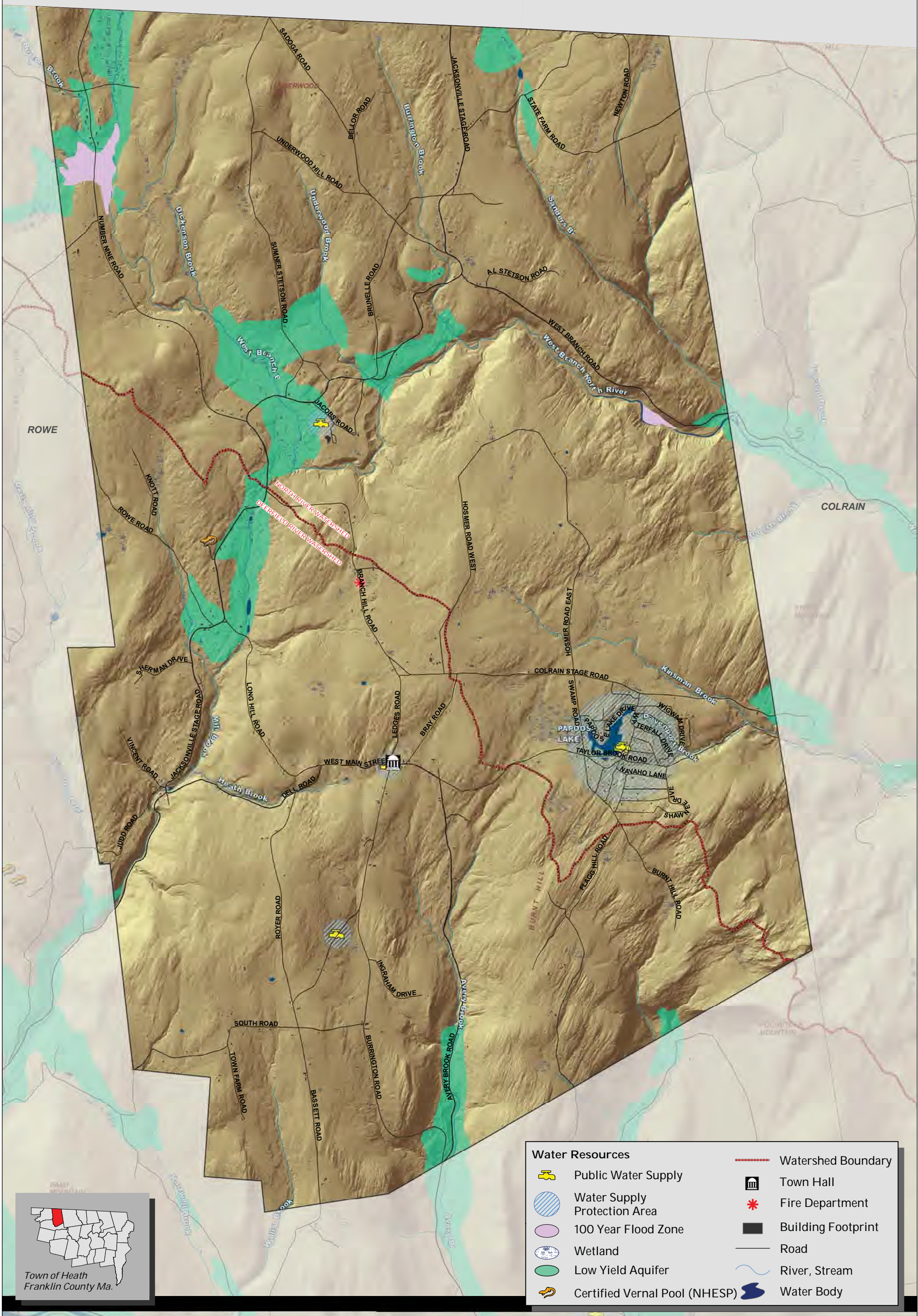
- | | | | |
|--|--|--|---------------|
| | Permanently Protected Open Space | | Slope > 25% |
| | BioMap2 Core Habitat | | Town Hall |
| | Prime Farmland Soils | | Wetland |
| | Priority Habitats for Rare & Endangered Species* | | Road |
| | Certified Vernal Pool* | | River, Stream |
| | | | Water Body |
- *Natural Heritage & Endangered Species Program

Town of Heath Open Space & Recreation Plan 2020

Soils & Environmental Constraints

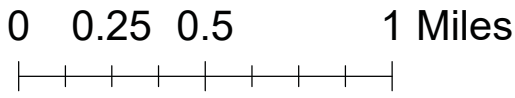


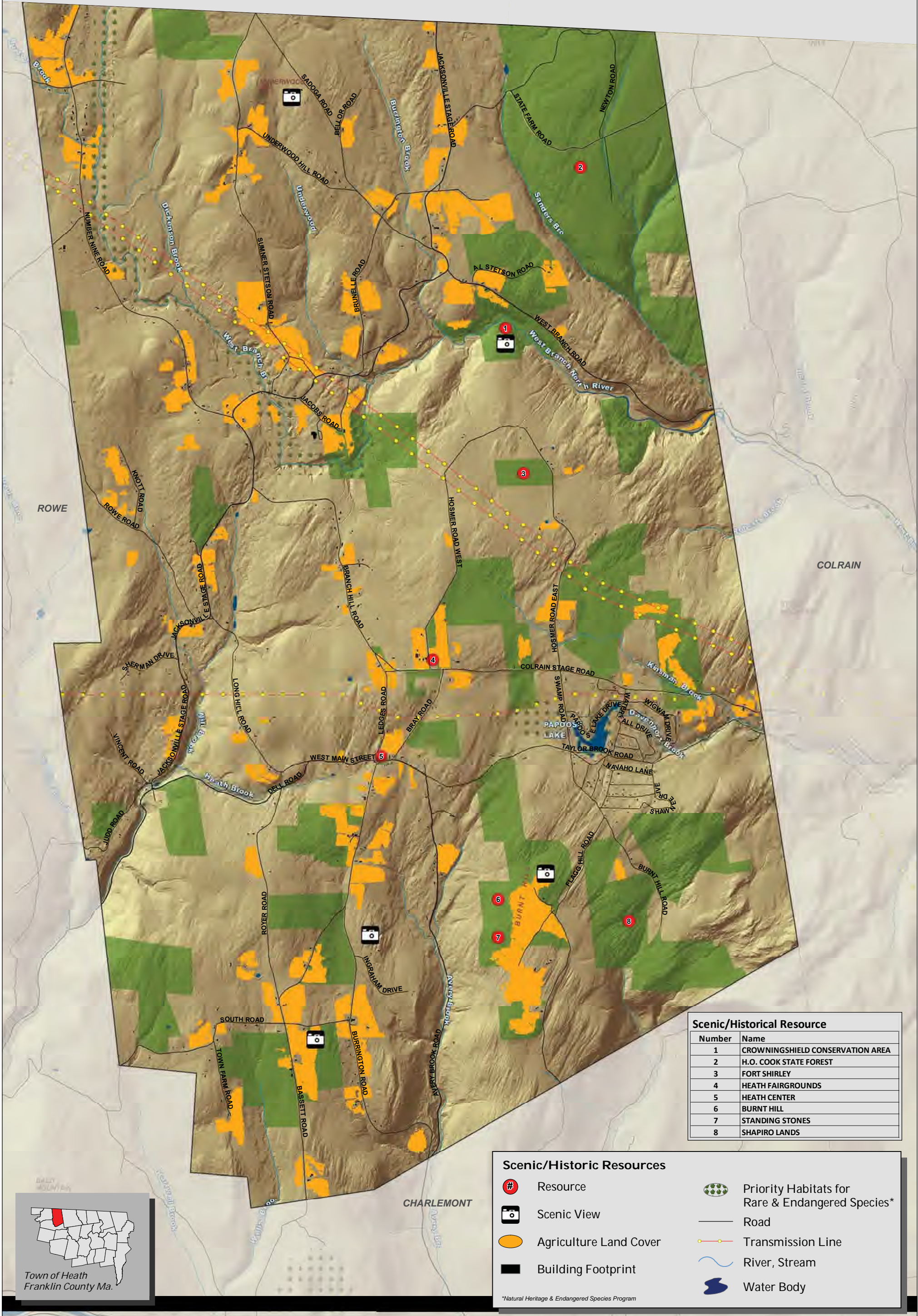
January 2020



Town of Heath
Open Space &
Recreation Plan 2020

Water Resources





Scenic/Historical Resource	
Number	Name
1	CROWNINGSHIELD CONSERVATION AREA
2	H.O. COOK STATE FOREST
3	FORT SHIRLEY
4	HEATH FAIRGROUNDS
5	HEATH CENTER
6	BURNT HILL
7	STANDING STONES
8	SHAPIRO LANDS

Scenic/Historic Resources

- Resource
- Scenic View
- Agriculture Land Cover
- Building Footprint
- Priority Habitats for Rare & Endangered Species*
- Road
- Transmission Line
- River, Stream
- Water Body

*Natural Heritage & Endangered Species Program

Town of Heath Open Space & Recreation Plan 2020

Scenic & Historical Resources



January 2020

SECTION 5

INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Open space in Heath consists of forests, farms, parks and recreation areas under both public and private ownership and management. This section of the Heath Open Space and Recreation Plan 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 Heath'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.

When land is considered protected there is a legal restriction that does not permit the parcel to be developed for residential, commercial, or industrial uses. Permanently protected land enjoys the highest degree of protection from development. Under Article 97, the only way that permanently protected land can be developed is if two-thirds of the State legislature was to vote to change the use of the land. In Massachusetts, there are a number of ways in which land can be considered permanently protected from development: a conservation restriction can be attached to the deed, or the land may be owned by a state conservation agency, a conservation land trust, or a municipal conservation commission. Town-owned land with recreational purposes, as stated in its deed, is also permanently protected under Article 97.

This section of the Heath Open Space and Recreation Plan provides a comprehensive inventory of most 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 Heath's residents. The inventory accompanied by the Open Space Map shows the location, types, and distribution of conservation lands in Heath. 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).

All municipal property must be accessible to people with disabilities. The municipal lands and conservation areas in town were evaluated for accessibility by FRCOG staff in

the Spring of 2020 and the results of the evaluation and recommendations for improvement are located in Appendix A of this OSRP. The Town of Heath does not have any identified environmental justice areas. However, protected open space is located throughout Heath.

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

PRIVATELY OWNED PROTECTED OPEN SPACE	Area in Acres	% in Acres
Farmland		
<i>Permanently Protected by Agricultural Preservation Restriction</i>	1,181.1	7%
<i>Temporarily Protected under Ch. 61A</i>	788.6	5%
Forestland		
<i>Permanently Protected by a Conservation Restriction</i>	806.9	5%
<i>Temporarily Protected by Chapter 61F</i>	2,976.3	19%
TOTAL PRIVATELY OWNED PROTECTED OPEN SPACE	5,763.4	36%
PUBLICLY OWNED PROTECTED OPEN SPACE		
<i>Permanently Protected by State Conservation Agencies</i>		
State Department of Recreation and Conservation	893	6%
<i>Land Permanently Protected & Owned by Town of Heath</i>	330.4	2%
<i>Land with Limited Protection & Owned by Town of Heath</i>	49.7	0.3%
TOTAL PUBLICLY OWNED PROTECTED OPEN SPACE	1,273.1	8%

Source: Heath Assessors Records, 2019.

A.1 Permanently Protected Land

Land permanently protected from development can be owned by a state agency or the town. For example, the H.O. Cook State Forest is owned by the Commonwealth of Massachusetts and is under the management and oversight of the Massachusetts Department of Conservation and Recreation (DCR). Land owned by the Town of Heath under the authority of the Conservation Commission is also considered permanently protected. Land that is permanently protected from development is protected under Article 97, which requires a two-thirds majority vote of the State Legislature to convert the open space to another use.

Farmland can become permanently protected from development when a landowner chooses to sell their 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. 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 over ten properties in the APR program in Heath.

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.

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

Often private conservation land trusts have the ability to produce creative and successful fundraising campaigns in a short period of time, while DCR and the Massachusetts Division of Fisheries and Wildlife (MassWildlife) may be interested in purchasing the land in the near future. Often this negotiating process between the land trust, a state conservation agency, and the landowner can be completed in a shorter period of time than if the town were to bring the decision to purchase the land to a Special Town Meeting. It is helpful when town officials and/or committees maintain established relationships with

conservation organizations such as DCR, MassWildlife, New England Forestry Foundation (NEFF), and Franklin Land Trust (FLT). This way, if the town is not able or interested in exercising its right of first refusal by purchasing the property, they would be able to act to assign its right of first refusal to a conservation organization within the limited timeframe required after the landowner expressed interest in selling the land to a developer.

B. PRIVATELY OWNED PARCELS

A small amount of open space in Heath is owned by the state, while the rest is privately owned by residents and non-residents. A number of parcels are permanently protected from development through the Massachusetts Department of Agricultural Resources APR program and through conservation restrictions. Others are temporarily protected from development through the Massachusetts Ch. 61 Program. The remaining privately owned lands are unprotected. 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, unprotected parcels may be deemed valuable enough by the community to consider purchasing, if available for sale, or helping to protect through conservation easements of other options.

In the following tables, privately owned agricultural land, privately owned forest land, and open space parcels are identified by assessors' map and lot numbers. Private landowners together control approximately 92 percent of the open space in Heath. 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 protected or not.

In the following tables, Privately Owned Agricultural 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 most likely be pasture in Heath, 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 as a component of a large block of contiguous forest.

B.1 Privately Owned Agricultural Land

According to the Heath Assessor's records, there are approximately 1,181 acres of agricultural land that are permanently protected in Heath. Not as bountiful as forests, Heath's agricultural lands are a unique part of the landscape that contributes significantly to the town's rural character. Most agricultural land that is protected from development in the region becomes so only after being prioritized by the State's Department of Agricultural Resources (MDAR), which is the main source for farmland preservation funds in Franklin County. MDAR normally requires the land to be actively farmed and to contain prime farmland soils.

The parcels in Table 5-2 below are currently farmed and are permanently protected from development. There are no public grants awarded as a result of the program, although the owners received payment when the land was placed under an APR from MDAR.

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

Owner	Holder of the Easement	Map-Lot	Acres	Recreational/ Other Value	Zoning*
TRAVERS DAVID H & BARBARA R	Department of Agricultural Resources (MDAR)	101-1	108	Prime Farmland Soils	AF
TRAVERS DAVID H & BARBARA R	MDAR	101-46	23	Prime Farmland Soils	RA
FINN ELIZABETH L & PATRICK D	MDAR	102-6	96	Prime Farmland Soils	AF
FINN ELIZABETH & PATRICK D	MDAR	102-7	12.3	Prime Farmland Soils	AF
DAHLSTRAND FAMILY REVOCABLE LIVING TRUST	MDAR	103-14	0.26	Prime Farmland Soils	RA
COE MICHAEL D	MDAR	211-16	45	Prime Farmland Soils	AF
COE MICHAEL D	MDAR	211-19	57	Prime Farmland Soils	RA
COE MICHAEL D	MDAR	211-23	20.29	Prime Farmland Soils	RA
THANE-STETSON IRREVOCABLE RE TRUST ALLI	MDAR	215-29	137	Prime Farmland Soils	AF
SIMPSON PETER C	MDAR	222-9	38	Prime Farmland Soils	RA
HAGER ALBERT L JR INVEST TRUST	MDAR	229-3	66	Prime Farmland Soils	AF

Owner	Holder of the Easement	Map-Lot	Acres	Recreational/ Other Value	Zoning*
NARTOWICZ CHARLES W JR	MDAR	230-17	194	Prime Farmland Soils	AF
DICKINSON HOWARD E	MDAR	231-6	26	Prime Farmland Soils	RA
DICKINSON HOWARD E	MDAR	231-16	54	Prime Farmland Soils	AF
GLEASON F WALTER	MDAR	234-14	70	Prime Farmland Soils	RA
GLEASON F WALTER & BEVERLY	MDAR	234-16	118	Prime Farmland Soils	RA
WECKER MEREDITH	MDAR	235-7	35.22	Prime Farmland Soils	AF
DICKINSON HOWARD E - ESTATE OF	MDAR	226-9.1	81	Prime Farmland Soils	AF
Total			1,181.07		

Source: Town of Heath Assessors Records; 2019. *Zoning definitions: AF= Agricultural & Forestry district; HC = Heath Center district; RA = Residential & Agricultural district.

Other privately owned farmland in Heath is either unprotected or have limited protection under the Chapter 61A program. These open space areas are mostly pasture and hay fields and are located in the southern portion of town with a few parcels in the northern section. The parcels in Table 5-3 below are enrolled in the Chapter 61A program.

Table 5-3: Agricultural Lands with Temporary Protection from Development Enrolled in the Ch. 61A Agriculture Taxation Program

Owner	Map-Lot	Acres	Zoning*
GRINNELL DIANNE D	207-41	60	RA
NEWMAN MURRAY L JR & JANICE H	208-3	33	RA
NEWMAN MURRAY L JR & JANICE H	208-21	17	RA
THANE-STETSON IRREVOCABLE RE TRUST	210-24	16	RA
MUSANTE SUSAN E	215-10	27	RA
GIARD RICHARD R	221-2	48	RA
LIVELY ROCKWELL J & MARILYN K	229-4	102	AF
LIVELY ROCKWELL J & MARILYN K	229-5	145	AF
PALMER JOHN	231-1	91	AF
NICHOLS ALANSON L & ELIZABETH	234-30	48	RA
NICHOLS ALANSON L & ELIZABETH	324-32	43	RA

Owner	Map-Lot	Acres	Zoning*
ROTIMA S A INC	236-3	37	AF
ROTIMA S A INC	236-5	9.5	AF
CHANDLER MONTE D & WILMA	237-2	12.3	AF
CHANDLER MONTE D & WILMA	238-4	3.8	AF
JOHNSON RUTH E IRREVOCABLE RE TRUST	238-11	96	AF
Total		788.6	

Source: Town of Heath Assessors Records; 2019. *Zoning definitions: AF= Agricultural & Forestry district; HC = Heath Center district; RA = Residential & Agricultural district.

B.2 Privately Owned Forested Land

Most natural processes do not follow political boundaries, but land ownership is an important consideration. Land owned by DCR or MassWildlife is considered to be permanently protected from development, while privately owned land is only protected if a conservation restriction is attached to its deed. Although other factors relating to ownership are important to consider such as level of management and public access, these are often considered secondary to the level of protection from development. This is because development can have a permanent impact on natural and cultural resources. Development can impact the forest on a regional scale through fragmentation. Large blocks of contiguous forest form the basis for sustaining biological diversity and resiliency to climate change.

The following tables include 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 they will be less due to the reduced value of their land. Heath currently has several privately owned properties that are permanently protected from development with a conservation restriction (see Table 5-4).

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

Owner	Holder of Conservation Restriction	Map-Lot	Acres	Zoning*
NEW ENGLAND FORESTRY FOUNDATION	NEW ENGLAND FORESTRY FOUNDATION	209-16	11.9	AF
MASS AUDUBON	MASS AUDUBON	213-7	50	AF
NEW ENGLAND FORESTRY FOUNDATION	NEW ENGLAND FORESTRY FOUNDATION	219-5	124	AF
NEW ENGLAND FORESTRY FOUNDATION	NEW ENGLAND FORESTRY FOUNDATION	227-9	67.15	AF
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	211-15	6.49	RA
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	211-26	1.5	RA
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	225-2	63.4	AF
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	225-13	20.4	RA
DRAPER PROPERTIES INC	DRAPER PROPERTIES INC	102-1	54	AF
LEVITCH KIM A	LEVITCH KIM A	202-2	75	AF
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	211-25	14.2	RA
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	211-27	82	AF
FRANKLIN LAND TRUST INC	FRANKLIN LAND TRUST INC	217-24	40	RA
WOLF INVESTMENT TRUST		223-22	1.9	RA
VIARENGO DELORES A REVOCABLE TRUST		227-1	31	RA
DRAXLER SUSAN J		231-7	27	RA
MCGAHAN PATRICIA REVOCABLE TRUST		232-2	93	AF
MCGAHAN PATRICIA REVOCABLE TRUST		233-7	44	AF
Total			806.9	

Source: Town of Heath Assessors Records; 2019. *Zoning definitions: AF= Agricultural & Forestry district; HC = Heath Center district; RA = Residential & Agricultural district.

Forestland that is considered temporarily protected from development includes those lands enrolled in the Ch.61 and 61B Programs. All of the parcels in Table 5-5 are temporarily protected in 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 with current use of the parcel being forest. 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.

Table 5-5: Forestlands with Temporary Protection from Development Enrolled in the Ch. 61 Forestland Taxation Program

Owner	Map-Lot	Acres	Zoning*
TROWBRIDGE THOMAS	105-4	89.02	AF
SMEAD MICHAEL H & VERONICA	201-10	31	RA
KING JEFFREY M	207-15	140.4	AF
HAYER JEFFREY M	207-16	55.4	AF
HEBB JESSICA	207-38	47.5	AF
GRINNELL DIANNE D	207-42	6.5	RA
MARCOTTE STEPHEN R & LINDA M	208-24	23	AF
KHODUNOV KONSTANTIN	209-2	8.9	RA
KHODUNOV KONSTANTIN	209-3	6.7	RA
DONELSON RUSSELL & CARMEN	210-3	128	AF
MARCOTTE STEPHEN R & LINDA M	210-6	33.9	RA
GRINNELL DIANNE D	210-16	39	RA
GRINNELL DIANNE D	210-17	3.9	RA
GRINNELL DIANNE D	210-21	12.7	RA
SAQUET ROBERT J	212-2	24	AF
SMITH-EATON JUDITH	213-1	144	AF
FLYNN THOMAS & MARJORIE	214-5	37	AF
BANNISH LAND PRESERVES INC	216-3	77	AF
WURLITZER GEOFFREY & MARYPAT	217-1	10.1	AF
WURLITZER GEOFFREY A & MARYPAT	217-2	59	AF
SCHOTLAND JUDITH L LIVING TRUST	218-11	59.07	AF
SCALZO RALPH J & ELIZABETH R	218-17	53.435	RA
ELDRIDGE MARK ET AL TRUSTEES	219-1	125	RA
KINSMAN JACQUELINE	219-3	12.8	RA
RYACK STEPHEN M	219-4	41	RA
ELDRIDGE MARK ET AL TRUSTEES	219-9	81	AF
FLYNN THOMAS & MARJORIE N	220-1	109	AF
GIARD RICHARD R	220-2	77	AF
ENTRUST ADMINISTRATION INC	220-3	32	AF
ENTRUST ADMINISTRATION INC	220-5	144	AF
GIARD RICHARD R	221-1	84	AF

Owner	Map-Lot	Acres	Zoning*
LATTRELL WILLIAM A	221-4	21.785	AF
COWLS INC W D	223-1	31	RA
MEKRUT FAMILY LIMITED PARTNERSHIP	224-12	79	AF
CANAL ALBERT F	225-4	27	AF
CLARKE KELLY	225-11	7.206	AF
WITZGALL ELIZABETH	226-17	56	RA
WITZGALL ELIZABETH	226-33	45	HC
FREEMAN DONALD C & MARGARET H	227-12	61.8	RA
WICKLINE JAMES E & HAWK ANGELA N	228-2	20	AF
HUMMINGBIRD IRREVOCABLE TRUST	228-3	28.819	AF
LIVELY JORDAN J	229-6	76	AF
CHAROW PETER A	231-8	82	AF
PALMER JOHN	231-17	31.662	AF
CHAROW PETER A	232-1	113	AF
GOTT DAVID S	235-3	5.7	AF
GOTT DAVID S	235-4	98	AF
GOTT DAVID	235-5	19.87	AF
GORDON GEORGE	235-10	81	AF
JUCKETT KENNETH G & JEANIE M	235-11	35	AF
MASON DOUGLAS	238-6	48.249	RA
MASON DOUGLAS	238-8	5.649	RA
MASON DOUGLAS	238-10	89.209	RA
CHAROW PETER A	231-8.1	118	AF
Total		2,976.4	

Source: Town of Heath Assessors Records; 2019. Source: Town of Heath Assessors Records; 2019.

*Zoning definitions: AF= Agricultural & Forestry district; HC = Heath Center district; RA = Residential & Agricultural district.

C. PUBLICLY OWNED PARCELS

State conservation agencies and the Town of Heath own a small portion of Heath's land. Almost all of this land is permanently protected from development. Only the Town owned parcels not under the authority of the Heath Conservation Commission are under limited protection. The following inventory includes those parcels that are owned by the Commonwealth of Massachusetts and the Town of Heath.

C.1 Publicly Owned Open Space

Publicly owned open space in Heath includes land owned by the Commonwealth of Massachusetts and the Town of Heath. The State owned land is managed by the Department of Conservation and Recreation (DCR). DCR's lands are confined to the

H.O. Cook State Forest, which is 893 acres within town and is mostly composed of rugged forestland that can be used for hunting, trapping, fishing, and a variety of trail activities throughout all seasons.

Table 5-6 lists parcels of permanently protected public land owned by the Commonwealth of Massachusetts or by the Town of Heath and under the control of the Conservation Commission. All of the State owned parcels are forested and managed by DCR.



H.O. Cook State Forest

Table 5-6: Publicly Owned Land Permanently Protected from Development

Property Owner	Property Manager	Site Name	Acres	Map-Lot	Current Use	Condition	Recreation Potential	Public Access*	Zoning	Type of Grant Received (if any)
Town of Heath	Town of Heath	Shapiro Property	75	229-2	Passive recreation	Good	High – need to create trails and nature viewing stations.	Burnt Hill Road	AF	N/A
Town of Heath	Town of Heath	Shapiro Property	245	229-7	Passive recreation	Good	High – need to create trails and nature viewing stations.	Burnt Hill Road	AF	N/A
Town of Heath	Town of Heath		10.4	222-4	Passive recreation	Good	Low – small area surrounding potential new fire station site.	Colrain Stage Road	RA	N/A
DCR	DCR	HO Cook State Forest	353	206-7	State Park	Good	High – maintain trail access	State Farm Road	AF	N/A
DCR	DCR	HO Cook State Forest	465	206-8	State Park	Good	High – maintain trail access	State Farm Road	AF	N/A
DCR	DCR	HO Cook State Forest	75	212-1	State Park	Good	High – maintain trail access	State Farm Road	AF	N/A
Total			1,223							

Source: Town of Heath Assessors Records; 2019. *Public access for all these properties is free.

The Town of Heath owns approximately 396 acres of open space. Of this amount, 49.7 acres are under the authority of the Select Board and are therefore considered to have limited protection from development (Table 5-7). If residents wanted to convert the town land to sports fields, a Town Meeting vote could provide the authority. If the land was held by the Conservation Commission, it would take a majority vote by the Massachusetts State Legislature to convert open space to another non-conservation use. Many of these open spaces are parks and cemeteries, currently help protect wetlands and tributaries, or are set aside for other potential future municipal uses. Of all the types of town-owned public open spaces in Heath, the cemeteries and basketball court and playground– are the best-maintained, park-like environments, within which people can walk and recreate.

Heath’s Conservation Commission is working on identifying and prioritizing potential corridors for protection in Heath. The Commission is pursuing these linkages between protected land by assisting interested landowners in protecting their land through conservation restrictions and other methods. The Conservation Commission and Recreation Committee has also been working closely with organizations such as the Franklin Land Trust for assistance in land protection projects and the creation of recreational trails.

It is not unusual for a community to set aside land for future uses such as 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 make sense to place town-owned land that clearly contains wetlands or wildlife habitat but, which does not provide for easy development, under the authority and protection of the Conservation Commission.



Veteran's Park in Heath

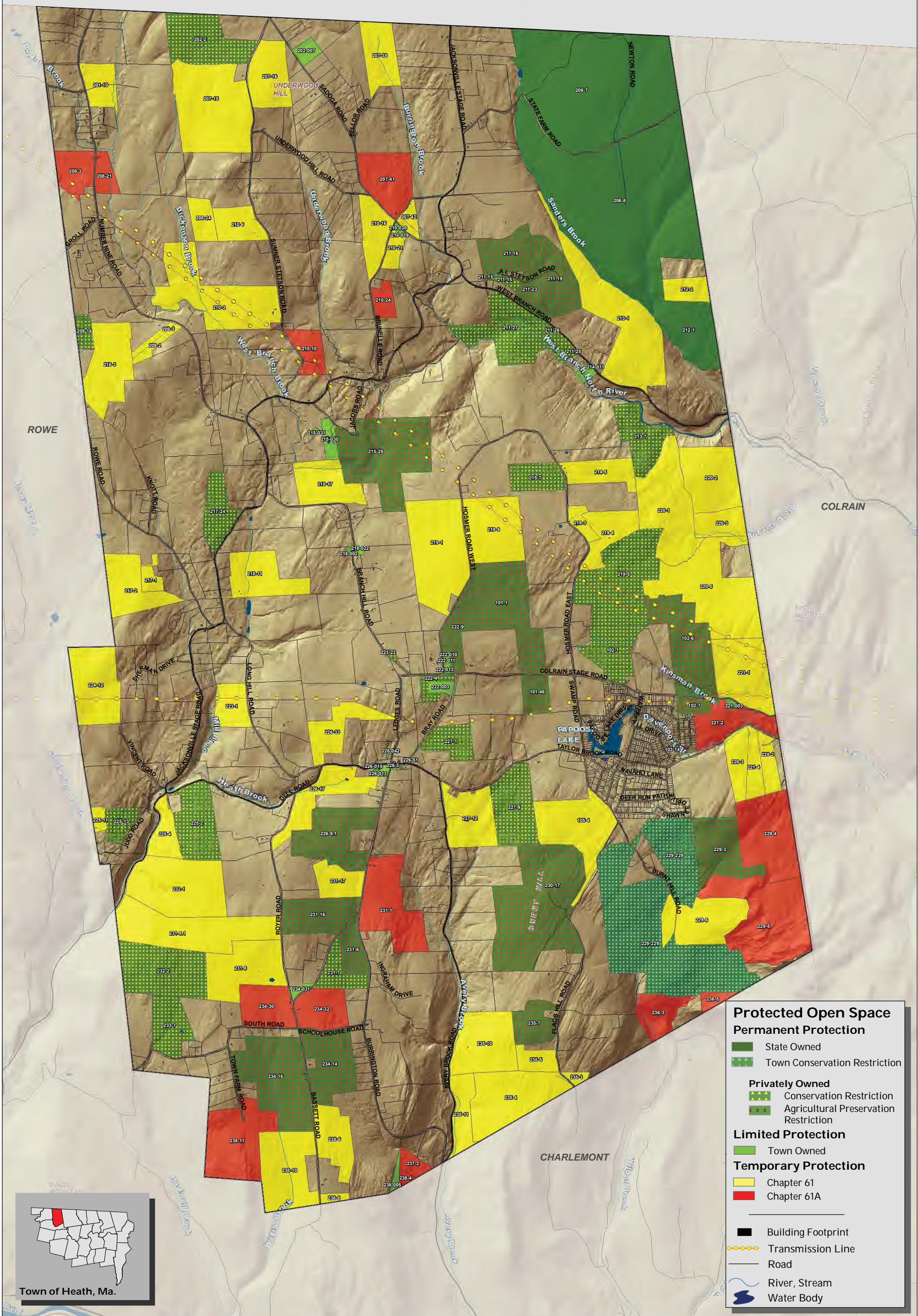
Table 5-7: Town-Owned Parcels of Land with Limited Protection from Development

Property Owner	Property Manager	Location	Acres	Map-Lot	Current Use	Condition	Recreation Potential	Public Access	Zoning	Type of Grant Received (if any)
Town of Heath	Town of Heath	SADOGA RD	10.012	202-7	Wooded	Good	Low- tax title, vacant	Free	RA	N/A
Town of Heath	Town of Heath	BRUNELLE RD	0.85	210-19	Cemetery	Good	None	Free	RA	N/A
Town of Heath	Town of Heath	BRUNELLE RD	0.9	210-20	Cemetery	Good	None	Free	RA	N/A
Town of Heath	Town of Heath	WEST BRANCH RD	5	214-11	Wooded with river	Good	High – access to river/ tax title, vacant	Free	RA	N/A
Town of Heath	Town of Heath	JACOBS RD	11.9	215-30	Former School	Good	High – ball fields, playground	Free	RA	N/A
Town of Heath	Town of Heath	JACOBS RD	1.01	215-31	Former School septic field	Good	None	Discouraged – septic field	RA	N/A
Town of Heath	Town of Heath	123 BRANCH HILL RD	1	218-2	Transfer station	Fair	None	Discouraged	RA	N/A
Town of Heath	Town of Heath	124 BRANCH HILL RD	1.9	218-22	Highway and Fire Depts.	Fair	None	Discouraged	RA	N/A
Town of Heath	Town of Heath	COLRAIN STAGE RD	2.1	221-3	Wooded with river	Good	High – Access to brook/ tax title, vacant	Free	RA	N/A
Town of Heath	Town of Heath	HOSMER RD WEST	0.76	222-10	Cemetery	Good	None	Free	RA	N/A
Town of Heath	Town of Heath	HOSMER RD WEST	1.07	222-11	Cemetery	Good	None	Free	RA	N/A
Town of Heath	Town of Heath	HOSMER RD WEST	0.5	222-12	Cemetery	Good	None	Free	RA	N/A

Town of Heath	Town of Heath	COLRAIN STAGE RD	1.03	222-13	Cemetery	Good	None	Free	RA	N/A
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Property Owner	Property Manager	Location	Acres	Map-Lot	Current Use	Condition	Recreation Potential	Public Access	Zoning	Type of Grant Received
Town of Heath	Town of Heath	1 WEST MAIN ST	3.051	226-13	Senior Center	Good	High – for indoor activities	During business hours	HC	N/A
Town of Heath	Town of Heath	WEST MAIN ST	0.22	226-15	Wooded	Fair	Low	Free	HC	N/A
Town of Heath	Town of Heath	5 LEDGES RD	0.45	226-42	Vacant	Poor	Potential Solar Field	Discouraged	HC	N/A
Town of Heath	Town of Heath	1 EAST MAIN ST	0.087	226-46	Town Hall	Good	None	During business hours	HC	N/A
Town of Heath	Town of Heath	SOUTH RD	3.6	234-31	Cemetery	Good	None	Free	RA	N/A
Town of Heath	Town of Heath	AVERY BROOK RD	4.3	238-5	Wooded	Low	Low	Surrounded by private property – no access	AF	N/A
			49.74							

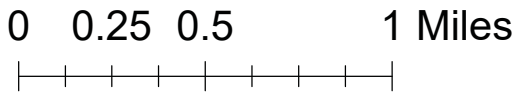
Source: Town of Heath Assessors Records; 2019.



Town of Heath Open Space & Recreation Plan 2020

Open Space

January 2020



SECTION 6

COMMUNITY VISION

A. DESCRIPTION OF PROCESS

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

- In 1999, the town completed the comprehensive *Heath Visioning Study and Report*.
- In 2004, Heath completed an Open Space and Recreation Plan.
- Beginning in January 2019 to February 2020, the Open Space and Recreation Plan Update 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.
 - Three 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 September 3, 2020, 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

The 2019 Survey results shows that Heath's OSRP goals may have changed in specificity, but not in character. People choose to live in Heath because of its abundant natural resources, rural small town character, and variety of outdoor recreation opportunities. Residents value the town's rural scenic beauty; the clean water of its streams and wetlands; the large expanses of uninterrupted forest; diverse wildlife; and peace and quiet. The survey results also show that a majority of town residents feel that the history of Heath is important and worth protecting.

A future ideal Heath will have protected the majority of its uninterrupted forest, the purity of its water, and its sparse farmland. In addition, the effects of climate change will inform open space and recreation decisions in town. To help create this vision, the town will increase its education and outreach efforts to better inform residents about land use practices and recreational opportunities in town, as well as apply the latest Massachusetts guidelines on climate change resiliency planning. These achievements will enhance biodiversity and provide improved access to trails that connect both public and private open spaces. Heath will also have protected its water resources and preserved and shared the stories and physical remains of its historic sites.

Recreation pastimes will include both active and passive activities such as hiking/snowshoeing, walking/running, nature/birdwatching, and crosscountry skiing. These pastimes are made available by the conservation areas in town, trail systems, and other recreational amenities.



Views from the Crowningshield Conservation Area (Franklin Land Trust)

SECTION 7

ANALYSIS OF NEEDS

The Heath 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 conflicts concerning open space and natural resource use.

A. SUMMARY OF NATURAL RESOURCE PROTECTION NEEDS

Heath residents value their forests, farms, and the quality of the drinking water in town. According to the 2019 Open Space Survey, the majority of survey respondents stated that it was important or very important to protect wildlife habitat, streams, drinking water resources, forests, scenic views, and farmland.

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

- 1) Encourage agriculture and protect farmland (55%);
- 2) Protect drinking water resources (52%); and
- 3) Protect land for wildlife habitat/corridors (42%).

Fortunately, these priorities are highly compatible. The protection of land for wildlife habitat and the corridors in which they can move has the added benefit of also protecting drinking water. Protecting land along water bodies, in particular, provides multiple benefits for wildlife habitat and drinking water. 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. Mitigating the use of road salt in the winters can also help protect water quality. Permanently protected land along water provides public access, depending on whether it is publicly or privately owned, and the details of the restriction on the property.

A total of 85 percent of Heath's land is forested and provides a rich habitat for wildlife, while helping maintain the town's clean drinking water. Heath has a significant amount of uninterrupted forestland, which is vital to wildlife diversity and resilience to the effects of climate change. Protecting biodiversity and providing corridors for wildlife have been

raised as two important goals in the 2019 Open Space Survey and by the Open Space Committee.

While limited in scope, residents greatly value the existing farmland in Heath. Not only does it provide agricultural products such as blueberries, beef, goats, and hay, but its cleared fields also provide stunning views that are usually blocked by the bountiful forests in town. Heath residents would like to make sure that the farms in town are protected and are encouraged to keep farming. To protect farmland under the APR Program, the state requires that the land have a high percentage of soils of prime importance to the state's agriculture. These prime farmland soils are limited in Heath. As a result, this protection program may not be a tool that the town can utilize. The Agricultural Commission has conducted an inventory of the town's farms and an examination can be conducted to determine if they contain prime farmland soils and potentially eligible for the APR program. If not, the town and farmers can begin researching other methods to protect Heath's farmland.

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 Heath residents. Although the Heath 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. Respondents said that they want more town-wide trail systems, hiking trails, and multi-use trails for both walking and bicycling. These priorities reflect the responses from the 2019 Open Space and Recreation Survey distributed to Heath residents.

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 Heath, helped to identify several potential community needs relating to open space and recreation resources. They are: the provision of recreational programming for youth and seniors; maintenance of existing recreational resources; creation of additional trail systems; and the protection and promotion of historical resources.



**Benson Place Farm Trail
(Franklin Land Trust)**

According to the 2019 Open Space Survey, the most popular recreational resources in town are:

- 1) Residents' own land (89%)
- 2) Fairgrounds (61%)
- 3) Community Events (48%)
- 4) North, Center, and South Cemeteries (42%)
- 5) Library Programming (39%)
- 6) Benson Trail (Blueberry Farm) (29%)
- 7) Senior Center Programming (25%)
- 8) H.O. Cook State Forest (22%)
- 9) Fort Shirley (22%)
- 10) Veteran's Memorial (17%)
- 11) Maitland Forest (17%)

Almost half of the respondents (42%) felt that the existing amenities in Heath are in good condition. Although many respondents did say that the basketball court and playground in Heath Center should be upgraded and better maintained. The majority of survey respondents said that they were aware that all of recreational resources listed existed in town. The ballfields and playground at the Heath School are heavily used by community youth.

One common request by survey respondents was the need for swimming options in town. As summers get hotter and longer due to climate change, swimming and access to water is a good alternative for residents seeking to cool off without the use of air conditioning. Currently, there are no public swimming holes or ponds for residents to use.

Town land may be needed in the future for recreational facilities (such as land for swimming and playground facilities) and for improved access to a network of

recreational trails. There are roughly 400 acres of open space owned by the Town of Heath. It would be important to determine if the potential future uses of these parcels might include amenities, such as parks, playgrounds, or hiking trails, if needed. There has been interest by residents and town boards to create a formal trail system and bird-watching stations on the Town's Shapiro Property.

When planning for the recreational needs of a community, all age groups and populations need to be considered. As the population of Heath continues to age, as is the trend in Heath 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. These needs should be also addressed as a matter of course under ADA requirements.

Survey respondents were interested in more recreational programming targeted at youth and seniors. Because the Town of Heath is a member of the Mohawk School District, much of the programming and activities for youth and teens are currently provided through the school district, rather than Heath itself. There are private and non-profit programs located near Heath, mainly in Shelburne Falls, that focus on the recreational needs of youth in the region. The library also offers programming geared towards youth, such as the Preschool Story Hour in addition to community-wide events such as the Winter Solstice Celebration. The town's Senior Center provides activities and programming for Heath's seniors. These include: lunches, exercise classes, and health checks.

C. MANAGEMENT NEEDS

Heath is fortunate to have a great number of organizations interested in the environment in and around the community. There are a number of federal, state, and regional environmental organizations sponsoring land and natural resource protection projects including the Franklin Land Trust, Trout Unlimited, University of Massachusetts-Amherst, Massachusetts Audubon Society, Trustees of Reservations, New England Forestry Foundation, Harvard University, U.S. Army Corps of Engineers, and various state agencies (Department of Conservation and Recreation, Division of Fisheries and Wildlife, Department of Agricultural Resources,). The Conservation Commission will continue to work with these organizations on land protection projects in Heath. Additionally, there may be a need for the town to have the ability to facilitate and coordinate the activities that occur within Heath so that they most benefit local residents and ecosystems. 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 are kept abreast of these local and regional efforts, there would be more opportunities for cooperation with adjoining towns.

The 2019 Open Space Survey asked residents what the highest open space protection priorities should be. The top three responses are listed on page 7-1, but it is important to note that the fourth highest response was “I think Heath has enough protected land” (26% of respondents). There is deep concern in the community that protecting additional land means that there will be less revenue from taxes at a time when the town is already strapped financially.

On the other hand, the 2019 Open Space Survey asked the following question: “To enhance park and recreational activities in Town, I would be willing to consider the following actions: (check all that apply)

- Donate money to Town’s Park and Recreation Committee
- Support increased Town appropriations for recreational activities in annual budget
- Other”

A total of 66% of respondents said that they would be willing to support increased appropriations in the annual budget for recreational activities. These varied responses show that future actions taken by the town for open space and recreational goals will need to be carefully vetted and the benefits of the spending or potential tax revenue should be clearly communicated to residents. There is support in Heath for natural resource protection and increased recreational amenities/programming, but it will need to be well thought out and planned. 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 will aid in the implementation of these goals and this Open Space and Recreation Plan.

SECTION 8

GOALS AND OBJECTIVES

The following goals and objectives were formulated from the results of the 2019 Heath 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. All of the goals and objectives will be pursued and implemented within the context of increasing and strengthening Heath's resiliency to climate change.

Goals and Objectives

Goal 1: Protect Heath's scenic and historic rural landscape.

- a. Preserve cleared land, including land in pasture and cultivation, as a visible component of Heath's landscape and scenic corridors.
- b. Protect and promote Heath's historic sites.
- c. Maintain rural character of Heath.

Goal 2: Assure that Heath's natural resources are of excellent quality and that species have high quality habitat.

- a. Protect drinking water and the general quality of Heath's waters.
- b. Seek to protect priority habitat and corridors.
- c. Educate residents about their role in enhancing the resiliency of the landscape.
- d. Support the development of solar arrays and other forms of alternative energy production.

Goal 3: Enable Heath residents to maintain strong connections with each other and the Town and promote economic development.

- a. Develop and promote use of a system of paths/multi-use trails throughout Town.
- b. Encourage opportunities for public social gatherings for Heath residents.
- c. Improve access to open space for all residents.



**Gott and Watt Property with Conservation Restriction
(Franklin Land Trust)**

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 Heath’s environment; the town’s recreational opportunities; and the quality of future development in Heath.

The objectives are listed in the far left column of Table 9-1 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 Select Board, Planning Board, Highway Department, Board of Health, Conservation Commission, Parks and Recreation Committee, and the Historical Commission.

Many 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.



West Branch North River (Franklin Land Trust)

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 goals and objectives listed in the previous chapter. These action steps are represented

graphically (where possible) on the Seven-Year Action Plan Map and are outlined in greater detail in Table 9-1.


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


OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	START DATE	POTENTIAL FUNDING SOURCES
GOAL 1: Protect Heath's scenic and historic rural landscape.				
Preserve cleared land, including land in pasture and cultivation, as a visible component of Heath's landscape.	Support agriculture by implementing recommendations from FRCOG 2017 Community Food Assessment, such as Hilltown Farmers Market.	Ag Commission	Ongoing	Town funds, State funds, Private funds
	Maintain inventory of farms in Heath and do an analysis of which have prime farmland soils.	Ag Commission	Ongoing	Town funds
Protect and promote Heath's historic sites.	Explore the adoption of the Community Preservation Act in order to access state funds for historic preservation.	Select Board, Historical Commission	2025	Town funds, State funds, Private funds
Maintain rural character of Heath.	Educate landowners of available low interest loans and programs to assist with distressed housing to maintain rural character.	Franklin County Regional Housing & Redevelopment Authority, Select Board, Board of Health	2021	Town funds, State Funds
GOAL 2: Assure that Heath's natural resources are of excellent quality and that species have high quality habitat.				
Protect drinking water and the general quality of Heath's waters.	Continue to implement Heath's Wetlands Protection Bylaws.	Conservation Commission	Ongoing	Town funds
	Continue to implement Heath's regulations for Water Supply Protection Districts.	Conservation Commission, Planning Board	Ongoing	Town funds


OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	START DATE	POTENTIAL FUNDING SOURCES
	Consider how to prevent erosion from stream banks, trails, and dirt roads and discuss with user groups possibilities for protecting sensitive areas.	Conservation Commission, Department of Public Works, Parks and Recreation Committee	2022	Town funds, State funds, Private funds
	Investigate ways to mitigate the use of road salt in the winters.	Conservation Commission, Department of Public Works	2020	Town funds, State funds
	Investigate and communicate alternative septic technologies and funding sources.	Board of Health	2020	Town funds, State funds
	Monitor and enforce herbicide use at Papoose Lake.	Conservation Commission, Board of Health	Ongoing	Town funds
Seek to protect priority habitat and corridors.	Gather data, map, and establish protected wildlife travel corridors linking core wildlife and recreation areas.	Conservation Commission	2024	Private funds
	Work with area universities to map wetlands and vernal pools.	Conservation Commission	2024	Private funds
	Adopt a long-term plan to manage town-owned conservation areas.	Conservation Commission, Select Board	2026	Town funds, State funds
Educate residents about their role in enhancing the resiliency of the landscape.	Provide landowners with information about invasive species and ways to mitigate them.	Conservation Commission, Board of Health	2020	State funds, Towns funds
	Educate owners about grants available for creation of forest plans under Ch. 61F.	Conservation Commission	2021	Town funds, State funds
	Educate farm owners about the use of fertilizers near stream corridors.	Conservation Commission	2022	Town funds, State funds


OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	START DATE	POTENTIAL FUNDING SOURCES
Support the development of solar arrays and other forms of alternative energy production.	Encourage the installation of solar energy collectors for residential, commercial, and municipal sites.	Select Board, Planning Board	2020	Town funds, State funds
GOAL 3: Enable Heath residents to maintain strong connections with each other and the Town.				
Develop and promote trails around Town to increase interconnections and promote the community's natural resources and historic landscapes.	Continue to explore possibility of creating a trail system and amenities on the Shapiro Lands, including signage and parking.	Conservation Commission, Parks & Recreation Committee	2020	Town funds, Private funds, State funds
	Make resources available to landowners about the benefits and options of private stewardship of land (ex. information about landowner liability for trail usage, tax options, etc.).	Conservation Commission, Parks & Recreation Committee,	2021	Town funds, Private funds
	Map existing trails in town.	Parks & Recreation Committee	2024	Town funds, State funds
Encourage opportunities for public social gatherings for Heath residents.	Create themed hikes throughout the year on trails in town.	Parks & Recreation Committee, Council on Aging	2021	Town funds, Private funds
	Investigate possibilities for an outdoor swimming area, either in town or in neighboring communities.	Parks & Recreation Committee	2020	Town funds
	Maintain and improve Heath Community Park and basketball court.	Parks & Recreation Committee	Ongoing	Town funds, State funds
	Continue to encourage various sport races as an annual event.	Parks & Recreation Committee	Ongoing	Town funds, Private funds
	Plan more seasonal town-wide events.	All committees and boards	Ongoing	Town funds

OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	START DATE	POTENTIAL FUNDING SOURCES
Improve access to open space for all residents.	Implement findings from ADA Evaluation in appendix to ensure that recreational and open space facilities are accessible to all.	Conservation Commission, Parks and Recreation Committee, Select Board	2026	Town funds, State funds


Continue to implement Heath's regulations for Water Supply Protection Districts 

Continue to implement Heath's Wetlands Protection Bylaws 


Create themed hikes throughout the year on trails through town. 


Maintain inventory of farms in Heath and do an analysis of which have prime farmland soils. 

Encourage the installation of solar energy collectors for residential, commercial and municipal sites.









Monitor and enforce herbicide use at Papoose Lake 

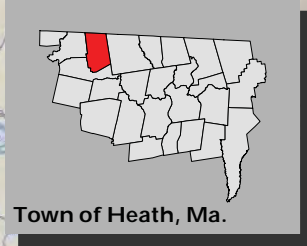
Maintain and improve Heath Community Park and basketball court.

Continue to explore the possibility of creating a trail system and amenities on the Shapiro Lands, including signage and parking. 

Adopt a long-term plan to manage town-owned conservation areas. 

Note: The Heath OSRP contains many action items. Many of them apply to policies or locations that are Town-wide. The action items depicted on this map are associated with specific locations. Please see Section 9 of the OSRP for the complete Seven-Year Action Plan.

-  Permanently Protected Open Space
-  Building Footprint
-  Public Water Supply
-  Public Water Supply Protection Area
-  Road
-  River, Stream
-  Water Body
-  Wetland



Town of Heath Open Space & Recreation Plan 2020

Action Plan

January 2020

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SECTION 11

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