

NORTHBOROUGH

OPEN SPACE & RECREATION PLAN



2020 OPEN SPACE & RECREATION PLAN

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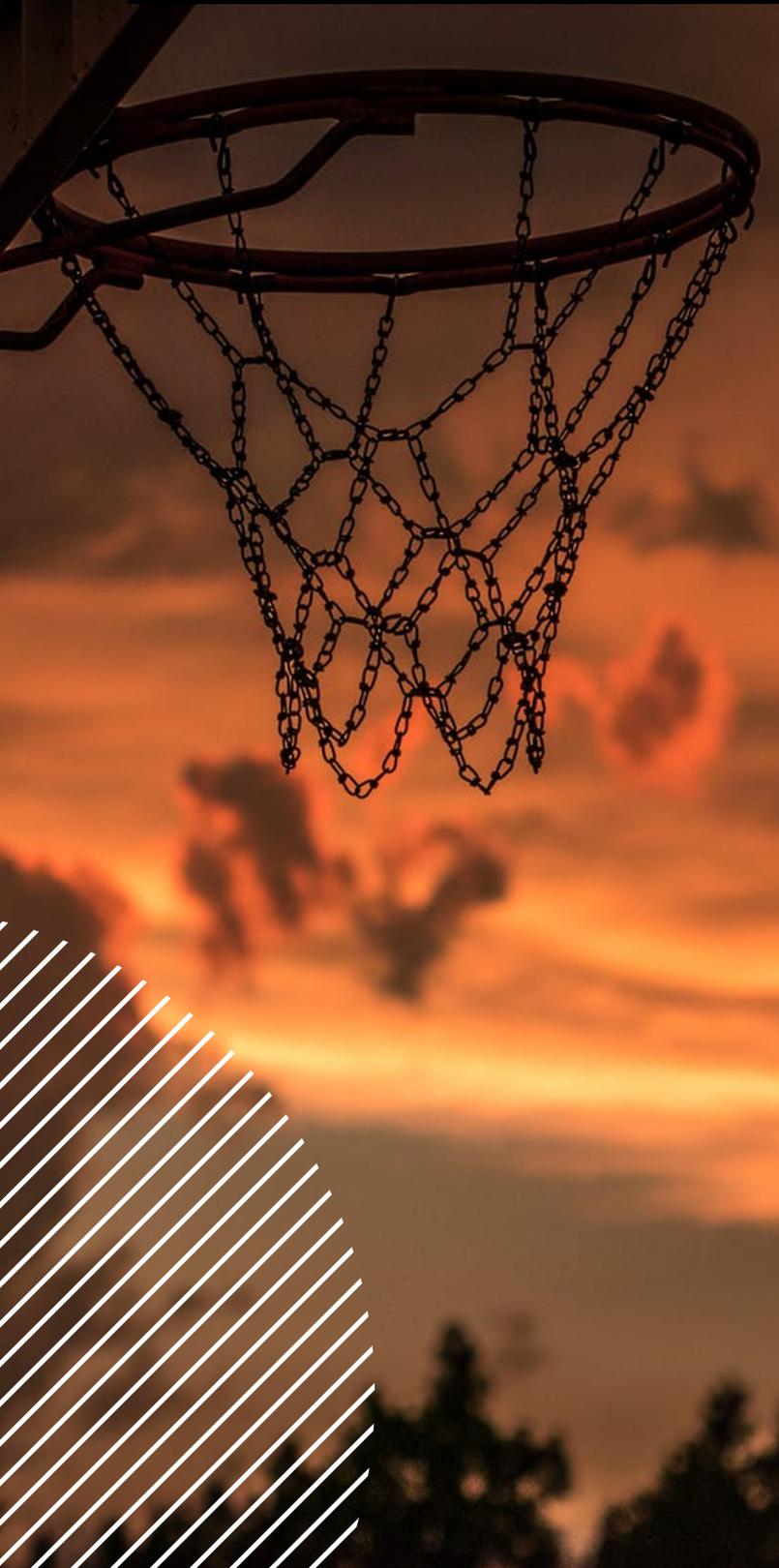
Conservation Commission

Planning Board

Recreation Committee

Board of Selectmen

CONTENTS



► **TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020**

Contents..... ii

SECTION 1 - PLAN SUMMARY 1

SECTION 2 – INTRODUCTION 4

 A - Statement of Purpose 5

 B - Planning Process and Public Participation 5

SECTION 3 - COMMUNITY SETTING 8

 A - Regional Context..... 9

 B - History of Community 12

 C - Population Characteristics..... 13

 D - Growth and Development Patterns 17

 E. Community Planning 25

SECTION 4 - ENVIRONMENTAL INVENTORY AND ANALYSIS 27

 A - Geology, Soils, and Topography 28

 B - Landscape Character..... 30

 C - Water Resources 30

 D - Vegetation..... 35

 E - Fisheries and Wildlife 36

 F - Unique Environments and Scenic Resources..... 41

 G - Environmental Challenges 46

SECTION 5 – LAND INVENTORY 50

 A. Overview 51

 B - Private Parcels..... 55

 C - Public and Non-Profit Parcels..... 60

SECTION 6 - COMMUNITY VISION 64

 A - Description of Process..... 65

 B - Statement of Open Space and Recreation Goals..... 66

SECTION 7 - ANALYSIS OF NEEDS 67

 A. Summary of Resource Protection Needs..... 68

 B. Summary of Community’s Needs..... 68

 C. Management Needs, Potential Change of Use 73

SECTION 8 - GOALS AND OBJECTIVES..... 75

 A. 2020 OSRP Goals and Objectives 76

SECTION 9 - SEVEN YEAR ACTION PLAN 77

 A. Seven Year Action Plan Overview 78

► **TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020**

SECTION 10 - PUBLIC COMMENTS..... 84

SECTION 11 – REFERENCES..... 89

APPENDIX A: OPEN SPACE AND RECREATION PLAN SURVEY 91

APPENDIX B: Public Outreach 92

APPENDIX C: PUBLIC FORUM AGENDA..... 93

APPENDIX D: PUBLIC FORUM PRESENTATION..... 94

APPENDIX E: OPEN SPACE AND RECREATION SURVEY RESULTS..... 95

APPENDIX F: ADA SELF-EVALUATION REPORT..... 96

SECTION 1

PLAN SUMMARY



► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

Public open space and recreation facilities are vital to establish a sense of community and connectivity. These are the spaces that belong to everyone who lives, works, and plays in Northborough irrespective of age, gender, income or physical ability. Periodically revisiting and reforming the plans that shape these spaces ensures that Northborough's parks, playgrounds, trails, natural resources, and recreation amenities are designed, maintained, protected, and programmed in a manner that enforces the promise of a public space. This document will serve as a roadmap to guide Northborough's investment in these exciting and essential pieces of the Town's landscape as the community continues to grow and change.

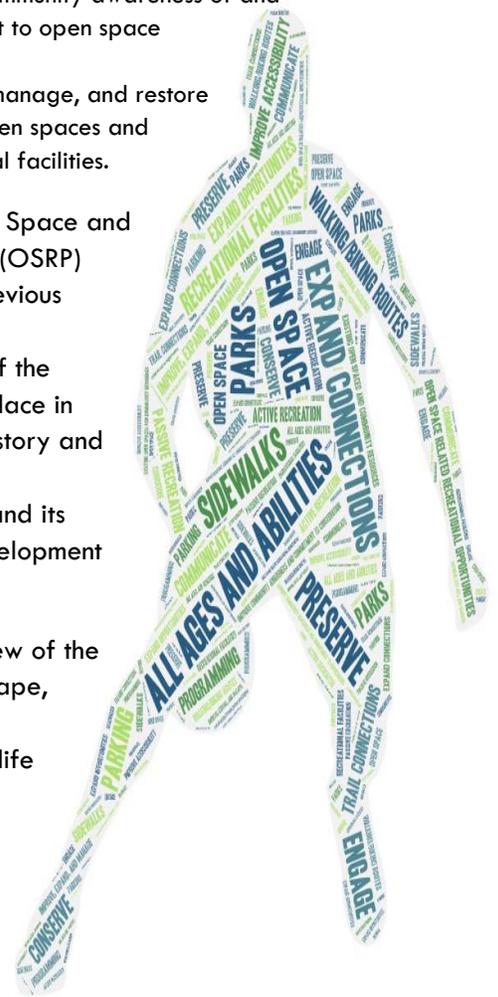
Northborough residents and visitors enjoy an array of recreational facilities, including playing fields, tennis courts, and basketball courts that are dispersed throughout Town, as well as robust recreational programming for all ages and abilities provided by the Northborough Recreation Department. Programming utilizes Town parks, the Town Recreation Center, the Town Hall Gym, schools, the public library, the senior center, and private locations within the municipality. The community also enjoys access to a diverse assortment of recreational properties, which encompass over 2,200 acres. These properties include public parks; privately-owned Juniper Hills and Indian Meadows golf courses; Chapter 61 lands and State-owned properties (Mt. Pisgah Wildlife Management Area, Wayne F. MacCallum Wildlife Management Area); an extensive trail system (including Mt. Pisgah, the Edmund Hill Woods Area, Little Chauncy, Cedar Hill, and Sawink Farm Trail Areas, Watson Park Trails Area, Carney Park/Cold Harbor Trails Area, Carlstrom II Forest, Yellick Conservation Area, Stirrup Brook Trail, Assabet Park Trail, Schunder's Field Trails, Aqueduct Trail, and the Coyote Trail); as well as open, undeveloped lands (i.e., the former Westborough State Hospital).

In August of 1985, the Massachusetts Division of Conservation Services (DCS) approved Northborough's first five year "Conservation, Open Space and Recreation Plan." Subsequent plans were prepared in 1990, 1998, 2005, and 2010. Through a public visioning session, a public survey, committee input, and interactions with Town staff, six (6) overarching goals were identified for this plan:

- ➊ Preserve open space for the town's overall benefit.
- ➋ Improve accessibility to parks, open space and recreational facilities.
- ➌ Improve, expand, and manage properties for active and passive open space opportunities.
- ➍ Improve community awareness of and commitment to open space resources.
- ➎ Maintain, manage, and restore existing open spaces and recreational facilities.

The 2020 Open Space and Recreation Plan (OSRP) builds on the previous plans and an understanding of the Town's current place in the region, its history and sense of self, its demographics, and its growth and development patterns.

A thorough review of the geology, landscape, water resources, vegetation, wildlife and fisheries, other unique and scenic resources, and environmental challenges was necessary to develop a clear picture of the area's strengths, weaknesses, opportunities and threats. Working with the Town



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Assessor, Town Planner, and others, an inventory of both public and private lands of conservation and recreation interest was compiled. Finally, a new seven-year action plan with detailed action steps, time frames, and responsible parties is laid out so Northborough can move toward its vision.

summary of the plan is presented in Section 9 as a seven-year action plan.

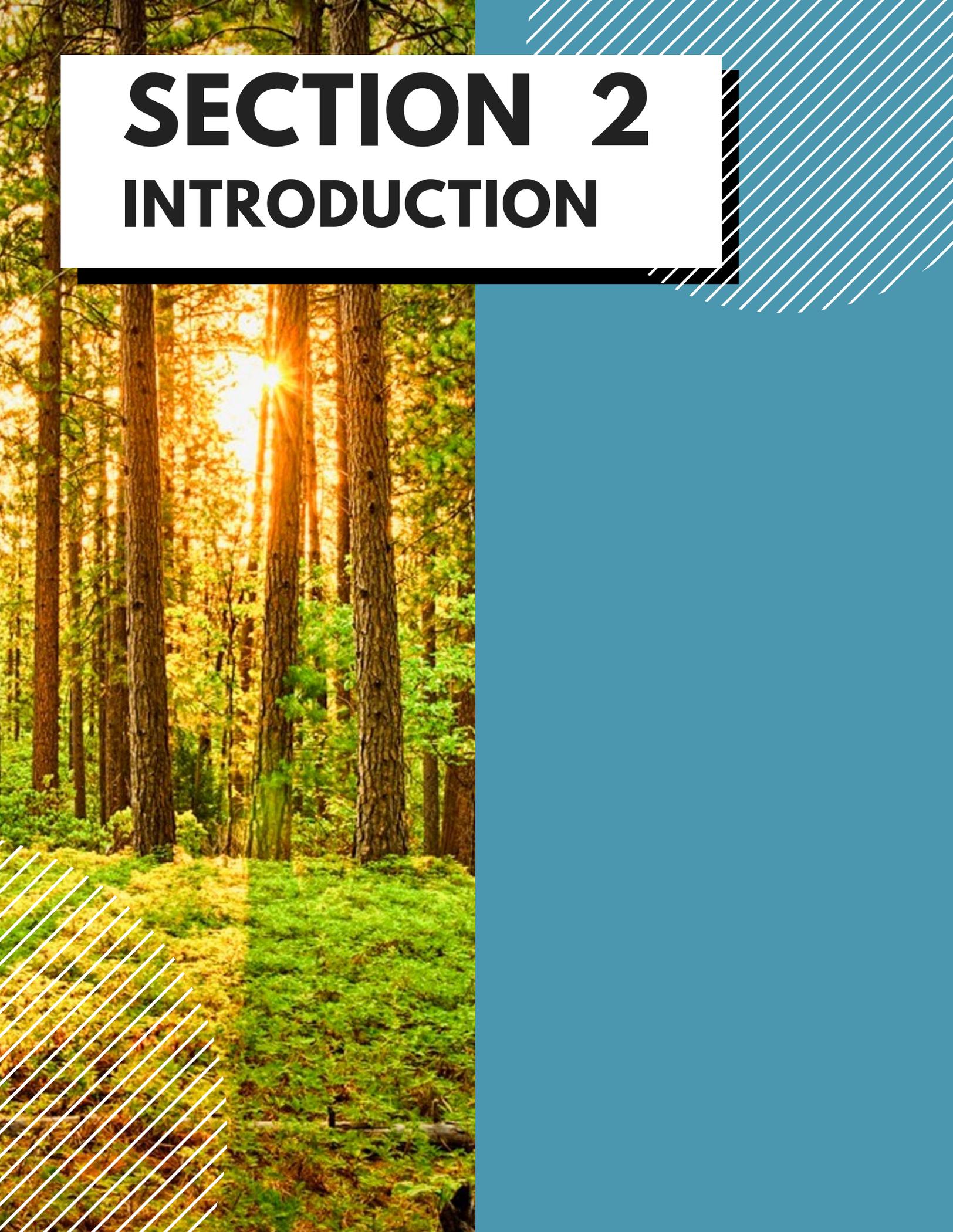
During the development of the OSRP, the community revisited and refined its previously stated vision and developed goals, objectives, and action steps necessary to accomplish that vision. The Town has been very active in the implementation of the recommendations found in the 2010 OSRP. The 2020 OSRP highlights accomplishments and identifies areas where additional work may be necessary, setting forth an action plan that will help to achieve the goals of maintaining the quintessential New England character of the town, providing recreational resources for a range of ages and abilities, and acquiring critical open space lands that will safeguard vital groundwater resources, habitat areas, and the quality of life in Northborough.

The 2020 OSRP follows the format prescribed by the State Executive Office of Energy and Environmental Affairs. Once the plan is accepted by the Executive Office of Energy and Environmental Affairs, the Town may apply for State grants through the Local Acquisitions for Natural Diversity (LAND) and Parkland Acquisitions and Renovations for Communities (PARC) programs, which provide reimbursements for the purchase and/or renovation of open spaces and recreation facilities.

In an attempt to balance the many issues concerning development, land preservation, and community needs, this plan provides an assessment of existing conditions and trends in Northborough (Sections 3-5), identifies the community's current open space and recreation goals (Section 6), conservation and recreation needs (Section 7), and objectives (Section 8). A

SECTION 2

INTRODUCTION



A - Statement of Purpose

Herein, "open space" refers to conservation land, forested land, recreation land, agricultural land, and amenities such as green buffers along roadways or any open area that is owned by an agency or organization dedicated to conservation. The term may also be used to describe undeveloped land with potential conservation or recreation interest – such as vacant lots, and brownfields – that can be reclaimed for public use.

Regionally, open space plans are now more vital than ever. In 2017, Harvard Forest, a subsidiary of the Faculty of Arts and Sciences of Harvard University, published a report that found that New England has been losing forestland to development at a rate of 65 acres per day (Harvard Forest, 2017). Leveraging satellite imagery to determine how much land was being lost, the study highlighted that despite more than half of Massachusetts municipalities having adopted the Community Preservation Act (aimed at saving open spaces, preserving historic sites, and developing affordable housing), the State has been losing forestland to development faster than any other New England state, at a rate of 7,000 acres per year.

Without thoughtful planning and active stewardship, these types of changes in land use

patterns can dramatically alter a community in a short time period. Open space plans are fundamental tools toward protecting the "green infrastructure" (water supply, land, working farms and forests, viable wildlife habitats, parks, recreation areas, trails, and greenways) of a community. Planning for and protecting these resources is every bit as important to the economic future of a community as planning for schools, roads, water, and wastewater infrastructure.

Moreover, lands and facilities that present opportunities for recreation provide myriad benefits to their community and to those who use them. These can include increased property values and tax revenue, clean water and clean air, and even cost savings via avoided strains on community services (schools, fire, police, infrastructure). Direct benefits to recreation users include improved physical health (reduced obesity rates, increased vitamin D levels and improved cardiorespiratory fitness); enriched mental health (stress reduction, improved coping abilities, lessened social isolation, and better cognitive function); and enhanced community connections (heightened community pride, an uptick in civic engagement, and access to social interaction).

B - Planning Process and Public Participation

As with any planning exercise, the development of this OSRP has provided the opportunity to assess where Northborough is, where the Town would like to go, and how to get there. The OSRP will help the Town to confront and manage aspects of growth and development in ways that preserve, protect, and enhance the environment. The committee has held a very thoughtful planning process with significant and substantial community involvement, and plan development has exposed potential threats and highlighted

opportunities. The final product lays out goals which advocate for protecting lands that support wildlife, recreation, and ecosystem services, and outline patterns of land development to support plan goals.

As previously mentioned, an up to date OSRP is required for communities to be eligible for grant programs that help fund the purchase of open space or improvement of land for recreation purposes. But more importantly, the detailed

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planning process mandated by DCS provides the Town with a thorough evaluation of recreation and conservation opportunities, and helps to uncover opportunities to improve services for all residents.

Northborough's 2010 Open Space and Recreation Plan expired in 2017. In 2019, the Northborough Open Space Committee (OSC) engaged the services of the Central Massachusetts Regional Planning Commission (CMRPC) to assist with a thorough update of its OSRP. Since the 2010 plan was approved many changes have taken place within the Town and therefore revisions were necessary to ensure that the plan is in keeping with the desires of the residents and with the State requirements.

The 2010 OSRP served as the base for this updated Plan. While some components of the Plan, such as area geology and history, did not change substantially and required only minor updates, other components such as the open space inventory, needs analysis, goals, and objectives were subject to significant revisions. The process involved gathering information on changes to the Town's population and growth patterns and input from the residents and public meetings with the OSC. The Town's staff provided technical input and details. CMRPC provided guidance and research assistance to staff and committee members, and helped compile the overall document.

The OSC was charged with the responsibility of producing the OSRP Plan Update. The OSC consists of a member of each of the following elected and appointed Town boards/committees: Conservation Commission (Gregory Young), Recreation Commission (Mark Awdycki), Planning Board (Anthony W. Ziton), Selectboard (Timothy Kaelin) plus four at large residents (John Campbell, Chair; Brian Belfer; Dan Clark; Ashley Davies; Leslie Harrison; and Paul Tagliaferri).

The OSC is responsible for the identification and preparation of proposals for Town Meeting of

properties to be acquired for open space and/or recreational use. The OSC also considers alternative methods for open space preservation, including but not limited to grants, bargain sales, donations, and conservation restrictions. Committee members provided important background information, reviewed, and commented on each of the Plan components in draft form, facilitated the implementation of an on-line and paper survey, and solicited public comment and input. The committee worked closely with the Conservation Agent and CMRPC staff to develop goals, objectives, and the 7-year action plan. At all times, an informal consensus approach was used with Committee members until an agreement was obtained.

Several outreach strategies, including a public survey, a public forum, and municipal board and committee interviews were utilized to determine what the citizens of Northborough value as well as issues that need to be addressed to improve their use and enjoyment of open space and recreational resources in the community. Although Northborough is not home to any Environmental Justice communities, as defined by the State, an effort was made to reach out to a diverse audience when advertising the public survey and public visioning sessions. The Massachusetts Executive Office of Energy and Environmental Affairs defines an Environmental Justice community as a community in which any of the following are true: median household income is equal to or less than 65 percent of the statewide median (\$74,167 in 2017, per the ACS 1-year survey); 25% or more of the residents identify as minority; or 25% or more of households have no one over the age of 14 who speaks English proficiently.

PUBLIC SURVEY

CMRPC, the Town's OSC, and Planning Department developed a survey to gather resident input regarding open space and recreation in Northborough. The survey was based on the model set up in the DCS Open

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Space Planners Workbook. The survey was developed and summarized using the internet application SurveyMonkey ©. The availability of the survey and hyperlinks were placed on the Town website, sent via email to Town boards and commissions and to other interested parties. Flyers advertising the survey were hung on community bulletin boards, at Town Hall, at the Senior Center, and at Boroughs Family Branch YMCA. The survey was also made available in hard copy at the Northborough Planning Office and the Senior Center. The online survey was available from January 21, 2020 to March 20, 2020. 15 hard copies were submitted. 495 surveys were received. A summary of the survey results is attached as Appendix E.

In addition, the community was invited to review drafts of the plan which was published on the Town's website. The Open Space Committee, the Conservation Commission, the Recreation Commission, the Planning Board, the Board of Selectmen, and Central Massachusetts Regional Planning Commission each reviewed and provided letters of support (attached in Section 10).

PUBLIC FORUM

The Committee initially planned to hold a Public Forum in March 2020 to discuss the draft plan, the draft survey results, draft goals, objectives, and action plan. However, due to the Covid-19 pandemic, meetings larger than 10 and later 25 individuals were prohibited by Executive Order. When it became clear in July that larger in-person gatherings were unlikely to be feasible in the near future, the Town made the decision to hold a virtual public forum using the Zoom platform. The virtual public forum was held on September 16, 2020.

Municipal staff, the Open Space Committee, CMRPC, and eleven community members participated "live" with many more viewing on cable access or viewing the recording after September 16. The public forum presentation

was available ahead of the Zoom event and has been viewed more than thirty times.

More information about the forum can be found in Section 6 of this report.

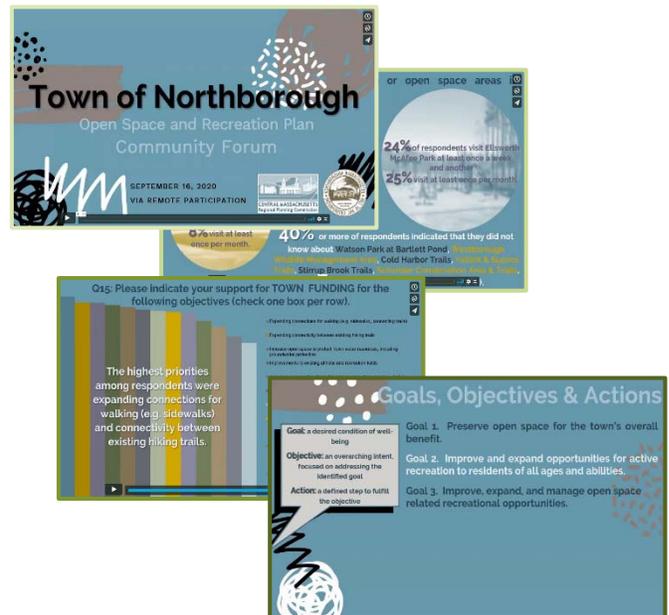


Figure 1. At the forum, CMRPC provided an overview of the OSRP process, a description of the draft goals, a summary of the survey responses, the phases of the that plan have been completed thus far, and what still remains to be completed.

SECTION 3

COMMUNITY SETTING



A - Regional Context

Northborough is a rural suburban community located in central Massachusetts. The Town is bordered by Berlin on the north, Westborough on the south, Marlborough on the east, Southborough on the southeast, and Boylston and Shrewsbury on the west. Marlborough and Shrewsbury provide a more urbanized atmosphere while Berlin and Boylston to the north reflect the rural character of this portion of Town. Northborough is 10 miles northeast of Worcester, 30 miles west of Boston, and 190 miles from New York City. A map showing Northborough's Regional Context is provided on the following page. According to the United States Census Bureau, the town has a total area of 18.76 square miles, of which, 18.53 square miles of it is land and 0.23 square miles of it is water.

Zoning regulations compatible with the surrounding communities provide similar uses along the common borders. For example, a portion of the eastern end of town is zoned industrial with the same zoning located across the border in Marlborough. Westborough has a business zone along Northborough's southern border that is compatible with Northborough's abutting zoning. Berlin and Boylston's zoning adjacent to Northborough is also residential and is mixed with conservation land along the northern border. In Shrewsbury sections of residential land abut Northborough residential land.

Northborough is located in the Worcester area. Principal highways are:

- US Route 20;
- US Interstate 290, which connects Interstate 495 with Worcester;
- State Route 9, the Worcester Turnpike;
- State Route 135;
- US Interstate 495, which borders to the east;
- US Interstate 90, the Massachusetts Turnpike; and
- US Interstate 190, which links to the Fitchburg-Leominster area.

US Interstate 90 and 495 form a major interchange in the neighboring town of Westborough.

The region is well connected by rail and highway to the ports, airports, and intermodal facilities of Boston and Providence. CSX provides freight service to Northborough. Northborough is a member of the Worcester Regional Transit Authority (WRTA) but does not receive fixed route services. Commuters can board Massachusetts Bay Transit Authority (MBTA) trains on the Framingham-Worcester Line at Westborough and Southborough. Amtrak trains on the Lakeshore Route connecting Boston to New York and Chicago can board at the Framingham and Worcester Stations. Though most air travelers utilize Boston's Logan Airport, TF Green Airport in Providence and Manchester New Hampshire's Airport, some use the Worcester Municipal Airport, located on Route 122. Several smaller airfields are also located within a 20-mile radius.

Several of Northborough's open spaces cross the Town border into adjacent towns. Mt. Pisgah is shared with the Town of Berlin. Some of the New England Forestry Foundation properties lie in both Northborough and Shrewsbury. Large amounts of land part of the Westborough State Hospital are located in the Towns of Northborough and Westborough.

While Northborough was once primarily a farming community, it has transitioned to a more white-collar community, with its residents holding jobs in retail, service, and tech sectors. Northborough falls squarely in the area sometimes referred to as the Arc of Innovation, or the Metrowest 495 Corridor.

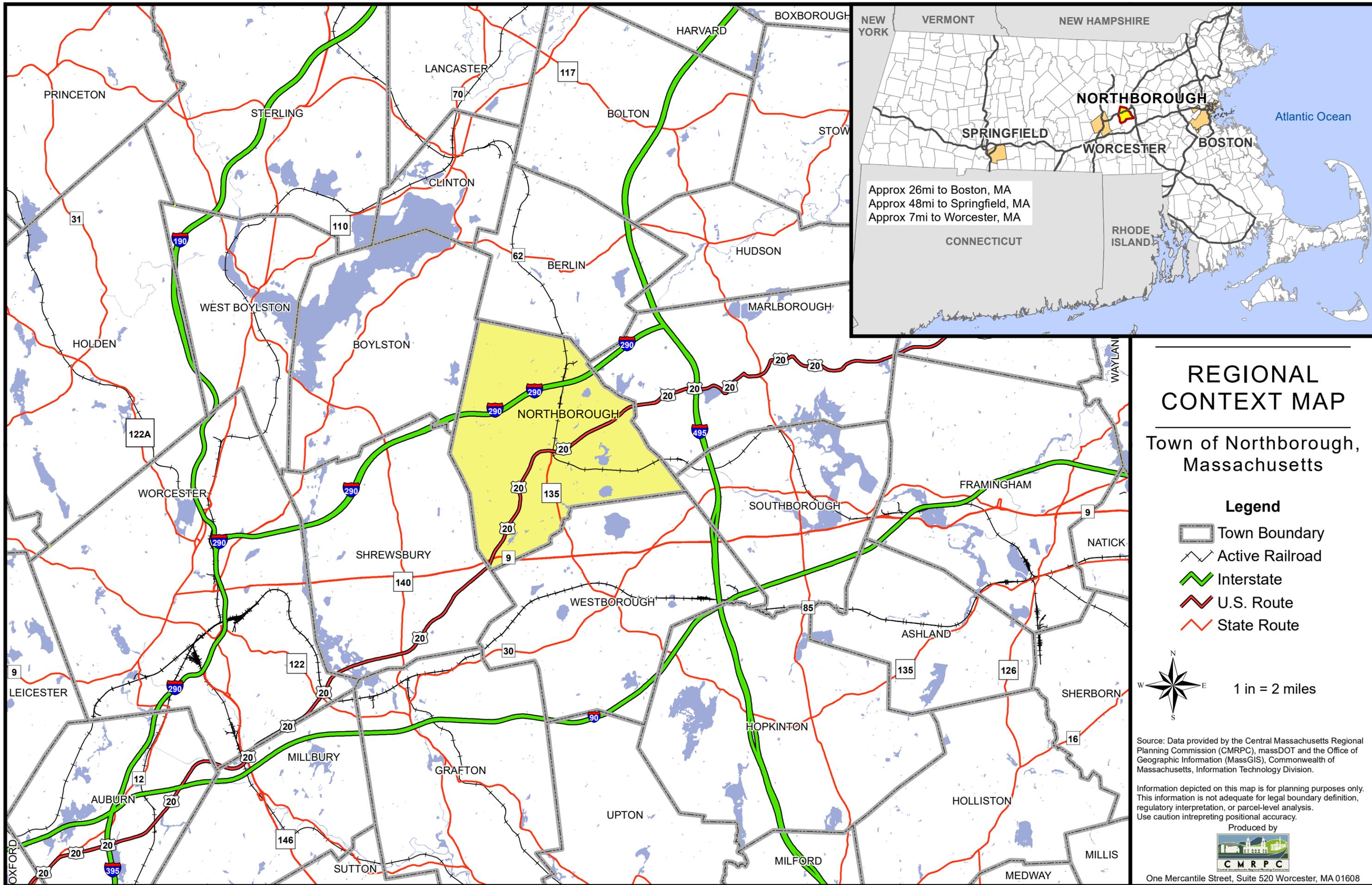
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Despite the shift, several farms (such as Tougas, Berberian, and Davidian for fruits and vegetables, as well as the Ellsworth Christmas Tree Farm) still operate in the community.

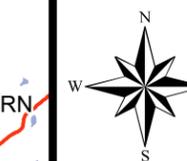
Northborough has many public and private schools. It is home to four public elementary schools serving grades pre-K – 5: Lincoln Street School, Marguerite E. Peaslee School, Fannie E. Proctor School, and Marion E. Zeh School. Private schools include the Cornerstone Academy, the Fitzgerald Institute, the Goddard School, and St. Bernadette's. The middle school for students in grades 6 to 8 is the Robert E. Melican Middle School. The public high school serving Northborough is Algonquin Regional High School, shared with Southborough. Assabet Valley Regional Technical Vocational High School is a choice school for Northborough students, though the majority of students attend Algonquin. Other Northborough students attend private high schools in Southborough, Shrewsbury or Worcester. (Massachusetts Department of Housing and Community Development)



Figure 2. Readers of USA Today ranked Tougas Family Farm of Northborough sixth best orchard for apple picking in the country in 2020. Photo Source: Tougas Family Farm.



Approx 26mi to Boston, MA
 Approx 48mi to Springfield, MA
 Approx 7mi to Worcester, MA



Source: Data provided by the Central Massachusetts Regional Planning Commission (CMRPC), massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

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B - History of Community

The Town of Northborough was settled in 1660 by farmers and herdsman from Sudbury and Marlborough. The inhabited area stretched from Ball Hill in the north to the Garrison House on what is today the Marlborough/Northborough border. The earliest settlers were subsistence farmers who also raised feed for Marlborough cattle. The Assabet River provided an adequate source of water for running small gristmills and the hillsides served as an excellent location for orchards. The Town of Northborough, originally part of the Town of Marlborough, then Westborough, was incorporated in 1766 and became a full-fledged town in 1775. Northborough was settled as the “North borough” of Marlborough in the early 1650s. In 1717, it was set off from Marlborough, becoming the north part of Westborough. In January, 1766, Northborough was incorporated as a town of its own.

In 1746, the first Meeting House was established under the name of The Church of Christ and became the center of all Town activities, both religious and civic. Northborough had three Town Ministers, the first being Rev. John Martyn, who served from 1746-1767. His successor, the patriot and Harvard graduate, Peter Whitney, served the town until 1816. Rev. Whitney was followed by the Rev. Joseph Allen who served until 1873. Both Whitney and Allen were well-respected historians and authors of their day.

After 1800, some “cottage industries” developed into factory-based production, most notably the making of shoes and combs, and along the Assabet River there were a few small-scale woolen mills. The early grist and sawmills of Northborough became iron and brick works, cotton and woolen mills, and were ultimately succeeded by the present-day electronics industry.

The center of Northborough developed as an institutional focus for the Town, along with a small commercial district, a settlement pattern further encouraged by the completion of a railroad to Northborough in 1856. During the second half of the 19th century and the early 20th century, Northborough experienced both a population increase and an increase in ethnic and religious diversity, and more densely built residential neighborhoods clustered around the Town center. As the woolen mills prospered, the stock of company-built housing increased, creating small mill villages at Woodside and Chapinville. In this period, Northborough developed some of the institutions characteristic of larger Towns and small cities: consolidated schools, a high school, a public library, and fire and police services. After World War II, suburban-type residential development began to alter the Town’s predominantly rural makeup.

The Town of Northborough was incorporated in 1766 and gained the right of representation at the Great and General Court of Boston in 1775. Along the old Boston Post Road, commemorative plaques outline the historical events that shaped the Town. The early churches of Massachusetts, called “meeting houses,” were the center of all Town activity. One such meeting house, the “old” Town Hall, earned placement on the National Park Service Department list of Historical Architectural Monuments, and is said to have the longest roof span of any known French Mansard roof style building.

By 1885 Northborough, was the terminus of the Agricultural Branch Railroad, and boasted 132 farms, 2 woolen mills, 5 home goods manufacturers, a piano key factory, a rubber factory, many boot and shoe factories and a box factory. Between 1790 and 1900, the population increased from 619 to 2,164.

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In 1950 Northborough could be described as a quiet town of market farms, small businesses, professionals, and retirees. There were two schools, one elementary and one high school. Industry was almost non-existent. Businesses consisted of a fabric mill, a woodworker’s shop, a cereal company, one commercial dairy, a carnation grower, three egg farms, a candle factory, one bank, small grocery stores and a pharmacy.

Today Northborough is an attractive residential town. Many of the rural aspects of the town are

still preserved by the open green spaces of conservation land. Stonewalls, orchards, and farms pay homage to the rich agricultural heritage of the Town. Today, in addition to providing the setting for several working farms, Northborough is also host to a burgeoning research and development-oriented industrial park; however, the Town serves primarily as a residential area, a rural home to Boston and Worcester commuters. With careful planning, Northborough will be able to balance the best of the past with the needs of the future.

C - Population Characteristics

TOTAL POPULATION

Table 3.1 Historical Population

| Year | Population | Change | % Change |
|------|------------|--------|----------|
| 1950 | 3,122 | | |
| 1960 | 6,687 | 3,565 | 114.20% |
| 1970 | 9,218 | 2,531 | 37.80% |
| 1980 | 10,568 | 1,350 | 14.60% |
| 1990 | 11,929 | 1,361 | 12.90% |
| 2000 | 14,013 | 2,084 | 17.5% |
| 2010 | 14,155 | 142 | 1.0% |

(US Census Bureau)

This plan relies heavily on 2010 census data and may not reflect current conditions precisely. Northborough's population has been growing steadily over the last five decades. The largest numeric and percentage increase occurred between 1950 and 1960. Decreased rates of growth in more recent years may indicate the slowing of suburbanization and sprawl and demonstrate the limits of growth.

POPULATION AGE

Additional data from the 2010 U.S. Census illustrates the composition of the Town, by age, for the same time period. Northborough's Population by Age Category in 1970, 1980, 1990, 2000, and 2010, exhibits a general shift toward an older population, which is a demographic trend across the region. In 2010, 13% of the population was 65 or older. This is comparable to neighboring towns which range from approximately 12.5% - 18.2%. However, 21% of the Northborough population is under 18 years old, which is the lowest when compared with neighboring towns.

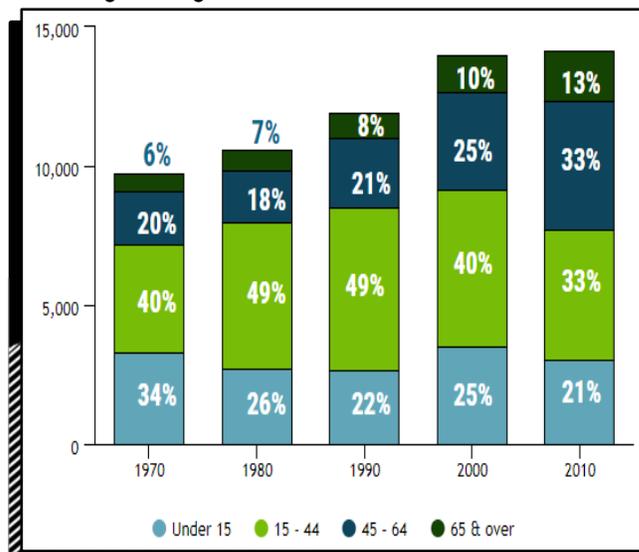


Figure 3. Northborough Age Distribution

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A more detailed analysis shown in Figure 3 (Northborough Age Distribution) reflects the changes in the Town age distribution. While the age group from 15 to 44 remains the largest population of the Town, a steady increase in the age 45 to 64 and 65 and over categories is evident.

Figure 3 indicates that the largest population percentage drops are in the cohort most largely comprised of children and millennials – 0 to 44 year olds.

In 1970, these two cohorts accounted for nearly $\frac{3}{4}$ of Northborough’s population, but at the time of the 2010 Census, that figure had fallen to just 54%. From 1970 to 2010, there was a noteworthy increase in the over 65 population in Town from 6% to 13% (more than doubling). Further, projections from CMRPC predict that by 2040, Northborough residents aged 65 and older could account for 34% of the total population, while residents under the age of 19 would account for only 17.5%.

By 2050, the global population of people age 60 or older is projected to nearly double to 2.1 billion.¹ By 2050, 1 in 5 Americans will be age 60-plus. By 2060, 25 percent of the entire U.S. population will be age 60 or older.

Since recreational needs vary according to age, this information provides an invaluable tool for assessing current open space and recreational facilities as well as planning future open space and recreational facilities. Most notably, concern for the health and fitness of the aging population has become and will remain a strong trend in the general culture.

Also of note, older adults represent an increasingly large share of the U.S population, but their use of parks is observed as disproportionately low. A 2014 study of 174 neighborhood parks in 25 major U.S. cities found that children — representing 20% of the total U.S. population — made up 38% of park users.

Although adults age 60 and older accounted for 20% of the general population, they represented only 4% of total park users (Cohen, 2016). Moving forward, it will be vital that Northborough consider their growing senior cohort when planning for open space and recreation in Town.

POPULATION DENSITY

The Town of Northborough contains 18.72 square miles. The 1970 population of 9,218 people resulted in a density of 492.4 persons per square mile. By 2000, the Town’s population had grown to 14,013 people increasing the Town-wide density to 748.55 persons per square mile, or 52% over thirty years. From 2000 to 2010 the Town-wide density increased by only 1% to 756.14 persons per square mile.

SPECIAL GROUPS

Table 3.2 Persons by Race (US Census, 2010)

| Year | Population | White | Black | Indian, Eskimo, Aleut | Asian, Pacific Island | Other |
|------|------------|--------|-------|-----------------------|-----------------------|-------|
| 1970 | 9,218 | 9,179 | 7 | 0 | 0 | 32 |
| 1980 | 10,568 | 10,353 | 41 | 14 | 127 | 33 |
| 1990 | 11,929 | 11,319 | 89 | 20 | 467 | 34 |
| 2000 | 14,013 | 13,033 | 91 | 11 | 718 | 160 |
| 2010 | 14,155 | 12,405 | 142 | 16 | 1,158 | 434 |

The U.S. Census also provides information by race, which can be used to identify groups, which may, by tradition, have different recreation needs. Table 3.2 shows that the majority of the Town’s population is white, however an overall increase in the non-white population has occurred over time. The 2010 census indicated that the non-white population of the town was approximately 12.4%. While this percentage is low, consideration of this population should be made in the planning process. According to the MassGIS Environmental Justice Population Map

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of the Central Region, there are no significant Environmental Justice populations located within Northborough.

Persons with disabilities, though not documented in the census data, must also be considered in the

acquisition, development or improvement of open space and recreational areas. Included in this category are those with physical disabilities that require the use of a wheelchair, walker or cane, and individuals with visual or hearing impairments, or mental disabilities.

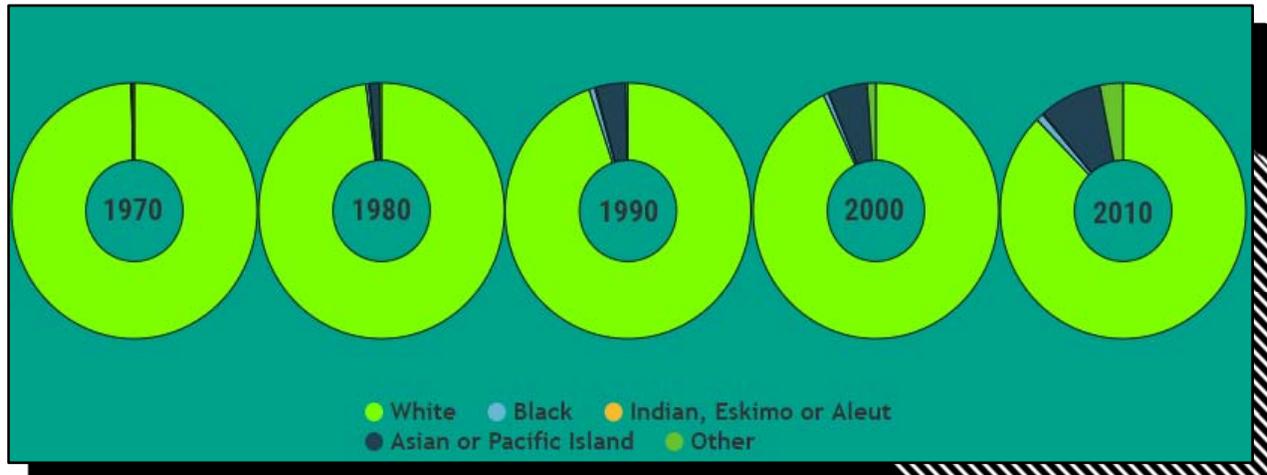


Figure 4. Historical Race Distribution

ENVIRONMENTAL JUSTICE MAP

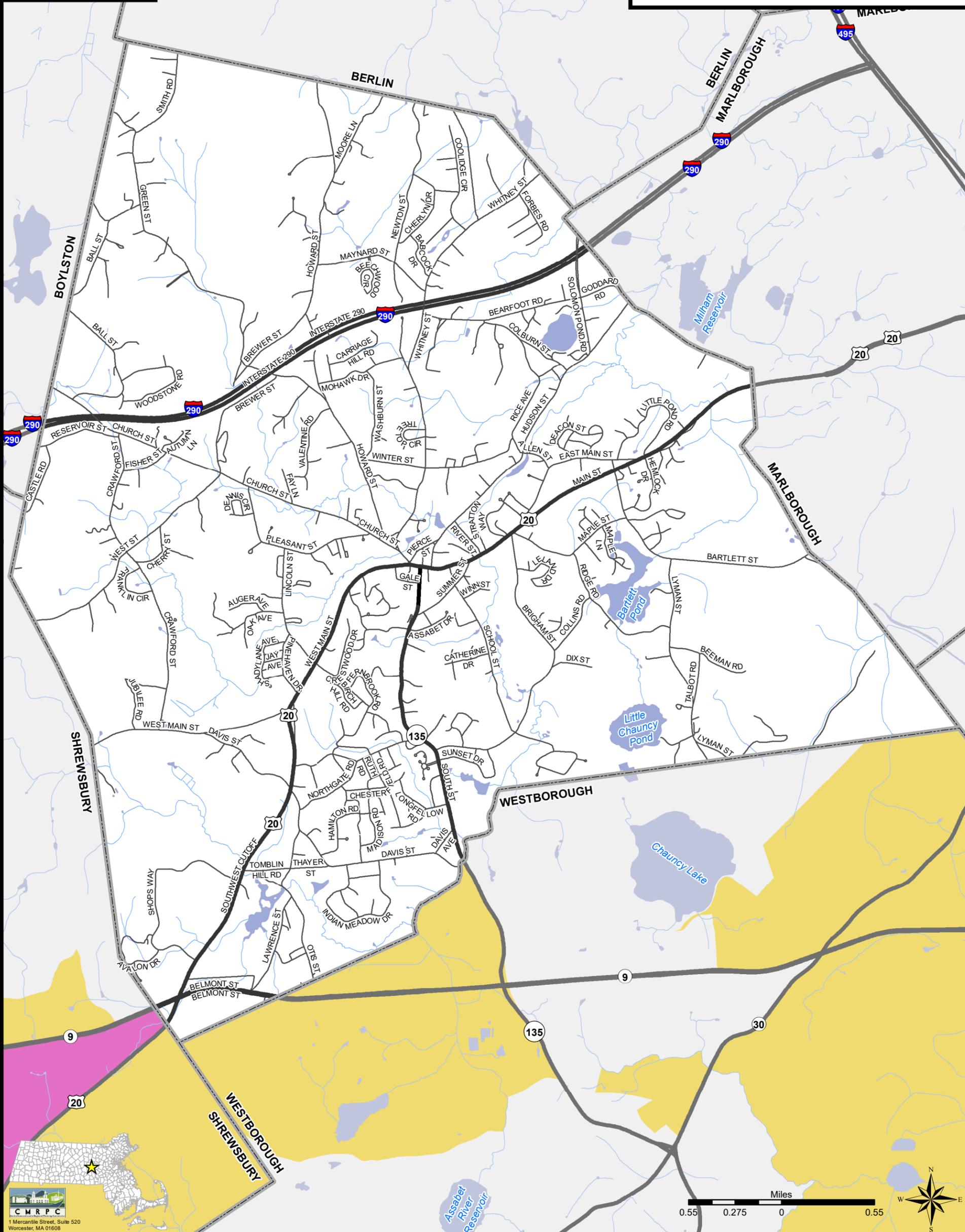
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Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

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LEGEND

- | | |
|--|-----------------|
| Environmental Justice 2010 Populations | Town Boundaries |
| EJ Criteria, by Block Group | Water Bodies |
| Minority | Streams |
| Minority and English isolation | Major Road |
| | Local Road |



Town of Northborough, Massachusetts

PERSONAL INCOME AND EMPLOYMENT

Data available from the 2000 U.S. census indicated that the median household income in Northborough was \$79,781. Northborough’s median family income increased by approximately 40% between 2000 and 2010 (\$111,875 in 2010). Income of Northborough residents increased at a much faster rate than Worcester County (26.5%) and Massachusetts as a whole (25.5%). In 2017, 2.8% of Northborough families were below the poverty level.

The average daily vehicles miles traveled for residents of Northborough was between 75 and 100 miles per day - a slightly higher rate than the State average according to a 2010 study prepared by the Metropolitan Area Planning Council (MAPC). The mean travel time to work for workers 16 and over was 29.8 minutes, and residents of Northborough have an average

roundtrip commute of between 20 and 25 miles.

The unemployment rate for Northborough in 2010 was 27%. Northborough generally has a lower unemployment rate than the region; in 2010, the rate for Worcester County was 33.5% and for the entire state, 32.3%.

According to the 2012 Economic Census, the Town supports 1,395 businesses, including: sixty-six Professional, scientific, and technical services establishments; sixty-two Retail trade businesses; forty-four Health care and social assistance institutions; and thirty-nine accommodation and food services businesses.

The following Northborough companies employ more than 100 persons: Wegmans (500-999); Worcester Polytechnic Institute (500-999); Algonquin Regional High School; Aspen Aerogels

Inc.; Bigelow Nurseries Inc.; Boston Group; Home Instead Senior Care; Hope Group; Kohl’s; Northborough Inc. Lexus; and Walmart (Executive Office of Labor and Workforce Development, Infogroup, Omaha, NE, 2020).

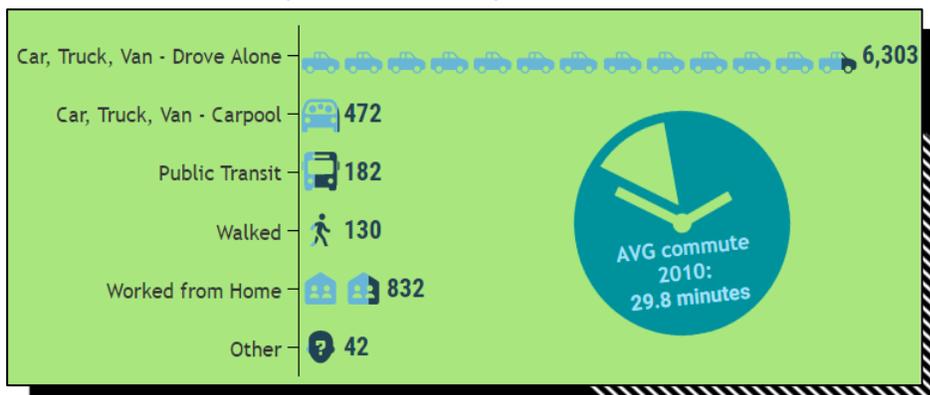


Figure 5. Northborough Commuting Behavior

D - Growth and Development Patterns

PATTERNS AND TRENDS

The town has evolved from a farming community through a period of business development to a primarily residential community while struggling to retain a rural feeling. Limited areas for additional residential, industrial, and business development exist in town; however, to retain the rural feeling, additional development should be carefully planned.

The Northeast Subregion (Northborough, Berlin, Boylston, Shrewsbury, and Westborough) of the Central Massachusetts Planning region has noted a significant gain in commercial land over the last several decades. The Route 9 corridor and the mall in Berlin help to account for much of this growth. The Route 9 corridor through Shrewsbury and Westborough has become one of the region’s largest concentrations of office

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buildings, high technology, corporate headquarters, and light manufacturing operations. This region and Northborough have also seen notable gains in new residential development. Based on current land use and zoning, only approximately 325.4 acres of potentially developable residential land remain (including vacant properties that are currently in a residential zone, accessory to commercial or industrial properties, properties that are not specifically included in another property type classification code and are not undevelopable for other reasons including topographic limitations). As build out is approached, it is expected that residential development will shift to other nearby Towns.

Residential areas are scattered throughout the Town, with the predominant areas in the center, north and south. Residential and industrial development has also encroached on areas that were forests, agricultural and open areas.

INFRASTRUCTURE – TRANSPORTATION

Approximately 76 miles of public roads are maintained by the town interconnecting the residents. In addition, the town is served by Interstate Route 290 (I-290), which runs through the northern section in an east-west direction. This highway links the Massachusetts Turnpike (I-90), with Interstate Route 495 (I-495), and provides easy access to Worcester. There are two interchanges in Northborough, one at Church Street in the west and one at Solomon Pond Road in the east. The area surrounding the Church Street interchange is primarily residential while the area around the Solomon Pond Road exit is zoned industrial.

Route 9 crosses a small portion of the southern section of Town. This roadway provides access to shopping opportunities in Shrewsbury, Westborough and other major towns to the east. Route 20 provides an additional east-west transportation route through the Town Center.

This area is developed with a variety of uses, both business and residential, and provides a secondary route accessing cities to the east. Route 135 (South Street) is the only other numbered route within the Town boundaries and connects the Town center with Westborough's Town Center. West Main Street is another major connector between Route 20 and Shrewsbury Center. This roadway is bordered by numerous commercial centers.

Northborough is served by a single railroad track owned by CSX and utilized for freight operations only. This railroad line runs through Northborough Center from Framingham and Westborough north to Clinton.

Northborough is a member of the Worcester Regional Transit Authority (WRTA) but there are no fixed bus routes in Town. Northborough contracts with WRTA to provide transportation services for seniors and persons with disabilities via a van service that currently operates only on weekdays during limited hours. The Assabet Valley Council on Aging (AVCOA) provides para-transit service to the elderly and handicapped on both a regular and on-call basis. The Worcester Municipal Airport is located on Route 122. Several smaller airfields are also located within a 20-mile radius.

The Town has approximately 37 miles of sidewalks, primarily located in the Downtown area and along Route 20. Outside of the Downtown area, sidewalks are narrow and worn and lack connections that make the Town truly “walkable” for commuting to work or completing local errands (as shown in Figure 5, less than 1% percent of residents in Northborough walk to work).

Expanding and maintaining the Town's sidewalks is vital to reducing reliance on single-occupancy automobiles for commuting. Additionally, a comprehensive sidewalk network is essential to supporting populations that are less likely to

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have access to a personal vehicle (i.e. senior citizens, low-income, persons with disabilities).

Northborough does not have any off-road bike and/or mixed-use paths. Further, on-road bicycle facilities are limited to accommodating shoulders (i.e. Main Street) rather than dedicated bike lanes.

INFRASTRUCTURE - WATER SUPPLY SYSTEMS

Approximately 80% of Northborough is serviced by a Town water distribution system, the exceptions are located in the north and west sections of Town (Ball Hill, Bartlett Hill and Tomblin Hill areas), which rely on private wells. The Northborough Water Division distributes the water and manages approximately 63 miles of distribution pipeline. The water department also operates two storage tanks, which provide 4.5 million gallons per day of reserve water. This system is further supplemented by a connection to the Massachusetts Water Resources Authority (MWRA) which derives its water primarily from the Quabbin (65 miles west of the City of Boston) and Wachusett Reservoirs (35 miles west of the City of Boston). The Town has four municipal water supply wells that are off-line and for emergency use only.

INFRASTRUCTURE - SEWER SERVICE

The Northborough wastewater disposal system began operation in 1980. It now services the residents of Northborough Center, the Northgate Area, the Cedar Hill Road Area, the Juniper Brook Area, and Hudson Street to the Barefoot Road and Forbes Road areas. Approximately 30% to 35% of town area or approximately 45% of the population is served by municipal sewer connections.

The Town does not have its own sewage treatment plant. All residential and industrial sewage within the sewered areas of Town is pumped to the Marlborough Westerly Treatment

Plant located on Boundary Street in Marlborough. This plant has a design capacity of 2.9 million gallons per day. Northborough has a contract allocating 800,000 gallons per day of this capacity to the town.

Additional extensions to the sewer system are provided for within a sewer master plan, which is in the process of being refined with rate studies (referenced below). This will ensure that future flows do not exceed the town's capacity at the Marlborough Westerly Sewage Treatment Plant (currently 800,000 gallons per day). To service the entire Town, Northborough would require 1.5 million gallons of sewer capacity per day. Accordingly, the Town may need to increase its permitted wastewater treatment capacity at the Westerly Wastewater Treatment Plan to accommodate future growth.

The Northborough Public Works Department is currently developing the following Master planning documents related to Water / Sewer:

- Water and Sewer System Master Planning
 - Water and Sewer Rate Study
 - Water Distribution System Hydraulic Model
 - Sewer System Inflow and Infiltration Evaluation
- Guardrail and Culvert Inventory and Assessment

DEVELOPMENT PATTERNS

The analysis of the change in land use over time was based upon aerial photo interpretation from flights taken in 1971, 1985, 1999, and 2005 as determined by the University of Massachusetts, Department of Forestry. Using Property Type Classification Codes from the Town's Property Assessment Data in 2017, approximate current land uses are portrayed in the rightmost column. Data is presented by acreage and percentage for each period. This information is presented here in table and chart as historical data showing the type and amount of land used for various purposes.

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| Land Use | 1971 | % | 1985 | % | 1999 | % | 2005 | % | 2017 | % |
|---|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|-----------------|-------------|
| Cropland/Pasture/ Orchard/Nursery | 1147.2 | 9.5% | 830.3 | 7% | 681.8 | 6% | 621.3 | 5% | 434.6 | 3.6% |
| Residential | 1763.1 | 15% | 2432.3 | 20% | 3361.0 | 28% | 2728.8 | 23% | 5168.2 | 43.1% |
| Transportation/Waste Disposal | 206.9 | 2% | 210.8 | 2% | 212.2 | 2% | 237.5 | 2% | 853 | 7.1% |
| Industrial/ Commercial | 181.1 | 1.5% | 440.4 | 4% | 593.9 | 5% | 534.1 | 4% | 1053.1 | 8.8% |
| Forests | 6975.9 | 58% | 6494.6 | 54% | 5580.0 | 47% | 5391.3 | 45% | 4486.7 | 37.4% |
| Wetlands | 736.7 | 6% | 736.7 | 6% | 601.5 | 5% | 1564.1 | 13% | | |
| Water Bodies/Open Public Land/ Recreation | 986.3 | 8% | 851.7 | 7% | 965.5 | 8% | 918.6 | 8% | | |
| Total | 11997.2 | 100% | 11996.8 | 100% | 11995.9 | 100% | 11995.7 | 100% | 11,995.6 | 100% |

Table 3.3 Land Use Changes from 1971, 1985, 1999, 2005 and 2017 by Acreage and Percentage¹

(University of Massachusetts Department of Forestry, 2005; Town of Northborough Assessors, 2017)

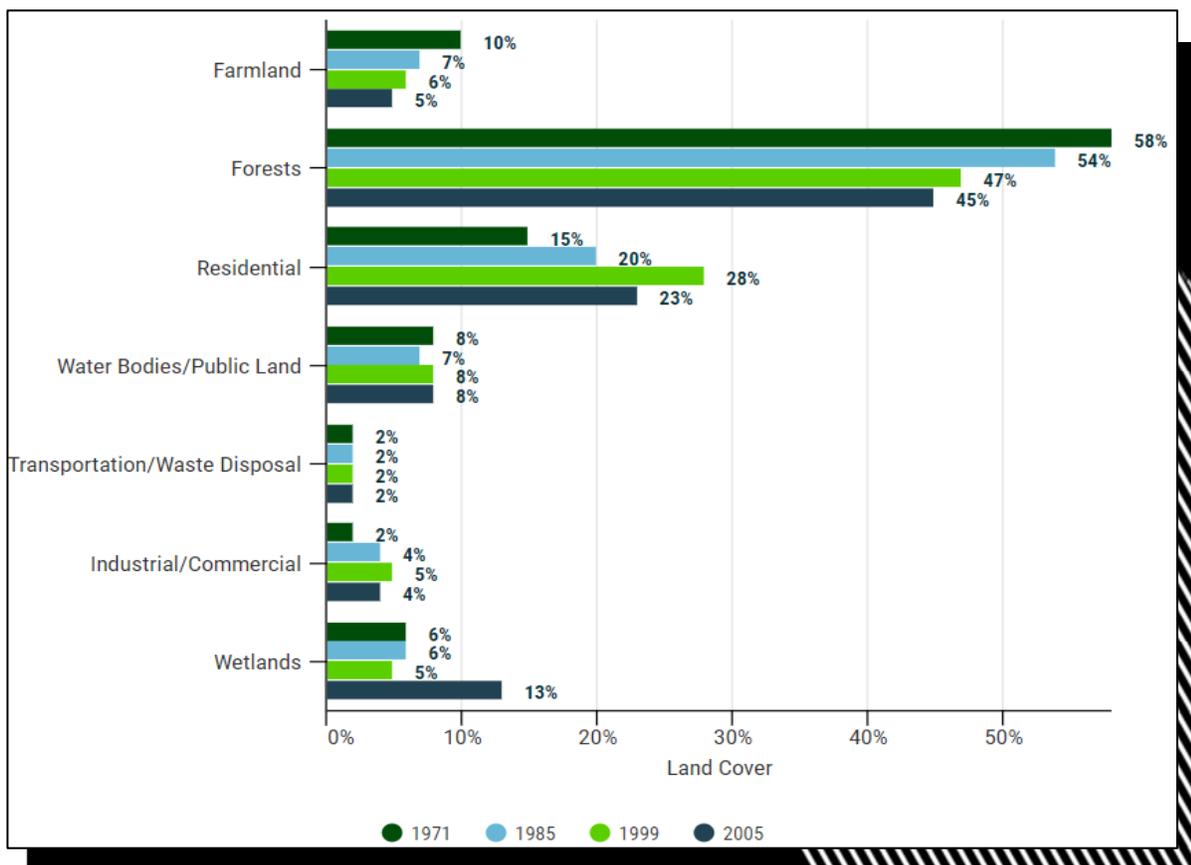


Figure 6. Land Use Changes

¹ Between 1999 and 2005, land use categories changed slightly. Some categories were broken out differently than previously. For example, 2005 includes both forested and non-forested wetland areas, that in previous presentations may have shown up in wetland areas and/or in forest areas. This may account for the decrease in forest and the increase in wetland areas.

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Cropland, pastures, orchards, and nurseries and forestry experienced considerable decline over the 34-year period from 1970 to 2005, with agricultural land decreasing from approximately 9.5% of the town to 5%, to 3.6% in 2017 according to Assessors data. Forestland decreased from 58% to 45%, to less than 37% in 2017. Land in residential use practically tripled, increasing from 15% in 1971 to 43.1% in 2017. Commercial, industrial, mining, transportation, and waste disposal uses more than quadrupled from 3.5% to nearly 16%. This is partly due to the Town's excellent location in regard to the regional highway network and local policies designed to increase the tax base with non-residential development.

Open space continues to be a predominant land use in town. Residential use is also widely dispersed throughout the Town. The Zoning Map shows the areas of greatest residential and commercial development radiating from the center of town, leaving large areas forested where the zoning requires larger lots.

LONG - TERM DEVELOPMENT PATTERNS – ZONING

The Northborough Zoning Bylaw was originally adopted in 1955. The Zoning Bylaw was reorganized in 1989, has since undergone many revisions through amendments at Town Meeting and, as a result, had become disorganized and difficult to use by applicants, town staff, and town boards. It was decided, therefore, to review the zoning bylaw and reorganize it in order to make it easier to understand and use. Beginning in 2006, a Zoning Subcommittee was formed consisting of members from the Board of Selectmen, Planning Board, Zoning Board of Appeals, Industrial Development Commission, and Design Review Committee. This Subcommittee met for 18 months and prepared a new zoning bylaw. The zoning bylaw was then given to the Planning Board and Zoning Board of Appeals and a series of joint meetings were held

between 2007 and 2009 to review and edit the bylaw. The reorganized Zoning Bylaw was presented at the 2009 Annual Town Meeting, beginning April 27th, for acceptance by the Town. The Zoning Bylaw was most recently amended at the 2020 Annual Town Meeting in July 2020.

Amendments to the following sections were approved on July 16, 2020:

- ④ Section 7-05-030 Table of Uses, Table 1, Part A, Residential Districts, funeral home
- ④ Section 7-05-020 Classification of uses, G. Business uses, kennel; Section 7-05-030 Table of Uses, Table 1, Part A and Part B, kennel
- ④ Section 7-05-030 Table of Uses, Table 1, Part B, Commercial and Industrial Districts, indoor commercial recreation
- ④ Section 7-05-020 Classification of uses, I. Industrial uses, (1) Light manufacturing; Section 7-05-030 Table of Uses, Table 1, Part B, Commercial and Industrial Districts, light manufacturing, warehouse, trucking, contractor's yard
- ④ Section 7-05-020 Classification of uses, C. Residential uses; accessory, (6) Home occupation
- ④ Section 7-06-030 (J) Supplemental density and dimensional regulations, duplexes
- ④ Section 7-05-020 Classification of uses, add small-scale ground-mounted solar photovoltaic installation, solar photovoltaic installation roof-mounted, large-scale ground-mounted solar photovoltaic installation, solar photovoltaic installation canopy mounted; Section 7-05-030 Table of Uses, Table 1, Part A and Part B; Section 7-03-050 Site plans, A. Applicability; Section 7-06-020 Table of Density and Dimensional Regulations, Table 2. Table of Density and Dimensional Regulations, add new footnote; Section 7-06-030 Supplemental regulations, C. Yard requirements; Section 7-10-060 Large-Scale Ground-Mounted Photovoltaic Installation
- ④ Section 7-02-040 Definitions, add Hazardous Materials; Section 7-05-020 Classification of uses, add Hazardous Waste Facility and Solid Waste Disposal Facility; Section 7-05-030 Table of Uses, Table 1, Part B, Commercial and Industrial Districts; Section 7-05-040 Environmental performance standards, F. Miscellaneous standards; Section 7-06-030 Supplemental regulations C. Yard requirements; Section 7-06-020 Table of Density and Dimensional Regulations, Table 2. Table of Density and Dimensional Regulations.

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The combination of the general reorganization of the bylaw with the recent changes summarized above provide an updated zoning bylaw that will meet the development needs of the Town of Northborough going forward.

The Town of Northborough now has 12 distinct zoning districts as shown on the accompanying Zoning Map and listed below.

Table 3.4 Northborough Zoning Districts

| Zoning District | District Name | Minimum Lot Area (square feet) | |
|-----------------|---------------|--------------------------------|--------|
| Residential | RA | Residence A (Single Family) | 80,000 |
| | RB | Residence B (Single Family) | 40,000 |
| | RC | Residence C (Single Family) | 20,000 |
| | GR | General Residence | 15,000 |
| | MSR | Main Street Residential | 15,000 |
| | DN | Downtown Neighborhood | 10,000 |
| Business | DB | Downtown Business | 4,000 |
| | BE | Business East | 20,000 |
| | BW | Business West | 20,000 |
| | BS | Business South | 40,000 |
| | HB | Highway Business | 40,000 |
| Industrial | I | Industrial | 60,000 |

(Town of Northborough, Massachusetts, 2019)

There are also the following 4 overlay districts: Groundwater Protection Overlay Floodplain Overlay District (FOD); Major Commercial Development Overlay District (MCDOD); Residential-Open Space Planning Overlay District (ROPOD).

Groundwater Protection Overlay Districts were established to control development in the areas that do or could impact the area groundwater supply. Three types of areas shown on the Zoning Districts and Overlays Map on the following page and are delineated as follows:

- Area 1: Area of influence of all existing municipal wells within Town, confirmed by long term pump test or by stabilized water levels

after maximum duration pumping/primary recharge area.

- Area 2: Potential water supply area/primary recharge area.
- Area 3: Primary recharge area.

Northborough adopted both a Residential-Open Space Planning Overlay District bylaw (for southwest area of town) and an Open Space-Residential Design bylaw. OSRD Zoning Bylaw was adopted April 2009. The Open Space Residential Design Bylaw is intended to protect open space, agricultural and forestry land, scenic views, wildlife habitat and corridors, wetlands and water resources, and historical and archeological resources; to protect the value of

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real property; to encourage creative, environmentally sensitive design as the preferred form of development; and to encourage more efficient development that consumes less open land and respects topography and natural features better than a conventional or grid subdivision.

Table 3.5 presents the open space breakdown by zoning district.

Table 3.5 Northborough Open Space by Zone

| Zoning District | Area (acres) | Percent of Town |
|-----------------|--------------|-----------------|
| RA | 687.52 | 21.3% |
| RB | 597.28 | 18.5% |
| RC | 1,188.23 | 36.81% |
| GR | 32.1 | 0.99% |
| BE | 9.65 | 0.3% |
| BW | 12.79 | 0.4% |
| BS | 0 | 0% |
| I | 700.38 | 21.7% |

(Town of Northborough, CMRPC, massDOT and the Office of Geographic Information, Commonwealth of Massachusetts, Information Technology Division)

ZONING DISTRICTS & OVERLAYS

OPEN SPACE AND RECREATION PLAN

Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

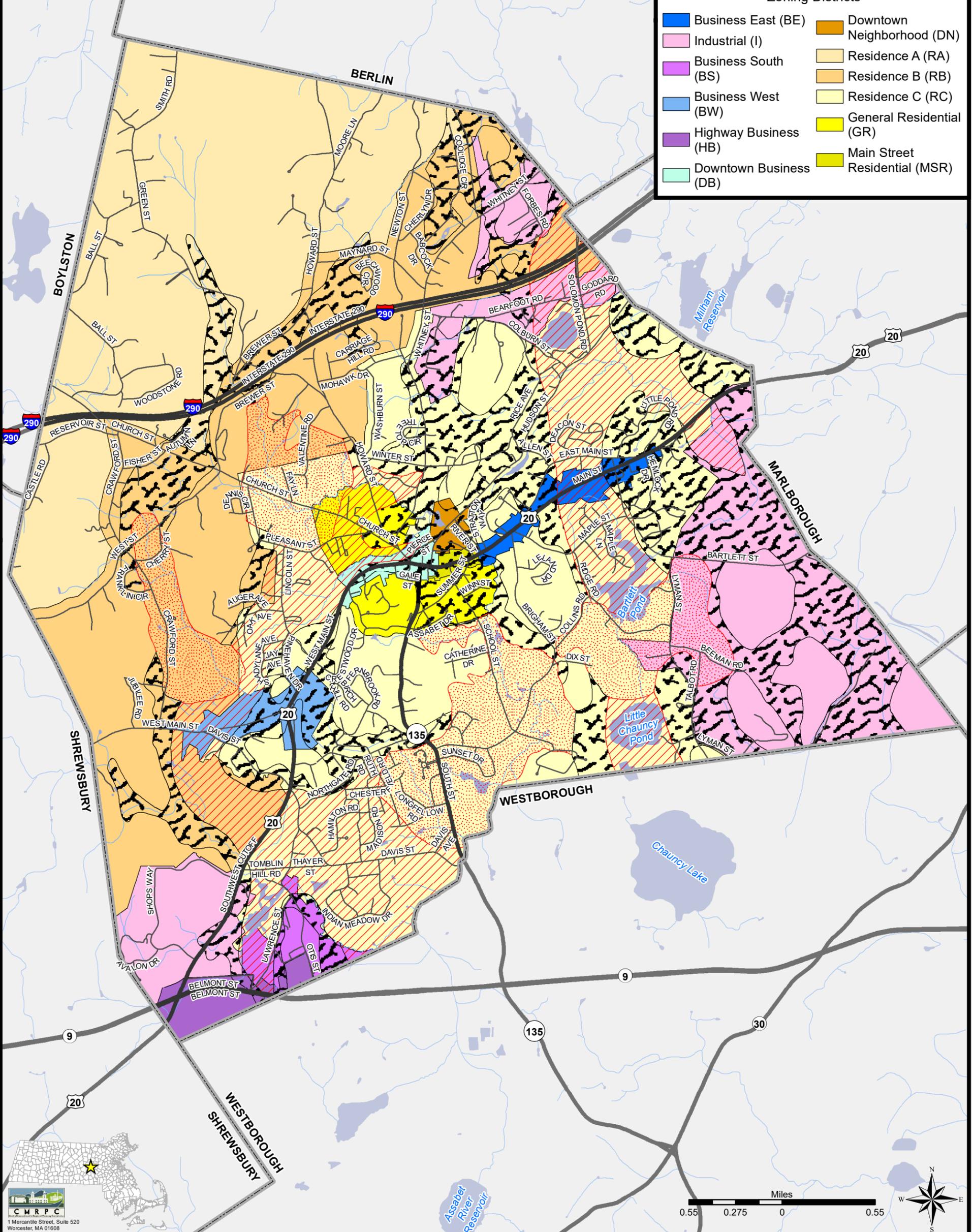
Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

LEGEND

- Town Boundaries
- Water Bodies
- Streams
- Major Road
- Local Road
- Groundwater District Overlay Area 1
- Groundwater District Overlay Area 2
- Groundwater District Overlay Area 3

Zoning Districts

- Business East (BE)
- Industrial (I)
- Business South (BS)
- Business West (BW)
- Highway Business (HB)
- Downtown Business (DB)
- Downtown Neighborhood (DN)
- Residence A (RA)
- Residence B (RB)
- Residence C (RC)
- General Residential (GR)
- Main Street Residential (MSR)



Town of Northborough, Massachusetts

E. Community Planning

Based on the new zoning districts and the bylaws, the build out analysis, and the rate of development, developers should be encouraged to utilize the open space residential design bylaw and to develop in the Residential-Open Space Planning Overlay District as a means to protect open spaces. In addition, efforts should be made to connect newly preserved open spaces with corridors and trails. The Northborough Trails Committee reviews and considers connecting trails on an on-going basis with the Conservation Commission and the Town Planner.

The Community Preservation Act is a funding tool to assist communities with the protection and acquisition of open space, preservation of historic resources, and the creation of affordable housing. The CPA was adopted by the Town of Northborough in November 2004 and the first round of funding was made available July 1, 2006. At the Annual Town Meetings held in 2006, 2007, 2008, and 2009, Town Meeting voters approved articles for all three categories.

The CPA allows for a real estate tax surcharge of up to 3% to create the Community Preservation Fund. Northborough voters adopted a 1.5% property tax surcharge, with exemptions on the first \$100,000 and exemptions for qualified low-income housing and low and moderate-income senior housing. Northborough also receives state matching funds for the town's Community Preservation Fund. The CPA stipulates that a minimum of 10% of the annual fund must be spent or reserved for the creation, acquisition, and preservation of the three areas of interested stated above. The remaining 70% may be allocated among these three areas and for parks and recreation and up to 5% may be reserved for administrative costs.

The CPA provides for local autonomy in deciding where and how funds will be spent. It is the

responsibility of the nine-member Community Preservation Committee (CPC) to consult with town departments and boards and community organizations; evaluate community preservation needs, develop a long-range community preservation plan; and make recommendations for CPA fund expenditures at Town Meeting.

By adopting the CPA, Northborough joins a host of other communities equipped with a powerful tool to help meet the challenges of embracing our heritage while meeting the demands of a growing population.

SUSTAINABILITY/RESILIENCY

In 2018, the Intergovernmental Panel on Climate Change (IPCC), the world's leading scientific body on climate change, released a report titled Global Warming of 1.5°C. The report indicated that the risks of climate change can be substantially reduced by limiting warming to 1.5 degrees Celsius. The IPCC has developed a science-based target to reduce emissions by 45% below 2010 levels by 2030 to limit the temperature rise and avoid catastrophic and irreversible damage. It is imperative that municipalities plan accordingly and work to reduce emissions.

Specifically, in the Sudbury Assabet Concord River basin, average, maximum, and minimum temperatures are expected to increase throughout the end of the century. A summer mid-century increase of 2.6°F to 7.1°F (3-9%) and an end of century increase of 3.6°F to 13°F (4-16% increase) is expected.

Northborough is making strides toward being more resilient and energy efficient. The Town was awarded Green Community designation in December 2018 under the State's Green Community Designation and Grant Program. Program participants pledge to establish

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renewable energy development standards and expedited application and permitting procedures, establish an energy use baseline for municipal buildings and facilities and cut associated energy use through the adoption and implementation of an Energy Reduction Plan, purchase fuel-efficient vehicles, and adopt the Massachusetts' Board of Building Regulations and Standards Stretch Code. Through designation, the Town was awarded \$149,309 in grant funding to fund energy conservation measures, a boiler upgrade, energy management system, and administrative assistance, in municipal facilities including the Police Station and Melican Middle School.

The Town also recently updated its Hazard Mitigation Plan. The most significant hazards identified during this planning process were flooding, severe snowstorms and/or ice storms, hurricanes, and severe thunderstorms, wind, or tornadoes.



Figure 7. Top Hazards within Northborough

The Hazard Mitigation Plan Update highlighted how changing climate conditions will impact these hazards. The update provides a range of mitigation actions to address infrastructure, preparedness actions, education, and local planning activities.

In support of the Town's efforts to guard against natural disasters, specifically those affiliated with climate change, the Town was awarded a planning grant in the amount of \$15,000 in April 2019 through the State's Municipal Vulnerability Preparedness (MVP) program. This grant funded a community-based workshop process in November 2019 where local stakeholders identified key climate-related hazards, vulnerabilities, and strengths, and developed adaptation actions and potential projects.

The Town is working with Weston and Sampson Engineers, Inc. during the MVP planning stage. Weston and Sampson will prepare a report and facilitate a public input session for the community to review the findings of the stakeholders and provide input. A final report will then be submitted to the state and, upon acceptance, Northborough will receive an MVP Community designation which will qualify the Town to apply for action grants to address the needs identified during the planning process.

SECTION 4

ENVIRONMENTAL INVENTORY & ANALYSIS



A - Geology, Soils, and Topography

The US Department of Agriculture, Soil Conservation Service, has defined eleven general soil types, of these, six can be found in Northborough. The predominant types are well-drained soils on slopes of less than 15%. Others in order of quantity are poorly drained bog soils, moderately well drained soils with less than 15% slopes, some with greater than 15% slopes and poorly drained mineral soils. Table 4.1 lists the general types with their respective acreages. The Surficial Geology shows three predominant soil groups, sand and gravel, till or bedrock, and flood plain alluvium. These correspond to the three types of soil, which are predominant in town.

The Soil Conservation Service has mapped three dominant soil types in the Town of Northborough.

- The Hinckley-Merrimac-Windsor soils are very deep, nearly level to steep soils that are excessively drained and somewhat excessively drained on outwash plains.

- The Paxton-Woodbridge-Canton soils are very deep, nearly level to steep soils that are drained and moderately well-drained on uplands.
- Chatfield-Hollis soils are moderately deep and shallow, gently sloping to moderately steep soils that are well drained or somewhat excessively drained on uplands.

Table 4.1 details each soil area's limitations for development with acreage and percentages of each found in Northborough. Approximately 40% of the Town (Soil Area 4) is characterized by soils capable of supporting residential, commercial, or industrial land uses without extensive modifications. These soils are generally capable of supporting on-site septic systems for disposal of sanitary waste. Where public sewers are available, lands falling within other soil types become somewhat more suitable for commercial, industrial and high-density residential use. Approximately 75% of the Town's soils are capable of supporting agriculture, while 100% are suitable for recreational and woodland uses.

Table 4.1 Soil Limitations for Development

| Soil Group | Acreage | % | High Density Residential | Commercial | Industrial | Agricultural | Recreation | Wood-land |
|------------|---------|------|--------------------------|------------|------------|--------------|------------|-----------|
| 1 | 810.3 | 8 | Severe | Severe | Severe | Severe | Slight | Slight |
| 2 | 2,592.1 | 25.6 | Severe | Severe | Severe | Slight | Slight | Slight |
| 3 | 1,161.9 | 11.5 | Severe | Severe | Severe | Severe | Slight | Slight |
| 4 | 3,928.9 | 38.8 | Slight | Slight | Slight | Slight | Slight | Slight |
| 7 | 889.6 | 8.8 | Severe | Severe | Severe | Slight | Slight | Slight |
| 9 | 735.4 | 7.3 | Severe | Severe | Severe | Severe | Slight | Slight |

(Central Massachusetts Regional Planning District, USDA Soil Conservation Service, 1965)

SOILS & GEOLOGIC FEATURES

OPEN SPACE AND RECREATION PLAN

Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

**Location data contained in this datalayer are based on MassDEP staff interpretation of information provided by PRPs and their LSPs. Point features in this datalayer should ONLY be considered as an "approximation" or "best estimate" of site locations based on the information submitted to the MassDEP BWSC. The accuracy and completeness of the information submitted has not been verified by MassDEP.

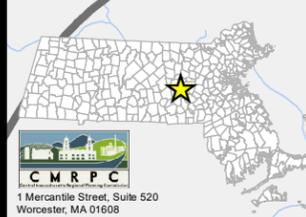
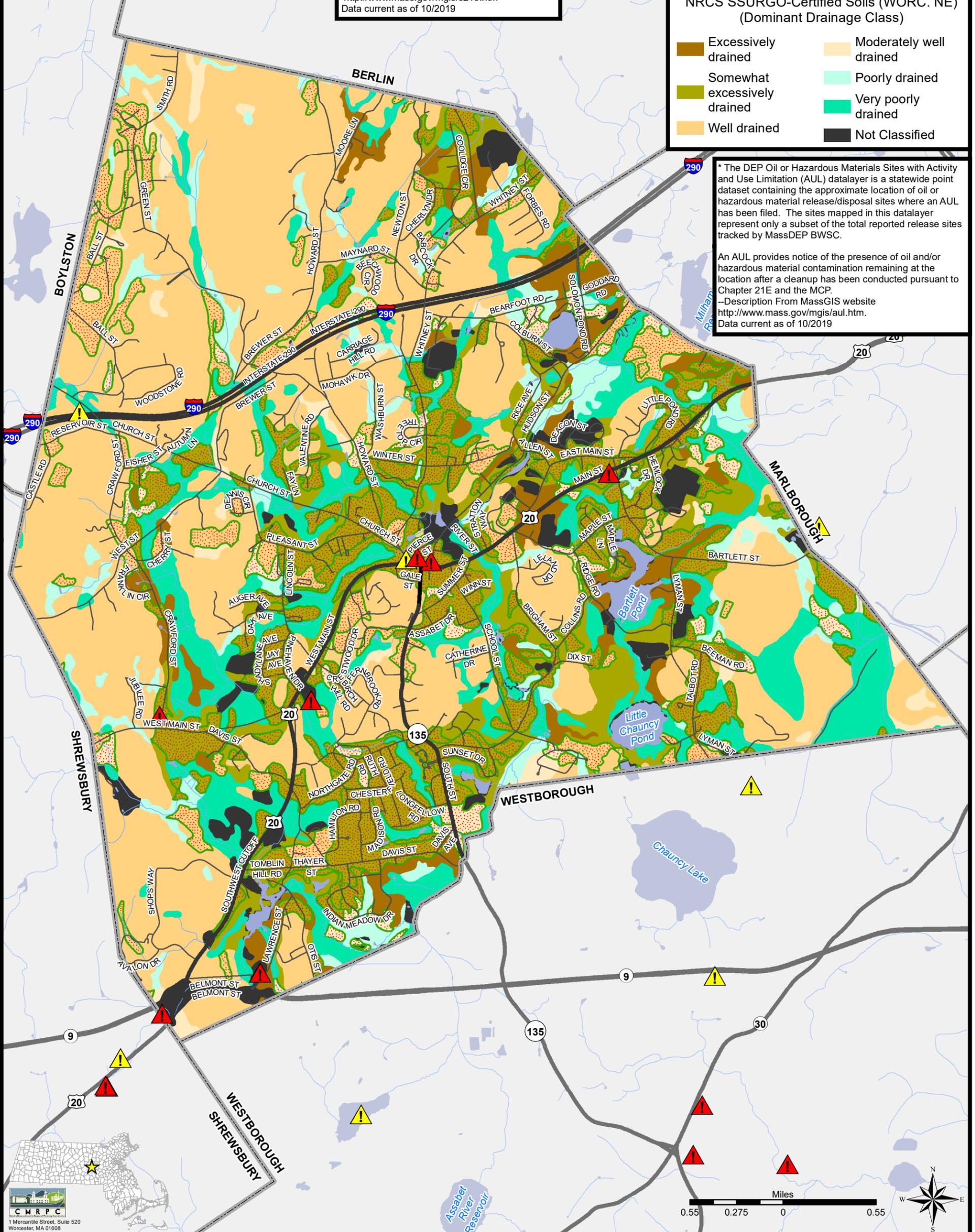
----Description From MassGIS website
See the MassGIS data layer description page for full data disclaimer.
<http://www.mass.gov/mgis/c21e.htm>
Data current as of 10/2019

LEGEND

- Town Boundaries
- Water Bodies
- Streams
- Major Road
- Local Road
- AUL Location*
- MassDEP Tier 21E Sites**
- Prime Farmland Soils (NRCS Soils-WORC. NE)
- NRCS SSURGO-Certified Soils (WORC. NE) (Dominant Drainage Class)
 - Excessively drained
 - Somewhat excessively drained
 - Well drained
 - Moderately well drained
 - Poorly drained
 - Very poorly drained
 - Not Classified

* The DEP Oil or Hazardous Materials Sites with Activity and Use Limitation (AUL) datalayer is a statewide point dataset containing the approximate location of oil or hazardous material release/disposal sites where an AUL has been filed. The sites mapped in this datalayer represent only a subset of the total reported release sites tracked by MassDEP BWSC.

An AUL provides notice of the presence of oil and/or hazardous material contamination remaining at the location after a cleanup has been conducted pursuant to Chapter 21E and the MCP.
----Description From MassGIS website
<http://www.mass.gov/mgis/aul.htm>
Data current as of 10/2019



Town of Northborough, Massachusetts

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Of note, Mt. Pisgah is composed of bedrock with a layer of glacial till. As you progress to the top of Mt. Pisgah, the soils become shallow and are much closer to bedrock at the highest points of the property. At the South View, glacial striations can be seen in the bedrock; these deep scratches show the direction of the glacier's path as it scoured its way through the area. Mount Pisgah itself is a heterogeneous mixture of several different rock types. The most dominant type is

mafic gneiss. Mixed in are marble, garnets, and white sillimanite crystals, indicating that the rocks surrounding Mount Pisgah were at one time buried nearly 15 km (that's half the thickness of the crust!) and heated up to temperatures in excess of 600 degrees Celsius before returning to their present location at the surface in Northborough and Berlin. (Sudbury Valley Trustees , 2009)

B - Landscape Character

Topography has been one of the principal factors affecting the location of urban development in Northborough. This is reflected in the zoning of the town. More than 80% of the Town's land area has slopes of less than 15%, which are usually suitable for development. Local regulations limit the grade of new roads to less than 10%, decreasing the possibility of developing less desirable areas. Most of the

steeper slopes occur in the western portion of Town, limiting development in that area.

The Northborough landscape is characterized by a series of rolling hills interspersed throughout the Town, with generally higher elevations in the western half of the community and gently sloping terrain in the eastern half of Town. Elevations vary from a low of 250 feet above sea level to a high of 715 feet at the top of Mount Pisgah.

C - Water Resources

WATERSHEDS

A watershed is an area of land that drains rainwater or snow into one location such as a stream, lake or wetland. These water bodies supply drinking water, water for agriculture and manufacturing processes, offer opportunities for recreation and provide habitat. Pollution such as runoff and erosion from roads and development can interfere with the health of a watershed. Therefore, it is of vital importance to protect the quality of Northborough's watersheds.

Earth is covered in 70% water and unfortunately more than 50% of our nation's waters are impaired or threatened. "Impaired" means that the water body does not support one or more of its intended uses. This could mean that the water is not suitable to drink, swim in or to consume the fish that was caught there.

The leading causes of pollution in waterways are sediments, bacteria (such as E. coli) and excess nutrients (such as nitrogen and phosphorus). Although nutrients sound positive, they can cause big problems in a poorly managed watershed. For instance, sediment can suffocate fish by clogging their gills and the presence of bacteria alone can indicate that other viruses and germs can be found in the water as well. Erosion, runoff of animal waste and overflowing of combined sewers are just a few ways these pollutants reach our waters.

Techniques to keep area watersheds clean and healthy include limiting development of buildings and roads, re-development that meets current stormwater standards, daily conservation of water, appropriate disposal of household chemicals, minimal use of fertilizers and selection of hardy plant species that require limited watering, use of permeable building materials,

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

picking up after pets, and minimizing automobile traffic.

Northborough lies entirely in the Sudbury Assabet Concord (SuAsCo) Rivers Watershed. Within the watershed, Northborough is part of four Tributary Watersheds. The Howard/Cold Harbor Brook Tributary Watershed is in the western and northern section of town. The Assabet Headwaters Tributary Watershed is in the southwest and center part of town extending to the east. The North Brook Tributary Watershed is located in the northern part of town. Finally, The Sudbury Reservoir Tributary Watershed reaches only the very southeastern tip of town.

Additionally, the following eight sub-basins are located in Northborough: Howard Brook; North Brook; Coolidge Brook; Assabet River; Stirrup Brook; Sudbury River; Cold Harbor Brook; and Hop Brook.

SURFACE WATER

According to the land use data presented in Section 3, about 162 acres (1.3%) of Northborough's total land area is composed of open water bodies, not including the Assabet River and its tributaries. Fresh water ponds include two man-made ponds: Bartlett Pond in the eastern portion of town and Smith Pond in the western part; and two great ponds: Little Chauncy Pond to the southeast and Solomon Pond in the northeastern portion of town. These are shown on the Map 8 - Watersheds, Wetlands and Surface Water.

Surface water including lakes, ponds, brooks, streams and rivers include the following: Assabet River; Bartlett Pond; Bearfoot Brook; Chauncy Lake; Cold Harbor Brook; Cooledge Brook; Hop Brook; Howard Brook; Little Bummer Brook; Smith Brook; Solomon Pond; Stirrup Brook; Mill Pond; Little Crane Swamp; Crane Swamp; and Little Chauncy Pond.

The Assabet River originates in Westborough and soon reaches the southern boundary of Northborough. It then flows in a northerly direction, through the center of Town and flows into Marlborough at the northeast corner of Town. The majority of the Town drains into this basin. Only a small portion of the southeast corner of Town drains into the Sudbury Basin; however, the Sudbury River itself does not flow through Town. The Water Resources Maps illustrate the watershed divides with the sub basins.

FLOOD PLAINS AND WATER PROTECTION AREAS

Flood plains associated with Northborough's surface water are shown on the Water Resources Maps (Part A and B) on the following pages. Also included are the Zone II areas (Part B) for the water supplies of the Town discussed in Section 3 and Interim Water Protection Areas (IWPA's) for the Town. All of these areas are included in the local Groundwater Protection Overlay District, implemented in 1986 as part of the Northborough Zoning Bylaw.

This bylaw section was developed to help protect groundwater and the town's water supply. Wellhead protection areas are important for protecting the recharge area around public water supply (PWS) groundwater sources. A Zone II is a wellhead protection area that has been determined by hydro-geologic modeling and approved by the Department of Environmental Protection's (DEP) Drinking Water Program (DWP). In cases where hydro-geologic modeling studies have not been performed and there is no approved Zone II, an Interim Wellhead Protection Area (IWPA) is established based on DEP DWP well pumping rates or default values. Certain land uses may be either prohibited or restricted in both approved (Zone II) and interim (IWPA) wellhead protection areas. The minimum IWPA radius is 400 feet and the maximum radius is 0.5 miles.

WATER RESOURCES MAP (PART A)

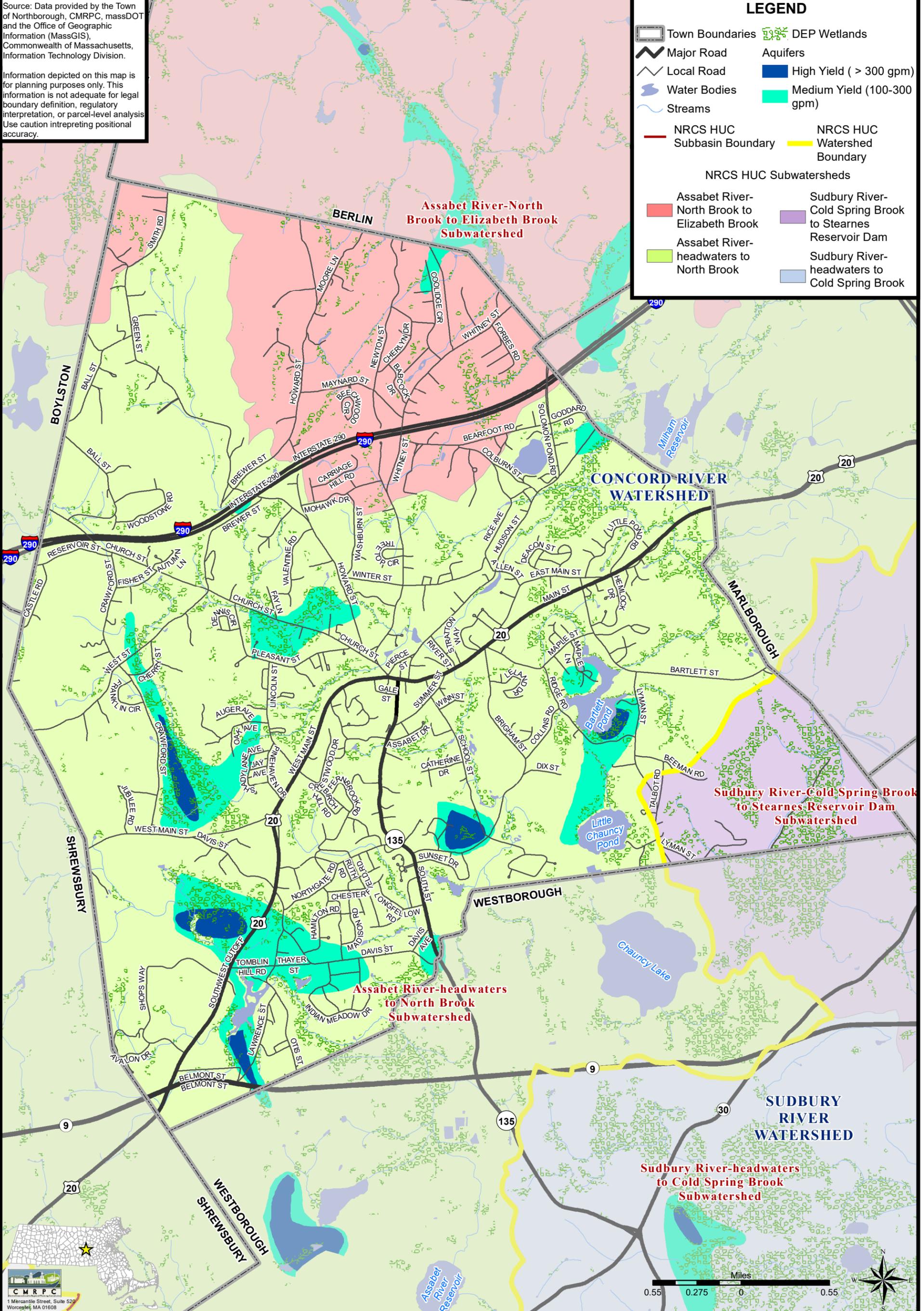
OPEN SPACE AND RECREATION PLAN

Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

LEGEND

-  Town Boundaries
-  Major Road
-  Local Road
-  Water Bodies
-  Streams
-  NRCS HUC Subbasin Boundary
-  NRCS HUC Watershed Boundary
-  DEP Wetlands
- Aquifers**
-  High Yield (> 300 gpm)
-  Medium Yield (100-300 gpm)
- NRCS HUC Subwatersheds**
-  Assabet River-North Brook to Elizabeth Brook
-  Assabet River-headwaters to North Brook
-  Sudbury River-Cold Spring Brook to Stearnes Reservoir Dam
-  Sudbury River-headwaters to Cold Spring Brook



CMRPC
1 Mercantile Street, Suite 520
Worcester, MA 01608



Town of Northborough, Massachusetts

WATER RESOURCES MAP (PART B)

OPEN SPACE AND RECREATION PLAN

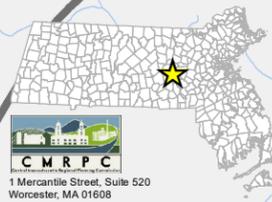
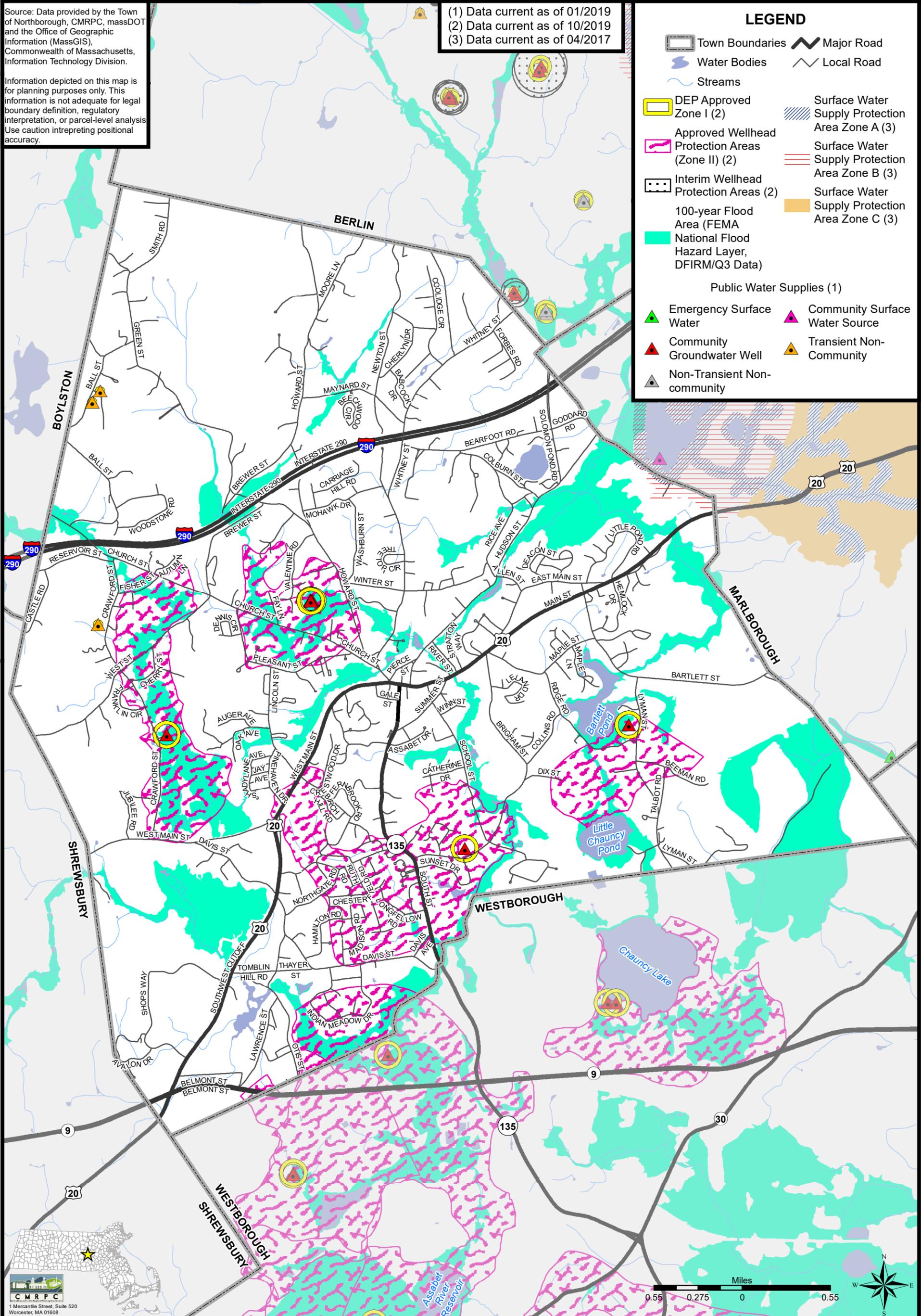
Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

(1) Data current as of 01/2019
 (2) Data current as of 10/2019
 (3) Data current as of 04/2017

LEGEND

- | | | | |
|--|---|--|---|
| | Town Boundaries | | Major Road |
| | Water Bodies | | Local Road |
| | Streams | | |
| | DEP Approved Zone I (2) | | Surface Water Supply Protection Area Zone A (3) |
| | Approved Wellhead Protection Areas (Zone II) (2) | | Surface Water Supply Protection Area Zone B (3) |
| | Interim Wellhead Protection Areas (2) | | Surface Water Supply Protection Area Zone C (3) |
| | 100-year Flood Area (FEMA National Flood Hazard Layer, DFIRM/Q3 Data) | | |
| | Public Water Supplies (1) | | |
| | Emergency Surface Water | | Community Surface Water Source |
| | Community Groundwater Well | | Transient Non-Community |
| | Non-Transient Non-community | | |



Town of Northborough, Massachusetts

► **TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020**

In the 1950's, a work plan was proposed by the Soil Conservation Service to control flood damage in the SuAsCo watershed pursuant to the Watershed Protection and Flood Prevention Act (P.L. 566). Several floodwater retarding structures were built as part of a comprehensive program throughout the watershed to prevent flood damage. Descriptions of these facilities

that affect Northborough are presented in Table 4.2.

The 100-year flood plain is indicated on the Water Resources Maps. Generally, this flood plain is located within the lower lying elevations bordering the Assabet River, and the shoreline of many surface water bodies.

Table 4.2 Flood Damage Prevention Structures

| | Hop Brook Dam | Cold Harbor Brook Dam | Bearfoot Brook Dam | Tyler Dam |
|---------------------------------------|---------------------------------|---|---|--|
| Location | 800 feet upstream from Route 20 | 3,700 feet upstream from Lincoln Street | 300 feet downstream from Town line with Marlboro and Berlin | 400 feet upstream from Robin Hill Road in Marlboro |
| Total Land Area | 194.65 acres | 230.32 acres | 60.87 acres | 175.91 acres in Northborough |
| Drainage | 3,150 acres | 3,000 acres | 700 acres | 13,500 acres |
| Area | 4.9 square miles | 4.7 square miles | 1.1 square miles | 21.1. square miles |
| Height of Dam | 23 feet | 22 feet | 16 feet | 31 feet |
| Type of Dam | Earth fill | Earth fill | Earth fill | Earth fill |
| Floodwater Storage (acre-feet) | 1,340 | 1,450 | 173 | 2,660 |
| Sediment Storage (acre-feet) | 22 | 10 | -- | -- |
| Expansion Potential for Wildlife Pool | Yes | Yes | Yes | Yes |

(Soil Conservation Service, 1976)

The SCS report noted above provides additional information on potential increased reservoir areas at the following sites:

- A. Hop Brook, where a 234-acre permanent pool extending into Shrewsbury could be created, containing 5,867 acre-feet of storage;
- B. Howard Brook, where a 75-acre permanent pool could be created, containing 1,867 acre-feet; and
- C. Stirrup Brook, where a 52-acre site, providing 547 acre-feet of storage, could be created for temporary storage of floodwater and sediment.

WETLANDS

A wetland is an area of land whose soil is saturated with moisture either permanently or seasonally. Such areas may also be covered partially or completely by shallow pools of water. Wetlands include swamps, marshes, and bogs, and tend to occur in areas where, because of underlying geology, the water table intersects with the ground surface or where slowly permeating soils prevent drainage.

Northborough wetlands serve as recharge areas, provide wildlife habitats, and act as natural flood retention areas. The principal wetland areas in Northborough are associated with the

SuAsCo flood control project, along Hop Brook, Cold Harbor Brook, Howard Brook, the Assabet River, Stirrup Brook and Barefoot Brook. In addition, Crane Swamp drains into the open-channel Wachusett Aqueduct, which discharges into the Sudbury Reservoir in Southborough.

The Northborough Wetlands Protection Bylaw and Regulations provide more stringent requirements to further protect these resources. This document along with the state regulations provides protection for the smaller wetland areas by regulating construction to reduce the impact on these resource areas.

D - Vegetation

Forested areas in Northborough consist primarily of white pine and hemlock trees with mixed hardwoods in the northwest section of Town. This area also supports commercial agriculture and several orchards. Mixed hardwoods also grow in the southwest section of town. These areas are the only remaining large unfragmented forested areas in town. While some of these areas are owned by the Town and are therefore protected, others are privately owned and are vulnerable to development. All of these areas provide scenic, recreational and conservation value to the town. Protecting Northborough’s forests is one of the most important things we can do to combat climate change.

The small wooded areas scattered throughout the town provide visual screens and add to the town’s rural character. Many of these parcels form limited corridors for wildlife movement. Other areas of the town contain open fields that contribute to the perception that Northborough is a rural town. Over 300 acres of wetlands contribute to the ecological makeup of the town. These are mostly large areas consisting of open wetlands areas, forested wetlands, with ponds and streams collecting natural runoff. The diversity of these areas contributes to the valued character of the town.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) maintains a list of all Massachusetts Endangered Species Act (MESA)-listed species observed and documented in each town. The following table lists those rare species found in the Town of Northborough. These data were extracted from the database of the NHESP in April 2020.

Table 4.3 State Listed Rare and Endangered Plants

| Taxonomic Group | Scientific Name | Common Name | MESA Status | Most Recent Observation |
|-----------------|---------------------------------|------------------------|-------------|-------------------------|
| Vascular Plant | Arabidopsis lyrata | Lyre-leaved Rock-cress | E | 1951 |
| Vascular Plant | Platanthera flava var. herbiola | Pale Green Orchis | T | 1946 |

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

Public shade trees are located in Town right of ways, Town-owned parks, and in Town cemeteries. The Department of Public Works typically monitors and maintains these trees. Each year, some of these trees become damaged to a point where they may represent a

hazard. At that point, working with the Town's Tree Warden and following due process, the DPW may remove the "hazard tree". These are typically located in road side areas or

cemeteries and have been damaged in a road accidents or storm events. The Town of Northborough seeks to replace each tree as soon as possible in a location nearby.

E - Fisheries and Wildlife

The amount and types of wildlife habitat in Northborough has been dynamic since early colonial times. Once covered by primeval forest, a majority of the land in central Massachusetts was cleared for agriculture. This trend persisted for decades, until about 1840 when 75% of the arable land was in pasture or farm crops. The next 100 years was another period of dramatic change as most of the farmland was abandoned and new forest invaded.

Dramatic changes in the wildlife community accompanied these broad landscape changes. Some species thrived and expanded their range, while other were temporarily extirpated or became extinct. When agriculture dominated the landscape, species such as black bears, wild turkeys, and white-tailed deer were gone from most of their former range. Bluebirds were abundant during the agricultural period, but are now very rare breeders. Other open habitat species (bobolinks, vesper sparrows, and golden-winged warblers) are declining as well as available habitat shrinks.

Today, most of the protected and undeveloped land in Northborough is forested. While wildlife populations continue to be impacted by a variety of activities and development, probably the most significant impacts to the wildlife community have been these large regional changes in land use. In addition, recent human population expansion into central Massachusetts has meant the loss of more and more open space, which is converted to residential housing.

The wildlife community in any particular area is primarily driven by the type and extent of available habitat. Specific wildlife species each

have unique habitat requirements. The town of Northborough is a mosaic of habitat types and conditions. Town owned conservation land is primarily forested, while privately owned lands are comprised of small farms, woodlots, and residential areas. This patchwork of habitats is both a benefit and detriment to wildlife species. A greater diversity of species may exist because of the diversity of habitats. However, the fragmented nature of the town makes it more difficult for animal species to travel and interact, and in some cases, the different habitat areas may be too small to support individual animals or populations.

Overall, Northborough supports a variety and abundance of wildlife species, including, great blue herons, hawks, backyard songbirds, and numerous waterfowl. Mammals such as squirrels, rabbits, raccoons, skunks, woodchucks, deer, foxes, coyotes, beavers, mink, muskrats, porcupines, weasels, fishers, otters, and black bear are all present within the town's borders. Several large tracts of early successional habitat also exist. These large open, grassy areas may provide critical habitat for a variety of species dependent on open lands, including various insects, eastern meadowlarks, bobolinks, and a variety of sparrows. Open water resources provide excellent fishing, and many streams are regularly stocked with trout. Several ponds in Northborough also provide good locations for ice fishing during the winter.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) maintain a list of all Massachusetts Endangered Species Act (MESA)-listed species observed and documented in each town. The following table

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

lists those rare species found in the Town of Northborough. Data was extracted from the database of the NHESP in April 2020.

Table 4.4 Northborough Rare Species as reported by the Natural Heritage and Endangered Species Program; MESA (Massachusetts Endangered Species Act)

| Taxonomic Group | Scientific Name | Common Name | MESA Status | Most Recent Observation |
|-----------------|---------------------------------|-----------------------------|-------------|-------------------------|
| Amphibian | <i>Ambystoma laterale</i> | Blue-spotted Salamander | SC | 2011 |
| Beetle | <i>Cicindela purpurea</i> | Cow Path Tiger Beetle | SC | 1944 |
| Beetle | <i>Cicindela duodecimuttata</i> | Twelve-spotted Tiger Beetle | SC | 1944 |
| Beetle | <i>Cicindela purpurea</i> | Purple Tiger Beetle | SC | 1944 |
| Bird | <i>Botaurus lentiginosus</i> | American Bittern | E | 1981 |
| Bird | <i>Vermivora chrysoptera</i> | Golden-winged Warbler | E | 1986 |
| Reptile | <i>Glyptemys insculpta</i> | Wood Turtle | SC | 1993 |

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

Numerous vernal pools² located throughout the town provide specific habitat for several species including the above listed salamander, wood frogs, fairy shrimp and a variety of insects. NHESP "certifies" the occurrence of vernal pools based on documentation of the pool's use by one or more groups of species that rely on vernal pools. The Town of Northborough had 21 "certified" vernal pools listed by NHESP as of

² Vernal pools are temporary pools of water. They are devoid of fish, and thus allow the safe development of natal amphibian and insect species. Most pools are dry for at least part of the year and fill with the winter rains or snow melt. Some pools may remain at least partially filled with water over the course of a year or more, but all vernal pools dry up periodically. This ensures the absence of fish, a chief characteristic of all pools.

April 2020. There may be more vernal pools that exist in the Town of Northborough that have not been "certified." MassGIS maintains a data layer of "potential" vernal pools based on aerial photography. They indicate that there are nearly 70 potential pools. (MassOLIVER)

In addition to the Town-owned conservation areas, a wildlife management area of approximately 107 acres within the Mt. Pisgah Conservation Area is owned by the Massachusetts Division of Fisheries and Wildlife and functions as an important link in a wildlife corridor that continues into Berlin and beyond.

UNIQUE HABITATS

The SuAsCo floodplain occupies large areas throughout Town and provides habitat for many wildlife species.

With funding made available by the Executive Office of Energy and Environmental Affairs (EOEEA), the Natural Heritage and Endangered Species Program (NHESP) developed the BioMap to identify the areas most in need of protection in order to protect the native biodiversity of the Commonwealth. BioMap focused primarily on state-listed rare species and exemplary natural communities but also includes the full breadth of the State's biological diversity. The goal of BioMap is to promote strategic land protection by producing a map showing areas, which if protected, would provide suitable habitat over the long term for the maximum number of Massachusetts' terrestrial and wetland species and natural communities.

As of 2012, the Town of Northborough supported ten (10) Core Habitats as identified by NHESP. Within Northborough, BioMap2 Core Habitat accounts for 1,152 acres and BioMap2 Critical Natural Landscape accounts for 903 acres. 573 acres (50%) and 582 acres (64%) of those sums are protected (respectively).

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The Core Habitats are described below and are shown on the Habitat Features map on the following page.

Core Habitat 1679 (Species of Conservation Concern)

This 155-acre polygon located partially within Northborough and bisected by the southern boundary is potential habitat for Blue-spotted Salamanders. Adult and juvenile Salamanders inhabit upland forests during most of the year, where they reside in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar wetlands. Larvae disperse into upland forest upon metamorphosis.

Core 1691 (Species of Conservation Concern)

This 313-acre polygon (located in both Northborough and Westborough in the southern portion of Town) is also potential habitat for Blue-spotted Salamanders and Four-toed Salamanders. Four-toed Salamanders live in forested habitats surrounding swamps, bogs, marshes, vernal pools, and other fish-free waters that are used as breeding sites. Most breeding sites in Massachusetts are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop prior to metamorphosis.

Core 1693 (Species of Conservation Concern)

Located to the north of Core 1691, this 16-acre polygon is another potential habitat for Four-toed Salamanders.

Core 1713 (Wetland Core)

This 62-acre polygon located in the southeastern portion of Town features Wetland Core Habitat. Wetland Cores are the least disturbed wetlands

in the state. These wetlands are most likely to support critical wetland functions and to maintain these functions into the future.

Core 1720 (Wetland Core)

Split between Northborough and Westborough and south of Core 1713, this 311-acre Wetland Core is among the largest 20% of Wetland Cores statewide and in this ecoregion.

Core 1730 (Wetland Core)

North of Core 1713, this 10-acre polygon features Wetland Core Habitat.

Core 1736 (Species of Conservation Concern)

This 90-acre polygon in the upper southwestern quadrant of Town is potential habitat for Blue-spotted Salamanders.

Core 1752 (Species of Conservation Concern)

This 35-acre polygon located north of Core 1736 is also potential habitat for Four-toed Salamanders.

Core 1769 (Species of Conservation Concern)

This 292-acre polygon north of Core 1730 and bisected by the eastern Town boundary is also potential habitat for Blue-spotted Salamanders and Four-toed Salamanders.

Core 1859 (Forest Core)

This 712-acre polygon located partially in norther Northborough and party in Berlin, features Forest Core Habitat. Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of development and help maintain ecological processes found only in unfragmented forests. (Natural Heritage Endangered species Program, 2012)

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

In addition to BioMap Core Habitat Areas (and as presented above in Tables 4.3 and 4.4), Northborough contains mapped habitat for three endangered species: the American Bittern (*Botaurus lentiginosus*), the Golden-winged Warbler (*Vermivora chrysoptera*) and the Lyre-leaved Rock-creep (*Arabidopsis lyrata*). The Town is also mapped for one threatened species (Pale Green Orchid, *Platanthera flava* var. *herbiola*), and four species of special concern: Blue-spotted Salamander (*Ambystoma laterale*), Cow Path Tiger Beetle (*Cicindela purpurea*), Twelve-spotted Tiger Beetle (*Cicindela duodecimguttata*) and Wood Turtle (*Glyptemys insculpta*).

Areas of Critical Environmental Concern (ACECs) are places in Massachusetts that receive special recognition because of the quality, uniqueness and significance of their natural and cultural resources. These areas are identified and nominated at the community level and are reviewed and designated by the state's Secretary of Executive Office of Energy and Environmental Affairs. ACEC designation creates a framework for local and regional stewardship of critical resources and ecosystems. As of June 2009, the Massachusetts Department of Conservation and Recreation (DCR) had no ACECs identified within the boundaries of Northborough.

The Habitat Features map shows the location of the NHESP Priority Habitats of Rare Species, and certified and potential vernal pools.

HABITAT FEATURES

OPEN SPACE AND RECREATION PLAN

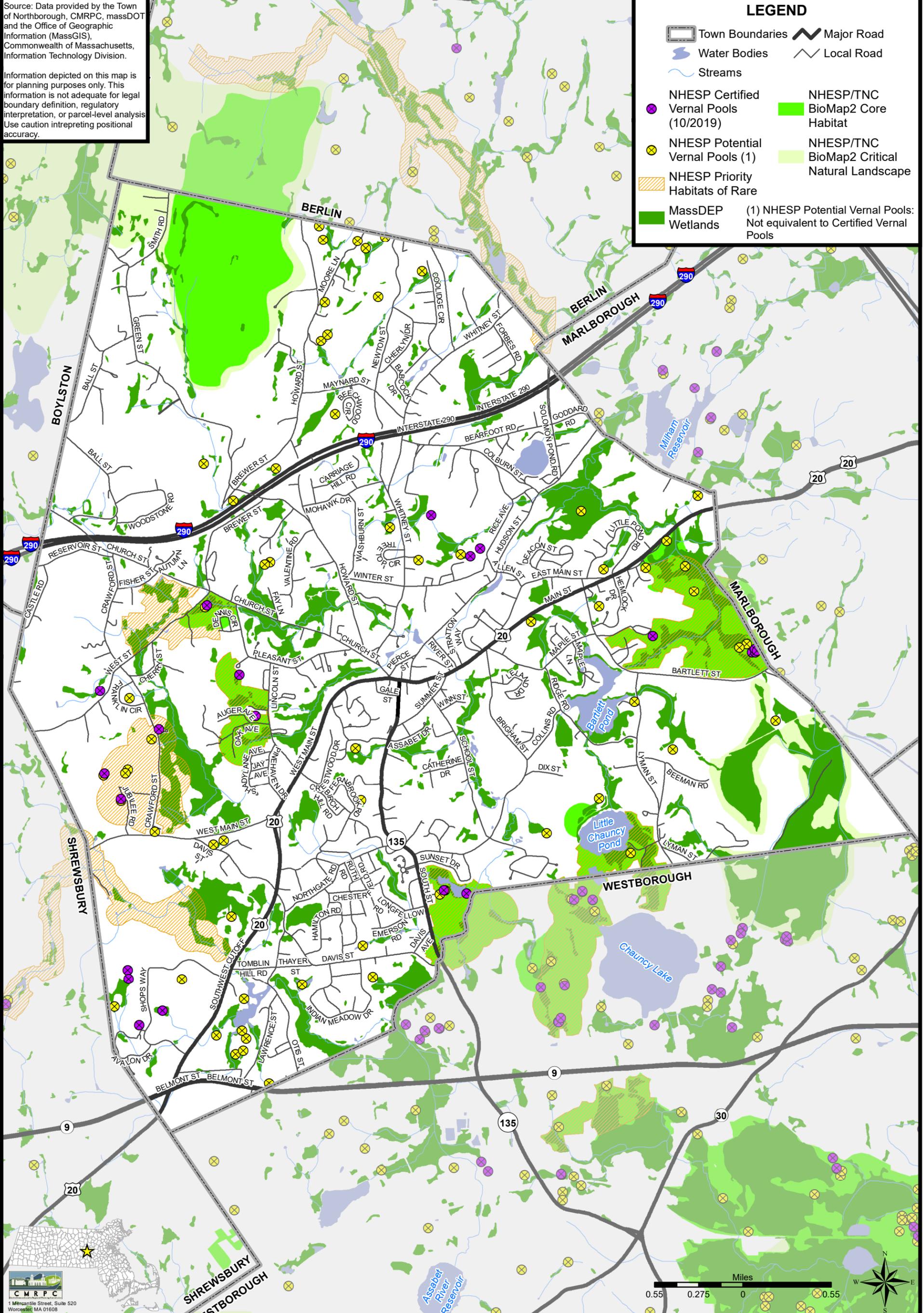
Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

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LEGEND

- Town Boundaries
- Major Road
- Water Bodies
- Local Road
- Streams

- NHEP Certified Vernal Pools (10/2019)
- NHEP Potential Vernal Pools (1)
- NHEP Priority Habitats of Rare
- MassDEP Wetlands
- NHEP/TNC BioMap2 Core Habitat
- NHEP/TNC BioMap2 Critical Natural Landscape
- (1) NHEP Potential Vernal Pools: Not equivalent to Certified Vernal Pools



Town of Northborough, Massachusetts

F - Unique Environments and Scenic Resources

HISTORIC, CULTURAL, AND SCENIC RESOURCES

In 2009, the Historic Commission of Northborough undertook the process of documenting the historic assets within the town. This inventory created a record of each historical asset including information such as construction dates, architectural styles, use over time and notes on the people and activities associated with each site. The two-phase project inventoried all assets older than 100 years. Phase I resulted in 148 historical resources being inventoried and Phase II inventoried a total of 98 buildings, 6 structures, and 5 areas (Northborough Historic Commission).

Prior to the 2009 effort, at the 1987 Annual Town Meeting, the Town approved the Meeting House Common Historic District as an amendment to the Zoning Bylaw. This area is shown on the included map, and roughly encompasses an area bounded by Church Street, Whitney Street and Pleasant Street.

Also, at the Annual Town Meeting of 1987, the Town amended the Zoning Bylaw to add a Scenic Roads provision and designated twenty-seven roads as “Scenic”. This action provides for a thorough review by the Planning Board for any proposal, which might cut or remove trees or involve destruction of stonewalls along any Scenic Road in the Town. In order to be designated as a Scenic Road, a road must have trees of exceptional quality, be bordered by stonewalls, or contain natural or man-made features of aesthetic value such as orchards, fields and forests.

The Town of Northborough has actively documented its many historic resources over the years. This includes compiling an inventory of historic assets that is on file with the Massachusetts Historical Commission in Boston.

The inventory contains nearly 400 assets including buildings (primarily built before 1900), burial grounds, historic neighborhoods, objects (memorials, milestone marker), and structures (bridges, aqueduct).

In 2020, the Massachusetts Cultural Resource Information System (MACRIS) database listed 367 sites for the town of Northborough. The following table lists several historic, cultural, scenic or unique sites. These sites are shown on the map on the following page (Unique Features).

Table 4.5 MACRIS Search Results

| Resource Type | | |
|--|-----|------------|
| Houses | 240 | |
| Unidentified Properties on Allen, Church, Davis, Hudson, Main, River, School, Summer, and West Main Street | 21 | |
| Westborough Hospital and State Schools | 22 | |
| Business-Related | 19 | |
| Structures | 13 | |
| Municipal | 5 | |
| Schools | 5 | |
| Religious | 12 | |
| Farm Related | 14 | |
| Commemorative Plaques / Memorials | 5 | |
| Cemetery | 2 | |
| Historic Districts or Areas | 9 | |
| Total | | 367 |

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

Besides the properties listed in MACRIS, Table 4.6 contains information on:

- Properties listed on the National Register of Historic Places
- Properties Protected with Preservation Restrictions
- Properties within Northborough's two Local Historic Districts
- Historic Markers installed around town
- War memorials
- Dams (nearly all 16 dams were built for industrial purposes in the 1700's and 1800's)
- Several iconic Northborough properties

In addition to the Town's Scenic Roads, participants of the Open Space Committee cited the following farms as picturesque, with view sheds that should be preserved or protected.

- Tougas Farm
- Davidian Farm
- Berberian Farm

The Unique Features map shows many resources identified during this planning process and the scenic roads with special status.

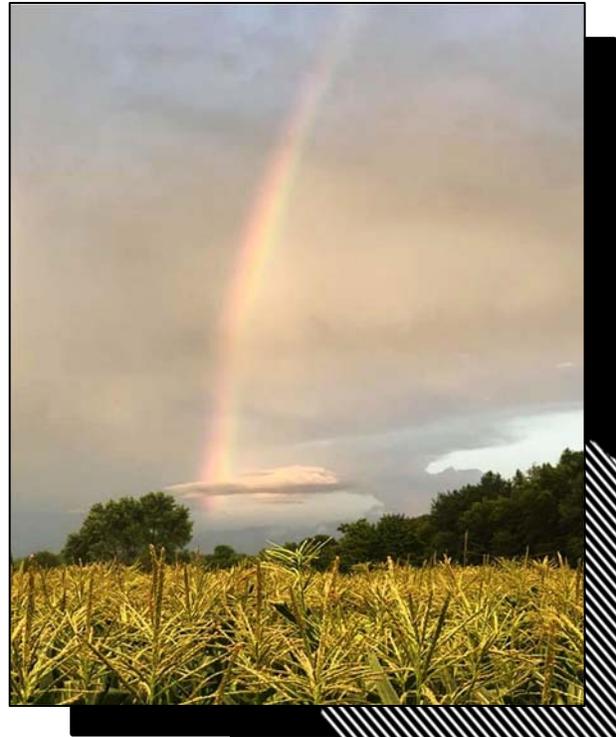
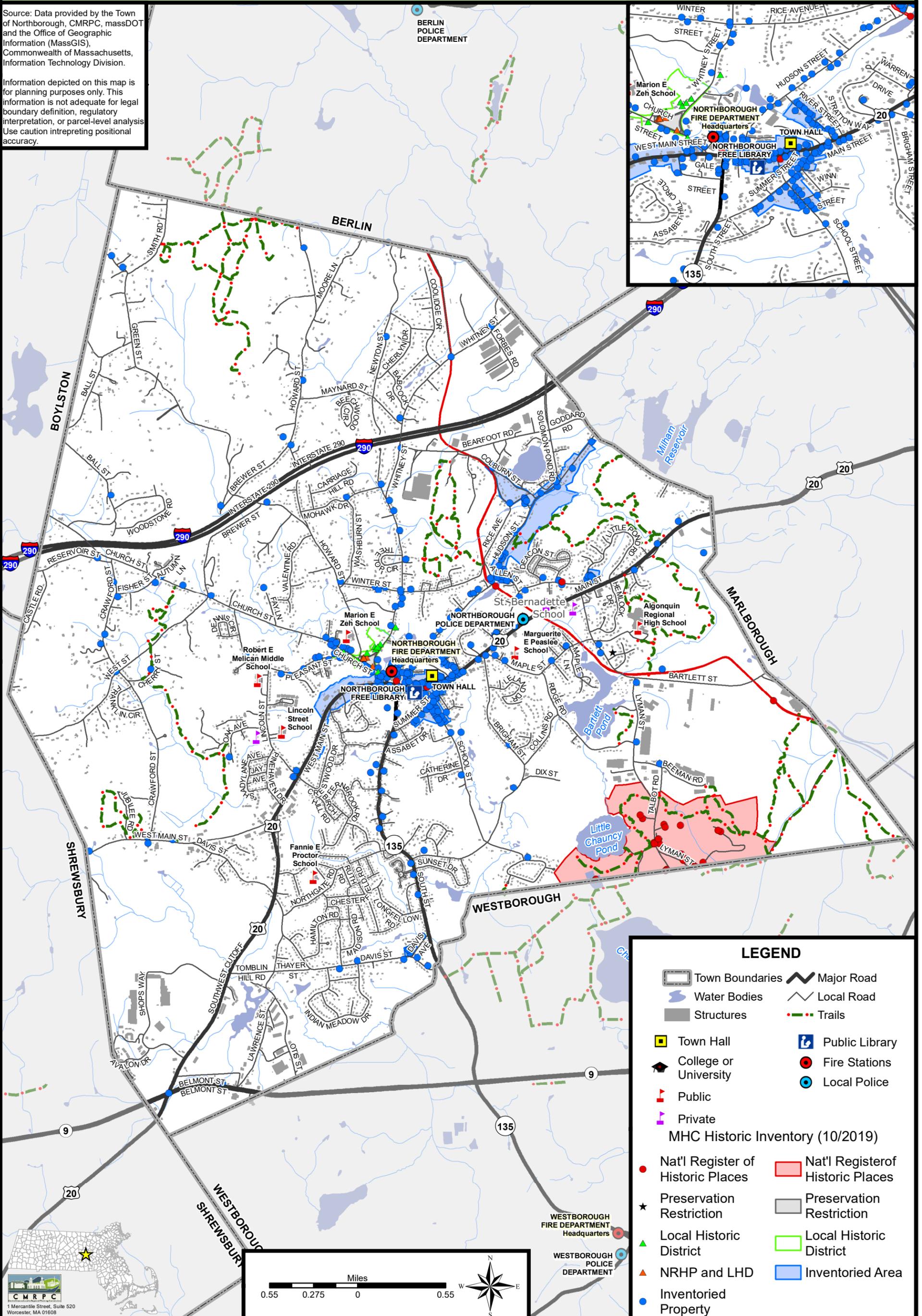


Figure 8. A rainbow over Davidian Farm Fields.
Photo Source: Michael Davidian

UNIQUE FEATURES OPEN SPACE AND RECREATION PLAN

Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.



Town of Northborough, Massachusetts

Table 4.6 Historic, Cultural and Scenic Resources

| Resource | Location | Significance | Type |
|--|--------------------------|---|---|
| Assabettville Mills Site | Main Street | The Assabet Woolen Mill was originally a textile factory complex founded by Amory Maynard in 1847 | Historic Marker |
| Assabet River Dams | Main Street | The dam's cut-stone construction is characteristic of the second half of the 19th century | Dam |
| Bartlett Pond Dam | Off of Lyman Street | Recreation | Dam |
| Bicentennial Time Capsule Marker | Main Street | Monument with Plaque circa 1966 | Historic Marker |
| Boston Post Road Plaque | East Main Street | Marker summarizes the history of Benjamin Franklin's role as Joint Postmaster General in the establishment of milestones along the Old Boston Post Road. | Historic Marker; National Register of Historic Places |
| Brigham Street Burial Ground | 380 Brigham Street | First Burial Grounds in Northborough, located between 360 and 380 Brigham Street | Iconic Property |
| Brigham Street Burial Ground Marker | | | Historic Marker |
| Captain Samuel Wood, Militia Departure Site | Church Street | Marker at the intersection of Church and Pleasant streets memorializing the spot where town militia men trained. | Historic Marker |
| Center School - Grange Hall | 10 School Street | The structure is now the Northborough Grange, but was built in 1837 as the Center District School building. | Iconic Property |
| Chapinville Mill Site | Hudson Street | Mill Houses, canal and out buildings associated with the Chapinville Mill | Historic Marker |
| Charles Winn Mansion Site | Park Lane | The Winn Mansion, built in 1870 by Charles Winn, was demolished in 2008 | Historic Marker |
| Chet's Diner | Main Street | Chet's Diner is a Worcester Lunch Car Company. Worcester Diners were hand-built at the factory, then transported to their sites via truck. | Iconic Property |
| Civil War Memorial | West Main Street | The Soldiers' Monument, crafted of "granite from their New England hills" was dedicated in 1870 on the 8th anniversary of the Battle of Antietam, in which Northborough lost 5 soldiers. | War Memorial |
| Cold Harbor Bridge Marker | Church Street | Marker at the site of the Gibson Mill that produced combs in the late 19th century. | Historic Marker |
| Cold Harbor Brook - Flood Control Dam | Off of West Main Street | Flood Plain Control | Dam |
| Daniel Wesson Summer mansion (White Cliffs) | 167 Main Street | Mr. Wesson of Smith and Wesson gun fame built "The Cliffs" as a summer home. | Iconic Property |
| First Congregational Unitarian Church | Church Street | Northborough's First Meeting House | Preservation Restriction |
| Gale Store Marker | Main Street | Cyrus Gale's store was a central feature of Northborough in the 19th century. | Historic Marker |
| General Henry Knox Trail Commemorative Plaque | In front of Town Offices | Commemorates General Henry Knox's travels through Northborough, | Historic Marker |
| George L. Chesbro House | 103 Bartlett Street | Second Empire-style home that retains much of its original features, including the cupola and quoins. Chesbro was a member of the Board of Library Trustees, which was established in 1868. | Preservation Restriction |
| George Washington Memorial Highway Marker | Route 20 | Bronze marker attesting to the fact that George Washington visited Northborough during his tour of New England after he was elected president. | Historic Marker |
| Gov. John Davis Highway Marker | Route 20 | In 2010, the section of Route 20 located within Northborough was designated the John Davis Highway, in honor of John Davis, who served as governor of the commonwealth in 1834 and 1835. | Historic Marker |
| Gulf War Memorial | Main Street | The Town erected a Gulf War Monument as part of the Town Common construction. | War Memorial |
| Historic Route 20 Markers | Route 20 | i.e. George Washington Memorial marker | Historic Marker |
| Hop Brook Dam | Off Southwest Cutoff | Flood control | Dam |
| Howard Street Burial Ground | Howard Street | The Burial Ground has a strong association with Northborough's religious history and is repository of typical and well-preserved examples of early Northborough gravestones. | Iconic Property |
| Hunt Brothers Shoe Mfg. Site | Main Street | Captain Jeremiah Hunt and his brother, Stephen, are credited with being the first in Northborough to make shoes on a large-scale basis. | Historic Marker |
| John Brigham Saw Mill Site | Whitney Street | In 2016 members of Northborough's 250th Anniversary Historical Subcommittee worked with a local Boy Scout Troop 1 to place temporary markers around town at different locations including the John Brigham Saw Mill Site where Howard Brook crosses Whitney Street. | Historic Marker |
| John Stone House | Church Street | The house (constructed between 1816 - 1850) was owned by John Stone, a dry goods merchant. The house is currently used for commercial space; however, it still retains much of its original trim and detailing. | Iconic Property |
| Lieutenant William Holloway Home | 302 Church Street | Believed to be built in 1711, was the home of Lieutenant William Holloway. In 1744, the first Precinct Meeting was held in the house on November 15, 1744. | Iconic Property |
| Mary Goodnow Tercentenary Marker | 490 Main Street | Gravesite of Mary Goodnow (sic), a young Northborough settler, who was scalped by Indians in 1707. Marked by a state historic marker. There is a permanent right of access across private property. | Historic Marker |
| Mary Goodnow Gravesite | | | Iconic Property |
| Meeting House Common - Local Historic District | Church Street | Includes Unitarian Meeting House, Unitarian Hall, Paul Revere Bell Marker, Earl P. Taylor Marker, World War I Memorial, Minute Man Muster Field Marker, Howard Street Burial Ground, and six privately owned homes | State Register of Historic Places |
| Minuteman Statue | Main Street | Erected in 2005 in honor of the men and women of Northborough who served in war and peace. | Historic Markers |
| Mount Assabet Marker | Gale Street | A granite monument near the trailhead was placed in 2004 in memory of children that died young. | Historic Markers |
| MWRA Granite markers along the Aqueduct | Hudson Street | In FY2019, MWRA received a Recreational Trails Grant from DCR to purchase 18 granite markers for improved wayfinding along aqueducts trails in Natick, Needham, Northborough, Southborough, Wayland, Wellesley, Weston, and Framingham. | Historic Markers |

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| Resource | Location | Significance | Type |
|--|---|--|--------------------------------------|
| Native American Trail | Bartlett Street | In 2020 the Town installed a sign commemorating a significant Native American trail that passed through lands that are now part of Northborough. It was a loop trail that separated from what the Europeans called the Connecticut Path in Sudbury and reconnected with it in Grafton. | Historic Marker |
| Northborough First Baptist Church | 52 Main Street | Current Historical Society Building | National Register of Historic Places |
| Old High School (current Town Hall) | 63 Main Street | Old Northborough High School- built in the early 1930s. | Iconic Property |
| Old Saw Mill Pond Dam | Upstream of Route 20 | Flood control | Historic Marker |
| Paul Revere Bell | Near Unitarian Church front door on Church Street | Bell cast in Revere Foundry. 1154 pounds cast in 1809 | Historic Marker |
| Peter Whitney Parsonage - Local Historic District | Whitney Street | Peter Whitney, was the town's second minister. Originally built around 1690 and rebuilt following a 1780 fire, the home is filled with antiques Whitney and his wife Julia would have used. The floors, woodwork, walls, door hardware and ceilings are original, while the current owners used old photographs and plans to restore the rest. | State Register of Historic Places |
| Previous Town Hall (rebuilt in the 1980's) | West Main Street | In 1985, the old Northborough Town Hall was destroyed by fire and restored to replicate the exterior of the original building. | Iconic Property |
| Reverend Luther Rice Birthplace Marker | Main Street | Born in Northborough in 1783, Luther Rice was a leader of "The Brethren" at Williams College. | Historic Marker |
| Garrison House of Samuel Goodenow Commemorative Plaque | 416 Main Street | The location of the garrison house belonging to Samuel Goodenow (sic) and states his daughter was attacked by Indians on August 18, 1707. Plaque erected by Northborough Historical Commission. | Historic Marker |
| September 11, Fallen Heros Marker | Church Street | Memorial in honor of our police, firefighters, and fallen heroes of the September 11, 2001 attack on the U.S. | War Memorial |
| Smith Pond Dam | Otis Street | Flood control | Dam |
| Spite House Marker | Whitney Street | The owner built the house to block their neighbors' view of whatever was traveling to or from town. When originally built, the Spite House had no windows on the side facing the other home. | Historic Marker |
| The Doctors House | Main Street | The house appears on the 1830 map with Dr. Stephen Ball Jr. as the owner, and town records and style both suggest a construction date around 1800. Now the C'est La Vie Bistro. | Iconic Property |
| The Old Northborough Bank Building | Main Street | Until 1854, none of the towns around Northborough had a bank, which slowed the development of new industries in the area. In that year, the MA General Court passed an act incorporating the Northborough Bank. | Iconic Property |
| Trinity Church | Main Street | The Church was founded in 1832, with Samuel A. Fay as its first pastor, as a conservative reaction to the spread of Unitarianism. | Iconic Property |
| Old Mill Pond Dams | Route 20 | Flood control | Dam |
| Wachusett Aqueduct Linear District | Vicinity of Hudson Street and Allen Street | Water Supply System for Metro Boston from Wachusett to Sudbury Reservoir. Built in 1896, it consists of several stone arches across the Assabet River. Provides a picturesque entrance to the town from the north. | National Register of Historic Places |
| Wallace Pond Dam | Hudson Street | Flood control | Dam |
| Wesson Fountain | 167 Main Street | Mr. Wesson of Smith and Wesson gun fame built "The Cliffs" as a summer home. | Historic Marker |
| Westborough State Hospital (several buildings within Northborough) | Lyman Street north of Chauncy Lake and junction of South Street and Route 9 Westborough | Former State Hospital and State School | National Register of Historic Places |
| Woodside Mill Site | Hudson Street | The Woodside mill produced satinets, blankets, and other cotton-and-wool fabrics. | Historic Marker |
| WW-I War memorial | Church Street | Monument bearing the names of two Northborough casualties - Vincent F. Picard and Adolph C. Nelson - and 71 citizens who served, | War Memorial |
| WW-II , Korean, Vietnam Monument | Main Street | Plaque in honor of Cpl. Edwin L. Mitchell, the town's only known missing in action prisoner of war | War Memorial |

G - Environmental Challenges

The Massachusetts Department of Environmental Protection listed 124 Waste Sites/Reportable Releases in its Database for the Town of Northborough as of April 18, 2020. These 124 releases were at 95 locations throughout the town. The earliest reported release was on January 15, 1987. The majority of these sites (86) have been given a Compliance Status of Response Action Outcome (RAO), which indicates that response actions were sufficient to achieve a level of no significant risk or at least ensure that all substantial hazards were eliminated. Of the listed sites, a few have ongoing cleanup and/or monitoring at this time.

WASTE HANDLING

The town utilized a landfill for municipal waste until 1977. Municipal waste is collected curbside and disposed of at the Wheelabrator Resource Recovery Facility in Millbury by contract with a private hauler. Republic Services has collected trash and recycling for the Town since July 2011. In addition, the town instituted an aggressive recycling program beginning in 1991 and a Pay-As-You-Throw Program in January 2003. The Pay-As-You-Throw Program for curbside trash collection has been successful in decreasing the tonnage of municipal waste while also encouraging recycling, which has risen in the past fifteen years. Since July 2005 the trash tonnage has decreased from 2,864.16 tons to 1,919 tons in 2018 (a 33% decrease from 2005 and a 1.9% decrease from the previous 12 months). (Northborough Annual Budget For the Fiscal Year, 2020).

The Town continues to offer two sizes of bags and the bag fee was last revised in 2007 and remains set at \$3.00/large bag and \$1.50/small bag. A fee of \$10 per box is leveraged for the disposal of hazardous waste at the annual Household Hazardous Waste Day event. In addition, a sticker fee of \$10 per item

for the disposal of large/bulky items set out at the curb was instituted in March of 2006.

In 2019, the Town received \$5,400 as part of the Department of Environmental Protection's Recycling Dividends Fund program which provides payments to municipalities that have implemented specific programs and policies proven to maximize reuse, recycling, and waste reduction. The award was used to offset the cost of purchasing recycling bins and the cost of producing and mailing the recycling calendar to each household.

The Northborough Recycling Commission is responsible for proposing, supporting, and monitoring recycling projects in order to increase the percentage of items recycled and reduce the volume of recyclable items that are disposed of in the municipal solid waste. This group has implemented a number of waste reducing and recycling initiatives including:

- Scrap Metal Recycling and Battery Collection Event
- Household Compost Bins and Rain Barrels Sales
- Town-wide Swap Meet
- Electronics Collections
- Household Hazardous Waste Collection
- Yard Leaf Composting

The Engineering Department accepts button cell batteries, rechargeable batteries, and mercurial thermometers, which are all unacceptable items for the waste stream.

DEVELOPMENT IMPACTS

Over the years, residential and commercial/ industrial developments have encroached on areas that were once forests, agricultural and open areas. The Board of Selectmen, Town Planner, the Planning Board, the Conservation Commission and area residents work together to minimize negative development impacts and to

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

promote positive smart growth principles in proposed development projects.

Between 2005 and 2014 Northborough was in the top 10 towns in Massachusetts with the highest rate of development, according to MA Audubon's Losing Ground Report. Since 2014 Northborough's development rate has slowed, but nearing build out with continued development pressure, the Town's open space initiatives are more important than ever.

SEDIMENTATION, EROSION, INVASIVE SPECIES, SURFACE OR GROUNDWATER POLLUTION, OR CHRONIC FLOODING

Some parts of town roadways, particularly those near more densely populated areas, have experienced higher rates of erosion because of reduced filtration of surface water runoff resulting from large areas of asphalt and other impermeable surfaces. Also, during times of high water and flooding, greater river and stream bank erosion occurs at river and stream bends. Increased erosion in some areas increases sedimentation in downstream and down river areas, leaving silt, sand, and gravel deposited in low lying areas.

High concentrations of both phosphorus and nitrogen compounds act like fertilizer in the river, contributing to the overgrowth of aquatic plants and algae. Organization for the Assabet, Concord, and Sudbury River's (OARS) water quality data supports the conclusion that the mainstem of the Assabet River is nutrient saturated - that neither phosphorus nor nitrogen concentrations limit the growth of aquatic plants in the river.

In the upper sections of the Assabet River (where dilution of WWTP effluent by natural flow is the least) nutrient concentrations are well above the thresholds for eutrophication for both phosphorus and nitrogen species. Dissolved oxygen at sites

all along the river fall below 5.0 mg/L at times during the summer and thus support fish and other aquatic life.

As determined by OARS' water quality testing in September 2017, overall, summer total phosphorus concentrations in the Assabet River mainstem have decreased since WWTP upgrades were completed in 2012, but total floating aquatic plant biomass in the large impoundments has not decreased demonstrably. Summer nitrate concentrations in the upper and middle Assabet River increased from 1993 to 2017 and concentrations in the tributary streams decreased slightly between 2002 and 2017, suggesting that the increase in nitrate concentrations in the Assabet River mainstem can be attributed to wastewater discharges.

Upgrades to the four municipal wastewater treatment plants that discharge to the Assabet River were completed as of the spring of 2012: Hudson in September 2009, Maynard in spring 2011, Marlborough Westerly, and Westborough in the spring of 2012. With the upgrades complete, all the treatment plants meet summer total phosphorus discharge limits of 0.1 mg/L and a winter limit of 1.0 mg/L. The Marlborough Easterly plant, discharging to Hop Brook, finished required upgrades in 2015.

Water quality in the Assabet River headwaters (upstream of the first wastewater treatment plant discharge in Marlborough) and in tributary streams of the watershed is generally better than in the mainstem. Nutrients in the tributaries are mainly from non-point sources such as stormwater runoff from roads and lawns or failing septic systems. (Organization for the Assabet River, 2018)

FORESTRY ISSUES

Landowners of forested areas face staunch opposition when trying to conduct best management forestry practices. The Conservation Commission attempted to conduct management

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on Mt. Pisgah in 1999, but faced such opposition the project stalled. The Commission reviews Forestry Management Plans on a comment-only basis and receives very few – typically less than one per year. However, every Forestry Management Plan that the Commission has received in the past few years was ardently opposed and none of the management proceeded.

The Commission hopes through outreach and education to change the overall perception of forestry management from the perceived view of “deforestation” to healthy management. Although initially disruptive to a neighborhood while forestry occurs, it has been determined repeatedly and overwhelmingly that proper implementation of forest management practices is a net benefit to the forest, habitat and surrounding area.

The town has two fire trucks specially designed to fight forest fires in difficult to access forest areas. Several forests stands, including 100 acres on the Rawstron property are managed through selective harvesting to promote sustainable growth.

ENVIRONMENTAL EQUITY ISSUES

A review of the locations of town recreation and open space and their proximity to residential populations suggests that access is very good. Open space is available for passive recreation in all parts of town, from Mt. Pisgah in the north, to Edmund Hill Woods in the north central part of town, to Westborough Wildlife Management Area/Crane Swamp in the southeast part of town, to the New England Forestry Foundation conservation area in the western part of town. Most active recreation areas are part of school grounds or on major arteries easily accessible by the general public.

The web-based “Livability Index” developed by AARP’s Public Policy Institute is an interactive tool that assesses the livability of communities

throughout the United States. The index leverages more than 50 national data sources and 60 indicators to provide a score relative to seven major categories: Engagement, Environment, Health, Housing, Neighborhood, Opportunity and Transportation. Northborough currently scores 53 points on the index, and is ranked in the top third for two categories (Opportunity and Engagement). While Northborough does not rank in the bottom third for any of the seven categories, the remaining five categories in which the Town scored in the middle-third present opportunities for improvement.

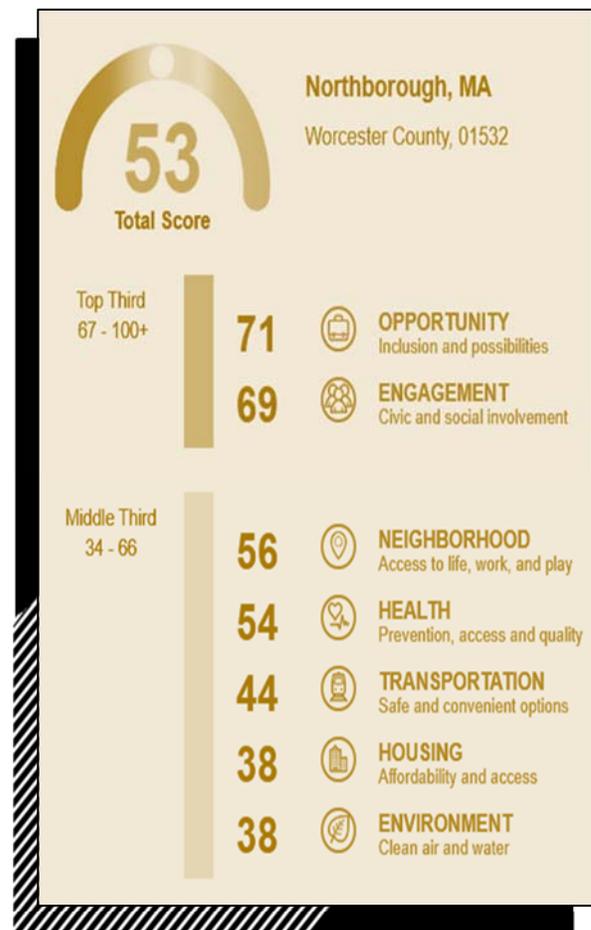


Figure 9. Northborough Livability Score

SECTION 5

LAND INVENTORY



A. Overview

Open space makes an important contribution to quality of life. Public recreation areas and open space provide a focus for community life and promote a unique and identifiable community character. Open space can also be an oasis for quiet reflection and can greatly enhance the connection to the natural world. Open space further has economic benefits. Preserving open space sometimes provides a financial benefit to a town in avoided costs of infrastructure and services that would have otherwise been created by development. It protects and enhances the property values of nearby land. Open space can attract businesses, new residents, and public and private investment. Research on this topic suggests that the proximity to recreation and open space is the most important factor in choosing the location of a small business, while quality of life ranks as the third most important factor in choosing location of a large business.

Additionally, conservation land serves environmental functions, providing natural rainwater storage and corridors for wildlife. Even small pockets of green space may serve an important function for migratory birds and butterflies. Open space can also reduce runoff and diminish the frequency and severity of flooding. All forms of open space, and in particular wooded open space, provide carbon sequestration, help to cool the air, and improve air quality.

Lands of conservation and recreation interest in the Town of Northborough include

1. Properties that are permanently protected,
 - a. Publicly owned for purposes of conservation or resource protection
 - b. Privately owned with conservation restrictions or agricultural preservation restrictions
 - c. Land owned by non-profits and land trusts with conservation restrictions or agricultural preservation restrictions
2. Properties with limited protection
 - a. Public ownership that is not for conservation purposes or does not have a conservation restriction provides only limited protection since these generally municipally-owned properties may be sold such as schools or town garages, even town halls.
 - b. Private properties used for forestry, agriculture, or recreation in exchange for special tax status.
3. Privately owned land with special open space or recreational interest such as a rod and gun club or a golf course.

Some of these lands may already be protected open space dedicated to conservation or recreation uses and others will be identified for future acquisition.

PERMANENTLY PROTECTED

Article 97 of the State Constitution provides permanent protection for certain lands acquired for natural resources purposes, meaning “conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources.” Lands of this nature are often owned by the municipal conservation commission, recreation commission, water department, or by a state or federal conservation agency (i.e., the Division of Conservation and Recreation or the Division of Fisheries and Wildlife). Private, public, and non-profit conservation and recreation lands may also be protected under Article 97. Removing the permanent protection status of such lands is extremely difficult, as is evidenced by the following required steps:

1. The municipal Conservation Commission or Parks and Recreation Committee must vote that the land in question is surplus to its needs.
2. The removal of permanent protection status must be approved at a Town Meeting/City Council vote and pass by a 2/3 vote.
3. The municipality must file an Environmental Notification Form with the EOEEA’s Massachusetts Environmental Policy Act (MEPA).

▶ TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

- ❶ The removal of permanent protection status must be approved by both the State House of Representatives and the State Senate and pass by a 2/3 vote.
- ❷ In the case of land either acquired or developed with grant assistance from the EOEEA's Division of Conservation Services, the converted land must be replaced with land of equal monetary value and recreational or conservation utility.

In other words, it is intentionally difficult to remove a property's permanent protection status so that it may be developed.

Lands acquired for watershed and aquifer protection are often permanently protected open space. Municipally-owned properties used for public recreation and conservation areas may be permanently protected via a Town Meeting Vote or a Select Board Order. Often these lands are placed under the ownership of the Conservation Commission. Protected parcels are often owned by the Town's Conservation Commission or Water Department, a State Land Protection Agency, a non-profit land trust with a permanent conservation restriction, and lands purchased or improved with the help of state or federal funds. The Northborough Conservation Commission, the Northborough Water Department, the Massachusetts Department of Conservation and Recreation (DCR), Massachusetts Department of Fisheries and Wildlife (DFW), New England Forestry Foundation (NEFF), and Sudbury Valley Trustees (SVT) are owners of protected parcels. In addition, three farms, totaling 270 acres, are enrolled in the Agricultural Preservation Restriction program. These lands are illustrated on the Open Space Resources Map on the following page.

Private lands, including those owned by non-profit organizations, can also be protected in perpetuity through conservation restrictions, agricultural preservation restrictions, historic preservation restrictions, or wetlands restrictions. Some easements, unlike conservation restrictions



Figure 11. Northborough Parks and Open Space

which are approved by EOEEA, may run for a more limited period (like 30 years) and those are not considered permanently protected. As mentioned above these lands are often protected by Article 97.

Table 5.1 on the following page lists the properties in Northborough that are afforded protection under Article 97.

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

Table 5.1 Article 97 Properties

| Protected Under Article 97 | |
|--------------------------------------|-----------------|
| Site Name | Acreage |
| 119 Coburn Street Recreation Area | 3.54 |
| 119 Colburn Street Conservation Area | 9.7 |
| Barefoot Brook Flood Control Site | 54.61 |
| Brigham Street Well | 40.33 |
| Cedar Hill CR | 85.39 |
| Cold Harbor Brook Flood Control Site | 240.85 |
| Conservation Area | 9.45 |
| Coolidge Circle Conservation Area | 9.65 |
| Crawford Street Well | 14.69 |
| Davidian Brothers APR | 53.83 |
| Davidian Kerop APR | 107.19 |
| Eager Woods | 4.72 |
| Edmund Hill Woods Conservation Area | 70.88 |
| Ellsworth McAfee Park | 49.51 |
| Hop Brook Flood Control Site | 175.24 |
| Lathorn Farms Conservation Area | 2.37 |
| Mount Pisgah Conservation Area | 178.02 |
| Mt. Pisgah WCE | 18.88 |
| Mt. Pisgah WMA | 91.15 |
| Rawstron Woods | 22.28 |
| Schunder CR | 52.04 |
| Smith Pond Conservation Area | 19.41 |
| Sudbury Reservoir Watershed | 247.92 |
| Tougas Family Farm APR | 19.96 |
| Tougas Farm | 49.01 |
| Tyler Flood Control Site | 211.3 |
| Wachusett Aqueduct | 124.67 |
| Watson Park | 33.54 |
| Wayne F. MacCallum WMA | 256.88 |
| White Cliffs Conservation Area | 1.52 |
| Department of Agriculture Parcel | 1.66 |
| Department of Agriculture Parcel | 6.53 |
| Department of Agriculture Parcel | 5.65 |
| Department of Agriculture Parcel | 9.92 |
| Grand Total | 2,282.29 |

LIMITED OR NO PROTECTION

Municipal lands under active use (schools, town halls, highway department facilities, police/fire facilities, etc.) are not generally considered permanently protected. Unprotected land included in this category is owned by the town, other agencies, such as Westborough State Hospital, and the schools. These parcels can be sold for development at the discretion of the owners through a public bid process.

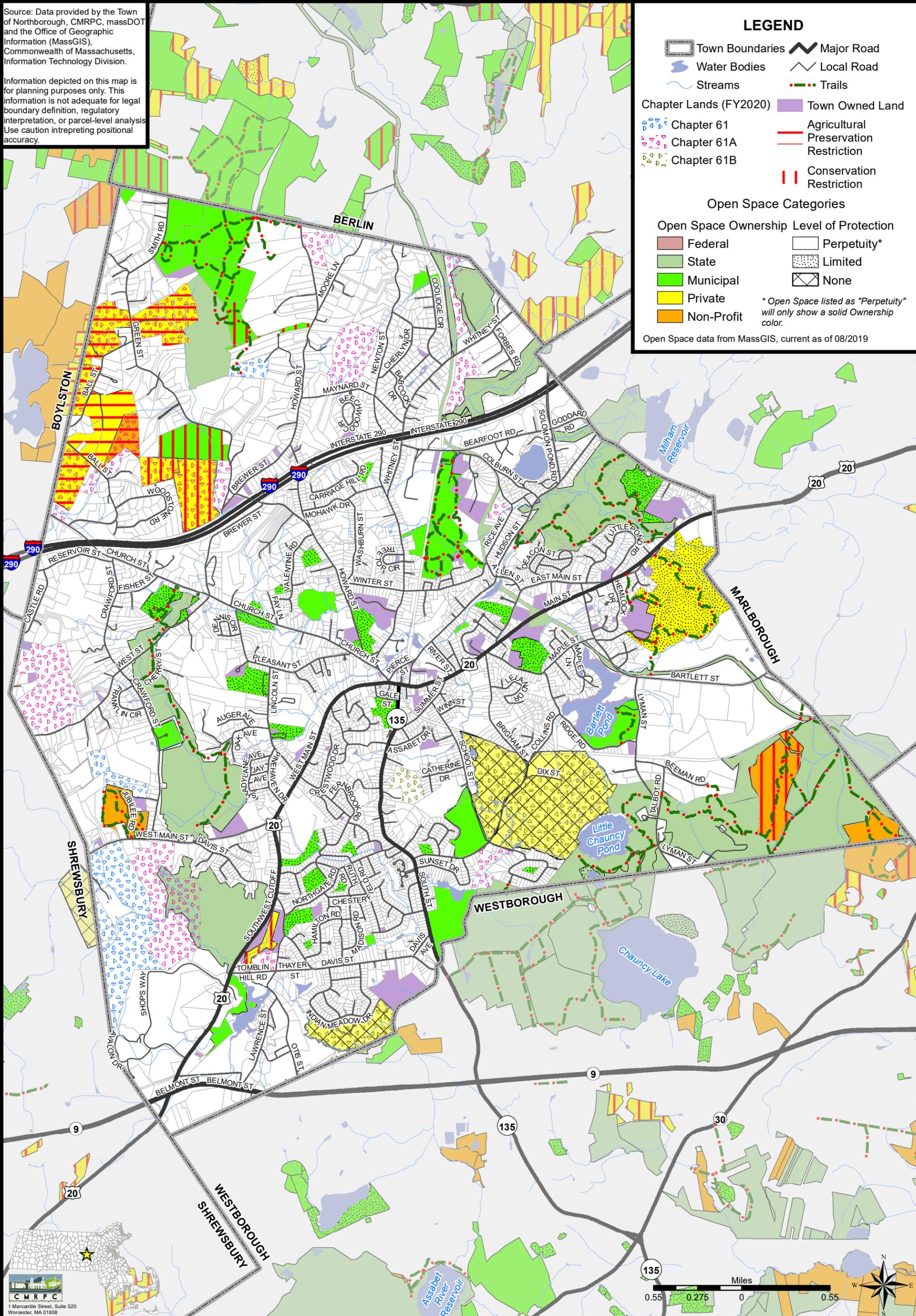
Private lands that are within the State’s special taxation programs (Chapter 61, 61A, and 61B) are actively managed by their owners but only have limited protection. Private owners can manage their land for forestry, agriculture, and/or recreation purposes and receive a benefit of reduced property tax under Chapter 61. Chapter 61 is for forested lands, Chapter 61A for agricultural and horticultural lands, and Chapter 61B is for recreational lands.

OPEN SPACE INVENTORY

OPEN SPACE AND RECREATION PLAN

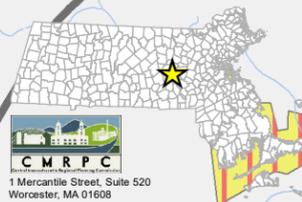
Source: Data provided by the Town of Northborough, CMRPC, massDOT and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution interpreting positional accuracy.

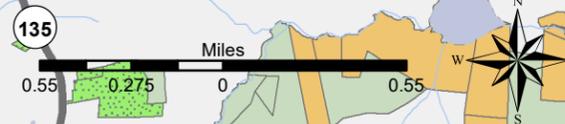


LEGEND

- Town Boundaries
 - Major Road
 - Water Bodies
 - Local Road
 - Streams
 - Trails
 - Chapter Lands (FY2020)**
 - Chapter 61
 - Chapter 61A
 - Chapter 61B
 - Town Owned Land
 - Agricultural Preservation Restriction
 - Conservation Restriction
 - Open Space Categories**
 - Open Space Ownership Level of Protection**
 - Federal
 - State
 - Municipal
 - Private
 - Non-Profit
 - Perpetuity*
 - Limited
 - None
- * Open Space listed as "Perpetuity" will only show a solid Ownership color.
- Open Space data from MassGIS, current as of 08/2019



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Worcester, MA 01608



Town of Northborough, Massachusetts

► **TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020**

Chapter lands are considered as having limited protection. While these lands provide significant open space in communities while in the program, once the property is sold or the owner chooses not to participate in the special taxation program, there is no longer a commitment to open space management. If the property is put up for sale, the community has the first right to purchase the property or assign its right to a non-profit. The Town should continue to maintain an inventory and prioritize Chapter land and other open space for acquisition or other protection measures. In addition, the Town should ensure that notice is given immediately to

Conservation and Recreation Commissions if a Notice of Sale of a Chapter property is delivered to the Board of Selectmen. A communication system to allow for rapid response should be developed. Working relationships with local non-profits, Sudbury Valley Trustees and New England Forestry Foundation may help acquisitions possible, especially when the Town has limited staff and funds.

The inventories that follow list private, public, non-profit conservation land and recreation areas in Northborough.

B - Private Parcels

PERMANENTLY PROTECTED

Private land is protected if a conservation restriction exists in perpetuity, or an Agricultural Preservation Restriction (APR) has been placed on it. As of 2020, three farms in Northborough have APRs. These farms produce commercial crops on 259 acres.

| Owner Name | Property Address | Acres |
|-------------------------------|--|-------|
| BALL HILL REALTY LLC | 261 BALL STREET 124 BALL STREET | 44 |
| DAVIDIAN REALTY LLC | 321 BALL STREET 315 BALLSTREET 0 GREEN STREET 150 BALL STREET | 161 |
| TOUGAS MAURICE F & PHYLLIS PT | 234 BALL STREET | 54 |

Table 5.2 Agricultural Preservation Restrictions

LIMITED PROTECTION

Owners of private parcels enrolled in Chapter 61 programs, (Chapters 61, 61A and 61B) are granted tax abatement and provide the Town with the right of first refusal should the owner decide to sell the land for development or engage in non-chapter land eligible uses.

Chapter 61A parcels (agricultural land) comprise the largest of these holdings and total approximately 484 acres. This is a significant reduction from the 2010 OSRP, when 784 acres were held in Chapter 61A (a 38% loss in the last decade). These properties all appear to be privately owned. Land under Chapter 61 (forestry) comprises nearly 210 acres (a slight 1.1% increase from 2010) mostly in the western portion of Town. This area provides a great deal of the rural character of the town, which is appreciated by the residents. The third category of Chapter land (61B) includes 361 acres (approximately the same as in 2010) in recreational facilities and open space. In addition to the Northcourt Swimming Association, Indian Meadows Golf Course and Juniper Hill Golf Club are included in this program.

Table 5.3 Chapter 61 Summary

| Program | Acres |
|----------------------------|-------------|
| Chapter 61 (Forest) | 210 |
| Chapter 61A (Agricultural) | 484 |
| Chapter 61B (Recreation) | 361 |
| Total | 1055 |

RELEVANT UNPROTECTED

Several large farms are not protected through any means other than difficulty of development and the Wetlands Protection Act. Additional large parcels of land under private ownership have not been included in this section and are only protected by the owner's desire to do so.

► **TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020**

In Table 5.4, we have listed the Owner, Use Code Description/Use (Potential Use), Total Land Area (Acres), Street Address, Level of Protection, Public Access, and Public Assistance for all Chapter 61, Chapter 61A, and Chapter 61B properties. The condition of each parcel has not been determined and a general assessment is suggested. Table 5.4 is complete to the greatest degree possible with information available (based on FY20 Northborough Assessors data).

Table 5.4 Chapter Land Inventory

| Owner | Use (Potential Use) | Total Land Area (AC) | Street Address | Level of Protection | Public Access | Public Assistance |
|--|--------------------------------|----------------------|------------------|---------------------|---------------|-------------------|
| Roberto Realty No.1 LLC | Ch.61 Forest | 61.7 | West Main Street | Limited | No | Yes |
| Roberto Realty No.1 LLC | Ch.61 Forest | 12.17 | West Main Street | Limited | No | Yes |
| Roberto Realty No.1 LLC | Ch.61 Forest | 6 | West Main Street | Limited | No | Yes |
| Roberto Realty No.1 LLC | Ch.61 Forest | 91.42 | West Main Street | Limited | No | Yes |
| Zecco, Patricia A. | Ch.61 Forest | 6.05 | Crawford Street | Limited | No | Yes |
| Zecco, Patricia A. | Ch.61 Forest | 11 | West Street | Limited | No | Yes |
| Fournier Peter A. & Nancy A. | Ch.61 Residential/Forest | 18.2 | Howard Street | Limited | No | Yes |
| Zecco, Patricia A. | Ch.61 Residential/Forest | 6.15 | Jubilee Road | Limited | No | Yes |
| Zecco, Patricia A. | Ch.61 Residential/Forest | 6.62 | West Street | Limited | No | Yes |
| Fawcett, Cynthia L. | Ch.61a Field Crops | 5 | Ball Street | Limited | No | Yes |
| Anza Santo Trustee | Ch.61a Pasture | 15.72 | Whitney Street | Limited | No | Yes |
| Anza Santo Trustee | Ch.61a Pasture | 23.77 | Whitney Street | Limited | No | Yes |
| Bennett Guerdon K. & Debra M. | Ch.61a Residential/Agriculture | 20.3 | Howard Street | Limited | No | Yes |
| Berberian, Glen & Berberian, Kachadore & Mary | Ch.61a Residential/Agriculture | 16 | Otis Street | Limited | No | Yes |
| Bigelow Martha E. & Palmer W. Bigelow Jr. Marita | Ch.61a Residential/Agriculture | 88 | West Main Street | Limited | No | Yes |
| Ellsworth, William F | Ch.61a Residential/Agriculture | 2.35 | School Street | Limited | No | Yes |
| Ellsworth, William F | Ch.61a Residential/Agriculture | 16.55 | Brigham Street | Limited | No | Yes |

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

| Owner | Use Code Description/Use (Potential Use) | Total Land Area (AC) | Street Address | Level of Protection | Public Access | Public Assistance |
|--|--|----------------------|----------------------|---------------------|---------------|-------------------|
| Fidrych Family Realty LLC | Ch.61a Residential/Agriculture | 55 | West Street | Limited | No | Yes |
| Fidrych Jessica L | Ch.61a Residential/Agriculture | 10 | West Street | Limited | No | Yes |
| Gillerin, David R. & Jan R. | Ch.61a Residential/Agriculture | 57.3 | Maynard Street | Limited | No | Yes |
| Rawstron, William & Ann | Ch.61a Residential/Agriculture | 11.4 | Mentzer Avenue | Limited | No | Yes |
| Stone Susanne R Trustee | Ch.61a Residential/Agriculture | 7.43 | Rice Avenue | Limited | No | Yes |
| Tougas Maurice F.Trustee & Tougas, Phyllis P.Trustee | Ch.61a Residential/Agriculture | 7.9 | Ball Street | Limited | No | Yes |
| Berberian, Glen & Berberian, Kachadore & Mary | Ch.61a Vegetables | 12.61 | Tomblin Hill Road | Limited | No | Yes |
| Berberian, Glen & Berberian, Kachadore & Mary | Ch.61a Vegetables | 1.37 | Otis Street | Limited | No | Yes |
| Berberian, Glen & Berberian, Kachadore & Mary | Ch.61a Vegetables | 0.15 | Southwest Cutoff | Limited | No | Yes |
| Fawcett, Cynthia L. | Ch.61a Vegetables | 1.85 | Ball Street | Limited | No | Yes |
| Chandler Emerson H & Karen Lee | Ch.61a Wet-Scrub Lnd | 3.4 | Whitney Street | Limited | No | Yes |
| Chandler Emerson H & Karen Lee | Ch.61a Woodlots | 6.62 | Whitney Street | Limited | No | Yes |
| Fidrych Family Realty Llc | Ch.61a Woodlots | 28.96 | Crawford Street | Limited | No | Yes |
| Fidrych Family Realty Llc | Ch.61a Woodlots | 10 | West Street | Limited | No | Yes |
| Rawstron, William & Ann | Ch.61a Woodlots | 21.76 | Fawcett Orchard Road | Limited | No | Yes |
| Rawstron, William & Ann | Ch.61a Woodlots | 61.66 | Green Street | Limited | No | Yes |
| Rawstron, William & Ann | Ch.61a Woodlots | 4.4 | Green Street | Limited | No | Yes |
| Rawstron, William & Ann | Ch.61a Woodlots | 1.33 | Mentzer Avenue | Limited | No | Yes |
| EK Parivar LLC | Ch.61b Golf Course | 56 | Davis Street | Limited | Yes | Yes |
| EK Parivar LLC | Ch.61b Golf Course | 3.64 | Indian Meadow Drive | Limited | Yes | Yes |
| EK Parivar LLC | Ch.61b Golf Course | 3.71 | Otis Street | Limited | Yes | Yes |

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

| Owner | Use Code Description/Use (Potential Use) | Total Land Area (AC) | Street Address | Level of Protection | Public Access | Public Assistance |
|---------------------------------|--|----------------------|----------------|---------------------|---------------|-------------------|
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 106.31 | Brigham Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 34 | Dix Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 10.3 | Dix Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 84.4 | Brigham Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 16 | Brigham Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 18.7 | Dix Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 8.4 | Dix Street | Limited | Yes | Yes |
| Juniper Hill Golf Course, Inc. | Ch.61b Golf Course | 2.34 | School Street | Limited | Yes | Yes |
| Northcourt Swimming Association | Ch.61b Swimming /Swim Club | 23.27 | South Street | Limited | Yes | Yes |

C - Public and Non-Profit Parcels

Open space ownership according to MassGIS data is summarized in the following table.

Table 5.5 Public and Non-profit Ownership Summary

| Ownership | Mass GIS Acreage | Percentage |
|-----------|------------------|------------|
| Nonprofit | 179.45 | 5.56% |
| Municipal | 766.64 | 23.75% |
| Private | 690.35 | 21.39% |
| State | 1,423.29 | 44.09% |
| Other | 168.23 | 5.21% |

PERMANENTLY PROTECTED - STATE

The Commonwealth of Massachusetts owns 1,423.3 acres of land in Northborough. These properties in combination are dispersed in and around the Assabet River, Mount Pisgah Conservation Area, Crane Swamp, and the Westborough Wildlife Management Area.

Mount Pisgah Conservation Area is composed of four pieces of conservation land; the two central properties are managed by the conservation commissions in the towns of Berlin and Northborough. To the south is Mass Division of Fisheries and Wildlife property, and to the north is the Devine Conservation Restriction (CR), privately owned property, with a Conservation Restriction retained by Sudbury Valley Trustees and the Town of Berlin. Part of the Berlin town land as well as the entire Devine CR had been in the Devine family for generations and was operated as a farm.

Hiking and mountain biking are two of the primary activities on the extensive trail system through the Mount Pisgah Conservation Area. Hunting is permitted on the Town of Northborough land, by permit only, and on the Massachusetts Fisheries and Wildlife property. (Sudbury Valley Trustees, 2009)

The Westborough Wildlife Management Area, which has substantially more acreage in the adjacent town of Westborough, is 428 acres of gently sloping to nearly level habitat with mixed hardwood and conifer forest interspersed with agricultural and brushy fields some small areas of open marsh. A segment of the Assabet River forms the western boundary of the area, while Chauncy Lake, an excellent warm water fishery, forms a portion of the eastern boundary (including a boat ramp). The area also contains two small ponds, a spring hole and a small seepage brook. The area contains stocked pheasant, deer, grouse, woodcock, cottontail rabbit, raccoon, gray squirrel, aquatic fur-bearers, waterfowl and numerous non-game species.

PERMANENTLY PROTECTED – TOWN-OWNED CONSERVATION AND OPEN SPACE

The Town of Northborough owns the Howard Street Cemetery and the Brigham Street Cemetery totaling 43.91 acres. These areas are managed by the Cemetery Division of the Parks Department.

The Northborough Water Department owns approximately 145 acres of land in the vicinity of drinking water supply wells near Lyman School, Crawford, and Brigham Streets.

The Northborough Conservation Commission owns 539.3 acres of land. Open space areas under the jurisdiction of the Conservation Commission are Edmund Hill Woods, Mount Pisgah Conservation Area (though not entirely owned by the Town), Watson Park, and the Green Street Conservation Area. These passive recreation facilities consist mainly of hiking areas. The Northborough Trails Committee (NTC) maintains the hiking trails in these areas. The NTC works closely with the Conservation Commission when designing trails through wetlands to minimize any environmental issues.

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

Watson Park includes walking paths, a paved parking area with a concrete boat ramp to Bartlett Pond and picnic tables for the use of the public. The *butterfly* garden is situated in Watson Park by the large rock at the entrance.

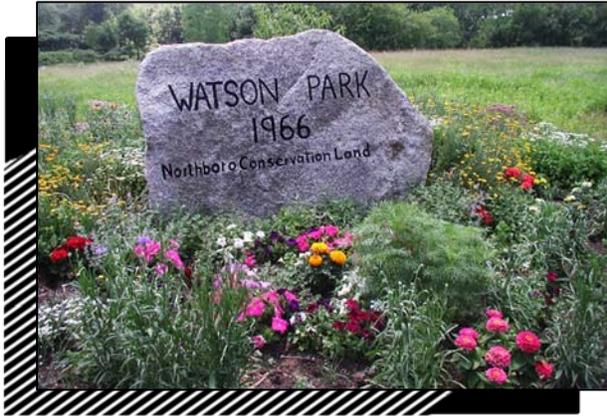


Figure 12. Watson Park marker.

Photo Source: Jim Stein

PERMANENTLY PROTECTED NON-PROFIT

The New England Forestry Foundation Inc. (NEFF) owns approximately 32 acres of permanently protected land in the western section of town (West Main Street). The Carlstrom 2 Forest (31 acres) was donated in 1983 by Mr. Carl Carlstrom in memory of his wife. There is 1 loop trail that is approximately 1.1 miles long.

In addition, Mrs. Gertude Falby of Northborough gave NEFF protected land in 1980. This forest of hardwood stands (18 acres in Northborough and 194 acres in Boylston) with some mature pine is exceptionally beautiful. A number of small brooks run through the forest leading to a spectacularly clear pond. A walking trail leaves Rocky Pond road on the south end of the forest and traverses the forest to a swimming and picnic spot on the pond and then continues north to Green Street. There is also a NEFF kiosk and trailhead on Green Street just over the Northborough Boylston town line, which also leads to Rocky Pond.

Sudbury Valley Trustees (SVT) owns 131.35 acres, some of which are located in Crane Swamp Conservation Area. The Crane Swamp

Conservation Area includes 2,225 acres of open space straddling the borders of Northborough, Westborough, Southborough, and Marlborough. The centerpiece is a high quality 400-acre red maple swamp. The swamp is surrounded by a complex of open fields, wet meadows, ponds, pine plantations, and oak-pine forests, with Cedar Hill to the west and Walnut Hill to the northeast. Such a diverse, high quality and expansive conservation area is a unique treasure in Metrowest Boston.

The Crane Swamp properties are owned by a variety of Massachusetts state agencies as well as SVT. SVT protected 101 acres of Sawink Farm Reservation at the border of Northborough and Westborough in 1992 and the 88-acre drumlin of Cedar Hill in Northborough in 1993. The Department of Conservation and Recreation (DCR) owns Crane Swamp, Little Crane Swamp, and much of Walnut Hill, just north of Sawink Farm Reservation. Westborough State Hospital land extends from Lyman Street to Chauncy Pond, and the Massachusetts Division of Fisheries and Wildlife owns land which runs west to the Assabet River. Furthermore, the protected watershed helps to preserve the public water supply (emergency backup water supplies for the Massachusetts Water Resources Authority (MWRA), not day to day water) for 3 million people.

The NTC maintains an extensive trail system in this area in cooperation with those agencies and SVT.

LIMITED PROTECTION – STATE

The former Westborough State Hospital (WSH) property was owned and managed by the Massachusetts Department of Mental Health and includes many acres of beautiful open space. The town of Westborough purchased most of the hospital site from the state for \$2.2 million in 2014. The state retained 12 acres where it operates the Zara Cisco Brough Center and an adjacent six acres for Allen Hall. The Sharp Building was also retained for use by the Department of Developmental Services.

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Westborough received three bids in 2016 and awarded a bid for redevelopment to Pulte Homes. The company intends to construct 700 residential units for those aged 55 and older.

The NTC has some trails on WSH land. The Town of Westborough's Charm Bracelet Trail crosses the WSH land connecting at the Little Chauncy fisherman's access road.

LIMITED PROTECTION - MUNICIPAL

School facilities are a principal location for recreational facilities in many municipalities. They are however seldom permanently protected. The schools in Northborough have a total of 278.53 acres with buildings and grounds. The Algonquin Regional High School serves both Southborough and Northborough residents and the four elementary schools and one middle school serve just Northborough residents. They include the following:

- Algonquin Regional High School, at 79 Bartlett Street, has 4 baseball/softball diamonds of various sizes, 4 or 5 multipurpose fields, and a football field with quarter mile track and field facilities.
- Lincoln Street School, located at 76 Lincoln Street, serves K-5th grades and has a small baseball/softball diamond and a gymnasium.
- Melican Middle School, located at 145 Lincoln Street, has 2 baseball/softball fields, 6 tennis courts, and a multi-purpose field.
- Peaslee Elementary School, at 31 Maple Street, has a baseball/softball field and one other multi-purpose field.
- Proctor Elementary School is located at 26 Jefferson Road. In June 2009 a new playground was purchased and installed next to the existing soccer fields.
- Zeh Elementary School, located at 33 Howard Street, has an outdoor basketball court, and a baseball/softball diamond.

The Parks and Recreation Commission has jurisdiction over six public parks in Town. These are Ellsworth/McAfee Park, Assabet Park, both on South Street, Howard Street Recreation Area, Memorial Field, 119 Colburn Street (the Senior Center), an undeveloped area on Valentine Road, and one off Carriage Hill Road.

- Ellsworth/McAfee Park is the largest and provides many types of activities, including, multi-purpose fields, a jogging track, a fitness trail, a playground, volleyball and basketball courts, a bocce court, picnic tables, a gazebo, a skate park and a pavilion.
- Assabet Park has a splash pad, playground, basketball court, picnic tables, and a hiking trail, with off street parking.
- Howard Street Recreation Area has a small softball diamond and a tot lot.
- Memorial Field and Casey Field, at 211 East Main Street, includes 3 baseball/softball fields with a concession stand and parking.
- The Senior Center was built on 119 Colburn Street (re-addressed to Bearfoot Road).
- There are three full size basketball courts located at Assabet Park, Ellsworth McAfee, and Town Hall. The two basketball courts located at the parks are outdoor courts and are open to the public at all times. The Town Hall basketball court is inside and is reserved for classes, leagues, and activities.
- There are 8 outdoor tennis courts at the high school and middle school. They are open to the community when school is not in session.
- After four years of planning and development, construction of the Town Common began in 2019. The Town Common offers green space in the downtown area, and features a pergola, seating, and gardens.
- Additionally, there are approximately 20 miles of trails located throughout Northborough.



Figure 13. Assabet Park Splash Pad
Photo Source: Northborough Recreation

The Parks Division of The Department of Public Works is responsible for the maintenance and upkeep of a considerable amount of park land and buildings in Northborough. This list includes

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the following: Town Common, Ellsworth-McAfee Park, Assabet Park, Memorial Field, the Civil War Monument, World War I Monument, Three War Monument, Howard Street Play Area and Field, and the Grounds of the municipal buildings.

OTHER RELEVANT AREAS

According to the Northborough Assessor's Database, approximately 887 acres are listed as owned by the Town of Northborough, with little or no indication of use. These properties should be identified and assessed for their potential use as open space or recreation purposes.

SECTION 6

COMMUNITY VISION



A - Description of Process

In 2019, the Town of Northborough contracted with the Central Massachusetts Regional Planning Commission (CMRPC) to assist in the preparation of an update to its 2010 Open Space and Recreational Plan (OSRP). In 2019 and 2020, CMRPC, the Town's Open Space Committee, and Planning Department developed a survey to gather resident input regarding open space and recreation in Northborough. The survey was based on the model set up in the Division Conservation Services (DCS) Open Space Planners Workbook. The survey was developed and summarized using the internet application SurveyMonkey ©. The availability of the survey and hyperlinks were advertised as a banner item on the Town main page, Conservation Commission, Open Space Committee and Trails Committee websites, and were sent via email to Town boards and commissions and other interested parties.

For both the survey and the public forum, flyers were distributed with the link and QR code for the survey at the following locations:

- Town Hall (outside planning office, in Town Clerk's office, in the hall outside the Town Admin office)
- Library bulletin board
- Lowe's Variety Shop (small grocery and butcher in Town)
- Senior Center
- All trail head kiosks (Pisgah, Carney, Edmund Hill (There are two: Rice Ave and behind Senior Center) and SUASCO/Hudson Street)

Announcements of the survey were included in multiple list serves. Additionally, the OSC posted survey links to the Northborough Trails Committee Facebook page (882 followers), the Recreation Facebook page (1,582 followers) and other local Facebook groups.

Finally, the survey was made available in hard copy.

The online survey was available from January 21, 2020 to March 20, 2020. Fifteen hard

copies were submitted. 495 surveys were received. Tabulated results were then reviewed and discussed by the full Committee, and the resulting information was integrated into the goals, objectives, and action plan for implementation. A summary of the survey results is attached as Appendix D.

The Committee initially planned to hold a Public Forum in March 2020 to discuss the draft plan, the draft survey results, draft goals, objectives, and action plan. However, due to the Covid-19 pandemic, meetings larger than 10 and later 25 individuals were prohibited by Executive Order. When it became clear in July that larger in-person gatherings were unlikely to be feasible in the near future, the Town made the decision to hold a virtual public forum using the Zoom platform. The virtual public forum was held on September 16, 2020.

Ahead of the forum, the event was advertised online and flyers were distributed at the locations noticed previously. Further, a mail blast was sent to 2,718 residents' emails via the Recreation Department's list and the e-flyer was shared on the Northborough Trails Committee Facebook page.

There were three main elements of the forum:

1. An introduction from the Open Space Committee on the purpose of the OSRP and a brief description of the process to date.
2. A slide show presentation on the draft plan and process by Sarah Adams of CMRPC – this provided an overview of the OSRP process, a description of the draft goals, a summary of the survey responses, the phases of the plan have been completed thus far and what still remains to be completed. That presentation can be viewed [HERE](#).

Following the presentation, participants provided comments and feedback, and asked questions about the plan, the survey

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results, and open space and recreation resources.

3. A group discussion of three topics:

- Indoor and outdoor recreational facilities – what is needed or needs to be improved
- Open spaces for preservation/conservation, scenic areas and routes – what is needed, and what parcels of land should be protected
- Connectivity and passive recreation – what is needed to improve and expand trails and connectivity.

Approximately 12 members of the public attended “live” with six more watching in real time on YouTube. The recording of the forum has been viewed twenty-two (22) times as of October 2020, and CMRPC’s presentation has been viewed thirty-six (36) times.

A recording of the full public forum discussion can be accessed [HERE](#).

In addition, the community was invited to review drafts of the plan which was published on the town’s website. The Trails Committee, the Conservation Commission, the Recreation Commission, the Planning Board, the Board of Selectmen, and Central Massachusetts Regional Planning Commission each reviewed and provided letters of support (Section 10).

Overall, the process of developing this plan was comprehensive and inclusive in scope and is consistent with methods recommended by DCS. The process distilled a lot of useful information and fostered an insightful analysis that yielded a forward thinking and useful plan.

B - Statement of Open Space and Recreation Goals

Northborough values its open space, which provides the town with habitat for wildlife, protection from flooding, beautiful recreational areas, and a high quality of living. The goal of this plan is to present an organized set of measures to protect, preserve, and acquire these valuable resources, to improve community understanding and commitment to conservation, and to enhance the recreational opportunities.

The goals below are refinements of the goals stated in the 2010 OSRP, reflecting progress toward the earlier stated goals, the results of the survey, input from interested stakeholders, and changes in area demographics, and the current political and economic climate.

Goal 1. Preserve open space for the town’s overall benefit. Residents place a high value on the quality and location of open space for many purposes and overwhelmingly support land preservation.

Goal 2. Improve accessibility to parks, open space and recreational facilities. Access is imperative to the highest and best use of both passive and active recreation sites and all open space for people of various ages and abilities.

Goal 3. Improve and expand properties for active and passive open space opportunities.

Abundant and varied open space within the town of Northborough provide tremendous outdoor activities such as hiking, mountain biking, cross country skiing, fishing, birding, horseback riding, etc. Appropriate actions should be taken to foster the continued enjoyment of these areas. This goal can also include increased parking, walking/biking routes, sidewalks and trail connections.

Goal 4. Improve community awareness of and commitment to open space resources. Ongoing education and awareness-building efforts among young people, new residents, and others will ensure that the goal remains a primary focus for years to come.

Goal 5. Maintain, manage, and restore existing open spaces and recreational facilities. Existing open space and recreation resources are invaluable to the quality of living for the Northborough community, and their preservation and upkeep must be prioritized and planned for.

SECTION 7

ANALYSIS OF NEEDS



A. Summary of Resource Protection Needs

The Town of Northborough has taken some steps to protect its natural resources including the adoption of an open space residential design zoning bylaw, the passage of the CPA, designation of scenic roads, and the Open Space Committee working closely with area non-profits and state agencies on open space conservation. However, a continued strong focus on conservation of our remaining open space is needed in the face of increasing residential, industrial, and commercial development pressure with the Town nearing build-out.

Of the survey respondents, most felt there was a need to preserve open space and natural areas in the Town of Northborough. The greatest number (63.0%) of survey respondents indicated that it was very important to preserve open spaces to meet our water and conservation needs, while still a large percentage (62%) felt it was important to preserve open spaces to maintain wildlife corridors and important habitat. To preserve land, the largest number of respondents indicated that they supported zoning for open space conservation. 54% reported that they would support an increased CPA surcharge to fund land acquisition programs or other open space and recreation initiatives.

The greater Mt. Pisgah landscape is composed of approximately 5,000 acres. Land here is still

contained in fairly large tracts (many properties contain 50 to 100 acres), and much of this is still managed woodland and farmland. However, increasing development pressure, both in scale and pace, is rapidly fragmenting the ecological integrity of the landscape, and the window of opportunity to protect it is shrinking. The number of homes built in this region in the last five years has exploded, and the size of these homes has grown significantly. These factors have detrimental impacts on this rural economy; they drive the cost of land up, and, ultimately, tempt landowners to sell their properties for development. Protecting properties at the landscape scale is the most efficient and ecologically sound approach to preserving biodiversity. Sudbury Valley Trustees and the Town of Northborough should continue working with landowners and municipalities in the Mt. Pisgah region to protect the area's important resources. The Town of Northborough should also focus conservation efforts in the few remaining areas of large unfragmented open space.

In addition, the Town of Northborough and neighboring communities should develop a shared understanding of goals and objectives relative to shared assets to most effectively enhance their open space and recreational resources.

B. Summary of Community's Needs

SURVEY RESULTS

Northborough is fortunate to have an excellent Recreation Department, tremendous facilities and programs that satisfy most residents. According to the summary of the survey results (Appendix E) more residents were more satisfied with places for children and youth to play and recreate (81.0%) than with the places for adults and

seniors to recreate. However, there was general satisfaction with the condition of the recreational facilities in town.

The top three recreation facilities or features that respondents were interested in were: sidewalk connectivity, paved bike paths, and a pool.

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According to the survey, of the facilities listed, the top five reportedly visited by residents were Ellsworth McAfee Park, Assabet Park, Casey Field, Carney Park, and Memorial Field. 40% or more of respondents indicated that they did not know about Watson Park at Bartlett Pond, Westborough Wildlife Management Area, Cold Harbor Trails, Yellick & Suasco Trails, Stirrup Brook Trails, Schunder Conservation Area & Trails, Aqueduct Trails, and Carlstrom II Trail.

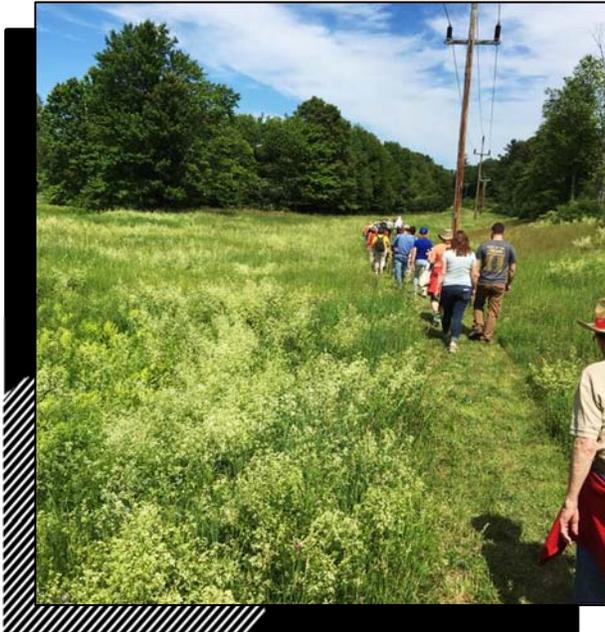


Figure 14. Aqueduct Trail Hiking Group.
Photo Source: Jim Stein

RECREATION DEPARTMENT

The Town's Recreation Department is self-funded through its programming, which is extended to residents in neighboring communities in addition to Northborough citizens. The Recreation Department offers over three hundred programs in Town, at locations including the Rec Center, the Town Hall Gymnasium, and Northborough schools. With the exception of Algonquin Regional High School, the Recreation Department schedules all outdoor activities at Northborough schools. Programming covers activities for all ages and abilities (including special needs) and ranges from aquatics, to camps and clinics, to special trips planned throughout the year.

The department publishes a “recreation brochure and community guide” two times each year. The brochure lists the schedule of seasonal activities, one day activities, the recreational classes and league for all ages. Preschool programs for kids ages 6 months – 5 years old, grade school programs, middle school and high school programs are run throughout the year. Adult programs are held in the gym in the evenings. A sampling of listings includes the following: Jazzercise; Archery; T-ball leagues; Parent Tot Swim; Karate; Kayaking; Quilting; Field Hockey Clinic; New York City Day Trip with Fox Tours; and Wicked Gross Anatomy.

Throughout the year, the Recreation Department is consistently soliciting feedback regarding its programs and activities via formal and informal surveys. The information is used to determine future offerings and initiatives. Examples of feedback received in the past include that existing field spaces are perceived to be at capacity for youth programming and would need to be expanded to accommodate adult recreational needs; and that Northborough residents are interested in improving access to the Town's water bodies, and developing an off-leash dog park.



Figure 15. Recreation Department Staff
Photo Source: Northborough Recreation Department

► TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

| Name | Acreage | Description |
|-----------------------------|-----------|---|
| Mount Pisgah | 186 acres | Wooded area and trails |
| Ellsworth-McAfee Park | 50 acres | Playground equipment, recreational fields, and skate park |
| Assabet Park | 12 acres | Playground equipment and splash pad |
| Memorial Field | 10 acres | Baseball fields |
| Bearfoot Road | 13 acres | Walking trail, boat ramp |
| Edmund Hill Woods | 61 acres | Wooded area and trails |
| Watson Park / Bartlett Pond | 41 acres | Walking trail, boat ramp |
| Carney Park | 18 acres | Walking trail |
| Green Street Field | 55 acres | Walking trail |

Table 7.1 - Northborough Parks and Conservation Areas



Figure 16. Carney Park walking trail.
Photo Source: Jim Stein

In 2018 the Recreation Department renovated both the baseball and softball fields at the Melican Middle School. The Department received \$285,000 from the Community Preservation Committee (CPC) in FY19 for Phase 1 of the lighting project at the Melican Middle School and requested an additional \$290,000 from CPC for FY20 to complete the project. With the

completion of the lighting upgrades, the Town now has two fully lit multi-use fields.

There are seven playgrounds in Northborough. They are located at each elementary school, Assabet Park, Ellsworth McAfee Park and Town Hall. The school playgrounds are open to the public after school hours and the two parks are open from dawn to dusk.

Town residents have the use of the beach and swimming area at Lake Chauncy in Westborough. A boat ramp, beach, and public fisherman’s access are located on the shores of Little Chauncy Pond off Lyman Street.

OTHER RECREATION PROGRAMS AND FACILITIES

The Boroughs Family Branch of the YMCA is located on Valente Drive in Westborough. It began its operations in 1983 in a small branch office running all of its programs without a facility. Swim programs were run at local hotel pools and child care programs were run out of leased church space and store fronts. The Boroughs Branch has provided services and programs throughout a nine-town area including: Berlin, Grafton, Hudson, Marlborough, Northborough, Shrewsbury, Southborough, Upton, and Westborough.

Through the years programs and services have grown resulting in the construction of a 62,000 square foot full facility that opened in November 2002. The facility houses a 6-lane 25-yard Pool, Full Gymnasium and Track, Rock Climbing Wall, Nature Adventure Zone for Kids, 2 Child Watch Rooms, Computer Room, Senior Lounge, Group Cycling Room, Aerobic Exercise Rooms, and a state-of-the-art Fitness/Wellness Center. The Boroughs Branch oversees the operations of two licensed Child Development Centers and Kindergartens in Northborough, and Grafton Finally, a multipurpose field allows for outdoor programs and summer camp activity.

▶ TOWN OF NORTHBOROUGH OPEN SPACE AND RECREATION PLAN – 2020

ACCESSIBILITY

The Town of Northborough has completed an Americans with Disability Act (ADA) self-evaluation of Ellsworth McAfee Park, Assabet Park, the Senior Center, Carney Park and Memorial Field. These evaluations are contained in Appendix F.

RECREATION, PARKS, AND FACILITY NEEDS

Over the past ten years, community groups have continued efforts to expand the active and passive recreation facilities. These efforts have led to a recognition that Northborough's parks and facility needs include:

- Sidewalks
- Bikeway/Walking trails
- Tennis / pickleball courts
- Space for indoor fitness programs
- A neighborhood dog park

Sidewalks

While there are approximately 76 miles of public roadways in Northborough, there are only approximately 37 miles of sidewalks (including sidewalks on both sides of some streets). The surveys and community forums identified the need for a system of well maintained, interconnected accessible sidewalks to encourage passive recreation and provide for non-vehicular connections to points of interest throughout Town.

Bikeway/Walking Trails

Opportunities for connections such as walking and biking trails, to provide for recreation as well as a transportation alternative, has been identified as a need. There are limited designated bikeways in Northborough that connect to key destinations, and limited off-road biking. There is also a desire for an interconnected system of trails. At present, walking largely involves driving to a "trail head" or walking along a roadway. Biking involves driving to a neighboring town for a bike trail or biking along a roadway. Additionally, the available trails are of a relatively short length.

The town has designated the Assistant Town Administrator as its ADA Coordinator and has in place an ADA Grievance Policy. Generally, the facilities are accessible by persons with disabilities, however because of limited funding and infrastructure, provision of restroom facilities for all persons proves to be a challenge.

Pickleball Courts

Pickleball courts have been identified as a need by community groups. The popular, growing sport of pickleball is played with a paddle and wiffle ball, over a net, and combines the rules of ping pong and badminton. Pickleball courts require less land than tennis courts.

The Northborough Recreation Department has been engaged with community groups interested in pickleball and has engaged an engineer to evaluate two different locations in town. The department will be applying for funding from the Community Preservation Committee and hopes to construct 4 – 6 courts in town in 2021.

Coordination with commercial recreation providers

In order to leverage all of Northborough's resources, coordination with commercial recreation facilities is important to identify and publicize the full range of programs, classes and facilities that are available to Northborough residents. The Corridor 9/495 Regional Chamber of Commerce could be a resource to identify commercial recreation operations.

FUNDING AND RESOURCE NEEDS

Funding for maintenance and improvement of recreation facilities, preservation of open space, and related passive recreation opportunities is presently dependent upon grants, Town Meeting appropriations, and volunteers. This sometimes results in limited ability to properly maintain existing facilities and resources, or to acquire land and develop and manage programs as opportunities arise. Therefore, open space and recreational efforts need to be focused on addressing the important Town needs and funding source requirements.

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Open space and recreational components can be incorporated into other types of projects such as roadway projects or infrastructure improvements to address multiple municipal needs.

A funding source which is at least partly dedicated to open space and recreation would be one way to fund maintenance of existing facilities and acquisition of targeted new facilities when the opportunities present themselves.

VOLUNTEER SYSTEM

Volunteers are presently recruited as a need arises and for operation of various recreation programs. Having an established system of recruiting and maintaining volunteers is a means to develop and implement programs without increased funding.

The town could develop a list of needs and job skills required and recruit volunteers in much the same manner as they do employees. For example, a Volunteer Corps could be established to assist with conservation and stewardship. The Town should also support and recognize the work of volunteers to progressing the Town's goals.

PUBLIC AWARENESS NEEDS

Many survey respondents indicated that they were not aware of the range of Northborough's facilities, primarily conservation areas. Recreation participants use the areas which are known to them and lack sufficient access to information about other areas. Survey respondents and public forum participants noted that there is a need for greater information such as maps, about the available recreation facilities and open space areas.

While there is information about the recreation facilities and open space areas on the Town's website, this information is limiting in that there is not one centralized source of information. This

information is currently segregated among departments and boards. Additionally, some information, such as trail maps, would be useful to have on smart phone apps.

MUNICIPAL WEBSITE

The Town's website is largely structured to find materials by individual departments.

With recreational facilities (such as fields) being under the responsibility of the Recreation Commission and open space areas (primarily Conservation Areas) being under the responsibility of the Conservation Commission and other areas being under the authority of State and private organizations, the structure of the website does not readily lend itself to a search for the full range of recreational opportunities. While maintaining the current overall structure of the website, some modifications could be made to allow someone searching for recreational facilities, programs, and areas to be able to locate all of the resources without going through each of the separate departments. The website should provide a "one click" access to all of the recreational opportunities in the Town – active, teams, passive, etc. In the long term, this may necessitate tapping one department to be responsible for coordination with other public and private entities regarding programs and activities so that promotion of all recreational opportunities is managed by one department.

PUBLIC AWARENESS PROGRAM

Residents are not informed as to the availability of the recreational facilities and programs and open space/passive recreation areas. An organized program to inform the public of these resources would likely result in their increased use and recognition of the need for more resources. Use of social media, articles in area publications, notices at Town Meetings, and public information meetings are some of the methods which need to be part of an outreach/awareness program.

C. Management Needs, Potential Change of Use

MANAGEMENT

The Parks Division of the Department of Public Works is responsible for mowing, trash pickup and minor landscaping at all town parks and recreation facilities, while the Recreation Department is responsible for all scheduling at all town parks and recreation facilities and all elementary and middle school outdoor fields.

No change of use is expected at any of the existing conservation or recreation areas. A dog park, if approved at either a state or municipal property, might be considered a change of use and require a new set of rules and regulations.

SENIOR CENTER

The Town's senior population is increasing year over year. The senior population has more than doubled since the previous Senior Center was built in 1984. As such the new larger Senior Center is expected to meet the needs of the current and future senior population.

In 2007, town voters voted overwhelmingly to support funding for the design of a new senior center. Estimated project cost was approximately \$7 million. The Senior Center Building Committee and the Council on Aging worked with Court Street Architects, Inc. and CMS, Inc. to develop the design for the new Senior Center. The 119 Bearfoot Road facility opened in the Spring of 2010.

The Senior Center provides social, recreational, and educational programs for those over 60 years of age. In addition, it is a source of information, support and referral through the Outreach Program. The Council on Aging/Senior Center is available as a community resource for anyone who needs information on services for older adults. We maintain an active calendar of activities ranging from exercise to art classes as well as ESL classes and presentations pertinent to aging. Information on activities can be found on the Town website as the monthly Senior Center

newsletter. The newsletter is mailed to all seniors through the generosity of the Friends of the Northborough Senior Center, Inc. who pay for the mailing costs.

The students from Algonquin Regional High School's Community Action Program lead Technology Tuesdays and help with a variety of volunteer positions. The students from Assabet Valley Collaborative also help out in the Bistro @119.

Additional areas of assistance offered at the Senior Center include housing, home health, transportation food resources, medical equipment, socialization and counseling.

COMMUNITY GARDEN

Residents are invited to apply yearly in the Fall for a plot in the Northborough Community Gardens on Valentine Road. The Community Gardens were built in 2011 and have grown in popularity since. All thirty gardens were rented every season.

NEW OPEN SPACE OPPORTUNITIES

The Town of Northborough has an Open Space Residential Design (OSRD) Zoning Bylaw (Chapter 7-10-010 Open space-residential design.) As a result, a new development may create open space and recreational opportunities. The purposes of open space-residential design are to protect open space, agricultural and forestry land, viewsheds, wildlife habitat and corridors, wetlands and water resources, and historical and archeological resources; to protect the value of real property; encourage creative, environmentally sensitive design as the preferred form of residential development; and to encourage more efficient development that consumes less open land and respects existing topography and natural features better than a conventional or grid subdivision. In the Residence A or Residence B District, the Planning Board may grant a special

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permit for an OSRD that includes two or more detached single-family dwelling units. In addition to detached single family dwellings, an OSRD may include the following uses:

- ❶ Open space, conservation or recreation areas, including trails for walking, hiking, cross country skiing, horseback riding, picnicking and wildlife observation.
- ❷ Agricultural, equestrian and horticultural uses.
- ❸ Accessory recreational amenities for residents of the OSRD, such as a tennis court or playground.

Any proposed common open space within an OSRD shall be conveyed in accordance with the provisions of M.G.L. c. 40A, § 9. In any case where the common open space is not conveyed to the Town, a restriction enforceable by the Town by its Conservation Commission or other board under M.G.L. c. 184, §§ 31-32 shall be recorded providing that such land shall be kept in perpetuity in an open or natural state, and the Board of Selectmen is hereby authorized to accept such restrictions if the Conservation Commission declines to do so in any instance. Wherever possible, existing trails shall be kept open for limited recreational use.

In addition to utilization of the OSRD Bylaw, the future disposition of the Westborough State Hospital property should remain a focus of those concerned with Northborough Open Space and Recreation.

RESOURCES

After the Town of Northborough adopted CPA at the November 2004 election, the Community Preservation Committee (CPC) was created through an article approved at the 2005 Annual Town Meeting. The CPA funds affordable housing, historic preservation, and open space and outdoor recreation projects. As of 2017, 172 communities have passed the CPA and those communities had protected 26,297 acres of open space and initiated more than 1,700 outdoor recreation projects.

Through the adoption of a 1.5% surcharge (of a maximum 3% surcharge) on each Northborough property tax bill, the State will match up to 100% of the amount raised by the Town.