

LAND – COMMUNITY – CONNECTION

2023-2030 Stow Open Space and Recreation Plan



Town of Stow -- January 2024

Table of Contents

Open Space and Recreation Plan

| | |
|--|-----|
| Section 1 – Open Space and Recreation Plan Summary | 3 |
| Section 2 – Background and Introduction | 5 |
| Section 3 – Community Setting | 11 |
| Section 4 – Environmental Inventory and Analysis | 34 |
| Section 5 – Inventory of Lands of Conservation and Recreation Interest | 66 |
| Section 6 – Community Vision | 110 |
| Section 7 – Analysis of Needs | 112 |
| Section 8 – Goals and Actions for Meeting These Needs | 122 |
| Section 9 – Seven Year Action Plan | 129 |
| Section 10 – Comments from Public and Town Boards | 135 |
| Section 11 – Resources | 136 |

| | |
|--|-----|
| <u>Appendices</u> | 139 |
| A. Full Survey Results | 140 |
| B. Accessibility Inventory and Transition Plan | 164 |
| C. Stow Open Space Ranking Criteria | 217 |
| D. Freedom's Way Landscape Inventory – List of Sites | 220 |
| E. Commonwealth Agricultural Lands Executive Order and Mitigation Policy | 228 |
| F. Comment Letters from Public Agencies on Draft Plan | 233 |
| G. Wildlife Species Inventory | 244 |

Maps

| | |
|---|-----|
| Map 1: Regional Context and Watershed | 12 |
| Map 2: Stow Lands Protected and Developed 2016-2022 | 29 |
| Map 3: Current Stow Zoning | 33 |
| Map 4: Soils | 36 |
| Map 5: Drumlin Protection Status | 37 |
| Map 6a: Surficial Geology | 42 |
| Map 6b: Aquifers | 43 |
| Map 7: Water Resource Protection District | 44 |
| Map 8: Floodplain Overlay District | 45 |
| Map 9: Wetlands | 46 |
| Map 10: Prime Agricultural Soils | 51 |
| Map 11: Certified and Potential Vernal Pools | 52 |
| Map 12a: Areas of Statewide Habitat Significance | 56 |
| Map 12b: Areas of Local Habitat Significance | 57 |
| Map 13: Unique Features Map | 60 |
| Map 14: Open Space Lands | 82 |
| Map 15: Recreation Department Interests | 87 |
| Map 16: Land Enrolled in Current Use Programs | 89 |
| Map 17: Unprotected Parcels with Agricultural Significance | 100 |
| Map 18: Unprotected Parcels with Recreational Significance | 101 |
| Map 19: Parcels Important for Linking Protected Lands | 102 |
| Map 20: Unprotected Parcels of Significance in the Underserved Quadrant | 103 |

| | |
|---|-----|
| Map 21: Parcels of Surface Water and Groundwater Significance | 104 |
| Map 22: Unprotected Parcels Preserving Small-Town Nature | 105 |
| Map 23: Unprotected Parcels with Habitat Significance | 106 |
| Map 24: Unprotected Parcels with Scenic Significance | 107 |
| Map 25: Unprotected Parcels with Historic and Cultural Significance | 108 |
| Map 26: Unprotected Parcels Significant for Climate Resiliency | 109 |
| Map 27: Regional Bikeways Map | 116 |
| Map 28: Stow Emerald Necklace | 118 |
| Map 29: Open Space Action Plan | 129 |

Section 1

Summary

Stow is a very special community. Despite increasing development pressures, the Town has managed to maintain a rural flavor lost in most of the surrounding communities along the Route 495 corridor. With approximately 7,200 residents, Stow retains a “small town” feel – the skies are still dark at night, affording excellent stargazing opportunities, and on summer afternoons, the rustling of leaves and the songs of birds are more noticeable than sirens or traffic noise. Many roads are lined with historic stone walls and there are numerous scenic vistas such as Pilot Grove Farm, Carver Hill, Lake Boon, the Assabet River, and golf courses. A wide range of agricultural products including fruits and vegetables, meat, Christmas trees, and cut flowers continue to be produced in Stow and are a major element of our community’s heritage and economy. Economically viable farms preserve open space and contribute in many other ways to Stow’s quality of life including access to locally grown food, clean air, and clean water. Many, but not all, of these farms are permanently protected.

In town-wide surveys from 2003 and 2015, more than 60% of residents indicated they moved to Stow for what it offers -- protected open spaces, farms, orchards, and Lake Boon. Other top responses were walking trails, safe neighborhoods/low crime, good schools, and quiet. Ironically, these aspects of Stow prized by residents also draw newcomers, making continued growth inevitable, particularly given the increase in remote work, which is changing commuter demographics.

Two new major developments are now in the permitting process, at the Stow Acres North Course and off Athens Lane. Together they will add between 300 and 350 dwellings to the same part of Town over the next decade and expand the diversity of housing options in Stow. This growth will continue to bring new perspectives and need for services such as classroom space, recreational needs, police, and fire services. Careful planning is needed to ensure the Town can respond to these demands while continuing to successfully maintain its quality of life, economic and environmental health, and community character. Our challenge is to provide for growth while simultaneously maintaining the existing small-town character of Stow and protecting and restoring resilient ecosystems so our community remains a place where flora, fauna, and humans can thrive. Protecting our important remaining open lands, which knit together and connect existing protected lands, can help us meet this challenge and be beneficial to the Town’s budget over time.

We are used to looking at Stow’s landscape and assuming what we see and experience will always be there. But build-out studies for Stow depict a future – where all the existing unprotected open land has been developed – that does not align with local and regional plans. Many eastern Massachusetts communities are looking at a “build out” time horizon of 5 to 15 years. The reality is that the decisions being made within the next decade will play a major role in shaping the Stow’s future. To the extent that the existing build out projections would create undesired impacts, the Town must act now to change this blueprint and to create the “green infrastructure” that will sustain this community over the long term.

This Plan identifies specific open space and recreation needs in Stow that require actions to address. These include:

- Protection of Priority Lands identified in the Plan
- Protection of Stow’s Agricultural Base

- Protection of Stow's Remaining Forest Habitat
- Continued Protection and Connection of Lands in the Southwest Quadrant of Stow and Provision of Recreational Opportunities
- Planning for the Protection of the Remaining Key "At-Risk" Golf Course Parcels
- Completion of the Stow Acres Climate Resilience Master Plan
- Linkage of Existing Conservation and Recreation Lands and Creation of Additional Walking and Cycling Opportunities
- Enhanced All-Persons Accessibility at Existing Conservation and Recreation Areas
- Improved Access to Water-Based Recreation
- Continued Support for Active Recreational Facilities
- Education Regarding the Community and Fiscal Importance of Protecting Open Space and Its Role in Mitigating Climate Change
- Expanded Land Stewardship Efforts

This Plan calls for specific actions to meet these needs, including active efforts to acquire or otherwise protect priority lands and provide recreational opportunities for Stow's residents. The Town needs a strong, ongoing and well-prioritized land protection effort that makes use of all of the "tools" in the toolbox – encouraging donation of land and conservation restrictions, purchasing key properties, and making use of limited development, zoning incentives and creative land protection partnerships with private organizations, including affordable housing groups, that can assist with raising funds. We need to continue our efforts to meet the recreational needs of families and older residents, who are increasingly seeking opportunities for easy walking for exercise and health. In addition, the Town should ensure that land use and open space decisions are coordinated, infrastructure and capital facilities decisions support efforts to preserve important lands, and the various staff, boards and organizations involved in open space protection maximize their effectiveness. Finally, the Plan looks across Stow's borders to identify key linkages with open space and greenway efforts in surrounding towns and within the region, and opportunities to collaborate with neighboring towns.

Section 2

Background and Introduction

On December 15, 1964, just as Route 495 was opening at Route 117, Town residents gathered at Stow Town Hall to listen to speakers and consider several key questions, setting events in motion that would fundamentally shape the growth and development of Stow for the next fifty years.

- Does Stow need conservation land now? Where, why, and what kind?
- Do town forests, recreation sites and open space sites pay off?

That meeting led to an innovative effort to prepare a Natural Resource Inventory for Stow, led by the Stow Conservation Commission and Stow Planning Board. This Inventory was completed in October 1965 with the assistance of the Middlesex Conservation District. The Inventory, called *“Reconnaissance and Preliminary Report of the Natural Resource Inventory and an Evaluation of Development Potentials for the Town of Stow, Massachusetts,”* was the first of its kind, and was widely hailed by conservationists across the region, winning both a statewide award and acclaim from the Massachusetts Audubon Society. The Inventory resulted in a series of maps identifying locations for town forests, trails, recreation sites, historic sites, and nature study areas in Stow. It also identified scenic vistas and areas that were unsuitable for building due to soils, streams and high groundwater. The final products of the study were a series of four maps as well as a narrative describing each site.

Shortly thereafter, the Town completed its first Master Plan in 1965 with the help of Thomas Associates, and also completed its first Open Space Plan in 1966. At the same time, the Conservation Commission, with the support of other boards, launched the effort to protect more than 300 acres owned by C.D. Fletcher along the Assabet River off Bradley Lane. This land would eventually become Stow Town Forest – Stow’s first conservation area – in 1968.

It is worth noting that many of the protected conservation and recreation lands that are community assets today were singled out for protection in these 1960s-era plans, including Town Forest/Gardner Hill, Marble Hill, Spindle Hill, Annie Moore, and Ministers Pond. Other identified areas like Harvard Acres, Birch Hill, and Pilot Grove Hill have largely been lost to development. And the fate of other areas remains to be determined.

Stow has regularly revisited the recommendations in its Open Space and Recreation Plans since that time, with updated plans completed in 1972, 1980, 1987, 1997, 2008, 2016 and now, in 2024. Each Plan reflects the concerns of the time to an extent, and each Plan has been able to take advantage of more sophisticated natural resource information and mapping technology. And yet each plan attempts to answer the questions from that initial meeting in 1964 – how much land should be protected? Which land is most important? What are the tax and community development implications of these decisions? And how should this land be managed? Each edition of the plan builds on the historic settlement patterns of Stow, incorporating our increased understanding of science and natural resources protection and the changing demographics of our community.

2A. Statement of Purpose

This Plan is an update of the 2016 Open Space and Recreation Plan prepared by the Town of Stow. The Plan summarizes the progress that the Town has made in providing for its open space and recreation needs and sets forth goals and specific action items for the next seven

years. The Plan is designed to provide a framework for the efforts of various Town boards and committees involved in the protection of Stow's open lands and the provision of outdoor recreational opportunities and is intended to guide municipal partnership efforts with both state and federal agencies and nonprofit organizations. It will also help guide work by the Town's Community Preservation Committee, Green Advisory Committee, Open Space Committee, and the Planning Board's ongoing Comprehensive Plan Update. The Open Space and Recreation Plan must be updated regularly to maintain eligibility for the Commonwealth's open space and recreation grant programs. This is the eighth Open Space and Recreation Plan developed by the Town of Stow.

2B. Planning Process and Public Participation

This Plan has been prepared by an Open Space and Recreation Plan Working Group under the direction of Kathy Sferra, Conservation Director and Laura Greenough, Recreation Director. The Working Group includes Recreation Commission member Samantha Altieri, Conservation Commission member Liza Mattison, Open Space Committee member Laurie Burnett, and at-large member Sandra Grund. Mapping assistance was provided by Malcolm Ragan and Michael Slagle of the Planning Department. A map of resilient lands was developed by the Open Space Committee.

The 2016 Open Space and Recreation Plan was used as the starting point for this Plan. The Working Group reviewed it, updating relevant information, and noting the significant changes that have occurred in Stow since that time, as well as progress made in carrying out the recommendations of the 2016 Plan. New data from a variety of sources was also incorporated.

Stow is fortunate to have many organizations and agencies involved in open space protection. These include the Conservation Commission, Open Space Committee, Community Preservation Committee, Planning Board, Stow Conservation Trust, Sudbury Valley Trustees and state and federal agencies. At present, these entities are all working collaboratively to maximize efforts to protect open land – and make the most of the next ten to fifteen years – by which time most important land use decisions will have been made in Stow.

2C. Progress Made Since 2016 Open Space and Recreation Plan

Stow has made significant strides in advancing its open space and recreation goals since approval of its 2016 Plan, protecting approximately 525 new acres of land, creating new public spaces and trails, and advancing community understanding of Stow's important resources. Many of these projects have been accomplished using Stow Community Preservation Funds approved by Town Meeting and/or in partnership with Stow Conservation Trust. Highlights include:

- Development of Town Center Park in the center of Stow for accessible recreational use – including accessible trails, a gazebo, benches and picnic tables and a scenic view of Ministers Pond.
- Acquisition of Conservation Restrictions on two iconic farm properties, Carver Hill Orchard and Small Farm
- Acquisition of the long-sought Kunelius Property on Red Acre Road for conservation and water supply, and in partnership with the Stow Municipal Affordable Housing Trust which will develop a portion of the land for a small affordable housing project.
- Development of a comprehensive vision for the planned conservation and development of Stow Acres golf course – and subsequent purchase of a conservation restriction on the South Course and purchase of 2/3 of the North Course for conservation and recreation purposes, with a mixed income master planned community on the remainder of the land. This project of statewide significance will be a major focus in the coming years.

- The town successfully completed the Municipal Vulnerability Preparedness (MVP) Community Resilience Building Workshop in 2016 and prepared an MVP Report in 2018.
- Securing a two-year MVP Action Grant (2022-2023) to acquire Stow Acres North Course and develop a Climate Resilience Master Plan for future conservation and recreation uses of the property.
- Acquisition of Hallock Point, the largest parcel on Lake Boon, in the southeast corner of Stow through the Chapter 61 process, and the development of a trail network that provides passive recreational opportunities adjacent to Lake Boon as well as access from the water.
- Protection of additional properties including land on Spring Hill, the Harvard Acres Open Space, a small addition to Stow Town Forest, a conservation restriction on a horse pasture on Harvard Road, the open space for the Regency at Stow development, and the rear of the former Lundy Property off Joanne Drive, now called Assabet Overlook Conservation Area.
- Completing permanent protection of two “Article 97 Mitigation Parcels” on Great Road adjacent to the Police Station and on Hudson Road at Sandy Brook. Both parcels are adjacent to current or future conservation land and offset impacts to protected land for the Box Mill Bridge improvements and exploration of water for Lower Village.
- Acquisition of an Agricultural Preservation Restriction on a portion of Honey Pot Hill Orchards on Boon Road.
- Creation or improvement of trails at Captain Sargent Conservation Area, Shepherd Memorial Woodlands, and Red Acre Woodlands, Town Forest/Carver Hill, Hallock Point and Assabet Overlook (Joanne Drive), as well as the Stow Acres South Course.
- Continued efforts to set aside open space and trails focused on the Southwest Quadrant of Stow (the “underserved area”) in the areas of Stow Acres and Athens Lane.
- Completion of a two-year Municipal Vulnerability Preparedness (MVP) grant project (2021-2022) focused on protection of water quality in Lake Boon and understanding the likely impacts on climate change on the Lake and providing significant input to the proposed development plans for the Kattelle property now being developed on Lake Boon in Hudson.
- Creation of a Green Advisory Committee that is currently engaged in developing a Climate Action Plan for Stow.
- Award of \$750,000 in federal funds for development of design plans for Track Road which would continue the Assabet River Rail from Acton and Maynard into Stow.
- Active management of invasive species on conservation land by the Town including Japanese knotweed, Japanese stiltgrass, and Tree of Heaven as well as additional invasive species management by Stow Conservation Trust.
- Securing American Rescue Plan Act funds for a major “Third Decade” project at the Stow Community Gardens which has expanded accessibility at the gardens and created a boardwalk trail filling a major gap in the town’s Flagg Hill-Captain Sargent-Red Acre Woodlands trail network.
- The Town is working with volunteers from Gleasondale on the construction of a trail on the Town-owned Kane Wellfield property in Gleasondale, and on creation of a neighborhood pocket park on former school land along Gleasondale Road in proximity to the Assabet River.
- The Town of Stow was awarded \$15,000 from the Metropolitan Area Planning Council’s Accelerating Climate Resiliency grant program to work with the OARS on the creation of a watershed-based Climate Resiliency Coalition among the 13 town MAPC Sub-region, of which Stow is a part. The Coalition will identify shared priorities among the town’s MVP plans and other climate initiatives to identify efficiency gains and share knowledge and resources as it pertains to advancing climate resiliency and watershed health. The Project received private funding for an additional 2 years, through 2023.

2D. 2022 Open Space and Recreation Survey

The Stow Open Space and Recreation Plan Working Group conducted a Stow Resident survey in conjunction with this Open Space and Recreation Plan update during August and September of 2022. The survey was made available both electronically and in paper format and the availability was announced widely on the Town's website, Facebook pages, through email, in the weekly announcements section of the local newspaper, and through organizational networks including the Council on Aging, Scout groups, the Randall Library, and through flyers posted on conservation and recreation properties throughout Town with a QR Code linking to the survey.

More than 400 responses were received, almost all of these from Stow (98%). A diversity of age groups responded, with the lowest responses being from those in the "Under 18" and "18-24" categories, despite an effort to reach out to the younger cohorts. Surprisingly, almost 25% of those who responded have lived in Stow for fewer than five years. Approximately half of respondents have children in the home.

Use of Stow's conservation and recreation land is high, with 65% of respondents saying that they use conservation and recreation lands either daily (23%) or weekly (41%). This number is a significant increase from the 2015 survey. Areas with high levels of use include area farms and orchards, Delaney Wildlife Management Area, Assabet River National Wildlife Refuge, Stow Town Forest and other Town Conservation areas, Stow Community Park, Pine Bluff and Stow Conservation Trust Lands. Receiving comparably low levels of use are area private health clubs, the Lake Boon boat ramp, Stow Community Gardens, area golf courses, and Pompo and Memorial Fields.

The table below shows the participation rates in various outdoor recreation activities, with high participation in informal individual or group exercise, use of parks, playgrounds and picnic areas, dog walking on conservation land and bird watching/nature study.

Outdoor Recreation Participation Rates in Stow

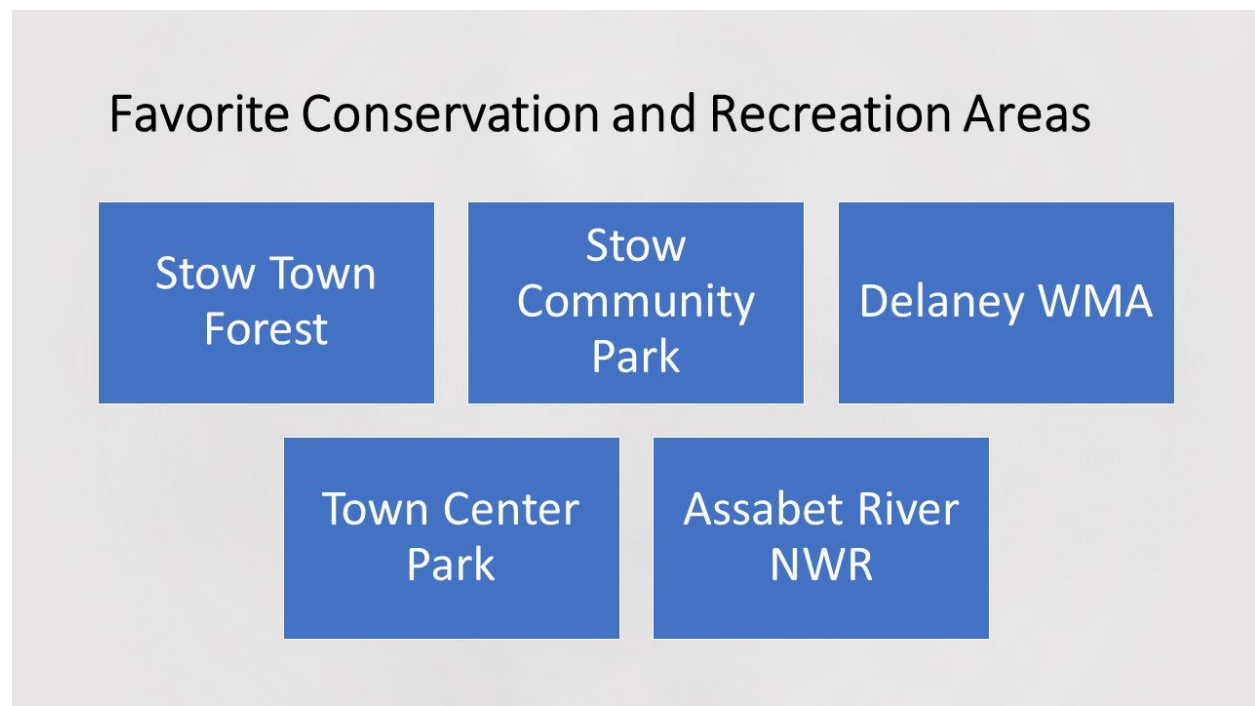
| High | Medium | Low |
|---|---|--|
| <ul style="list-style-type: none"> • Informal Individual or Group Exercise – 65% • Use Parks/Playgrounds/Picnic Areas – 64% • Dog Walking on Conservation Land – 46% • Bird Watching/Wildlife Watching Nature Study-44% | <ul style="list-style-type: none"> • Recreational Boating – 28% • Community/Youth League Sports – 27% • School Sponsored Recreation Activities/Team Sports – 26% | <ul style="list-style-type: none"> • Camp Stow (16%) • Adult League Activities (6%) • Rec Commission Programs (13%) • Competitive Events (12%) • Private/Formal Instruction(14%) • Hunting & Trapping (4%) |

Residents were asked what recreation facilities they would like to see more of in Stow. Support was strongest for sidewalks, a farmers' market, bike trails and bike lanes and an indoor swimming pool. All of these were supported by 50% or more of respondents. Lesser support (approximately 25% of residents) was noted for additional walking and hiking trails, including

accessible trails, public access to waterbodies, a splash park, outdoor performance space, a track, ice skating, dog park, neighborhood pocket parks, formal playgrounds, picnic areas, unpaved bike trails, informal nature play and a community center or teen center. There was the least amount of support for court sports including basketball, tennis, and pickleball, formal playing fields, a skateboard park, camping facilities, community gardens, or additional horseback riding or golf facilities.

Residents were asked about uses that they desire to see at Stow Acres in the future. The highest percentages were recorded for paved and unpaved walking trails, re-establishing wildlife habitat and stream corridors and tree planting, farmers' market and community event space, restrooms, a recreation building with exercise/pool space, picnic tables and shelters and canoe/kayak access to Elizabeth Brook. Extensive additional planning and outreach occurred for the re-use of Stow Acres in 2023-2024, including with teens and user groups, and is addressed in this plan.

Residents were asked to identify their favorite conservation or recreation area. Three local properties, Stow Town Forest, Stow Community Park, and Town Center Park were among the top five. Two of these are relatively recent Community Preservation-funded projects. Also at the top of the list were the state-managed Delaney Wildlife Management Area and the federal Assabet River National Wildlife Refuge. Suggestions for improvements were solicited for each area, and common themes included dog management, better marking of trails, and installation of benches and picnic tables and other facilities.



The final survey question was open-ended, allowing residents to comment on anything that was important to them relative to open space and recreation. Comments included statements about the importance of open space and community character, concerns about the existing tax burden in Stow, and specific recreational needs. The full survey results can be found in Appendix A.

2E. Public Review of Revised Plan

Once a draft of the Plan was prepared, it was made available for public review and comment. Copies of the draft document were circulated to all of the relevant Town boards and community groups for their comments and made available in the Stow Public Library. The distribution list included the following: Town Administrator, Select Board, Conservation Commission, Board of Health, Planning Board, Board of Assessors, Recreation Commission, Lake Boon Commission, Historical Commission, Finance Committee, Randall Library, Agricultural Commission, Open Space Committee, Green Advisory Committee, Tree Warden, and Community Preservation Committee as well as OARS, Stow Conservation Trust and Sudbury Valley Trustees.

The Open Space and Recreation Plan Working Group and Conservation Commission conducted a public forum on June 29, 2023 to present the final draft of the Plan and to accept additional public comments. The forum was advertised in local papers and via electronic means using the Town's website and via social media. Comments were received at the forum, and written comments were received from a number of individuals and from the Stow Planning Board and Select Board. These comments were all considered and revisions were made to the Plan to reflect comments received.



Shelburne Farm and Heath Hen Meadow Brook in Spring

Section 3

Community Setting

3A. Regional context

Stow is one of only a handful of communities within Route 495 that has managed to retain a largely rural character with many prominent open lands, farms and orchards, all of which contribute to the Town's character and economy. Stow's population, originally agrarian, has changed over recent decades to include workers in the high technology industries of electronics and biotechnology as well as many people who work from home in home-based businesses. Its socioeconomic level is generally middle to upper middle class.

Stow is within the Sudbury-Assabet-Concord (SuAsCo) Watershed (see Map 1). The Assabet River forms the main drainage area for the Town of Stow. The areas of highest elevation in Town are the bedrock and glacial till areas at Marble Hill. Other major topographical heights include drumlins such as Flagg Hill, Spindle Hill, Birch Hill, Pilot Grove Hill, Spring Hill, and Orchard Hill.

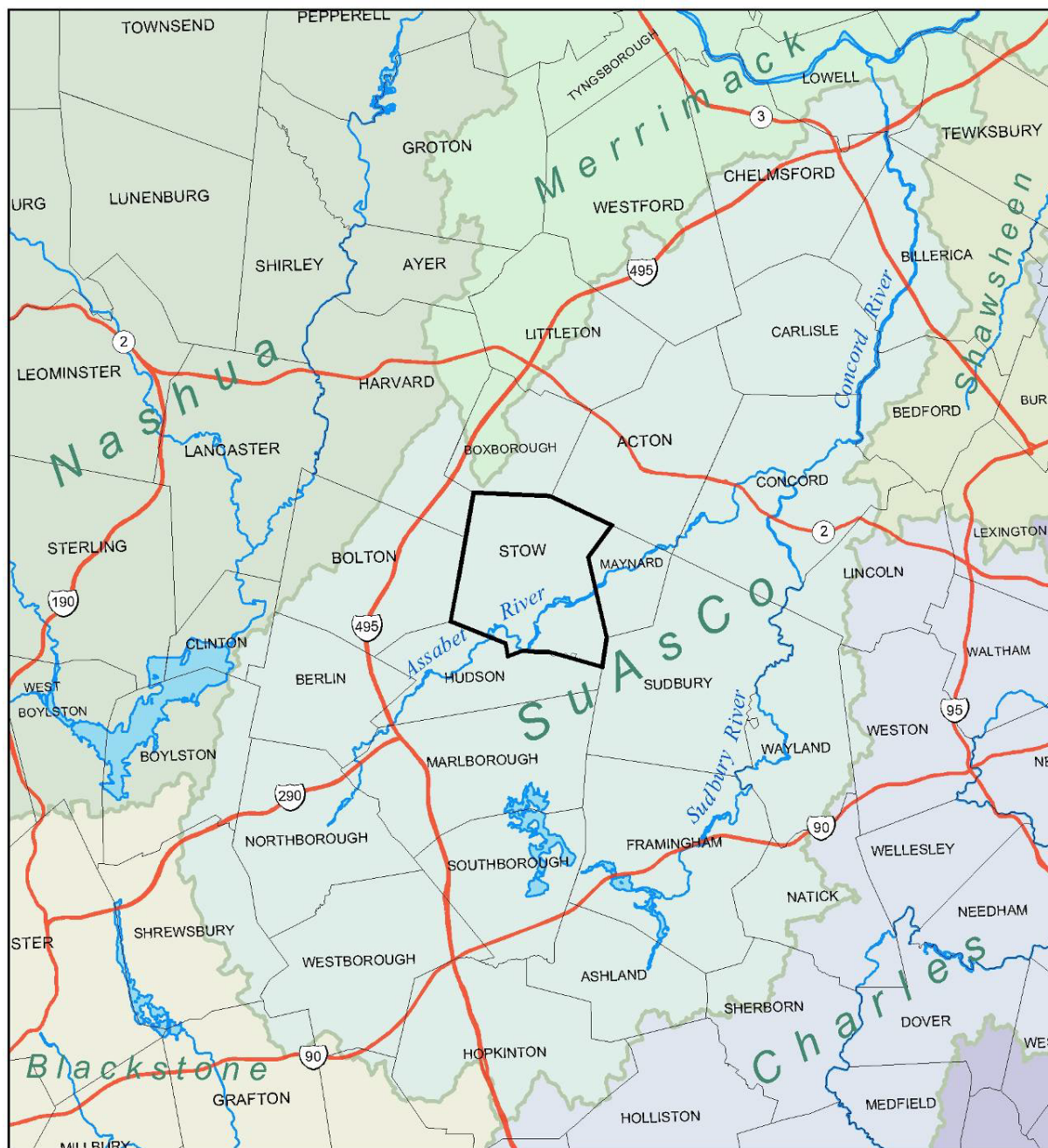
No interstate or other multi-lane highways pass through Stow. However, Routes 117 and 62 are heavily used by commuter and commercial traffic. These two roads, in addition to West Acton Road, carve the Town roughly into four quadrants. These main roads, as well as back roads which connect to adjacent towns of Acton, Maynard, Boxborough, Harvard, Bolton and Hudson, form the primary local road network. There are no public transportation systems in Stow, although the MBTA commuter rail is just over the town line in South Acton. North on Boxborough Road is Minute Man Air Field, which has grown over the years but still accommodates only small aircraft while also serving as an incubator for other industrial uses.

Stow has several light industries; the major ones include Radant, ET & L, and HydroTest. BOSE has recently vacated its campus and the land is currently being considered for purchase by several entities. Small businesses are clustered around the Lower Village Common (the eastern end of Route 117), along White Pond Road, scattered along Route 117, at the north end of Hudson Road, and in Gleasondale Village in the old mill complex.



The southeastern corner of the Town contains the Assabet River National Wildlife Refuge. This land, the former US Army Fort Devens Sudbury Annex, consists of approximately 1050 acres within Stow, a significant open space and recreational resource. Just across the Assabet River which forms the northwestern boundary of the Assabet Refuge is the Stow Town Forest (Gardner Hill Conservation Area) which encompasses 327 acres. Town Forest is traversed by

Stow - Regional Context and Watersheds



- SuAsCo - Sudbury / Assabet / Concord River Watershed
- Watershed Divides
- Highways



0 1 2 3 4 5 Mile

Hydrography, Town Boundaries, and Roads data provided by MassGIS.

Map produced June 2006.

Map 1: Regional Context and Watersheds

Elizabeth Brook, which flows from Delaney Pond in the northwest corner of Stow, through Delaney Pond into Wheeler Pond, then through Fletcher Pond, and the Gardner Hill Conservation Area, emptying into the Assabet River near White Pond Road. In the center of Town is Minister's Pond which is flanked by Route 117 and a portion of Crescent St.

In the southeastern section of Stow is Lake Boon. Although originally surrounded by summer cottages, it now has mostly year-round residents and market pressures have resulted in many dwelling demolition and reconstruction projects. This is a trend that is likely to continue. The Town Beach (31 acres) is located on the northeastern side of the lake at Pine Bluffs. Due to the increase in population around the lake, some pollution has occurred from failing septic systems or cesspools. Over the last few years most of these systems have been upgraded and residents around the lake have worked diligently to decrease the pollutant load to the Lake and regularly pump septic systems. Lake Boon was also the focus of the recently completed Municipal Vulnerability Preparedness Grant which sought to better understand the watershed and the likely impacts of climate change on Lake Boon. Nearby is White Pond, which is controlled by the Town of Maynard which prohibits recreational activity to protect water quality for the nearby municipal wells. Sudbury State Forest is nestled among the Wildlife Refuge, White Pond and the Lake Boon area.

In the southwestern corner of Stow is a former private landfill, which contracted its services to Stow and Hudson. This landfill was closed in 1996 and has been capped and developed for solar power generation. The site also serves as a log processing operation for area landscape companies. This part of Town also has a great deal of undeveloped land, only a small amount of which is permanently protected, and also is home to some industry, e.g., Radant Corp, as well as the former BOSE site, which is likely to be repurposed in coming years. There are two large developments in this area which were built in the last 20 years, the Villages at Stow 40B and the Arbor Glen Active Adult Neighborhood. A large amount of undeveloped land still lies west of Hudson Road and is currently being considered for development. The Hemenway Farm subdivision has been permitted but not yet constructed due to groundwater contamination issues currently being remediated. Several other small subdivisions have recently been built in this area. To the west is the Annie Moore land (27 acres) which spans the town boundary and is accessed via Bolton. This is the part of Stow which is likely to see the greatest change in coming years, what with two large developments already on the drawing board and a new owner for the former BOSE facility.

The northwestern section of Stow is dominated by two main features, the Delaney Flood Control project and the Harvard Acres residential development. The Delaney Project encompasses 170 acres consisting of open water and marsh, and a perimeter of wooded or open conservation land. The north central region of Stow contains the Marble Hill Conservation Area (249 acres) which is close to but not immediately adjacent to the Delaney land.

The northeastern sector of Stow is dominated by a major marsh system, Heath Hen Meadow through which Heath Hen Meadow Brook meanders. Near this brook are the Captain Sargent Conservation Area, Heath Hen Meadow Brook Conservation Area, and the Flagg Hill Conservation Area, all of which were acquired with financial assistance from the Commonwealth's Self-Help Grant Program, and which make up a vast interconnected network of conservation land. Also in this area are the Red Acre Woodlands and a large complex of privately conserved land including Shelburne Farm.

Many of these conservation areas are close to being linked through a trail system called the "Emerald Necklace." One of Stow's long-term goals is to continue to connect this green belt and trail system throughout Stow, perhaps linking with adjacent towns.

Stow is a member of the Minuteman Advisory Group on Interlocal Coordination (MAGIC), one of 8 subregions of the Metropolitan Area Planning Council (MAPC). MAGIC is a group of communities that meet regularly to discuss issues of common interest. The Sudbury Valley Trustees (SVT) is a regional nonprofit organization that works on open space protection issues in Stow, as does the Stow Conservation Trust, a local nonprofit land trust founded in 1978. SVT coordinates the Metrowest Conservation Alliance (MCA) which brings together activists working to protect open space in Stow and surrounding communities. The Assabet River Rail Trail is a regional bike and pedestrian “rail trail” project which stretches from Acton to Marlborough.

Regional Open Space Priorities

As part of Stow’s Open Space and Recreation Plan update, the Open Space and Recreation Plans of the surrounding adjacent communities were reviewed.

The Town of **Acton's most recent Open Space and Recreation Plan covers the period 2014-2021**. Acton’s Open Space and Recreation Plan emphasizes the preservation of the remaining elements of Acton’s rural character, protecting the environment and improving recreational opportunities. Stow and Acton have been continuously working on the possible trail connections between West Acton’s Heath Hen Meadow and Stow’s Captain Sargent Farm Conservation Area, and Sudbury Valley Trustees (SVT) Conservation Restriction (CR) lands. Another possible winter connection is the Whitcomb CR land (held by Acton Conservation Trust) and Captain Sargent/Shepherd Woodlands. At this time, a walk to Stow’s Captain Sargent land from Acton can only be done in cold weather, when there is enough thick ice formed to get over the many marshy areas.

Bolton’s most recent Open Space and Recreation Plan was completed in July 2018. Stow’s common boundary with **Bolton** includes the Annie Moore Conservation area, which is accessed through Bolton but includes lands in Stow as well as the 580-acre Delaney Wildlife Management Area (WMA) which is formed by several dams located along Elizabeth Brook and managed by the Massachusetts Division of Fisheries and Wildlife. Delaney WMA spans four towns – Stow, Bolton, Boxborough and Harvard and is one of the more significant areas of Stow from an ecological standpoint. Delaney attracts large numbers of bird species to a variety of habitats – including open water and marshes used by waterfowl. Much of this area is mapped by the Massachusetts Natural Heritage and Endangered Species Program as rare species habitat. It also receives extensive public use from entrances in several towns for hunting, fishing, walking, dog walking, skiing and other recreational pursuits.

The **Harvard** Open Space and Recreation Plan was updated in 2016. Most of Harvard and Stow’s boundary encompasses the Delaney Project. Several of the streams that feed the Delaney rise from wetlands in Harvard and the Delaney (maintained by the Massachusetts Department of Fisheries and Wildlife) is an important area for wildlife habitat protection.

The **Boxborough** Open Space and Recreation Plan was recently updated and spans the period 2022-2027. The Plan includes among its goals to protect upland adjacent to the Delaney WMA and Wolf Swamp. The Town of Boxborough’s Conservation Commission jointly manages the Flagg Hill Conservation Area with the Town of Stow’s Conservation Commission.

Stow’s Heath Hen Meadow Brook, which is a priority for conservation, also has its headwaters in Boxborough. Much of this area is protected although there are some unprotected properties along the stream corridor. Most of these unprotected parcels are owned by Minuteman Airfield and are mapped by the Boxborough OSRP as an open space priority.

Hudson's Open Space and Recreation Plan was updated in 2016 and states among its goals continued protection of its well fields, including the Chestnut wells located on land bordering Stow. In 2014 the well fields were approved for siting of a ground mounted solar array. Stow and Hudson both own portions of Lake Boon and a Lake Boon Commission made up of representatives from both towns works to monitor and treat the water quality and health of the Lake. The Assabet River Rail Trail (AART), completed in 2005, still lacks contiguous connection through Stow, leaving a gap between Marlboro-Hudson and Maynard-Acton. Planning and design also continues for the Central Mass Rail Trail, a portion of which will pass through a corner of Stow's southern boundary.

The **Maynard** Open Space and Recreation Plan was last updated in 2017. Maynard shares several important resources with Stow including the Assabet River, Assabet River Rail Trail, and the Assabet River National Wildlife Refuge. In 2018, Maynard opened its section of the Assabet River Rail Trail, connecting the Assabet River National Wildlife Refuge with downtown Maynard and beyond. In addition, a large area of orchard land farmed by Derby Orchards straddles the town line, and has been identified as important to protect in both the Stow and Maynard Open Space Plans. There is also a large area of open land in Maynard that borders protected land in Stow to the east of Red Acre Road, much of which is wetland – this area is part of the Great Swamp. The area is identified as important for protection as it borders Rockland Woods and includes priority habitat. Previous proposals for the Ben Smith Dam in Maynard would have had a significant impact on the Assabet River in Stow. Because Maynard has fewer protected properties, residents widely use Town Forest and other Stow properties. Maynard's plan prioritizes the protection of water resources, including the Assabet River, and acquisition of additional land.

In the fall of 2021, the Metropolitan Area Planning Council (MAPC) adopted **MetroCommon 2050**, a **regional plan** for the Boston regional area which includes Stow. MetroCommon 2050 founded its plan on the values of equity, resilience, prosperity, and stewardship, and in commitments to creativity, partnerships, and utilizing data driven and evidence-based decision-making. The 5 Action Areas identified include: 1) Climate Change 2) Dynamic and Representative Government 3) Equity of Wealth and Health 4) Homes for Everyone 5) Inclusive Growth and Mobility. The following are goals and actions within each of the 5 interrelated areas most relevant to our plan:

Climate Change

- Prepare for the extremes of cold, heat, extreme rainfall, drought, and stronger storms.
- Neighborhoods are designed and improved to protect the health of residents, with ample shade, drainage, and green space. Wetlands, water bodies, forests, and plant and animal communities are restored and protected, and are able to adapt to climate change impacts.
- Our cities and towns are healthy, with beautiful parks and natural areas accessible to all.
- Unavoidable waste produces energy, fertilizes the soil, or is reprocessed.
- We have enough fresh water from our wells, streams, and reservoirs to meet the needs of people and wildlife. Our farms and fisheries produce plentiful and healthy yields and are sustainable. Habitats, forests, wetlands, and other natural resources are protected and enhanced.

Dynamic and Representative Government

- Community participation

- Our recommendations for strengthening our local and regional governments include greater collaboration and representation across governments and with institutional and private sector partners. We would like to see more flexibility and joint decision-making to raise funds from regional sources to address regional challenges. And by making government more accessible and a more rewarding experience, new generations of workers and volunteers of all backgrounds will be more likely to work for and participate in their municipal and regional governments.

Equity of Wealth and Health

- Create opportunities for communities historically excluded from our community to access resources.
- Undo historical practices and policies that have led to unequal access to resources.

Homes for Everyone

- Support partnerships with land trusts to create denser and wide range of housing options.

Inclusive Growth and Mobility

- People with mobility limitations and those without a car can get around easily and can afford to do so.
- People of all ages walk or bike more frequently for short trips because conditions make that option safe and enjoyable.
- Residents and visitors of all backgrounds enjoy a wide variety of historical, cultural, recreational, and artistic experiences. Public art, cultural institutions, and social activities reflect our region's diversity and an accurate reflection of history.
- Public programming and urban design encourage opportunities for social and cultural experiences and walkability. This builds social connections and cohesion.
- Our recommendations also call for greater attention to the public realm in both new and existing neighborhoods. This includes better access to parks and open space, support for public art, artists, and historic preservation, and human-scaled design.

The detailed plan contains numerous specific recommendations. Most relevant to Stow and this plan are:

- Action 3.1: The state should continue to incentivize cities and towns to construct separated bicycle facilities such as trails, greenways, and buffered bike lanes with increased funding programs for design and construction.
- Action 3.2: Cities and towns should adopt local policies to add separated bike facilities as part of most roadway reconstruction or repaving projects unless analysis recommends otherwise.
- Action 2.3: Incentivize and require local policy changes through state's MVP Program... An updated version of MVP could be used to incentivize municipalities to adopt climate resilient zoning ordinances and policies, such as flood resilient zoning, cool roof requirements, and green factors codes that encourage green infrastructure for residential and commercial properties. Policies should encourage and require the use of nature-based solutions where appropriate, including additional on-site water infiltration requirements, shading and shade trees, and protection of natural resources and land conservation. The program could provide technical assistance and template policies to help municipalities to take actions that make them eligible for additional funding and technical assistance support.
- Action 3.2: Encourage and incentivize adoption of local zoning that restricts development in high-risk locations.

Sudbury Valley Trustees has also completed a new regional land protection priority mapping exercise for the SuAsCo watershed in conjunction with the Metrowest Conservation Alliance, in which Stow plays a leadership role. SVT has produced four maps, each of which focuses on a separate conservation theme. These are: Natural Services, Habitat for Biodiversity, Community Conservation and Farmland.

Statewide open space and recreation needs are addressed in the Massachusetts Statewide Outdoor Recreation Plan (SCORP). The most recent plan was updated in 2017 with a focus on making open space and recreation lands accessible to underserved populations, supporting the statewide trails initiative by acquiring trail properties and developing new trails, increasing the availability of water-based recreation through land acquisition and facility development and protecting drinking water supply lands, and supporting the creation and renovation of neighborhood parks.

3B. History of the Community

The history of Stow has been compiled by several authors over the years. They don't all agree on the details. Two versions of the History of Middlesex County, compiled in 1880 and 1890, contain extensive chapters on the Town of Stow. The Crowell history was published in 1933 for the 250th anniversary of the Town. Fifty years later, a history of the Town was compiled by Ellie Childs and published by the Stow Historical Society Publishing Company as part of the Tercentenary in 1983. The summary below is taken from these works and several others.

Early Stow History

Britain was a country in turmoil during the mid-17th century, and Massachusetts was the recipient of a great number of migrants from that country during those turbulent times. The people the English settlers referred to as "Nipmuc" occupied the interior portion of what is now Massachusetts and parts of Rhode Island and Connecticut. Their homelands included the Natick/Sudbury/Concord area on the east, and the Connecticut River valley in the west. The Nipmuc were semi-nomadic hunter-gatherers, who fished, hunted game, gathered nuts and berries, and grew traditional native crops of corn, beans, and squashes.

According to the Hassanamisco Indian Museum, the bulk of the Nipmuc population lived along the rivers and streams connected to the Blackstone, Quaboag, Nashua, and Quinebaug Rivers. Local historian David Mark points out that our Assabet River with its fast flow in the spring followed by very low flow in the summer and fall was less conducive to year-round fishing than other rivers. Also, the land was hilly, with swamps and rock-strewn meadows, and therefore not well suited for agriculture. The land in Stow would later be described as "very meane" by prospective settlers. No doubt this is why Stow was the last among the surrounding towns to be settled by Europeans.

After the incorporation of Concord, Sudbury, Marlborough, Lancaster, and Groton, there remained quite a large tract of land



*Present day boundaries of Nipmuc lands.
Source: Hassanamisco Indian Museum*

surrounded by these towns, and the Nashobah Plantation (now Littleton). The Nashobah Plantation was one of the original seven plantations in the area populated by "praying Indians," Native Americans who converted to Christianity. This large tract of unsettled land was called Pompositticut by the Nipmuc, later to be called Pompositticut Plantation by settlers. After land was ceded to several surrounding towns over the years, the remaining area is what we now recognize as the present-day Stow.

There is no doubt that the Nipmuc frequented the territory known as Pompositticut, and that some of them laid claim to lands within its bounds. While there is relatively scant evidence of actual residency or farming by the Nipmuc in Stow, some arrowheads and other artifacts have been found in the area. After incorporation, the town ordered at least two local Natives be compensated for their land. Many years later the town voted to sell "'the Indian planting land' upon the river below Zebediah Wheeler's" (*History of Middlesex County*, 1880.)

The earliest known English settler upon this territory was Matthew Boone, arriving in 1660 from Charlestown, generations later than settlers arrived in the surrounding towns. Well-travelled roads had been laid out through the area long before Boone arrived, connecting the towns of Concord and Sudbury with Lancaster, among others. Mr. Boone settled upon what was described as a "vast surface of hills, plains and ponds", where he proceeded to farm the land and raise a family. Presumably, most if not all of those plains and ponds now lie under Lake Boon, formerly known as Boon's (or Boone's) Pond, following the construction of the dam on Bailey's Brook around 1870. The largest hill within the area he settled upon now bears his name, Boon's Hill, and a monument recognizing him stands on the west side of Barton Rd.

John Kettell was Stow's second known settler, arriving about three years after Boone. He took up residency in the southwestern part of town in the vicinity of where Maple St is now, on what was then the border with Lancaster. The Hale family acquired the Kettell land consisting of about 300 acres from an heir of his and held possession of the land until 1883. A monument to Kettell stands on the east side of Maple St., and Kettell Plain Road bears his name.

Another early settler was Sydrack Hapgood who had taken up land on the Assabet River about a mile and a half from the "old Common". He, along with eleven other men, made the first move toward the organization of a town on October 12, 1669. However, tensions were rising between some of the Natives and some of the Colonists, so fear prevented Pompositticut Plantation from formally being settled as a village until after the conclusion of King Philip's War, in 1680 or 1681. The Town of Stow was incorporated two years later. Sydryack Hapgood was killed early in the war, near Brookfield on August 2, 1675.

The Nipmucs initially had friendly relationships with the Europeans, and many continued to do so during the war and afterwards. Both Boone and Kettell apparently lived harmoniously with the Natives of the area for quite some time, farming the land and raising families. But hostilities between some English colonists and Natives were escalating under the Wampanoag leader, Philip, of southeastern Massachusetts and the Providence, RI area. Although many local Nipmuc remained on the side of the English during the war, many other Nipmuc joined with Philip and the Wampanoag in fighting both the English and other Natives. By June of 1675 King Philip's War had begun. Atrocities committed by both sides were widely reported.

The day before an infamous massacre at Sudbury in February of 1676, Matthew Boone and his son, while attempting to move their goods to a safe place, were ambushed and slain near the Stow/Sudbury border. John Kettell fled for protection to Lancaster, where his second wife and some of his children were captured in the famous raid upon that town, also in 1676. Some reports show Kettell having been killed on February 10, 1676, but other reports show him having lived for quite some time afterwards.

After the hostilities subsided, and peace returned to the area, plans to settle a village at Pompositticut Plantation were renewed, although no record of activity appears until 1680. A document from 1681 lists the owners of the twelve original lots drawn by the proprietors. These homestead lots were laid out along the northerly and southerly sides of the old road laid out in 1646, between Lancaster and Sudbury, passing along present-day Crescent St, and over the river where White Pond Rd crosses today. 22 more other persons were granted lots between 1679 and 1686. Some direct descendents of original landholders still reside in Stow today. Before long, the plantation had the beginnings of an organized town government. The village continued to grow, and by May of 1683 the General Court granted their request for incorporation and gave the name of Stow to the new town.

By 1702, the Town was looking to expand into the aforementioned Nashobah Plantation (Littleton), first by petition to the General Court and then by a lawsuit with Littleton over the bounds, both of which failed.

By the late 1600s the first mill was documented on "Assibath Brook" (now Elizabeth Brook) in an area that is now part of Stow Town Forest. Many other mills followed: "wherever there was sufficient flow of water one could expect to find a mill" (Childs, 1983). In the early 1700s some of the first bridges were built in Stow, primarily to cross the Assabet River.

One of the more notable citizens of Stow in the 1700s was Henry Gardner who in 1768 was unanimously chosen to go to Faneuil Hall in Boston to take "the state of our public affairs" into consideration. He was later appointed Receiver-General by the Provincial Congress to collect and hold the colonists' taxes in lieu of payment to the Crown. In 1775 he was unanimously elected Treasurer by the 3rd Provincial Congress.

On April 19, 1775, John Gates Diary officially recorded that "a civil war [the Revolution] began in this Province" (Childs, 1983) almost exactly 100 years after the King Philip War. Dr. Samuel Prescott came galloping into Stow to warn the people and the 81 militia men that the British were coming.

In 1786 there was a severe economic depression. Farmers were so desperate that in Western Massachusetts they started a revolt, Shay's Rebellion. Captain Nathaniel Sargent from Stow (after which Captain Sargent Conservation Area is named) led a company to quell the revolt. Times were particularly hard after the Revolution so the Town built a "Poor Farm" or alms house on White Pond Road.

The 19th century was a time of growth and change. The appearance of the Town was documented on the 1830 map of Stow. A woolen mill was built on the Assabet River in 1813. In 1823, Lucy Smith bought the Gibson Farm on Pompositticut Hill and eventually deeded it to her son-in-law, Isaac Maynard. Eventually this land became a part of the Town of Maynard. "Half-mile trees" - elms -



Stow's historic Town Hall, built in 1848

were probably planted before 1850 from Rock Bottom (now Gleasondale) to Stow Center. Dutch Elm disease has since destroyed all of them. The railroad came to Rock Bottom in June of 1850. It came from South Acton through Maynard eventually to Rock Bottom and ended in Marlborough. Near the Rock Bottom Mill was a shoe factory and cabinet makers.

The Civil War drew a prompt response from the Stow militia. The townspeople had long supported abolishing the slave trade. Stow sent 112 men to fight. The Rock Bottom Mill prospered by supplying woolen goods.

At the beginning of the 20th century, many changes occurred. Stow's population was 1002. The electric trolley line of the Concord, Maynard and Hudson Street Railway was installed through Stow. In 1923, the trolley was replaced with buses. Hudson Light and Power brought power to Stow in 1906. A little later the Marlborough-Hudson Gas Company brought gas to the community. Indoor plumbing, a telephone in the Town Hall and running water were now in place. Wireless was available at every railway station. Shortly after 1912, radios were commonplace in households. The automobile appeared in Stow in the first part of the century.

What is now Stow Acres Country Club became one of the first country clubs in the United States that catered to black players and hosted the Black Men's Championship Golf Tournament.

The dam on Bailey Brook on Barton Road enlarged Lake Boon and a few summer cottages were built around the Lake. A steamer ran around the shore to transport men to and from the train stop at Whitman's Crossing near what is now the corner of Sudbury Road and Barton Road. The Town took title to the Lake Boon dam in the late 1950s.

World War I had 77 Stow "boys" enlisted. After the war many immigrants arrived having fled Europe. In the Depression it was hard to make money but many citizens of Stow, good farmers, did not go hungry and inspired non-farming people to garden. However, the residents of Gleasondale Village suffered greatly when the mill shut down, workers lost their jobs, and the neighborhood grocery store had to close. The hurricane of 1938 did significant damage to the trees and buildings of the Town. Several sawmills were set up and worked for more than three years to convert the damaged trees into lumber. Then came World War II and many young men in Stow were drafted. Much of the stockpiled lumber cut from the trees felled during the 1938 hurricane was used to construct the barracks at Fort Devens in Ayer. After the war there was a great pressure to produce more food and Stow orchards constructed cold storage barns to handle the demand for increased quantities of fruit.

Modern Development and Conservation History of Stow

The 1950s and 1960s brought Stow's first large-scale subdivisions to a small town that was unprepared for the growth that was to come but which was suddenly accessible due to the opening of Route 495 in Bolton. At the time, town bylaws did not explicitly require building permits for the construction of houses, and the state sanitary code contained no requirements for septic systems. Zoning was virtually non-existent, with the whole town being in one zoning district. The Board of Selectmen was the Zoning Enforcement Agent and the Board of Health for the town. Stow's first subdivision to be developed was Assabet Heights, located on the Stow/Maynard line off Great Road. This area was once the location of Erikson's Hill Side Farm and cows reportedly grazed atop of the hill that is now Assabet Heights. The plan for Assabet Heights contains no endorsement of the Planning Board, as the plan's approval in the 1940s predates the existence of Planning Boards and Conservation Commissions in both towns — and of the state's subdivision control law.

Sandy Brook Park was another of Stow's early subdivisions, consisting of four developments on land owned by Bill and Adell Rawitser off Hudson Road and Walcott Street, much of it on low, marshy land west of Hudson Road. This was the first development to be approved by the

Planning Board, which was created in 1952, and the beginning of large-scale subdivision development in Stow – at the time a community with a population of 2,190 and total assessed valuation of all real estate of \$2.2 million.

The 63-lot Juniper Hill subdivision, off Gleasondale Road, proposed by Ivan ReHill on farmland owned by John Wetherbee, was the next major project filed with the Planning Board in 1956. At the time, it was the largest subdivision that had ever been proposed in Stow and was originally denied, and then later approved and constructed following litigation. A 47-lot second phase was approved in 1964. After approval in 1958, Planning Board files detail what was an arduous 25-year build out process that included complaints by subdivision residents about incomplete work, lots that were discovered to be undersized in the middle of house construction, and the use of poor quality materials for paving and drainage. There is acrimonious correspondence between the Town and various developers and their attorneys, threats of additional litigation, and the seizing of performance guarantees by the Town to complete roads and infrastructure.

The Town grappled with an even larger subdivision in 1966, when John G. Cahill, a developer from Littleton, purchased a 202-acre parcel of land that had been farmed by Atto and Aina Stein for more than 50 years off Harvard Road in the northwest corner of Stow. The \$100,000 purchase price for the Stein farm seems unthinkable today, but \$500/acre was the going price of land at the time. Cahill, who was at the same time developing lots off Edgehill Road at Sandy Brook Park, filed a 152-lot subdivision plan on the Stein Farm, in what would be the first of three phases of Harvard Acres. With only a little more than 1000 homes in Stow at the time, this must have seemed a mammoth subdivision, even though it was tucked away in a quiet corner of Stow, and far from the center and town services. The new development placed a huge strain on town services, led to the Planning Board's adoption of subdivision rules and regulations for the first time in October 1967, and also spurred Town Meeting to adopt comprehensive zoning revisions that passed by just one vote at Special Town Meeting in November 1968. All of this development meant that the population of Stow more than doubled from 1700 in 1950 to 3984 in 1970, and continued to grow rapidly for the next decade as houses were completed and sold.

In the midst of all of this development activity, the Conservation Commission was created in 1961, and charged with the acquisition and preservation of open space. The Commission created the town's first Open Space in 1966. The Conservation Commission's first major acquisition occurred at Gardner Hill Conservation Area/Stow Town Forest, where more than 300 acres were purchased from the heirs of C.D. Fletcher between Elizabeth Brook and the Assabet River for a total of \$150,000 in 1968. Since that time, the Town, largely through the efforts of the Conservation Commission, has purchased or acquired many significant parcels of land in Town including Marble Hill Conservation Area, Captain Sargent Conservation Area and



Stow Community Gardens

Flagg Hill/Heath Hen Conservation Areas for conservation and agricultural preservation and actively manages much of this land for public use. The Stow Community Gardens were started in 2002 on Tuttle Lane with a pilot program of five gardeners and has grown to more than 60 plots today. The Town has also obtained many conservation restrictions on privately owned property through donations, purchases and negotiation with developers.

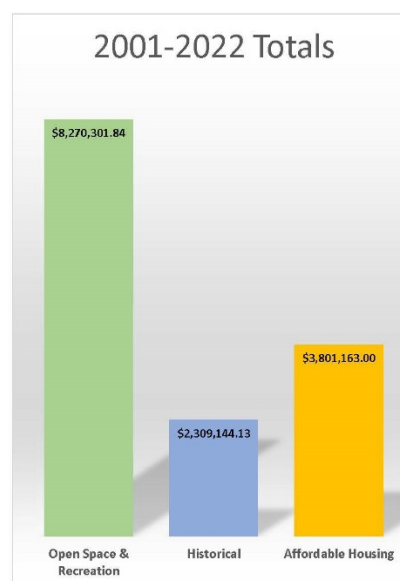
Over the years, the Town's open space preservation efforts have been augmented by the Stow Conservation Trust, a private, nonprofit land trust that was founded in 1978. The Trust owns several large open space parcels in Town and has been encouraging many of the larger land holders to protect their land especially through agricultural and conservation restrictions (CRs). The Trust has also made efforts to educate and provide non-monetary assistance to private land holders. Numerous projects have been completed by the Trust in partnership with the Town over the years, the most recent of which include the protection of Carver Hill and Small Farm, two iconic farm properties in Stow, as well as the protection of the Kunelius property on Red Acre Road, and Hallock Point on Lake Boon. Most recently, the Trust and the Town have worked collaboratively with a local developer and the owner of Stow Acres to secure the future of this important property as a model for open space conservation and mixed income housing.

The Town of Stow has active recreation facilities managed by the Recreation Department and a paid Recreation Director. Actively used by residents and especially youth groups, the facilities have grown over time, with the most recent additions being Town Center Park on Great Road and the former School Lot in Gleasondale. The Recreation Department is currently working with residents of the Gleasondale Neighborhood on creation of small park on the latter property, along the Assabet River. The Stow Recreation Commission is an appointed body, created to oversee the Recreation Department and Director. The Recreation Department's mission is to provide recreation opportunities for residents of Stow as well as to maintain the Town's recreational assets. Under leadership of the Recreation Director, a mix of programs are run and overseen such as the youth basketball program and the management of the Town beach personnel and swimming programs. Some programs, such as the active school age soccer program and baseball program are run by independent groups, such as Stow Soccer Club and Assabet Valley Little League. Other programs are independently run, with groups and businesses paying for use of fields and facilities. There are diverse programs year round, promoted through seasonal mailings to residents.

In 2001 the Town voted acceptance of the Community Preservation Act (CPA) and over the 20 year period ending November 2021 had collected nearly \$9.2 million in local funds and \$5.2 million in state matching funds. The Town has long prioritized the goal of keeping the maximum amount of funding unrestricted, so as to be ready to respond to a diversity of needs and to encourage projects that meet multiple CPA goals. Funds have been spent on a number of important open space and recreation projects, including acquisition of an easement along Track Road (a popular walking and biking corridor), acquisition of Conservation Restrictions on the Hale, Corzine and Shepherd properties, acquisition of the Snow Property and creation of Stow Community Park on Old Bolton Road, acquisition of land at Ministers Pond and creation of Town Center Park, and acquisition of the Tyler and Mosley Agricultural Preservation Restrictions. The Recreation Commission recently completed an effort to upgrade facilities at Pine Bluff Recreational Complex using CPA funds. Most recently, the Town has voted to spend \$4 million in CPA funds for a two-phase project to protect the majority of Stow Acres Country Club, a project of regional significance. CPA funds have also been spent on a number of affordable housing and historic preservation projects. A list of projects completed in the past five years follows:

CPA Projects Approved in the Past 5 Years

| | | |
|------|--|-------------|
| 2017 | Development of Affordable Homes (Habitat for Humanity) | \$150,000 |
| 2017 | Affordability Safeguard Program Extension | \$200,000 |
| 2017 | Historic Document Preservation Project - Phase II | \$85,000 |
| 2017 | Restoration of the 2nd Floor Historic Areas of the Randall Library | \$380,000 |
| 2017 | Creation of Community Park at 323 Great Road | \$275,000 |
| 2017 | Conservation Restriction on Carver Hill Orchard | \$1,400,000 |
| 2017 | Conservation Restriction on Small Farm | \$275,000 |
| 2018 | Town Hall Construction Funds for Roof Repair | \$30,000 |
| 2018 | Town Hall Restoration Design Funds | \$175,000 |
| 2018 | Supplemental Funds for the Historic Randall Library Building | \$65,000 |
| 2018 | Recreational Facilities at Pine Bluffs (Final Phase of Work) | \$20,000 |
| 2018 | Purchase of Kunelius Property for Housing and Open Space | \$215,875 |
| 2020 | Red Acre Road Housing Design Funds | \$25,000 |
| 2020 | COVID-19 Emergency Rental Assistance Fund | \$300,000 |
| 2020 | Additional Design Funds for Stow Town Hall Restoration | \$200,000 |
| 2020 | Pre-Engineering Services for Track Road | \$70,000 |
| 2020 | Playground at Town Center Park | \$50,000 |
| 2021 | Hallock Point Open Space Acquisition | \$400,000 |
| 2021 | Stow Acres I – South Course Conservation Restriction | \$1,500,000 |
| 2021 | Kane Land Access – Path in Gleasondale | \$50,000 |
| 2021 | Stow Acres II – North Course Acquisition | \$2,200,000 |
| 2022 | Randall Library Expansion - Historical Component | \$1,000,000 |
| 2022 | Red Acre Road Affordable Housing | \$1,100,000 |



3C. Population Characteristics

The population of Stow has increased steadily as can be seen in Table 3-1, and now numbers approximately 7,159 people according to the 2020 Census. The population increase from 2000 to 2010 was 11.7%, and the increase from 2010 to 2020 was 8.9%.

| Year | Population |
|------------|------------|
| 1930 | 1,142 |
| 1940 | 1,243 |
| 1950 | 1,700 |
| 1960 | 2,573 |
| 1970 | 3,984 |
| 1980 | 5,144 |
| 1990 | 5,328 |
| 2000 | 5,902 |
| 2010 | 6,590 |
| 2020 | 7,159 |
| 2025 (est) | 7,350 |
| 2030 (est) | 7,554 |
| 2035 (est) | 7,703 |
| 2040 (est) | 7,781 |

Table 3-1. Population and Population Projections for Stow: 1930-2040.

Source: UMass Donahoe Institute, Census Counts and Estimates; 2000 and 2010 Decennial Census, Summary File 1; ACS 5-year estimates 2016-2020 Table B01001

Notably, the percent of individuals over 65 and over 85 has continued to increase faster than regional and state averages (Table 3-2), placing additional demands on senior services. In 2020 more than one in five residents is over the age of 60, and 17.2% are over the age of 65 with seniors numbering approximately 1562. More than 30% of households have an individual 65 or older. This is undoubtedly due to the development of several 55+ housing developments in Stow as well as the general aging of the population. It points to a need for facilities that will be accessible to and useable by older residents, as well as the need for additional senior services. According to the Metropolitan Area Planning Council data, this portion of the population is expected to continue to grow as the baby boomer population ages. In addition, the Elizabeth Brook Apartments (formerly Plantation 2) senior housing development is fully permitted and has commenced construction as of fall of 2023, and another large “age-targeted” development is in the permit process off Hudson Road

The percentage of households with an individual 18 or younger is also growing faster than regional and state averages, with 45% of households having an individual 18 or younger, up from 38% in 2010. The statewide average is approximately 29% and both state and regional percentages have declined in the past 10 years.

| | Share of Population under 18 | | | | Share of Population over 65 | | |
|------------------|------------------------------|-------|-------|--|-----------------------------|-------|-------|
| | 2000 | 2010 | 2020 | | 2000 | 2010 | 2020 |
| Stow | 28.4% | 26.7% | 28.4% | | 8.3% | 12.8% | 17.2% |
| Subregion | 27.5% | 26.9% | 24.4% | | 9.7% | 12.5% | 15.9% |
| Middlesex County | 22.4% | 22.0% | 19.8% | | 12.8% | 13.6% | 15.3% |
| Massachusetts | 23.6% | 22.4% | 19.8% | | 13.5% | 14.3% | 16.5% |

Table 3-2. Population Distribution in Stow 2000-2020. Source: 2000 Decennial Census, Summary File 4; 2010 Decennial Census, Summary File 1; ACS 5-year estimates 2016-2020, Table DP05

The racial composition of Stow is primarily White, however, there is a small representation of diverse minorities (Table 3-3). Stow’s racial mix has changed slightly, but at a lower rate than in the region or the state. The population is well educated with more than half of Stow’s adults having a college education, significantly higher than the Massachusetts population as a whole. This is also reflected in the distribution of occupations which indicates that more than half of the Town constitutes professionals and managers.

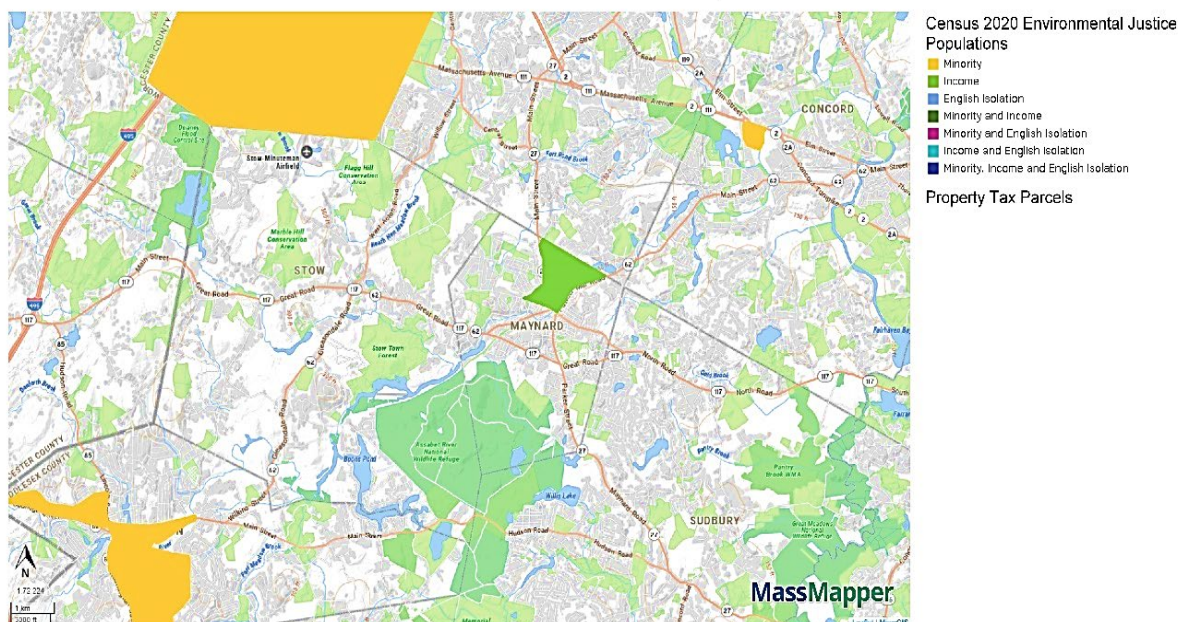
| | Stow | | | Middlesex County | | | Massachusetts | | |
|-----------------------------------|------|------|--------|------------------|-------|--------|---------------|-------|--------|
| | 2010 | 2020 | Change | 2010 | 2020 | Change | 2010 | 2020 | Change |
| Black or African American | 0.7% | 0.9% | 0.2% | 4.7% | 5.2% | 0.5% | 6.6% | 7.0% | 0.4% |
| American Indian or Native Alaskan | 0.2% | 0.2% | 0.0% | 0.2% | 0.2% | 0.1% | 0.3% | 0.3% | 0.1% |
| Asian | 3.3% | 4.3% | 1.0% | 9.3% | 12.9% | 3.6% | 5.3% | 7.2% | 1.9% |
| Two or more races | 1.9% | 6.8% | 4.9% | 2.5% | 8.3% | 5.7% | 2.6% | 8.7% | 6.0% |
| Hispanic | 1.9% | 3.6% | 1.8% | 6.5% | 8.8% | 2.2% | 9.6% | 12.6% | 3.0% |

Table 3-3. Racial Make-Up of Stow

Source: 2010 Decennial Census, Summary File 1; 2020 Decennial Census, Redistricting Data

Stow has no Environmental Justice (EJ) Populations within its boundaries, as can be seen from the map below, but as of the 2020 Census there are EJ populations nearby in Hudson, Maynard and Boxboro as can be seen on the map below:

Environmental Justice Populations



There is very little industry in Stow, with more than 95% of the tax base being residential. In addition to agriculture and construction, major employers include Radant, municipal government, and small businesses in Lower Village and the Gleasondale Mill. Most of the commercial activity is in the retail and service sector and is located along the major routes through town, most notably Routes 117 (Great Rd.) and Route 62. There is little vacant land zoned for commercial and industrial use, although there is steady turnover of retail space in Lower Village with an increasing number of vacancies in recent years. The Planning Board is currently working to revitalize the Lower Village area in part through the recent adoption of mixed use zoning. BOSE has recently vacated its facility on Route 117 near Hudson Road and the fate of this large industrially-zoned site remains to be determined. According to the Massachusetts Executive Office of Labor and Workforce Development, approximately 3957 Stow residents are in the labor force and the unemployment rate is approximately 2.2% as of December 2022.

3D. Growth and Development

Patterns and trends

Between 2000 and 2010, the total number of households increased in Stow from 2,082 to 2,429, or 16.67% and by 2020 there were approximately 2569 housing units in Stow for a 10 year increase of 5.8%. It is estimated that there are 2770 housing units in Stow and that number has grown from 2,526 in 2010 at a rate faster than the state or county average. Approximately 81% of Stow's housing units are single family detached dwellings and approximately 85% of dwelling units are owner-occupied. The median single family house price in 2020 was \$514,100 versus \$398,800 for Massachusetts. New single family dwellings in Stow are now routinely selling for well over \$1,000,000. Part of the reason for this is that new dwellings are increasing in size, as can be seen from Tables 3-4 and 3-5 below. It is unclear whether this trend will continue or whether home sizes will begin to shrink to adapt to the preferences of younger and older buyers and concerns about climate change. Two new large developments in the review process on Randall Road and Athens Lane will add 300-350 housing units, smaller in size than a typical new single family house in Stow which may help moderate this trend.

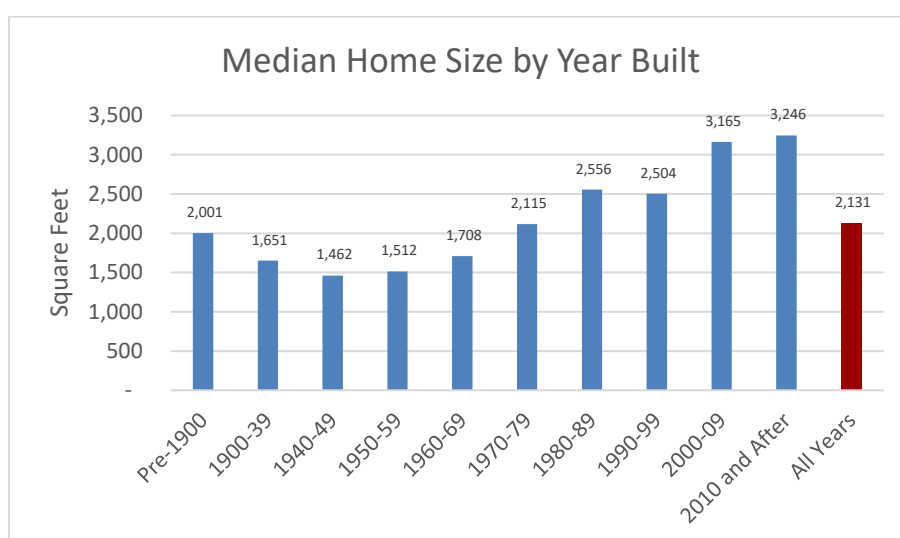


Table 3-4: Median Home Size by Year Built, Source: Stow Planning Dept.

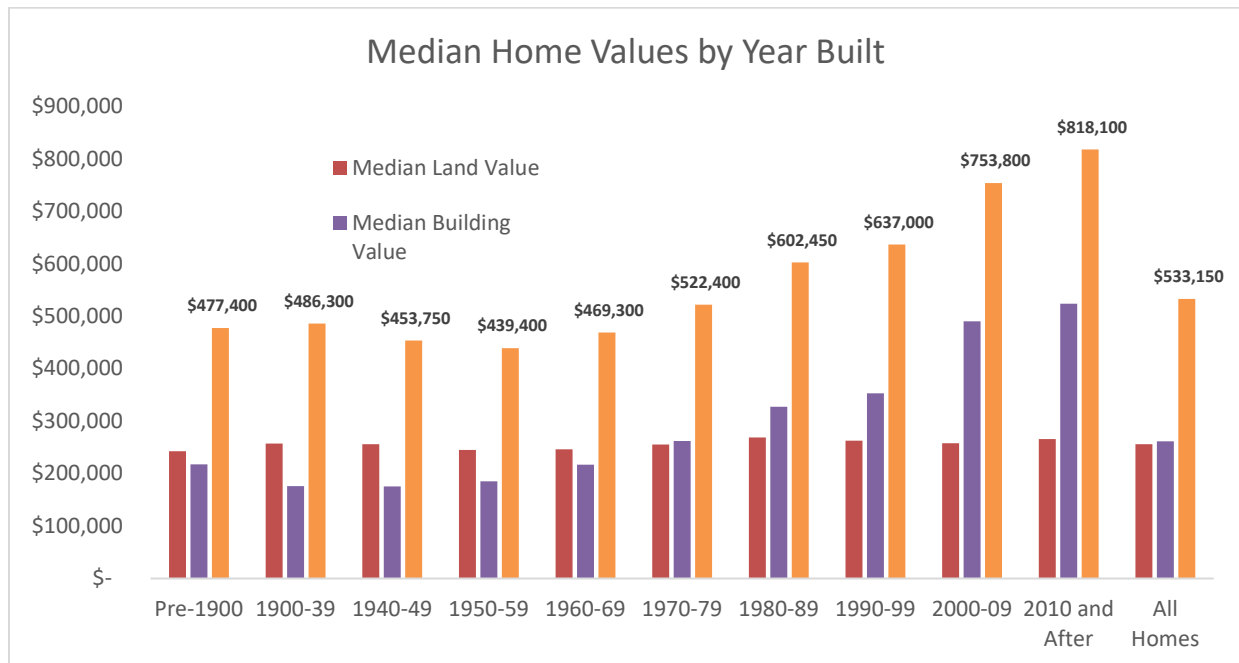
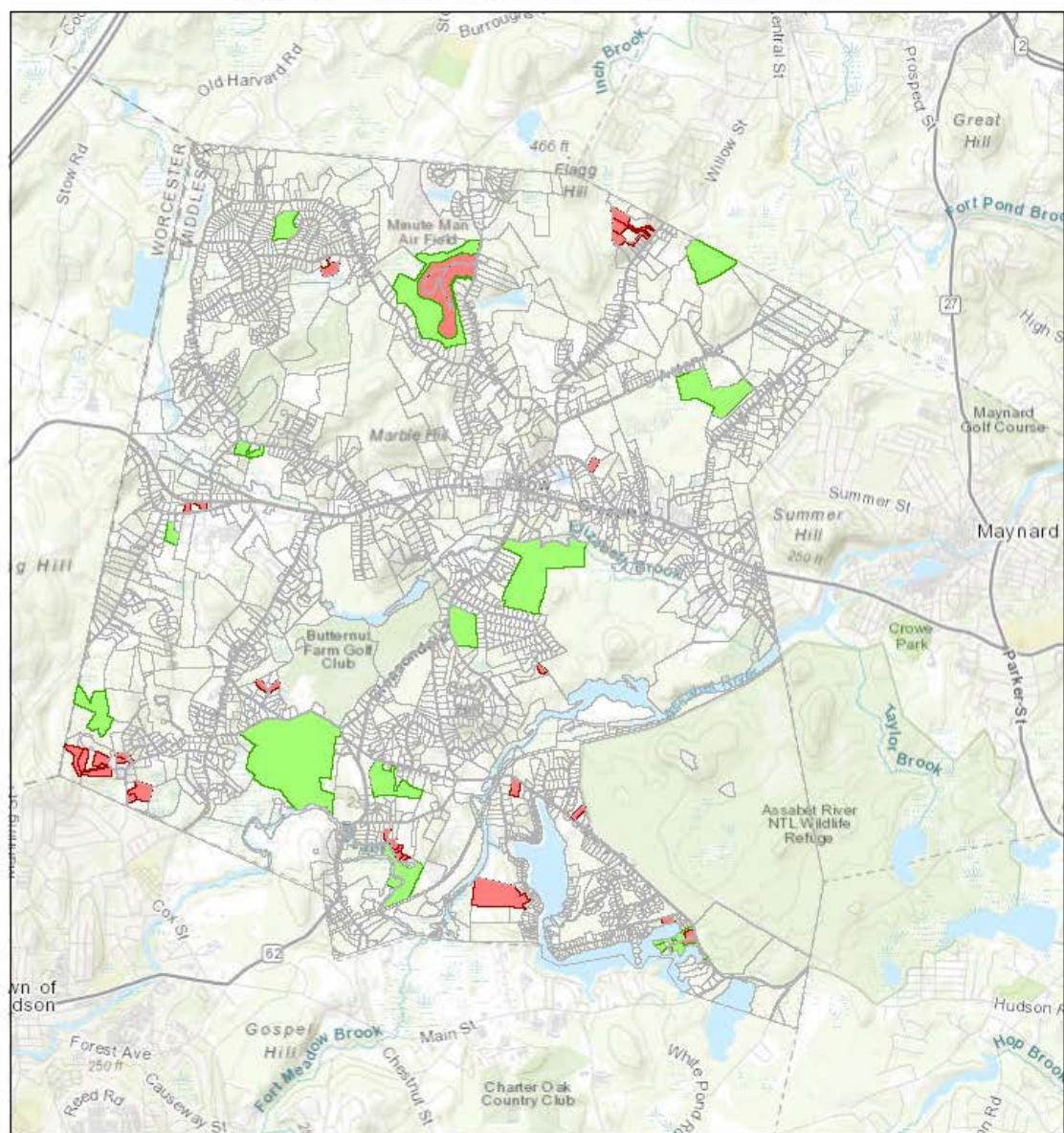


Table 3-5: Median Home Values by Year Built, Source: Stow Planning Dept

Median rent for units in Stow is \$1,390. Table 3-6 shows the number of Building Permits for new single family dwellings that have been issued in Stow from 2004-2021. In the past few years, the number of single family dwelling permits declined sharply, but is projected to increase again, with several large projects on the drawing boards.

| <u>Year</u> | <u># of Permits</u> | <u>Total Valuation</u> |
|-------------|---------------------|------------------------|
| 2004 | 34 | \$7,756,786 |
| 2005 | 29 | \$7,852,000 |
| 2006 | 43 | \$9,324,900 |
| 2007 | 55 | \$13,692,421 |
| 2008 | 45 | \$13,605,983 |
| 2009 | 47 | \$13,820,468 |
| 2010 | 27 | \$8,338,397 |
| 2011 | 20 | \$6,212,353 |
| 2012 | 11 | \$4,148,944 |
| 2013 | 4 | \$1,540,149 |
| 2014 | 2 | \$600,000 |
| 2015 | 6 | \$2,563,288 |
| 2016 | 11 | \$4,500,000 |

Protected and Developed Land 2016-2022

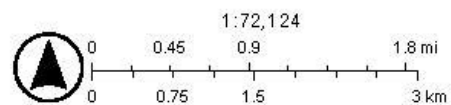


11/18/2022

Protected and Developed Lands

■ Developed

■ Protected



MapGIS, Esri Canada, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NSA, NGA, EPA, USDA

Map 2: Stow Lands Protected and Developed 2016-2022

Infrastructure - Transportation Systems

The principal transportation network which serves Stow has not changed significantly in many years. Public transportation is provided only by the South Acton train station, part of the MBTA's Wachusett to Boston line. The Town of Stow offers free and subsidized transportation to eligible residents through the GO Stow program, including a taxi service and the Stow Council on Aging's van service. The town is looking to expand this sort of microtransit in the future. There are still not many designated pedestrian, bicycle or horseback ways, although portions of the Assabet River Rail Trail (ARRT) have been completed including from Acton through Maynard and from Hudson to Marlboro. Stow is a significant gap between the two. Stow was awarded a federal grant for design of a section of this missing segment along Track Road in a FY 23 appropriations bill and this work will be a focus in coming years. In Stow, where a few private landowners have raised concerns about the Rail Trail extension, various alternative proposals have been examined that would provide for continuation of the trail. (ARRT Feasibility Study, 1997), the most promising of which is extension of the Rail Trail through the Assabet River National Wildlife Refuge or an on-road alternative through Hudson. A rail trail on an abandoned portion of the Mass Central rail line is also proposed to be built in coming years and will have parking and access just over the Stow town line on Wilkins Street in Hudson.

Infrastructure - Water Supply Systems

The water supply system in Stow has also not changed significantly in recent years. It is still primarily based on individual on-site systems except for a number of privately owned "public" water supplies. These systems include those of Juniper Hills, Elizabeth Brook Apartments (formerly Plantation), Meetinghouse at Stow, Arbor Glen, Villages at Stow, Pilot Grove Apartments, Hale and Center Schools, and the Town Common water system, which serves the Town buildings, one home and a church. Currently under consideration is a small-scale public or private water supply system to serve the "Lower Village" area, in order to alleviate regulatory constraints on businesses in this area. A portion of the Heritage Lane Open Space adjacent to Lower Village has been approved by Town Meeting and the Legislature for use as a water supply system in this area and a feasibility study commenced in 2022 that is evaluating the water supply potential of this parcel as well as another on Red Acre Road and estimating costs, so as to assist local businesses in their consideration of this water supply.

Protection of groundwater resources is a high priority according to Stow residents. It received a high priority ranking in the townwide survey for the 2010 Master Plan in addition to being identified by participants in the 2010 Master Plan public forums. In the late 1980s Town Meeting approved a Water Resource Protection overlay zoning district in order to protect the groundwater resources of Stow. The overlay zones are based on an evaluation of the groundwater potential throughout the Town. The protected areas are those with the highest potential and generally coincide with the major aquifers in Stow. The Water Resource Protection district is shown in Map 7.

Infrastructure – Wastewater Disposal Systems

Sewage disposal systems in Stow, still mostly individual on-site septic systems, have not significantly changed in the last 20 years. New systems are all required to meet the local Board of Health regulations which are more stringent than the State's Title 5. Several recent residential developments have constructed on-site private sewage treatment facilities including Meetinghouse at Stow on Rt. 117, Villages at Stow on Rt. 117, Arbor Glen on Hudson Road, and Regency at Stow on Boxboro Road. Additional "community" systems are proposed off Athens Lane and at Stow Acres.

Long-Term Development Patterns

Stow has always prided itself on maintaining its rural character. Various town surveys over the years have consistently shown that the rural nature of the Town is crucial to the citizens. The perception of rural character is strongly dependent on the large amount of existing open land along the main roads of Stow. Thus preservation of these highly visible undeveloped parcels is necessary to maintaining the character of the Town.

The traditional development pattern in Town has encompassed 2 primary types of development: residential and business/light industry. During the 1980s, land values soared and some tracts of agricultural and forest land were sold for development. With the recession of the late 1980s and early 1990s and the drop in land values, growth slowed to its pre-boom pace. In the mid-1990s, however, housing growth increased and continued at a high rate through the early 2000s when large developments like Villages at Stow (96 units), Arbor Glen (66 units), and Derby Woods (33 units) were approved and constructed. The rate of development has slowed since 2006, but is beginning to pick up again. Particularly vulnerable is the land in the southwest corner of Town where there are many undeveloped parcels and relatively little protected land. This area was identified for special attention in the 2008 Open Space and Recreation Plan and with both the Athens Lane development and the Stow Acres conservation and housing initiatives this focus will continue in the coming years.

Townwide, the 2000 Build Out Study completed by the Executive Office of Environmental Affairs (EOEA) for Stow identified the potential for the construction of more than 1300 additional homes *under current zoning* (see Map 3), which would increase the population from 5902 at the time of the study to 9582. Not taken into consideration are increases in population resulting from “density bonuses” in 40Bs or AAN developments or zoning changes, which could put this total higher. The study estimated that new development permitted by current zoning would add 699 new schoolchildren to Stow, generate a demand for 515,915 additional gallons of water/day, add 30 miles of new roads, and generate an additional 1888 tons of solid waste/year. Such growth would also increase the need for senior services and demand for recreation facilities. The study also identified the potential for an additional 3.1 million square feet of commercial/industrial development on land currently zoned for this use. Not factored into these numbers are the additional housing development that is being mandated by the Commonwealth through the “MBTA Communities” mandate which is currently being reviewed by the Planning Board.

Past build-out studies provided helpful insight for the community and depict a completely suburbanized landscape that will require significant investment in capital projects (such as new schools) to meet the demand generated by this development. While it is difficult to imagine a future Stow in which the only “open” land is that which is currently under permanent protection, this is the future reality depicted in the build out analysis. In addition to the impacts on the school population, such development would fragment habitat, threaten surface and groundwater quality, reduce recreational opportunities, add substantially to traffic issues on major arteries, and fundamentally change the character and quality of life of Stow. As a result, one of the recommendations of the 2008 Open Space and Recreation Plan was that town boards work actively to reduce the total buildout that is possible using a variety of tools including zoning, land acquisition, and other land protection techniques such as conservation restrictions, and seek to protect one additional acre of land for every acre that is developed. The town has continued with an ambitious land protection effort in the intervening years and residents have continued to voice their strong support for these measures, focused on those properties with the greatest potential to cause land use change. The recent two near-unanimous votes regarding the future of the two golf courses at Stow Acres are an example of this.

Another major regional study which included Stow was the 495/MetroWest Development Concept Plan addressing growth and development in 37 cities and towns along the I-495 corridor. The study identified Priority Development Areas (PDAs) and Priority Protection Areas (PPAs) within the study area. The study notes the progress that the Town of Stow is making regarding planned production of affordable housing. Relevant to this Open Space and Recreation Plan, the study notes the existence of several regionally significant land areas including Orchard Hill/Rockbottom Farm, Stow Acres (North and South Courses), Butternut Golf Course, Pilot Grove Farm, and several orchards including Honeypot, Carver Hill, One Stack Farm, Derby Orchards, and Shelburne Farm. Of these, Orchard Hill, Pilot Grove and the five orchards are listed as being of statewide significance. The “major” farms in Stow encompass more than 500 acres. Lastly the study notes a high priority protection and development area on White Pond Road near the Assabet River.

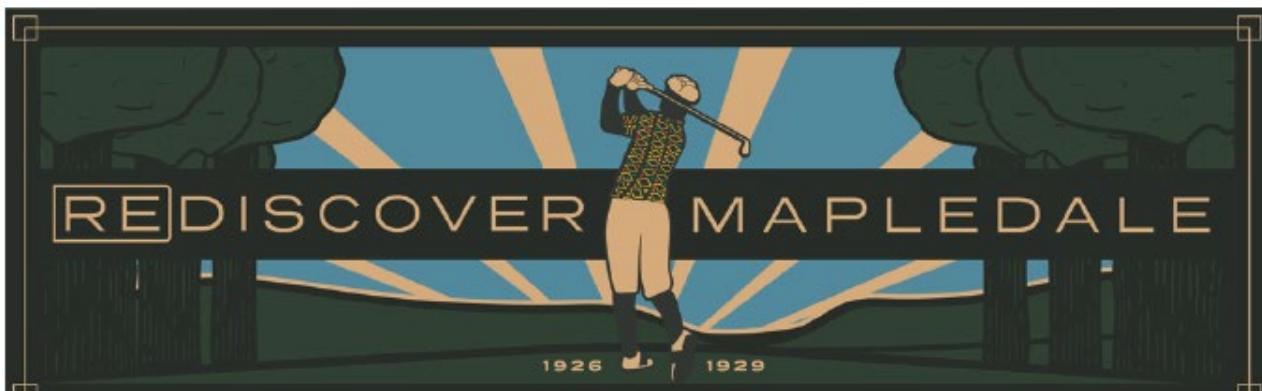
Mapledale Country Club

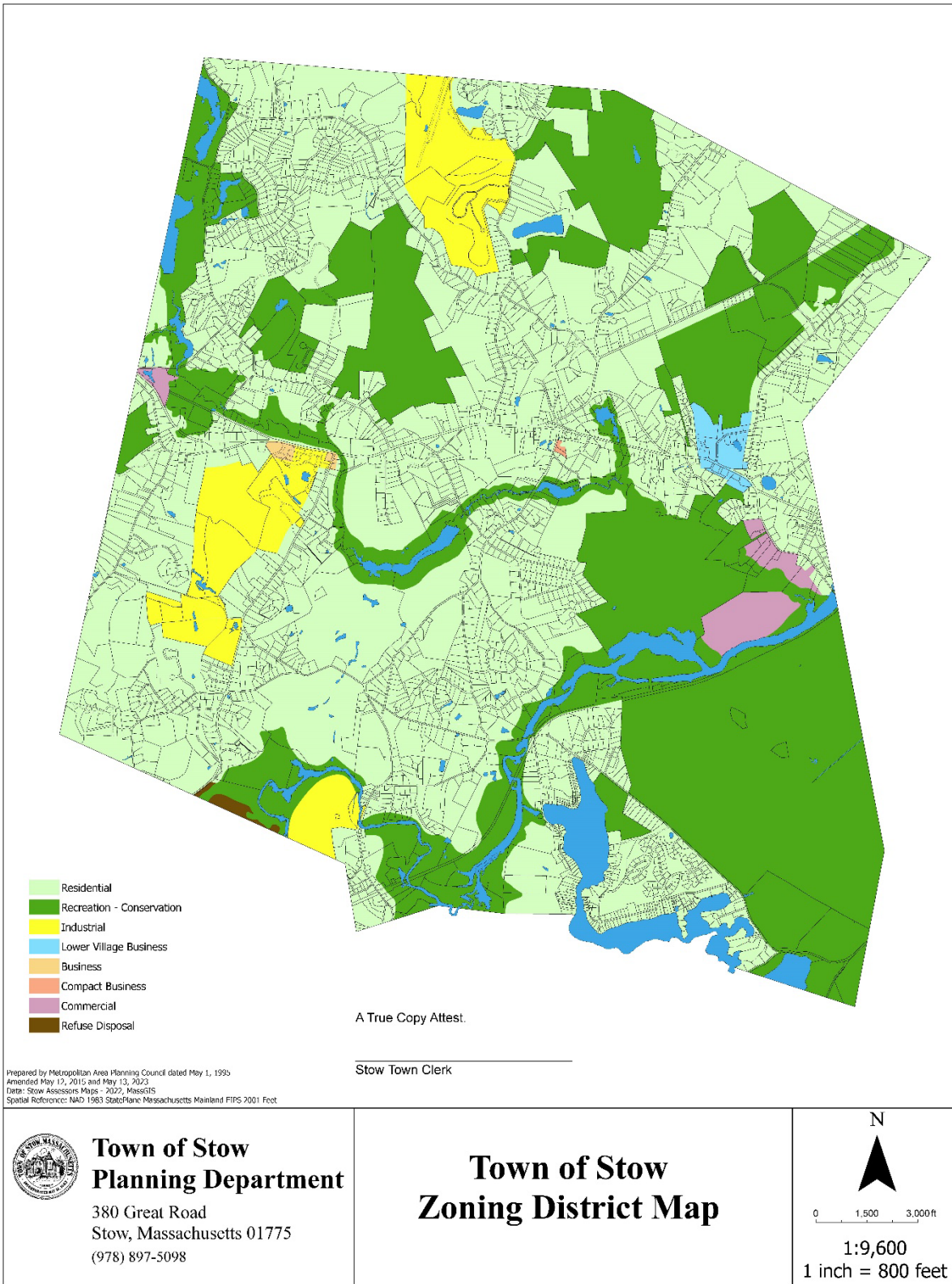
A little-known fact is that one of Stow’s golf courses, Stow Acres Country Club, played a historically significant role in Black golfing history – a legacy going back to the early 1900s. Opened in 1926 as a nine-hole course, Mapledale Country Club, as it was called then, was among the earliest Black country clubs in the country.

It started when Robert Hawkins, a local Black entrepreneur, purchased the 196-acre Randall Estate and its mansion to create a club that hosted golf, horseback riding, and tennis. Hawkins, an avid golfer, had caddied growing up and later became the general manager of Sandy Burr Country Club in Wayland, MA—the first Black man to hold that position in New England. It was there that the idea of owning his own country club for Black Americans was born.

At a time when segregation barred Black Americans from most courses, Mapledale was open to all. Significantly, it was also home to the first three United States Colored Golf Association (USCGA) Opens from 1926-1928. The competition was not restricted to just Black players, as Chairman Norris Horton explained, “We knew what it was like to be excluded and we didn’t want to do the same to anybody else, so blacks, whites, anybody who qualified and paid the entry fee could play.” In 1929 the course closed, claimed by the Great Depression, and the competition began moving around the country. What started as a dream for a place to play the game Hawkins loved, evolved into a showcase event at municipal courses in northern cities, attracting Black golfers from all over the country.

Rediscover Mapledale, a local group, is currently exploring ways to interpret and celebrate this early golfing history in Stow.





Map 3: Current Stow Zoning

Section 4

Environmental Inventory and Analysis

4A. Geology, soils, and topography

The topography in Stow varies from low elevations along the Assabet River (180 feet above Mean Sea Level) to the highest elevation of 457 feet on Marble Hill. The Assabet River is the main drainage area for most of Stow. The areas of highest elevations in Stow are the bedrock and glacial till areas in the northwest quarter of the Town. Other major topographic highs include drumlins such as Spindle Hill, Birch Hill, Pilot Grove Hill, Spring Hill and Orchard Hill.

Stow's topography is a product of glacial activity. As the glaciers retreated, meltwater streams flowing out from under the glaciers dropped sand, gravel and silt either in large glacial lakes or along those drainage areas that existed in Stow. These meltwater deposits created the flat plains and irregularly shaped hills and ridges found throughout the Town.

From a land use perspective, the bedrock in Stow has not been a major impediment to agriculture or development. In most of Stow, bedrock is found only at considerable depths. Where bedrock occurs at the surface, the exposures are small and rather scattered. Most of the exposures are limited to either the northwest quarter of Stow or the southeast corner within the Assabet Refuge. In most places where bedrock is exposed, there are other constraints on land use such as high slope and/or perched water tables.

Stow's geology was studied extensively in 1977 by IEP, an environmental consulting firm. The report and accompanying maps are available in the office of the Stow Conservation Department.

Soils (Map 4) and topography place constraints on development in Stow and affect land use patterns. In steep areas, access often requires significant cuts or fills, creating drainage problems, and erosion and sedimentation. Examples of this can be seen in the lots along the southwest side of Wheeler Road on the side of Spindle Hill, the access road to Pilot Grove Apartments on Pilot Grove Hill, and the Common Driveways serving the Highgrove Estates development on West Acton Road and Jillian's Lane on Walcott Street. The Town has limited authority in the Zoning Bylaw to address these issues in Section 3.8.1.10, but does have a common driveway bylaw which may serve to reduce the problem of multiple driveways serving individual single-family houses. Similar changes could

Orchard Hill – Rockbottom Farm Gleasondale

A unique drumlin/esker feature in Stow can be found at Rockbottom Farm in Gleasondale. This feature is so significant that it is highlighted in the popular book "Roadside Geology of Massachusetts" as well as in a 1956 regional geological study which contains this quote and photo:

"Most interesting of all the drumlins in the area is Orchard Hill near Gleasondale. Viewed from its base, Orchard Hill betrays nothing unusual in its form, but extending for about three-fifths of its length, parallel to and just west of its axis, is a remarkable scoured meltwater channel... 27 feet deep at its deepest point. Its gradient is toward the south... its sides remain steep and sharply outlined."



From: Geology and Mineral Resources of the Hudson and Maynard Quadrangles Massachusetts. Geologic Study Bulletin 1038, 1956 (photo from report)

be made in the subdivision rules and regulations to require additional scrutiny for lots with severe topographic constraints. For example, some towns limit the amount of cut and fill or clearing permissible in these situations. Stow's Planning Board requires an Erosion Control Special Permit for many projects like these.

Drumlins are a notable feature of Stow, and many of the high hills scattered throughout the community singly and in groups have been the focus of land protection efforts, however some remain available for future development. Orchard Hill is one of the more interesting drumlins in Stow and additional detail about this feature can be found in the box on the previous page. Drumlins are glacial deposits that often have soils that make them poor choices for development. We have mapped the drumlins of Stow and noted their protection status. (See Map 5). It is also worth noting the exemplary esker – a geologic ridge -- located within Red Acre Woodlands behind Pilot Grove Farm.

In addition to its high hills, Stow has many low-lying wet areas that place constraints on the development of septic systems. A good example is the 124-acre Kane property located on both sides of Gates Lane off Route 117, which was examined and rejected by the School Building Committee in 2005 as a potential site for a new school and has had several incomplete proposals for development. Despite its large size and access to Route 117, extensive wetlands and streams, combined with steep slopes on a portion of the property, will make development on this parcel challenging.

As Stow approaches buildout, the remaining parcels will be increasingly constrained by wetlands and steep slopes. This will necessitate additional scrutiny of proposed projects, including professional review of applications, particularly roadway designs and stormwater management plans.

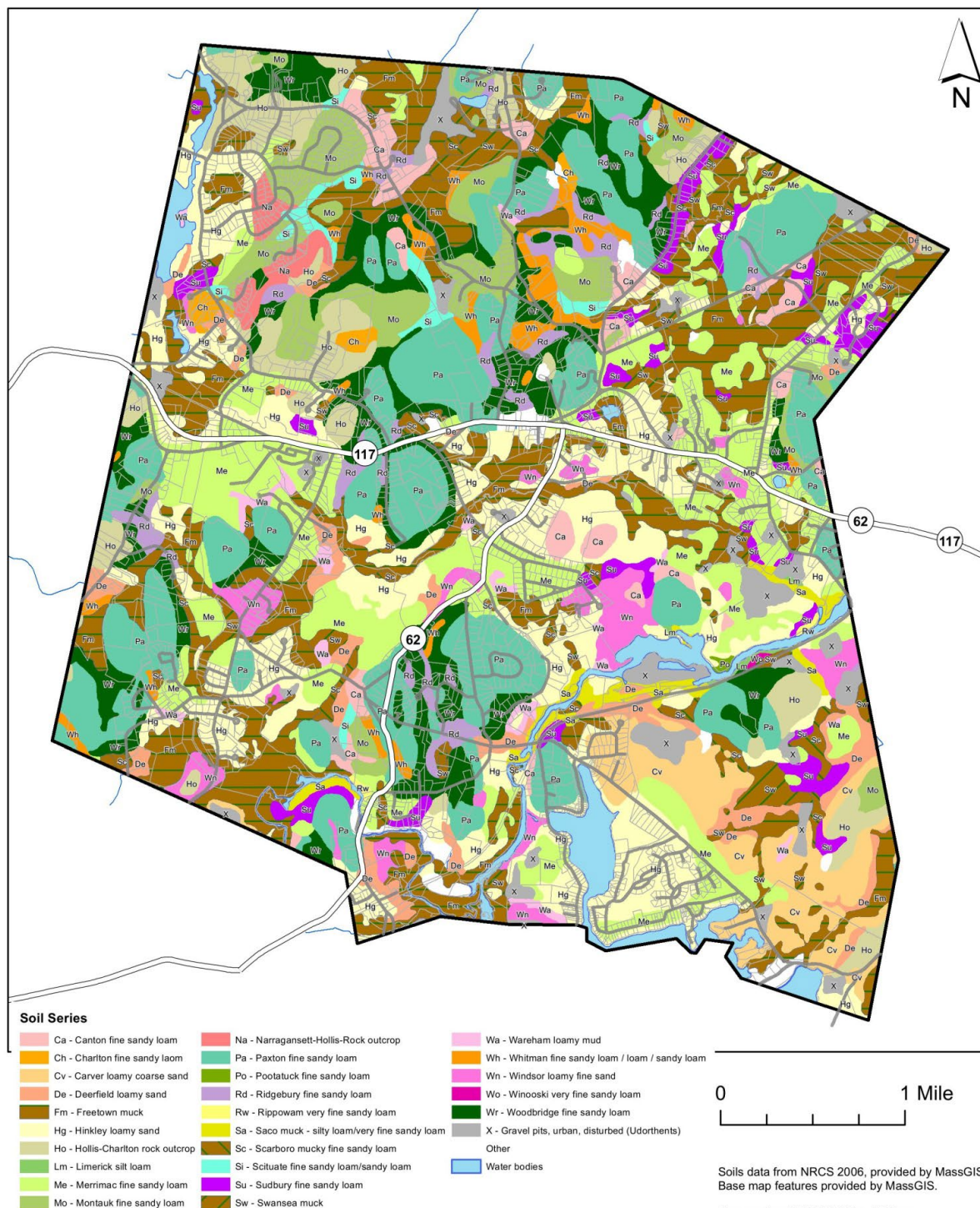
4B. Landscape Character

Stow is generally considered a rural community by its residents. This impression is reinforced by the areas of open space and scenic vistas visible along the Town's roadways. In particular, the many active orchards and farms lend a distinctively rural element to the Town that is not found in many nearby communities. In addition to the agricultural and conservation aspects of the community, Stow has five golf courses: Stow Acres North and South, Butternut, Wedgewood Pines, and Stowaway. These open spaces contribute to the rural visual impression and sense of "elbow room" in Stow.

In addition, to the visible farms and golf courses, there is a large amount of undeveloped land "hidden" behind the many lots which front along public ways. One has only to look at the assessors' maps to discern the large parcels behind these lots; areas left in their natural state because of difficult access, wetlands, rocky soils, or poor drainage. Where the forested hills rise behind these homes, or one is able to see between the buildings, then one can sense the extensive undeveloped landscape of Stow.

Also contributing to the Town's open character are "odd" lots, which occur at forks in the road, on the outside of curves, or at wetland crossings. These bring a welcome relief to the developed roadside landscape, contributing a positive landscape attribution far beyond their size. Some of these lots are identified in this Plan, however, there has been no comprehensive inventory of Stow's scenic assets. The "Scenic Significance" map in Section 5 of this Plan identifies important unprotected scenic parcels in Stow (See Map 24).

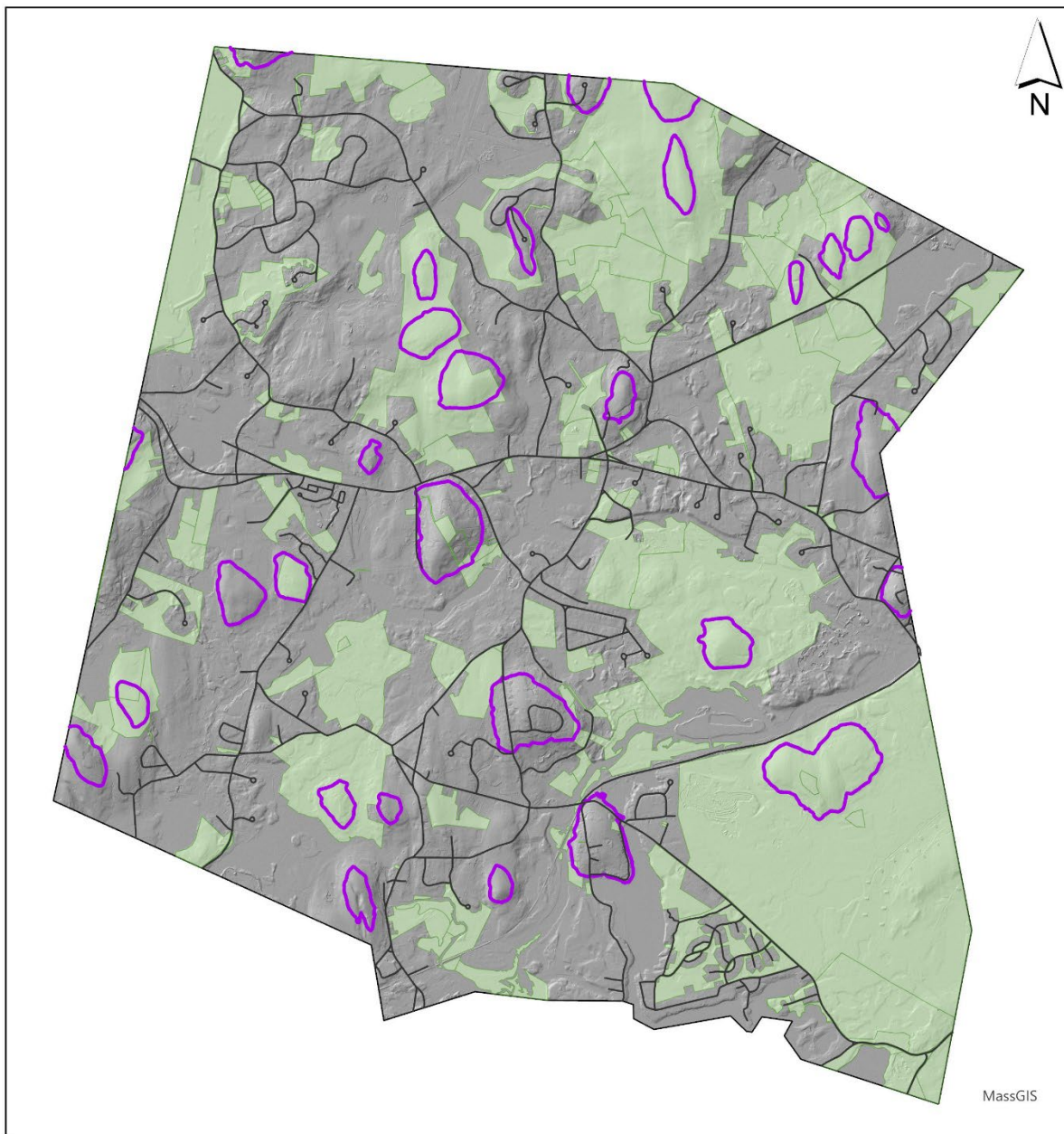
Stow - Soils





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Map 4: Stow - Soils

Stow - Drumlin Protection Status



Legend

-  Drumlin
-  Protected Open Space Lands

0 1 Mile

Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.

Map produced 2/17/2023 by M Ragan

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Map 5: Drumlin Protection Status

One of Stow's more noticeable landscape aspects is the health of the roadside trees. These trees are endangered by road salt, by extensive cutbacks for telephone, cable and electric wires, and by disease. Dutch elm disease has killed most of the majestic elm trees, and ash decline and emerald ash borer (an invasive beetle) are quickly reducing the population of the White Ash, a common roadside tree. A number of other pests threaten beech, hemlock, pine and other trees.

In an attempt to preserve the existing character of Stow, the Town has adopted a zoning bylaw that provides for "planned conservation development" of larger parcels. This bylaw encourages developers to build houses on reduced size lots, leaving large areas open for recreation and conservation purposes instead of using the traditional "cookie cutter" approach to subdivision. The landowner can realize the value of the property and the Town gains by retaining some of the open space. With the encouragement of the Planning Board, most recent subdivisions in Stow have taken advantage of this provision, providing important open space and recreation land.

4C. Water Resources

Watersheds and Surface Waters

Stow is located within the Concord River basin and the Assabet River sub-basin of the Sudbury, Assabet and Concord (SuAsCo) watershed. Nearly all the surface runoff in Stow enters one of three drainage areas: Heath Hen Meadow Brook which flows northward into Acton and joins Fort Pond Brook; Elizabeth Brook which drains the middle of Stow and empties into the Assabet River near the Maynard town line; and the Assabet River, which with its smaller tributaries drains the lower third of Stow as it continues eastward to meet the Sudbury River and form the Concord River. Elizabeth Brook is the largest tributary of the Assabet River.

The Delaney Flood Control Project in the northwest corner of Stow also uses land in Bolton and Harvard; it is essentially the headwaters of Elizabeth Brook.

Lake Boon

Lake Boon is the largest surface water body in Stow (and Hudson). The Lake itself is made up of three major basins. It was expanded by the construction of a dam in 1847 in order to provide water storage for the Assabet Mills in Maynard. The Town of Stow acquired the water rights and subsurface land area (in Stow) from the heirs of Assabet Mills.

As Stow has grown and developed, summer cottages that surround Lake Boon have been converted to year-round homes and many of these homes are now being



transformed from cottages to much larger dwellings. Many of the sewage disposal systems for these residences do not meet Board of Health regulations for wells and septic systems, and failures have to be treated as emergencies, resulting in limited upgrading to the extent practical. Many wells are also shallow point wells, which are gradually being upgraded over time.

A recognized problem associated with Lake Boon is increased growth of aquatic weeds (notably Milfoil and Fanwort) caused by runoff from lawn fertilizers, roads, and septic leachates from the densely developed shores. Despite regular pump outs and septic system improvements, installation of 25 leaching catch basins within the watershed, and broad community education on practices to minimize runoff, excessive growth of several species of invasive aquatic weeds is still adversely affecting recreational use of Lake Boon. The Lake is now regularly treated for weeds in a cooperative effort by both Stow and Hudson to maintain its ability to support swimming and boating. A related issue is algal blooms, some of which have forced the closure of the Town Beach during summer months due to the presence of cyanotoxins. The Town is required to examine measures to reduce phosphorus to Lake Boon as part of EPA stormwater requirements.

The Town is also under order from the Massachusetts Office of Dam Safety to make improvements to the Lake Boon dam. This project is expected to be undertaken within the next five years.

The Assabet River

The Assabet River is a major regional surface water feature that flows from the southwestern to the east-central parts of Stow. Nearly all surface drainage in Stow flows either directly to the Assabet or to its tributaries - Heath Hen Meadow Brook in northern Stow and Elizabeth Brook in central Stow. A small area in the southeastern corner of Stow drains into the Sudbury River watershed.

Stream flow normally varies in an annual cycle, declining from peak flows in the early spring, reaching minimums in the later summer and early fall, and then rising and remaining at moderate heights during the winter. The US Geological Survey maintains a measuring station on the Assabet River (150 feet upstream from the bridge on Route 27 in Maynard).



Assabet River from Sudbury Road

The Assabet River has serious water quality problems caused by excessive nutrients. A local nonprofit watershed association, OARS, regularly monitors the water quality in the river and in Elizabeth Brook. OARS has been working with state and federal agencies to reduce the discharge of pollutants from the wastewater treatment plants upstream of Stow in Hudson, Marlborough, and Westboro that adversely impact the river. While these treatment plants have been significant sources of nutrients, additional nutrients come from septic systems and stormwater runoff. As land in Stow and the watershed as a whole is developed, runoff from impervious surfaces will increasingly contribute to the river's water quality problems unless

stormwater is managed well. The Town is required to looking at measures to reduce phosphorus to the Assabet as part of EPA stormwater requirements.

Aquifer Recharge Areas

Abundant and clean groundwater supply is one of Stow's most valuable resources, for drinking, wildlife and recreation. Since all of the Town is on private (or community) water supply wells, the entire town is considered important for aquifer recharge. The subsurface hydrology of Stow is directly related to its subsurface geology, the ability of the rainfall to infiltrate into the ground, thereby becoming groundwater. Once there, it is constantly moving from areas of higher elevation to areas of lower elevation. Therefore, it needs to be constantly replenished, or "recharged." Removal occurs as withdrawal for use or through seasonal discharge into streams, ponds, and wetlands.

There are four general hydrogeologic requirements that must be met for an area to be a high yield aquifer:

- 1) surficial geologic deposits of proper size and sorting to produce high rates of water movement
- 2) sufficient saturated thickness of surficial deposits
- 3) sufficient area-wide recharge, and
- 4) acceptable water quality.

A 1977 IEP study for Stow mapped aquifer areas in Stow likely to meet these requirements (see Map 6a and 6b). Prudent protection of these aquifers and their recharge areas is vital not only to Stow but to other communities as well, and to the base flow of local streams and rivers. This is particularly the case with climate change, as we are seeing more frequent drought conditions.

The quality of groundwater in the aquifers depends to a large extent on the quality of water that recharges the aquifer – which is affected by the land uses at the surface. Land uses which discharge contaminated water, or result in pollutants leaching into the ground water, must be carefully regulated to protect groundwater. In general, the quality of water from the surficial aquifer is naturally of high quality. However, high concentrations of naturally-occurring iron and manganese in wells are common, especially near wetlands. Many wells have water softening systems to counteract the effects of these minerals.

Water Resources Protection District

The surface hydrology or flow of surface waters is directly related to the groundwater systems in Stow and must be thought of as one complex hydrologic system. The streams, ponds and wetlands of Stow reflect the location of the groundwater table. Fluctuations in the surface water levels coincide directly with fluctuations in the water table and vice versa. During most of the year surface waters are fed and maintained predominantly by groundwater flow.

To aid in the protection of its water resources, Stow has established a zoning overlay district, the Water Resource Protection District, and the Town has adopted protections within the Stow Zoning Bylaw that regulate the types and intensity of land uses within the overlay district. Map 7 on the next page shows the location of the Water Resource Protection District as well as other areas around wellheads that are protected by DEP.

Flood Hazard Areas

Flooding may be defined as the occurrence of flow in a stream or river that exceeds the capacity of the banks formed by normal flows. All waterways have floodplains, those areas that flood during significant storms. An increasingly important factor related to flooding in Stow is the creation of impervious surfaces that limit infiltration and increase surface flow.

In January of 2013, the Federal Emergency Management Agency (FEMA) released Preliminary Flood Insurance Rate Maps (FIRMs) updated with more precise base flood elevation data and land contour mapping for Middlesex County. These maps were approved by Annual Town Meeting in 2014. FEMA's updated FIRMs, together with floodplain designations delineated for the Assabet River, by the Army Corps of Engineers in 1966, and for Heath Hen Meadow Brook, by BSC Engineering in 1975, form the official boundaries of Stow's Floodplain Overlay District.

The three sources of floodplain data are shown on Map 8, depicting Stow's floodplain boundaries.

Wetlands

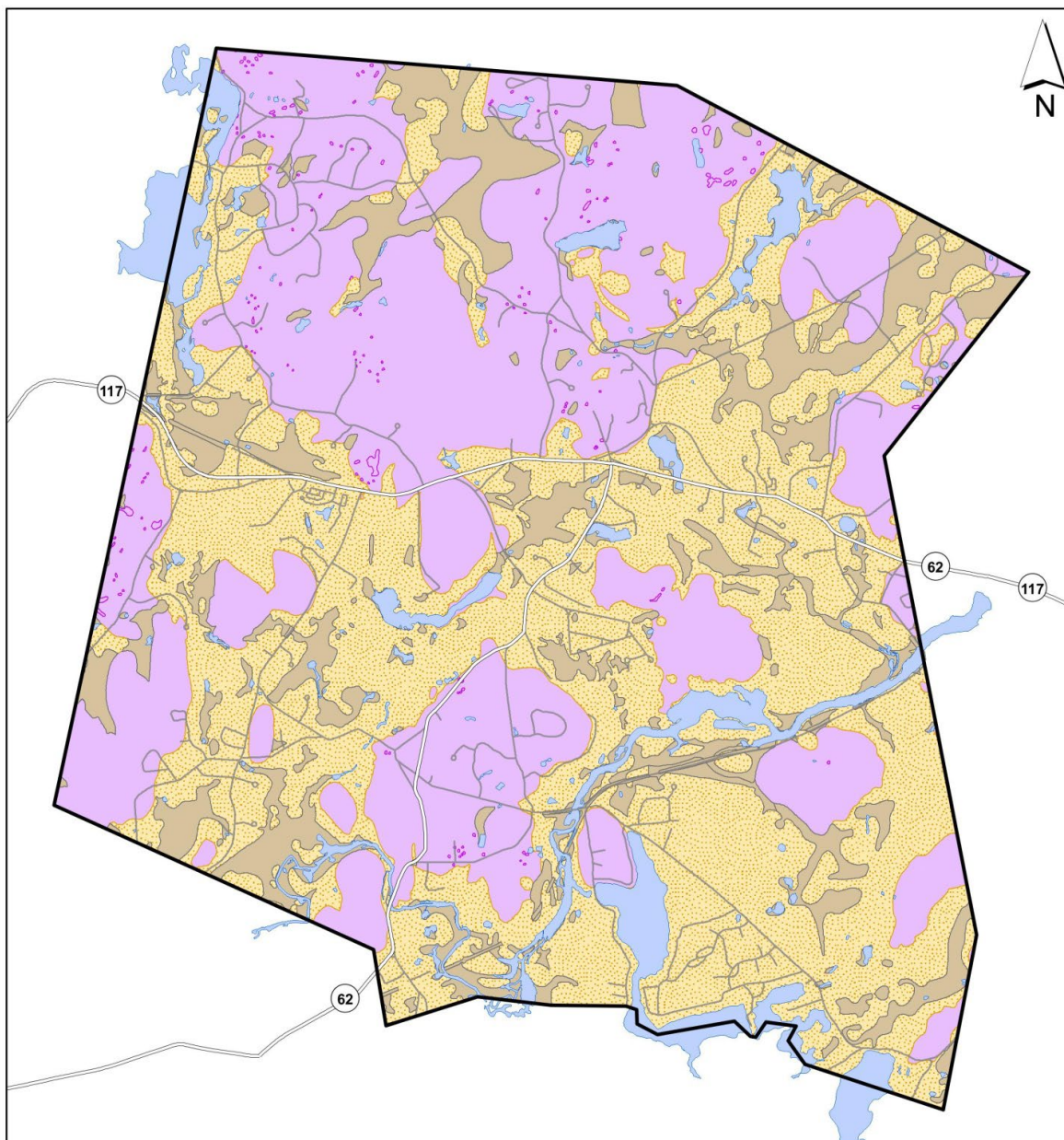
Low-lying wetlands can be found in virtually every corner of Stow. Map 9 depicts wetlands in Stow as mapped by the Fish and Wildlife Service's National Wetlands Inventory and the Massachusetts Department of Environmental Protection. Because many small wetlands are not shown, this map should not be viewed as a substitute for actual on-the-ground wetland delineation.

Stow has a local wetlands bylaw that is more stringent than the Massachusetts Wetlands Protection Act and which is administered by the Conservation Commission.



Wetlands and water resources such as this pond and marsh system at Stow Acres are abundant in Stow

Stow - Surficial Geology



Legend

- Sand and Gravel
- Till or Bedrock
- Floodplain Alluvium
- Water

0 1 Mile

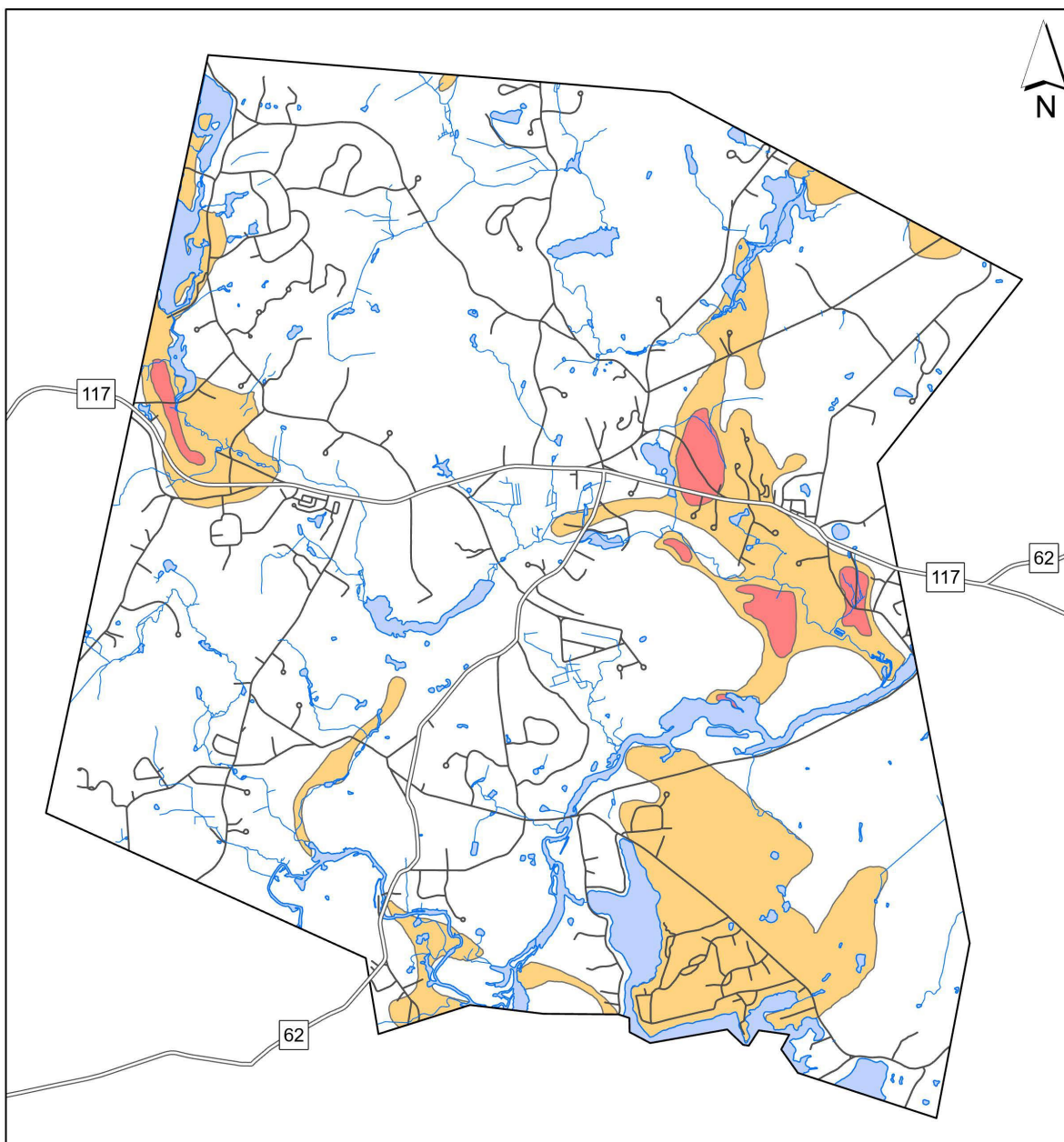
Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.

Map produced 3/18/2015 by J P Kern

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Map 6a: Stow - Surficial Geology

Stow - Aquifers



Legend

- High Yielding
- Medium Yielding
- Surface Water

0 1 Mile

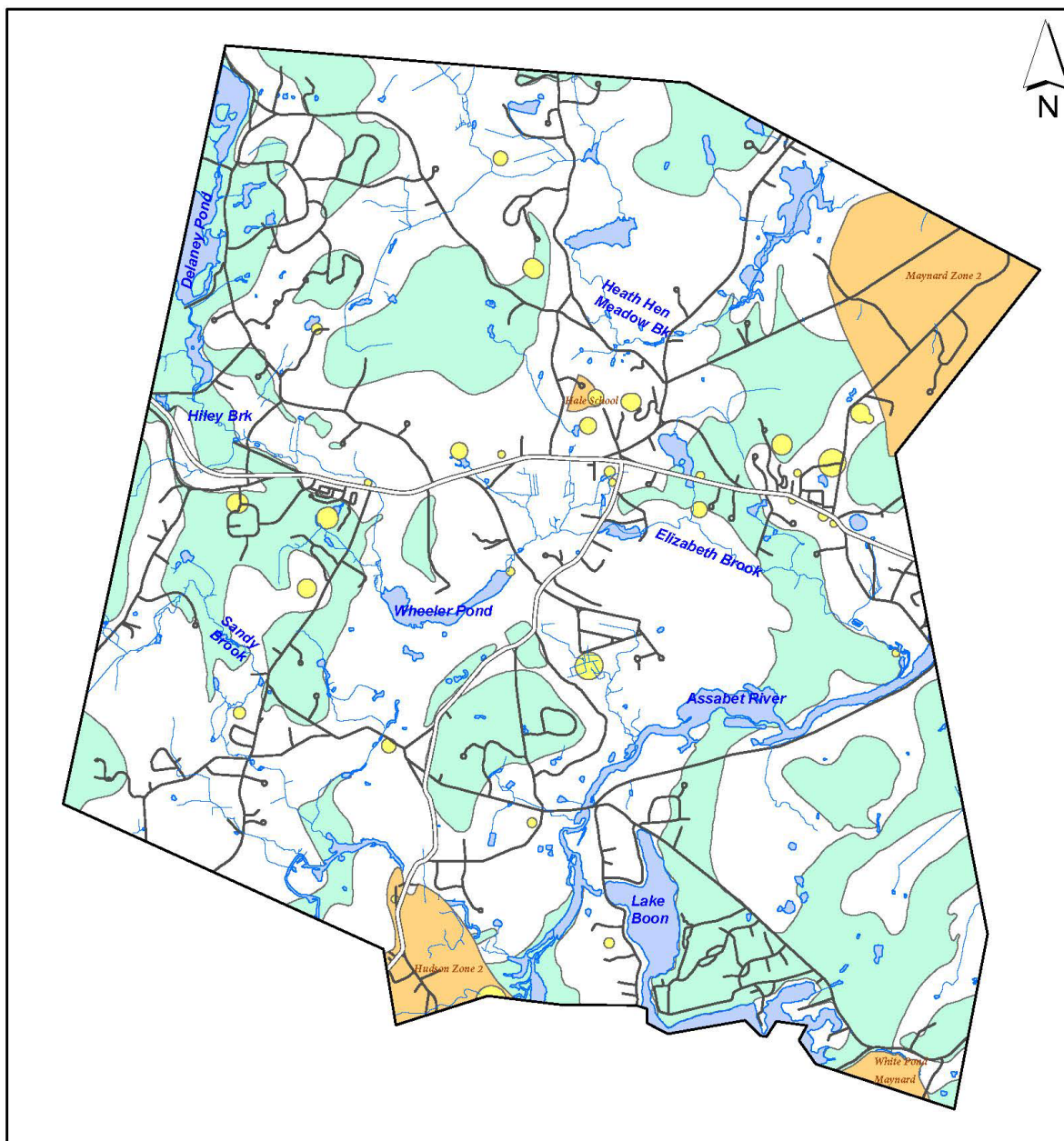
Data provided by MassGIS.

Map produced 8/28/2023 by M Slagle

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Map 6b: Stow - Aquifers

Stow - Water Resources Protection



Legend

- MassDEP Wellhead Protection Zone 1
- MassDEP Wellhead Protection Zone 2
- Water Resource Protection Overlay District
- Surface Water

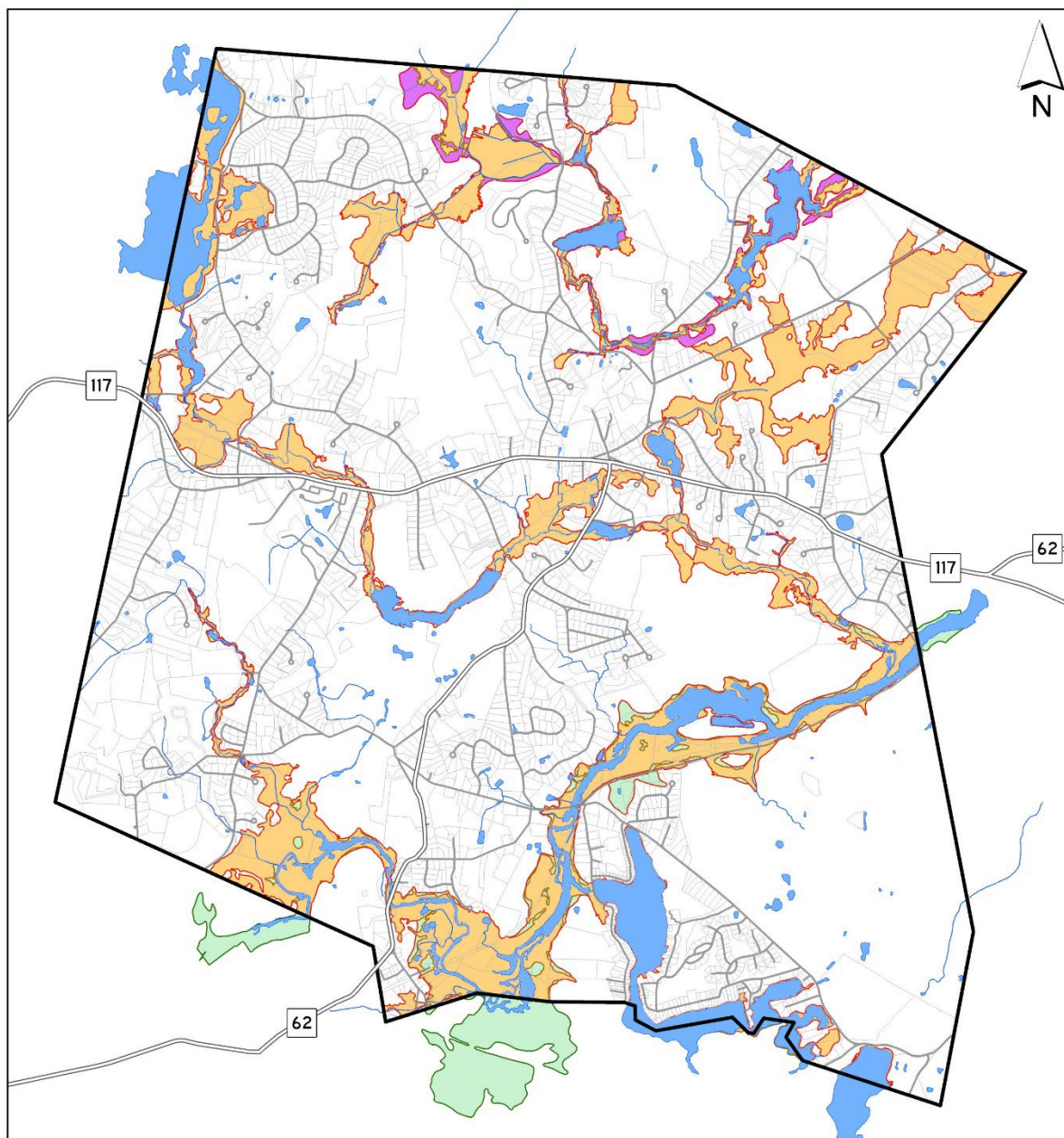
0 1 Mile

Overlay District developed by Town of Stow.
Wellhead features provided by MassGIS.
Map produced 8/24/2023 by M. Slagle

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Map 7: Stow – Water Resource Protection District

Stow - Floodplain Overlay District



Floodplain Overlay District

- Stow Floodplain Overlay District
- (1) FEMA Floodplain
- (2) Assabet River Floodplain
- (3) Heath Hen Floodplain

- (1) Federal Emergency Management Agency
Middlesex County Flood Insurance Rate Maps
Zones A, AE
July 7, 2014
- (2) US Army Corps of Engineers
Assabet River Technical Report, Floodplains and Profiles
Sheets 2, 3, and 4
June 1966
- (3) BSC Engineering, Inc.
Floodplain - Plan and Profile, Heath Hen Meadow Brook
February 21, 1975, Revised May 2, 1975

0 1 Mile

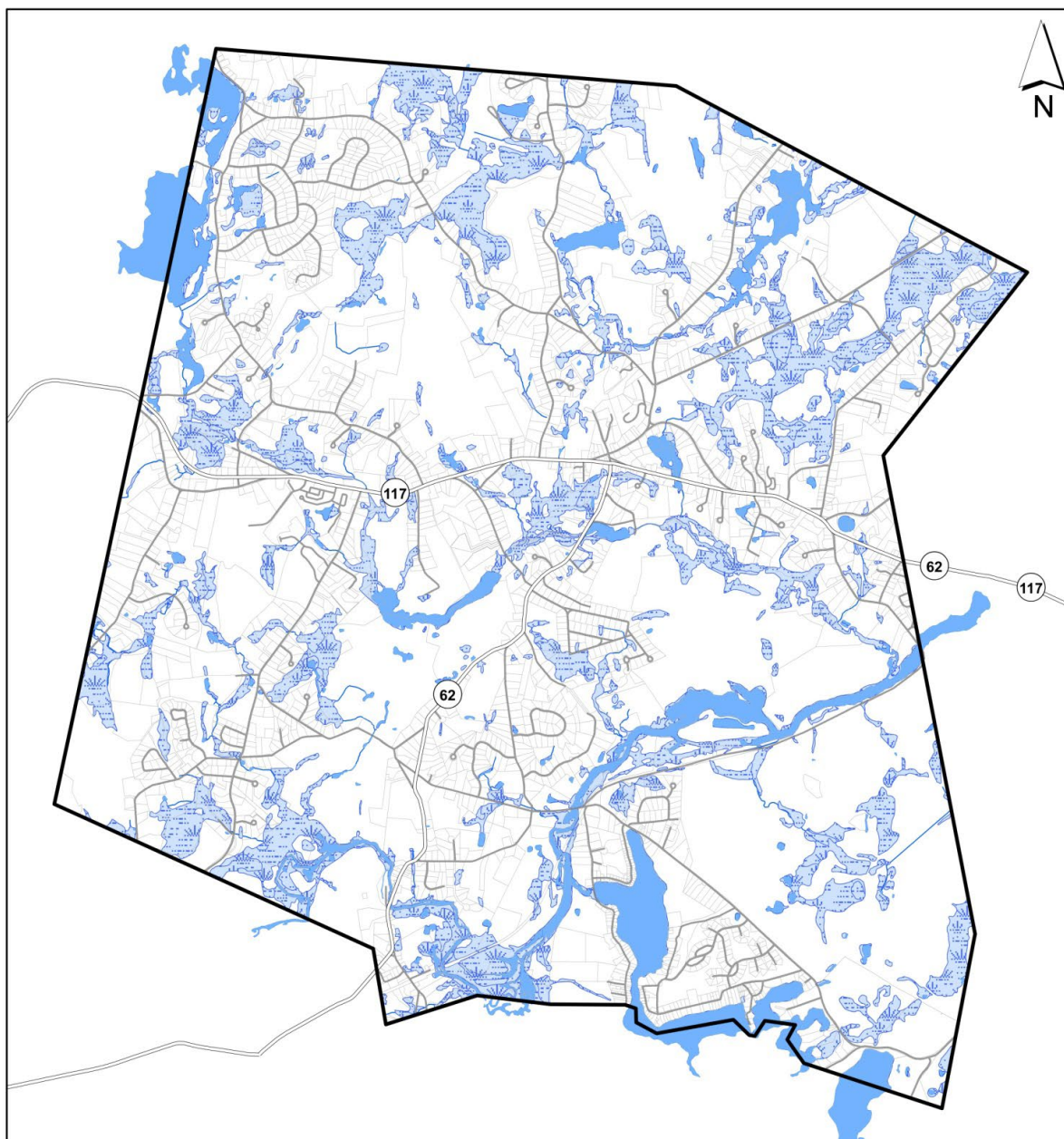
Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.

Map produced 2/17/2023 by M Ragan

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Map 8: Stow - Floodplain Overlay District

Stow - Wetlands



Legend

-  Water
-  Wetland
-  Stream

0 1 Mile

Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.

Map produced 8/12/2015 by J P Kern

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Map 9: Stow - Wetlands

4D. Vegetation

General Inventory

There is a wide range of natural vegetative communities in Stow, including hardwood and pine forests, red maple swamps, cattail marshes, wet meadows and quaking (*Sphagnum*) bog-like wetlands known as fens. The Stow Acres North Course includes a spruce bog in which pitcher plants and Jack-in-the-pulpits can be found. The Town Forest has two fens. In addition, topographic maps show cranberry bogs on the Assabet Refuge land in the southeast corner of Stow. Woodland wildflowers are common in some pine and oak forest areas. The Town contains several orchards, nurseries, greenhouses and farms. These areas provide a wide variety of habitat for wildlife species, and add to the Town's aesthetic and economic resources.

Forest Land

The principal native forest trees in Stow are white pine, red oak, and mixed hardwoods in the upland areas along with hemlock groves and hickories; most wetlands are dominated by red maples. Birches and poplars are interspersed in the edge areas where more light is available and as an understory tree in some younger forests. Understory vegetation consists of a variety of small trees and shrubs including evergreen shrubs, native dogwoods, viburnums, witch hazel and highbush blueberries.

A number of mature groves of white pines are found in Stow's conservation lands, particularly at Town Forest, Marble Hill, and Captain Sargent. Other extensive groves of white pines are found at Lake Boon and on top of Pilot Grove Hill.

Since 1900 a variety of diseases and pests have limited the diversity of our woodlands. Chestnut blight eliminated the American Chestnut; American Elms succumbed to Dutch Elm Disease; White Ash trees are now dying of Ash Decline and Emerald Ash Borer and many Hemlocks are infested with wooly adelgid. This lack of diversity could prove disastrous if new diseases appear; a good example was the massive damage done to oaks during the Gypsy Moth infestation of the early 1980s and in 1990-1991. To date there have been no infestations of Asian Long Horned Beetle or Spotted Lanternfly, although these pests have been found in nearby communities and a single spotted lanternfly adult was found in Stow in 2022. Stow is also seeing a large population of winter moth in recent years, which could affect apples, blueberries and various hardwood species.

Agricultural Land

Stow has a large number of parcels that are in agricultural use – ranging from large and highly visible properties such as Pilot Grove Farm, Carver Hill, Shelburne Farm, Honey Pot Hill Orchards, Applefield Farm, and Small Farm, to smaller and less visible properties. These farms are important elements of the Town's business base and community character and play a key role as scenic vistas both from public roads as well as the



Assabet River. They also serve to link existing conservation lands and provide wildlife habitat. Protection of agriculture and agricultural lands is a high priority in this Plan. Map 10 depicts areas with prime agricultural soils in Stow. Massachusetts has a statewide Executive Order designed to minimize development on prime farmland and to require mitigation for state funded or permitted projects on prime farmland. A copy can be found in the Appendices of this Plan.

In 2013, Stow played an active role in the Minuteman Advisory Group on Interlocal Coordination (MAGIC) Comprehensive Agricultural Planning Project, focused on farm viability, food system planning, farmland preservation in a thirteen-town region. Several significant agricultural issues in the region emerged, such as limited options for land tenure and difficulty accessing affordable farmland, public education about farming processes and its community impact, as well as the affect local municipal regulations can have on farm viability strategies. Several key recommendations are noted in the report that support the continued viability of farming in Stow, including 1) undergoing a local assessment of the agricultural system (including potentially productive lands), regulatory support for diversified revenue streams for farms, and supporting potential agricultural productivity in the process of acquiring and protecting land.



Public Shade Trees One of Stow's more noticeable landscape aspects are its roadside trees. Although protected from arbitrary cutting through the provisions of the state statute commonly known as the Public Shade Tree Law (G.L. Ch. 87), these trees are endangered by diseases, droughts, storm damage, motor vehicle damage, insect infestations, girdling roots, compacted soils, and other environmental stresses such as the application of road salt, and extensive cut-backs for utility wires, and poor planting practices. Fortunately, many miles of our roadsides have seen volunteer species rise to the occasion and infill areas where dead, diseased, and storm-damaged trees have been removed. Their numbers are regularly enhanced by the planting of other roadside trees through the efforts of the Tree Warden and other residents. Some disease-resistant European varieties of native American trees have also been planted, such as a European Chestnut donated by a resident of Gleasondale and planted on the common area at Marlboro Road and Gleasondale Road, and which is thriving.

Diseases, over the decades, have killed most of the majestic American elms, American chestnuts, ash varieties, and the American sycamore. Very few of the butternut and/or black walnut trees, once prevalent in some areas of town, remain on our roadsides, presumably due to their sensitivity to road salt. Emerald Ash Borer is a newly arrived pest that is affecting the already declining ash population in Stow. The number of different types of beetles, mites, aphids, adelgids, borers, caterpillars, moths, and other insects that can stress and kill trees is significant, and always of concern.

The Stow Tree Warden has created and maintains a list of acceptable and unacceptable species for street tree plantings in Town. Residents and developers are encouraged, and/or

required, to refer to the list when choosing trees that are intended to be our future public shade trees. Many different species and varieties from this list have been planted around town.

The Tree Warden also maintains a current list of dead, dying, storm-damaged, or otherwise hazardous roadside trees for the Highway Department tree crews to prune or remove as time allows, in order to keep our public ways reasonably safe for travel. Highway Department personnel regularly prune roadside trees of low, dead, or otherwise troublesome limbs, as well as other small roadside growths. The cutting of roadside trees and growths is performed generally in accordance with the Tree Warden's *Policy on the Cutting of Public Shade Trees by Highway Department Personnel*.

The Tree Warden regularly deals with many requests from residents who wish to remove, or have removed, trees that they deem to be of concern to them. Determining whether a particular tree is in fact a public shade tree by definition, and therefore protected under the law, is often a difficult task, because most of the Town's public ways do not have recorded layouts that would show definitive property lines on each side.

For many reasons, the streets of Stow may never again be lined by huge numbers of towering shade trees, but our tree canopies are significantly greater now than at other periods of time in our past and continue to expand. As one of the first settled areas in the country, our lands were almost entirely clear-cut, more than once over the centuries, prompting the need for Massachusetts to promulgate the nation's first public shade tree law.



4E. Fisheries and Wildlife

Inventory

Stow's diverse plant communities provide habitat for a wide variety of wildlife species. The transition zones between developed and undeveloped acreage or between wetland and upland provide particularly valuable 'edge' habitat suitable for many species because they combine the characteristics of both types of land.

There are now four major properties in Stow that are managed specifically to encourage wildlife: the Delaney Project (MA DFW/DCR), the Assabet Wildlife Refuge (US Fish and Wildlife Service), and the Town-owned Flagg Hill and Heath Hen Meadow Conservation Areas. Many other properties in Stow, although not managed specifically to encourage wildlife, serve as links between many of these four main areas.

Stow is within the range of about 50 mammal species, 220 bird species, 20 reptile species, and 20 amphibian species. Increasingly common are mink, river otter, fox, bobcat, fisher, beaver and coyote. Moose have made regular appearances in Stow in the past few years and have even been seen at Lake Boon. Bald Eagles are frequently seen over large waterbodies like Delaney Pond, Lake Boon and the Assabet River and are known to be nesting on the Hudson/Stow line. Eastern Black bear is an increasingly frequent but still occasional visitor, that

is likely to be more common in Stow in coming years. The Stow Conservation Department has worked over the years to educate residents on how to peacefully co-exist with a variety of wildlife including coyotes, foxes, fishers, and bobcats.

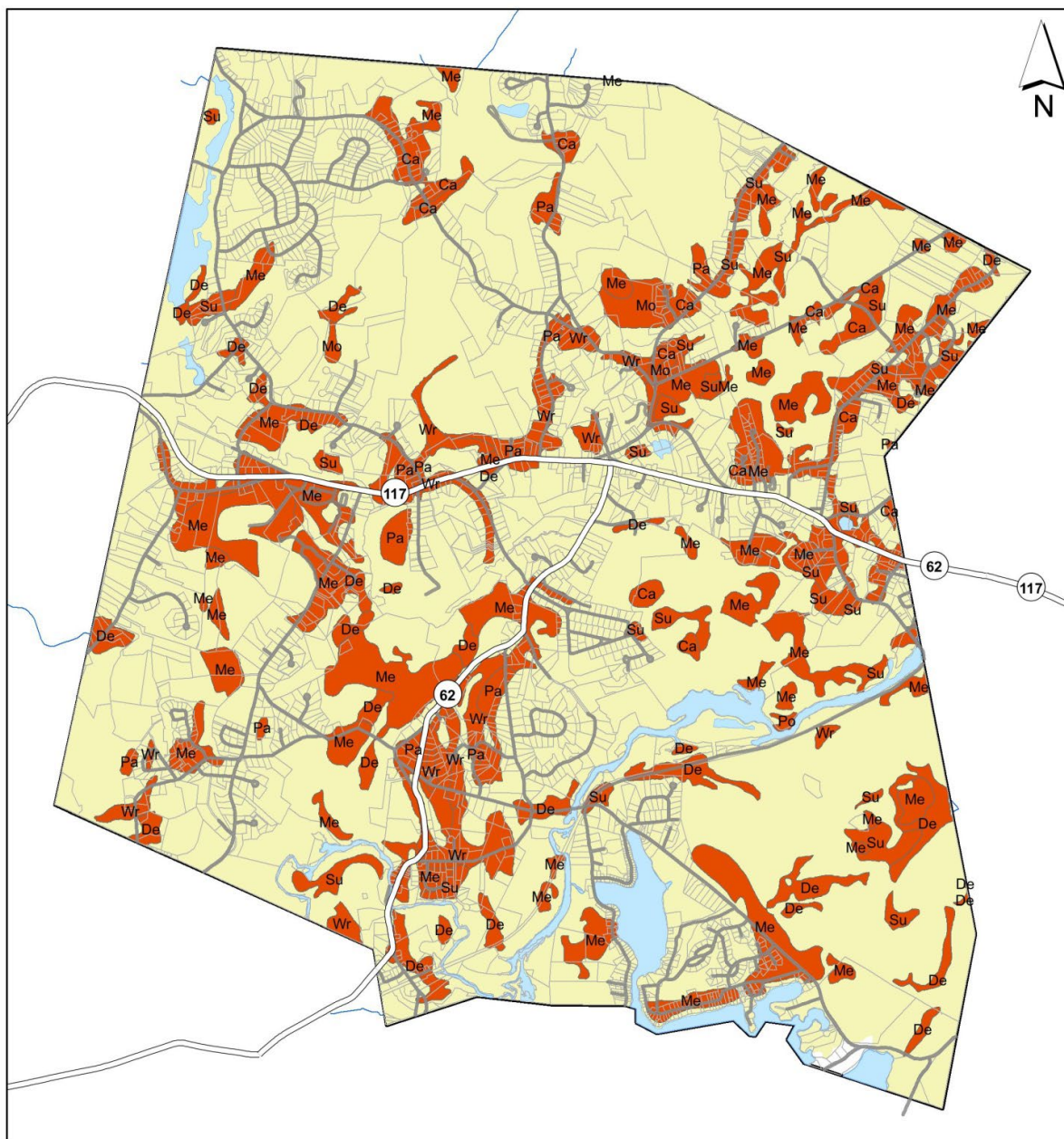
A list of these Stow wildlife species that was compiled in the 1987 Open Space and Recreation Plan and has been updated with data from inaturalist.com and included in the Appendices to this Plan.

Vernal Pools

Stow has 33 certified vernal pools – seasonally wet depressions that are important for amphibian breeding -- that have been certified by the State to date and which are scattered throughout Town, with a high concentration of these areas in the Assabet River National Wildlife Refuge. The Stow Wetlands Bylaw provides additional protection for vernal pools beyond what is contained in the Massachusetts Wetlands Protection Act. When development is proposed near a potential vernal pool, the Conservation Commission requires the applicant to research the area to determine whether it functions as a vernal pool. This process has resulted in the certification of several vernal pools near proposed developments in recent years. Map 11 depicts certified and potential vernal pools (as identified by aerial photography). The Town should ensure that unprotected areas that function as vernal pools are certified to increase their protection. It is particularly important to document, certify and protect clusters of vernal pools located within proximity to each other and large vernal pools as these provide the most viable habitat for species that depend on vernal pools for the breeding portion of their life cycle.



Stow - Prime Agricultural Soils



Prime Agricultural Soils

Designated Prime Agricultural Soils from U.S. NRCS

0 1 Mile

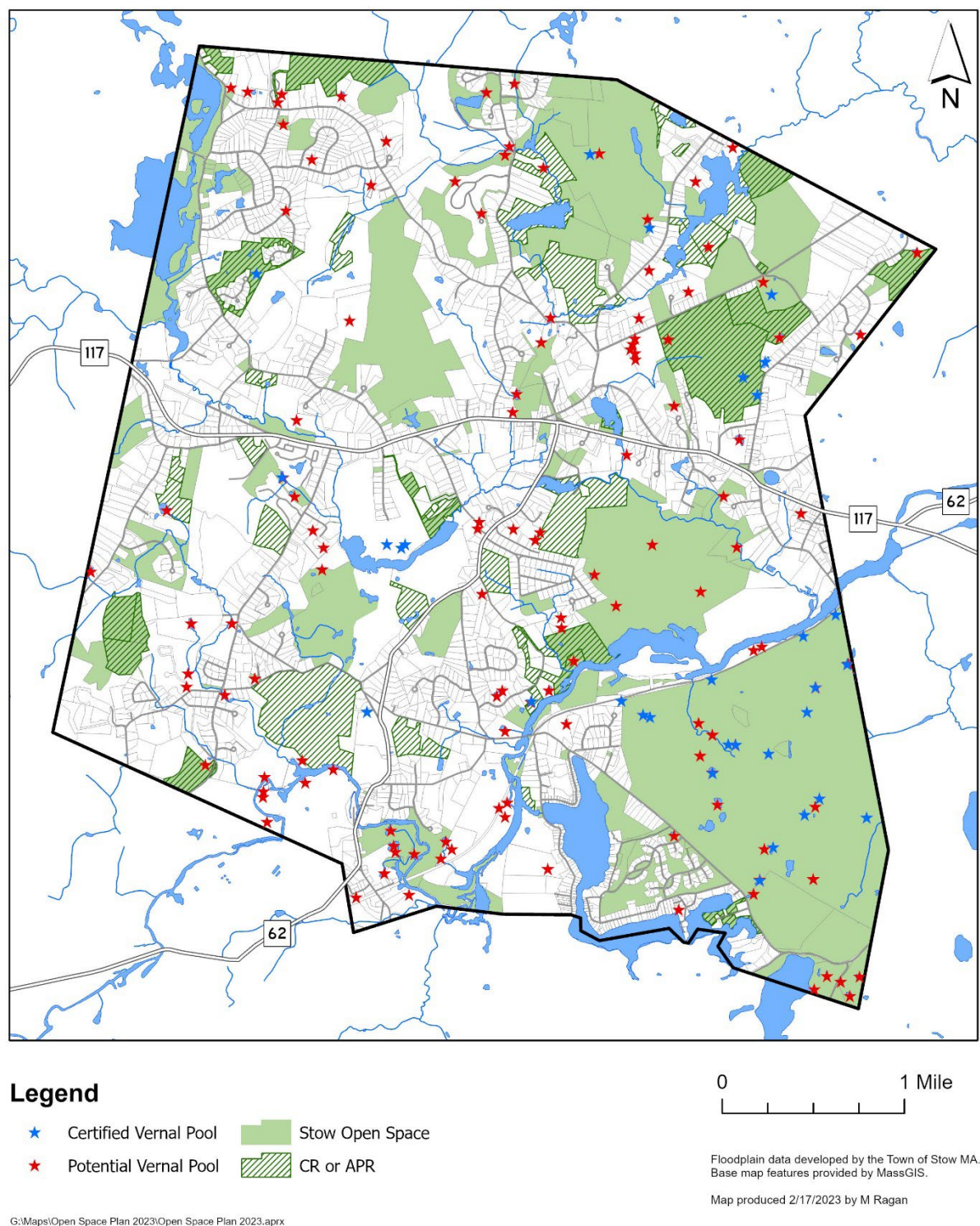
Soils data from NRCS 2006, provided by MassGIS
Base map features provided by MassGIS.

Map produced 10/28/2014 by J P Kern

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Map 10: Stow - Prime Agricultural Soils

Stow - Certified and Potential Vernal Pools



Map 11: Stow – Certified and Potential Vernal Pools

Stow's certified vernal pools to date are listed below:

| Pool Number | Location | Year Certified |
|--------------------|----------------------------------|-----------------------|
| 1545 | Flagg Hill | 1998 |
| 1546 | Flagg Hill | 1998 |
| 2839 | Derby Woods | 2002 |
| 3052 | Off Red Acre Road (private) | 2002 |
| 3188 | Off Apple Blossom Lane (private) | 2003 |
| 3750 | Red Acre Woodlands | 2006 |
| 4058 | Villages at Stow | 2006 |
| 4169 through 4178 | Assabet River NWR (10 pools) | 2006 |
| 4181 | Assabet River NWR | 2006 |
| 4183-4192 | Assabet River NWR (10 pools) | 2006 |
| 6524 | Captain Sargent | 2011 |
| 7803 | Gates Lane | 2017 |
| 7804 | Gates Lane | 2017 |
| 7805 | Gates Lane | 2017 |
| 8139 | Gleasondale Road | 2020 |

Rare Species

The following list of rare plant and animal species – endangered (E), threatened (T), and special concern (SC) – have been documented in Stow as reported by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). The date in the last column represents the most recent observation of a particular species. However, many rare species are difficult to detect even though they are present, and Natural Heritage does not conduct methodical species surveys in each town on a consistent basis. Therefore, the fact that the most recent observation of a species may be several years old should not lead to the interpretation that the species no longer occurs in a town. In addition to the species on the list below, Eastern Box Turtle has been documented in Stow in the area of Marble Hill and these reports provided to the NHESP program. The locations of habitats of rare species are not publicized in order to protect the species.

In addition to tracking rare species occurrences, the Massachusetts NHESP has completed studies of both terrestrial and aquatic systems designed to identify those most critical to the protection of biodiversity in Massachusetts – including rare species and priority habitats. These studies are incorporated into the BioMap report recently published by the Massachusetts NHESP and can be used as a tool to help make land protection decisions. While only small areas of Stow are identified in this report, these are important areas to protect wherever possible.

| Type | Latin Name | Common Name | Rank | Last |
|----------------|--|------------------------------|------|------|
| Amphibian | <i>Ambystoma laterale</i> | Blue-Spotted Salamander | SC | 1992 |
| Reptile | <i>Terrapene carolina</i> | Eastern Box Turtle | SC | 2016 |
| Bird | <i>Botaurus lentiginosus</i> | American Bittern | E | 1992 |
| Bird | <i>Capimulgus vociferous</i> | Eastern Whip-poor-will | SC | 2019 |
| Bird | <i>Gallinula chloropus</i> | Common Gallinule | SC | 1992 |
| Bird | <i>Ixobrychus exilis</i> | Least Bittern | E | 2005 |
| Bird | <i>Rallus elegans</i> | King Rail | T | 2005 |
| Vascular Plant | <i>Carex oligosperma</i> | Few-Seeded Sedge | E | 2012 |
| Vascular Plant | <i>Liatris scarioa</i> var. <i>navae-angelie</i> | New England Blazing Star | SC | 1992 |
| Vascular Plant | <i>Lipocarpa micrantha</i> | Dwarf Bulrush | T | 1917 |
| Vascular Plant | <i>Panicum philadelphicum</i> | Philadelphia Panic-Grass | SC | 1992 |
| Vascular Plant | <i>Spiranthes vernalis</i> | Grass-Leaved Ladies'-Tresses | T | 2011 |

The state's new (2022) BioMap data layer identifies areas of statewide conservation significance called Core Habitat and Critical Natural Landscapes. Core Habitats are key areas that are important for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. Protection of Core Habitats will contribute to the conservation of specific elements of biodiversity. Critical Natural Landscape identifies large natural Landscape Blocks that are minimally impacted by development. If protected, these areas will provide habitat for wide ranging native species, support intact ecological processes, maintain connectivity among habitats and enhance ecological resilience to natural and human-caused disturbances in a rapidly changing world. Areas delineated as Critical Natural Landscape, also include buffering upland around wetland and aquatic Core Habitats to help ensure their long-term integrity.

In Stow, these Core Habitat consist primary of areas around the Assabet River National Wildlife Refuge and Town Forest, Stowaway Golf Course, the Delaney Wildlife Management Area, Minute Man Air Field, Flagg Hill, and the Great Pine Swamp off South Acton Road.

The largest areas of Core Habitat and Critical Natural Landscape that are unprotected in Stow are Stowaway Golf Course, the Great Pine Swamp, and Minute Man Air Field. For the first time, the BioMap project (now in its third iteration) also identified areas of local habitat significance. These areas are more plentiful in Stow and encompass many existing protected conservation areas, as well as unprotected areas along South Acton Road, West Acton Road and Red Acre Road, land to the east of Hudson Road, land off Athens Lane, and land in Gleasondale. Maps of these areas can be found in this section as Map 12a (statewide areas of significance) and Map 12b (local areas of significance).

Wildlife Habitat and Connectivity

As part of the 2016 update of the Open Space and Recreation Plan, the Stow Open Space and Recreation Plan Subcommittee worked with Sudbury Valley Trustees (SVT), a regional land conservation organization focused on conserving land and wildlife habitat in the Concord, Assabet and Sudbury river basins, and the MassLIFT Americorps program, to analyze parcels in Stow using new statewide information developed by The Nature Conservancy, the University of Massachusetts and the Commonwealth of Massachusetts regarding priority lands for conservation for wildlife habitat and resilience to climate change. SVT and Americorps have developed a watershed-wide plan showing those parcels which emerge as most important for conservation when analyzed for climate resiliency, biodiversity, connectivity, and the creation of large blocks of habitat.

The following data was used in this analysis:

MassGIS/Natural Heritage Data:

- NHESP Priority Habitats of Rare Species
- BioMap2 Core Habitat and Critical Natural Landscape
- Areas of Critical Environmental Concern
- Priority Natural Vegetation Communities

Data from Other Organizations:

- UMass Conservation Assessment and Prioritization System (CAPS) Index of Ecological Integrity
- Audubon Important Bird Areas
- The Nature Conservancy Massachusetts and Northeast Resilience Data

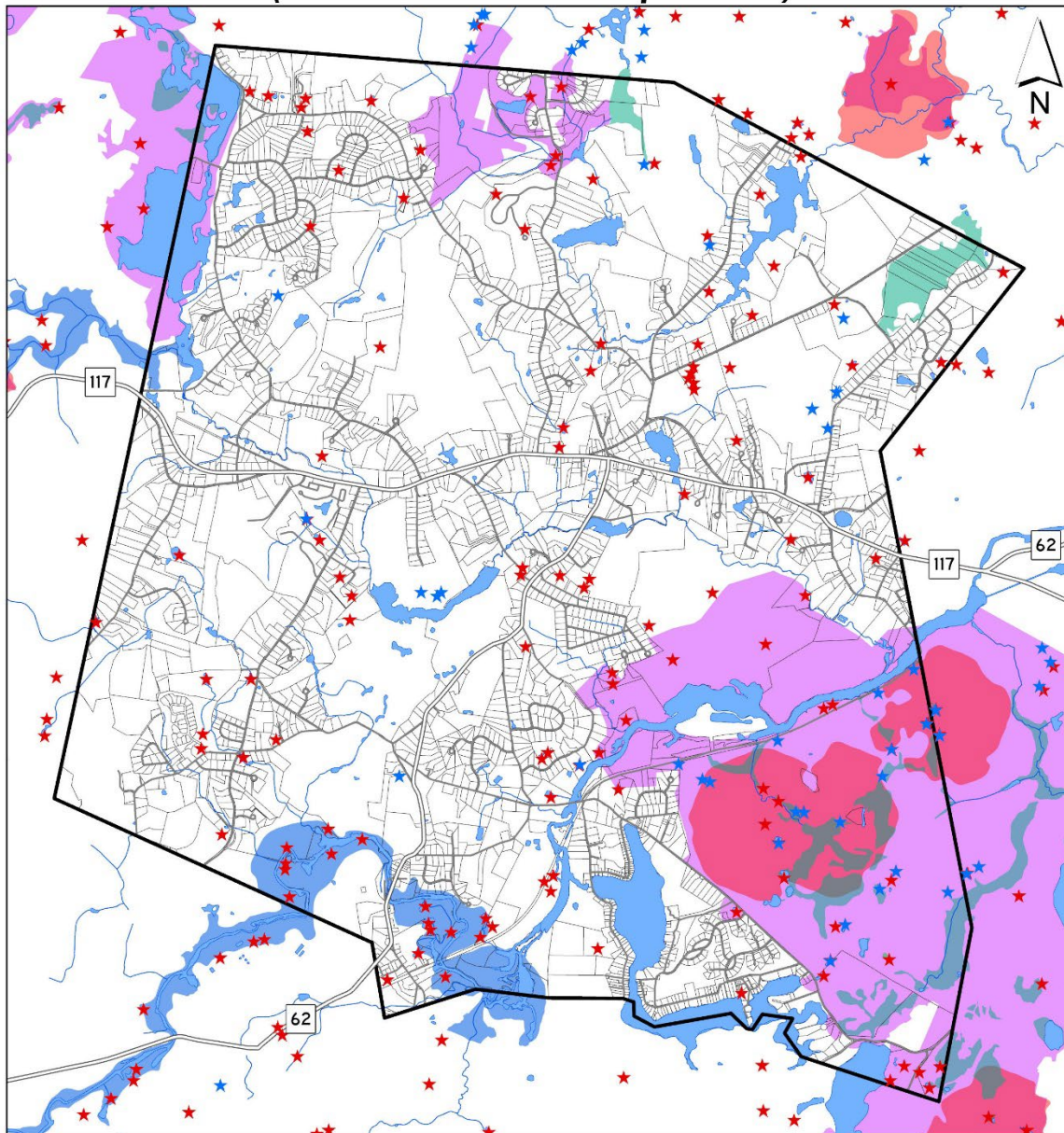
Because this model does not capture lands that might otherwise be of conservation interest – farmland or land of scenic or historic value – SVT will be ground-truthing and revising the plan on a town-by-town basis in consultation with municipal partners and local land trusts. The Town of Stow has been the first partner in this consultation. This data has been incorporated into the maps of Habitat Significance in Section 5 of this Plan.

4F. Scenic Resources and Unique Environments

Scenic landscapes

Although there are many scenic spots in Stow, the most dramatic include: Pilot Grove Farm, the McCassey/Perkins (Orchard Hill) drumlin in Gleasondale, Honey Pot Hill Orchard, Shelburne Farm Orchard, and the Delaney Flood Control Project. The Assabet River and the Elizabeth are among the most scenic rivers and streams in the area.

Stow - Areas of Habitat Significance (Statewide Core Components)



BioMap Core Habitat Components

- Aquatic Core
- Wetland Core
- Priority Natural Communities Core
- Forest Core

- Vernal Pool Core
- Rare Species Core
- Certified Vernal Pool
- Potential Vernal Pool

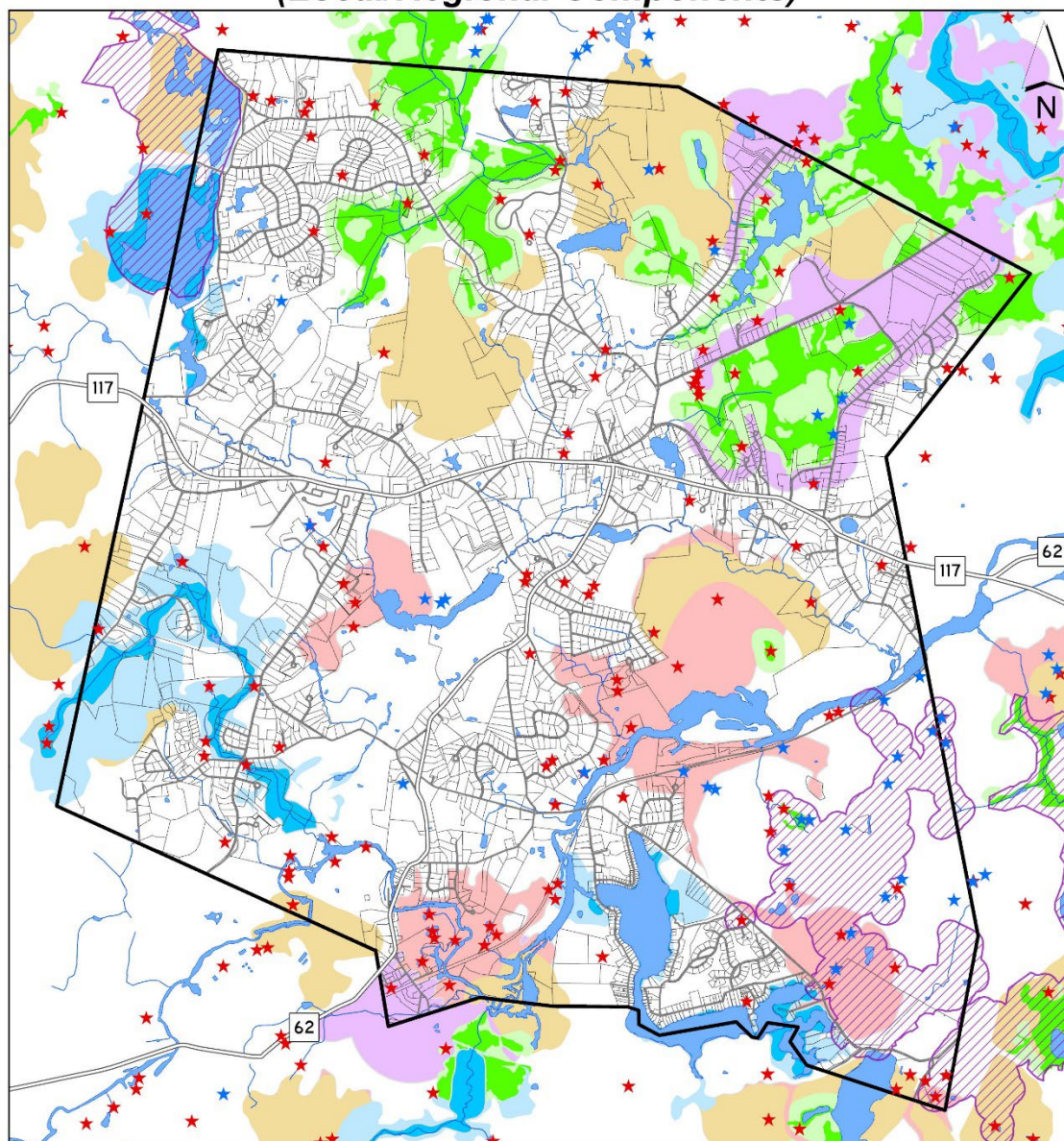
0 1 Mile

Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.
BioMap data courtesy of MassWildlife and
The Nature Conservancy
Map produced 2/17/2023 by M Ragan

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Map 12a: Stow – Unprotected Areas of Statewide Habitat Significance

Stow - Areas of Habitat Significance (Local/Regional Components)



BioMap Local Level Components

- Local Aquatic Habitats
- Local Aquatic Habitat Buffers
- Local Wetlands

Local Wetland Buffers

- Local Landscapes
- Local Vernal Pools
- Local Rare Species

BioMap Regional Components

- Regional Rare Species
- Regional Connectivity

Certified Vernal Pool

- Potential Vernal Pool

0 1 Mile

Floodplain data developed by the Town of Stow MA.
Base map features provided by MassGIS.
BioMap data courtesy of MassWildlife and
The Nature Conservancy.

Map produced 2/17/2023 by M Ragan

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Map 12b: Stow – Unprotected Areas of Local Habitat Significance

Pilot Grove Farm (seen below) is centrally located in Town and contributes significantly to the rural character of Stow. It is an active sheep and cow farm with rolling hay fields and forested borders and fence rows, which are highly visible from major roadways. The farm is important in the history of the Town and has been owned by the same family since 1782.



The McCassey/Perkins (Orchard Hill) drumlin offers a windswept open hill that juts out into the Assabet River forcing the river to bend sharply as it wends its way through Gleasondale. Although the view is partially obstructed by the homes along Route 62, it peeks out from behind the houses and is visible from the South Course of Stow Acres and the School Lot in Gleasondale. If one stops to walk down to the river's edge or explores this area by canoe, the drumlin makes a distinctive impression with iconic farm barns and horses found on its treeless but grassy slopes.

Honey Pot Hill Farm, an orchard located in the southern portion of Stow, is divided by Sudbury Road and Boon Road. Shelburne Farm is located near the Town center along West Acton Road and has been permanently protected. Both are thriving orchards with rolling hills covered with apple trees that are highly visible from public roadways. All of Stow's orchards attract large numbers of visitors from Boston and surrounding areas for apple picking, making them important for the community's economy.

Spindle Hill, a drumlin near the center of Stow, has been used for recreational purposes for many years. At one time there was a small ski tow on the hill. It presents an attractive view towards the north from Wheeler pond on the Elizabeth Brook.

The Delaney Project is a flood control area in the northwestern sector of Town. Because of its large area of water bordered by tall pines, some grassy ridges and fields, wildlife frequent the area. Its open expanse makes it an attractive site for hiking, horseback riding, fishing and mountain biking. It is also widely used for dog walking as well as dog training classes. Portions of this area are also located in the adjacent towns of Bolton and Harvard.

The Assabet River and Elizabeth Brook were working streams in the early history of our community, with mills located along both. Significant stretches of these rivers have almost no development visible from the banks and are extremely beautiful especially in fall. OARS, a regional watershed protection organization, is active in trying to clean up the river and enhance the natural beauty while also encouraging responsible recreational use.

The Stow Historical Commission and others have worked with the Massachusetts Heritage Landscape Inventory to develop the “Stow Reconnaissance Report” for the Freedom’s Way Landscape Inventory which identifies many of these important scenic attributes. Map 13, the Unique Features Map, shows the larger unique features found in Stow, and a full list can be found in Appendix 4.



One of the town’s many scenic golf course views

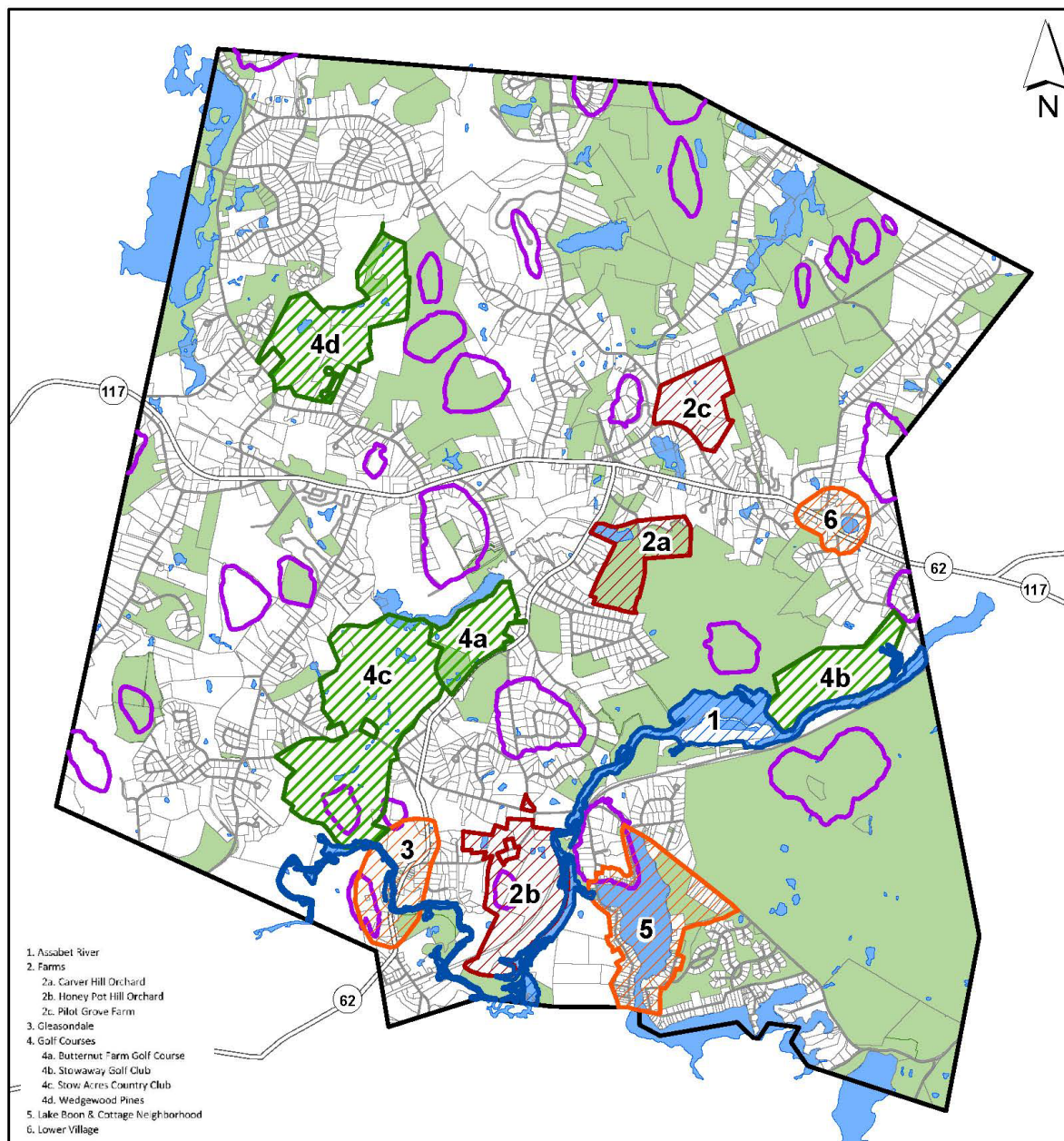
Cultural, Archeological and Historic Areas

Although there are a large number of historic sites and homes in Stow, only the most prominent are mentioned here. A more complete listing of historical sites and landscapes has been compiled by the Stow Historical Commission and is currently in the process of being updated. Pilot Grove Farm and Hill are of central historic significance. The Stow West School is a restored one room school house on Harvard Road which is open to the public for special weekend events in the summer and fall. The Town created a small parking area and other access enhancements at the West School site using Community Preservation funds. The Gleasondale Mill area has a number of structures dating back to its operation as a woolen mill and the Planning Board is currently examining redevelopment of the mill and the creation of a stronger “sense of place” in the Gleasondale Village. The Town Center has many old homes and structures (e.g., old Town Hall, First Parish Church, etc.) that make the area both culturally and historically important for preservation. Appendix D of this plan contains a detailed list of many of important landscapes and historical sites that are known to exist in Stow and which were compiled as part of the Freedom’s Way Landscape Inventory Project.

Unique Environments

Stow currently has no designated Areas of Critical Environmental Concern (ACECs). Other areas with significant or unique resources include the Assabet River and Lake Boon, and the rare species and BioMap2 Core habitat areas described in Section 4E. At present, there are no plans to seek ACEC designation for any of these areas.

Stow – Unique Features Map



Legend

- Protected Open Space Lands
- Golf Course
- Farm
- Water
- Village
- Drumlin

0 1 Mile

Floodplain data developed by the Town of Stow MA.
 Base map features provided by MassGIS.

Map produced 8/24/2023 by M Slagle

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Map 13: Stow – Unique Features Map

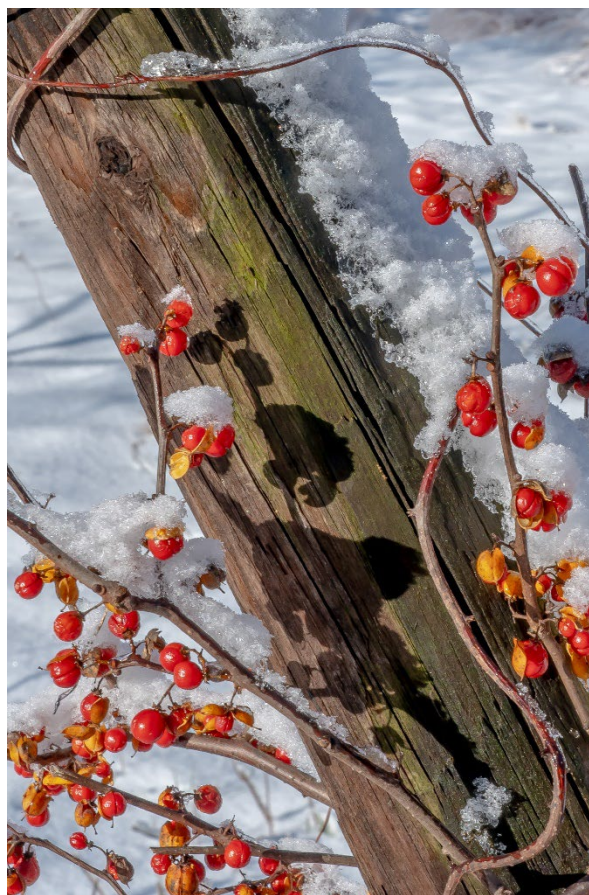
4G. Environmental Challenges

New Development

Development is gradually fragmenting Stow's forest lands and wildlife habitat, reducing opportunities to provide trail linkages between protected lands and affecting the Town's rural and historic character. Particularly noticeable is the fact that new residential developments tend to consist of large homes that can be intrusive on the landscape and out of character with much of the existing development in Stow, particularly when they require extensive grading and clearcutting or the construction of mounded septic systems due to high groundwater. The Planning Board has worked diligently to revise and modify zoning bylaws and regulations to encourage low impact development and retention of a roadside buffer and has succeeded in convincing applicants to revise plans to reduce required clearing and grading.

Invasive Species

Like most communities, Stow is seeing increased growth of non-native, invasive plant species that often outcompete native species. Common invasive plant species that are affecting both upland and wetlands in Stow include bittersweet, common and glossy buckthorn, Japanese barberry, multiflora rose, and Japanese knotweed. The Conservation Commission has worked to map and control some of these infestations where they occur on conservation land and a pilot mapping and control project was approved by Town Meeting in 2015 using Community Preservation Act funds. Current municipal efforts are primarily focused on Japanese knotweed at Captain Sargent and Heath Hen Meadow Brook, and on Japanese Stiltgrass at Flagg Hill and Marble Hill. In addition, invasive plant species in Lake Boon are a nuisance for swimmers and boaters. A non-native invasive clam has also been documented in Lake Boon. OARS has been mapping and removing invasive water chestnut from the Assabet for several years with funding assistance from the Town. The Open Space and Recreation Plan contains recommendations focused on the management and control of some of these invasive species.



Invasive bittersweet vine

Water Quality and Hazardous Waste Sites

A complete list of the reported hazardous release sites in Stow is available on DEP's website at available from DEP's Waste Site Lookup Portal at <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite/results?TownName=STOW>.

A large number of sites have been added since the last plan revision in 2016. Rather than re-publishing the whole list here, the major sites are summarized below:

Recent activity has occurred at the following sites:

- 45 Walcott Street – Clean up underway of TCE contamination buried on site
- Stow Town Center/Fire Station, Crescent Street – Investigation/Remediation of PFAS contamination suspected as having originated at the former Fire Station
- Gleasondale Mill, Gleasondale Road– Investigation/Remediation of PFAS contamination
- MA Dept of Fire Services Training Academy, State Road – Investigation/Remediation of PFAS contamination
- Barton Road Neighborhoods – TCE contamination of private wells
- Wedgewood Golf Course – Investigation of PFAS Contamination

Stow does not have any currently operating landfills. Former landfill sites on the Stow/Hudson and Stow/Acton lines and the Sudbury Annex (Wildlife Refuge) have been closed and capped to DEP standards. Water quality issues in Lake Boon, the Assabet River and in groundwater are addressed as part of Section 4C above.

Erosion, Sedimentation and Flooding

Lake Boon has several areas where steep banks are susceptible to erosion in heavy storms, from ice, and as a result of wash from power boats and inappropriate recreational use of the shoreline. Agricultural fields which are plowed regularly can be vulnerable to erosion, but there are few of these fields that are on significant slopes so this problem is minimal. The only other erosion which occurs in Stow is transient as a result of disturbance of the soils during development. Within 100 feet of wetlands, the Conservation Commission has been conscientious in requiring erosion mitigation and control measures as it reviews applications under the Wetlands Protection Act and Town of Stow Wetlands Bylaw.

Agricultural run-off from Stow's farms and orchards and from the golf courses in Stow is considered by some to be a possible source of ground and surface water pollution. However, a more likely source is the unregulated and uncontrolled application of fertilizer and pesticides to lawns and the incremental impact of nutrients from septic systems. Areas subject to chronic flooding include Heath Hen Meadow Brook, Elizabeth Brook (mostly due to the beaver dams), the Hiley Brook area, and portions of the Assabet River in Gleasondale just below the dam and at the Sudbury Road crossing. Flooding also occurs regularly in a low wetlands area on Maple St. near the Hudson/Bolton Town line and at the lower "field" at the former Pompositticut School north of Great Road.

Beavers are also a source of flood waters and there are currently healthy beaver populations in most Stow waterways, including Lake Boon. Wherever possible, it is the goal of the state and town to co-exist with beavers, so long as their dams do not create hazards to public safety or health, for example by flooding roads and septic systems or wells.

Environmental Equity

Environmental Equity refers to looking at the distribution of open space and recreational amenities in the town and identifying any areas that are lacking in them. The lack of open space in the southwestern quadrant of town is a major issue that was identified in the 2008 Open Space and Recreation Plan and, while progress has been made, is identified as a continuing need in this plan. Additional information about this is contained in Section 7 below.

Climate Change

Beginning with the 2016 Open Space and Recreation Plan, we introduced a significant environmental challenge that will affect future open space protection and management efforts in Stow. Climate change is a shift in long-term weather patterns: temperature, precipitation, wind, and more. There is scientific consensus that our climate is changing as a result of warming caused by human activities that produce greenhouse gas emissions. The ongoing debate in the scientific community is not about whether climate change will occur, but the rate and extent to which it will occur and the adjustments needed to address its impacts. Communities in Massachusetts are expected to experience warmer temperatures, increased frequency and intensity of storms, public water supply shortages, and rising sea levels and increased erosion which will affect coastal areas. There is also likely to be a change in rainfall rates with less rain in the dry summer months, and increased precipitation, primarily in the form of rain, during winter months. This change in precipitation type will have impacts on the amount of snow cover, winter recreation, spring snow melt and peak stream flows.

Since 2016, Stow has actively participated in a regional effort to develop a Climate Resilience Plan with our neighboring communities. This effort was led by the Minuteman Advisory Group on Interlocal Coordination (MAGIC), our regional planning committee. Members and staff from Planning Board, Conservation Commission and the Energy Working Group were involved in this effort which led to the preparation of a report highlighting climate vulnerabilities. The Town has also completed a Municipal Vulnerability Preparedness Plan and now has an active Green Advisory Committee, which is the midst of preparing a Climate Action Plan. Stow has applied for and received two Municipal Vulnerability Preparedness Action Grants – a two-year grant to address the health of Lake Boon and a two-year grant for acquisition and climate-resilient facility planning at Stow Acres.

Stow's Municipal Vulnerability Preparedness Plan, prepared in 2018, identifies drought, extreme storms, and extreme temperatures as among the greatest challenges of climate change facing the Town. As a community we are dependent on

How will the changing climate affect Massachusetts?

Changes in the climate can have subtle as well as devastating effects on humans, infrastructure, and natural systems. An increase in temperature can cause increased virulence of viruses, insects, and pests; decimation of sensitive crops and plants; increased asthma and other human health effects; and impacts on the built environment.

Heat waves are predicted to be of particular concern and could have broad implications for public health, infrastructure, government capacities, native plants, and agricultural crops. It is likely that habitat boundaries of certain species may shift.

Change in precipitation will have significant effects on the amount of snow cover, winter recreation, spring snow melt, peak stream flows, water supply, aquifer recharge, and water quality. Large areas of the Northeast are projected to lose more than one-quarter and up to one-half of their snow-covered days toward the end of the century in the high-emissions scenario as a result of increased ambient temperature in February and March.

The predicted changes in the amount, frequency, and timing of precipitation, and the shift toward more rainy and icy winters would have significant implications for winter recreation such as skiing and snowmobiling and could compromise water supplies and water availability for fish and various habitats. More winter rain is expected to drive more high-flow and flooding events during the winter, earlier peak flows in the spring, and extended low-flow periods in the summer months. These changes in hydrologic cycles would have profound impacts on water resources, including increased flooding and polluted overflows from stormwater and wastewater systems during high periods of flow, and increased stress on surface and ground drinking water sources during periods of drought and low flow. Increased intensity of precipitation can cause increased flooding, put humans and their property at risk, ruin crops, and create public health concerns from sewage overflows and hazardous waste leaks.

From MA Executive Office of Environmental Affairs, 2015

individual private wells with no municipal water supply. The Northeast Climate Adaption Science Center's (NCASC) 2018 data, at resilientma.org, was cited in Stow's MVP Planning Study (June 2018) as projecting a 4.37°F increase in average daily temperature by 2050 and 10.94°F by 2100 for this region. As noted, this increase is expected to occur during all seasons. The number of days above 90°F, currently eight days a year on average, is expected to increase to up to 35 days in 2050 and up to 76 days in 2100, according to the NCASC. Average annual precipitation is expected to increase by up to six inches by 2050 and eight inches by 2100. Notably, the biggest increase is from significant storms of greater than 1" rainfall, currently seven days/year, and expected to increase by up to three days in 2050 and up to four days in 2100, across all seasons. Impacts of increased frequency and intensity of severe weather events are already noticeable in Stow. Going forward, we can expect to see additional flooding events, and stresses from heat on vulnerable populations, , and surface and groundwater supplies. We expect additional data on flood forecasts to be released during the planning phase of this project and will incorporate this and any other new information into our planning as it becomes available.

Mitigating flood impacts to the Assabet River is particularly critical for the Town of Maynard immediately downstream. The Assabet River is a short (34 miles) river, meaning that its entire watershed of 177 square miles can be impacted by a single storm system. As a result, a flood situation can develop quickly. Data shows that timing from beginning of a storm to peak flow through Maynard is about 48 hours. Particularly damaging can be back-to-back storms – the first which saturates soils and the second to flood the already raised river. The result is flooded mill buildings, flooding on main street and potential loss of property and disruption of Maynard's downtown area. Efforts to increase the amount of flood storage in the watershed and allow gradual release of these waters will help mitigate this flooding condition. In 1971, the Delaney Flood Control Project was completed in Stow, Bolton, and Harvard to attempt to mitigate flooding conditions in Maynard. While this significantly abated flooding impacts, we are hopeful that nature-based solutions like enhancement of flood storage, can avoid costly future hard infrastructure projects as rainfall amounts and severity of storms increase.

Locally, we need to be mindful that climate change is likely to have an impact on important elements of the economy. Winter recreation, particularly skiing, will be affected by increased rain, and agricultural production may be affected by changes in temperature, rainfall, and pests. For example, maple sugar production is likely to decline nationwide, and apple production may be affected, resulting in changes in particular types of apples. The longer growing season may provide opportunities for new crops, however it may also encourage new pests and invasive species.

Climate change will also affect open space protection and management planning. In the past, land conservation planning was relatively simple. For example, land with scenic qualities and/or rare species present would be acquired to prevent it from being compromised via development. By acquiring such properties and possibly some buffer around them, and by making a reasonable commitment to long-term stewardship, one would generally be able to ensure that future generations of rare species would continue to live on the site, and that future generations of human visitors would have a reasonable likelihood of viewing that species in that particular location.

With current and projected climate change impacts factored in, the old "simple" approach to land conservation will be inadequate. While not all plants and animals will be significantly impacted by climate change, the reality is that due to increasing temperatures and shifting climatic conditions globally, most may need to shift around a bit to find suitable habitat going forward. Targeted land conservation and thoughtful ecological management are both projected to play important roles as climate change response strategies.

The concept of *Landscape Resilience* to the impacts of climate change provides a very clear and very solid path forward in a climate changing world. There are two relevant aspects of this concept. First, some properties are already highly resilient to the impacts of climate change. They are pristine, intact landscapes, where the natural systems are functioning well. Nature is projected to fare far better in these locations as the impacts of climate change become more pronounced.

The second aspect of landscape resilience is perhaps even more important – virtually any existing tract of conserved land can be made more resilient by applying key strategies as follows:

- *Reduce Stressors*: This activity includes reducing the impact of very traditional stressors such as land use conversion via development, as well as reducing the negative impact (stress) from certain invasive plant species. Climate change itself is a significant additional stressor – hence the strategy of reducing other stressors where possible to offset its impacts.
- *Restore Form and Function of Natural Systems*: Examples of this strategy in action include removing a dam or replacing a culvert that may be compromising the free flow of an otherwise healthy river or stream; restoring a floodplain forest that may have been cut years ago before its natural flood storage qualities were adequately appreciated; or accommodating migration of wetland system as water levels change so that they that they continue to serve as important habitat.
- *Increase Landscape Connectivity*: With the need for many species to find suitable habitat going forward, size does matter. By connecting an existing block of conserved land to another one, both become more resilient. If that linkage includes wildlife corridors between the two the resilience boost will be even greater.
- *Increase Landscape Complexity*: Increasing landscape complexity of a block of conserved land essentially means increasing the habitat diversity of it. On the most granular level, this strategy is about increasing the micro-climates present in a given conserved landscape – again geared at increasing the opportunity for resident plants and animals to shift around and find appropriate habitat to sustain them in the years ahead.

While much of resilience building is about helping nature endure the current and projected future impacts of climate change, much of it has tremendous relevance to human beings as well. The trees that are conserved already serve important duty by absorbing up to 15% of greenhouse gas emissions, in addition to generating clean air and clean healthy drinking water. Lands acquired/protected for climate change response can also greatly reduce potential for public health risk associated with flooding as well.