

***Shirley's Special Places, Open Spaces, and Recreation Lands:
A Plan for 2017-2024***

DRAFT for Review: July 24, 2017



Longley Acres, Shirley, Massachusetts

NOTE: This document consists of the DRAFT TEXT with only a few maps included. Table of contents will be completed once the maps have been added and final comments (from Cons Comm, other Boards, and public, if any) have been received and incorporated. Photographs and separate section-introducing pages as in the 2011-2014 draft from the Conway School Students will also be part of the final document.

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ACKNOWLEDGEMENTS

An Open Space and Recreation Plan for Shirley: 2017-2024 replaces the town's previous open space and recreation plan, which was in effect from 1996-2001. The Open Space and Recreation Planning Committee (OSRPC) acknowledges and appreciates the efforts of former members of the Shirley Conservation Commission, previous Conservation Commission Agents, and the many members of the public who in March, 2003, completed a preliminary draft of *An Open Space and Recreation Plan for the Town of Shirley, 2003-2008*.

The 2011/2014 *DRAFT Open Space and Recreation Plan for Shirley*, upon which this revised plan drew heavily, was prepared by graduate students Emily Lubahn, Zach Mermel, and Elaine Williamson, from the Conway School of Landscape Design in Easthampton, MA. A number of the maps from the draft plan are incorporated into the final version. Former Shirley Conservation Agent Nadia Madden, Conservation Commission members, and Shirley residents worked with the Conway School students in preparing the draft OSRP, and we also acknowledge and thank them for their contributions.

Many people assisted the current OSRPC in developing the revised plan. In addition to those who contributed to the draft plans noted above, we wish to thank the following individuals for their help in providing information, reviewing data, contributing editorial comments, and/or providing technical assistance to us as we completed the revision of the 2011-2014 draft.

- Susan Baxter, Shirley resident
- Ward Baxter, Shirley resident
- Keith Begun, Shirley Recreation Fields Committee
- David Bortell, Rita Bortell, Bob Burkhardt, Jeff Dinardo, Marie Elwyn, Jennifer Howald, Mike Lance, and Hans Onsager, Shirley Conservation Commission members in 2015-2017
- Rebecca Boucher, Former Principal Assessor
- Nancy Collins, Shirley Assessors Office
- Bill Conner, Principal Assessor, Shirley Assessors' Office
- Mary Cooper, Shirley Resident
- Dawn McCall, Shirley resident and member of former Shirley Recycling Committee
- Frank Esielionis, Shirley resident
- Donald Farrar and John Rounds, Benjamin Hill Committee members
- Michael Fleming and Nadia Madden, Shirley Conservation Commission Agents
- Anne Gagnon, Land Agent, Massachusetts Division of Fish and Game, and former Shirley Conservation Agent
- Sandi Hill, Building Inspector's Office
- Sharon Jordan, member of Lunenburg Open Space Committee and ORV State Advisory Committee
- Peg Lorenz, Trails Group member and Shirley resident
- Amy MacDougall, Shirley Town Clerk, and Denise MacAloney, Interim Shirley Town Clerk
- Meredith Marcinkewicz, Curator, Shirley Historical Society and former Shirley teacher
- Sally Naser, Shirley Resident and TTOR Conservation Restriction Coordinator
- Bill Oelfke, Janet Tice, Sarah Widing, and Barbara Yocum, Shirley Planning Board members
- Elizabeth Perry, Hydrologist and Shirley resident
- Paul Przybyla, Shirley Historical Society Treasurer and Shirley Historical Commission member
- Beth Quinty and Sue Heinz, Shirley Play Board
- Don Reed and Jackie Stanton, Shirley Historical Society Board members
- John Scanlon, MA Division of Fisheries and Wildlife
- Jason Stanton, John Hume, and Noam Goldstein, Montachusett Regional Planning Commission
- Superintendent's Office, MCI-Shirley
- Pat Wojtas, Shirley Planning Board and ZBA Clerk

Preparation of *Shirley's Special Places, Open Spaces, and Recreation Lands: A Plan for 2017-2024* was assisted by a Grant from the Massachusetts Office of Energy and Environmental Affairs, Office of Conservation Services.

Finally, we extend special thanks to all the Shirley residents who completed the 2016 Open Space and Recreation Planning Survey, attended public forums, and/or provided us otherwise with feedback and suggestions. We hope the finished plan meets with your approval and will help Shirley move forward to meet your goals for open space and recreation in the town.

The Shirley Open Space and Recreation Plan Committee, 2015-2017

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SECTION 1. PLAN SUMMARY

The residents of Shirley are keenly aware of the special nature of their town. Scenic rivers and streams, forested hillsides, varied native wildlife, hay fields, wooded roads, wetlands, meadows, parks, playgrounds, and trail networks represent much of what people cherish about the town. Annual organized trail runs in support of local schools and other good causes, and team sports for youth and adults, are also highly valued. Many of the special places in Shirley have been protected over the years, especially in the 1970s and 1980s, but for the most part, public recreation fields and other open spaces throughout the town need attention. Recreational facilities for team sports are limited and the ones we have are threatened. Other valued undeveloped lands are not protected and are threatened with the likelihood of development.

Since the Town adopted its last Open Space and Recreation Plan (OSRP) in 1996, there have been many changes in land use in Shirley. Many of these are positive, but some have resulted in significant losses of open space and of potential recreation and conservation opportunities.

In the past 20 years, 18 subdivisions totaling 362 units have been approved, and 81 of those houses are yet to be built. Where sewers have been constructed, most of the “approval-not-required” lots next to roads now have houses on them instead of woods. New structures in the Town Municipal Area on Devens now house the Police, Library, and Town Offices. The old Fire-Police Station, Hazen Library, and Municipal Building have been sold to private owners. A new Middle School serves the students of the Ayer-Shirley Regional School District. Large arrays of solar panels have appeared on formerly forested public water supply lands and open spaces, including land identified in the last OSRP as a potential site for recreation fields in North Shirley. Pressures for rapid commercial and industrial development have changed neighborhoods and will lead to further changes in open spaces that many take for granted.

The Town’s population has increased by 4.5 percent since 1990, and by 2.6 percent since 2010. Growth is likely to continue as economic conditions improve. New residents will seek to enjoy Shirley’s many natural and recreational amenities.

This document is Shirley’s first complete update to its Open Space and Recreation Plan since 1996. Cognizant of the need to conserve open space and other natural resources while directing development in a positive direction, Shirley’s residents have crafted the goals listed on the following page.

The goals, objectives and actions presented in this OSRP update will help guide the community of Shirley in its land use decisions through 2024 and beyond.

2017-2024 Open Space and Recreation Goals for Shirley

- Goal 1: Take care of what we already have: Maintain and improve existing properties and facilities, and meet existing responsibilities for land and other public resources.
- Goal 2: Protect water, wildlife habitat, and forests.
- Goal 3: Engage the community with open space and recreation by providing opportunities and information on the public lands in Shirley.
- Goal 4: Plan for the future protection of conservation and recreation lands in Shirley.

SECTION 2. INTRODUCTION

This Open Space and Recreation Plan (OSRP) is a 2017 revision and update of the town's 1996-2001 OSRP. It is based primarily on a draft prepared in 2011 by graduate students from the Conway School of Landscape Design with the help of the Shirley Conservation Commission, and reviewed by the public and the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) in 2014. It also contains some language from a draft revision prepared by the Shirley Conservation Commission in 2003.

Following its 2014 review, the state EOEEA provided conditional approval of the 2011 draft plan but required additional public participation and inputs, updated census and economic data, current information on the status of public and private conservation and recreation land, and a new Action Plan based on new public inputs and updated data. A copy of the state's letter is provided in Appendix A, along with a table documenting how this revision addresses the state's concerns.

At the request of the Shirley Conservation Commission, in summer of 2015 the Selectmen appointed an Open Space and Recreation Plan Committee to revise the Draft OSRP in accordance with the state's requirements. The final document incorporates public inputs from 2016 public forums and questionnaires, provides recent data on the town's population and economy, responds to comments provided on the 2014 draft, and presents a new seven-year Action Plan for Open Space and Recreation in Shirley.

2A. Statement of Purpose

Shirley has long recognized the importance of preserving and enhancing its open space. Beginning in 1971 with "A Conservation Plan for the Town of Shirley," four successive conservation planning documents have been created by the town. In 1975, the "Conservation and Open Space Plan for Shirley" updated the 1971 document. It, in turn, was updated in 1988 as an Open Space and Recreation Plan. The last OSRP update occurred 21 years ago, in 1996.

Since that time, Shirley's population has grown, new homes have been built, new industrial, commercial, and municipal development has taken place, and new recreation opportunities have been developed. During the same time period, additional lands have been conserved, largely by the Massachusetts Department of Fish and Game and by individuals, but also by the town. This 2017 update will help to reflect the changes that have occurred in Shirley's landscape and community resources since the 1996 OSRP update and put forth a plan for the future.

Why Have an Open Space and Recreation Plan?

Shirley is changing. Even with the recent relatively low rate of population growth, if current development trends continue, Shirley's open space will be dramatically reduced by the year 2030. More house lots and subdivisions will be carved out of existing forest. New residents, as well as those currently living in Shirley, will be seeking to enjoy outdoor and recreational spaces in and around the town. More solar arrays and other industrial and commercial developments are

actively sought by many in town. New growth needs to be sited with open-space and recreation needs in mind.

As a working document that is expected to be updated every five-to-seven years, the OSRP is a crucial part of Shirley's enduring planning efforts and can help ensure that open spaces and the many values they provide will be taken into consideration as the town grows.

The purpose of the OSRP is to:

- Engage the citizens of Shirley in the process of deciding what the town's residents want in terms of open space and recreation land.
- Plan for growth and development, in conjunction with the Town Master Plan, and in a manner that recognizes Shirley's natural and cultural heritage and its unique community character, while providing adequate opportunities for public recreation.
- Meet the state's requirements for an Open Space and Recreation Plan, thereby making Shirley eligible to apply for state and federal funding for land acquisition and management.
- Serve as an important resource document, providing a centralized inventory of existing resources and a status report on open space and recreation conditions within the town.

Based on this Plan, more detailed assessments of needs can be identified and more specific action items can be followed through to address critical areas.

2B. Planning Process and Public Participation

An Open Space and Recreation Plan is only useful if it reflects current conditions and the goals of the community. Therefore, Massachusetts requires periodic updates to incorporate new information, reflect changes in the community and its resources, and involve the public in the planning process. The *Massachusetts Open Space and Recreation Planning Workbook* specifies how such updates are to be carried out. Each update can increase residents' awareness of and participation in planning for Shirley's recreational and other open spaces.

Since the expiration of the last OSRP (1996-2001), the Shirley Conservation Commission and others have made several attempts to learn how Shirley residents feel about open space and recreation lands in the town, and to provide an update to the former plan.

Starting in 2001, the Conservation Commission conducted public opinion surveys, meetings, environmental inventories, and assessments. An initial draft of revised goals and action plans was completed in 2003. Due to multiple changes in Conservation Commission membership and staffing, a final draft was not completed.

A new effort was made in 2011: graduate students from the Conway School of Landscape Design held public meetings, circulated questionnaires, developed GIS maps, and drafted a new plan. In 2014, their draft OSRP was submitted to the public for review and comment and to the Massachusetts EOEEA for approval. That draft was provisionally approved, with 10 specific items identified as needing further work (see Appendix A).

In fall, 2015, the Shirley Conservation Commission asked the Board of Selectmen to appoint a committee to complete the remaining work, so that the town would again have an approved Open Space and Recreation Plan and be eligible to seek and receive grant funding for land projects. The new committee carried out further evaluations of public opinion and priorities, revised the draft text as necessary, and brought the land inventory up to date, to produce the current document.

On August 18, 2015, the Conservation Commission and a group of citizens interested in completing the Open Space and Recreation Plan met and compared the questionnaires circulated in 2011 and 2002 during previous OSRP draft revisions, discussed the questions, and identified a preliminary set of questions to include in the 2015 public opinion survey of open space and recreation needs for the town.

The new OSRP Committee began meeting in fall, 2015, to review the elements of the draft plan and to discuss how to engage Shirley residents in the planning process. In addition to the appointed members, the OSRP Committee solicited involvement by other volunteers (see Acknowledgements).

During its first meeting with a quorum, on October 6, 2015, the Open Space and Recreation Plan Committee reviewed the requirements contained in the *Massachusetts Open Space and Recreation Plan Workbook* and oriented itself to the task. The work was divided up into several topics that were focused upon by individuals or small subsets of the full committee: Public Participation/Needs Assessment; Census Data; Growth and Development Issues; Land Inventory; Mapping and GIS data; Accessibility; and Community Goals/7-Year Action Plan.

Online and Paper Questionnaire

Based on prior years' surveys (1996, 2003, 2011) and discussions with the Shirley Conservation Commission in August, 2015, the OSRP Committee developed an online questionnaire to survey residents' opinions about the value and uses of open space and recreation lands, specific needs for open space and recreation land in the town, and their sense of the highest priorities for Shirley. We made the questionnaire available online through *SurveyMonkey* from February 14, 2016 through April 23, 2016. A copy of the survey and the results is provided in Appendix B. Posters and cards with a link to the survey were widely distributed around town; links to the survey were provided through announcements on the town website and Facebook page; and articles including links to the survey were published in the local newspapers (*The Shirley Volunteer* and *The Nashoba Valley Voice*), and in *Action Unlimited*, a weekly circular that is delivered to mail boxes throughout the town. Additionally, paper copies of the survey were distributed and response boxes placed throughout the town, at Center Town Hall, the Municipal Office Building, Library, and Senior Center.

We received responses to the 15-question survey from 189 people, many of whom provided detailed comments in addition to answering the questions. The OSRP Committee summarized the results, presented them at the Public Information Forum (see below), and used them in conjunction with feedback from the Public Forum to establish the town goals and priorities for the revised Open Space and Recreation Plan.

As with previous surveys of public opinion about conservation land, open space, and recreation fields, Shirley residents expressed strong support for maintaining the town's "rural character" and for the town's open space and recreation lands (see Figure 1 and Appendix B). Survey respondents placed a high priority on protecting water resources and wildlife habitat.

Public Information Sessions

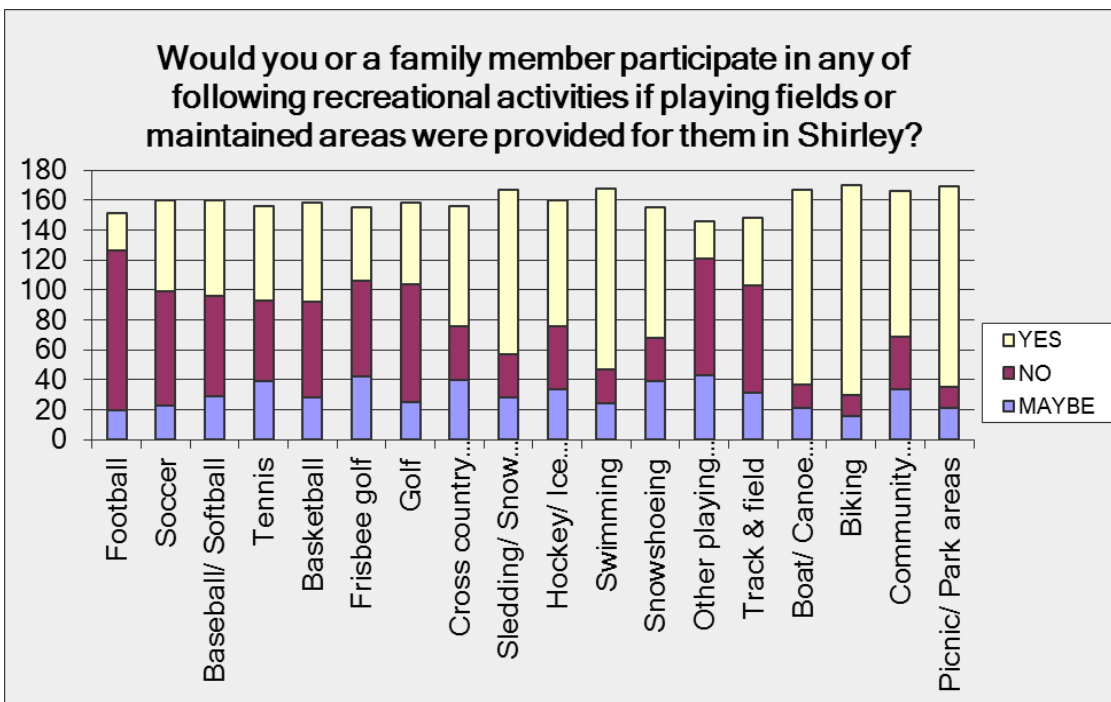
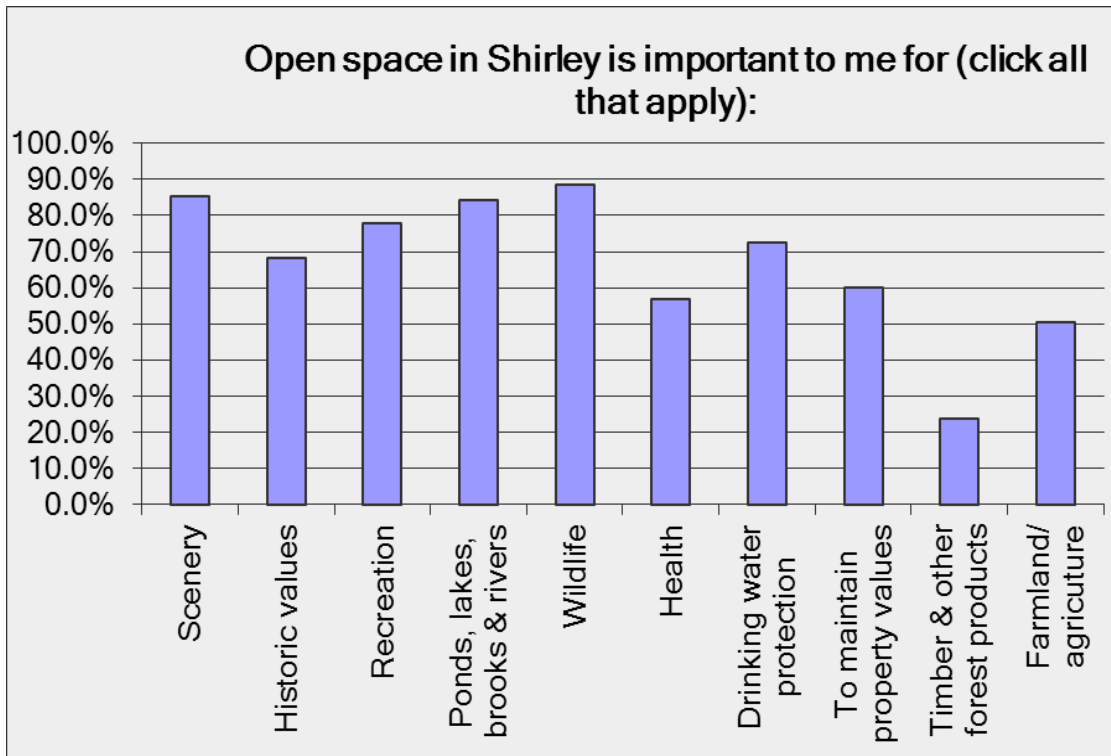
A Public Information Forum on Open Space and Recreation was held from 6-8 PM on May 12, 2016 at the Hazen Library. The goal was for the OSRP Committee to learn from residents what they think about open space and recreation land in Shirley, and their priorities for land protection and management, so that the Committee could incorporate the information into the OSRP sections on Analysis of Needs, Goals and Objectives, and the Seven-Year Action Plan. The Committee advertised the Forum in advance in local newspapers (*The Shirley Volunteer* and *The Nashoba Valley Voice*); in *Action Unlimited*; on the Town website and Facebook page; and on local access television (Shirley Public Access Corporation, or SPACO). Information was also distributed by e-mails to potentially interested groups and committees, such as the Recreation Commission and the Trails Group, and by word of mouth.

Approximately 40 people attended the Forum and provided feedback on the things that they value about open space, their favorite recreational uses, special places in town, what they consider to be the most important needs for open space and recreation land in Shirley, and the most serious issues to be addressed over the next five-to-seven years. The results of the forum are discussed further in Section 7 of this plan. Summary notes from the forum are included in Appendix B.

A second public forum was scheduled at the Senior Center on May 23, 2016 at 11:30 AM, a time that the Center's Director felt should bring a good audience of senior citizens. Unfortunately, nobody attended to provide input.

In addition, members of the OSRP Committee spoke with members of the Recreation Committee and with coaches and parents of children involved in the town's recreational programs; with officials of the Shirley Historical Society and the town's Historical Commission; with members of the local Shirley Trails Group; and with many individuals in the town. In these exchanges OSRP Committee members learned about residents' uses of open spaces, favorite recreation and open space locales, "special places" they identified as important to Shirley, and issues they felt it was important for the new OSRP revision to address.

Figure 1. Responses to Questions 1 and 6 of Shirley’s Online Survey on Open Space and Recreation Land. (For more responses, see Appendix B.)



Goals and Action Plan

Once the deadline for surveys had elapsed, the OSRP Committee reviewed the results of the survey and the public forum, identified the most important factors that the public had indicated as being important for open space and recreation in Shirley over the next five-to-seven years, compared these issues with those selected in 2001 and 2011, identified Goals and Objectives for the coming years, and drafted an Action Plan to address those concerns.

Completion of Rest of Draft OSRP Revision

Having completed redrafting the Action Plan to reflect the results of the 2016 Public Participation process, the OSRP Committee focused on addressing the other issues identified by the state, including updating community data on population and growth trends, filling in missing information in the text, and, especially, updating the inventory of public and private open space and recreation lands in APPENDIX C. Also necessary were an examination of the accessibility of the town's conservation and recreation areas to people with disabilities, including completion of ADA information forms for each town-owned parcel, and evaluation of Environmental Justice issues in the town.

As various sections of the revised plan were rewritten, the draft language was disseminated to the OSRP Committee members for review and comment. Once the final draft was complete, it was delivered to Town Boards and posted on the town website with a request for public comments. Notice was provided on the town Facebook page and in the local newspaper. The Plan was also distributed to the Division of Conservation Services in EOEEA, Nashua River Watershed Association, Shirley Historical Society, Shirley Historical Commission, Massachusetts Department of Fish and Game, Montachusett Regional Planning Commission, Middlesex Conservation District, and the Devens Enterprise Commission for their review and comment. Draft copies were made available at the Hazen Library, the Town Office Building, the Senior Center, and the Center Town Hall. A public meeting **will be** scheduled in July to give residents an opportunity to provide feedback. The comments received **will be** compiled, the draft **will be** revised where appropriate, and the final draft **will be** presented to the Town Special Town Meeting in fall, 2017 for approval.

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SECTION 3. COMMUNITY SETTING

3A. Regional Context

Shirley is located at the western edge of rapidly growing Middlesex County in northeastern Massachusetts. It has an area of approximately 10,175 acres or 15.9 square miles. Neighboring towns are Townsend on the northwest; Groton, Ayer, and Harvard to the east; Lancaster to the south; and Lunenburg to the west (Map 1).

Shirley is 42 miles northwest of Boston, 25 miles northeast of Worcester, and 2 miles east of Leominster. MassAudubon's *Losing Ground* evaluation of land use change and spread of development in Massachusetts places Shirley at the leading edge of the "sprawl frontier" of development moving west beyond I-495. As people continue to move westward, and as employment increases along Routes I-495 and I-190 and at Devens, Shirley, like its neighbors, faces increasing pressure on its open space.

The town lies within the Nashua River watershed, and the river and its tributaries are important landscape features and historic economic drivers. The Squannacook and Nashua Rivers form a natural winding twenty-mile boundary along the town's entire eastern edge. Four major sub-basins within the town contribute flow to the Nashua or Squannacook.

The town's rivers, streams, and aquifers connect it to its neighbors. Many of Shirley's streams originate in adjoining towns, and the high- and medium-yield aquifers that supply the Shirley Water District also supply wells in those towns.

Shirley has almost 2,800 acres of protected open space set aside under public and private ownership, and more than 1,300 acres of unprotected intact forests, fields, and wetlands that are managed by their owners for a variety of conservation purposes and may in future become available for protection. Public services that these lands provide include wildlife habitat and corridors, water supply protection, storage of atmospheric carbon (as wood, peat, and soil humus), temperature moderation, air-quality enhancement, recreational opportunities, production of farm and forest products, and public health benefits.

Some of the town's forests and recreational trails cross town boundaries and connect Shirley to its neighbors. Trails on the Lunenburg-Shirley border connect with trails on The Trustees of Reservations' Farandnear Reservation, on the town's Ronchetti and Holden Road Conservation Areas, in the private Valley Farm Conservation Area Trail Network, and on the Birchwood Hills private subdivision conservation land. Hunting Hill and Squannacook River trails lie within town conservation areas and MA DFG Wildlife Management Areas of the same name and are shared with Lunenburg, Townsend and Groton. Shirley also shares conservation land with Oxbow National Wildlife Refuge (shared by Devens, Harvard, and Ayer).

Roadways and commuter rail also provide connections to the greater region. Route 2 is about two miles south of Shirley Village. Massachusetts State Routes 2A and 225 run through the northern portions of the town. Interstate Route I-495 is located 10.5 miles east of Shirley Village,

and Route I-190, a direct link with Worcester, is located approximately 3 miles west on Massachusetts State Route 2. Commuter rail service on the MBTA purple line, via the Shirley station, provides exceptional access from Fitchburg into Cambridge and Boston, where many of Shirley's residents work.

3B. History of the Community

Today, Shirley presents a varied mix of land uses (Map 2). Shirley Village and the southeastern part of town support dense residential/commercial/industrial/municipal/institutional development. In Shirley Center, centuries-old structures ring the historic Common. Elsewhere, old and new houses are scattered along the main east-west and north-south roads among large, intact forest blocks, meadows, marshes, wooded wetlands, and a few remnant farm fields. Here and there, new, modern suburban housing subdivisions penetrate old farmlands and forests. This diverse landscape reflects the town's history over the past three centuries.

Before European Settlement

According to the *Shirley Reconnaissance Report* (MADCR 2006), Shirley's Native American history dates back to the Late Archaic Period (6,000-3,000 B.P.) with confirmed sites from this period and the Woodland Period (3,000-450 B.P.). No known Indian sites have been documented in the town. However, information about other regions of southern New England suggests that Shirley too may have been a place of ancient settlement from the Paleo-Indian Period (12,000-9,000 B.P.).

Colonization

Shirley's European settlement began when Dean Winthrop received a land grant from the English crown in 1655. The first settlers became established probably around 1720. Then part of Groton, Shirley was not set aside as a separate district until 1753, and it was incorporated as a town two years later. A small meeting house was constructed on Green Lane (off of the current Parker Road) in 1754. It was replaced by a new meeting house on the Common in 1773.

Economic Development, 1700s and 1800s

Agriculture was the mainstay of the economy in the eighteenth century. Shirley Center was the focus of farming and civic activity, with the Meeting House, burial ground, Town Pound, and common. Early roads radiated from this center.

Mills were built early on to meet settlers' needs, including a clothier mill on the Squannacook River in ca. 1739, saw and grist mills on Catacunemaug Brook in ca. 1748, and grist and sawmills and a forge on the Mulpus Brook from the mid-to late eighteenth century.

As mills were built, roads followed the waterways, connecting the mill sites with other parts of the territory. Indeed, funding for roads represented a major topic of discussion at early Town Meetings. Squannacook Road followed the meandering Squannacook River; Great Road followed the course of Mulpus Brook. Leominster Road followed the Catacunemaug Brook through the southern part of town and connected Ayer to the east with Leominster to the west.

The Shakers established their own community in the southern portion of town in 1793. This religious community built many fine houses and communal buildings that now are within MCI-Shirley, a state correctional facility. In 1849 the Shakers constructed the Phoenix Mill and Pond, a cotton factory on the Catacunemaug Brook in Shirley Village.



Old Postcard view of the Shirley Shaker Village in the late 1800s or early 1900s. A few of the buildings remain as part of MCI-Shirley. Source: Wikipedia.

By the time that the Shaker cotton mill was built, and with the advent of the Boston-to-Fitchburg Railroad in 1845, industrial activity had begun to soar in Shirley Village. Catacunemaug Brook would eventually power seven cotton mills, in addition to a shoddy mill and sawmills. Many of the mills were damaged or destroyed by a flood in 1856, when the dam failed at the Shirley Reservoir (Lake Shirley) upstream in Lunenburg, but they were quickly rebuilt and improved.

The construction of the Boston-to-Fitchburg railroad brought immigrants, particularly Irish, to Shirley, many of whom stayed to work in the mills. The railroad also fostered growth of local farms by providing ready transport of milk and other agricultural products to Boston. By 1855 nearly 1,500 people lived in Shirley, predominantly in the valley of the Catacunemaug Brook. That area, which came to be known as Shirley Village, became the most densely developed part of town, supporting most of the population and businesses. A wide range of shops and other commercial establishments lined the village streets, selling everything from ladies' hats to feed grain and farm tools.

In the late nineteenth century the Phoenix Mill became Samson Cordage. At about the same time, the Charles A. Edgerton Company opened its factory, which was substantially expanded in 1896. It too was located on the Catacunemaug, on the western side of the village. By this time, there were networks of new roads connecting to Shirley Village. An electric trolley route led from Ayer to Leominster, traveling along Front and Main Streets to Leominster Road. With the rise of the automobile, the original Route 2 (now Route 2A), aka The Great Road, was improved

as an important east-west roadway. This and the Leominster-Ayer Road were primary routes while north-south roads remained secondary routes.

At the end of the nineteenth century, French Canadians came to work at the Samson Cordage (old Phoenix Mills), most settling in Shirley Village near the railroad and the mills. Moderate growth continued as factories expanded, and in the early twentieth century immigrants arrived from Poland, Russia, and Lithuania to work in Shirley's factories.

The Shirley Historical Society has documented how, in the late nineteenth and early twentieth century, wealthy businessmen and intellectuals from the Boston area, who wanted to escape the city for the summer, bought some of the old Yankee houses on the lovely country hillside at Shirley Center. Shoe manufacturers, painters, booksellers, museum archivists, lawyers, antiques collectors, writers, pianists, conservationists, and others would plan summer entertainments and lyceum discussions at the old Town Hall. Many of the "Center Summer Folk" decided to stay in Shirley full time and added a new intellectualism to the old farming area.

20th Century Developments

Fort Devens

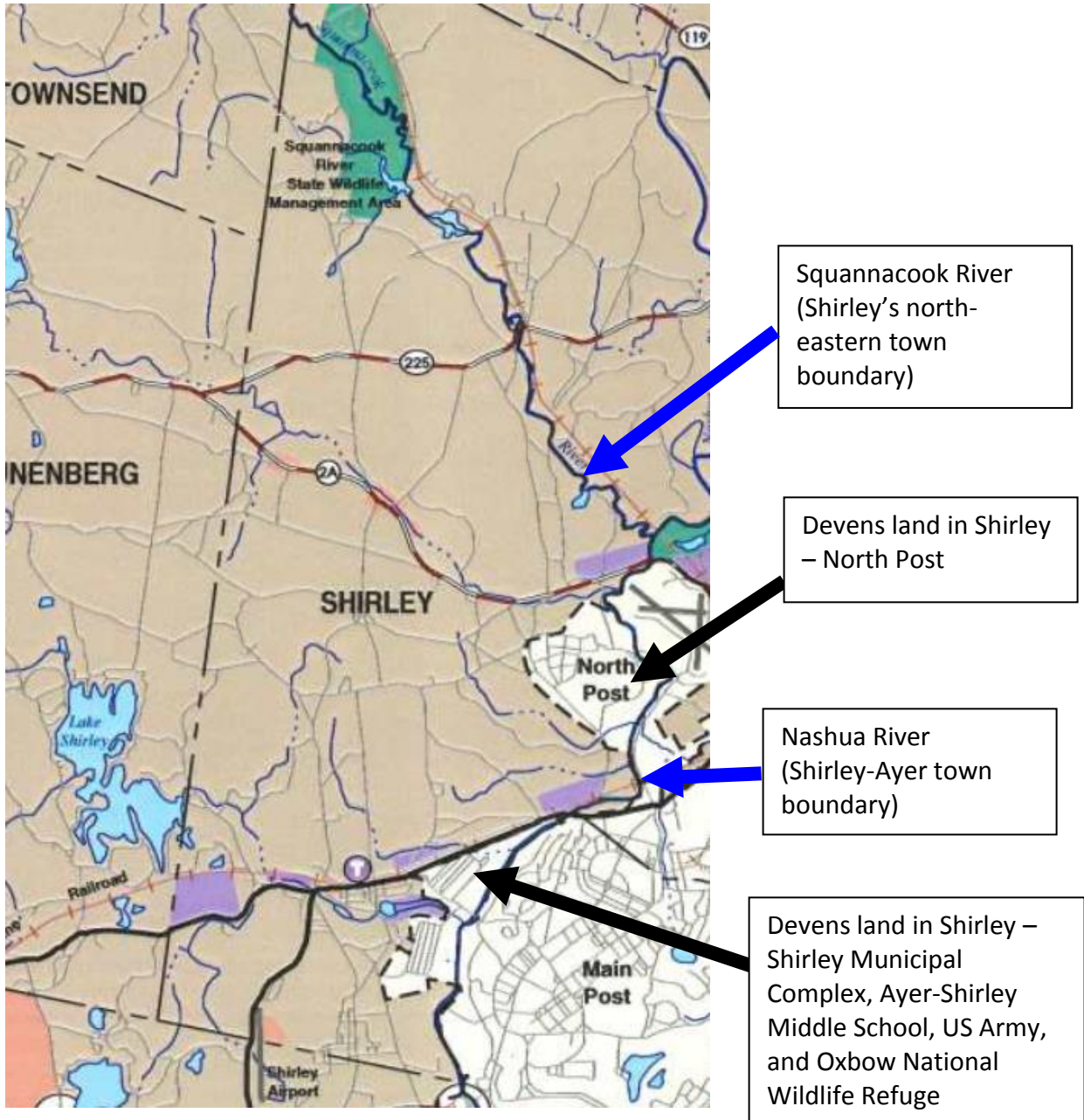
Camp Devens (later Fort Devens) was established during World War I, with the Army taking some land east of Shirley Village for military housing and a hospital. After a period of relative inactivity, the Fort expanded during the 1930s and served as home for a number of battalions. It was an important training center for troops and military nurses during World War II and also housed prisoners of war until 1946. Subsequently it became an important training center for reserves and for troops heading to the Korean and Vietnam Wars and Operation Desert Storm. Its military prison has held important federal prisoners including the Marathon Bomber.

The Fort had a strong influence on Shirley. Many clubs and establishments for entertaining the troops sparked a lively night-life in Shirley Village. According to the US Army Corps of Engineers, more than 40 percent of the town's entire employment base in 1990 consisted of civilian jobs at Fort Devens, and nearly 13 percent of Shirley's school children were dependents of Fort Devens military and civilian employees. In addition, many military members settled in Shirley upon retiring from the Armed Services.

The decommissioning of Fort Devens in 1996 caused a region-wide loss of population and jobs and led to some decline in real estate values. Through cooperation between the four towns in which the Fort was located (Ayer, Harvard, Lancaster, and Shirley), and support from the state legislature and MassDevelopment, the state's economic development and finance agency, a Devens redevelopment plan was implemented to avert the kind of widespread economic downturn that often accompanies the decommissioning of federal military facilities. With state subsidies for industrial development, the former Fort Devens has grown into a thriving community with a broad base of industrial and commercial businesses, hotel and restaurant services, and a residential community. Figure 2 shows the portions of Shirley that are part of Devens today.

Figure 2. The Extent of Devens Land in Shirley. (Devens shown in white.)

The Devens North Post lies west of the Nashua River along Walker Road, east of Shirley Center, and contains the Devens Wastewater Treatment plant, part of the Oxbow National Wildlife Refuge, a hydroponics greenhouse operation (2016), a solar energy generating array (2014), and MA DFW conservation land. The southern Devens land lies east of Shirley Village and southeast of the railroad tracks and includes the Shirley Municipal Complex; the southern half is military property and off-limits to the public. (Map Source: Devens Water Resources Protection Report, Vanasse Hangen Brustlin 1994)



Building Schools in Shirley

During the town's first two centuries, one-room schoolhouses were built in different areas of Shirley as needed, in response to increases in the population of children needing to be educated. Most of these have been torn down or converted into private houses. School #8, in Shirley Village, is still owned by the Town. For many years, students from Lura A. White Elementary School spent a day at School #8 learning about what it was like to go to school in a one-room schoolhouse. The Schoolhouse is now in disrepair and unsafe for classes to enter, but efforts are underway to secure funding and support for necessary repairs.

At various times there were also some private schools, and a Catholic school in the Village.

In the first half of the twentieth century, Shirley built new schools in the Center and the Village. Following the end of World War II, housing development and population increases started to take place outside of Shirley Center and Shirley Village. For most of its history, the town had no high school, but the Lura A. White School in Shirley Village (Grades K-8) was expanded with a gym and cafeteria in 1960, and with new classrooms in 1972. By 2003, the town had built a new Middle School and, in 2009, Shirley and Ayer formed the Ayer-Shirley Regional School District.

Late 20th Century Planning and Conservation

The 1970s and 1980s saw new attention to planning and conservation in Shirley. The first town Master Plan was approved in 1985, along with new zoning that included floodplain and water supply protection overlay districts and lot-size restrictions to protect private wells. The Shirley Water District developed two new wells to replace the shallow Samson well in Shirley Village (which was subsequently decommissioned), and to supplement the limited supply provided by the Catacunemaug well since the 1930s. The Water District and the town acquired land to protect the recharge areas of the new wells. Several other new additions were also made in the period to Shirley's public conservation lands.

Late 20th Century -- Mill Closures and New Industrial Development

By 1990, two of the major mills, Samson Cordage and the George Frost facility (formerly the Edgerton Suspender Company), closed. Both mill complexes have since been redeveloped and house a diverse array of businesses. A number of new industries, independent of water power, came into Shirley in the latter part of the 20th century, including Bemis Associates, a world-wide leader in the manufacturing of adhesives and bonding products; Thermofab, a design and manufacturing company specializing in thermoforming plastics for medical, industrial, computer, and military applications; and AMPAC Enterprises, manufacturers of a range of equipment for softball and baseball players and umpires.

Shirley History Since Completion of the 1996-2001 Open Space and Recreation Plan

The last decade of the 20th century and the early years of the 21st saw a number of major developments. New construction in Shirley Village included a new Post Office, fire house, bank, and housing for senior citizens. The town established a new municipal government complex on Devens land that had formerly supported military housing, built a new Police Station, Library, and Town Office Building there, and sold the old town buildings for private use. The new Ayer-Shirley Regional Middle School was constructed across the street from the municipal complex.

Outside of Shirley Village, a new auxiliary Fire Station and DPW building were constructed on Great Road, allowing the Fire Department to respond readily to fires on property north of the railroad tracks. The old Center School was converted to a Senior Center, meeting a long-identified need.

Installation of sewer lines in the southern half of Shirley led to housing construction on many previously undevelopable lots with road frontage. Construction in new subdivisions that had been approved before a short-lived developmental delay bylaw was implemented in 2000 produced one of the largest increases in housing construction since the post WWII boom.

Planning, Conservation, and Recreation in the 2000s

As noted above, Shirley's last OSRP expired in 2001, and the current draft represents the third effort at a revision. Conservation efforts, some of which were initiated while the old OSRP was in effect, continued into the 21st century. In 2003, with receipt of a Self-help Grant from the state, Shirley was able to purchase the Longley Farm on Whitney Road for use as the Longley Acres Conservation Area. Since then, land protection has continued elsewhere in the town, but largely through efforts by the MA Department of Fish and Game, and through individuals' donations of conservation easements or of land to conservation organizations.

Shirley has long sought adequate facilities for outdoor sports such as soccer and baseball. In 2008, the Massachusetts legislature authorized a ten-year lease of land at Wilde Road on MCI to the town for recreational use; that lease will soon expire and new efforts to secure vital recreation fields are needed.

In recent years, the Shirley Conservation Commission has been working to implement the forest management plans for the town's Pumpkin Brook and Rich Tree Farm properties, with forest cutting and wildlife habitat enhancement underway in 2017 (See Appendix F for more information). There has also arisen a strong volunteer interest in Shirley's trails, with work parties mapping, blazing, and clearing trails in many of the town's conservation areas.

As the new century moved forward, the town saw a general decline in attention to planning and conservation. With difficult financial issues facing town government, and changes in elected and non-elected officials, there was a heightened focus on bringing in tax revenues without adequate attention to environmental and other values identified in the town's Master Plan and Open Space and Recreation Plan.

Starting in 2014, the construction of industrial-scale solar panel arrays for the generation of commercial electricity for the regional power grid led to forest clearing on town-owned land along Groton Road (Rte. 225), on Devens land in the North Post west of the Nashua River, on town and Shirley Water District public water supply lands adjacent to the Patterson and Walker Road wells, on the town's industrially zoned Bartkus property off of Walker Road and the railroad, and at the closed town landfill on Leominster Road. These projects attracted much attention and stimulated much discussion about appropriate siting and permitting processes for such facilities in Shirley. At a Special Town Meeting on November 19, 2016, by an overwhelming majority, voters passed an amendment to the town's Zoning Bylaw limiting the placement of large ground-mounted solar arrays to commercial, mixed-use, and industrial districts.

3C. Population Characteristics and Trends

Population Trends

The Federal Census for Shirley includes both residents of the town and inmates of the Minimum and Medium Security units of MCI-Shirley. Since prison inmates do not normally have opportunities to use or enjoy town recreational or conservation lands, we have adjusted the census data to distinguish both the number of town residents and the prison population. Shirley population data are from US Census records and estimates. Prison data refer to the number of inmates in the Minimum and Medium Security units of MCI-Shirley as of January 1 each year.

The census data for Shirley residents show a relatively stable population up to about 1860, and then a steady decline over the next 30 years, reflecting the New-England-wide abandonment of farms and movement to more fertile lands in the west. Starting in 1900, there was a gradual but consistent increase in population up to 1940 (Table 1, Figure 3), as the Industrial Revolution with its mills became well established in Shirley Village. There was a dramatic population increase following World War II, with ups and downs in subsequent years reflecting economic factors. The housing boom of the 1990s and the local population decline that followed the decommissioning of Fort Devens in 1996 are both evident.

Interestingly, over the past five years, Shirley's population has remained remarkably stable, with a slow rate of growth. According to the US Census Bureau, only 254 new residents were added between 1990 and 2015, a 4.5 percent increase over 25 years. Between 2010 and 2015, the increase was an estimated 151 residents, or a 2.6 percent expansion of the population. While modest, the increase in Shirley's population is reflected in an increased school population, new homes on frontage lots and in subdivisions approved in the late 1990s, more traffic, and increased utilization of open spaces and demand for recreational opportunities.

Table 1. Population change in Shirley. 1850-2015. Note change in time scale after 2010.

The US Census includes MCI prisoners in its count of Shirley’s population. Before MCI was opened as a prison in the early 1970s, the former Shaker Village served as a state correctional school for boys. Boys and resident staff were included in the general census figures. From 1980 on, the table shows the census data and also lists in separate columns the data for the incarcerated population at MCI-Shirley and for the town not including the MCI residents. (Data Source: US Census records and Populations Estimates Program, and Mass. Department of Corrections Annual Status Reports on Prison Populations.

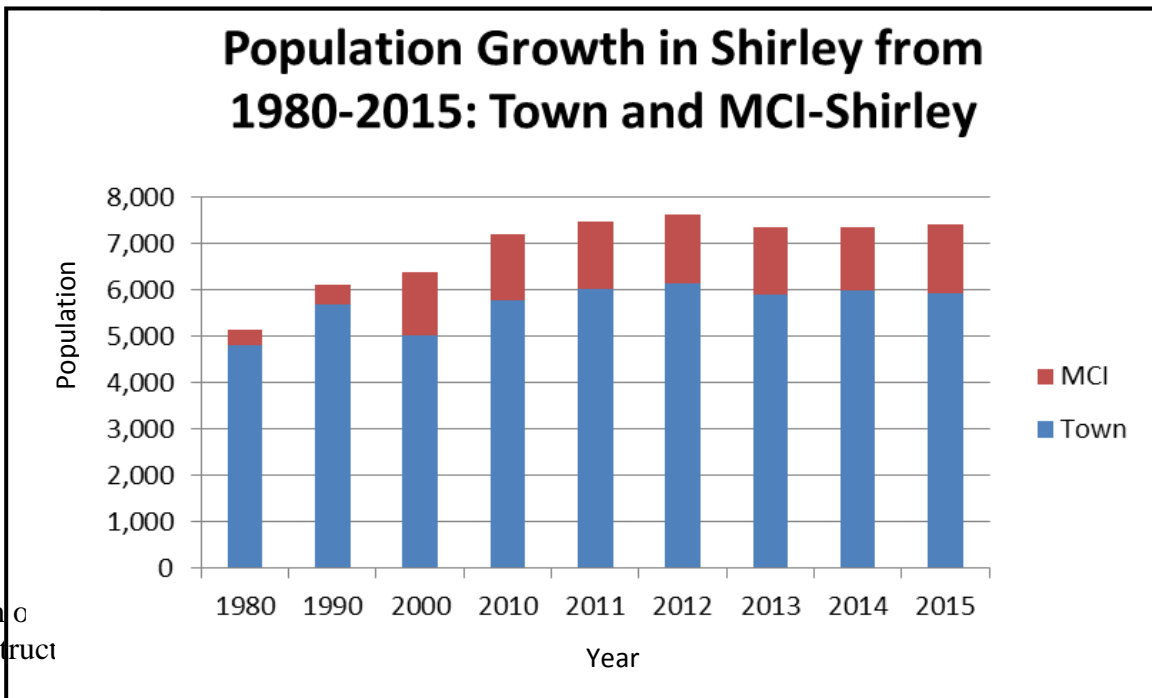
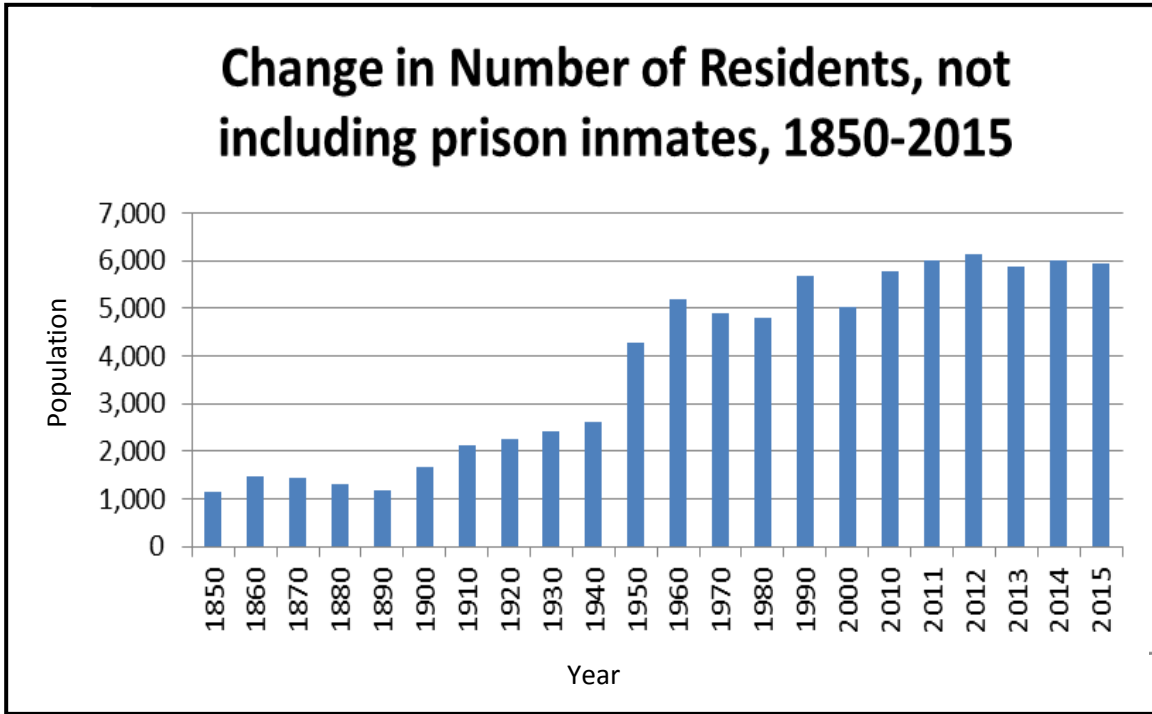
Year	US CENSUS Town (+ MCI after 1980)	Town of Shirley	MCI population
1850	1,158	1,158	NA
1860	1,468	1,468	NA
1870	1,451	1,451	NA
1880	1,305	1,305	NA
1890	1,191	1,191	NA
1900	1,680	1,680	NA
1910	2,139	2,139	NA
1920	2,260	2,260	NA
1930	2,427	2,427	NA
1940	2,608	2,608	NA
1950	4,271	4,271	NA
1960	5,202	5,202	NA
1970	4,909	4,909	NA
1980	5,124	4,813	311
1990	6,118	5,676	442
2000	6,373	5,018	1,355
2010	7,211	5,779	1,432
2011	7,483	6,011	1,472
2012	7,609	6,123	1,486
2013	7,338	5,880	1,458
2014	7,337	5,996	1,341
2015	7,400	5,930	1,470



MCI Shirley. Photo Source: Massachusetts Department of Corrections, Annual Status Report on Prison Populations

Figure 3. Population change in Shirley. Source: US Census and MA Department of Corrections.

- (a) 1850-2015. Population not including prisoners at MCI. (Note the change in the time scale after 2010, with annual estimates provided for 2010 to 2015.)
- (b) 1980–2015. Population broken into prison and Shirley residents.



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larger population will require modifications or increases in recreational facilities and planning for the preservation of open space.

Population Density

Of the surrounding towns, Shirley is the second smallest; only Ayer has less area, at 9.5 square miles compared to Shirley’s 15.9 square miles (Table 2). Not including MCI inmates, Shirley has the smallest population of town residents, and including the prison, the second smallest, next to Harvard. Despite its rural appearance, Shirley, at 373 persons per square mile in 2014 (or, including the prison population, 465 people per square mile) is the second or third most densely populated town in its immediate region. Most of the population is located in the Shirley Village section of town.

Table 2. Population Density in Shirley and Nearby Towns. Data from US Census/ACS 2010-2014.

Town	Area (square miles)	2014 Pop'n	Pop'n Density/mi ²	Density Rank (low to high)
Shirley	15.9	7,404	465.7	7
Shirley w/o MCI	15.5	5,996	386.8	5
Ayer	9.5	7,716	812.2	8
Lunenburg	22.75	10,797	389.1	6
Groton	33.78	10,997	325.6	4
Townsend	32.98	9,183	278.4	3
Lancaster	27.98	8,026	256.8	2
Harvard	27.15	6,558	241.5	1

Income Distribution

According to the US Census’ American Community Survey (ACS), the median income in 2014 was \$66,453. Of Shirley’s 2,283 households, 22.3 percent, or more than one in five, have incomes lower than \$25,000 per year, 39 percent have incomes between \$50,000 and \$100,000, and more than one quarter have incomes in excess of \$100,000 (Table 3). As with population data, income data include the prison population, many of whom do not work or are employed in low-wage jobs; this lowers the estimates for the mean and median incomes for the town.

Many Shirley residents are financially well off, but a significant proportion of the population is not. The Census 2010-2014 ACS identified 543 individuals receiving Social Security with a mean income of \$17,622; 368 people with retirement income averaging \$28,750; 146 individuals receiving Supplemental Security Income averaging \$10,745; and 31 residents receiving cash public assistance averaging \$10,039 per year. Individuals who depend on these sources, in the absence of other income, may find it difficult to meet the costs of living. Indeed, as of 2014, 12.1 percent of all families lived below the federal poverty level, as did 18.3 percent of families with

children under the age of 18 years, and 18.8 percent of families with children younger than 5 years.

Ethnic Diversity

Shirley's population includes people of a wide range of original national origins. Residents of various European ancestries make up 74-85 percent of the population, depending on the estimate. The remaining 15-26 percent include Native Americans, African Americans, Hispanics, and a variety of national origins from eastern, central, and western Asia, including the Indian sub-continent; Africa; the Middle East; and South and Central America, Australia, Mexico, Canada, Pacific islands, and New Zealand. For further discussion of Shirley's ethnic and economic diversity please see the section on Environmental Justice, below.

Employment

Shirley residents are employed in a wide variety of occupations. Considering the civilian labor force of 2,971 people in 2014, more than 47 percent of Shirley's employed residents worked in management, business, science, and arts occupations; another 17.1 percent in service industries; 16.2 percent in sales or office occupations; almost 9 percent in natural resources, construction, and maintenance occupations; and 15.1 percent worked for the military. Unemployed workers represented 7.6 percent of the population.

Breaking the workforce employment data out by industries using different categories, the American Community Survey found that the highest proportion of Shirley residents' jobs are in educational, health care, and social services (17.4 percent of jobs), followed by retail and wholesale trade (more than 15 percent), manufacturing (12.6 percent), and public administration (almost 12.2 percent) (Table 4).

The Census Bureau's employment categories combine the arts, entertainment, recreation, and accommodation and food service. Shirley has a vibrant arts community that includes sculptors, painters, and photographers; dancers and actors; and musicians, many associated with Indian Hill Orchestra, with local bands, or with musical organizations in metropolitan Boston or Worcester, and including singer-songwriters, instrumentalists, and performers in folk, reggae, jazz, barbershop, pop, musical show, and classical genres. Art shows, dramatic performances, and musical events at the Bull Run, on the Common at Shirley Center, at the Shirley Meeting House, at Farandnear, and at the Ayer-Shirley Middle School add immeasurably to Shirley's cultural richness – and, they often take advantage of the town's parks and other open spaces. It is unfortunate not to be able to tease out these residents' contributions to the Shirley community through the census data!

Table 3. Incomes of Shirley Households in 2014 (Data Source: US Census American Community Survey 2009-2014. N = 2,283 households)

Less than \$10,000	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 to \$199,999	\$200,000 or more
88	123	275	126	141	486	411	375	147	111
3.90%	5.40%	12.00%	5.50%	6.20%	21.30%	18.00%	16.40%	6.40%	4.90%

Table 4. Employment, by Industry, of Shirley Workers in 2014. Data Source: US Census, American Community Survey, 2009-2014.

Civilian employed population 16 years and over	Agriculture, forestry, and fishing and hunting, and mining	Construction	Manufacturing	Wholesale trade	Retail trade	Transportation and warehousing, and utilities	Information	Finance and insurance, and real estate and rental and leasing	Professional, scientific, and management, and administrative and waste management services	Educational services, and health care and social assistance	Arts, entertainment, and recreation, and accommodation and food services	Other services, except public administration	Public administration
2,746	0	150	346	83	339	112	70	169	249	477	273	143	335
2,746	0.0%	5.5%	12.6%	3.0%	12.3%	4.1%	2.5%	6.2%	9.1%	17.4%	9.9%	5.2%	12.2%

Shirley residents also include a dentist and dental hygienists; physical therapists; fitness instructors and personal trainers; attorneys; business consultants; editors; artists; photographers; free-lance, creative, and technical writers; insurance agents; nurses and home health-care aides; computer programmers, software and hardware engineers, web-page designers, and computing consultants; shop-keepers and retail clerks; conservation professionals; civil, mechanical, chemical, and electrical engineers; skilled mechanics; heavy-equipment operators; hydrologists; scientists; veterinarians; chefs and caterers; archivists; librarians; house cleaners; bankers, accountants, and cashiers; land appraisers; real-estate agents; organic and conventional farmers, horticulturalists, tree farmers, and arborists; ministers and priests; firemen, police officers, and EMTs; and secretaries.

Many in town are engaged in various aspects of construction, including excavation, building and renovation, carpentry, roofing, architectural design, plumbing, electrical contracting, home theater design and installation, paving, masonry, wallboard and plastering, painting, and landscaping, including provision of construction and landscaping materials, landscape design, pruning of trees and shrubs, garden design and upkeep, and basic yard maintenance and cleanup. A local lumberyard prepares lumber to spec for projects. Snowplowing in winter is an ancillary activity for many in the landscaping business. (Source: Telephone book, consultation with residents, internet searches for local businesses.)

Businesses and Industries

Many of the individuals listed above own their own businesses, including various professional services, construction, and landscaping. Shirley supports a dry-cleaners and a Laundromat. In Shirley Village, there are two pizza parlors and a mobile wood-fired pizza operation, a Donut shop, two home-style restaurants with full bars, and a convenience store with both take-out and sit-down food service. Various restaurants have become established in the former Brockelman's General Store for several years, gone out of business, and been followed by a new venture. A diner at the former Shirley Airport near the Lancaster town line and Rte. 2 serves breakfast and lunch daily. On Great Road, the Bull Run restaurant is a place for concerts and a range of events and gatherings, as well as dining out. In addition, Shirley boasts several home-based catering concerns. Two fuel-oil businesses are based in town, as well as several auto repair shops, two auto body shops, a gun shop, a gym and fitness center, several day-care centers, and hairdresser and barber establishments. There are two convenience stores, a hardware store, a card shop, an antique store, and a furniture restoration business.

Two of the largest 19th century mills in Shirley Village are still in use today. One, the President factory building (formerly the George Frost Company, and before that the Edgerton Company), houses the headquarters and some of the manufacturing of AMPAC Enterprises, maker of All-Star Sporting Goods; a frame manufacturing facility (for pictures and mirrors); and offices for a variety of other small businesses. The other, the old Phoenix mill, originally built by the Shirley Shakers to produce textiles, and for many years the home of Samson Cordage works (which manufactured rope for the US Navy for many decades), has been repurposed to house small businesses including a gluten-free bakery, sign maker, printer, educational collaborative, uniform provider, design specialist, specialty chemical distributor, HO-scale railroad enthusiast group,

market research for technology companies, custom laser marking and engraving, and nursing and hospice services.

Other industries in town are engaged in thermoplastic molding, fine machining of metal components for manufacturing and tools, manufacture of custom glues and epoxies, mining of sand and gravel, and salvage/recycling/insurance auctioning of used automobiles and other vehicles.

Industrial lots are available for development in southern Shirley, and the town actively encourages new businesses and industries. There are commercial buildings with space in Shirley Village, and lots for new commercial construction in both south Shirley and on Great Road.

Location of Employment

As shown in Table 5, fewer Shirley residents, and a smaller proportion of the working population, work in the town where they live than in any other local towns other than Lancaster. Almost 83 percent of residents work elsewhere.

This indicates that Shirley has become a commuter town and that most working residents travel away from Shirley each workday. Such residents may not spend as much time engaged in or be as knowledgeable about the open space and recreational opportunities in town as those who work locally. And they may be less likely to volunteer. Programs that inform the community about those opportunities may make sense for Shirley residents.

Environmental Justice

Environmental Justice (EJ) is based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment. This is a right provided to all Massachusetts residents by Article 97 of the Commonwealth's Constitution. Historically, some people, particularly ethnic minorities and those living in poverty, have experienced more environmental degradation than other residents. The state's Environmental Justice policies attempt to ensure that all residents receive equal environmental protection. Massachusetts identifies Environmental Justice populations based on race and economic status.

Following the 2000 census, the state identified Shirley's Environmental Justice population as consisting of both Low-income and Minority residents. Currently, however, the state-designated Environmental Justice groups found in Shirley are Low Income. "Low income" in terms of Environmental Justice refers to a census area having a median annual household income at or below 65 percent of the statewide median; "Minority" means that 25 percent or more of the residents in a census area are minority, foreign-born, or lacking English language proficiency.

Table 5. Workplace location for residents of Shirley and nearby towns. (Data Source: *Draft Shirley Master Plan*, 2016, Montachusett Regional Planning Commission, based on 2013 *American Community Survey*)

Municipality	Total Workers	Worked in Town	% Worked in Town	Worked Outside Town	% Worked Outside Town
Shirley	2,751	474	17.23	2,277	82.77
Ayer	3,607	776	21.51	2,831	78.49
Groton	5,498	1,198	21.79	4,300	78.21
Harvard	2,512	591	23.53	1,921	76.47
Lancaster	3,609	351	9.73	3,258	90.27
Lunenburg	5,600	1,168	20.86	4,432	79.14
Westminster	3,922	809	20.63	3,113	79.37

Shirley's Low Income Population

As noted above, the Census Bureau's 2010-2014 ACS report shows that Shirley's median household income of \$66,453 was slightly lower than the Massachusetts median of \$67,846 and substantially lower than the Middlesex County median of \$83,488. In the southern third of the town, the average incomes are lower, in part because the census figures include the prison population at MCI. This qualifies this census bloc to be classified as a Low Income Environmental Justice area.

Also as noted above, in 2014, 7 percent of town residents were living in poverty, including 12.1 percent of all families, 18.3 percent of families with children under the age of 18 years, 18.8 percent of families with children younger than 5 years, 16 percent of all families with a single-parent female head of household and at least one child, and 6 percent of people 65 years old and over. Eleven percent of related children under 18 were living below the poverty level. According to the Massachusetts Department of Education, almost one in five, or 19.6 percent, of students at the Lura A. White Elementary School in 2015 were living in poverty. Additionally, Shirley has a high proportion of senior citizens, some of whom live on limited incomes well below the state median.

Shirley's poverty levels are far lower than the average for Middlesex County or the state average, but they are still of concern. Sensitivity to the needs of this population is necessary. Open space and recreational opportunities should be made equally available to all, regardless of income. Shirley should strive to keep activities free, locate any new facilities within walking distance of the population if possible, and make information available in Spanish if requested.

Shirley's Minority Population

As is the case with income data, the census data on the racial breakdown of the community also include the prison, whose population includes a higher proportion of African American and Latino inmates than the general population. According to data from MCI-Shirley, the 2017 inmate population is 38 percent Caucasian, 32 percent African American, 27 percent Hispanic, 2 percent Asian, 1 percent Native American, and 1 percent other ethnicities.

For Shirley residents self-identifying as of one race alone in the 2010 census, 85 percent identified as White, 8 percent Black or African American, 8 percent Hispanic, fewer than 0.5 percent American Indian or Alaska Native, 2 percent Asian, fewer than 0.5 percent Native Hawaiian or Other Pacific Islander, and 3 percent identified as some other race.

Slightly different data are reported in the 2010-2014 ACS Report: in that estimate, the population had shifted to a higher proportion of minorities, with only 74 percent of the population listed as white. Because the ACS between-census estimates have a high margin of error, it is unknown whether these numbers reflect an actual shift in the minority population of Shirley and, if so, how much of this shift was associated with a change in the incarcerated population.

Shirley residents include people with Irish, English, French, German, Italian, French Canadian, Polish, Scottish, Scots-Irish, Swedish, Arab, Sub-Saharan African, Native American, Indian, Pakistani, Japanese, Korean, and Filipino ancestry.

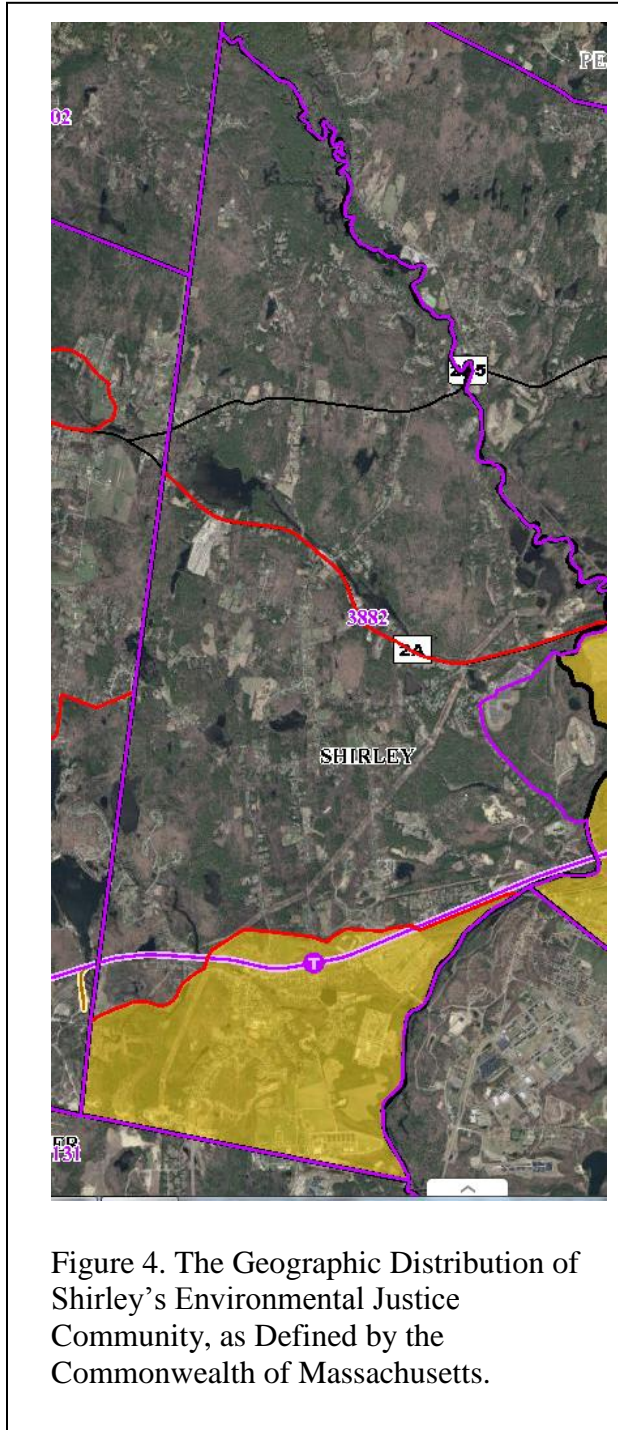
The most recent data available from the US Census ACS 2010-2014 report show that 8 percent of the people then living in Shirley were foreign-born. Of the 93 percent who were native-born in 2005-2009, 64 percent were born in Massachusetts.

Among people at least five years old living in Shirley in 2005-2009, 10 percent spoke a language other than English at home, and 25 percent reported that they did not speak English "very well." Of those speaking a language other than English at home, 44 percent spoke Spanish.

Languages spoken at home by students in the Ayer-Shirley school system in the 2016-2017 school year include Chinese, Portuguese, Spanish, Amharic, Korean, Swahili, and Tamil (Source: Ayer-Shirley School District, personal communication to Meredith Marcinkewicz). Table 6 shows some Environmental Justice Characteristics of students enrolled at the Lura A. White Elementary School in 2015-2017.

Geographic Distribution of Shirley's Environmental Justice Community

The Shirley Environmental Justice (EJ) population as defined by the 2010 US Census lives in the southeast, south, and southwest areas of the town (Figure 4). This map somewhat inaccurately portrays Shirley's Environmental Justice population, however, because the US Census includes the inmates at MCI-Shirley in its count of Shirley's population. The prison population contains a higher proportion of African-American and Latino individuals than Shirley's resident population, and prisoners' incomes are much lower than those of most Shirley residents.



It is true that, in general, residents' incomes and property assessments are lower in the southern third of Shirley. This is the area that has been heavily developed the longest, it has the smallest average lot sizes, and it has a high proportion of older housing stock.

However, Shirley has a varied mix of housing including high- and low-cost residences distributed throughout much of the town. According to the Assessors' office, there are 248 mobile homes in Shirley; this represents 10 percent of the housing units. The newer subdivisions built since 1996, as well as individual houses built on large lots extending into otherwise undeveloped forest parcels, tend to have assessed values ranging from \$300,000 to more than \$750,000, but many of Shirley's neighborhoods include a mix of housing, including small, modest homes adjacent to large, highly assessed ones.

Some of Shirley's lower-priced housing may be found in the Wayside Trailer Park off of Clark Road, the Briarwood Trailer Park off of front Street in Shirley Village, the Acme Trailer Park off of Kittredge Road, and a small trailer park on Great Road; trailers and homes in the periodically flooded Nashua River floodplain along the southeast side of Walker Road; scattered house trailers on Lancaster, Patterson, and Townsend roads; many older homes along Catacunemaug Road and Leominster Road; Deerbrook Park off of Lancaster Road; many older homes and apartments near the old mills in Shirley Village; and some older homes throughout the southern, central, and northern parts of town, some of which date to the 1700s and 1800s.

Lower income individuals and some of the town's minority residents live in these neighborhoods; but minority residents also own homes in some of the high-end new subdivisions. Effectively, Shirley's EJ population is not restricted to the southern third of the town but, rather, is widely distributed throughout.

Table 6. Environmental Justice Characteristics of Students at Lura A. White Elementary School, Grades PreK - 5. (Data Source, MA Department of Education.)

Enrollment by Environmental Justice Characteristics (2015-16)			
EJ Characteristics	% of LAW School	% of Ayer-Shirley Regional School District	% of State
First Language not English	3.3	7.4	19.0
English Language Learner	1.0	3.5	9.0
Students With Disabilities	19.6	24.7	17.2
High Needs	34.7	42.1	43.5
Economically Disadvantaged	19.4	23.4	27.4

Enrollment by Race/Ethnicity (2016-17)			
Race	% of School	% of District	% of State
African American	2.1	4.4	8.9
Asian	2.6	2.8	6.7
Hispanic	9.8	10.7	19.4
Native American	0.0	0.3	0.2
White	81.2	76.4	61.3
Native Hawaiian, Pacific Islander	0.3	0.4	0.1
Multi-Race, Non-Hispanic	4.1	4.9	3.4

To address Environmental Justice in Shirley, the town needs to have public open spaces and recreation areas located near all of its residents, and not just in certain areas.

It is evident from Map 3 that currently, EJ individuals living in Shirley Village and near Shirley Center are within walking distance of a large percentage of maintained parks and recreational areas. Conservation lands are well distributed around the town. North of Rte. 2A, public open spaces are generally undeveloped. Many have trails, but few have parking available apart from along the side of the road.

There are community gardens at Longley Acres on Whitney Road. In comments submitted for the Public Opinion Survey, one resident suggested looking into establishing community garden space adjacent to the Middle School. This location would be closer to many of Shirley's EJ residents.

Shirley's recreation fields are found in and near Shirley Village, although their long-term availability is uncertain, and a small field is available for youth soccer in Shirley Center. There are no public recreation fields or maintained parks in the northern half of town.

The Benjamin Hill Recreation Area is located just south of the center of Shirley, within one mile of most of the town's residents. Amenities at Benjamin Hill include a swimming pool and poolhouse, with swimming lessons in summer, a playground, a basketball court and tennis courts, a hockey rink, and a hill for winter snow tubing and sledding. There is also an open field for family gatherings and general pick-up games, but no formal playing fields. There are no sidewalks on Benjamin Road, but children and adults regularly walk or bicycle to Benjamin Hill from Shirley Center and Shirley Village.

By the end of the 20th century, the playground at the Lura A. White Elementary School was in need of repair. Residents organized funding through grants and donations to build a new playground in the fall of 2011. Further improvements are planned for 2017 (see section 7B). A new playground was subsequently developed for younger children in front of the school. These playgrounds are readily accessed by EJ residents of Shirley Village. There are no playgrounds north of Benjamin Hill.

Improving town sidewalks and trails to improve access to recreation and conservation areas without having to have a car would be beneficial. Dangerous conditions on many Shirley roads mean that an automobile is needed to get to open space and recreational areas safely from many locations in town. A sidewalk on Benjamin Road might be worth considering for the near term as providing the greatest immediate benefit to the largest number of people, including much of the EJ population of Shirley.

Adding more recreational activities including basketball courts and additional community gardens in the Shirley Village area, where there are the most sidewalks, would also benefit these populations.

3D. Growth and Development Trends

Insert Map 3, EJ Populations superimposed over location of Shirley OSR lands.

Patterns of Development

In its early years, Shirley's development was concentrated around the town's historic Center and Shirley Village, and along the major roads and rivers. Scattered farmhouses were found throughout the town. In the last 70-80 years, development has moved away from those areas and farther into open spaces. Very few working farms remain in the town – for example, the Evans and Rettberg farms, on Holden and Clark roads, respectively, have been developed for residential housing. Many other former farms have grown up into forest, and some have been subdivided and the frontage lots built upon. In recent decades, residential subdivisions moved into forested areas.

Shirley has transformed substantially from a rural mill and farming town to a suburban bedroom community, but it retains much of the feeling of a small, country town. Its location between Worcester and Boston, along with good public transportation, has made it an appealing choice for those who work in those cities. Many people have also moved into Shirley for its quiet rural qualities, but their presence has changed some of those qualities.

Map 4 shows are aerial photographs of Shirley taken in 1995, just before the last Open Space and Recreation Plan was adopted, and in August of 2016. They highlight the major land-use changes that have taken place over the past two decades. These changes include the following (numbers correspond to numbers on the maps – they are organized geographically, not chronologically).

- (1) Construction of Daniel Drive subdivision off of Squannacook Road. Conservation Restriction (CR) with hiking trails accessible to public.
- (2) Construction of a solar energy array on town-owned land on Groton Road/Rte 225. In the 1996 OSRP, this land was identified as a possible site for recreation fields in North Shirley, although possible issues with a high water table were identified at that time.
- (3) Construction of Forrest Hill and Executive Estates/Moore Drive subdivisions off of Lawton Road. CR with trails to Squannacook River.
- (4) Construction of a solar energy array on private Chapter 61 land on the northern side of Mulpus Brook opposite Walker Road. This is property Mass Fish and Game had hoped to acquire as conservation land.
- (5) Removal of the Mill Race Trailer Park.
- (6) Conservation Restriction acquired by MA Dept of Fish and Game along the Squannacook at east end of Rte. 2A.
- (7) Construction of Hazen Wood subdivision off of Horsepond and Hazen Roads.
- (8) Construction of Benjamin Estates subdivision off of Hazen Road. Conservation Restriction with trails.
- (9) Development of the Devens North Post land in Shirley. This included installation of a large commercial solar array on Devens land at Walker and Hazen Roads, adjacent to the Burlington Auto Parts salvage yard (North of the number on the map); the construction of a 100,000 square foot greenhouse for hydroponics production of salad greens for local markets near the Oxbow National Wildlife land and the Devens sewage treatment plant (South of the number on the map); and transfer of access rights to the wastewater treatment plant from Walker Road. These developments were accompanied by the transfer of more than 100 acres of land to MA Fish and Game as compensation for the loss of rare species

habitat associated with the projects. No further development on the North Post in Shirley is expected.

- (10) Construction of solar energy arrays on lands owned by the Shirley Water District and the Town of Shirley and originally acquired for purposes of protecting the water supplying the adjacent Patterson and Walker Road wells. Morse Brook remains as a thin green corridor flowing through the solar arrays.
- (11) The Patterson Estates/Morse Circle subdivision was built on the former Morey and Delorey gravel pit off of Patterson Road.
- (12) The Meadows subdivision constructed on the prime agricultural soils of the former Rettberg farmland off of Clark Road.
- (13) Decommissioning of Devens in 1996 led to demolition of military housing off of Hospital Road, followed by the construction of a new Shirley Municipal Complex including a new Police station, Town Office building, Library, and Ayer-Shirley Middle School.
- (14) The Village at Phoenix Pond cluster development for senior (over-55) residents built off of Shaker Road. The Phoenix Mill was restored and redeveloped for industrial and commercial use by a variety of small businesses. A CR accompanying this project includes land at the edge of roadways.
- (15) The former Edgarton / George Frost Company mill buildings were restored and repurposed for small manufacturing and business use; mill now known as The President Building.
- (16) The old Hazen Memorial Library, Shirley Municipal building, and former Fire-Police station on Lancaster Road were sold to private individuals. All were renovated and converted to new uses.
- (17) Expansion of playing fields on MCI land off of Wilde Road provided playing fields for the Recreation Committee's youth sports programs. This land is only leased to the town, and it has not yet been possible to negotiate a long-term agreement with the state, with the result that the town's continuing ability to use these fields in jeopardy.
- (18) Expanded activity at Assabett Mack Service behind the old Shirley airport.
- (19) Commercial and industrial development off of Lancaster Road near the southern town line: trucking terminals along the east side at the former airport, and small manufacturing facilities, paving and landscaping businesses, and warehouses off of Mountain Laurel Circle on the west side.
- (20) Housing construction at Apple Orchard estates, with stockpiling of arsenic-and-copper-contaminated soil behind the old Shirley Airport runway.
- (21) Removal of the old apple barn on Lancaster Road (uphill of the Shirley Water District pump station and Lura A. White School). Efforts to find a local home for this historic barn were unsuccessful. The barn was transported to Martha's Vineyard and was reconstructed there.
- (22) Testing and development of a new public water supply well by the Shirley Water District, just south of the Shirley-Lancaster town line.
- (23) Construction of the Hazen Hill Estates/Devarney Court subdivision off of Lancaster Road.
- (24) Closure of the town landfill; construction of a solar energy array in late 2016.
- (25) Construction of Oakes Landing and Lakeview Subdivisions near Lake Shirley, with Conservation Restrictions providing open space for walking and access to the water. CR land with interesting glacial features.

Insert Map 4, Land Use Change in Shirley, 1995 – 2016.

- (26) Construction of Birchwood Hills cluster subdivision, with large conservation restriction providing wildlife corridor and trail links to the town's Holden Road and Ronchetti Conservation Areas and to Valley Farm and Farandnear private lands.
- (27) Town acquired Ronchetti Conservation Area off of Holden Road
- (28) Mill Lane subdivision off of Benjamin Road included a CR plus the transfer of 42 acres of conservation land to the Town, plus an addition to the Benjamin Hill Recreation Area (BHRA). Subsequent improvements to the BHRA include clearing the sledding/tubing slope, construction of the pool house, restoring the playground, and building a hockey rink.
- (29) The Trustees of Reservations acquire the former Banks-Goodspeed land known as Farandnear between Center and Holden roads.
- (30) Restoration of the Historic Meeting House in Shirley Center
- (31) With a self-help grant from the state and expenditure of most of the funds in the Conservation Commission's Land Fund, the town acquired the Longley Farm on Whitney Road for use as Longley Acres Conservation Area.
- (32) Expansion of the auto salvage yard on the south side of Rte 2A/Great Road near the Lunenburg town line, and its conversion into an auto insurance auction yard.
- (33) The MA Dept of Fish and Game acquired conservation restrictions along the east side of Townsend Road north of Great Road, and at other locations along the Squannacook north of Great Road.

Not included in the listing above were many frontage lots on which single houses were built since the last OSRP was completed, largely on land that was formerly unbuildable due to limitations for septic system wastewater disposal, and where new sewers made construction possible.

Housing Construction

As described in the Shirley History section above, Shirley's population and housing stock have grown in stages, with significant growth following World War II, and in the 1980s and 1990s. These increases have been the result of employment opportunities at Fort Devens and surrounding communities, especially during the heyday of Digital Equipment Corporation and other large computer companies in the 1980s. The 2016 Draft Master Plan notes that more than half of the town's current housing was built since 1970. In the 1990s, incentives for residential construction were sparked by the favorable housing prices and property taxes in Shirley and the town's flexible subdivision regulations, as compared with communities east of Rte. I-495. A large burst of subdivision applications was received by the Planning Board in advance of the town's adoption of a five-year Developmental Delay Bylaw in 2000 (see Zoning, below).

From 1996 through 2016, Shirley's Building Department issued 537 building permits for new housing construction, an average of 21 permits per year (Figure 5). As of June, 2017, another seven permits for new construction have been issued. Development rates were much higher during the first part of this period – through 2007, the average number of permits issued annually was 32, ranging from a low of 20 to a high of 61. Only seven new permits were issued in 2008 at the height of the economic recession. Since then, the rate of development has recovered to an average of 18 permits per year, ranging from 11 to 29. Much of the housing construction has been in new subdivisions approved before the town adopted its Development Delay Bylaw, but

there has also been substantial development of frontage lots made buildable by the advent of sewers.

All six of the housing developments mentioned in the 1996 Open Space and Recreation Plan update have been completed, adding 90 houses to the Town of Shirley. In addition, 18 new developments have been approved since 1996, with approximately 360 associated houses. Ten of these developments have been completed. Subdivisions still in progress include The Meadows Phase II (Clark Road), The Arboretum and Fairway Estates (Groton Road), Hazen Hill Estates (Lancaster Road), Patterson Estates/Morse Circle (Patterson Road), and Squannacook Estates (Townsend Road), as well as cluster subdivisions Apple Orchard Estates (Lancaster Road), and The Village at Phoenix Pond (Shaker Road). Table 7 shows the subdivisions that have been approved and built since approval of the last OSRP in 1996.

Table 8 shows changes in the number of housing units from 1980 to 2010. Growth in housing stock has slowed periodically with economic downturns, most recently the recession of 2008 and subsequent years. As shown in Figure 6, housing construction in the early 2000s was strong, reflecting continued work on subdivisions that had been approved before the Development Delay Bylaw went into effect in 2000. Far fewer building permits were issued annually starting in 2007, and the effects of the recession were reflected in continued low construction activity until recently. Further, while residential construction added 271 housing units between 2000 and 2010, the number of unoccupied units also increased nearly two-fold, from 89 to 163 (Figure 6).

Construction has already begun to resume on subdivisions that have not been fully built out. Permits for 57 new single-family land duplex units were issued between 2014 and the first half of 2017. It seems likely that new subdivision proposals will again be brought before the Planning Board, as economic conditions in Massachusetts improve and as the comparatively low taxes and housing prices west of Rte. I-495 become even more attractive relative to those in towns near metropolitan Boston. We expect that increased population and housing will result in the further loss of open space, and corresponding increases in water use, recreational facilities use, and need for other town services.

Infrastructure

The Fitchburg railroad line was instrumental in the development of Shirley Village. The basic layout of the road network was established in the years of agricultural and mill development, with additions of a few additional major roads over time. A public water system for Shirley Village was developed in the early 1900s and it has expanded to other areas over time. Wastewater treatment was by cesspool or septic systems until the 21st century.

Figure 5. Number of building permits for new construction issued in Shirley, 2004 to 2016.

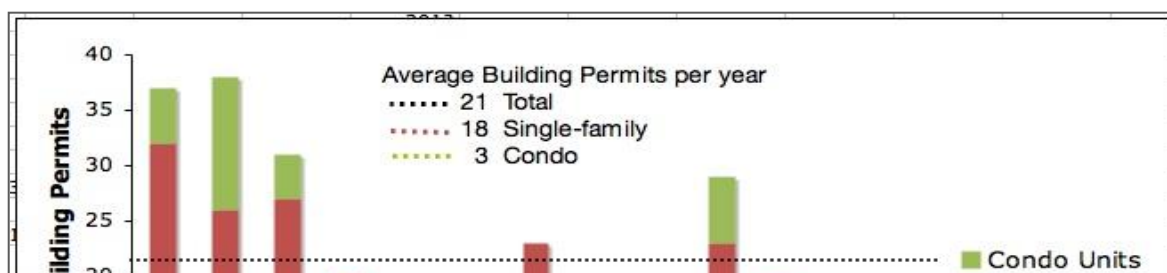


Figure 6. Total and Vacant Housing stock in Shirley, 2000 and 2010.

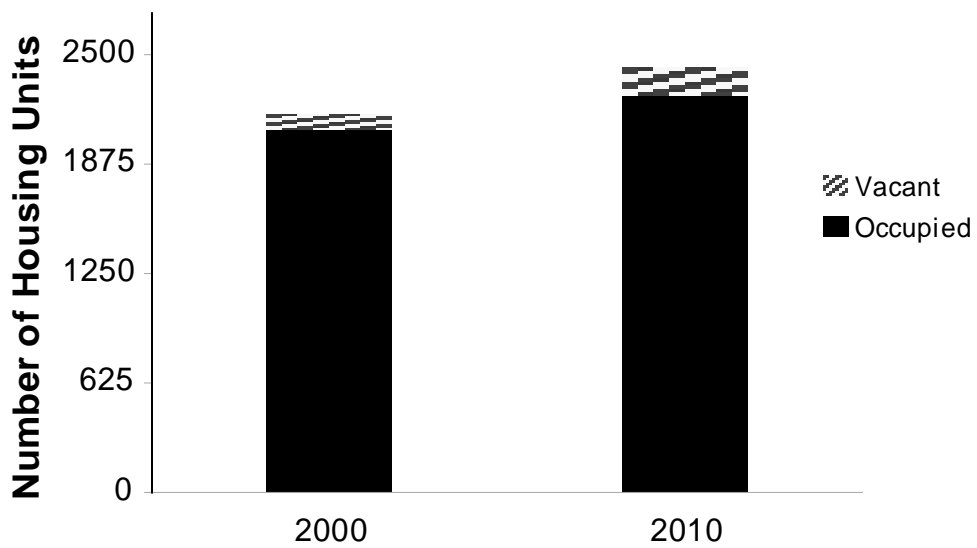


Table 7. Subdivisions approved and constructed since approval of the last OSRP in 1996.

Name	Located off	# of Houses or Dwelling Units	Cluster	Already Built
Hill Lane	Benjamin Road	9?	X	9
Lakeview Drive	Catacunemaug Road	30	X	30
Oakes Landing	Catacunemaug Road	11		11
Landry	Center Road	2		2
Countryside Acres	Clark Road	20		20
The Meadows II	Clark Road	36		36
The Arboretum	Groton Road	4		?
Fairway Estates	Groton Road	4		3
Benjamin Estates	Hazen Road	7	X	7
Hazen Wood	Hazen and Horsepond Roads	22		22
Apple Orchard Estates	Lancaster Road	110	X	62
Hazen Hill Estates/ Devarney Court	Lancaster Road	16		9
Executive Estates/ Moore Drive	Lawton Road	10		10
Forrest Hill	Lawton Road	4		?
Patterson Estates/ Morse Circle	Patterson Road	17		14
The Village at Phoenix Pond	Shaker Road	50 Units (over 55)	X	50
Daniel Drive	Squannacook Road	6		6
Squannacook Estates	Townsend Road	4		

Table 8. Changes in the number of housing units from 1980 to 2010. Source: *Final Economic Development Chapter to the Master Plan, 2010*, MRPC

Number of Housing Units in Shirley

	1980	1990	2000	% Change
Number of Dwelling Units	1,829	2,183	2,156	18 % in 20 years

Transportation systems

When going somewhere, most people in Shirley drive to their destinations. According to ACS (2005-2009) 6 percent of Shirley households did not have access to a car, truck, or van for private use in that period. Multi-vehicle households are not uncommon; 46 percent have two vehicles and another 17 percent have three or more. More recent data were unavailable.

The Senior Center provides transportation to shopping and medical appointments through the MART (Montachusett Regional Transit Authority) van, which runs on weekdays, and through a volunteer program, which assists seniors in obtaining transportation to areas not covered by the MART program.

Roads. According to the 2004 Shirley Master Plan Update as well as the 2016 Draft Update, east-west travel within Shirley is reasonably well-served by the two state arterial roads (Routes 225 and Route 2A) (Map 5). Yet north-south travel has taxed the capacity of Parker, Center, Walker and Lancaster Roads. The situation will worsen as population continues to grow. The data are limited, but it is evident that Townsend Road and roads through Shirley Center have seen some substantial increases in traffic over the past decade. The limited traffic-monitoring data from MRPC do not discuss truck vs. passenger vehicle traffic, but residents have expressed concern about the volume of heavy trucks on town roads, especially in Shirley Center and on residential roads leading to Walker Road.

Residents have observed that the increased traffic volume, especially of heavy trucks carrying construction and landscaping materials and derelict vehicles destined for the salvage yards along Great Road, and drivers who fail to observe the speed limit, pose a threat to walkers. This is especially a problem along the main north-south and east-west roads, due to narrow road shoulders, curves that restrict drivers' vision, and poison ivy and other vegetation growing up to the roads' edges and limiting pedestrians' options for moving out of the roadway.

Railroad transport. At meetings and in questionnaires, residents state that the MBTA commuter rail is a large asset to the town, providing much valued public transportation, and contributing to the town's character. The railroad contributed significantly to Shirley's growth as a town in the 19th and 20th centuries.

During the week, seventeen commuter passenger trains each way stop at Shirley's small station, taking passengers as far east as Boston and west to Wachusett. Seven trains run on the weekends.

The railway station is located in Shirley Village where it is a convenient walk or bike ride from residences and businesses. Access from other areas of town is not as easy without a car or other vehicle due to the lack of sidewalks and bike lanes. There are c. 69 paved parking spaces near the station, including three handicapped-only spaces, and on a typical work day, another 45-50 cars park farther east on Ayer Road along the unimproved railway embankment. Parking is free, and therefore many commuters from other towns park in Shirley.

Since 2009, \$306 million in state and federal funds have been allocated for upgrades to the rights-of-way, tracks, bridges, switches, and signals, and extension of the terminus to Wachusett,

off of Rte 2 at Rte 31 in Princeton and Westminster, with the goals of reducing train travel times and improving safety.

For several years, the MBTA considered combining the Ayer and Shirley commuter-rail stations into a single Devens station. Those plans have not been carried out in concert with the other improvements, and there are no active plans to do so in the foreseeable future.

The railroad is also a main route for freight traffic. Occasionally long trains block traffic trying to move north or south.

Pedestrian and bicycle travel. In general, for those wishing to bike or walk, transportation networks need improvement. There are no marked bike routes, and Front Street is the only road that provides extra space available for bikes. The town's sidewalk system is concentrated in the Shirley Village area, leaving most of the remainder of the town without safe routes to get to open spaces and recreational areas. For those without vehicles, travel in Shirley can be a challenge.

Water supply systems

The Shirley public water supply is operated by the Shirley Water District. This was the state's first Water District, established by legislation in 1903. A Water District is an independent governmental agency, subject to many of the rules and procedures that govern towns, and all members (i.e., residents) of the Water District have the right to attend meetings of the Water Commissioners and to participate in the annual meeting and vote on proposed activities affecting the water supply lands and infrastructure administered by the District. In Shirley, the water system provides potable water to approximately 60 percent of the town through a network supplied by three groundwater wells, two reservoir tanks, and one standpipe (Map 5). The three groundwater supply wells are the Catacunemaug, Walker, and Patterson Road wells. A fourth well, just over the southwest town line in Lancaster, has completed testing and will be brought on line soon to help supply future demands. More details on the wells are provided in section 4C.

The Walker and Patterson Road wells supply approximately 80 percent of all public water for the town. The water quality from the wells is exceptional—it tastes good and meets state standards for minimal treatment for corrosion control and for coliform control within the delivery pipes. There is more information on Shirley's wells and aquifers in Section 4C.

The Water District boundaries officially encompass all of Shirley, but currently the supply system provides water primarily to the southern half of town from Center Road east to Patterson Road and as far north as Great Road. The remainder of the town is served by private well water. The district consumption rate rose 9 percent from 1996 to 2002. (See Section 4 for current protection of water supply.) As population continues to grow, the need to continue to protect the town's valuable water supply will be critical.

**Add Map 5 for transportation
Add Map 6 for Water District wells, recharge areas, and facilities, also sewer district boundaries**

The construction of the municipal sewage system was completed in 2004. One third of the town is sewerred (Map 6). All of Shirley Village is on town sewer, as are Center Road, Brown Road, Parker Road, Little Turnpike Road, portions of Walker Road and Hazen Road, and a portion of Great Road (234 Great Road to 154 Great Road). The rest of town, including the aquifer recharge areas, relies on septic systems.

Before the sewer was installed, soil limitations for septic systems prevented development of many land parcels in Shirley. Since construction of the sewer system, many of the undeveloped frontage parcels in the southern half of Shirley have been developed.

The sewer line has alleviated issues of groundwater contamination from septic leachate in Shirley Village and along the Mulpus Brook. The Sewer Commissioners and the agent from the Nashoba Board of Health reported to the Shirley Sewer Department that the sewer system has alleviated the contamination.

Zoning

The zoning map (Map 7) shows the zoning districts established by the Town of Shirley Protective Zoning Bylaw.

Approximately 85 percent of Shirley is zoned for residential development, with minimum lot sizes ranging from 80,000 square feet in the Rural Residential zone to 15,000 square feet in the Residential 3 zone. Approximately 6 percent of the town is zoned business or mixed-use and approximately 9 percent is zoned for industrial use. Until November of 2016, Shirley's zoning did not restrict industrial-scale development of solar generating arrays, and six such projects were constructed in residential neighborhoods in 2014-2016. Voters approved amendments limiting future "solar farms" to industrial and commercially zoned districts on November 19, 2016.

The Shirley Village Business District is located on Ayer Road, and the North Shirley Village District is located on Route 2A at Parker Road, with businesses clustered in them. A mixed use district lies to the west on Route 2A, and another lies to the east at Kittredge Road. Industrial development bisects Shirley Village, in an east-west band along Leominster Road and Ayer Road. The Lancaster Road Commercial District is found at the former airport on the east side of Lancaster Road at the town's southern border next to Lancaster, and an Industrial area is on the west side of Lancaster Road across from the old airport, at Mountain Laurel Circle. Several attempts to rezone more land west of Lancaster Road for industrial development have been defeated by voters due to environmental concerns including the importance of protecting Tophet Swamp and Bow Brook.

Open space and conservation in Shirley's Protective Zoning Bylaw

Shirley has made changes in its Zoning Bylaws since the last OSRP was approved in 1996. Some of the changes were implemented to encourage commercial, industrial and mixed-use development in certain areas. Other changes focus on protecting open space and resources and encouraging growth in already developed areas. Since the mid-1980s, the Zoning Bylaw has included important floodplain, water supply and well-head protection overlays, and these have been updated over time. Changes to Zoning Bylaws have had a measurable impact on the course of development since 1996.

A Rate of Development Bylaw was passed at Special Town Meeting in September 2000. This Bylaw allowed the permitting of no more than 30 dwelling units within one calendar year for five years and limited the number of building permits an individual developer could obtain in any year. The Bylaw expired in 2005 and was not extended.

Until 2005, special permits were available for cluster residential housing, allowing the Planning Board to waive the minimum frontage and lot shape requirements in exchange for permanent protection of open space through a Conservation Restriction held by the Shirley Conservation Commission or a non-profit conservation land trust.

Between 1996 and 2005, eight such developments were permitted, contributing over 200 acres of permanently protected open space to the Town of Shirley. Most of these conservation set-asides were land valuable for water quality, wildlife, and recreation. Unfortunately, the open space in some of these developments was roadside land unsuitable for permanent protection, and unattractive to residents who prefer their roadsides to be mowed and tidy, not vegetated with brush and weeds. These so-called “conservation lands” do not fulfill the conservation purposes that the Zoning Bylaw intended, and they represent a serious demand on the time of the town’s Conservation Agent, who is responsible for ensuring that the conservation restriction on the land is adhered to.

In March of 2005, the cluster residential permit option was replaced by the Low Impact Development Bylaw for lots of ten or more acres and a subdivision of six or more homes. This bylaw requires that at least 35 percent of the total land area be permanently protected open space, using a Conservation Restriction granted to the Shirley Conservation Commission. As with other Conservation Restrictions held by the town, the Conservation Commission is legally obligated to inspect these lands annually to ensure that the terms of the conservation restriction are being upheld; this is a time-consuming responsibility for the Conservation Agent and has not been carried out as it should have been for many years, due to staffing reductions.

Due to economic conditions and the large number of unbuilt houses remaining in approved subdivisions, no Low Impact Developments have been proposed since the bylaw was adopted. The bylaw does not meet current best practices for Low Impact Development, and the criteria for Conservation Restriction set-asides for these developments need to be strengthened, to ensure that land set aside is suitable for conservation and associated public benefits. Review and amendment of the bylaw is desirable.

Non-zoning wetlands bylaw

Add Map 7 showing Zoning Districts

Shirley voters approved a Non-Zoning Wetlands Bylaw in the 1990s. The original bylaw had no restrictions that were different from those in the Massachusetts Wetlands Protection Act, and this made the bylaw unenforceable if there was an appeal to the courts. Therefore, the bylaw was amended on March 23, 2005, with the addition of no-build (40 ft.)/no-disturb (25 ft.) zones. The bylaw is out-of-date in comparison to wetlands bylaws of many other Massachusetts towns, and it does not provide adequate protection for water quality. It should be reviewed and possible updates considered.

Devens and regional open space planning

Parts of Shirley are located within the Devens Enterprise Zone, a special zone created by Chapter 498 of the Acts of 1993 for redevelopment of the former Fort Devens Army base. Shirley has participated in several regional, inter-municipal planning, and land protection efforts. As one of the host communities with land in Devens (along with Ayer, Harvard, and Lancaster), Shirley has been involved with those communities and MassDevelopment (the state agency managing redevelopment of Devens) to coordinate regional planning. Open space lands at Devens, including the Oxbow National Wildlife Refuge, interconnect with protected and unprotected undeveloped lands in adjoining communities including Shirley. The main stem of the Nashua River flows through the Refuge and Devens. Aquifers supplying Devens and the adjoining communities also overlap municipal and Devens boundaries.

Shirley is a member and regular participant in the Devens Open Space and Recreation Advisory Committee (DOSRAC). The Committee has worked successfully with MassDevelopment staff to advance several initiatives, including a trails map and interpretive brochures and kiosks, and review and design refinement of several projects adjoining or affecting open space parcels. MassDevelopment and the DEC have prepared a regional trails plan that provides a framework for development of an interconnected trails network throughout Devens and connecting to Ayer, Harvard, and Shirley. Ultimately, the land being made available to Shirley residents provides many opportunities for more recreational activities. A new visitor facility for the Oxbow refuge opened in spring of 2016 on Hospital Road just across the town line. A boat ramp for canoes and kayaks, as well as trails, are part of this facility. As noted above, 108 acres of Devens land was recently given to the MA Department of Fish and Game as MESA mitigation for a new solar farm, while the Oxbow Wildlife Refuge has been gifted another 20 acres in exchange for giving MassDevelopment access to the Wastewater Treatment Plant.

By 2033, the towns of Ayer, Harvard, Lancaster, and Shirley will decide on the disposal of the land which used to belong to Fort Devens. The land may be used to form a new town of Devens or it may be returned to the jurisdiction of the towns it came from. The Shirley portion of the land in Shirley Village is mostly undeveloped except for projects the Town of Shirley has undertaken. A portion has been rezoned for future over-55 housing and professional offices. The build-out on the North Post in Shirley east of Walker Road has been completed in the past two years, and the remaining open space there is protected.

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SECTION 4. ENVIRONMENTAL INVENTORY AND ANALYSIS

4A. Topography, Geology, and Soils

Topography

Shirley's landscape is notable for the abundant diversity and quality of its natural resources, particularly its waters, wetlands, woodlands, and rolling landscape. These features are influenced by the bedrock, soils, and topography of the land. The US Geographical Survey topographic map that serves as the cover of this OSRP shows the varied topography that characterizes our town.

Shirley is located at the eastern edge of the New England Upland physiographic province, within the southern portion of the Gulf of Maine Coastal Plain ecoregion and the Southern New England Coastal Plains ecoregion. The town lies entirely within the Nashua River watershed—all runoff and groundwater from the town flows eventually into the Nashua River. Elevations range between 220 feet to over 470 feet above sea level.

Scenic views are created by a mix of uplands, small wetlands, perched ponds, and hills. The crests of Benjamin Hill, Brattle Hill, Squannacook Hill, Chaplins Hill, Hazen Hill, and the Major Hills provide distant panoramas backed by Mt. Wachusett. Important low areas supporting extensive wetland areas include Tophet, Long, and Spruce Swamps.

Geology

The bedrock underlying Shirley consists of metamorphic sedimentary rocks: metamorphosed siltstone and schist in the eastern side of town, slate and phyllite in the west. In some areas, the bedrock forms abundant outcrops or ledge at the surface of the ground. Northern Shirley has a significant amount of outcrop, whereas the outcrops in the central portion of town are smaller and scattered.

The wide valleys and rolling hills of Shirley were formed by glaciers that covered the region over 10,000 years ago. The glaciers left behind eskers, kames, and drumlins. The surficial deposits overlying bedrock consist primarily of glacial deposits. Such deposits are generally described as glacial drift, till, glaciofluvial deposits, and glacial outwash.

Glacial drift is rock debris transported by glaciers and deposited directly from the ice or from the melt water.

Till is an unsorted, non-stratified glacial drift comprising silt, sand, gravel, cobbles, and boulders transported and deposited by melting glacial ice. Till deposits are characterized by low porosity and permeability; as a result they pose sewage disposal problems for developers and rarely constitute good aquifers. They usually occur on upland areas at some distance from stream corridors. In Shirley till deposits exist in the central north to south portion of town.

Glacio-fluvial deposits known as stratified drift interrupt the till, especially along current or former stream corridors. These deposits are well-sorted sands and gravels deposited by streams and are found in congruence with most stream beds, wetlands, and aquifers. Thick sand and gravel deposits with a high potential for water supply are known as aquifers. Wells that draw from productive aquifers may yield up to 1,000 gallons per minute.

In addition to ancient bedrock and glacial deposits, more recently deposited sediment includes alluvium, floodplain deposits associated with major river valleys and the lower segments of tributary streams. Alluvial deposits consist of silt and fine sands. In Shirley these deposits are found in the floodplains of the larger brooks and rivers.

Soils

Soil develops through weathering and biological modification of underlying surficial deposits and bedrock. Surficial geology determines the soil types in a given area. Map 8 shows the surficial soil types and farmland soils in Shirley.

Approximately half the town is composed of well-drained soils with an impermeable hardpan layer restricting the downward flow of water; these include areas where the surficial geology is made up of coarse glacial stratified deposits, abundant outcrop, and shallow bedrock, as seen in the Geology and Soils map. These areas are vulnerable to surface water pollution and generally not suitable for development, particularly for on-site wastewater disposal systems and leaching fields; however, these areas are often excellent wildlife habitats.

About a third of the town is covered by well drained sandy and gravelly soils; this soil type poses the least challenges for development and the best conditions for aquifers, seen in the Zones of Contribution map (Map 6).

Agricultural soils

Prime farmland soils and other soils of agricultural importance are distributed throughout Shirley (Map 8). Most areas of prime farmland overlay coarse glacial deposits and till-bedrock zones. Soils that are known to produce high yields of crops and to be important for agriculture are defined and mapped by the Natural Resources and Conservation Service and the Mass Department of Agriculture, and their conservation is a high state and national priority. Many of Shirley's finest agricultural soils have been converted to residential subdivisions in recent decades; these include the former Evans Farm on Holden Road and the Rettberg farm off of Clark Road.

According to MassGIS, three types of NRCS-designated prime farmland soils are spread throughout Shirley; 1,402 acres of prime farmland soil, 2,605 acres of local importance, and 577 acres of unique importance (MassGIS). Many of the lands with these soils have been developed, but protecting undeveloped land with these soil types for agricultural use will ensure that appropriate lands are available for the production of local food, and the rural character of the

Add Map 8 – Surficial Soils and important farmland soils

town is maintained. Some of the largest remaining areas of prime agricultural soils are found at MCI-Shirley and on the west side of Lancaster Road east of Tophet Swamp.

Wetland soils

Wetland soil types are found in about 25 percent of the town, as seen in the Water Resources and Forest Soils maps (Maps 9 and 10). They are most abundant along the western town border, the main east-west and brook corridors, and the river corridors to the east. With the expansion of beaver populations in Shirley over recent decades, the extent of permanently saturated soils has increased along small streams in interior forest areas.

Wetlands soils are very high in organic matter, and proportionally lower in minerals. They form where water saturates the surface for most or all of the year. This slows down plant decomposition, and plant materials accumulate. Plants that grow on wetland soils need adaptations for getting oxygen to their roots, since saturated soils tend to be anoxic (See Wetlands Vegetation section, below).

Forest soils

Because the forested landscape is integral to Shirley's character and so important to residents, the soils that support tree growth should be considered important enough to conserve. This can be done through zoning and non-zoning means, increasing density in developed areas, and encouraging private land protection and forest management.

The US Department of Agriculture (USDA) has designated prime forestland soils so that communities may use this information to protect forests from conversion to non-agricultural/non-forestry uses. Since 70% of Massachusetts' soils were classified as prime forestland soils, USDA funded a project by the Department of Forestry and Wildlife Management (now Department of Natural Resources Conservation) at the University of Massachusetts to define, classify, and map categories of prime forestlands in the State.

The USDA prime forestlands were divided into three categories; in contrast, Massachusetts classes of forestland were divided into nine categories of soil types based on productivity and wetness. The forest soil categories are: Prime I, II and III, Prime III wet, Statewide Importance and Statewide Importance wet, Local Importance and Local Importance wet, and Unique. The Prime categories range from I, as the optimal with mature tree heights reaching from 80-100 feet, to III, with trees reaching mature heights of 65-75 feet. Forest soils of Statewide and local importance produce forest cover around 40 feet high, where trees are likely growing on shallow, outcrop, or ridge top soils. The wet forestland soils reflect a hierarchy of tree growth in shallow, high-water table soils, where trees are at risk of wind throw, but can still have productive growth rates.

Prime forestland soils support a production of white pine wood fiber at a rate greater than 85 cubic feet per acre per year, and northern red oak wood fiber at a rate greater than 40 cubic feet per acre per year (see Map 10, Prime Forest Soils). The US Forest Service defines forestland as

vegetated cover with a growth of wood fiber at a minimum rate of 20 cubic feet per acre per year.

Forestland with Prime I, II, and III soils would be the most important to conserve for commercial forest management. Soils of statewide and local importance have the potential for producing wood products but the financial return may not be as high. Currently, Shirley has little commercial forestry being conducted on a regular basis. If the town is interested in long-term financial and conservation benefits from forest harvesting, the town should consider Prime forestland soils as a criterion for assessing the relative value of productive forests (see link to New England Forestry Foundation case study link in Appendix F). The town should also use Prime farmland soils to prioritize protection and conservation of forest corridors to prevent fragmentation and maximize productive sustainable forestry potential. Looking at successful examples, collaborating with Chapter 61 private forestland management plans to create forest corridors can provide recognition and funding sources from larger agencies, enhance recreation opportunities within the forests, and expand wildlife corridors and greenways.

Further discussion of community forestry as a potential economic and conservation opportunity is provided below in section 4D and Appendix F.

In addition to commercially valuable timber, firewood and other products, forests provide wildlife habitat. Most importantly, they produce sustained flows of clean water to streams, and they recharge aquifers that supply water to the Shirley Water District wells and to private wells all around town. The fine roots and decomposing leaves and humus in the soil, as well as the trees themselves, remove certain pollutants from the air and rainfall that could potentially be harmful to groundwater. These values are especially important to Shirley residents and represent additional reasons to recognize and protect areas of town that are particularly suited for forest growth.

4B. Landscape Character

Shirley's natural landscape is largely defined by its hills, its waterways, its woods with their stone walls outlining old farm fields, and its wetlands, hayfields, and meadows. Additionally, the town's landscape character is defined by the built environment in Shirley Village, Shirley Center, and along town roads.

Water has played a central role in shaping Shirley's physical and visual character (see Water Resources Map 9 and Unique Features Map 11). There are approximately 20 miles of riverfront on the northeast and southeast boundaries, a third of the town perimeter. These waterways include the Squannacook River and the Nashua River, which are of particular scenic interest and provide recreation opportunities such as swimming, fishing, and boating. They are among the most prized waterways in the region.

Two substantial internal stream systems that flow into the Nashua River, the Mulpus and

Insert Maps 9 and 10 Water Resources and Forest Soils
Add Map 11 Unique features and special places

The varied topographic features of hills and valleys influence the biodiversity of natural systems and organisms in Shirley. The large areas of relatively undisturbed wetlands and intact forests have allowed wildlife populations to flourish here. Large swaths of Shirley are designated by the Massachusetts National Heritage and Endangered Species Program (NHESP) and BioMap 2 (<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/land-protection-and-management/biomap2/>) as biologically important natural landscape and habitat, and by the Squannassit Rivers Act as Areas of Critical Environmental Concern (ACEC) (See Map 12).

According to BioMap 2 and other NHESP documents, biological core habitats are in the north, along the Nashua and Squannacook Rivers, across the central east-to-west belt that bisects the town, and in the southwest corner. Within these regions are species of conservation concern, critical natural landscapes, wetlands, forests, vernal pools, and aquatic cores. Portions of the NHESP, Biomap, and ACEC areas are permanently protected through ownership or conservation restrictions. However, critical wildlife habitat on town and Water District water supply lands between Patterson and Walker Roads thought to be permanently protected has been developed for industrial solar energy generation since 2014. Certain priority habitats also coincide with town aquifers and waterways. These core areas are important not only for wildlife and for water supply, but also for their contributions to the valued landscape character of Shirley.

The Squannassitt ACEC was designated because of the unique natural resources and the significant economic and ecologic benefits they contribute to the region. Activities in the ACEC are supposed to receive extra scrutiny to ensure that they do not damage irreplaceable resources.

Conservation land acquisitions should be a priority for unprotected regions of NHESP and ACEC designations in order to protect biodiversity. In turn, the natural resources will also be protected for humans as wildlife viewing areas and recreational area, and for critical water supply that is at the base of our region's economic prosperity in the long run.

4C. Water Resources

Watersheds

A watershed is all the land that contributes water to a stream, lake, or pond. When rain or snow falls on a watershed – on houses, trees, lawns, meadows, or anywhere else, unless it evaporates it becomes groundwater or surface flows that ultimately end up in a surface water body such as a lake or stream. Shirley is part of the greater Merrimack River basin, which includes the Nashua River Watershed – all the water that falls on the land in Shirley eventually ends up in the Nashua, and then the Merrimack (which the Nashua flows into). So, Shirley is also part of the Merrimack River Watershed.

All of Shirley lies within the Nashua River Watershed. Every square foot of land in Shirley contributes water to the Nashua River. The Squannacook River to the northeast flows into the Nashua, as do the Catacunemaug, Mulpus, Morse, Walker, and Trout brooks. Each of these

tributary streams has its own subwatershed that contributes surface runoff and groundwater to the stream. (see Water Resources Map 9).

Surface Water

About 440 acres of Shirley's total area are covered by surface water: rivers, streams, lakes, and ponds. This represents about 4.3 percent of the town's total land area. Vegetated wetlands cover about 1,000 acres, or just under 10 percent of the town. Together, open waters and wetlands represent c. 15 percent of Shirley's land area.

Water Quality

Water quality in streams

Both the Squannacook and the Nashua are classified as "Class B" rivers, meaning that they are monitored and discharges into them are managed to keep the water quality suitable for primary and secondary contact recreation (swimming and boating) and for fish and aquatic wildlife habitat. Both rivers were severely polluted in the 1970-80s, largely from direct discharges of pollutants from wastewater treatment plants and industries. However, over the past forty years water quality management in the Nashua River Basin has remediated much of the contamination, and most of the time the waters are clean enough today to serve as regional recreational resources. Exceptions mostly occur after storms when large amounts of stormwater runoff enter the rivers. Stormwater flows and other pollutant sources that travel over land or in groundwater and do not discharge directly from a pipe are known as "non-point" pollution sources, and in most Massachusetts streams, they are the primary sources of continued water quality problems. Water quality is still not as good as it should be to support all the appropriate aquatic life in the rivers.

There is still work to be done to improve stream water quality so that it is consistently good. According to the Massachusetts 2014 Integrated List of Waters, the Nashua River segment from the confluence with North Nashua River in Lancaster to the confluence with the Squannacook River, which forms Shirley's northeastern boundary as far as Great Road, is impaired due to elevated *Escherichia coli* (*E. coli*) bacteria and total phosphorus levels, generally associated with runoff and/or groundwater discharges from developed areas.

Impairments to the streams' biology are shown in aquatic macroinvertebrate bioassessments and sediment bioassay toxicity. The Squannacook above the Hollinsworth and Vose dam is impaired due to "lack of cold water assemblage" (the presence of dams warms the water) and *E. coli* in the upper reaches. Polluted runoff with sediment from land use practices that disturb the soil, and nutrients that flow from overloaded septic systems and from over-fertilized lawns and gardens, are the major threats to water quality in the smaller streams that flow to the Nashua and the Squannacook.

Add Map 12NHESP, ACEC, and Vernal Pools

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Many Shirley streams receive stormwater runoff that carries dirt and other pollutants including oil, metals, and pesticides washed off of roads and sidewalks, and from lawns, parking lots, and construction sites. These streams are not as healthy as they could be and do not support as varied and rich a community of fish and other water-loving animals. Some receive polluted groundwater discharges, mostly contaminated by septic systems. But Shirley also has streams that contain native trout and a wide variety of other aquatic animals that need clean water. These are a natural heritage that belongs to all of us and that is worth treasuring and protecting.

Water quality in lakes and ponds

Compared to its streams, Shirley's lakes and ponds are limited in size and distribution. The largest, Lake Shirley, is almost entirely in Lunenburg. It has serious problems with algae and aquatic plants as a result of fertilizer use and other non-point (overland flow) pollution problems in its watershed. The lake is drawn down at its dam each fall to help kill aquatic plants and dissipate some of the nutrients that have accumulated.

Streams

The Nashua and Squannacook Rivers form the eastern boundary of Shirley. With some exceptions, the twenty miles of continuous riverfront that form Shirley's eastern boundary are largely protected, undeveloped, and publicly accessible (www.nashuariverwatershed.org). The Oxbow National Wildlife Refuge, part of which is in Shirley, is one of the largest open spaces in the Nashua River watershed.

Draining into the Squannacook and Nashua Rivers are ten streams that flow within the four main sub-basins in Shirley (Map 8):

- Mulpus Brook
- Catacunemaug Brook
- Trout Brook
- Walker Brook
- Trap Swamp Brook
- Pumpkin Brook
- Morse Brook
- Beaver Pond Brook
- Bow Brook
- Spruce Swamp Brook

The Nashua River and its tributaries

The Nashua River forms 12.5 miles of Shirley's southeast town boundary. The confluence of the North and South Nashua Rivers in Lancaster, south of Shirley, forms the Nashua River mainstem. The river flows north towards the Merrimack River in Nashua, New Hampshire. The

Nashua is dammed at multiple locations throughout its course; the Ice House Dam is in Shirley at the junction of Shirley, Harvard, and Ayer.

As noted above, the Nashua was formerly one of the most polluted rivers in Massachusetts. Passage of the Clean Water Act and strong efforts at pollution controls over the past 30 years have led to a dramatic clean-up and restoration of good water quality. Recreational uses of the river and its nearshore areas in Shirley include fishing and hunting; canoeing and kayaking; sketching, painting, and photography; hiking; and nature observation. Today the river is being studied for possible inclusion in the National Wild and Scenic River network (for more information, see <http://www.nashuariverwatershed.org/what-we-do/protect-water-and-land/wild-and-scenic-rivers/faq-wild-rivers.html>).

In Shirley, the Squannacook River is the Nashua's largest tributary. The Mulpus and Catacunemaug brooks are the other major tributaries that flow into the Nashua below the river's confluence with the Squannacook. These streams traverse the town from west to east and provide views of maple-wooded swamps and open marshes, although much of the land adjacent to the Catacunemaug, and parts of the Mulpus, has been densely settled. Extensive wetlands including Tophet Swamp, Beaver Pond, and Spruce Swamp, form headwater areas on these streams and some of their tributaries. Unique wetland vegetation communities can be found along Shirley's western boundary with Lunenburg, at Beaver Pond, Long Swamp, Tophet Swamp, and adjacent to Lake Shirley; at Spruce Swamp in Shirley Center; and at wetlands between Townsend and Longley Roads.

The Squannacook River and its tributaries. The Squannacook River forms Shirley's northeast boundary, flowing into the Nashua just north of Great Road where the Shirley, Ayer, and Groton town boundaries meet. It is a high-value riverine ecosystem with high aesthetic quality and significant wildlife habitat.

The Squannacook and its tributary streams are designated as Outstanding Resource Waters (ORW) under the Massachusetts Surface Water Quality Standards and the Squannacook-Nissitissit Rivers Sanctuary Act. Ideally, limits on discharges protect ORWs from degradation by new discharges of non-point source pollution. (Non-point runoff is surface stormwater flow, as opposed to industrial or wastewater discharges that flow out of pipes.) Land protection, especially protection of the riparian zone bordering streams and rivers, is one of the best ways to maintain water quality and protect it from non-point source pollution. A significant portion of the Squannacook basin is protected in Shirley at the Squannacook Wildlife Management Area, managed by the Division of Fisheries and Wildlife (DFW) in the northernmost part of town. The town's Pumpkin Brook Conservation Area and extensive associated conservation lands also provide good protection.

The state NHESP has identified several priority wildlife habitats connected with the river. Pumpkin Brook is a cold-water stream with trout. Trap Swamp Brook is another important tributary. The state has accomplished significant land protection along the Squannacook and its tributaries in Shirley, Lunenburg, Townsend, and Groton.

Recreational uses along the Squannacook include swimming, fishing, canoeing and kayaking, and nature observation including dragonfly identification, hunting, and hiking.

Mulpus Brook. The Mulpus Brook drains into the mainstem of the Nashua River just downstream of the Devens Wastewater Treatment Facility. Beaver Pond Brook is a major stream that feeds the Mulpus Brook and whose source water comes from a wetland complex at the base of Chaplin Hills. The Beaver Pond Brook corridor extends north and forms an almost continuous connection with the Bow Brook/Catacunemaug upland-wetland complex that extends south along the town's western boundary. The Mulpus Brook Wildlife Management Area (WMA) and the Hunting Hills WMA in Lunenburg are the largest contiguous blocks of conservation land in this sub-basin. MA DFW is working to acquire additional land along the Mulpus Brook Corridor. The Mulpus Brook sub-basin is currently under a medium level of stress due to run-off, sedimentation, and other non-point source pollution (Nashua River Watershed Association).

In the fall of 2000 the Shirley Greenway Committee did a stream-bank survey of Mulpus Brook. The brook was noted generally to have a good buffer (a strip of undeveloped land along the stream bank, which helps protect the stream from polluted runoff) and to be a high quality waterway. The survey noted several problems, including septic discharge at a mobile home park (which has since been removed), and sedimentation build-up at various road crossings. It would be useful to conduct a comparable survey again.

Catacunemaug Brook. The Catacunemaug flows southeast across south-central Shirley and reaches the Nashua River south of the Shirley Municipal Complex. Just north of the Nashua and Catacunemaug confluence is a portion of the Oxbow National Wildlife Refuge. Several wetlands identified by MA NHESP as habitat for rare wildlife species feed the brook. Several ponds are associated with Catacunemaug Brook, and Beaver Swamp, Spruce Swamp, and Bow Brooks also feed it. There are several town-owned parcels protecting portions of the riparian zone, including Holden Road Conservation Area. According to the Nashua River Watershed Association, threats to the brook and sub-basin include stormwater discharge, non-point contaminants, and road runoff.

Bow Brook is a major tributary of the Catacunemaug, originating in Tophet Swamp near the town's southern border and flowing northwest along the west boundary, turning eastward south of the old landfill site and flowing into the Leatherboard Pond before entering the Catacunemaug above the President Building in Shirley Village. The Bow Brook/Tophet Swamp complex is one of the most significant open space resources in Shirley, with coldwater brook trout, diverse wetland plant communities, a wide variety of wildlife, glacial features such as eskers and drumlins, and a mixture of wooded swamps, boggy fens, and extensive beaver flowages with large dams and lodges.

Walker, Morse, and Trout brooks. These are coldwater streams within the Nashua basin in Shirley. Walker, Morse, and Trout Brooks flow directly into the Nashua, and Bow Brook flows into the Catacunemaug. Like Bow Brook, these coldwater streams support brook trout and a diverse array of coldwater invertebrates and stream salamanders.

Brook trout are especially valued by anglers for the challenging fishing they provide. These fish require cold, clean water as habitat. Coldwater streams are scarce in eastern Massachusetts due to the density of development. In some, the water temperatures are becoming less cold, in response to changing temperatures through the year associated with climate change. Shirley is fortunate to have so many small but productive trout streams, and they represent a special resource that is largely unrecognized and unappreciated by many of the town's residents. Recent forest clearing and development in the basins of these streams threatens their unique coldwater characteristics and, over the long term, may affect the mainstem Nashua River, as well.

Anglers from eastern Massachusetts value the small trout streams along the Nashua. Shirley could promote recreational opportunities at the town's trout streams to out-of-town fishermen. Better recognition and appreciation of these remarkable streams by Shirley residents would also be desirable.

Lakes and Ponds

Lake Shirley is located mainly in Lunenburg, but it has 1,500 feet of shoreline in Shirley, c. 200-feet of which are now accessible to the public through trails on Conservation Restriction land in a private development at Lakeshore Drive. The lake itself is a private impoundment without public boat launches or other access.

Other ponds in Shirley include several natural and manmade ponds. Squannacook and Dead Ponds are natural ponds, both surrounded by undisturbed forest and shrublands. The Leatherboard, Fredonian, Phoenix, and Mill Ponds are examples of stream impoundments that were created to supply Shirley's historic mill industries. Fredonian Pond is an impoundment on the Catacunemaug Brook; it supplied hydropower to cotton mills in the 1800s, as did the Phoenix Pond directly downstream. Fredonian Pond is owned by the town but is unswimmable due to water quality issues; similar issues affect the privately owned Phoenix Pond. The area around Leatherboard Pond is privately owned and is not protected as open space.

There is some informal use of the privately owned Leatherboard Pond for swimming, as its cold springs provide welcome relief from summer heat. Some people fish in the Phoenix and Fredonian ponds; water quality in this reach of the Catacunemaug is not adequate to allow swimming, and probably fish from the stream should not be consumed. In the past, there was sometimes ice-skating on the Fredonian Pond, but for many years the ice has been unsafe for skating.

A few private ponds, most of which are small impoundments on small streams, provide aesthetic enjoyment, fishing, swimming, and skating for local landowners.

Groundwater and Aquifers

Groundwater is water from rain and snowmelt that has percolated down through the soil to a point where all the spaces between the soil particles are full of water. Water from lawn watering and other irrigation, as well as water infiltrated from septic-system leaching fields and

stormwater basins, also percolates through soil and becomes part of groundwater. Groundwater naturally flows through soil pores both downward and horizontally, always moving in response to gravity until it discharges into a wetland, stream, lake, pond, or ocean.

The top of the water-saturated soil is known as the water table. Above the water table, some of the soil pores contain water and some contain air – this is the area where plants grow best because they can obtain both oxygen and water from the soil. The location of the water table relative to the ground’s surface varies with the local topography and soils and with seasonal differences in precipitation and water-use by plants. The water table is usually lowest in late summer, when plant growth and evaporation – and human withdrawals from wells – have taken water out of the ground, and highest in early spring, before plants are growing and when snowmelt and spring rains have usually added to the groundwater supply.

Groundwater pumped from public and private wells provides drinking water to the town’s residents and businesses. Most soils can hold and transmit some groundwater, but certain soils are very porous and water flows freely through the pores. These soils are typically composed of sands and gravels. Wells can readily pump large amounts of groundwater in these areas. Such deposits of saturated water-transmitting soils are known as aquifers (from the Latin words for water and for bearing or carrying), and they are where public water supply wells, and wells for industries that need large amounts of water, are usually developed.

Shirley’s most productive aquifers are associated with thick deposits of glacial outwash sediments. Productive groundwater wells in Shirley and in the entire Nashua River valley are found where porous glacial sediments are between 75 and 95 feet deep. Low-yield aquifers are found in smaller valleys, such as the Squannacook River valley. (See Zones of Contribution to Public Supply Wells, Map 6).

The Shirley Water District well sites include the 50-foot deep Patterson Well, developed in 1977, and the Walker Road Well, also 50-feet, developed in 1985, both located in a fine sand and gravel aquifer on the west side of the Nashua River, between Walker and Patterson Roads; the Catacunemaug Well, developed in the 1930s next to Catacunemaug Brook on the west side of Shirley Village; a new (2016) well near Bow Brook, just over the Lancaster town line; and potential future well sites in North Shirley which include land in the Squannacook Wildlife Management Area and Cook Farm sites.

The Environmental Business Zone of Fort Devens is on the Shirley side of the Devens North Post and located within the aquifer that supplies the Patterson and Walker Road Wells. This zone includes the Devens Wastewater facility which treats all sewage from the Ayer, Devens, and Shirley sewer systems. A 100,000 square foot hydroponics greenhouse has recently been constructed in this area. The Devens MacPherson well is across the Nashua River and also draws from this aquifer.

Many other soils besides aquifers contain and transmit smaller amounts of groundwater, providing enough water to supply the needs of individual houses. With few exceptions, buildings north of Great Road and west of Center Road have private wells. Some of the older houses in Shirley have dug wells that collect groundwater from relatively close to the surface. More modern private wells are usually drilled deeply below the surface soil, often more than a hundred

feet deep, where they tap into water flowing through deeper soil layers or in water-bearing cracks in bedrock.

Protecting Shirley’s water quality and specifically its aquifer recharge areas has been an important town goal since the first OSRP. Because aquifer soils are porous and well drained, they are susceptible to contamination. In New England, forests are the best protection for water supplies, both because they remove contaminants and because they help ensure a continuous supply of high-quality water. In 1986, as part of the new Zoning Bylaw, the town created Water Supply Protection Zones associated with the Water District wells and developed land-use regulations to protect private water supplies to minimize the threat of pollution to these valuable town resources. These regulations have been updated in subsequent versions of the Zoning Bylaw and should be reviewed again.

Because of the town’s reliance on groundwater for its water supplies, stormwater management policies are extremely important in Shirley. By controlling construction- and post-construction run-off and instituting best management practices for municipal operations, communities can reduce the risk of non-point source pollution to wetlands, surface waters, and groundwater supplies. Effective and regularly maintained stormwater management systems are important to prevent public health problems by protecting the water supply and surface waters for clean drinking water. Responsible waste management practices and septic system design and maintenance at residential properties can also help to minimize the threat to Shirley’s aquifers and the groundwater that supplies private wells. Improvements to the Town’s stormwater management are needed to protect public wells, private wells and the town’s streams and wetlands.

Flood Hazard Areas

According to the Federal Emergency Management Agency (FEMA) 100-year floodplain areas in Shirley lie along the Nashua and Squannacook Rivers and the Mulpus and Catacunemaug Brooks. Several smaller tributaries have associated floodplains, including Bow, Spruce Swamp, Walker, Morse, Trout, Trap Swamp, Pumpkin, and Beaver Pond Brooks. These are areas that have at least a one percent risk of being flooded in a given year, based on historical records (see Map 13).

The Town of Shirley Protective Zoning Regulations and Non-zoning Wetlands Protection Bylaw, and the Massachusetts Wetlands Protection Act, restrict new development within the 100-year floodplain. Seasonal flooding occurs in some of these areas, such as along Walker Road and the southern portion of Clark Road, which were developed prior to these regulations.



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Wetlands

Wetlands are literally “wet lands” – areas where the soils are wet (usually saturated with water) during much of the growing season. The flooded soils are so low in oxygen that most plants of forests and fields cannot survive there. Wetlands are identified by the soils characteristics that indicate low oxygen due to flooding, and by the plants that have adapted to the flooded conditions. Unique communities of plants and animals live in these areas, and wetlands provide some of the most valuable wildlife habitats in Shirley. (See more on wetlands plants in section 4D, below.)

In addition, wetlands associated with open surface water provide valuable flood storage by acting as a sponge to absorb and gradually release water. Wetlands also allow water to seep into and recharge the groundwater. In doing so, wetlands act as natural filters that maintain water quality in surface water systems while serving as valuable vegetation and habitat for fish and wildlife.

Floodplains, open wetlands, and wooded swamplands cover approximately 1,000 acres of the town. The Mulpus and Beaver Pond wetland complex connect through Beaver Pond Brook to make up the largest wetland complex in Shirley. Tophet, Spruce, and Long Swamps cover approximately 300 acres.

Wetlands at lower elevations are generally associated with the regional water table. As a result, these wetlands have consistent water levels and tend to be very biologically productive. Some of these wetlands are located near lakes and streams, other wetlands derive water from groundwater seepage or surface runoff. Wetlands located at higher elevations tend to occur in areas where the water table is perched above bedrock or till. These wetlands tend to be small and isolated, and sometimes contain water only seasonally.

Beavers (*Castor canadensis*) were part of Shirley’s native wildlife when the first European settlers arrived. These animals live in and create wetlands by damming small streams to form ponds. Over time the beavers use up the local food supply and move on elsewhere; the dams break down; and the drained ponds gradually succeed through stages of wetlands growth to become meadows or wet woods, until the beavers move back and start the cycle once again. Beavers were extirpated from Massachusetts by trapping well before the start of the 20th century, but they were reintroduced in the late 1900s and have respread over the state. In Shirley they have changed many low woodlands back into wooded swamps with dead trees serving as nesting sites for Great Blue Herons, increasing the complexity of the plant communities and associated wildlife. This process is underway today along Spruce Swamp Brook as it flows through the Farandnear Reservation between Center and Holden Roads, and at Beaver Pond Brook flowing north from Whitney Road and Page Street.

Beaver ponds and wetlands are also very valuable as “sinks” for nitrogen – they trap nutrients that would otherwise enter streams and ultimately flow to the coasts, where they contribute to red tides and other algae blooms in near-shore ocean waters. Although beaver flooding can cause problems if the water table rises near buildings or septic systems, in undeveloped parts of town beavers are important ecological engineers that help the environment, create varied habitat for wildlife, and provide pleasure and other benefits for people.

Vernal Pools

Vernal pools are small seasonal wetlands that provide unique habitats for some species of amphibians and aquatic invertebrates. Unlike most wetlands, they usually occur in woods and lack vegetation, so they are identified by their seasonal flooding, their soils, and the unique animals that live in them. Some amphibians such as mole salamanders and wood frogs require vernal pools to complete their life cycles, and the pools are important wildlife habitat and sources of food and water for many other fauna. They contribute significantly to the biodiversity of the forest and are particularly important for rare species.

Vernal pools are vulnerable to development because of their small size and the fact that most dry out during the summer months, rendering them unrecognizable to the untrained eye. Also, the pools need associated areas of adjacent upland forest to be viable, since many species, including salamanders, spend only a portion of their life cycles in the pools; most of their lives are lived in the woods.

Vernal Pools can be protected if certified through the Massachusetts Natural Heritage and Endangered Species Program. Certification documents that a vernal pool exists and gives it some protections under various federal and state law, including protection under some wetlands laws, if the pool meets certain size and location criteria. In Shirley, vernal pools can also be protected under the town's Non-zoning Wetland Bylaw, without necessarily meeting all the state criteria.

According to NHESP, Shirley has thirteen certified vernal pools (see Map 12). The certified vernal pools are located through a central east-to-west band that bisects the town. Many other potential vernal pools have been identified and should be certified to provide further protection.

Two studies by Hyla Ecological Services (2005 and 2007) commissioned by Mass-Development for the Environmental Business Zone on the Shirley portion of Devens North Post, confirmed that the area contains over a dozen vernal pools supporting breeding populations of wood frogs and mole salamanders. The parcel supports at least two state-listed rare species, Blanding's turtle and blue-spotted salamander; it is also probable habitat for at least one other listed species, wood turtle. The 2007 Hyla study found this species in adjacent areas including Town of Shirley water supply land. The site is mapped by the state as Priority Habitat for rare species, and it forms a link between the Oxbow Refuge and Shirley's Rich Tree Farm open space parcel and water supply lands. It is also located within the Squannassit Area of Critical Environmental Concern (ACEC). Portions of this land have been developed in recent years, but the rest is now protected by Massachusetts Department of Fish and Game.

Other observations by local naturalists have documented the presence of vernal pools in many other locations within Shirley. Because vernal pools are small and shallow, and because their wildlife species are quite easy to observe, many people enjoy exploring and learning about vernal pools. There are great opportunities to involve the schools and scouts with landowners and conservation-minded residents to learn more about Shirley's vernal pools and to increase the proportion that are recognized and, as appropriate, protected. An Open Space Committee could continue to work with landowners to certify vernal pools, and also to advocate for protection and conservation land acquisition.

4D. Vegetation – Major plant communities in Shirley

The traditional New England landscape of open fields and forest is integral to the character of Shirley. Over 50 percent of the town is forested, although most of the large contiguous forested lands are being fragmented due to development (see Prime Forest Soils map 10 and Land-Use change Map 4). Plant communities in Shirley are characteristic of northeastern Massachusetts and generally consist of upland forests, wetlands, and grasslands. The mix of vegetation within these communities is critical for wildlife habitat and flood storage capacity, and it can buffer humans from noise and wind, help moderate our local air temperatures, and reduce manmade erosion and sedimentation.

Existing vegetation in Shirley can be roughly divided into the following plant communities. The locations are based on elevation, topography, ground water supply, and human use patterns.

Forest Plant Communities

The most common woodlands in Shirley are found on warm, south- and west-facing upland areas. They are successional forests, most of which have come in following farm abandonment in the 1800s or later. These woods are oak-dominated and include white pine, red maple, black birch, and pignut (or shagbark) hickory. This kind of forest can be observed at Rich Tree Farm. Thinner, relatively dry soils found on hilltops support some of the same species, as well as scarlet and black oaks and, in a few locations, pitch pine.

American beech, Eastern hemlock, and white birch appear on cooler, north-facing slopes and in some of the smaller stream valleys. This combination of tree species is common in the Massachusetts Division of Fisheries and Wildlife land near Squannacook Road and the DFW Pumpkin Brook area. Hemlock-dominated ravines surround sections of several of Shirley's small coldwater streams. An invasive, aphid-like insect from Asia is killing hemlocks, and it is likely that Shirley will lose its hemlock forests in the coming decades.

Lower-elevation forests include red oak and white ash. Eastern white pine grows in virtually all upland habitats and some wetland habitats, and it is one of the first tree species to appear on former agricultural land.

Historically, many of Shirley's forests have been rich in the wildflowers of early spring — so-called "spring ephemerals" that bloom before the trees leaf out and cut off sunlight from reaching the forest floor. Pink lady slipper, bloodroot, trilliums, wild oats, fringed polygala, and trailing arbutus (or mayflower – the official state wildflower), are among the spring wildflowers that can sometimes be found in Shirley's forests. Unfortunately, in some areas the expanding deer population has browsed the forest floor so heavily that local wildflowers – and young trees that would normally replace older trees over time – have been eradicated.

Many New England towns formerly had extensive town forests and used them for a combination of purposes, including the periodic generation of income from selective tree cutting. Shirley's

neighbor, Lancaster, is in the process of carrying out a forest cut in town land and generating significant revenue. In Shirley, the Conservation Commission is moving forward with logging plans at the Rich Tree Farm and Pumpkin Brook and hopes to show that public forests can generate an income for the town through sustainable forestry practices that maintain the recreation and environmental values of forested lands.

As part of the OSRP Action Plan, we are also suggesting that the town may want to consider promoting community forestry by both the town and the owners of private forest lands, as a means of protecting open spaces in Shirley while at the same time generating income and encouraging greater use of forested lands for recreation. Various towns have found this approach to be valuable for saving on the cost of public services that would be required if the land were developed, for stimulating outdoor-based tourism (which benefits local restaurants and other businesses), for maintaining the towns' rural character, and for protecting water supplies and other critical public resources that are threatened by extensive cutting and development of forested lands. Please see Appendix F for more on community forests and forestry.

Shade Trees

The public shade trees of Shirley are major contributors to the town's rural character, providing beauty, shade, comfort, fall color, public health benefits, and wildlife habitat. Old photographs of Shirley from the early 1900s feature country roads with deep shade from the over-arching tree canopy – something that can still be seen on portions of Benjamin, Center, Lawton, Townsend, and Great Roads. Mature elms and maples shaded the Common, and old photos of Shirley Village also show tall trees providing shade and beauty along Main and Front Streets, as well as along the residential streets throughout. Most of those early trees were killed by Dutch Elm Disease or felled by the great Hurricane of 1938.

The Devens Enterprise Commission has listed 13 different economic, environmental, and social benefits that shade trees provide (DEC 2013). Trees along roadsides and in parks and cemeteries make it comfortable for the pedestrian, and they make outdoor events more comfortable. They contribute to reduced driving speeds and fewer accidents. Trees also buffer the environment by absorbing water when it is in excess, and releasing it gradually later. Like all vegetation, they help refresh the air, and they are especially good at removing pollutants from the air along roadsides. Deciduous trees are major aids for temperature control in dwellings; and all trees help offset extreme temperatures, saving energy and reducing pollution. Further, they provide nesting sites for birds and small mammals such as squirrels and thereby add interest and pleasure for the public. And, in New England, the leaf-color changes that occur in fall provide dramatic seasonal beauty that is greatly appreciated, not only by local residents but also by tourists from far away. Given all of these benefits, it is not surprising that various studies have documented that shade trees can significantly increase property values and the desirability of neighborhoods.

Historically, public shade trees in Shirley have received positive attention from their human neighbors. For many years, the Town had an elected Tree Warden who was responsible for looking after public shade trees along roadsides and on other public lands. Private citizens also took an interest in the town trees. In 1930, the Community Club of Shirley Center undertook a survey to see where shade trees were needed, and in May of that year a detailed map of the

Center was drawn up to show where trees should be planted. It is unknown the extent to which this plan was implemented, but a number of roadside trees appear to date from about this period (Figure 7; courtesy of Paul Przybyla).

INSERT PHOTO FROM EARLY 1900S LOOKING DOWN Center Road from Shirley Center

Today, most of the trees planted in the 1800s and early-to-mid 1900s are in poor condition or gone. Dutch elm disease, road salt, pollution from traffic, and the other stresses of roadside life have taken a toll. Few roadside sugar maples or ash trees survive, and as noted above, many large trees have disappeared from roadsides throughout the town in recent years.

Ten-to-fifteen years ago, the town received a federal grant to plant trees around its newly constructed municipal buildings in the vicinity of Keady Way and the surrounding Hospital Road/Frost Street/Front Street triangle. Since about that time, the historically independent job of Tree Warden has been assigned to the Department of Public Works (DPW). The title "Tree Warden" disappeared for a while, but it has recently appeared again and been assigned to the head of the DPW.

Despite the many benefits that shade trees provide, they can also cause damage when they fall on buildings and vehicles, etc., or when their growth damages property. In December 2008 an ice storm in Shirley shut down power for many people for over a week when ice-weighted trees and branches collapsed and brought down power lines with them. A large white pine tree in the Shirley Center Cemetery grew to encompass nearby historic headstones, and subjected them to enough stress that they cracked.

A struggle over the fate of the rogue white pine tree in Shirley Center Cemetery awakened much public interest. The tree was a significant landmark, and was valued by a substantial number of

residents. In December 2012 it was decided to remove the tree, and a large stump is all that remains.

Since that time, decisions seem to have gone mostly against Shirley's roadside trees. The town has removed large numbers of them deemed to be public hazards, and National Grid, the local power company, recently removed over a hundred trees it felt might endanger the overhead power lines. Away from roadsides, swaths of forest trees have been removed, mostly on public lands, to install solar array fields. While solar power is highly regarded as a source for electricity in town, many believed at least some of the public lands where the array fields were erected to be protected from such industrial-scale development.

The recent loss of so many public trees has awakened citizen interest which may result in more detailed and conservative oversight of tree removal and planting. The impact one individual can have is evident in the re-greening of downtown Shirley Village – a resident planted seedlings several years ago, and they are now proving an attractive amenity along Front Street.

For the future, the Shirley DPW has modest plans to plant shade trees, although the town budget does not set aside any funds explicitly for this purpose. Resurrecting the traditional elected office of Tree Warden and establishing a Tree Committee might be good ideas for looking at town shade trees, learning how other towns are able to maintain shade trees along their main roads, and identifying ways that at least some of the beauty and functional benefits of roadside trees might be returned to Shirley's highways and byways.

Wetlands Plants

Shirley's wetlands communities include forested and shrub swamps, bogs, fens, wet meadows, marshes, vernal pools, and seasonally flooded areas. With the exception of vernal pools, each wetland type has its own characteristic plant community. There are excellent guidebooks and field guides to the plants found in wetlands, and comprehensive lists that are used by consultants and wetlands scientists to identify how much of an area's plant community consists of plants that are found only or usually in wetlands.

Bogs and similar wetlands that are watered only or mostly by rainfall and with low rates of water flow develop unique communities, with cotton grass (a bogland sedge with a white fluffy top), other sedges and grasses, *Sphagnum* mosses, and low shrubs in the heath family. Several kinds of orchids specialize in these bog habitats. The heath family shrubs tend to turn a deep red-purple in fall and winter, and the seasonal color changes are dramatic. These areas give a feeling of the wild north, much more common in New Hampshire and Vermont than in Massachusetts. Such wetlands can be found along Shirley's western boundary and at other scattered locations around town.

Swamps are wetlands that are dominated by woody plant species. Most of Shirley's wetlands are red maple swamps. These are dominated by red maples, but they include other trees including ash species, elms (that have so far survived Dutch elm disease), and black gum. They also contain a wide variety of woody shrubs and herbaceous species; in early spring it is sometimes possible to find black bears feasting on skunk cabbage. Many of Shirley's shrub swamps support

winterberry holly (*Ilex verticillata*), a tall shrub whose bright red clusters of berries provide dramatic color in the winter landscape and are used by some in making decorations for the holidays.

Some wetlands host specialized vegetation communities adapted to high water tables and acidic, low-nutrient conditions. Examples are Spruce Swamp, where heath-family shrubs such as blueberries and leatherleaf, *Sphagnum* mosses, sedges, various grasses, and various rare plant species are found (see Table 9, NHESP Species of Endangered, Threatened, and of Special Concern). Similar communities are found around Dead Pond and in the CR land off of Lakeview Drive.

Marshes contain deep water during the growing season and support cattails, water lilies, pickerel weed, arrowhead, and other aquatic plants. There is a zonation of different species extending from shallow areas near short to deep water. When water quality is degraded by salt and sediment, cattails tend to be replaced by common reed, *Phragmites australis*. Purple loosestrife is another plant that responds to degraded water quality; it is pretty to look at, but invasive and ultimately disruptive to the native plant community.

Wet meadows are wet seasonally, and their soils dry substantially during the growing season. Native wet meadows were originally mostly associated with river bottoms and floodplains and generally were flooded seasonally by the stream. Early colonial farmers harvested hay from them, and also from meadows that they established by removing woody plants as they cleared their farms.

Meadows are dominated by grasses, sedges, and a variety of other herbaceous flowering plants. Ladies tresses is a small native orchid that occurs in large numbers in some of Shirley's wet meadows. Most wet meadows in Shirley need to be mowed or grazed regularly, or they gradually succeed into first shrub swamps and then wooded swamps (usually dominated by red maple and, in many cases, European buckthorn).

It is important to permanently protect wetlands; they foster important biodiversity, help reduce flooding, and replenish drinking water. Wetlands are protected to some extent by federal and state restrictions on land use activities, but they are still at risk, especially when they receive flows of sediment and nutrient-polluted stormwater or septic system discharges. If an entire wetland cannot be acquired for protection, the buffer around the wetland should be acquired to protect the interior.

Grasslands

Grasslands include both wet meadows, discussed above, and upland areas dominated by grasses and herbaceous plants. As agriculture shifted westward from New England starting in the 1800s, many farm pastures and hayfields were abandoned and are now forested. Some grassland remains in Shirley, however, including: off Townsend and Lawton roads in DFW land; along Whitney Road; north of Route 225; off Center Road; and near Harvard Road. These areas are dominated by various grasses as well as a diversity of wildflowers. Without management the

fields often convert to shrublands and to early succession forests. This has been happening in some town conservation lands.

Hayfields and meadows that appear along roadsides in Shirley provide scenic vistas, including the town's Longley Acres conservation area on Whitney Road. In addition to the aesthetic value of an attractive rural landscape, these areas provide prime habitat for birds and butterflies and thus increase biodiversity (see Section 4E).

Maintaining grasslands can be a challenge in New England, because woody vegetation grows so rapidly and the natural tendency of the land is to succeed back to forest. Cutting grasslands requires time and equipment. Some of the conservation areas that have been donated to the town, for example, along Garrison Road, were supposed to be maintained as grassy fields, but costs and logistical challenges have prevented that from happening. The town should work with landowners to identify strategies for keeping some of the important grassland vistas and habitats open into the foreseeable future.

Rare Plants

According to the *Devens Open Space and Recreation Plan 2008 – 2013*, two species of rare plants occur along the MacPherson Road Corridor, wild senna and Houghton's flatsedge (*Cyperus houghtonii*), in the EBZ.

4E. Fisheries and Wildlife

The range and complexity of habitat types in Shirley, which support a wide diversity of wildlife and fish species, are due to the variability of soils, topography, water resources, and vegetation.

The town's primary habitat types are mature and successional upland forests and emergent, scrub-shrub and forested wetlands. The riparian wildlife corridors and wetlands along the banks of the Nashua and Squannacook Rivers and the smaller streams throughout the town provide habitat for a variety of wildlife that depends on riparian habitat; examples include otter, beaver, black ducks, wood ducks, wild turkeys, and muskrats. Since the last OSRP, bluebird nesting boxes have been installed around town, especially where open areas lie next to woodlands.

In recent years, there has been a dramatic increase in sightings of black bear, fisher, turkey, moose, beavers, and bobcats. Birdfeeders should be taken down from April to December to prevent conflicts with bears. Coyote and fox seem to alternate in abundance from year to year. White-tail deer are abundant, to the point where they are causing problems with over-browsing in the woods and damaging residents' gardens. Scat of otter and mink are sometimes seen along the town's streams, and otter slides can be found on streambanks of the Mulpus in winter.

Shirley's forests provide nesting sites for woodland songbirds that migrate here from South America each year, as well as for resident chickadees, nuthatches, blue jays, and crows;

woodpeckers including pileated, downy, hairy, red-bellied, and flickers; and others. Ruffed grouse, or partridge, used to be common in Shirley's woods, but they have become much more uncommon, possibly because of the aging of the forests. Barred and Great Horned owls are permanent forest residents, and their hooting during breeding season in midwinter is a delight. Red-winged blackbirds nest in the town's marshes, and Great Blue Herons in the tops of dead trees in forests flooded by beavers.

Certain species of birds that nest only in grasslands are of great conservation interest to the Massachusetts Department of Fish and Game. Most of these species need larger areas of continuous grassland than remain in Shirley, but others, such as bobolinks and Eastern meadowlarks, can do well in smaller meadows and fields. Having grassland areas under conservation protection is important for grassland bird populations, since early cutting of hay destroys the nests in which the eggs or young are sheltered and prevents these birds from successfully raising young. Landowners with open fields may want to consider managing their land for grassland birds and butterflies. Massachusetts Department of Fish and Game, MassAudubon, and a variety of other organizations have developed information on managing land for these species.

In spring, male woodcocks carry out their annual courtship display in grassy fields next to forest edges around dusk. They first sit on the ground, making a nasal "peenting" sound to attract females, and then launch themselves into the air in great swoops while air passing through their wing feathers makes a distinctive "whiffling" sound. They then drop to the ground and repeat the performance, often continuing for hours after dark. This is a natural phenomenon of spring that everyone in Shirley should have a chance to experience.

Woodcock are also gamebirds that are prized by hunters. Ring-necked pheasants and native Bob-white quail were formerly commonly found in Shirley, as they were stocked by the state, whose game-bird facility was just across the Nashua River in Ayer. The Ayer game farm has been closed now for many years, but pheasant are still stocked at the Squannacook Wildlife Management Area in Townsend and they may stray across the town line. Populations of quail, like partridge, have probably responded to changes in land cover, in this case especially the growing up of woody vegetation in former fields.

In addition to abundant bird life, the wealth of brushy and wooded habitat in Shirley supports abundant populations of red and gray squirrels, chipmunks, white-footed mice, and cottontail rabbits that serve as abundant prey for predators such as the owls; Swainson's and Cooper's hawks; bobcat; fisher; fox; and coyote. Shirley's reptiles and amphibians include Spotted and Jefferson/Blue-spotted salamanders; two-lined stream salamanders; spotted, Blandings, painted, snapping, and wood turtles; wood, green, pickerel, and bull frogs; American and Fowler's toads; spring peepers and gray treefrogs; plus black racers and milk, garter, brown, and water snakes.

The Nashua River and its tributaries contain warmwater and coldwater fish species. As noted above, native brook trout are found in a number of Shirley's small coldwater streams, and the Squannacook harbors brook trout and introduced brown trout. Warmwater fish include largemouth bass, perch, dace, and several species of sunfish such as bluegill, pumpkinseed, and black crappie. Maintaining these aquatic wildlife populations is important to the populations

themselves, to predators that feed on fish, to recreational fishermen, and also to foster environmental awareness and appreciation within town.

Insects and other invertebrates are also diverse and abundant in some of Shirley’s varied plant communities. Some that are especially interesting to watch and identify include dragonflies, damselflies, butterflies, and bumblebees. This is only a small sampling of the diversity of wildlife in Shirley residents’ back yards.

In addition to a wide variety of wildlife that are relatively common in this part of New England, Shirley’s diverse habitats also support a number of plant and animal species that are listed as rare in Massachusetts (See Table 9). Habitats for these species are important to consider for protection. According to the NHESP there are several areas of estimated rare species and priority habitats across the central and northern parts of town (see Map 12). According to the *Devens Open Space and Recreation Plan 2008 – 2013*, mussel surveys in the Nashua River alongside MacPherson Road yielded one state-listed mussel, the triangle floater (*Alasmidonta undulata*), and the American eel was detected.

The Massachusetts DFW owns approximately 822 acres in Shirley, providing habitat for common and rare species. Many state Wildlife Management Areas have restrictions against most recreation, allowing natural processes to occur while open only to public observation. An extensive wildlife habitat in the western part of town, the Hunting Hill Conservation areas, has been preserved in this way and connects to protected state-owned land in Lunenburg. Other important DF&G Wildlife Management Areas in Shirley are the Squannacook and the Mulpus (See Open Space Land Map 16). Because wildlife habitat is increasingly being lost to human activity, and because the simple presence of people disturbs some of the native species that state wildlife authorities are responsible for protecting, the DFG has recently adopted a policy limiting recreational use of Wildlife Management Areas. (See Appendix J).

Because Shirley’s rare species habitat spans land parcels held by a variety of government and private owners, this habitat should be managed in cooperation with neighboring communities and state and federal agencies. Protection of linked corridors of open space is important to the ecological integrity of the region, and not just Shirley.

Table 9. Rare and Endangered Species potential in Shirley

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Vertebrate	<i>Ambystoma laterale</i>	Blue-spotted Salamander	Special Concern	2006
Vertebrate	<i>Clemmys guttata</i>	Spotted Turtle	Delisted	2000
Vertebrate	<i>Emydoidea blandingii</i>	Blanding's Turtle	Threatened	2010
Vertebrate	<i>Glyptemys insculpta</i>	Wood Turtle	Special Concern	2007
Vertebrate	<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened	2011

Vertebrate	<i>Hemidactylium scutatum</i>	Four-toed Salamander	Delisted	2007
Vertebrate	<i>Notropis bifrenatus</i>	Bridle Shiner	Special Concern	1954
Invertebrate	<i>Alasmidonta undulata</i>	Triangle Floater	Delisted	2006
Invertebrate	<i>Anax longipes</i>	Comet Darner	Special Concern	2010
Invertebrate	<i>Neurocordulia obsoleta</i>	Umber Shadowdragon	Special Concern	2004
Invertebrate	<i>Ophiogomphus aspersus</i>	Brook Snaketail	Special Concern	2006
Invertebrate	<i>Rhionaeschna mutata</i>	Spatterdock Darner	Special Concern	1997
Invertebrate	<i>Somatochlora kennedyi</i>	Kennedy's Emerald	Endangered	1939
Invertebrate	<i>Strophitus undulatus</i>	Creeper	Special Concern	2006
Invertebrate	<i>Stylurus scudderi</i>	Zebra Clubtail	Delisted	2010
Invertebrate	<i>Stylurus spiniceps</i>	Arrow Clubtail	Delisted	2010
Invertebrate	<i>Notropis bifrenatus</i>	Bridle Shiner	Special Concern	1954
Vascular Plant	<i>Asclepias purpurascens</i>	Purple Milkweed	Endangered	1916
Vascular Plant	<i>Cyperus houghtonii</i>	Houghton's Flatsedge	Endangered	2006
Vascular Plant	<i>Lupinus Perennis</i>	Wild Lupine	Watch List	1997
Vascular Plant	<i>Lygodium palmatum</i>	Climbing Fern	Special Concern	Historic
Vascular Plant	<i>Senna hebecarpa</i>	Wild Senna	Endangered	1882

Source: Natural Heritage and Endangered Species Program (2014)

4F. Scenic Resources and Unique Environments

Shirley's scenic and cultural resources include historic buildings, agricultural lands and their settings, archaeological features and remnants, and archaeologically sensitive areas. Historic landscape features include stone walls, foundations, burial grounds, cemeteries, trails, and historic trees which are an important part of Shirley's history and cultural resource inventory. Various historic transportation routes offer views from the road into the town's past. Parker and Center Roads are designated scenic roads under the Massachusetts Scenic Roads Act. Shirley's Historic Town Center and the Shaker Village are traditional New England villages and are designated scenic areas by the Massachusetts Landscape Inventory. In addition, various natural and conserved features in the town have been identified by residents as of especial scenic, recreational, natural, or cultural value.

In Shirley Village, the President Suspender Factory, the Umbagog Mill Building, and the Shaker-built Phoenix Mill have been restored and are being adaptively used for modern businesses. Several other centuries-old buildings are found on Front Street and have been adapted over the years so that they continue to house local businesses. The old town police/fire station, the former Municipal Building, and the original Hazen Memorial Library are now in private ownership and have been restored for residential or other uses. All of these improvements have been carried out by private businesses and individuals, and not by the town. The revitalization of these historic features demonstrates civic pride and a commitment to Shirley Village improvements. Similarly, in Shirley Center, the historic Meeting House has been restored and is in the process of being made accessible to those with disabilities.

Map 11 shows areas of special interest in Shirley. These include historic Shirley Center; Green Lane, a tree-lined former road on the east side of Parker Road, down which volunteers marched on their way to fight the British in Concord and Lexington; Farandnear Reservation and its Paradise Gorge; Benjamin Hill Park, Recreation Area, and Conservation Area; Tophet Swamp; the remains of the Shirley Shaker Village at MCI-Shirley, including Holy Hill and the Shaker Cemetery; Front and West Main streets in Shirley Village, with their historic buildings from the 18th and 19th centuries; Longley Acres Conservation Area; the Fredonian Park Forest; Kezar, Brattle, and Hunting hills and their scenic vistas; the hayfields and meadows of the Longley Homestead on Center Road; Holdenwood private conservation land in Shirley Center; the Woodsville historic site along the Mulpus; the old creamery site off of Townsend Road; and the MA DFW's Mulpus, Hunting Hill, and Squannacook Wildlife Management Areas.

4G. Environmental Challenges

Due to a lack of heavy industrial sites, Shirley has relatively few severe environmental problems, but past history, unplanned development, and other pressures have left their mark. Unchecked, they will continue to be a threat to Shirley's future ecological and economic health. Potential environmental challenges to open space, recreation, and conservation goals include hazardous waste, erosion and sedimentation, non-point pollution, invasive species, off-road (and off-trail) vehicle use, environmental equity, illegal dumping, and poorly planned development.

Hazardous Materials

According to Mass DEP, since 2007 Shirley has had eight hazardous waste releases or sites requiring clean-up under Mass. General Laws Chapter 21 E. Of these, two involved hydraulic fluid leaks from vehicles, and six involved fuel oil spills. Most of these are not pertinent to Open Space and Recreation planning.

Some Shirley businesses are generators of small amounts of hazardous waste which are disposed of according to state law by licensed transporters and facilities. Proper management of hazardous materials by local businesses according to the state's regulations is not a concern for open space and recreation lands in Shirley.

However, Parcel K of the Apple Orchard Estates subdivision on Lancaster Road is covered by a large mound of soil contaminated with copper, arsenic and other toxic residues from the former orchard on the property. The soil was excavated from the former orchard when the subdivision was built and was stockpiled behind the former Shirley Airport. The soil is not of public health concern unless it becomes airborne. However, the pile has not been capped properly on one side, and until the final side is closed off the soil pile poses a potential threat to public health and the environment. Of particular concern is the large adjacent section of the orchard that has not been developed and that now appears destined to become permanent conservation land associated with the project. The possibility of illegal ORV use of the site, and the issues associated with the uncapped side of the contaminated soil pile, are of concern and need to be addressed both in the near term (capping the pile), and over time (monitoring the stability of the pile and cap). The Shirley Board of Health and Planning Board are investigating this issue.

There continues to be public concern that the playing fields behind the Lura A. White School may have undergone contamination from the soils at the Apple Orchard Estates property, either during construction or earlier when the land was in active use as an orchard. These concerns have limited public willingness to improve the fields so that they could be used more extensively for recreational programs in town. It would be worthwhile to have the soils tested to determine once and for all whether there is contamination and, if so, its extent and possible options for remediation.

Landfills, Gravel Pits, Junkyards

Shirley's closed landfill is near the Catacunemaug Well aquifer; it has been capped and maintained as grassland, and monitoring wells track groundwater quality. As of late 2016, a portion of the landfill area has been converted to solar panel arrays that will generate electrical energy for National Grid and provide lease and tax money for the town. Ongoing groundwater monitoring must continue to ensure that the landfill cap remains intact, that erosion and sedimentation do not occur, and that groundwater and the adjacent wetlands remain uncontaminated. This is of special concern in light of serious erosion and sedimentation occurring at solar arrays on water supply lands between Patterson and Walker Roads.

The former Shirley Greenway Committee erected bluebird boxes on the landfill and other degraded sites. In future there may be potential for recreational use of the main body of the closed landfill, which does not support solar arrays; for agricultural use as pasture for sheep (as is currently being practiced in Leominster) or hay harvesting; or for managing the area as a small grassland for bobolinks or other grassland species.

Vehicle salvage yards and gravel pits pose environmental threats. In regard to open space and recreation land, salvage yards pose threats to water sources due to contaminant leakage, and gravel pits increase risks of erosion and sedimentation into surface waters, and of contamination of groundwater resources. Most of the former junkyards in Shirley have been closed, but two extensive vehicle salvage yards remain. Both of these are in close proximity to streams and wetlands associated with Mulpus Brook. Careful monitoring and diligent attention to land use at these sites is important to protect Shirley's critical water resources.

Active gravel removal operations along Shirley's western border are close to impinging on wetlands and streams. They need to be monitored and efforts should be made to ensure that they do not move into Tophet swamp and other critical natural resource areas.

Sewage Disposal

Since Shirley was first settled, human waste disposal has been localized close to dwellings and work places. This resulted in pollution of streams and groundwaters. A sewer collection system was installed in part of town in 2004, which has remediated some of the worst pollution, especially in Shirley Village, where high building densities, the proximity of many buildings to the Catacunemaug Brook, and the common use of cesspools overloaded the capacity of soils to treat the waste. There are still buildings within the Sewer District, including town-owned structures, whose plumbing is not yet connected to the sewer system. Shirley needs to address this issue so that water quality will improve and public benefits from clean water can be realized. The Massachusetts Department of Environmental Protection has identified septic systems as a potential threat to the town wells, and, as noted above, contamination with *E. coli* bacteria and nutrients is a problem in the Mulpus and Catacunemaug Brooks.

Where the sewers do not extend, septic systems range from new raised beds (often installed at older houses as part of the requirements when a property was being sold) to very old systems that are poorly maintained and may not function effectively to remove organic wastes and nutrients. Some systems were initially installed too close to streams and wetlands, or over marginal soils, so that there is not enough time for the soils and microbes to treat the septic leachate before it travels to groundwater and surface waters. Since areas without sewers are also areas where residents depend on private wells for their drinking water, Shirley needs to do more to educate and assist land owners in evaluating their septic systems and, as appropriate, upgrading them.

Erosion, Sedimentation, Non-Point Pollution

Human land-alteration activities such as residential development and road construction have caused erosion and sedimentation in Shirley. Even small land disturbances associated with development can lead to severe erosion and sediment deposited in streams and wetlands if proper controls to prevent it in the event of heavy rains are not implemented.

Small-scale disturbances, such as using chemical lawn fertilizers or unmaintained septic systems, can significantly impact fragile ecosystems. Off-Road Vehicle use has caused severe erosive damage to trails as well as streams. Some recently constructed solar arrays have not been revegetated as planned and are experiencing severe erosion. The Shirley Planning Board is currently addressing these issues.

Through various regulations and educating the public on the hazards of these practices, erosion and sedimentation challenges can be monitored. Non-point pollution comes mainly from road runoff due to high volumes of cars and trucks on the roads and bridges, and from erosion and sedimentation from disturbed land surfaces (Nashua River Watershed Association). Best Management Practices and stormwater management plans can alleviate these hazards; for instance, catch basins and road-side swales absorb run-off before it hits streams and streams.

It is important for Shirley's DPW, Zoning Inspector, and Conservation Agent to have the time to visit construction sites and recent development projects to ensure that bare land has proper erosion controls and sedimentation barriers in place to prevent the loss of soil and the transport of sediment into wetlands and streams, and that disturbed areas are properly revegetated so the erosion does not occur after construction. Cuts in hours for land protection positions over recent years have led to neglect of these important oversight responsibilities.

Consistent monitoring to ensure that conditions imposed in site plan approvals and wetlands permits have been complied with is critical to ensure protection of the town's sensitive resources.

Invasive Species

Invasive species are plants or animals that grow rapidly and take over land or water habitats or attack particular species of plants or animals. They can be a threat to native species throughout Shirley. Residents at public meetings noted invasive garlic mustard, Russian olive, purple loosestrife, Japanese barberry, Oriental bittersweet, and European buckthorn as invasive plants that have been identified growing around Fredonian Pond, in the Devens open space, the Oxbow National Wildlife Refuge, and near the Ayer-Shirley Middle School. Invasives often out-compete native species, resulting in reduced biodiversity.

An invasive, aphid-like insect, the hemlock woolly adelgid, is moving north through Massachusetts. This tiny insect attacks hemlock trees of all ages, attaching to the base of the needles and sucking out fluid. The trees are weakened, shed their needles, and typically die within a few years. Major losses of hemlocks will dramatically change the character of many of Shirley's small coldwater streams, reducing shading, increasing air and water temperatures, and removing a beautiful and beloved kind of environment that brings rest and healing to those who rest in its shade.

Off-Road Vehicles

Motorized vehicles are prohibited from private land without the owner's permission under Massachusetts state law. They are also prohibited from public land unless such uses are authorized. Unfortunately, Shirley has a long history of flagrant violation of these rules by motorcycle riders and ORV drivers. The land surrounding the Patterson and Walker Road wells is crisscrossed with ORV trails, and stream banks are broken down and eroded. The power line

corridors through the town have become highways for ORV enthusiasts. Owners of private conservation lands off of Center and Holden Roads have experienced extensive damage to their property, caused by illegal use of the trails on their land by ORV drivers. With the current increased interest among Shirley residents in opening up trails and distributing information about where they are located, there is concern that ORV damage may increase. This is an issue that needs to be addressed.

Environmental Equity and Accessibility for the Disabled

As discussed earlier, some of the low-income and minority residents in Shirley do not have equal access to all of the town's open space and recreation areas. People with disabilities that limit their mobility are often excluded from town-owned open spaces and some recreational areas. Limited infrastructure such as sidewalks, bike lanes, and public transportation put a majority of conservation and recreation land out of reach to those who do not own a vehicle. For instance, the main recreation area in Shirley is at Benjamin Hill, and there are no sidewalks for walkers or bikers seeking to get to the site. This is symptomatic of design and planning that primarily accommodates automobiles. On the other hand, Benjamin Hill does provide access to the pool and other facilities for people who are wheelchair-bound.

Solutions include providing a greater variety of recreation resources, such as additional basketball courts or playgrounds in the Shirley Village corridor, where most low-income and minority populations live; promoting sustainable initiatives such as smart growth development; providing recreational facilities, open spaces, and community gardens from the Village to North Shirley; expanding services so that residents do not need to travel as far for basic necessities; and developing more facilities that provide open space opportunities for those in wheelchairs or otherwise limited in mobility.

Illegal Dumping

There is a long history of illegal dumping away from roads in Shirley. Many private owners of wooded lands have had the experience of finding trash bags or discarded electronics and appliances on their property. Aerial images show several locations in Shirley with large accumulations of appliances and other large items. Examples include the northern end of Tophet Swamp, next to the former Shirley Airport, and on the south side of Catacunemaug Brook along the Indian Trail. Property owners may be stockpiling metal items for eventual recycling when the price of metals increases, or they may be unwilling to pay the cost of removal of large items that are no longer functional. In addition to being an eyesore and a potential source of physical injury, dumped appliances and motor vehicles have the potential to leak toxic fluids and contaminate soils and water resources.

Poorly Planned and Implemented New Development

Development has the potential to cause increased erosion, sedimentation, flooding, pollution, fragmentation of habitat and open space. As the population expands there will be increased

pressure to develop near or in wetlands. Currently Shirley has several bylaws in place to prevent fragmentation of habitat, open space and conservation lands from development. These include the town's Low-Impact Development Bylaw, Non-zoning Wetland Bylaw, and Protective Zoning Bylaw. Also in place are the Massachusetts Wetlands Protection Act and the Massachusetts River Protection Act. Through proper enforcement of these acts and ordinances the town can minimize the impact of development. In addition, Title V, the state's wastewater disposal regulations, has reduced potential impact in areas not within the sewer district. However, there has been concern among town residents since the last OSRP (1996) over allowing septic systems and development in areas with low percolation rates and areas with shallow bedrock. The addition of sewer access and enforcement of Shirley's stringent septic system bylaw has helped reduce the risk of faulty septic systems in some areas, but it has increased the development of poorly drained parcels, increasing problems with stormwater runoff (Shirley Protective Zoning Bylaws).

Relaxation of former restrictions on development within 100 feet of wetlands has been a concern expressed by some residents. Stronger enforcement of existing Resource Protection Bylaws, including the town's Protective Zoning Bylaw and its non-zoning Wetland Bylaw, is necessary to protect critical resources on which the townspeople depend – including water supply. An ongoing process for identification of undeveloped land should be established, and the data on such land should be continually be updated to accommodate the demands of an increasing population, which will put strain on water resources.

Because Shirley has many areas of well drained soils where development poses potential risks of groundwater contamination, planning and implementation of industrial and commercial development, and of new residential subdivisions, needs to be carried out carefully and with due care to ensure protection of the town's water supply. Few large areas are available that lack wetlands or critical water resources.

Environmental challenges should be met at all levels: residents, business owners, agencies, funders, committees, and town governance. Open space advocates should market the economics of open space; conservation land reduces costs of services to the town, maintains or increases property values, stabilizes property taxes, protects ground water recharge areas, and in many instances generates revenue for local business from ecotourism (Kerlinger, 1999, see Appendix K). Adequate staffing, resources, and collaboration of town boards and administrators, open space advocacy, educating the public, passing preservation ordinances, creating regional partnerships that serve to protect open space, faithfully implementing environmental laws and regulations that have been adopted by the town, and remediating environmental damage will preserve the town's resources and open spaces for everyone.

SECTION 5. INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

This Chapter of the OSRP focuses on Shirley’s land – the protected open space and recreation areas, and areas that are potentially of interest for conservation and recreation uses into the future.

The Chapter begins with a brief summary of some of the many benefits that open space and recreation lands provide to Shirley residents.

Second, it describes ways that open space and recreation land can be protected in Shirley.

The bulk of the chapter is devoted to an overview of open space and recreation areas in Shirley. Included is a brief listing of parks, recreation areas, and open space/conservation lands, organized geographically from North to South. This is followed by an inventory of public lands, including those that are permanently protected for open space and/or recreation uses; private lands protected in perpetuity by conservation restrictions; private lands that will become available for the town to acquire if the owners decide to sell or change the land use, because the parcels are classified under the Chapter 61 taxation program (described below); and certain tracts or parcels of land that are of general conservation interest but are not currently under any form of permanent protection.

Appendix C expands on the text with a Table that provides a highly detailed inventory, including information on accessibility for people with disabilities, as well as the potential for future recreational activity and an estimate of the cost of making that happen, and a timeline for improvements, as appropriate.

Some of the listed properties are already protected open space dedicated to conservation or recreational use; others will be identified for future acquisition or other protection measures. Varying degrees of protection are associated with each of the parcels in this inventory. Consistent information about each parcel was not always available and future detailed property inventories are planned on public recreation and conservation lands.

What is Open Space, and What is it Good For?

The term “open space” is often used to refer to conservation land, forested land, recreational land, agricultural land, corridors such as small parks or green buffers along roadways, developed city or town parklands, or any open area that is owned by an agency or organization dedicated to conservation. However, the term can also refer to undeveloped land with particular conservation or recreation interest. This includes vacant lots and brownfields that can be redeveloped into recreation areas. Some open space can be used for passive activities such as walking, hiking, and nature study while others are used for more active recreation such as soccer, tennis, or baseball.

Shirley’s open spaces and recreation areas include parks, playgrounds, athletic fields, trails, woodlands, meadows, wetlands, greenways, streams, and ponds. Some are owned by the Town of Shirley or another public body, some are private property. Some are protected, many are not. Some are actively managed, and nature has her way largely unmolested on others. Some are

available for public recreational access, some are not. But, regardless of ownership or management, collectively these lands provide many benefits to town residents, including:

- recreational opportunities for sports, walking, and other outdoor activities,
- formal and informal gathering places,
- venues for ceremonies and celebrations, such as Memorial Day observances, Farmers' Markets, concerts, and the all-Town Hoe-Down,
- drinking water for public and private wells,
- combatting climate change by storing an estimated 85 tons per acre of carbon each year, according to MA EOEEA/Department of Conservation and Recreation
- lowering air temperatures in summer by up to 10 degrees,
- enhanced property values,
- "rural" town character,
- health benefits from physical exercise and mental relaxation, including demonstrated lowering of blood pressure and stress hormones
- forest products including firewood, bark mulch, maple syrup, nuts, and lumber
- a wide variety of wildlife including birds, mammals, amphibians, reptiles, butterflies, dragonflies, and other invertebrates, and
- spiritual, aesthetic, educational, and intellectual well-being.

Ways to Protect Conservation and Recreation Land

Deed restrictions

Private land can be protected in perpetuity if there is a conservation restriction (CR) placed on the property. The property owner maintains their ownership and land-use rights, while protecting their land forever from development and other detrimental activities. A CR is put in place through a legally binding agreement that the landowner enters into with a qualified conservation organization or agency. This agreement becomes part of the property deed. With Commonwealth and Town approval, the CR may lower property and estate tax liability as well as conserve the resource.

The conservation organization that monitors the restriction to make sure its conditions are met can be the Town Conservation Commission, the Commonwealth of Massachusetts (Division of Fisheries and Wildlife or Department of Environmental Management), Massachusetts Audubon Society, The Trustees of Reservations, New England Forestry Foundation, Nashua River Watershed Association, etc., depending on the nature of the restriction. Other deed restrictions could include Agricultural Preservation Restrictions, historic preservation restrictions, or scenic resource restrictions. The agency or organization that holds a conservation restriction is legally responsible for checking the land each year to make sure that the conditions of the restriction are being adhered to.

Conservation restrictions running in perpetuity have historically been protected under Article 97 of the Articles of Amendment of the State Constitution. To be sure that this protection is in

place, Article 97 should be explicitly cited in the deed restriction (see below and Appendix H for more on Article 97).

In Shirley, approximately 745 acres of open space are permanently protected by 16 conservation restrictions. Agencies and conservation organization responsible for overseeing and enforcing these CRs include the Shirley Conservation Commission, Mass Fish and Game, The Trustees of Reservations, and the New England Forestry Foundation. Most of these restrictions, encompassing more than 240 acres, are held by the Shirley Conservation Commission, which, like other CR holders, is legally obligated to inspect each land parcel annually to ensure that the boundaries are not being encroached upon and that unauthorized activities are not being carried out on the land. This is a substantial responsibility and it is one that, in recent years, the Town has not had adequate staffing to accomplish. The Action Plan of this OSRP recommends improving compliance with the requirement for annual inspections of lands with CRs held by the Conservation Commission, and suggests a review of the way that CRs are established through the Planning Board's permitting process for new subdivisions and cluster developments.

Fee Ownership

Ownership of open spaces and recreation lands by a town, state or federal agency, non-profit organization, or private trust can provide permanent protection for open space and recreation lands, provided the deed specifies that the land is permanently protected. Some private non-governmental organizations have land protection as part of their mission and they hold land as part of that mission. Commonly a CR confirms the intent of ownership as long-term protection. In Shirley, a number of town conservation areas, lands owned and managed by the Shirley Rod and Gun Club, and The Trustees of Reservations' Farandnear Reservation are examples.

Article 97 of the Amendments to the Massachusetts Constitution

Article 97 of the Massachusetts Constitution grants state residents a right to a clean environment, and it provides for conservation restrictions to ensure that land acquired for conservation purposes would not be converted to other uses at a later date. For many years, lands acquired for watershed and aquifer protection were considered to be permanently protected open space, and other lands acquired by cities, towns, and other governmental agencies for conservation were also considered to be so protected. Article 97 lands cannot be converted to other non-conservation uses without the approval of the community's Town Meeting or City Council, Conservation Commission, and both houses of the state legislature.

Recently, the protected status under Article 97 of many conservation and water supply lands has been questioned due to pressures of economic development in many towns. It is now considered a good idea to explicitly include a reference to Article 97 in the deed of lands that are intended to be protected for in perpetuity for conservation, recreation, and/or open space.

Public lands used for recreation and conservation may be permanently protected open space (Article 97 land), provided they have been dedicated to such uses as conservation or recreational use by deed. If such lands have been purchased with state funds dedicated to conservation or

open space protection, Article 97 automatically applies. Again, it is a good idea to have Article 97 explicitly incorporated into the deed, as well (See Appendix H).

Land Trusts and Conservation Organizations

Some private organizations are explicitly chartered to hold and protect land. Land trusts and conservation organizations such as The Trustees of Reservations and the Massachusetts Audubon Society are good examples. It is still a good idea for lands owned by these organizations to have CRs or other deed restrictions on them, in case of changes in organizational goals or other variables that might change the use of a land parcel from conservation purposes in the future. When a conservation organization obtains title to private land, the land becomes exempt from property taxes. There are advantages to a town in that conservation lands do not generally require services from the town. In some cases it may be preferable to have conservation land remain in the ownership of individuals, with a CR held by a conservation organization, so that the land is still within the town's tax base – although at a lower rate than if it were developable.

Conservation Zoning

Many towns in Massachusetts have incorporated provisions into their zoning and other bylaws to protect land while not unduly restricting development. Shirley at one time had provisions in its cluster zoning bylaw and regulations that encouraged greater housing densities in exchange for developers' setting aside significant areas of protected conservation land with permanent restrictions on future development. This system provides amenities for owners of the new properties, saves on development costs because less land needs to be disturbed and road distances are shorter, and ensures the protection of important woodlands, wetlands, and other open spaces that contribute to Shirley's valued rural character, as well as to wildlife habitat, water resources protection, temperature modulation, and many other values noted above. A thorough discussion of conservation zoning is more appropriate for the Master Plan than the OSRP, but one of the Action Items identified in this plan is a review of and improvements to the town's conservation zoning, non-zoning wetlands bylaw, and other pertinent bylaws.

Revocable Private Trusts

Several private trusts own conservation land in Shirley. For example, the Hoddy Brook Girl Scout Camp on Whitney Road is owned by the Hoddy Brook Trust; a number of undeveloped parcels in Shirley Center and several elsewhere in Shirley are owned by the Holdenwood Limited Partnership, formerly the Holdenwood Trust; and the Field Family Trust owns Valley Farm off of Center and Holden roads. Some of the Holdenwood and Valley Farm parcels are permanently protected through Conservation Restrictions, but others are not. If land owned by a private trust is not permanently protected by a CR, the land can be developed or sold if all or a majority of the trustees agree (the details depend on the documents that established and govern the trust). While it is unlikely, any of these private trusts could decide at some time in the future

to disband and sell lands under their ownership, if the lands are not protected through CR or other instruments that restrict future development.

Chapter 61 Tax Classification of Certain Forest, Agricultural, and Recreational Lands

Under MA General Laws, Chapter 61 is a special voluntary program that allows people to pay reduced property taxes in exchange for managing their lands for certain uses that are considered to provide a public benefit. Land classified under this Chapter receives a lower tax assessment compared to the full “best use” assessment, which is usually based on the land’s development value. There are three classes: Chapter 61 lands are actively managed by their owners for forestry production, according to an approved forestry plan; Chapter 61 A lands are maintained in agriculture and must produce a minimum amount of farm income each year; and Chapter 61 B properties are used for recreation and/or nature study. Property owners are not required to allow public access to obtain the tax benefit of classification.

So-called “Chapter land” is not permanently protected. If a landowner wants to change Chapter land to a different use, the owner needs to pay five years’ worth of back taxes at the full-development rate, and the town has the right to purchase the land at its full market value. This means that the town has the right to purchase the land before anyone else, at the market rate. Therefore, if land is classified under Chapter 61, the town has a tool it can use for planning for future land acquisition. When a Chapter 61 parcel goes on the market, it can provide an opportunity for the public to purchase land that the voters determine is important.

However, there is often little warning before a parcel of Chapter land becomes available. And, when a landowner decides to sell Chapter land, there is a relatively short time window within which the town must act if it wants to purchase. In the past, a lack of funding has prevented Shirley from acting to acquire Chapter lands identified as important conservation parcels. Therefore, it is important to assess these parcels for suitability for possible future protection, to strengthen the Conservation Commission’s Land Fund, and to plan for funding of future purchases of Chapter lands should they come up for sale. (See Action Plan in Section 8, and Acquisition Assessment in Appendix.)

Again, although these lands are not permanently protected and can be taken out of conservation use at any time, the right of first refusal means that the town will have the opportunity to purchase parcels if the owner decides to change the use. Unfortunately, the time-frame for deciding to exercise the right of first refusal and to acquire a Chapter parcel is limited, and unless funding is readily available the opportunity can slip by. Many of these parcels abut currently permanently protected land and other open spaces. If acquired by the town or another public agency, or by a land trust or conservation organization, they may add to current conservation and recreation land, enhancing their value by providing greater ecological services and widening corridors for human and wildlife use. The Conservation Commission should be made aware of parcels that become available.

An Overview of Shirley’s Open Spaces, From North to South

Below is a brief overview of the kinds of open space and recreation lands found in Shirley, their locations within the town, their uses by and benefits to the townspeople, and issues identified during the preparation of this Open Space and Recreation Plan.

This overview is followed by a more detailed summary of public and private open spaces.

For more information, Appendix C provides a comprehensive and highly detailed inventory of open space and recreation lands in Shirley, including protected land and other land of conservation interest.

1. Parks and Recreation Areas

Public parks and formally developed recreation fields are in short supply in Shirley. More are needed. Those that exist are for the most part heavily used by the public.

North Shirley

There are no public parks or playing fields in North Shirley.

Shirley Center

The only athletic facilities in Shirley Center consist of a small field next to the Senior Center used for youth soccer for young children. The Boy Scouts play on the Training Field in front of the old Town Hall and Meeting House.

The Center Town Hall is in public ownership, as are the adjacent Hearse House and old Town Pound. It was Shirley's first Town Hall, formerly housed the Shirley Center Post Office and the offices of several town boards, and was the site of Town Meetings and other public gatherings for many years. Today, it is an important gathering place for the general public as well as for private groups. Maintenance and management of the Center Town Hall is the responsibility of the Center Town Hall Committee, which also must raise all funds expended in and for the building. Efforts are underway to have the Town Budget pay for some of the costs of maintaining this important historic structure.

The adjacent historic Shirley Meeting House is privately owned by a non-profit historic preservation group, the First Parish Meeting House Historic Preservation Society, but it sits on Town-owned land. The Meeting House is an important venue for concerts, recitals, and small-scale dramatic performances. These are often sponsored collaboratively between the Meeting House and the Center Town Hall.

The Training Field, Shirley Center Cemetery, and Common are used collectively for Memorial Day observances. The annual Hoe Down, summer concerts sponsored by the Shirley Charitable Foundation, and summer-fall Farmers Markets are held on the Training Field. The Hoddy Brook

Girl Scouts' Campground at the west end of Whitney Road was in the past used for camp-outs, and the scouts use it for hiking and other purposes.

Between Shirley Center and Shirley Village

Benjamin Hill Recreation Hill Area, which in the 1960s operated as a low-elevation ski area (for which WBZ radio in Boston used to report snow conditions on the upper and lower slopes!), today supports the town swimming pool and bath house, the Mystical Maze climbing structure and playground for children, a basketball court (located on what was originally tennis courts, and later a skateboarding area), and a skating rink (completed in 2015). In winter, the hill slope is used for informal winter sports such as sledding and snow tubing.

In addition to the Town-owned Benjamin Hill area, The Trustees of Reservations, a state-wide non-governmental conservation organization, now owns Farandnear, formerly the Banks-Goodspeed property between Center and Holden Roads. The eastern part of Farandnear, just west of the entrance from Center Road, includes an open-air pavilion, restrooms, and a space where parties and events can be held, as well as a pinetum (a horticultural collection of pine trees from all over the world). Farandnear also has hiking trails, the remains of a historic inland cranberry bog, and diverse wildlife habitat, described under Conservation Lands, below.

Shirley Village

Whiteley Park is a quiet place to sit and is used for events including Memorial Day ceremonies and the starting point for the annual Halloween parade down Front Street. The lawn in front of the Town Office Building, Library, and Police Station has been used for summer concerts, and it also provides a place for political speech and posters at election times, and for Frisbee and other informal play by students from the Ayer-Shirley Middle school. There are plans to put a gazebo on the lawn and to use the area for more cultural and civic events.

Playing fields south of the Ayer-Shirley Middle School on Devens land were rezoned for mixed residential and commercial use in 2015 and will no longer be available for recreational use by the school, youth league, and adult athletic teams. The area directly behind the Middle School contains buried demolition debris including concrete and metal and needs considerable work before it could be safe for use as sports fields. This area is also under the control of the Devens Enterprise Commission, which limits the Town's ability to make improvements.

Fredonian Park and Nature Center opened to the public in 1978. The park has a bandstand, open areas, a stream and pond, and trails. Unfortunately, Shirley residents have never used the area well as a park. There may be potential for winter skating on the pond, although it reportedly does not freeze as well as in the past. It is also possible that better lighting, or formal programs of concerts and other activities might make a difference in the public use of this facility. Some work is needed to make the trails at the park accessible to people with disabilities.

Some years ago, the old, asphalt-floored playground at Lura A. White School was deemed unsafe for children, and a new, community effort led to the construction of a new, modern playground to replace it. Another playground using portable toys for younger children has been established on the front lawn. The recreation fields behind Lura A. White are small, have serious drainage problems and are in poor condition. Plans are underway to create an accessible trail that goes around the school and fields.

South Shirley.

Just over the line of the MCI property on Wilde Road are athletic fields that the Shirley Recreation Commission has used for many years as playing fields for youth and adult team sports. The fields lie on state land that is classified as agricultural; it is state policy to maximize the use of state agricultural lands for agricultural purposes, and the town's short-term lease of these lands for use as athletic fields has been in jeopardy for several years. The lease was authorized by the state legislature in 2008 for a term of 10 years, and it will expire shortly. The Board of Selectmen and the Conservation Commission have been working on negotiations with MCI for many years to classify a comparable area of land at Longley Acres (the town-owned farm and conservation area on Whitney Road) as agricultural land, in exchange for continued access to the Wilde Road athletic fields, but these negotiations have been moving very slowly. There are currently no other public parks or recreation areas in South Shirley.

2. Places and Structures of Particular Historical Importance.

Shirley was settled in the early 1700s, and the town experienced a rapid spurt of development in the Shirley Village area in the 1800s, as first the industrial revolution, and then the railroad, provided opportunities for economic growth and the employment of large numbers of people. There are many historic buildings, foundations and other stoneworks in town that can provide linkages to the town's past.

Historic buildings.

Most of the remaining historic structures built in Shirley in the 18th and 19th centuries are privately owned, but the town still owns the Town Hall and adjacent Hearse House and Town Pound at Shirley Center; the old Center School – now the Senior Center – on Parker Road; and the War Memorial Building and Schoolhouse #8, in Shirley Village. Shirley has many historic houses, some dating back to the early 1700s. Additionally, some of the mill buildings that served as employers and important economic engines for the town for many years are still standing and in use.

Three of the town's old one-room schoolhouses are still standing. Pound Hill School and School #1 are private homes, located on the corner of Hazen and Center Roads and on the west side of Parker Road. The third, School #8, stands behind the War Memorial Building in Shirley Village. It is owned by the town and managed by the Shirley Historical Society, whose curator, Meredith Marcinkewicz has for many years has taken schoolchildren from the Lura A. White School to

School #8 to experience first-hand what it is like to attend classes in a one-room school. Shirley's schoolchildren can no longer have this educational experience because reconstruction of the parking lot by the town some years ago, plus damage caused by a car backing into the building, have over the years resulted in water draining into the schoolhouse, damaging the bricks and rotting the sill and floorboards so that the building is unsafe. The lack of funds to restore the proper drainage in the parking lot and then repair the damage to School #8 has been a continuing barrier to restoration. Help may be available through state or federal grants once this OSRP is approved.

The Shirley Village Historic District was listed on the National Register of Historic Places in 1992. It includes 441 buildings including mill buildings and houses mostly dating back to the early 1800s. Most of the mills and many of the business premises that flourished with Shirley Village's industrial development in the 1800s and 1900s burned, were torn down, or were destroyed by flooding, but two major mill complexes remain as economically important parts of the Village landscape. The old Phoenix mill was established by the Shakers in 1850 as a cotton mill. Subsequently, the Sampson Cordage Company manufactured a wide variety of braided ropes there from 1888 to 1988, when the company moved to Washington state. Since 1998 the mill complex has been renovated as a small business park and currently houses more than 50 tenant companies. Further upstream on the Catacunemaug Brook, the C.A. Edgarton webbing company was established in 1881, did business as the President Suspender Company from 1900 to 1960, and then was the George Frost Company. AMPAC purchased the All-Star Sporting Goods line from George Frost Co. in 1988 and the factory complex in 1996. Unlike the Phoenix Mill, the old Edgarton Mill is still a manufacturing facility, but like the Phoenix Mill, the facility is also home to a variety of other small businesses.

The town's old brick Municipal Building on Lancaster Road was built in 1855 and served over the years as a grammar school, high school, police station, and town office building until the new Municipal complex was completed in 2000. The Richardson-designed Hazen Library was built across the street in 1894, and the old Fire Station was built the same year just down the street at the junction of Lancaster and Main Streets. All three have been sold by the town to private owners.

The Shirley Center Historic District is a classic town common and training field with church (Meeting House – owned and maintained by a private, non-profit historic preservation organization), burying ground, Town Pound (to hold livestock that have strayed), Hearse House, and old Town Hall surrounded by historic houses. Property owners may not change the exterior appearance of historic buildings in the District without approval from the Historic District Commission.

Stone walls, stone bounds, stone foundations, and stone wells

Shirley is typical of those parts of New England where the most reliable crop from farm fields has long been rocks. Much of the forested and open land in Shirley is criss-crossed with stone walls that reflect the area's agricultural history, and the back-breaking labor that went into clearing land for crops. Stone walls are protected by state law.

Stone property bounds are also widely distributed around the town. Because they are part of the legal basis for identifying property boundaries, they are also protected by law.

Many smaller stream crossings on lands that were formerly farmed have stone culverts that allowed farm wagons and oxen to pass over without having to ford the stream. At a much larger scale, the Main Street bridge over the Catacunemaug Brook in Shirley Village is built of massive stone blocks.

In woodlands, especially away from roads, you may stumble across a foundation constructed of massive field stones, all that remains of a former house or barn, with a dug well lined with rock nearby.

Parts of an old rock mill-dam or sluice-way can be found standing on the banks of some of the town's streams, including Catacunemaug and Mulpus brooks.

3. Farmlands

Shirley was settled initially by farmers, but today little producing farmland remains. Much of the prime farmland soil has been converted to residential subdivisions in recent years, although some remains off of Holden Road, Warren Road, and Benjamin Road, and a small amount off of Center Road. Farmland in Shirley includes public land owned by the Town and MCI-Shirley. There are no farmlands protected with Agricultural Preservation Restrictions in Shirley, but 17 private properties totaling 304 acres are classified under Chapter 61A as producing at least \$500 in agricultural income annually (see Map 15). As discussed above, this state law allows landowners to obtain tax reductions in exchange for maintaining their land in productive agricultural use and generating a certain amount of farm income each year. If a property owner decides to sell their land or change its use from agriculture, the Town has first refusal on the land—i.e., it can purchase the property at market rate if the Town Meeting votes to appropriate funds. The Conservation Commission historically maintained a Land Protection Fund for the purchase of acquiring important lands for the town, but this fund has not contained significant amounts of money for many years.

Much of the private farmland in Shirley is hayed by one or two local farmers and is managed by landowners for aesthetics as much as for agricultural production. A few properties produce hay, livestock, or fruits and vegetables at commercial levels. In addition, many owners of a few to many acres maintain extensive gardens, keep poultry, raise goats or sheep or horses, and operate what are often referred to as hobby farms.

Hayfields and meadows provide welcome breaks in the forested landscape and contribute significantly to the “rural character” that is valued by Shirley residents. They serve as habitat for a range of birds, butterflies, plants, and other wildlife that do not flourish in wooded habitats. Productive agricultural land also contributes to a range of community benefits including supporting small businesses and providing nutritious locally grown food.

Farmland in North Shirley

Most of northern Shirley is forested, but there are agricultural lands along Townsend, Groton, and Mulpus roads, including the Prescott fields on Mulpus Road, and Prancing Pine Tree Farm off of Groton Road.

Farmland in Shirley Center

The Longley Acres Conservation Area on Whitney Road is permanently protected land, owned by the Town. The farm formerly owned by Melvin and Louise Longley was acquired in 2003. With help from then-State-Senator Pam Resor and then-State-Representative Jamie Eldridge, Shirley obtained a Self-Help Grant from the Massachusetts Department of Conservation Services that covered much of the cost of purchase. The fields are hayed annually, with hay sales contributing to the cost of maintaining the property, and community garden plots are available to town residents. Ongoing disagreements about long-term sustainable management of the fields need to be resolved, as do challenges of establishing a long-term lease or license agreement that will allow the farmer and caretakers to make improvements to the fields and buildings while protecting the town from liability.

There is a general consensus that Longley Acres should continue to be actively farmed, but there is no legal requirement for ongoing agriculture on the property. This is a subject for the Conservation Commission to address in future.

Fields at Holdenwood in Shirley Center have historically been hayed each year. In addition, private agricultural lands between Great Road and Hazen and Holden Roads include Farnsworth land along Great Road, the Longley Homestead on Center Road, the Mitton farmland on Whitney Road, the Tohline organic farm off of Little Turnpike Road, the Delourey place and the Mitton farm on Holden Road, and the Hampson Farm on Warren Road.

Farmland in Shirley Village

Shirley Village was developed in parallel with the influx of population that accompanied the Industrial Revolution. A few farmlands remain in this part of town, including Farrar farmland on Benjamin Road. The Farrar farm on Ayer Road has been sold to Bemis Company for business use.

Farmland in South Shirley

In the past, the Massachusetts Department of Corrections took advantage of the excellent farmland at the former Shirley Shaker settlement where the prison at MCI Shirley is located, with prisoners raising much of the food consumed by inmates of the state prison system. In recent years, although much of the land is classified as prime farmland, the agricultural activity at MCI has been discontinued.

4. Forest lands managed for long-term production of forest products.

Despite considerable development in the years since the last OSRP was complete, large areas of Shirley remain wooded. Much of the vacant land has simply experienced forest growth, but more than 400 acres of private land are actively managed for long-term production of wood products. In addition, some of the public conservation land is also managed for forest production. Two of the town-owned conservation areas, Rich Tree Farm and Pumpkin Brook, have approved forest management plans, and tree harvesting, together with creation of large mounds to enhance nesting turtle habitat, is underway. Harvesting of trees on both properties was planned for 2016, but due to questions about rare species habitat, cutting will not be completed until fall, 2017. When well-planned and -implemented, forest harvesting can contribute to diversity and health of the remaining trees, can enhance wildlife habitat, and can provide valuable income to support management. Establishing a variety of management regimes on town-owned forest lands, from no-harvest to periodic thinning to selective clear-cuts, can help maintain a variety of forests at different stages of maturity across the town, enhance wildlife habitat and tree health, and generate periodic income that can be used for conservation purposes.

Private forest lands managed for wood products include 15 parcels comprising 447 acres classified as managed forests under Chapter 61. These lands must be at least 10 acres in size and must be managed according to a 10-year forest management plan approved by the MA Dept of Conservation and Recreation (DCR). In addition, there are many undeveloped parcels of forest land in Shirley, some of which could be managed for timber production to provide financial benefits to the owners, contribute to a rebounding forest-products industry in Massachusetts, and continue to protect water resources, wildlife habitat, air quality, and the town's rural character.

5. Conservation areas and wildlife sanctuaries

Shirley has extensive areas of protected wildlife management habitat managed by the state, as well as some large town-owned conservation lands. Table 10 lists open space and conservation lands in Shirley geographically, from north to south. See Maps 15-17 for the location and extent of each protected area, Chapter lands, and extensive unprotected areas.

Insert Maps 15, Protected Open Space and Map 16, Ownership of Protected Lands, and Map 17, Open Spaces and Levels of Protection

Table 10. A List of Major Conservation Lands and Open Spaces in Shirley, from North to South.

Following the name of each property is the owner or managing agency, as follows: SCC = Shirley Conservation Commission; MA DFW = Massachusetts Department of Fisheries and Wildlife; SRGC = Shirley Rod and Gun Club; TTOR = Trustees of Reservations; NEFF = New England Forestry Foundation. For Conservation Restrictions (CRs), the agency or organization responsible for overseeing and enforcing the CR is listed.

Squannacook River to Groton Road

Public Conservation Land

Squannacook River Wildlife Management Area (WMA) – MA DFW
Squannacook Conservation Area – SCC
Crow Island, riverbank area, canoe launch @ river backwater and bridge – SCC
Pumpkin Brook Conservation Area and Pumpkin Brook Link Tracts – SCC
Hunting Hill WMA – MA DFW, abuts CR and Lunenburg and Townsend land also
Dow Conservation Area – SCC
Rust and Garrison Conservation Areas – SCC

Conservation Restrictions

Crabtree Lane CR – SCC
Hunting Hill Wildlife Conservation Easement – MA DFW

Unprotected Open Space, Potentially of Conservation Interest

Tracts of agricultural land on Groton and Mulpus Roads, unprotected forest and wetland, some under Chapter classification but none permanently protected

Groton Road to Great Road

Public Conservation Land

Squannacook WMA – MA DFW
Mulpus Brook WMA – MA DFW

Conservation Restrictions

Squannacook and Mulpus Wildlife Conservation Easements (various owners) – MA DFW
Lawton Road Executive Estates CR – MA DFW

Non-profit Organization Conservation Land

Shirley Rod and Gun Club – SRGC

Table 10. A List of Major Conservation Lands and Open Spaces in Shirley, from North to South, continued.

Groton Road to Great Road, continued

Unprotected Open Space, Potentially of Conservation Interest

Large tracts of unprotected forest and wetland between Lawton Road and Townsend Road, some under Chapter classification but none permanently protected

Great Road to Holden and Hazen Roads

Public Conservation Land

Going Road Conservation Area – SCC
Mitchell, Downey, and Thompson Conservation Areas, Lyon Bird Sanctuary,
Whitney Road – SCC
Longley Acres Conservation Area – SCC
Spruce Swamp Conservation Area – SCC

Conservation Restrictions

Mulpus WMA – DFW
Holdenwood CR, Horsepond, Hazen, Benjamin Roads – SCC
Lyon CR, Hazen Road – SCC
Colburn CR, Center Road – TTOR
Valley Farm CR, Center and Hazen Roads – NEFF

Non-profit Organization Conservation Land

Farandnear Reservation fee ownership and CR – TTOR
Hoddy Brook Girl Scout Camp, Whitney Road – Hoddy Brook Trust (not permanently protected?)

Town-Owned Open Space, Not Permanently Protected

Great Road Conservation Area, Mulpus Brook at Ayer Town Line

Unprotected Open Space of Conservation Interest

Agricultural, Recreation, and Forest Parcels in Chapter classification, not protected
Riparian land along Spruce Swamp and Spruce Swamp Brook, Beaver Pond Brook,
Mulpus Brook
Wetland and forest along the town's western boundary to the Mulpus Brook

Table 10. A List of Major Conservation Lands and Open Spaces in Shirley, from North to South, continued.

Holden and Hazen Roads to Shirley Village

Public Conservation Land

Oxbow National Wildlife Refuge – USFWS (on Devens North Post)
Mulpus Brook WMA (on Devens North Post) – MA DFW
Rich Tree Farm – SCC
Nashua River Access – MA DFW, SCC
Benjamin Hill Park and Conservation Area – SCC and Benjamin Hill Committee
Ronchetti Conservation Area – SCC
Holden Road Conservation Area – SCC
Old Town Line Conservation Area – SCC

Conservation Restrictions

Valley Farm CR – NEFF
Birchwood Hills CR – SCC
Hill Lane CR – SCC
Lakewood Drive CR – SCC

Unprotected Open Space of Potential Conservation Interest

Riparian lands along Walker, Morse, Trout, and Spruce Swamp Brooks
21-Rear Patterson Road
Parts of Benjamin Hill
Several Agricultural, Recreation, and Forest Parcels in Chapter classification
Dead Pond and surroundings
Upland and wetlands adjacent to landfill

Shirley Village to the Lancaster Town Line

Public Conservation Land

Oxbow National Wildlife Refuge – US FWS
Fredonian Park and Nature Center – SCC
Shaker Road Conservation Area

Town-owned but Without Permanent Protection

Fredonian-Harvard Road Conservation Parcel
Fredonian Street parking lot extension
Nashua River Frontage, Walker Road

21-Rear Patterson Road

Table 10. A List of Major Conservation Lands and Open Spaces in Shirley, from North to South, continued.

Shirley Village to the Lancaster Town Line, continued

Conservation Restrictions

Phoenix Park CR – SCC

Apple Orchard Estates – SCC

Unprotected Open Space of Potential Conservation Interest

Nashua River Greenway – MCI Shirley

Tophet Swamp and Bow Brook

Leatherboard Pond

Dead Pond and surroundings

6. Undeveloped lands at high risk of development

Shirley is fortunate in having a number of large, intact and largely unfragmented blocks of forest land. Conservation of such land has been identified by researchers, land-conservation organizations, and multiple agencies of state government as a high priority for protecting water supplies and for helping counter carbon emissions that are driving climate change. Forest lands are also important for wildlife, recreation in locations where public access is permitted, and sustained management and production of timber and other forest products. Finally, forested lands contribute substantially to the rural character that is valued so highly by Shirley’s residents.

In the last decade, clearcutting of forest for solar energy generating facilities has become a new and largely unregulated use of land in Shirley. This activity is likely to continue with encouragement from state incentives for solar electricity. Voters approved an amendment to the town’s Protective Zoning Bylaw that restricts development of large solar energy arrays to commercial and industrial districts, but diligence will be needed to ensure that future development of sustainable energy projects is planned carefully and designed to minimize loss of important conservation and recreation lands.

Further, economists report that a rebounding housing market is again driving the US economy. During the life of this OSRP, it is likely that there will be construction on the more than 80 approved subdivision lots in town, Shirley is likely to experience an increase in requests for subdivision and single-lot construction. The Action Plan put forward in this OSRP recommends that the Conservation Commission and other town boards establish a pro-active process for looking at undeveloped and unprotected open space in Shirley and for setting priorities for conservation action. Such action may take place in collaboration with land-protection agencies such as the MA Division of Fisheries and Wildlife and through individual efforts by private

property owners, and they need not necessarily require expenditure of town funds or adding to the town's portfolio of public conservation lands.

Shirley has 1,376 acres of private land classified under Chapter 61. This represents a decline of about 500 acres in the past five years. Some of the former Chapter land has gone into conservation, some has been converted to solar energy production, and some has been developed. As noted above, these private parcels are classified under special taxation programs according to rules established by the state. Parcels classified under Chapter 61 (446.86 acres), 61A (304.24 acres), or 61B (563 acres) are actively managed by private owners respectively for forestry, agricultural production, or recreational use. In exchange for maintaining these conservation-friendly land uses the landowners receive a reduction in property taxes.

5A. INVENTORY OF PRIVATE CONSERVATION PARCELS

Private Conservation Parcels Protected in Perpetuity by Conservation Restrictions

Harriet Lyon Conservation Restriction (CR#1): 13.64 acres. Hazen Rd. Restriction held by the Shirley Conservation Commission. Land adjacent to town land at Spruce Swamp. No public access. Parcel 53 B 5.

Valley Farm Conservation Restriction (CR#2, CR#3, CR#8): 177.57 acres. Restriction held by the New England Forestry Foundation. Center Road. These lands are managed for sustainable tree harvest and as wildlife habitat. There is an extensive trail system, open to the public, which joins with the town's Holden Road Conservation Area to offer a long distance upland and marsh hiking opportunity from Holden Road to Catacunemaug Brook. Parcel 54 A 3 (4.3 acres), 35 A 3 (98 acres), and 38 A 1 (45 and 30.27 acres carved out of the larger parcel)

Farandnear Reservation and Conservation Restriction (CR#4): 80.908 acres. This Reservation between Holden and Center roads is owned and managed by The Trustees of Reservations, a private non-profit land trust and conservation organization. TTOR holds a CR on this property, as well as owning it. See additional information in **Section 5B.**

Birchwood Hills Conservation Restriction (CR#5): 92.8 acres. Pond Road. Restriction held by the Shirley Conservation Commission. Extensive trail system links with Holden Road Conservation Area and Valley Farm trails. Public access for hiking, nature study, horseback riding, cross-country skiing. Protects water resource values and wildlife habitat along Long Swamp and Catacunemaug Brook. Parcel 36 B 1.

Benjamin Estates Conservation Restriction (CR#7): 6.3 acres. Hazen Road. Restriction held by the Shirley Conservation Commission. Public access by foot, horseback, skis, snowshoes. Walker Brook runs through property. Parcel 62 A 12.04.

Hill Lane Conservation Restriction (CR#9): 2.93 acres. Hill Lane off Benjamin Road. Restriction held by the Shirley Conservation Commission. Protection of scenic area, brook and a significant wetland area. Affordable housing. No public access. Shirley Conservation

Commission holds CR. Easement A- Parcels 32 A 18, 19, 20 (1.29 acres), Easement B – Parcels 32 A 16, 17 (1.64 acres).

Colburn Conservation Restriction (CR#10): 6.35 acres. Center Road. Conservation restriction held by The Trustees of Reservations. No public access. Wooded upland. Parcel 53 B 3.

Holdenwood Trust Conservation Restriction (CR#11): 102.35 acres. Various parcels in Shirley and Lunenburg. Both Shirley and Lunenburg Conservation Commissions hold restrictions. Public access with permission. No horseback riding or motorized vehicles. Upper reaches of Morse Brook run through portion of property. Contains plantings of perennial and annual flowers, as well as views and footpaths in the English landscaping tradition. Site of annual Holdenwood Run fundraising event for the Shirley Schools. 40 A 7.3 (2.62 acres), 52 A 14 (12.48 acres), 56 A 10 (1.4 acres), 60 B 2 (1.07 acres), 60 B 3 (9.00 acres), 61 A 3.1 (7.00 acres), 61 A 17 (8.25 acres), 64 A 4.1 (2.25 acres), 65 A 7 (5.10 acres), 65 A 9 (45 acres), 82 A 6 (7.9 acres).

Executive Estates Conservation Restriction (CR#12): 15.3 +/-acres. Lawton Road. Restriction held by the Shirley Conservation Commission. Public access by foot, horseback, skis, snowshoes; no motorized vehicles. Contains Squannacook River. Parcel 102 B 7.2 (15.5 acres), 102 B 8.08 (1.29 acres), 102 B 8.09 (1.26 acres).

Longley Trace Conservation Restriction (CR#13): 10 acres. Longley Road. Restriction held by the Shirley Conservation Commission. Protects Mulpus Brook and wetlands associated with Squannacook Hill drainage. Connects to adjacent conservation lands. Access to general public. 80 A 2.9 (9.18 acres) .

Lakeview Subdivision Conservation Restriction (CR#14): 18.87 acres. Catacunemaug Road. Restriction held by the Shirley Conservation Commission. Public access on parcels A and G; parking area on parcel G; by foot, horseback, cross-country skis, snowshoes, no motorized vehicles. Public access to Lake Shirley, 275' lake frontage. Parcels 18 A 5(13.06 acres), 19 A 12(4.30 acres), and 19 A 12.04(1.48 acres).

The Village at Phoenix Pond Subdivision Conservation Area (CR#16): 13.53 acres. Shaker Road. Restriction held by the Shirley Conservation Commission. Public access on 60' wide access easement on lot 2; pedestrian access only. Fifty-unit cluster development.

Shirley Rod and Gun Conservation Restriction: 143.68 acres. Restriction held by MA Division of Fish and Wildlife and Shirley Rod and Gun Club. Kittredge and Lawton Road. This private hunting and fishing club contains extensive Squannacook River frontage, a fresh water estuary, and Squannacook Pond. 5 parcels, 101 A 2 (39.02 acres), 85 A 1 (94 acres), 86 B 1 (4.01 acres), 86 B 1.5 (2.20 acres), 99 A 6 (4.45 acres).

Farnsworth Conservation Restriction: 18.2 acres. Restriction held by MA Division of Fish and Wildlife. Along the lower Squannacook, north of Great Road.

Private Conservation Land with an Unrecorded Conservation Restriction

Woodland Ridge Conservation Restriction (CR#6): 17.8 acres. Crabtree Lane off Squannacook Road. Contains well field for homes of Woodland Ridge development. No public access, only for homeowners. **NOTE: This CR is STILL Not yet recorded AT REGISTRY OF DEEDS.**

Private Lands Temporarily Protected under Chapter 61 Tax Classification or Fee Ownership by a Revocable Private Trust

Chapter lands are shown on the open space Map 17 and listed in Table 11. Note that Chapter status for Chapter 61A and 61B has to be renewed annually. The map and chart reflect the classification of these parcels as of May 2017.

Table 11. List of Land Classified Under Chapter 61, Spring, 2017.

<u>Chapter Classification</u>	<u>Location</u>	<u>Acreage</u>
CHAPTER 61, FORESTRY		
35 A 3	Center Road	96.16
54 A 2	22 Holden Road	22.93
54 A 2.1	22 Holden Road	21.12
54 A 3	Holden Road	4.26
56 A 3	56 Holden Road	0.42
56 A 3.2	56 Holden Road	3.38
56 A 4	56 Holden Road	1.09
56 A 5.2	56 Holden Road	0.135
56 A 6	56 Holden Road	5
56 A 7	56 Holden Road	4.1
80 A 2.10	Great Road	199
82 A 2.11	12 Lawton Road	8.77
82 A 2.12	Lawton Road	42.67
104 A 4	53 Groton Road	12.7
107 A 2.11	90 Townsend Rd	25.12
		446.855

Table 11. List of Land Classified Under Chapter 61, Spring, 2017, continued.

<u>Chapter Classification</u>	<u>Location</u>	<u>Acreage</u>
CHAPTER 61 A, AGRICULTURE AND HORTICULTURE		
22 A 8	Benjamin Road	7
24 A 2	45 Benjamin Road	16.17
54 A 1	32 Holden Road	11.59
58 A 10	178 Center Road	31.16
63 A 1	148 Great Road	56.69
64 A 2	Great Road	19.7
68 A 2	Whitney Road	5.14
71 B 3	23 Parker Road	15.16
95 A 2.1	Mulpus Road	17.09
96 C 5	83 Groton road	8
106 A 13	103 Townsend Road	38.56
106 A 13.6	97 Townsend Road	15.27
106 B 4	Garrison Road	11.06
107 A 1.1	Townsend Road	17.06
110 A 4	Townsend Road	0.96
117 A 2	Spaulding Road	9.23
		304.24
CHAPTER 61B, RECREATION AND NATURE STUDY		
17 B 5	Catacunemaug Road	16.4
18 A 1	Mt Henry Road	5
33 B 1.1	Center-Benjamin Road	30.88
35 A 2	Center Road	8.16
38 A 1	Valley Farm	108
40 A 7.3	Clark Road	2.62
41 A 1.2	Clark Road	27.53
48 B 2	134 Hazen Road	8.16
52 A 14	Hazen Road	12.48
52 A 14.2	Clark Road	1.41
52 A 14.3	Clark Road	1.55
53 A 1	148 Center Road	7.91
56 A 10	Holden Road	1.41
57 A 7	68 Holden Road	5.02

Table 11. List of Land Classified Under Chapter 61, Spring, 2017, continued.

<u>Chapter Classification</u>	<u>Location</u>	<u>Acreage</u>
57 B 9.1	Holden Road	28
60 B 2	Horse Pond Road	1.06
60 B 3	Horse Pond Road	9
61 A 3.1	Horse Pond Road	7
61 A 10.1	Hazen Road	3.08
61 A 10.2	Hazen Road	1.96
69 A 1	Little Turnpike Road	52
69 A 2	Little Turnpike Road	5.18
73 A 1	Great Road	17.74
74 A 18.3	Little Turnpike Road	23.32
75 A 2	Little Turnpike Road	22
75 A 3	Little Turnpike Road	5.14
80 A 2.13	Great Road	27.23
81 A 2	123 Great Road	4.16
82 A 6	Great Road	7.9
85 A 1	Kittredge rd	93
86 A 1	Lawton Road	39.16
86 B 1	Kittredge rd	4.01
86 B 1.5	Kittredge rd	2.2
92 A 1	Townsend Road	39
95 A 3	13 Mulpus Road	5.9
101 A 2	Kittredge Road	39.02
112 B 7	Squannacook Road	27
		767.902
	Total Chapter Land	1376.382

5B. NON-PROFIT or other PRIVATE FEE-OWNED PARCELS

Farandnear Reservation and Conservation Restriction (CR#4): 80.908 acres. Farandnear is a Reservation owned by The Trustees of Reservations, a private non-governmental conservation organization, which also holds a CR on the property. This land is permanently protected. TTOR manages Farandnear as one of its reservations for public enjoyment and use. Site of Paradise Gorge on Spruce Swamp Brook, a historic cranberry bog, and an extensive well-maintained trail system open to the public. Much beaver activity limits access along some trails. Access is from Holden Road (not shown on parcels map) and Center Road. 53 A 1.1 (1.25 acres), 59 A 3 (35.48 acres), 59 A 4 (9.5 acres), 59 A 5 (3.42 acres), 59 A 5.1 (6.55 acres) 59 A 7 (3.2 acres), 59A9.3 (12.322 acres), 59 A 10 (9.186 acres).

Holdenwood Trust: 147.15 acres. This private conservation trust has extensively conserved land parallel to and east of Center Road between Hazen Road and The Great Road (Route 2A). It also owns land north of Great Road and off of Mount Henry Road. The bulk of the land in Shirley Center is permanently protected under Conservation Restriction. The remaining land is not permanently protected in that the Trust can be dissolved by vote of the Trustees and Beneficiaries. In addition, there is a corridor that runs to the top of Benjamin Hill and would connect with land that the town has been working to acquire. Open to the public with permission.

Hoddy Brook Girl Scout Camp: 8.93 acres. Owned by private trust and used as camping and outdoor activities area by Shirley Girl Scouts.

5C. PUBLIC PARCELS PROTECTED IN PERPETUITY

Town-Owned Conservation Lands Protected in Perpetuity, and Managed by Shirley Conservation Commission

NOTE: The protection status of a number of town-owned land parcels is unclear. The town-owned water resources protection land and the Water District water supply lands between Walker and Patterson roads were assumed to be protected under Article 97 of the MA Constitution, and they were considered as permanently protected under previous Master Plans and Open Space Plans, but they were developed for industrial solar farms in 2014-2016. (See Public lands developed for solar energy, below). The Open Space and Recreation Plan Committee has reviewed all deeds of town-owned lands to clarify their conservation protection status. Only those public lands whose deeds explicitly state the protected status are listed as permanently protected here.

Spruce Swamp/Shirley Center: 11.62 acres. Access off Center Road. No developed trails. Contiguous to Harriet Lyon Conservation Restriction off Hazen Road. Parcel 60 A 2.1

Holden Road Conservation Area: Includes "Holden Triangle." 56.23 acres. Access off Holden Road and through the private Valley Farm Wildlife Sanctuary. Developed trails follow Spruce Swamp Brook and upland ridges. Trails connect with trail system at Valley Farm, Ronchetti Conservation Area, and Farandnear. Hiking and skiing. Parcels 37 A 2.1 (15 acres), 38 A 2 (39 acres), Parcel 54 A 4 (2.23 acres).

Downey and Thompson Conservation Area: 16.54 acres. Adjacent parcels with access south of Whitney Road at Lunenburg line. Opposite Harriet Lyon Bird Sanctuary. No developed trails but easily traversed. Combines steep eskers and marsh. Small heron rookery. Beaver Pond Brook originates from these marshes. Parcels 57 A 2 and 57 A 3.

Harriet Lyon Bird Sanctuary: 7.83 acres. A hammerhead parcel extending along Beaver Pond Brook north of Whitney Road, across from Thompson and Downey conservation parcels, to forested uplands abutting Longley Acres. Beaver activity has increased the extent of wetlands along the brook, and access from Whitney Road is difficult. The narrow wet access can not readily be improved. Access by foot is more readily obtained from trail along the back of Longley Acres Conservation Area, where parking is also available. Trail improvements from Longley Acres are needed. Parcel 68 A 5.

Squannacook Conservation Area: 12.5 acres. Access off Squannacook Road. A narrow trail leads to a heavily forested riverfront parcel. Perched atop the esker on the river's edge, you might think you'd dropped into a wilderness. Contiguous to the Division of Fisheries and Wildlife's 800-acre Squannacook Wildlife Management Area in Shirley, Townsend, and Groton. Parking and trail access from Daniel Drive. Parcel 115 A 4.

Crow Island Conservation Area: 2.10 acres. Includes 711 feet of river frontage at the intersection of Squannacook Road and Route 225 and small island opposite the shore. Access to the island is by canoe. Parcel 103 B 2.

Garrison, Hurd and Rust Nature Conservation Areas: 38.36 acres. Access to Hurd and Rust CAs off both sides of Garrison Road; access to Garrison CA from Townsend and Groton roads or through Rust CA. No developed trails. A combination of open meadow and upland forest. Parcels 96 B 1(17.48 acres), 96 B 2 (7.83 acres), and 96 C 1(13.05 acres).

Dow Conservation Area: 16.03 acres. Groton Road. – southern part stripped of topsoil, rest forested. No formal trails or parking. 95 A 7.14 (16.03 acres)

J&A Conservation Area: 2.5 acres and 1,200 feet of Nashua River Frontage. South of Route 2A at the bridge to Ayer. Contains a mature oak forest and a view of the Oxbow Wildlife Refuge. Parcel 47 A 2.2

Mitchell Conservation Area: 1.02 acres. Next to Whitney Road. A small clearing bordering forest without trails. Currently used with permission by abutter as part of paddock for alpaca, goats, and chickens. Parcel 58 A 6.1.

Nashua River Frontage/Walker Road: 2.18 acres. North side of river, below Ice House Dam; contiguous to Division of Fisheries and Wildlife Nashua River frontage. Parcel 27 D 1.

Rich Tree Farm Conservation Area: 111.92 acres. Access from Walker and Hazen Roads. Mature mixed forest. Part of Walker and Morse Brook drainage. Contiguous to Shirley Water District and town lands with solar energy fields to the south. Heavy ORV use. Area is crisscrossed with established paths. Parcel 43 A 91.

Ronchetti Conservation Area: 95.2 acres. This parcel integrates the Holden Road Conservation Area, Valley Farm Conservation Restriction, and Birchwood Hills Conservation Restriction into a 370-acre protected reserve on the town's western border. Connection with the Trustees of Reservations' Farandnear property extends recreational access to Center Road. Access is from Holden Road Conservation Area, Holden Road, and Birchwood Hills. Parcel 37 A 1.

Townsend Road Conservation Area: 54.81 acres. Vacant town-owned land. Forested, rolling upland with wetlands interspersed. Adjacent to active gravel pit. It was reserved for conservation purposes as part of the acquisition of the Hunting Hill parcels and is contiguous with the DFW Hunting Hill Wildlife Conservation Area. Parcel 117 A 3.

Pumpkin Brook Link Conservation Area: 140.7 acres. Managed by the Shirley Conservation Commission. Crossing Townsend Road and connecting to Spaulding Road, these parcels provide connection between large protected acres on the Squannacook River and the Hunting Hill area. A cellar hole on the site is all that remains of the homestead of William Bennett, one of the signers of the 1747 petition to separate the land west of the Squannacook from Groton to create Shirley. Parcels 118 A 1 (31.9 acres), 118 A 2.3 (2.07 acres), 118 B 1 (50.3 acres), 121 A 1 (6.04 acres), 121 B 2 (30.7 acres) 122 A 2 (19.7 acres).

Longley Acres Conservation Area: 73.24 acres. Managed by the Shirley Conservation Commission. It was acquired by the Town of Shirley in 2003 with the help of a state grant. Property maintained as active agricultural open space, is hayed every summer; community gardens are available for use by town residents. The fields and trails are open to the public, and educational talks, workshops and events occur regularly. Parcels 58 A 2 (14.2 acres), 67 A 1 (59.04 acres).

Sullivan Donation: 2.42 acres. North of Catacunemaug Road along town line. Landlocked, adjacent to other parcels. Forested land near Catacunemaug Brook. Parcel 37 A 2.

Benjamin Hill Conservation Area: 41.20 acres Benjamin Road. Managed by the Shirley Conservation Commission. Parcel 40 A 1.11

Old Town Line Conservation Area: 16.56 acres. Holden Road. Hiking and horse trails. Connects Lunenburg's Robbs Hill CA and Ronchetti CA off Gordon Road. Managed by the Shirley Conservation Commission. Parcel 55 A 1.

Going Road: 23.29 Acres. Going Road. Donated by J&A Realty. Managed by the Shirley Conservation Commission. Parcel 76 B 1.1

Shaker Road Conservation Area: 1.6 acres. Shaker Road, between Catacunemaug Brook and Village Cemetery. Abuts unprotected Parcel 15 E 11 and connects with Fredonian Park and Nature Center. Indian trail along south side of brook. Transferred to Conservation Commission as part of Village at Phoenix Park development. Parcel 15 E 12.

Town-owned Parks, Playgrounds, and Recreation Areas

Benjamin Hill Park: 11.85 acres. Site of Town's swimming pool, elaborate Bob Leathers outdoor playground, snow-tubing slope, ice skating rink, open playing field and tennis courts. Managed by Benjamin Hill Park Committee. Parcels 40 A 1.12 (8.61 acres), 40 A 1.3 (1.0 acres).

Lura A. White School Gymnasiums and Playfields: 14.08 acres A complex of outdoor playing fields for structured recreational programs. Two indoor gymnasiums as well. Available for organized school as well as recreation programs. Parcel 12 C 1 (10.33 acres), 12 C 25 (3.75 acres).

Senior Center Playfields: 4.43 acres. Used to supplement the common and training field space in Shirley Center for outdoor activities. Managed by Recreation Committee. Used for organized youth sports. Parcel 65 A 1.

Whitely Park: 1.54 acres. Village Park containing most of Shirley's commemorative statuary. Donated by a Shirley Shaker of that name. Managed by DPW. Parcel 23 F 1.

Shirley Center Common and Training Field: 2.43 acres. Heart of the Town's Historic District; used for various community functions (Concerts on the Common, Hoedown, etc.) as well as informal sports. Site of old Center Town Hall and historic First Parish Meeting House (the Shirley Meeting House is owned by private historic preservation organization, but it stands on Town land). Lies across from Shirley Center Cemetery and includes Colonial training ground. Parcel 65 A 4.

Permanently Protected Public Land Owned by Commonwealth of MA or US Government

NOTE regarding public recreation on MA Wildlife Management Areas: Because wildlife habitat is increasingly being lost to human activity, and because the simple presence of people disturbs some of the more sensitive species that state wildlife authorities are responsible for protecting, the DFG has recently adopted a policy limiting recreational use of Wildlife Management Areas. (See Appendix I). While hiking on established woods roads is permitted, the state does not allow trail clearing or marking.

Oxbow National Wildlife Refuge /US Fish and Wildlife Service: 38.3 acres. Open to public use, for uses allowed on the Refuge. No fee. Uses related to wildlife e.g. fishing, hunting, wildlife observation and photography, interpretation, and environmental education. Federal land transfer from Army to US Dept. of Interior on land within the Devens North Post off of Walker Road, in the Devens Enterprise Zone. Parcel 26 A 1. For more information on the Oxbow Refuge, see <http://www.fws.gov/refuges/profiles/recEdMore.cfm?ID=53512>

Hospital Road Parcel Conservation Restriction/MassDevelopment 4.91 acres. Conservation Restriction held by New England Forestry Foundation on parcel on land at Devens owned by MassDevelopment between Hospital Road and Catacunemaug Brook. Managing agency: MassDevelopment. Open to public, no fee. Steeply sloped forested area acting as buffer to brook, not appropriate for ADA trails. Recreation potential: nature observation. Parcel 26 A 1.1. Recently a new Bill Ashe visitor center was opened on this property, with easy canoe/kayak access to the river.

Hunting Hill Conservation Area: 30.90 acres. Open to the public. MA DFW Wildlife Management Area. Managed in cooperation with Shirley and Lunenburg. Parcel 109 A 1.

Squannacook Wildlife Management Area/Massachusetts Division of Fisheries and Wildlife: 393 acres. Together with land in Groton and Townsend, this Wildlife Management Area totals almost 800 acres and encompasses a variety of ecosystems, from wetland to upland. Access at Trap Swamp Brook on Squannacook Road, and through the Pumpkin Brook and Squannacook Woods subdivisions.

Mulpus Brook Wildlife Management Area/Massachusetts Division of Fisheries and Wildlife: 208.7 acres. Extensive marsh and upland protection on the north and south sides of Mulpus Brook at the Lunenburg town line, with additional parcels and CR lands extending eastward along the brook. Includes the south side of Deacon Hill as well as Brattle Hill between Townsend Rd & Longley Rd. Canoe access from Townsend Road. Foot access from Route 2A and the end of Pamela Drive. Good location for bird viewing. Parcels 47 A 2.1, 48 A 2, 80 A 2.14, 81 A 3, 81 A 3.1, 81 A 4, 81 A 4.1, 91 B 1.

Lawton Road/Massachusetts Division of Fisheries and Wildlife: 15.21 acres. These two parcels abut Shirley Rod and Gun Club land and contain Squannacook River frontage. Access is from Lawton Road. Very steep eskers and hemlock groves. Parcels 99 B 1, 101 A 1

Walker Road, Nashua River Frontage/Massachusetts Division of Fisheries and Wildlife: 29.2 acres. Access along railroad tracks. A very interesting poplar succession forest interspersed with small moss covered meadows. Parcels 28 B 12.4 (18.73 acres), 28 C 1 (10.47 acres).

Cemeteries

Shirley Center Cemetery: 5.73 acres. Horsepond and Brown Roads. The Town's historic burial ground, near the historic Meeting House, old Town Hall, common, and training field. Parcel 60 B 1.

Village Cemetery: 7.53 acres. Located off of Harvard Road at the end of School Street. Parcel 16 D 13.

St Anthony Parish Cemetery. 6.68 acres. Located on Shaker Road. Owned by the Catholic Diocese of Boston, managed by Saint Anthony Parish. Parcel 13 B 16.

Public Land Developed for Solar Energy, Not Protected for Conservation or Recreation Uses

Groton Road Land: 8.86 acres. Town-owned land. Forested until 2015, then cleared and developed for solar energy production. Very high perched groundwater table is characteristic of this area. Parcels 97 B 14, 97 B 15.

Highway Department Gravel Pit: 28.09 acres. Most lies in the Shirley Water District aquifer protection land overlay and the Shirley Zoning Bylaw Wellhead and Water Supply Protection Overlay District. DPW gravel pit put used for sand and gravel, fire training, residents' brush and wood disposal, and residents' access to wood from town trees that have been cut. Managed by Shirley DPW. Parcel 30 B 5

21-Rear Patterson Road. Parcel behind Town Gravel Pit. 11.62 acres. Southern portion a hemlock ravine with Morse Brook coldwater brook-trout stream flowing through it; wooded slopes north and south of stream corridor. Until late 2015, northern half wooded with 60-year-old oak forest, grown up since a fire in the 1950s or 1960s. NHESP Rare species habitat for two species of turtles. In Squannassitt ACEC. Was acquired by the town in 1990 for water resources protection and compatible uses including conservation and recreation. Formerly used for hunting and trout fishing. Forest on northern half of parcel cut and land converted to solar energy production in 2015-2016. Parcel 30 B 6

Former Rich Tree Farm / Shirley Water District: 93.193 acres Owned by the Shirley Water District, a public entity established by Massachusetts General Laws operating as an independent governmental corporation. These lands were acquired to protect the Patterson Road Well field. Formerly open to the public for hiking and passive recreation. NHESP Rare species habitat and in Squannassitt ACEC. In 2014-2016 most of these lands were converted to industrial solar generating plants. 27 C 1 (20.053 acres), 28 A 2.2 (3.95 acres), 29 A 2 (6.163 acres), 29 A 3 (4.567 acres), 30 B 6.1 (4.88 acres), 30 B 7 (1.85 acres), 30 B 8 (5.47 acres), 30 B 9 (0.00 acres), 42 A 1 (46.26 acres)

See also Leominster Road Landfill, below.

Public and Non-Profit Land, of Conservation or Recreation Interest, but not Protected

Fredonian Park and Nature Center: 7 acres. Off Fredonian Street. Generally assumed to be permanently protected, the deed to this property does not specify protected status. This is a public park divided in two by Catacunemaug Brook. A restored mill pond, gazebo, and lawn area are on the north side of the brook, and on the other side is a mature forest containing some of Shirley's largest broadleaf trees and a trail known as the Indian trail that extends along the steep southern slope above the brook. Dumping along the steep bank of the stream is an ongoing problem that detracts from the trail and the experience of the forest; it needs to be addressed. Parcel 16 D 15.1.

Harvard Road Open Space: 4 acres. This parcel abuts the Shaker Road Conservation Area and the Village Cemetery along the south side of Catacunemaug Brook. It is wooded to the north and contains cleared, flat land to the south. The northern area includes part of the Indian Trail, which passes through large deciduous trees on the banks of the stream. As with Fredonian Park, dumping along the trail needs to be addressed. Formally connecting this area with Fredonian

Park and the Shaker Road conservation parcel would make a nice trail right in downtown Shirley Village. The southern part of this parcel, east of the cemetery, might be a good location for public soccer or baseball fields, tennis courts, or other recreational facilities. Possibly it is being considered for future cemetery expansion. Received by the town as a gift, but without protection specified in its deed. Parcel 15 E 11.

Leominster Road Landfill: 47 acres. Capped Town landfill; formerly part of Tophet Swamp. Wetlands persist in over half the site. A portion of the site has been developed for solar energy. The rest provides wildlife habitat for various upland- and wetland-dependent species. The landfill itself could serve some recreational needs in the future, as the permanent cover will need to be maintained as grass. The wetlands area could be integrated into any conservation of Tophet Swamp, Bow Brook, and the Leatherboard Pond. Parcels 10 A 2 (41.8 acres), 10 A 2.1 (1.05 acres), 10 A 1 (0.58 acres). Not included on Open Space map.

MCI-Shirley Greenway : 21 acres. The MCI correctional facility, with 236 acres in Shirley and additional land in Lancaster, contains a protected Greenway along the Nashua River from the Devens boundary to Route 2. The protection is in the form of agreements with the towns of Shirley and Lancaster, and the Nashua River Watershed Association. There is no public access to the Greenway unless special permission is granted by MCI.

MCI-Shirley Soccer Fields: acreage unknown. Soccer fields at north end of Wilde Road, used by town Recreation Committee for sports program under a short-term lease between the town and MCI. Lease status uncertain and land not protected for this purpose. Possibly the land will be protected as agricultural soils of statewide importance, although there is no longer agricultural activity at MCI-Shirley.

MCI-Shirley Agricultural Fields and Shirley Shaker Village Remains: Agricultural fields at MCI-Shirley formerly provided employment for prisoners and produced much of the food for the Massachusetts prison system. Agricultural activity has been dormant at the prison for many years, but the fields on the northern half of the property are still open. Additionally, the prison is built on the site of the former Shirley Shaker Village. The Shaker Village has received Historical Landmark designation. A state grant obtained by and overseen by the Shirley Historical Society in the late 1990s provided for the restoration and rehabilitation of some of the original Shaker buildings, which are now used as offices and other facilities for the prison. Unfortunately, the grant did not cover the large laundry and barn, and these impressive structures have been allowed to deteriorate to a point where they are no longer salvageable. The Shaker Village is not open to the public, except for special guided tours offered by the Shirley Historical Society, and other tours provided through special arrangements through MCI.

SECTION 6. COMMUNITY VISION

6A. Description of Process

2016 Public Process.

As with the efforts to obtain public feedback on open space and recreation concerns and needs for the 2003 and 2014 draft OSRP revisions, the 2016 OSRP Committee sought public input through a questionnaire and public information sessions.

Members of the OSRP Committee met with the Conservation Commission in late summer, 2015, to brainstorm on needs that that board felt were particularly important, and to consider questions that should be included in the questionnaire that would be circulated to town residents. Multiple OSRP Committee meetings were held in which questions were reviewed and revised, before the questionnaire was deemed ready to “go live” in February, 2016. Almost 200 people responded to the survey giving the committee valuable information to use to draft the OSRP.

In addition to the questionnaire prepared by the OSRP Committee specifically to address open space and recreation issues, the OSRP Committee also relied on results of a questionnaire circulated in the town in late 2015 as part of the process of developing a new Master Plan. Questions in the Master Planning questionnaire relating to residents’ preferences for the kind of town they wanted to live in, traffic, and open space proved helpful to the OSRP planning process. Pertinent questions and results are included in Appendix B, along with the language and results from the OSRP-specific questionnaire.

In addition to developing a questionnaire, members of the OSRP Committee also met with the Recreation Commission and parents who serve as coaches at a regular meeting of the Recreation Commission in late Fall, 2015, and again in late fall of 2016. These discussions examined the status of the recreational fields used for organized youth sports such as soccer; options for additional or alternative fields elsewhere in town; and general issues affecting the Recreation Committee’s ability to support the youth athletic program.

Committee members also considered feedback from an energized and informed group of Shirley residents who organized early in 2016 as a volunteer Trails Group to work collaboratively with the Conservation Commission to identify, clear, mark, and map trails on public land and on adjacent private properties that are open to the public. Trails Group members sent regular emails reporting on their activities; commenting on the condition of trails, access and parking issues; and suggesting next steps.

2011 Public Process for 2014 Draft Plan.

The 2014 draft OSRP update was based on public input obtained by the graduate students from the Conway School of Landscape Design in 2011. Information was obtained through both a questionnaire and two public forums. A questionnaire circulated by the Conservation Commission in Fall 2010 was revised by three of the students and shared with the residents of Shirley in both paper and web form in winter of 2011). There were 38 responses to the questionnaire.

The Conservation Commission, with the help of the Conway School graduate students, undertook an extensive and thorough effort to clarify the town’s goals for the 2014 update. Community input was solicited through a “meet and greet” tabling event followed by a public

forum in February, 2011 (15 participants) to identify important physical resources and areas of concern. A second public forum followed this in March 2011 (19 participants), to learn about residents' open space and recreation goals and objectives.

During the tabling event on February 5, 2011, the Conway students asked 15 Shirley's citizens to identify favorite outdoor spaces in the town. The residents were notified of the online questionnaire and of the upcoming public meeting.

Throughout the public planning process in 2011, efforts were made to involve as many members as possible from the different constituent groups in Shirley. Most of the attendees at the two public meetings appeared to be more conservation-minded than recreation-minded. This suggests the need for additional outreach efforts to better understand how other citizens of Shirley value recreational spaces within the town.

Following preparation of the Draft OSRP in 2011 by the Conway School students, changes in staffing and membership on the Conservation Commission again prevented the Draft Plan from being completed. In summer of 2014, the then-Conservation Administrator for the town sent the Draft to boards and local organizations for comments; incorporated many of the comments into the 2011 Draft, and submitted it to Massachusetts Executive Office of Energy and Environmental Affairs for Review. The draft was provisionally accepted through 2019, and the current OSRP Committee was appointed and charged with completing the plan in accordance with the state's requirements (Appendix A). The OSRP Committee reviewed the 2014 draft and the public feedback that went into that draft as part of the process of developing the 2017 OSRP.

2001-2002 Public Participation Process for Draft 2003-2008 Plan.

When the 1996 OSRP expired in 2001, the Conservation Commission engaged in the process of preparing a, update and revision. Public meetings and a questionnaire in 2002 obtained feedback from Shirley citizens. The present OSRP Committee reviewed the 2003 draft plan and the public input that went into it as part of developing the final draft presented here.

6B. Open Space and Recreation Goals

There were many similarities in the core values, aspirations, and goals that were developed through the public participation and review processes in 2002, 2011, and 2016. Common themes throughout included the importance of preserving Shirley's rural character, protecting its water resources, maintaining and expanding recreational opportunities, maintaining and managing public open spaces and recreation lands, and providing public outreach to increase residents' awareness of, familiarity with, and support for Shirley's open spaces and recreational facilities.

The Goals for the new Open Space and Recreation Plan for Shirley, 2017-2024 are as follows:

Goal 1: Take Care of What We Already Have: Maintain and improve existing properties and facilities, and meet existing responsibilities for land and other public resources

Goal 2: Protect Water, Wildlife Habitat, and Forests

Goal 3: Engage the community with open space and recreation by providing opportunities and information to the public

Goal 4: Plan for the future protection of conservation and recreation lands in Shirley

Following the public participation process and the OSRP Committee's inventory of open space and recreation lands in Shirley, we determined that the highest immediate priority should be taking care of the resources the town has already obtained. These include leased soccer fields, conservation areas, historic structures, and conservation restrictions held by the Conservation Commission on private land parcels, especially those associated with cluster development approved under the town's zoning regulations. Needed actions include routine maintenance such as mowing; major renovations, such as addressing drainage issues on soccer fields; development of management plans for conservation parcels; addressing needs for parking, trail clearing and marking, and maps at conservation lands; and carrying out annually required boundary walks and condition assessments on the town's many Conservation Restriction parcels.

The second priority is protection of natural resources, especially water. This will involve coordination by the Conservation Commission with other town Boards; review of existing bylaws and regulations; and possibly proposing changes to improve resource protection in both permitting of new developments and ongoing activities by the town.

The third priority is education and outreach. Shirley residents deserve to know what public open spaces and recreation lands are in the town, where they are, and the opportunities they provide.

The final priority is to continue to plan for future open space and recreation land protection and management. Recreation fields and playgrounds need to be planned for different places in town; ADA accessibility issues need to be addressed; and additional opportunities for protecting conservation lands need to be considered, evaluated, and planned for.

7. ANALYSIS OF COMMUNITY NEEDS

7A. Summary of Resource Protection Needs

More detailed descriptions of the town's natural resources are provided in Section 4.

Water Resources

Rivers, streams, wetlands, aquifers, groundwater, and wells are valuable to Shirley and surrounding communities. The Squannacook and Nashua Rivers comprise the town's eastern border, streams and brooks crisscross the town, and wetlands are located throughout. Various species of wildlife use the water and the riparian land as habitat and as corridors for movement, and these surface water bodies provide recreational opportunities for residents.

Beyond the value of water resources for wildlife and recreation, the town draws its drinking water from underground wells and aquifers. The 2017 Town of Shirley Master Plan states that groundwater wells with the highest yields are found within the Nashua River valley. Low yield aquifers are found in smaller valleys, such as in the Squannacook River valley. The Shirley Water District provides water to about 60 percent of the town's population, drawing from three supply sites: the Patterson, Catacunemaug and Walker Road wells. Homes in the northern end of town rely on private wells and their water quality depends on effective septic design as well as the health of underlying aquifers. Human activities including development close to wetlands and within floodplains need to be monitored to prevent contamination of aquifers. Protection of open space, especially along stream and river banks and in areas of aquifer recharge, should be a very high priority. Attention should be paid to neighboring towns and their use of shared water resources, for both humans and wildlife.

Conservation of riverfront and shorelines is important because a riverine "greenway" acts as a vegetated buffer to protect water quality and wildlife habitat, prevent flood damage, and provide outstanding recreation opportunities. The Nashua River Watershed Association is involved with providing technical assistance to property owners with riparian land, so that they can increase protected buffers between streams and human activities. Priorities for protection include a riparian buffer for Mulpus Brook near Brattle and Squannacook Hills in Shirley; the brook is a crucial corridor for wildlife movement towards the Oxbow National Wildlife Refuge and wildlife areas nearby.

Farmland

As population rises and new developments are proposed, there is a concern over loss of prime agricultural soils – and farms, in general – in Shirley. The dwindling farm community means less opportunity for local production of food during a time when public interest in "Local Food" is rising rapidly. There are few remaining farms in Shirley and the town will need to decide whether preservation of land suitable for agriculture should be made a focus of town efforts.

Meadows and upland grasslands

Meadows and hayfields contribute to the overall character of Shirley. Viewed from the road, they are a welcome respite from the prevalent woodlands. For plants and animals, they provide habitat for different creatures within the meadow and for those species that rely on edges. There is a current need for a management plan as many of Shirley's meadows are becoming overgrown and woody. If not consistently mown they will eventually become forests.

Forests

Trees cover over fifty percent of the landscape and contribute substantially to the rural character of the town. Forests provide ecological services by cooling and cleaning the air as well as filtering and slowing the flow of water. They are important habitat for wildlife. Their trees provide a source of income through sustainable harvesting in Valley Farm and other private lands with forest cutting plans, as well as on some town conservation lands such as Pumpkin Brook and the Rich Tree Farm. Focused efforts to increase the sustainable forestry in Shirley's woodlands could provide a variety of economic and conservation benefits to the town.

Rare and Endangered Species Habitat

The town of Shirley is home to at least 16 rare and endangered species. The habitat of these species is at risk of fragmentation, which may decrease biodiversity and may even lead to complete loss of the species. Habitats must be protected from development to help ensure the future of these species.

7B. Summary of Community Needs

Education

Children and adults need to be informed about the various natural resources in the town. Children should learn about the value of the town's ecosystems at a young age in order to foster stewardship of the land and water and a love of the plants and animals of this part of New England. An investment in youth may later lead to a more engaged volunteer citizenry who continue to care for their town. An interest in nature would also encourage physical activity as an alternative to more sedentary activities. School programs could reach all populations, not only those capable of exploring the community by means of automobiles. The natural resources of Shirley could serve as an exceptional outdoor classroom. Many adults who have moved to Shirley from more heavily developed areas in eastern Massachusetts or elsewhere could also benefit from learning more about nature in their new town, and from opportunities for outdoor recreation on conservation lands or recreational spaces.

Adults also need to learn how to care for their open and recreational spaces. Residents stated during meetings and in questionnaires that they wanted to know where various conservation and

recreation areas were located. They also wanted to educate townspeople about respecting town property. Observations that trash accumulating in the Village area is detracting from the charm of Shirley came from members of the Trails Group and others. Misuse of trails by ATV users was raised repeatedly in public forums and in questionnaire responses.

A quote from the 1996 OSRP nicely expresses the need for education. “Ultimately, only an informed citizenry can provide the political will to adequately protect open space. Informed citizens are the best stewards for protected lands. Adequate communication and cooperation among all land use boards on open space issues is an enduring and critical need. Programmatic efforts with Shirley schools are needed so that a new generation of townspeople will be adequately informed about natural resource protection issues as they relate to life in the town. The school programs (for example, the fourth grade Adopt-a-Stream effort) that already exist should be permanently established and supplemented with other programs and curricula.”

Recreation

In order to promote healthier lifestyles, more active and passive recreation opportunities are needed in general. The *Massachusetts Statewide Comprehensive Outdoor Recreation Plan 2012 (SCORP)*, which guides the state’s administration of grant funds from the federal Land and Water Conservation Fund, addresses the need for outdoor recreation throughout the Commonwealth. The *SCORP* identified four priority goals:

1. Increase the availability of all types of trails for recreation
2. Increase the availability of water-based recreation
3. Invest in recreation and conservation areas that are close to home for short visits
4. Invest in racially, economically, and age diverse neighborhoods given their projected increase in participation in outdoor recreation.

The community recreation needs identified during the process of developing this Open Space and Recreation Plan for Shirley, and the Goals and Objectives specified for the next seven years, fit well with the needs emphasized in the *SCORP* – in particular:

- better access and accessibility to public open spaces for walking and running and other outdoor recreation throughout the town;
- improvements and connections among trails on public lands, as well as better maps and information about their locations;
- dedicated playing fields for youth and adult sports programs located throughout the town to address the needs of a racially, economically, and age-diverse community.

Improved information, signage, and access to trails is a focus, along with continued progress on management of the downtown Fredonian Park and Benjamin Hill Recreation Area. Benjamin Hill has several facilities that are important for youth and family activities. The OSRP also acknowledges the need for the town to permanently secure additional sites for active recreational fields. The town has a pool at Benjamin Hill as well as access to natural waterways for canoeing and kayaking. Protection of the town’s natural areas and waterways for recreation, quality of life, and drinking water protection is prioritized in the OSRP.

Public health researchers have scientifically documented public health benefits of “forest bathing” – the simple spending of time in the woods. Benefits include healthier blood levels of stress hormones, healthier heart rates and blood pressures, and reduced stress, among others. Providing the public with better information about the open spaces in Shirley, providing parking pull-offs, and making trails more accessible throughout the town, may encourage more people to spend time outside and realize the benefits.

Residents attending public forums and responding to the community survey stated that trails of all kinds, such as hiking, biking, and equestrian, require better marking, signs, and maps. More region-wide trail systems would promote connectivity between towns in the region as well as provide an alternative to the automobile for getting around.

There are not enough playgrounds for the current or growing population. The town has two playgrounds, at Benjamin Hill Park and at the Lura A. White School, but none in Shirley Center or North Shirley.

Recreation fields are inadequate for the town’s current and future needs. The soccer fields at MCI-Shirley are on short-term lease and may become unavailable at any time. They also need improvements that do not make sense unless the town has a long-term agreement with MCI. The fields at Lura A. White School have drainage problems and are not currently suitable for the recreation program, although they are acceptable for physical education programs at the school. Fields behind the Ayer-Shirley Middle School are slated for development in the near future. Potential new fields directly behind the school need major work before they can be developed for recreational use. Further, there are no recreation fields in North Shirley, and only one small field used for soccer for young children in Shirley Center.

The rivers along Shirley’s eastern boundary as well as streams within the town can provide a variety of recreational opportunities, including swimming and boating. Boat launches and swimming holes on the Squannacook River may be accessed from the Conservation Commission parcel located off Squannacook Road, the Crow Island Conservation Area at the Groton Road Bridge, and the Squannacook DFW parcels. The Nashua River is accessible through the Conservation Commission parcel on Great Road, through Devens open space, and at the Ice House Dam. The Mulpus Brook is accessible through DFW parcels on Townsend Road and Great Road and a town parcel on Great Road at the Ayer town line. Rich Tree Farm, Valley Farm, Farandnear, and other public and private conservation lands provide access to Spruce Swamp, Spruce Swamp Brook, and Walker Brook. The Fredonian Nature Center hiking trails and other town land on Fredonian Street provide access to Catacunemaug Brook.

All of these needs fit within the broad scope of the *Massachusetts SCORP*.

Handicap Accessibility

Throughout the town there need to be open spaces that are accessible to people with disabilities. One long-term resident of Shirley Village who is wheelchair-bound noted that Benjamin Hill and

Whiteley Park provide good accessibility via wheelchair ramps and/or curbcuts from the sidewalk, and that Benjamin Hill has a working poolside lift. She sometimes goes to Fredonian Park, but operating a wheelchair on grass is challenging. The Play Board has identified opportunities for increasing accessibility at the playground at Lura A. White Elementary School, as well as for an accessible walkway encircling the school grounds. As of spring, 2017, they have received a donation of \$10,000 and are seeking additional funds that would allow them to complete these projects.

An overview of ADA accessibility of town-owned recreation areas and open spaces is provided in Appendix G. The town needs to carry out a more detailed evaluation of public lands for accessibility to provide opportunity for use of recreation and open spaces by all who desire to use them. Grant support and private donations, as well as setting aside funds in the capital budget at Town Meeting, should become a priority until accessible recreation areas and open space are available in a variety of locations in Shirley.

Sidewalks

The town's sidewalk system is concentrated in the village area, leaving the remainder of the town without safe routes to get to open spaces and recreational lands, or to walk around town for exercise. Sidewalks would also improve ADA accessibility for those using wheelchairs. Please refer to the Master Plan for information on ongoing planning for sidewalk improvements in Shirley Village and elsewhere.

Town Character

For more than thirty years, town residents have consistently indicated the importance to them of maintaining Shirley's "Rural Character" as the town grows. Statements have included comments such as "We moved here because it was quiet," "I love hearing birds out my window instead of traffic," "It is wonderful to see the stars at night," and "The best thing is being able to go out my front door and be walking in the woods in minutes." Unplanned rapid growth could outpace conservation efforts and overburden recreational facilities.

7C. Management Needs and Potential Change of Use

Maintenance of Town-Owned Open Spaces, Recreation Facilities, and Historic Structures

Actions will need to be taken to preserve the unique resources of open space, historical places, recreational facilities, and scenic areas in Shirley. Volunteers have carried the brunt of the responsibility for many years. It is time for the town to start budgeting for maintenance, repair, and stewardship of historic, recreational, and open space areas in Shirley.

For example, residents at meetings in 2011 specifically pointed out that Fredonian Park and the Shaker Village, two valued resources, are not being cared for as the townspeople would hope. At

the public forum in 2016, the failure of the town to budget funds or staff time for maintenance of Benjamin Hill Park and Recreation Area was noted. In addition, School #8, the only remaining historic one-room schoolhouse owned by the town, is in serious need of repairs and is no longer able to be used for educational visits by students from Lura A. White School.

The same applies to recreational fields. There is currently no Parks Department in Shirley. Playing fields are maintained by the users, with some assistance by the town Department of Public Works at some parks and other sites. Management plans and corresponding budgets to maintain playing fields will be necessary to prevent degradation of these places.

Although Shirley has acquired a fair amount of conservation land, most of these parcels do not have a management plan or budget to maintain them. A group of private citizens has become active in maintaining trails at town-owned open spaces, where public maintenance has also been absent for many years.

In addition, the Conservation Commission has not been able to adequately monitor Conservation Restrictions entrusted to the Commission, as they are legally required to do. Lack of money and manpower has been an ongoing problem for Shirley for more than a decade, as the town's fiscal situation has led to reductions in Conservation funding and staff time. Unless funding can be allocated to maintain these properties they risk being further neglected and misused.

Coordination

A common concern raised by residents at the public meeting was that of insufficient coordination between regional and town boards and committees in meeting goals and objectives of open space protection and recreation. Residents frequently cited the difficulty of finding out what is going on in different groups in town and in neighboring towns. Organizations with a stake in Shirley's Open Space and Recreation Plan include Town boards and committees in Shirley, the informal Trails Group in Shirley, Devens' Open Space & Recreation Advisory Committee, the Nashua River Watershed Association, Montachusett Regional Planning Commission, Massachusetts Development Finance Association, US Fish & Wildlife Service, Massachusetts Division of Fisheries & Wildlife/Department of Fish and Game, The Trustees of Reservations, Nashua River Watershed Association, Friends of the Oxbow, private land holders with CRs on their land, and other entities that own or manage open space within or abutting Shirley. When Chapter 61 lands become available to the Town for purchase or assignment of purchase rights the Conservation Commission needs to be notified. Finally, because of financial constraints the town increasingly relies on work done by volunteers. A volunteer system needs to be developed and maintained to prevent over-using and wearing down this valuable human resource.

Potential Change of Use

State incentives promoting renewable energy have encouraged the development of solar installations in Shirley. The Shirley Water District has allowed a 23-acre photovoltaic array to be installed on their property off Patterson Road, and other solar projects on adjacent water supply lands. Solar panels have been installed on Devens property at the corner of Hazen and

Walker Roads. The town of Shirley has leased public lands for solar development at the old landfill, on an open space parcel on Groton road, and on land acquired for water resources protection off of Patterson Road.

In future, other changes that are potentially beneficial to the public may be proposed for public conservation lands and other open spaces. These might include new schools and/or recreational fields, other public infrastructure, affordable housing, or various private developments. It is important that existing conservation land and recreation fields be explicitly identified as protected through their deeds, that the town maintain a list of protected public lands, and that long-term planning to meet future needs be carried out to ensure that future needs for development can be met without sacrificing open space and recreation resources that have been acquired to meet the many important public needs that only these lands can provide.

SECTION 8. GOALS AND OBJECTIVES

Based on the 2016 public participation process, along with public inputs in 2001 and 2011 during the previous efforts at revising the 1996-2001 OSRP, this revised plan for 2017-2023 presents the following goals and objectives intended to address the identified resource and community needs summarized in Section 7.

Goal 1: Take Care of What We Already Have: Maintain and improve existing properties and facilities, and meet existing responsibilities for land and other public resources

Objective 1A: The public can continue to use and enjoy the benefits of open space and recreation lands and other public resources in Shirley

Objective 1B: People will have ready access to and information about open spaces and recreation areas

Objective 1C: Shirley will fulfill its legal obligations for stewardship of open space and recreation lands in the Town

Goal 2: Protect Water, Wildlife Habitat, and Forests

Objective 2A: Continue to enjoy high quality drinking water throughout town

Objective 2B: Experience the recreational, environmental, social, and economic benefits of healthy water resources

Objective 2C: Enjoy quality of life benefits of living where wildlife and forests are parts of the day-to-day landscape where we live

Goal 3: Engage the community with open space and recreation by providing opportunities and information to the public

Objective 3A: Increase public awareness and enjoyment of the town's resources

Objective 3B: Gain public support for town budgets and actions with regard to open space and recreation

Goal 4: Plan for the future protection of conservation and recreation lands in Shirley

Objective 4A: Ensure adequate protection of land areas for future use, to maintain water wildlife, and other important values into the foreseeable future, and to address impacts of climate change

Objective 4B: Be able to specify actions needed from the Town, other public bodies, and private individuals to maintain important open space and conservation resources for the future

Objective 4C: Have specific recommendations ready for next revision of Town of Shirley Open Space and Recreation Plan

9. SEVEN-YEAR ACTION PLAN

The following pages present the proposed new Open Space and Recreation Plan goals, objectives, and action plan developed as a result of the new public participation process in 2016. This seven-year action plan outlines actions and establishes timetables for each open space and recreation goal and objective. All of the following goals, objectives, and actions are subject to funding and appropriation. The recommended actions should be reviewed, updated and reevaluated annually. The 2023 update of the OSRP should be consistent with these goals and objectives and with the previous years' reevaluations. A seven-year action map is included at the end of this section.

Goal 1: Take Care of What We Already Have: Maintain and improve existing properties and facilities, and meet existing responsibilities for land and other public resources

Objective 1A: The public can continue to use and enjoy the benefits of Shirley's open space and recreation lands and other public resources

Objective 1B: People will have ready access to and information about open spaces and recreation areas

Objective 1C: Shirley will fulfill its legal obligations for stewardship of open space and recreation lands in the Town

*** background work is already underway**

Action	Who	Funding Source	2017	2018	2019	2020	2021	2022	2023
Allocate adequate funds in Town budget to maintain properties	Conservation, Finance , Recreation, Historical, Center Town Hall, Selectmen, Town Meeting voters	Town budget	*	X	X	X	X	X	X
Research and apply for grants	Board of Selectmen and Town Administrator; Conservation Commission agent and members; Recreation Commission assistant and members; Play Board	Town budget for staff time	X	X	X	X	as needed		
Prioritize needs of recreation fields/areas, find funds, and do the work 1. Finalize negotiations with MCI regarding soccer fields 2. Remove demolition debris and develop playing fields at Middle School. 3. Address drainage issues at Lura A. White School fields	Recreation Commission – needs. Conservation Commission and Board of Selectmen - Dept of Corrections/MCI and EOEAA negotiations. DPW – planning and work. Selectmen, Administrator –grants and other funding, MCI help with field restoration?	Town Budget, grant funds, seek donations from local businesses and others	X	X					
Ensure protection by deed of town-owned conservation & recreation lands	Conservation Commission and agent	Volunteer time and Commission budget	*	X					
Re-establish a standing Open Space and Greenway Committee to implement this OSRP and carry out ongoing management and stewardship of town-owned open space lands	Town Meeting vote to authorize, committee to consist of interested residents working under direction of the Conservation Commission	Volunteer time; funding in Conservation budget for materials for management; grant funding	X						

Goal 1: Take Care of What We Already Have: continued

Action	Who	Funding Source	2017	2018	2019	2020	2021	2022	2023
Create maps for trails and mark trails; communicate information about trails to residents, enforce Off-road vehicle restrictions on trails	Trails Group with Conservation Commission, Open Space and Greenway Committee, Scouts and other volunteers. Police Dept to address ORV issues	Conservation budget for materials, printing; grant funding, volunteer time (Trails Group)	*	x	Ongoing as needed				
Provide access and parking for trails	Conservation Commission members and agent, Trails Group, DPW	Staff time needs to be covered in budget; grant funds	*	x	x	Ongoing as needed			
Evaluate conditions of town-owned properties and trails annually, and update inventory as needed	Conservation Commission, Open Space & Greenway Committee, Trails Group	Volunteer time	x	x	x	x	x	x	x
Check Conservation Restrictions on private land as required under state law – visit properties annually and check that CR conditions are followed	Conservation Commission and Agent	Grant \$\$; DPW & Conservation Agent time; Town budget; volunteer time	x	x	x	x	x	x	x
Prepare management plans for currently unmanaged town open space and recreation lands	Conservation and Recreation Commissions, Open Space and Greenway, volunteers	Volunteer time, Conservation Agent time in Town budget		x	x	Ongoing as needed			
Inform public about management plans, including forest cutting plans, for town-owned lands; implement plans	Conservation Commission	Grants, Town budget, volunteer time	*	x	x	Ongoing as needed			
Carry out necessary maintenance on town-owned historic buildings	Selectmen, Historic Commission, Shirley Historical Society, Center Town Hall Committee	Grants, Town budget	*	x		Ongoing as needed			

Goal 2: Protect Water, Wildlife Habitat, and Forests

Objective 2A: Residents throughout town will continue to enjoy high quality drinking water

Objective 2B: Residents will enjoy the recreational, environmental, social, and economic benefits of healthy water resources

Objective 2C: Residents will enjoy quality-of-life benefits of living where wildlife and forests are parts of our day-to-day landscape

*** background work is already underway**

Action	Who	Funding Source Source	2017	2018	2019	2020	2021	2022	2023
Perform coordinated review of bylaws and regulations related to protection of water, wildlife, and forests, including: (1) zoning and subdivision requirements for minimum lot coverage, open space and natural resource protection, including conservation Restrictions and low impact development; (2) non-zoning Wetland bylaw and Conservation Commission wetlands setbacks and allowed uses in wetlands and buffer zones; (3) stormwater bylaw; (4) water supply and floodplain overlay districts	Coordinated effort by Planning Board and Conservation Commission with inputs from Board of Health, ZBA, Water District, Economic Development committee and others; help from MACC, MRPC; Town Meeting vote if needed	Volunteer time, seek grant \$\$ for professional assistance	x	x		Ongoing as needed			
Protect well head areas and land around future well sites, identify land protection needs; address ongoing ORV problems	Water District lead on plan development and implementation; Town departments and volunteers to participate. Police to enforce ORV restrictions	Water District Budget, Town budget for Police time	x	x		Ongoing as needed			
Establish groundwater protection study committee to work with Water District and Planning Board to ensure public and private wells are adequately protected through land use regulations and review, plus public education	Town Meeting vote, committee of Interested citizens, representatives from Water District and town boards: Planning, Conservation Commission, Appeals, Health, DPW, Selectmen	Volunteer time	x	x	x	x	x	x	x

Goal 2: Protect Water, Wildlife Habitat, and Forests, continued

Action	Who	Funding Source Source	2017	2018	2019	2020	2021	2022	2023
Educate Town Officials and residents about groundwater protection basics and best management practices for protecting public and private wells	Conservation Commission, Groundwater Protection Committee, and NRWA. Audience: Residents, Water District staff, Conservation, Planning, Appeals, & Health boards, DPW, Assessors, Selectmen, Economic Development and Energy Committees	Volunteer time, grant \$ for groundwater professionals to provide information	x	x	x	x	x	x	x
Prepare management plans for currently unmanaged town open space and recreation lands	Conservation and Recreation Commissions, Open Space and Greenway, volunteers	Volunteer time, grant funding	x	x	x	x	x	x	x
Provide information to land owners about land management practices to benefit wildlife and improve forest health	Foresters, MA DFW, Conservation Comm, NRWA, TTOR, others	Volunteer time, grant funding	x	x	x	x	x	x	x

Goal 3: Engage the community with open space and recreation by providing opportunities and information to the public

Objective 3A: Increase public enjoyment of the town's resources

Objective 3B: Gain public support for town budgets and actions with regard to open space and recreation

*** background work is already underway**

Action	Who	Funding Source Source	2017	2018	2019	2020	2021	2022	2023
Determine ways/places to get information out (possible newsletter, or Facebook?)	Conservation Commission, Trails Group, Open Space and Greenway Committee, others	Seek grants and donations if \$\$ is needed	*						
Publish and publicize trails information and maps	Trails Group and Conservation Commission	Volunteer time, donations; Conservation budget	*	Ongoing as updates are needed					
Have seasonal walks and other seasonal events throughout the year (e.g., fall, spring walks, snowshoe, summer swimming hole crawl and other water-based programs, others)	Conservation Commission, Play Board, Recreation Commission, Trails Group, TTOR, NRWA, others	Volunteer time, donations, possible grants	(*)	x	x	x	x	x	x
Share information and coordinate efforts to provide play and recreation opportunities for all ages	Playful Shirley, Trails Group, Open Space and Greenway Committee, Play Board, Recreation Committee	Volunteer time	x	x	x	x	x	x	x
Work with schools, ex. Aquatic insect drawings	Conservation, LAW school, Possibly Ayer-Shirley Middle School, NRWA, others	Grant \$	x	x	x	x	x	x	x
Explore National Arbor Day Foundation program on tree protection; -- establish Tree Committee	Conservation Commission, Open Space and Greenway Committee, residents; Town Meeting vote	Volunteer time	x	x	x	x	x	x	x

Goal 4: Plan for the future protection of conservation and recreation lands in Shirley

Objective 4A: Ensure adequate protection of land areas for future use, to maintain water, wildlife, and other important values into the foreseeable future, and to address impacts of climate change

Objective 4B: Be able to specify actions needed from the Town, other public bodies, and private individuals to maintain important open space, conservation, and recreation resources for the future

Objective 4C: Have specific recommendations ready for next revision of Town of Shirley Open Space and Recreation Plan

* background work is already underway

Action	Who	Funding Source Source	2017	2018	2019	2020	2021	2022	2023
Prioritize unprotected properties for connectivity with other protected properties, providing wildlife corridors and other wildlife habitat, and potential refuges from climate changes	Conservation Commission, Open Space and Greenway Committee, work with NRWA, MA Dept F&G, US Fish and Wildlife, others	Volunteer time, seek grant funding	x	x	x	x	x	x	
Look into establishing a private Shirley Land Conservation Trust or joining up with Groton Conservation Trust to have a private non-profit land conservation organization in town	Interested residents, possibly including members of Conservation, Trails, Open Space and Greenway Committee	Volunteer time, private individuals	x	x					
Identify unprotected properties that should be protected for future recreational use	Trails Group, Open Space and Greenway, Recreation, and Conservation Commissions, residents	Volunteer time	x	x	x	x	x	x	
Identify unprotected properties that should be protected for future water supply	Shirley Water District (water supply protection areas), interested residents	Volunteer time, Water District budget for staff time, water district land protection \$	x	x	x				
Identify unprotected properties that are important for Shirley's rural character, scenic views	Historic Commission, Historical Society, Conservation, Open Space & Greenway, residents	Volunteer time	x	x	x	x	x	x	

Goal 4: Plan for the future protection of conservation and recreation lands in Shirley, continued

Action	Who	Funding Source	2017	2018	2019	2020	2021	2022	2023
Protect new land for future recreation and open space needs including wildlife habitat, climate change mitigation, and water supply protection (Protection through conservation restrictions and possibly some land acquisition)	Private owners, (conservation restrictions), MA Fish and Game, US Fish and Wildlife, Conservation and Recreation Commissions	Grants; gifts of land or funds. Conservation restrictions on private land--Funds from USFS for forest CRs; DFW for CRs, wildlife habitat; DEP and land trusts for Agricultural Preservation restrictions; DEP and EPA grants for drinking water. CPA funds if adopted by the town	x	x	x	x	x	x	x
Consider potential adoption of the Community Preservation Act (CPA) to provide funds for maintenance of historic buildings, recreation lands, and conservation areas, and for land protection	Historical, Recreation, and Conservation Commissions, Center Town Hall Committee, Shirley Meeting House Preservation Society, Shirley Historical Society	Volunteer time	Initiate discussions when there is sufficient interest						
Coordinate land protection efforts with Master Plan, planning for new development initiatives, and review of new development proposals	Selectmen, Economic Development Committee, Planning Board, Conservation Commission, Board of Health, ZBA, Energy Committee	No special funding needed	x	x	x	x	x	x	x

10. PUBLIC COMMENTS

This section is reserved for future public comments and letters of review about this revised draft plan. The Town of Shirley will need to review the draft plan, distribute it for comment within the town, and make any necessary revisions.

Letters of review from the Planning Board, Board of Selectmen, Conservation Commission and Montachusett Regional Planning Commission must be included before the plan is submitted to the State of Massachusetts Division of Conservation Services.

The Plan will also be submitted for review to the following town boards and local or regional organizations:

- Board of Health
- Economic Development Committee
- Board of Assessors
- Recreation Commission
- Shirley Historical Society
- Town of Shirley Historical Commission
- Nashua River Watershed Association
- MA Department of Fish and Game

Approval of this plan is required from the Massachusetts Executive Office of Environmental Affairs, Division of Conservation Services (DCS), and will make Shirley eligible for DCS grant assistance programs, for up to seven years. Once the plan is approved by DCS, a final copy should be provided to all Town boards and agencies and the local library, and should be posted on the Town's website.

One copy of the draft may be submitted to DCS while other municipal boards review the report; the required approval letters must be provided to DCS with the final plan.

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11. REFERENCES

NOTE: Some of the cited materials were consulted by the Conway School students in preparing the 2011 draft OSRP for the Town of Shirley.

Campbell C.J., 1997, "The Coming Oil Crisis." Multi-Science Publishing Co. & Petroconsultants.

City of Arcata, California. "Arcata City Forests."
<http://www.cityofarcata.org/departments/environmental-services/city-forests> Accessed on 14 January 2011.

Community Preservation Coalition. "Massachusetts Community Preservation Act."
<http://www.communitypreservation.org>. Accessed February 2011.

Community Preservation Committee. Belchertown Historical Commission.
<http://www.belchertown.org/committees/cpc>. Accessed February 2011.

Community Forest Collaborative. 2007. Community Forests: A Community Investment Strategy. 89 pp. https://northernforest.org/images/resources/community-forests/Community_Forests_Report_1.7MB.pdf

Community Forest Collaborative. 2011. Community Forests: Needs & Resources for Creating & Managing Community Forests. 52 pp. https://northernforest.org/images/resources/community-forests/Needs_and_Resources_for_Creating_and_Managing_Community_Forests_updated_Aug_2011.pdf

Conway School of Landscape Design. "Multi-Use Trail Planning." Town of Marshfield DRAFT OSRP 2010.

Devens Open Space and Recreation Plan, 2008-13. MassDevelopment, NRWA, and MRPC, 2008.

Executive Office of Environmental Affairs. <http://www.state.ma.us/envir>

Final Economic Development Chapter to the Master Plan, 2010, Montachusett Regional Planning Commission (MRPC)

Franklin Regional Council of Governments. <http://www.frcog.org>

Harvard Forest. <http://harvardforest.fas.harvard.edu/diorama-series/landscape-history-central-new-england--> dioramas from the early 20th century illustrating the history of forest clearing and regrowth in central New England

Hyla Ecological Services. "Draft Rare Species Habitat Assessment and Vernal Pool Questionnaire."

Hyla Ecological Services. 2006 Rare Species Questionnaire and Habitat Assessment, MacPherson Road Corridor, EBZ, and Moore Airfield, Ayer and Shirley, MA, NHESP Tracking No: 00-7674, 2007.

Kerlinger, Paul. "Economics of Open Space Conservation." 1999.

Martha West Lyman, Cecilia Danks, and Maureen McDonough. 2013. New England's Community Forests: Comparing a Regional Model to ICCAs. *Conservation and Society* 11(1): 46-59. <http://www.conservationandsociety.org/article.asp?issn=0972-4923;year=2013;volume=11;issue=1;spage=46;epage=59;aulast=Lyman>

Massachusetts Audubon Society. 2014. *Losing Ground: Planning for Resilience (Fifth Edition)*. Lincoln, MA. <http://www.massaudubon.org/our-conservation-work/advocacy/shaping-the-future-of-your-community/publications-community-resources/losing-ground-report/losing-ground-fifth-edition>.

Massachusetts Department of Conservation and Recreation. <http://www.state.ma.us/dcr>.

Massachusetts Department of Conservation and Recreation. 2006. *Shirley Reconnaissance Report*. Freedom's Way Landscape Inventory. Massachusetts Heritage Landscape Inventory Program, June, 2006, 2-3.

Massachusetts Division of Conservation Services. 1991. *The Massachusetts Conservation Restriction Handbook*. . 54 pp. <http://atfiles.org/files/pdf/MAconsrestrict08.pdf>

Massachusetts Department of Correction. 2016. MCI Shirley Medium/Maximum. 6-panel brochure. MCI_Shirley, PO Box 1218, Harvard Road, Shirley, MA 01464.

Massachusetts Department of Environmental Protection. 2003. Massachusetts Department of Environmental Protection, Source Water Assessment and Protection (SWAP) Report for Shirley Water District. 26 February, 2003. <http://www.state.ma.us/dep>

Massachusetts Department of Fish and Game. <http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/upland-game-bird-habitat-management-in-massachusetts.html> -- information from MA Fish and Game on wildlife species that depend on early-successional habitat

Massachusetts Executive Office of Energy and Environmental Affairs. Massachusetts Geographic Information Systems. www.mass.gov/mgis

Massachusetts Executive Office of Energy and Environmental Affairs. Open Space and Recreation Plan Requirements. 2008. 11 pp. Available for download at: <http://www.mass.gov/eea/docs/eea/dcs/osplanreq08.pdf>.

Massachusetts Executive Office of Energy and Environmental Affairs. 2008. Open Space and Recreation Plan Workbook. 96 pp. Available for download at: <http://www.mass.gov/eea/docs/eea/dcs/osrp-workbook08.pdf>.

Massachusetts Executive Office of Environmental Affairs. Environmental Justice Policy. Available for download at: http://www.mass.gov/Eoeea/docs/eea/ej/ej_policy_english.pdf

Massachusetts Natural Heritage and Endangered Species Program (NHESP). www.mass.gov/dfwele/dfw/nhesp

Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP). www.state.ma.us/envir

MassDevelopment. 2005. North Post Parcel Shirley, MA, NHESP File. 00-7674, August, 2005.

Robert McCullough. 2015. A Regional Town Forest Timeline. http://vtcommunityforestry.org/sites/default/files/pictures/Resource/new_england_town_forest_timeline.pdf

Montachusett Regional Planning Commission, Shirley Safe Routes to School – 2008-2009. <http://www.mrpc.org/Documents/Reports/2009TransStudies/ShirleyMiddleSchoolFINALreport92009.pdf>

Montachusett Regional Planning Commission. www.mrpc.org

Nashua River Watershed Association and the Massachusetts Watershed Initiative – Nashua Team.

Nashua River Watershed Five-Year Action Plan, 2003-2009.

Nashua River Watershed Association. www.nashuariverwatershed.org

Natural Resources Conservation Service. Plymouth County Soil Questionnaire: www.nesoil.com

New England Forestry Foundation: www.newenglandforestryfoundation.org

Northern Forests. <https://northernforest.org/resources/community-forests> -- information and links to reports on community forestry in New England

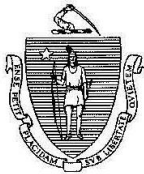
David J. Nowak and Eric J. Greenfield. 2008. Community forests of New England. United States Department of Agriculture, Forest Service Northern Research Station. General Technical

Report NRS-38. https://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs38.pdf

Open Space Planner's Workbook: www.state.ma.us/envir

Shirley Historical Society: <http://www.shirleyhistory.org/>.

Appendix A. Letter from Massachusetts Executive Office of Energy and Environmental Affairs Summarizing Needed Amendments to the 2014 Draft OSRP; Documentation that Items in the EOEEA Letter have been Addressed; and Letter from Shirley Planning Board.



Deval Patrick
GOVERNOR

Maeve Vallety Bartlett
SECRETARY

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Tel: (617) 626-1000
Fax: (617) 626-1181

December 24, 2014

Nadia Madden
Conservation Commission
7 Keady Way
Shirley, MA 01464

Re: Open Space and Recreation Plan

Dear Ms. Madden:

Thank you for submitting the draft Open Space and Recreation Plan for Shirley to this office for review and compliance with the current Open Space and Recreation Plan requirements. This plan has been conditionally approved through December 2019. Conditional approval will allow the town to participate in DCS grant rounds through December 2019, and a grant award may be offered to the town. However, no final grant payments will be made until the plan is completed.

Once the following items are addressed, your plan will receive final approval:

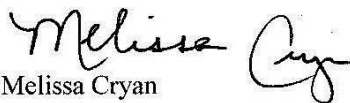
1. Introduction – the Public Participation Process is out of date. Given the length of time between when the public had an opportunity to provide input and the OSRP submission date, please, at a minimum, host a public forum to hear what the public is looking for in open space and recreation amenities.
2. Population Characteristics – the density, family income, and Environmental Justice populations sections must all be updated with more current Census data than 2000. A section on the town's industries must be added.
3. Vegetation – the section should include information on public shade trees.
4. Fisheries and Wildlife – the section on the town's wildlife corridors is missing. Please add it.
5. Scenic Resources and Unique Environments – information on scenic landscapes, unusual geologic features, and areas of critical environmental concern is missing. Please add it.
6. Section 5 – this section should begin with an explanation of why open space protection is so important. The table that lists town-owned conservation and recreation properties must include a column on degree of protection. The condition and recreation potential columns must be completely filled in. Many were left blank. Also, a list of lands with an Agricultural Preservation Restriction should be added.
7. Analysis of Needs – the Community's Needs section should reference the SCORP and how it relates to Shirley. It can be found online at <http://www.mass.gov/eea/docs/eea/dcs/scorp-2012-final.pdf>. Also, the needs of special groups, such as the elderly and people with disabilities, should be added.
8. Action Plan – the goals and objectives should be listed in some sort of priority order with a funding source and responsible party identified for each. DCS now allows for seven year

action plans. If the plan is expanded to seven years, it will receive an additional two years of eligibility.

9. Letter of Review – a letter from the Planning Board must be included.
10. ADA – the ADA section is not complete. The OSRP must include facility inventory sheets for all town-owned conservation and recreation properties. The forms can be found online in the Workbook, Appendix G at <http://www.mass.gov/eea/docs/eea/dcs/osrp-workbook08.pdf>.

Please contact me at (617) 626-1171 or melissa.cryan@state.ma.us if you have any questions or concerns, and I look forward to reviewing your final plan.

Sincerely,



Melissa Cryan
Grants Manager

Shirley Open Space & Recreation Plan Committee Response to EOEEA letter of December, 2014

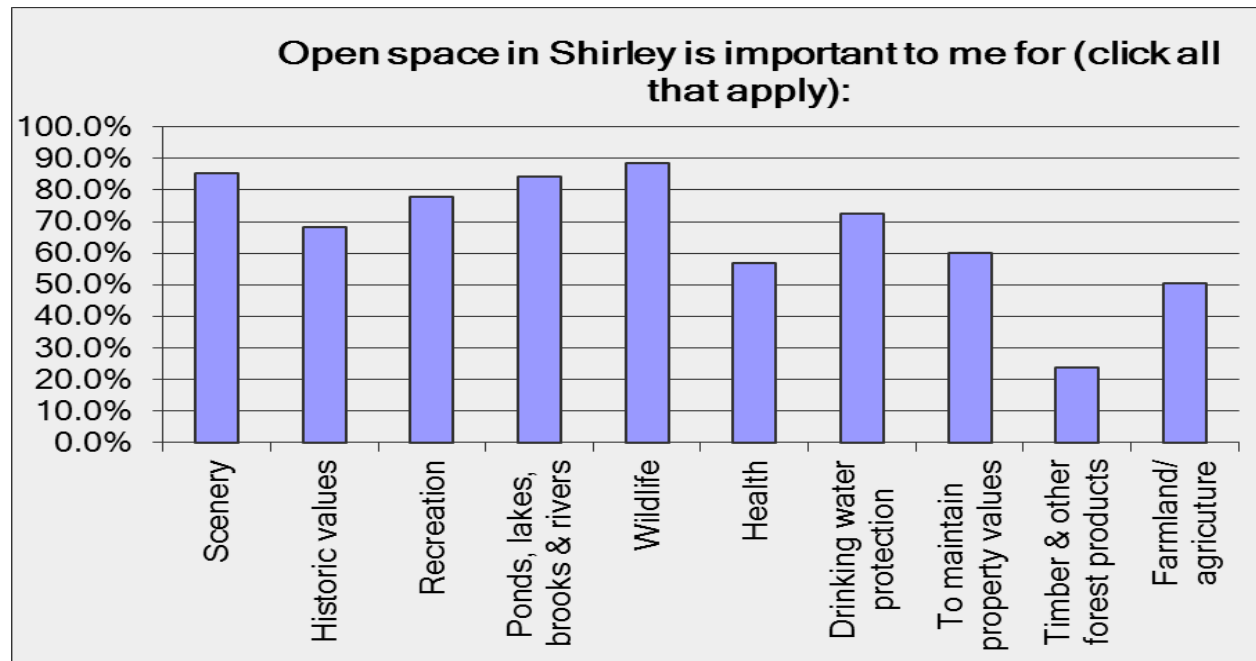
- (1) Update Public Participation: Surveyed public opinion and held public information forum. Results presented in Appendix B and discussed in Sections 2 and 7.
- (2) Update data on Population and Town Industries: Done. See Section 3C.
- (3) Shade Trees: Shade Tree discussion added under Resources Inventory Section 4.
- (4) Wildlife Corridors: Added in Section 4C and Appendix E.
- (5) Scenic and Unique areas: Added, See Section 4F.
- (6) Discuss Need for Open Space Protection in Section 5; complete Land Inventory table with level of protection and recreation potential for town-owned parcels; list APR lands: Added text at start of this section on need for open space protection and tools that are available to accomplish it. Completed Land Inventory Table (presented as Appendix C). There are no APR lands in Shirley; note added to text confirming this fact.
- (7) Reference SCORP in Analysis of Needs, and refer to the elderly and disabled: ADA and seniors referred to in many parts of plan; SCORP references included on pages 107-108.
- (8) Action Plan in Priority Order with funding and responsible parties: This 7-year action plan calls for action on the part of many boards and parties, whose work will naturally be carried out in parallel in most instances. We have identified actions of high priority with the calendar of action indicating immediacy of the need in most cases. Responsible parties are listed, and sources of funding are identified where possible.
- (9) A letter of review from the Shirley Planning Board is **[will be] attached**
- (10) ADA Inventory Sheets: Most of Shirley's town-owned conservation lands are undeveloped forestlands and wetlands, and they do not meet ADA requirements; they are listed on a single form as directed by EOEEA staff. Whiteley Park, Fredonian Park and Conservation Area, Benjamin Hill Recreation Area, playgrounds at the Lura A. White School, the small soccer field by the Shirley Senior Center, and the town Training Field and Center Town Hall are developed areas for which separate ADA inventory forms **will be** presented.

Appendix B. Results of Public Participation Process, 2016. Online Public Opinion Survey and Public Information and Input Forum

Shirley Open Space & Recreation Plan Survey - 2016:
Summary of Questions and Responses

Question 1.

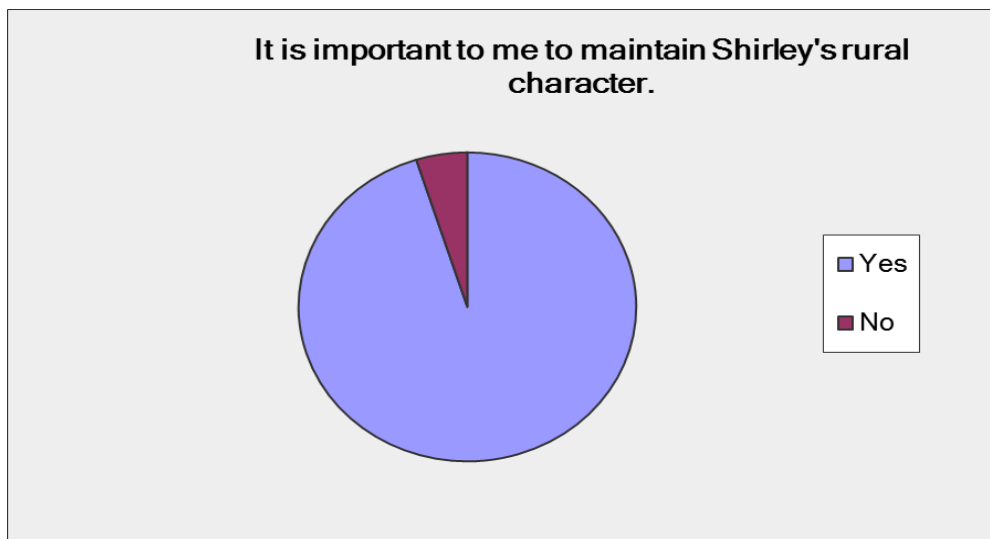
Open space in Shirley is important to me for (click all that apply):		
Answer Options	Response Percent	Response Count
Scenery	85.4%	158
Historic values	68.1%	126
Recreation	77.8%	144
Ponds, lakes, brooks & rivers	84.3%	156
Wildlife	88.6%	164
Health	56.8%	105
Drinking water protection	72.4%	134
To maintain property values	60.0%	111
Timber & other forest products	23.8%	44
Farmland/agriculture	50.3%	93
Other (please specify)		12
<i>answered question</i>		185
<i>skipped question</i>		4



Number	Response Date	Other (please specify)
1	May 2, 2016 4:41 PM	Hunting/ fishing
2	Apr 21, 2016 10:39 AM	Not more solar fields. The one on 225 Ruined my quiet backyard on Longley Road. Now on summer nights we just hears cars in the distance. However, I would be very open to more small business and restaurants. A nice market to pick up small groceries maybe?
3	Apr 4, 2016 9:12 PM	Hiking and biking
4	Mar 9, 2016 5:42 PM	Once its gone, you can never get it back many of us have moved from towns that have lost their open space, I'm one and I love hiking in Shirley I would hate to see it taken over by entrepreneurs to make a few people rich at the expense of the many.
5	Mar 8, 2016 7:08 PM	Quality of life
6	Mar 8, 2016 6:08 PM	to attract folks from other towns to recreate on the land in Shirley
7	Mar 7, 2016 4:26 PM	all of the above
8	Mar 7, 2016 4:12 PM	Disc golf course
9	Mar 7, 2016 3:25 PM	Disc golf course
10	Mar 6, 2016 3:13 PM	Doggy play groups
11	Mar 4, 2016 10:01 PM	All of the above
12	Feb 27, 2016 10:15 PM	We should keep our open land and STOP PUTTING UP SOLAR FARMS!!!

Question 2.

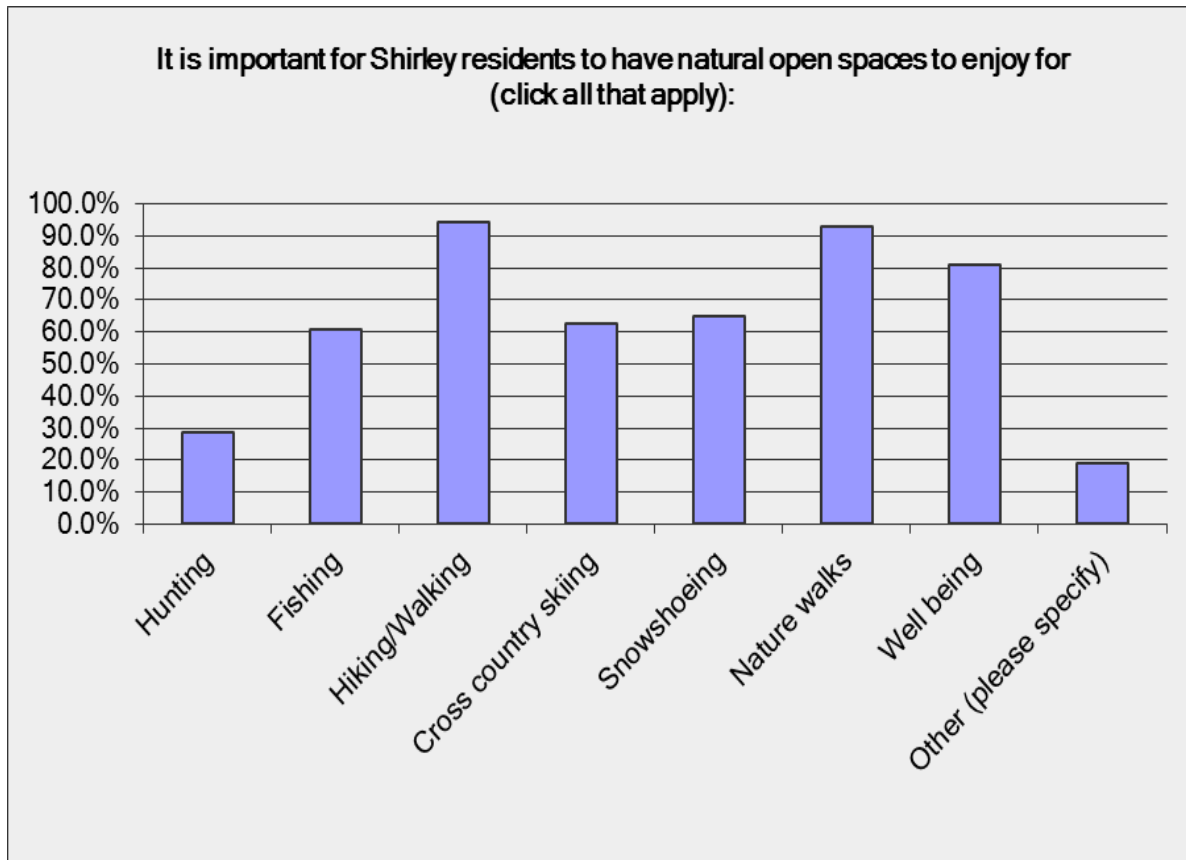
It is important to me to maintain Shirley's rural character.		
Answer Options	Response Percent	Response Count
Yes	95.1%	176
No	4.9%	9
<i>answered question</i>		185
<i>skipped question</i>		4



Question 3.

It is important for Shirley residents to have natural open spaces to enjoy for (click all that apply):

Answer Options	Response Percent	Response Count
Hunting	28.7%	54
Fishing	60.6%	114
Hiking/Walking	94.1%	177
Cross country skiing	62.8%	118
Snowshoeing	64.9%	122
Nature walks	93.1%	175
Well being	80.9%	152
Other (please specify)	19.1%	36
<i>answered question</i>		188
<i>skipped question</i>		1

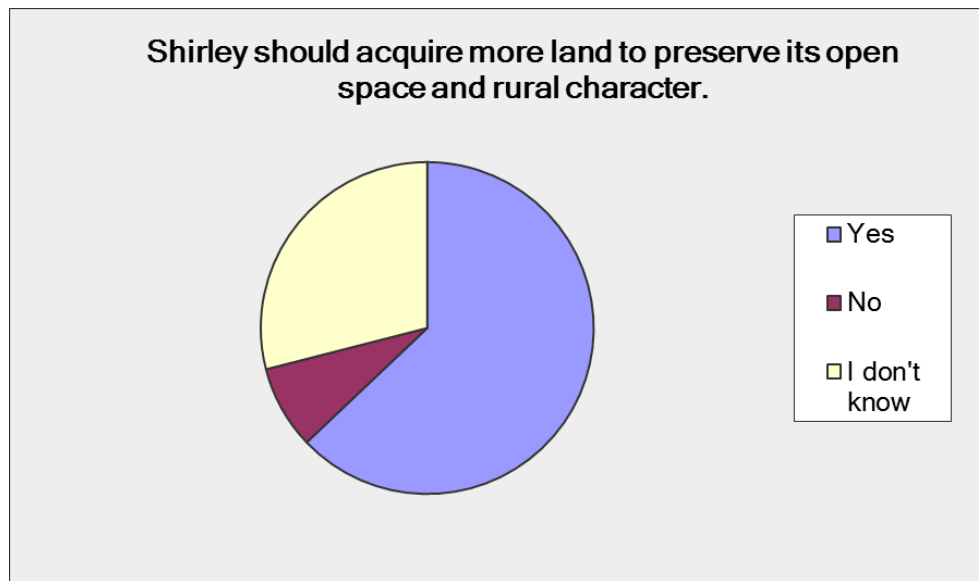


Appendix B. Public Participation Process

Number	Response Date	Other (please specify)
1	May 24, 2016 12:25 AM	Dog walking
2	May 24, 2016 12:13 AM	birding
3	May 24, 2016 12:02 AM	Spending time outside does not need to require that you kill animals (hunting, fishing)!
4	May 23, 2016 11:50 PM	frisbee, tennis
5	May 18, 2016 3:56 PM	open space is NOT for the enjoyment of Shirley Residents
6	May 5, 2016 12:38 AM	Horseback riding
7	Apr 23, 2016 10:45 PM	Education
8	Apr 21, 2016 10:39 AM	I nice place to bring pets.
9	Apr 4, 2016 9:12 PM	horseback riding
10	Mar 29, 2016 12:37 AM	Time outside without technology
11	Mar 21, 2016 3:26 PM	dog walking
12	Mar 20, 2016 6:41 PM	horseback riding on trails (not roads!)
13	Mar 19, 2016 12:26 PM	Beauty
14	Mar 14, 2016 7:39 PM	reforestation
15	Mar 14, 2016 7:35 PM	Places to go to walk your dog, take your kids fishing or just to have peace and tranquility and space to clear your head and enjoy the surroundings.
16	Mar 14, 2016 12:01 PM	Visual beauty and a sense for the wild
17	Mar 12, 2016 10:47 PM	basketball
18	Mar 10, 2016 3:32 PM	Trail Running
19	Mar 9, 2016 5:42 PM	Piece and quiet lends itself to tranquility and harmony
20	Mar 8, 2016 11:05 PM	Sense of peace and tranquility
21	Mar 8, 2016 10:16 PM	If and when feasible, cross country skiing (No motorized recreational vehicles please.) ("Dog friendly" space is very important.)
22	Mar 7, 2016 4:26 PM	again, all of the above
23	Mar 7, 2016 3:46 PM	Disc golf
24	Mar 7, 2016 3:33 PM	disc golf
25	Mar 7, 2016 3:25 PM	Disc golf course
26	Mar 6, 2016 3:13 PM	Doggie parks
27	Mar 5, 2016 7:04 PM	sharing family time
28	Mar 5, 2016 12:27 PM	Dog walking
29	Mar 4, 2016 10:01 PM	All of the above
30	Mar 4, 2016 12:48 PM	Pet park
31	Mar 2, 2016 1:30 PM	outdoor education, natural history
32	Mar 1, 2016 11:27 PM	Exploration and education
33	Mar 1, 2016 9:53 PM	prevent urban sprawl
34	Mar 1, 2016 3:40 AM	No traffic
35	Feb 26, 2016 11:52 PM	Please stop all-terrain vehicles from destroying our resources!!! Lunenburg has a ban, shirly should too
36	Feb 26, 2016 6:11 PM	Recreational sports activities

Question 4.

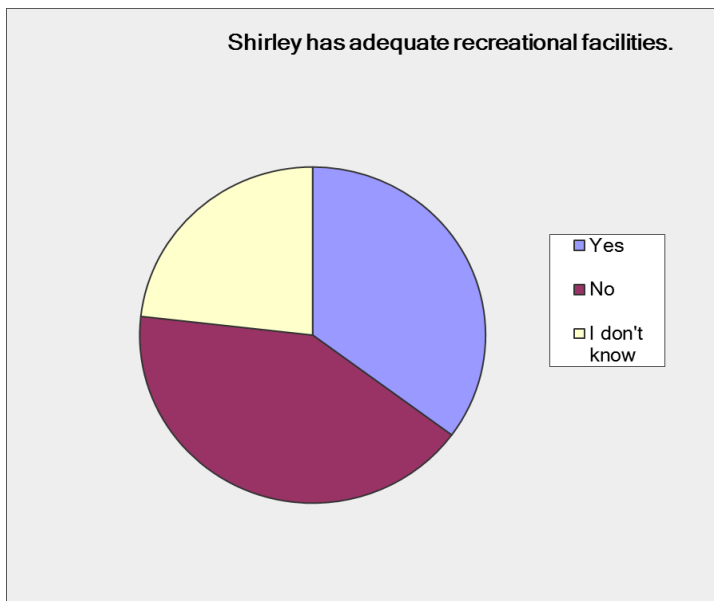
Shirley should acquire more land to preserve its open space and rural character.		
Answer Options	Response Percent	Response Count
Yes	62.9%	117
No	8.1%	15
I don't know	29.0%	54
<i>answered question</i>		186
<i>skipped question</i>		3



Question 5.

Shirley has adequate recreational facilities.		
Answer Options	Response Percent	Response Count
Yes	35.1%	65
No	41.6%	77
I don't know	23.2%	43
If you answered "No" or "I don't know", please explain what recreational facilities you think Shirley needs.		80
<i>answered question</i>		185
<i>skipped question</i>		4

Appendix B. Public Participation Process



Number	Response Date	If you answered "No" or "I don't know", please explain what recreational facilities you think Shirley needs.
1	May 24, 2016 12:19 AM	I think we need some more ball fields and a place for the older kids to spend time when they're not in school.
2	May 24, 2016 12:02 AM	The kids need a clubhouse or somewhere to hang out to keep them out of trouble!
3	May 23, 2016 11:50 PM	I believe we need more sports fields for the children.
4	May 16, 2016 7:57 PM	More baseball/softball fields are needed.
5	May 5, 2016 12:44 AM	Rail trail would be nice
6	May 5, 2016 12:38 AM	More conserved land in natural state for wildlife/nature
7	May 2, 2016 2:16 PM	More hiking/walking trails. Lap swimming times at the Benjamin Hill pool (multiple ways to work this need). Plowing the loop off Hospital Rd (Taylor field) so that residents have a safe place to walk in winter.
8	Apr 30, 2016 1:02 PM	more accessible water front
9	Apr 26, 2016 11:37 AM	More recreational areas near water
10	Apr 21, 2016 1:22 PM	I think we could use more public water/swimming pond access. There are not a lot of access to family pond/lake beach areas. Shirley boating would be nice too, like the one in Groton.
11	Apr 21, 2016 10:39 AM	It's getting there, the park on Parker St (?) The new one that opened last year is an awesome start though.
12	Apr 21, 2016 3:44 AM	Shirley needs a playground that doesn't belong to the school, one for all kids
13	Apr 20, 2016 6:49 PM	Redo / reopen skate park
14	Apr 20, 2016 6:30 PM	I am not sure what shirley has as far as recreational facilities!! I just learned of far and near in shirley and think it is wonderful that such a place exists.
15	Apr 20, 2016 5:38 PM	Need a dog park
16	Apr 20, 2016 5:19 PM	Disc golf is the fastest growing sport in the country. Average cost for putting in a course is only around 15 to 20k. Unlike regular golf it works with nature and can't be built in existing forests. Brings a diverse group of people who will spend money at local shops.

Appendix B. Public Participation Process

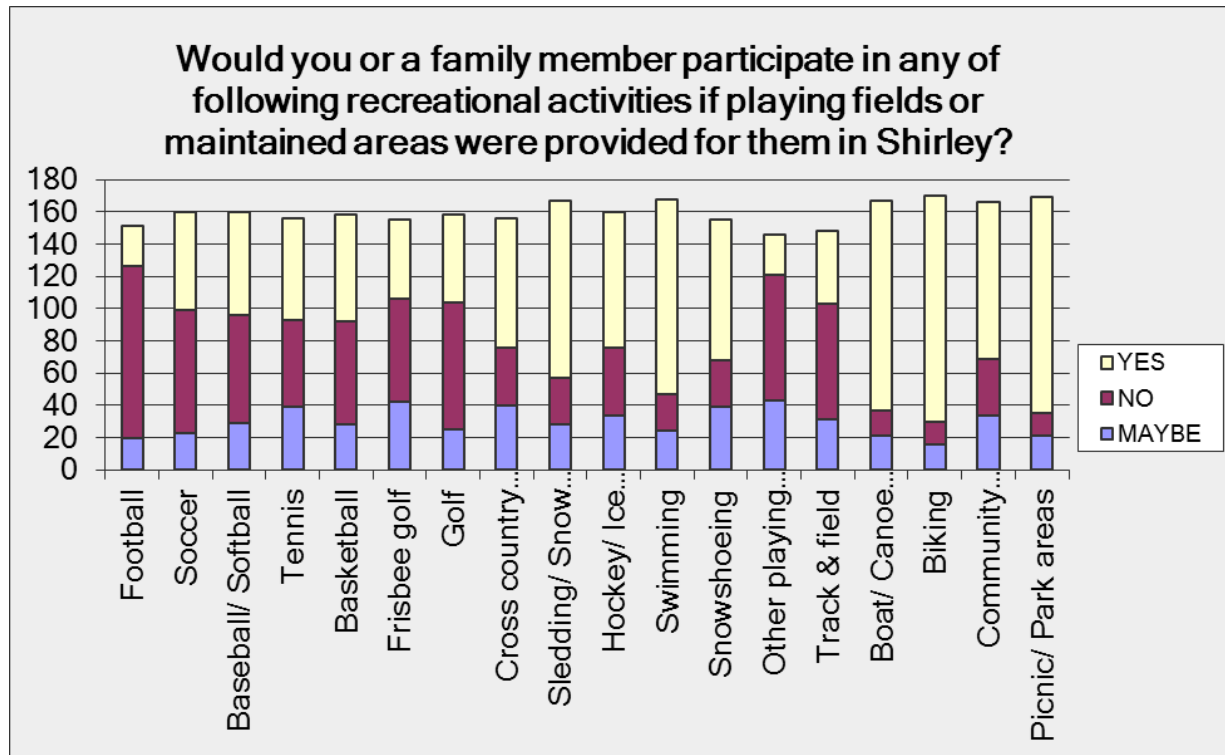
17	Apr 20, 2016 2:02 PM	more hiking trails
18	Apr 20, 2016 11:51 AM	We can always do more. The addition of Farandnear as a Trustees property has been huge. Holdenwoods is fabulous as well. Benjamin Hill is wonderful and we look forward to trying out the new basketball court. We were disappointed to find it locked whenever we have tried so far. The space next to the Middle School could make a fabulous community garden area. A pamphlet on area hiking trails would be very helpful. I know we have the Oxbow, but don't know if there is an access point to hiking trails.
19	Apr 17, 2016 1:05 PM	Improved walking or biking trails
20	Apr 11, 2016 11:20 PM	We could use a community center similar to the Fairbank Community Center in Sudbury. The town would really benefit.
21	Apr 11, 2016 12:32 PM	More maintained trails like Farandnear, more contiguous preserved land for wildlife
22	Apr 11, 2016 12:34 AM	More open space and conservation land
23	Apr 10, 2016 5:43 PM	Need signs and maps for trails.
24	Apr 7, 2016 2:52 AM	More hiking trails open to public and reasonably maintained by volunteers.
25	Apr 4, 2016 9:12 PM	more soccer and baseball fields needed
26	Apr 1, 2016 9:32 PM	In the town survey there was reference to hiking trails in Shirley and other recreation spaces. Where are they? Where is information on them? If its on the town website, nobody can find the information. The new Far and Near area is a great new area. Aside from Benjamin Hill, thats pretty much all I've ever seen advertised. The facilities at Benjamin hill need renovation. The playground is unusable due to old splintered wood and a bee infestation. The ice stating rink was almost always closed over the winter, extremely small, and there is absolutely no information about when it is open.
27	Mar 29, 2016 5:06 AM	I miss Lake Shirley Beach and having a place to sit beside a large body of water. I think there is a need for more meeting space for scout troops, or health classes, or for community groups to hold events.
28	Mar 29, 2016 12:37 AM	Shirley has great open spaces, and some excellent fields and playgrounds. I would love to see more outdoor community building opportunities. A dog park, playground improvements, a natural playground, and a playground for seniors which is all the rage now....
29	Mar 23, 2016 9:49 PM	There are no bike lanes and almost no sidewalks. Benjamin Hill and Summer in Shirley are great, but we need more for teens.
30	Mar 21, 2016 3:26 PM	more marked trails with places to park
31	Mar 19, 2016 12:26 PM	More large tracks of conservation land. Once the land is "developed" it is gone. Shirley is lucky to still have land which can be protect as opposed to some of our neighbors which are becoming "built out". It is expensive to save land but it will pay us back in health, beauty and property values. Please act wisely
32	Mar 18, 2016 4:15 PM	A more developed and marked trail system.
33	Mar 18, 2016 2:32 PM	More hiking trails.
34	Mar 16, 2016 2:36 PM	disc golf, public hiking trails
35	Mar 14, 2016 7:39 PM	Times have changed, there are those who enjoy nature and those who enjoy television and computer. We have recreation facilities, not many use them because most are in front of the Television. We have a basketball court yet just about every house in town has a hoop - which disturbs their neighbors. You see 'the boys' wandering around town stealing things from yards, damaging mailboxes, destroying the rock walls around the homes and

		cemetery... better parents and community service is what these kids need.
36	Mar 14, 2016 7:35 PM	It seems that better open information about all the open space available for public use is needed. I don't think people, including myself to some extent, aren't aware of all the outdoor areas and opportunities. And for those areas, have good-looking, highly readable signage directing people to or into an area and out, with minimal, but informative signage throughout and along the trails.
37	Mar 14, 2016 12:01 PM	As a retired adult I'd like to see more walking trails identified. If I still had kids in school I would want access to well-designed places for youth sports.
38	Mar 13, 2016 9:28 PM	I don't have children so I don't know if there are enough playgrounds, ball fields etc. I don't think we should have more at the expense of open space.
39	Mar 12, 2016 10:47 PM	a recreational center would be awesome
40	Mar 12, 2016 4:20 PM	A playground closer to Downtown Shirley with some open space would be great
41	Mar 11, 2016 2:18 PM	There are places to enjoy but I find them difficult to use, i.e. limited parking, poor signage, unmarked/poorly marked trails, conflicting purpose (no trespassing signs but ample evidence that property is used by the public)
42	Mar 10, 2016 3:32 PM	Shirley has many power line right of ways that have become trails used by many bikers, runners, atvers, and off road bikers. It would be nice if the town would incorporate them into a unified trail system with trail head parking and posted rules.
43	Mar 9, 2016 5:42 PM	We have done well but we could loose it all with a few mistakes on letting in too much business such as solar too fast. TOO MUCH GROWTH WILL SINK THE TOWN AND WE WILL BECOME ANOTHER WESTFORD OR CHELMSFORD, YUPPIE HEAVEN!! WITH ALL THE CONGESTION AND POLUTION
44	Mar 9, 2016 1:12 PM	a public dock area for canoeing/kayaking
45	Mar 8, 2016 11:05 PM	Activities such as guided indigonous plant walks and local wild animal preserves
46	Mar 8, 2016 10:16 PM	I strongly suspect Shirley has recreational facilities and wooded lands that are open to the public that I do not know about. (I am very distressed about the destruction of community wooded lands for construction of commercial solar arrays e.g., off Patterson road.)
47	Mar 8, 2016 7:46 PM	I'm not sure what additional recreational facilities are needed, however, the improvements at Benjamin Hill are both useful and valuable to the Town. I would not have suggested them, but I am glad the improvements have been made. I would like to see additional playing fields for recreational sports and perhaps a bike trail.
48	Mar 8, 2016 7:10 PM	Save places for our youth to keep busy or be involved.
49	Mar 8, 2016 6:08 PM	Is there a bocci court at the Senior Center or Benjamin Pool?
50	Mar 8, 2016 5:14 PM	Clearly marked trails, trailheads, and boat-launch sites.
51	Mar 8, 2016 3:40 PM	Need more baseball and softball fields. There are currently many scheduling conflicts with the current fields and more fields would alleviate that. Parking at the current town owned properties would also be welcome so that people could enjoy the properties.
52	Mar 7, 2016 4:26 PM	Welcoming trails with benches, all routinely maintained by happy and enthusiastic volunteers
53	Mar 7, 2016 3:46 PM	Disc golf course
54	Mar 7, 2016 3:25 PM	Disc golf course
55	Mar 5, 2016 7:04 PM	Needed are: walking trails, someplace that is more of a park feeling for families with picnic tables etc.
56	Mar 5, 2016 1:27 PM	Maintain open space

57	Mar 5, 2016 11:05 AM	We have excellent outdoor options and an indoor option for the elderly. It would be wonderful to see an indoor recreational facility for young people, especially in light of the recent heroine epidemic.
58	Mar 5, 2016 6:06 AM	Town beach access would be nice. Free to residents like Sandy Pond us to Ayer.
59	Mar 5, 2016 3:00 AM	ice rink, dek hockey, other various outdoor activities for kids
60	Mar 5, 2016 1:54 AM	Not enough for the adolescent.
61	Mar 5, 2016 1:19 AM	a public tennis court
		picnic areas
62	Mar 5, 2016 12:42 AM	Sports complex
63	Mar 4, 2016 10:01 PM	I am a member of the Shirley Recreation Commission. The Town of Shirley has very limited athletic fields for youth and adult sports.
64	Mar 4, 2016 9:31 PM	I would like to see exercise programs available adults, both outdoors and indoors depending on weather.
65	Mar 4, 2016 6:43 PM	Picnic areas
66	Mar 4, 2016 6:17 PM	I think youth soccer fields should be moved from senior center to Benjamin Hill. In space next to senior center an adult playground would be perfect for seniors and other adults. It would be great to see a dedicated restroom at baseball/ football fields by middle school.
67	Mar 4, 2016 6:10 PM	Teenagers need a place to go. A rec hall or something similar
68	Mar 4, 2016 5:25 PM	I am new to the town and still getting a feel to what is around here.
69	Mar 4, 2016 2:09 PM	I am not sure what facilities the town needs. Maybe a track at the football fields?
70	Mar 4, 2016 12:43 PM	We can always use more things in town for families to use. The pool is nice but we need more. Parks! Trails! Bike paths!
71	Mar 4, 2016 12:42 PM	Would be nice to have a park with benches, picnic area, etc along the water for families to gather.
72	Mar 4, 2016 12:03 PM	More stuff for boys to do
73	Mar 4, 2016 11:45 AM	More parks and playgrounds
74	Mar 2, 2016 7:36 PM	A fenced in dog park would be nice if funds were available to create it.
75	Mar 2, 2016 1:30 PM	Trails should be more accessible, parking available, information available, and better maintained.
76	Mar 2, 2016 2:44 AM	Town beach/park
77	Mar 2, 2016 1:14 AM	I'm new to town and need to do more research.
78	Mar 1, 2016 3:45 PM	Need fields that the town has long-term control over and can maintain and develop properly
79	Mar 1, 2016 3:40 AM	None
80	Feb 27, 2016 10:15 PM	Benjamin Hill is excellent and having the soccer fields is awesome. Having some basketball courts or areas to hike would be excellent as well. We should NOT MAKE SHIRLEY MORE INDUSTRIAL!!!! NO SOLAR FARMS, BIG MANUFACTURING FACILITIES. WE SHOULD BE PUTTING UP RETAIL AND NEW HOMES TO GROW REVENUE FOR THE TOWN!!!

Question 6.

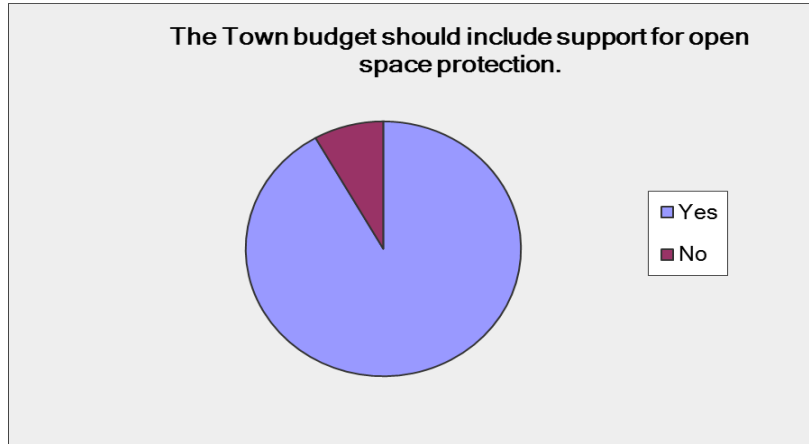
Would you or a family member participate in any of following recreational activities if playing fields or maintained areas were provided for them in Shirley?				
Answer Options	YES	NO	MAYBE	Response Count
Football	25	106	20	151
Soccer	61	76	23	160
Baseball/Softball	64	67	29	160
Tennis	63	54	39	155
Basketball	66	64	28	158
Frisbee golf	49	64	42	155
Golf	54	79	25	158
Cross country skiing	80	36	40	155
Sledding/Snow tubing	110	29	28	167
Hockey/Ice skating	84	42	34	159
Swimming	121	23	24	168
Snowshoeing	87	29	39	155
Other playing fields (lacrosse, rugby, etc.)	25	78	43	145
Track & field	45	72	31	147
Boat/canoe launch	130	16	21	167
Biking	140	14	16	169
Community gardens	97	35	34	165
Picnic/Park areas	134	14	21	169
Others (please specify)				21
<i>answered question</i>				184
<i>skipped question</i>				5



Number	Response Date	Others (please specify)
1	May 24, 2016 12:27 AM	I don't think that lacrosse or field hockey would need new fields, would they? Couldn't they just share with the soccer fields?
2	May 23, 2016 11:52 PM	It seems to me that a bike can be ridden anywhere.
3	May 5, 2016 12:39 AM	horseback riding trails
4	May 2, 2016 2:18 PM	Swimming should include lap swimming area or times.
5	Apr 23, 2016 10:46 PM	Access to a bird blind, wildlife viewing areas like certified vernal pools
6	Apr 21, 2016 10:41 AM	Walking trails
7	Apr 20, 2016 11:53 AM	FABULOUS IDEAS! We would definitely use the canoe launch, biking, and track. We already love the swimming and sledding at Ben Hill.
8	Mar 20, 2016 6:44 PM	horseback riding trails - many have been destroyed by recent housing development...and beavers!
9	Mar 15, 2016 3:16 AM	shirley needs picnic park area and more play ground, water park for kids
10	Mar 14, 2016 7:51 PM	Hiking and walking along defined trails in natural, or minimally disturbed, surrounding.
11	Mar 14, 2016 7:45 PM	Hire a tree warden to take care of the trees in town, instead of destroying the 30 plus year old trees. They used to be well maintained by Mr. Boutilier (Art and Rolf), now the brush has overgrown and the trees have been butchered.
12	Mar 14, 2016 12:07 PM	Organized outdoor recreation options related to enjoying the woods - camping, fire-making, stone wall building, trail-making, photography and art, understanding nature (animal habitats, climate change's effects, types of plants etc.)
13	Mar 10, 2016 8:47 PM	There was supposed to be a skate park for the children and that never happened.
14	Mar 10, 2016 3:34 PM	Dog park
15	Mar 8, 2016 10:19 PM	Dog walking area.
16	Mar 8, 2016 6:11 PM	I wanted to point out that Ayer/Shirley High has a beautiful track which I think is adequate for the two towns to share for track&field sports
17	Mar 8, 2016 5:17 PM	Fenced dog park.
18	Mar 5, 2016 12:00 PM	Devens and Leominster fields are very close by. We do not need any additional sports fields.
19	Mar 2, 2016 1:33 PM	Hiking/walking trails
20	Mar 1, 2016 11:31 PM	hiking trails / nature walking paths
21	Mar 1, 2016 3:46 PM	swimming in natural water beach, not a pool

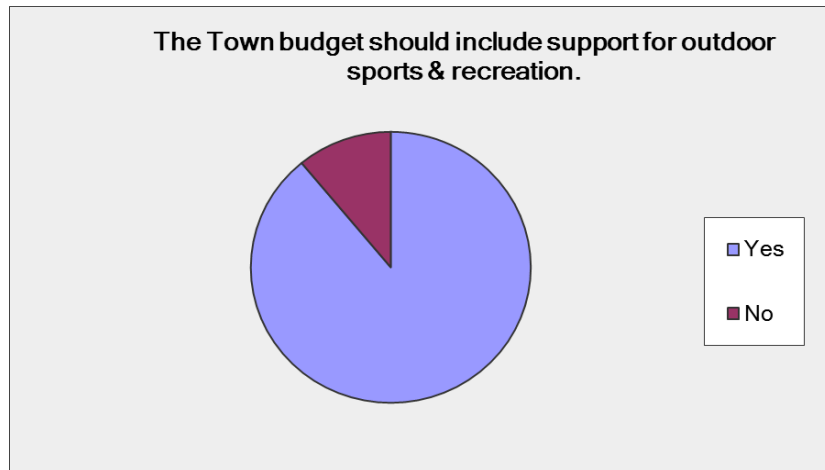
Question 7.

The Town budget should include support for open space protection.		
Answer Options	Response Percent	Response Count
Yes	91.8%	168
No	8.2%	15
<i>answered question</i>		183
<i>skipped question</i>		6



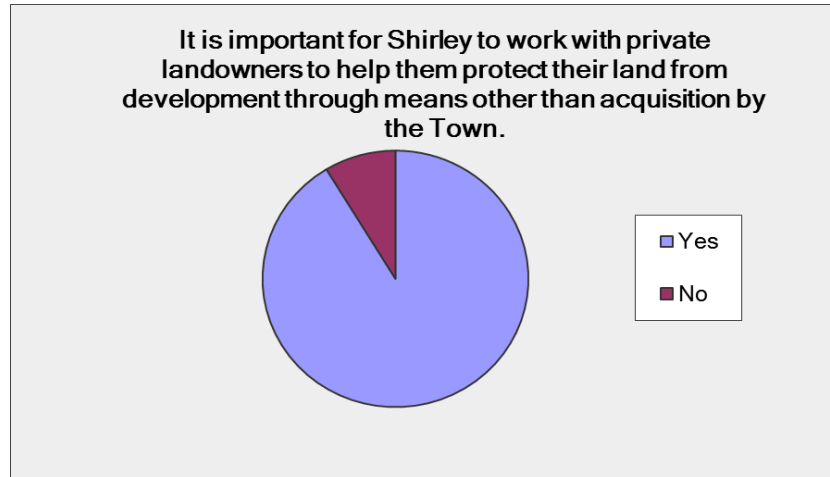
Question 8.

The Town budget should include support for outdoor sports & recreation.		
Answer Options	Response Percent	Response Count
Yes	89.0%	162
No	11.0%	20
<i>answered question</i>		182
<i>skipped question</i>		7



Question 9.

It is important for Shirley to work with private landowners to help them protect their land from development through means other than acquisition by the Town.		
Answer Options	Response Percent	Response Count
Yes	91.3%	167
No	8.7%	16
<i>answered question</i>		183
<i>skipped question</i>		6



Question 10.

What do you think is the greatest threat to Shirley's open space?	
Answer Options	Response Count
	131
<i>answered question</i>	131
<i>skipped question</i>	58

Number	Response Date	Response Text
1	May 24, 2016 12:27 AM	solar farms
2	May 24, 2016 12:19 AM	overcrowding of buildings
3	May 24, 2016 12:14 AM	solar farms
4	May 24, 2016 12:08 AM	chainsaws and development
5	May 24, 2016 12:03 AM	developers getting their plans passed without the town paying attention.
6	May 23, 2016 11:57 PM	greediness from outsiders and from selectmen
7	May 23, 2016 11:52 PM	development of big ugly houses
8	May 18, 2016 3:58 PM	inattention, abysmal stewardship
9	May 11, 2016 4:47 PM	open space is imporant but the town also needs more retail commerce especially on front street
10	May 11, 2016 2:06 AM	Solar farms
11	May 5, 2016 12:53 AM	Development

12	May 5, 2016 12:45 AM	Solar fields and terrible decisions by people who are only interested in lining their pockets cel de
13	May 5, 2016 12:39 AM	New home development
14	May 2, 2016 2:18 PM	not keeping enough open
15	Apr 30, 2016 1:04 PM	development
16	Apr 26, 2016 9:33 PM	Solar Farms
17	Apr 26, 2016 11:39 AM	Development
18	Apr 23, 2016 10:46 PM	Ignorance and greed.
19	Apr 23, 2016 1:15 PM	Solar farm development
20	Apr 21, 2016 11:27 AM	Housing development
21	Apr 21, 2016 10:41 AM	Solar farms. No question.
22	Apr 21, 2016 3:46 AM	People
23	Apr 20, 2016 11:50 PM	Development/cookie cutter house construction
24	Apr 20, 2016 10:52 PM	Corporations (fastfood chains, etc.)
25	Apr 20, 2016 7:43 PM	Development
26	Apr 20, 2016 5:39 PM	Building homes
27	Apr 20, 2016 2:09 PM	I don't have enough knowledge in that area
28	Apr 20, 2016 11:53 AM	over development in the future
29	Apr 17, 2016 1:07 PM	Solar fields
30	Apr 11, 2016 11:22 PM	Industry in innappropriate places.
31	Apr 11, 2016 12:35 PM	landowners with no one but housing developers to sell too if Shirley does not offer to purchase land.
32	Apr 11, 2016 12:35 AM	Subdivisions
33	Apr 10, 2016 5:45 PM	Solar arrays
34	Apr 10, 2016 4:00 PM	poorly planned development, lack of management
35	Apr 7, 2016 1:54 AM	town government's failure to follow established procedures and policies related to economic development
36	Apr 6, 2016 11:44 PM	development
37	Apr 4, 2016 9:13 PM	suburban sprawl
38	Apr 3, 2016 3:25 PM	Current Board of Selectmen, appointees & secret agenda
39	Apr 1, 2016 9:35 PM	Its more that, if there is open space in the town, nobody is aware of it. And there are none of the facilities from question 6.
40	Mar 29, 2016 5:08 AM	Single family housing development
41	Mar 29, 2016 12:39 AM	Lack of financial support, poorly planned or executed solar, and lack of a long term vision for maintaining and expanding existing spaces.
42	Mar 26, 2016 5:08 AM	expansion
43	Mar 23, 2016 9:53 PM	Poor planning
44	Mar 23, 2016 3:43 PM	fracking
45	Mar 23, 2016 12:52 PM	Commercial development
46	Mar 23, 2016 11:44 AM	currently, planning board
47	Mar 21, 2016 8:23 PM	large-scale, ground-mounted solar development on conservation land and land zoned residential or rural - these developments should be restricted to areas zoned for industrial uses.
48	Mar 21, 2016 3:27 PM	don;t know
49	Mar 20, 2016 6:44 PM	new housing (why not restore existing structures?!)
50	Mar 19, 2016 12:28 PM	Short term thinking.
51	Mar 18, 2016 4:18 PM	Anything that causes us to lose it. What benefit do residents get from all of the solar farms? So far, nothing.
52	Mar 18, 2016 2:33 PM	Development and developers building way too many houses in small places. Also while solar fields are wonderful - we need to make sure we aren't giving up all of the open space to solar fields.
53	Mar 16, 2016 2:41 PM	heavy-handed outside contractors being accepted and approved

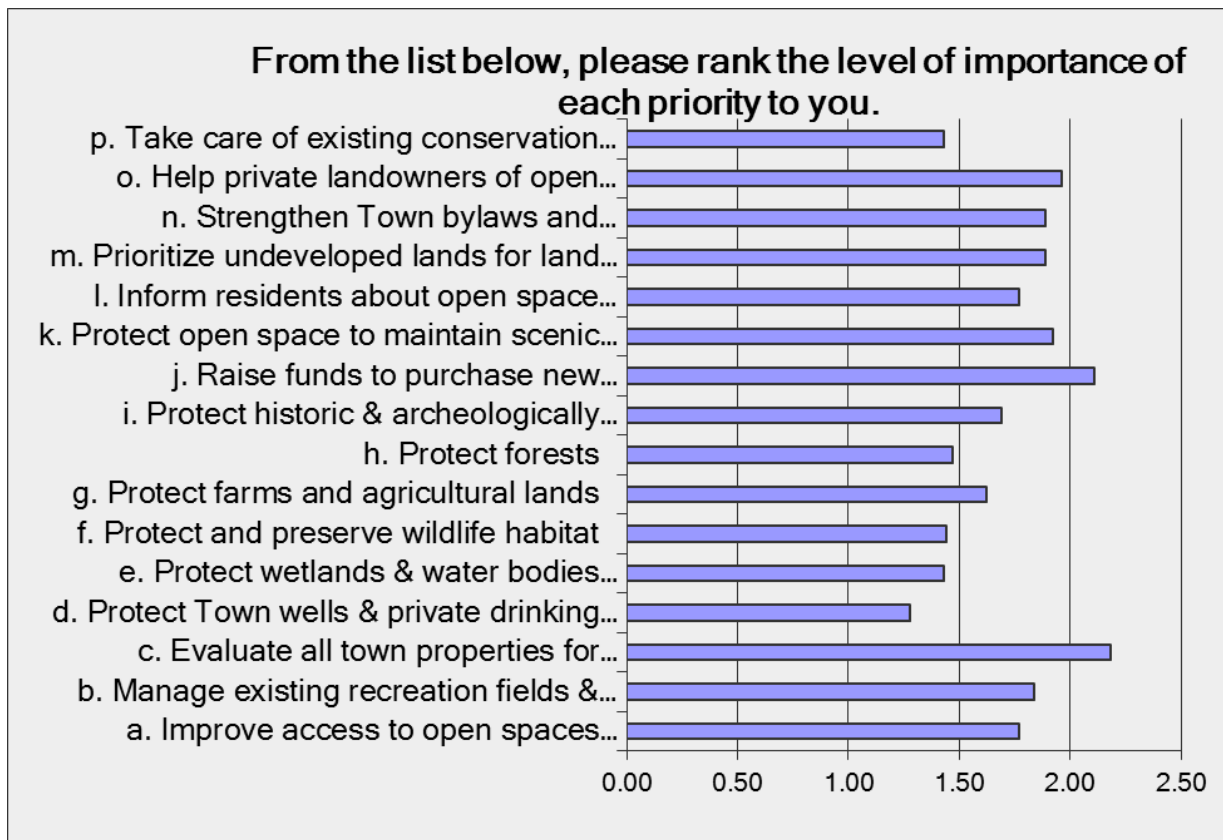
		by elected officials
54	Mar 14, 2016 7:51 PM	That threat seems to be happening now as the Town has fast-tracked several solar farm facilities with permitting and licensing to build large solar energy arrays on land that is zoned for Rural and Recreational use for the benefit of Shirley residents. These facilities should be built in commercial/industrial zoned areas. This is a travesty and a threat to all publicly (Town)-owned land. This indeed qualifies as the 'greatest threat' if it continues unchecked, and the direction of this travesty is unchecked full-speed ahead. How much longer before we look around and find that we are surrounded by solar farms or some other similar facilities built on land formerly set aside for public use?
55	Mar 14, 2016 7:45 PM	building houses people can not afford, rising property taxes - people who have lived here for 50 years and more can't afford to live here.
56	Mar 14, 2016 6:19 PM	Industrial Development
57	Mar 14, 2016 12:07 PM	Badly thought out placement of new houses
58	Mar 14, 2016 1:41 AM	Over development
59	Mar 13, 2016 9:29 PM	housing development and solar fields
60	Mar 13, 2016 4:01 AM	lack of long range planning of developable private land
61	Mar 12, 2016 6:05 PM	Solar farms
62	Mar 12, 2016 1:26 PM	Development
63	Mar 11, 2016 11:51 PM	contractors
64	Mar 11, 2016 2:20 PM	solar farms, uneducated public, possibly beavers
65	Mar 10, 2016 8:47 PM	Corporate development
66	Mar 10, 2016 3:34 PM	Commercial Industry.
67	Mar 10, 2016 1:45 PM	Building and development.
68	Mar 9, 2016 5:45 PM	PROFITEERS LIKE THE SOLAR BATTLES GOING ON NOW. THEY WILL DO ANYTHING TO GET IN!! THEY WILL BRIBE THERE WAY IN SOONER OR LATER.
69	Mar 8, 2016 11:08 PM	Rezoning and developers
70	Mar 8, 2016 10:19 PM	Over zealous "economic development" (e.g., commercial solar array development at the expense of wooded lands.)
71	Mar 8, 2016 9:33 PM	Development of industrial and commercial rezoning. Large residential development
72	Mar 8, 2016 7:48 PM	Housing development
73	Mar 8, 2016 7:12 PM	Drug dealers ,ugly buildings or for closed property
74	Mar 8, 2016 7:10 PM	Solar arrays, subdivisions
75	Mar 8, 2016 6:11 PM	the usual: greed & stupidity (to include comm.dev'pment)
76	Mar 8, 2016 6:00 PM	Solar Farms
77	Mar 8, 2016 5:17 PM	Proliferation of commercial solar farms.
78	Mar 8, 2016 3:42 PM	short-sightedness and management only thinking about the financial bottom line.
79	Mar 7, 2016 9:42 PM	It not being used
80	Mar 7, 2016 4:30 PM	solar farms and greedy landowners
81	Mar 7, 2016 4:14 PM	I don't know
82	Mar 7, 2016 3:27 PM	Zombies
83	Mar 7, 2016 1:54 AM	short sighted planners
84	Mar 6, 2016 3:16 PM	Housing devel.
85	Mar 5, 2016 8:17 PM	New construction
86	Mar 5, 2016 7:24 PM	Solar
87	Mar 5, 2016 7:06 PM	solar energy fields
88	Mar 5, 2016 2:22 PM	high taxes - tax payers are selling land to survive
89	Mar 5, 2016 1:29 PM	Development that is not thoughtful
90	Mar 5, 2016 12:28 PM	Development

91	Mar 5, 2016 12:00 PM	Poorly planned developments. (think Orchard Hills)
92	Mar 5, 2016 11:09 AM	I believe the greatest threat would be purchasing land we can not afford without a business tax base. To maintain or even grow open spaces we have to allow space for retail business. I would prefer retail, for its convenience, rather than industrial businesses.
93	Mar 5, 2016 6:23 AM	Solar farms
94	Mar 5, 2016 3:01 AM	Development
95	Mar 5, 2016 2:27 AM	Housing
96	Mar 5, 2016 1:56 AM	apathy
97	Mar 5, 2016 1:49 AM	over-building
98	Mar 5, 2016 1:20 AM	runoff from development
99	Mar 4, 2016 9:47 PM	Development
100	Mar 4, 2016 9:32 PM	Housing developments
101	Mar 4, 2016 8:15 PM	status quo
102	Mar 4, 2016 6:45 PM	condos
103	Mar 4, 2016 6:28 PM	Houses
104	Mar 4, 2016 6:18 PM	Over development of solar farms.
105	Mar 4, 2016 6:12 PM	Commercialism
106	Mar 4, 2016 5:26 PM	Building
107	Mar 4, 2016 4:04 PM	Building new homes
108	Mar 4, 2016 3:06 PM	Buildings
109	Mar 4, 2016 2:10 PM	Litter and garbage
110	Mar 4, 2016 1:20 PM	Greed
111	Mar 4, 2016 12:44 PM	Solar farms.
112	Mar 4, 2016 12:28 PM	Solar
113	Mar 4, 2016 12:05 PM	House's
114	Mar 4, 2016 11:48 AM	losing its small town character with over-development
115	Mar 4, 2016 11:47 AM	commercial development
116	Mar 4, 2016 12:39 AM	Building more houses that are not needed!
117	Mar 3, 2016 2:33 PM	housing developers cramming as many big houses as possible into a space
118	Mar 3, 2016 2:30 AM	Housing development
119	Mar 2, 2016 7:37 PM	Solar
120	Mar 2, 2016 1:33 PM	Financial (budget constraints and related pressures)
121	Mar 2, 2016 3:09 AM	Drvelopment
122	Mar 1, 2016 11:31 PM	Misuse of funds - need to utilize funds to yield maximum output with minimum overhead
123	Mar 1, 2016 3:46 PM	right now solar farms running amock
124	Feb 29, 2016 12:31 PM	None
125	Feb 28, 2016 3:54 AM	development
126	Feb 27, 2016 10:18 PM	Besides having an administration that don't understand how to run town or a business, solar farms and other manufacturing facilities need to be stopped. We need to put in retail and bring in families to increase the revenue generation of the town. We need to keep the town rural with amenities that will bring families to our town!!
127	Feb 27, 2016 1:17 PM	I dont know
128	Feb 26, 2016 11:53 PM	potential residential development
129	Feb 26, 2016 6:13 PM	I don't think there is one. I think Shirley's open space is MORE than adequate.
130	Feb 26, 2016 5:18 PM	subdivisions, solar farms,
131	Feb 26, 2016 1:47 PM	Over Development

Question 11.

From the list below, please rank the level of importance of each priority to you. (NOTE: For rankings, lower numbers indicate higher priorities.)

Answer Options	Very important	Important	Somewhat important	Not important	No opinion	Rating Ave	Response Count
a. Improve access to open spaces through trails, signs and trailhead parking	82	59	21	9	1	1.77	172
b. Manage existing recreation fields & playgrounds and identify new ones	64	76	25	6	0	1.84	171
c. Evaluate all town properties for accessibility for those with disabilities	46	62	48	8	4	2.18	168
d. Protect Town wells & private drinking water supplies	137	21	9	0	2	1.28	169
e. Protect wetlands & water bodies (rivers, streams & ponds)	119	33	16	3	0	1.43	171
f. Protect and preserve wildlife habitat	114	41	14	1	1	1.44	171
g. Protect farms and agricultural lands	97	45	25	2	1	1.62	170
h. Protect forests	105	52	12	0	1	1.47	170
i. Protect historic & archeologically important sites	86	54	25	3	1	1.69	169
j. Raise funds to purchase new conservation and recreation lands	55	60	36	16	2	2.11	169
k. Protect open space to maintain scenic views	68	61	32	8	2	1.92	171
l. Inform residents about open space opportunities and recreational resources	78	63	23	5	2	1.77	171
m. Prioritize undeveloped lands for land protection	72	57	29	9	2	1.89	169
n. Strengthen Town bylaws and regulations to preserve Shirley's rural character	79	46	29	10	4	1.89	168
o. Help private landowners of open space and agricultural lands learn about land management and protection options	59	71	29	6	4	1.96	169
p. Take care of existing conservation lands	108	49	9	2	0	1.43	168
If you have other open space and/or recreation priorities, please list them here:					17		
						<i>answered question</i>	173
						<i>skipped question</i>	16



The highest priorities were (1) protecting drinking water, (2) protecting surface waters and taking care of existing conservation lands (tied), (3) protecting wildlife habitat, and (4) protecting forests.

Number	Response Date	If you have other open space and/or recreation priorities, please list them here:
1	May 11, 2016 4:51 PM	It is important to have open space protection but there are some areas of the town that need economic development; front street has much potential with it's proximity to train station and Lancaster Road would be ideal for some kind of retail. Residents have to go to neighboring towns for pharmacy, grocery, etc
2	Apr 23, 2016 10:51 PM	We need to preserve wildlife corridors, vernal pools, swamps and other wetlands, that are easily overlooked or discounted. They are vital to maintaining the health of a watershed eco-system. We need to help people understand that we need to be mindful when adding buildings to an existing property and so on.
3	Apr 21, 2016 11:40 AM	While it may be tempting to give in to developers, the forests/wetlands/scenery/historic sites and rural character are rare treasures that cannot be replaced and make Shirley a great place to live. All of the above are high priority to our family.
4	Apr 19, 2016 2:13 PM	I often wonder how the Keating operation affects a good part of Shirley with it runoff etc....
5	Apr 17, 2016 1:13 PM	Improve access to Nashua and Squannacook Rivers with canoe/boat launches. On particular the 2A and Ice house dam sites.
6	Apr 11, 2016 12:41 PM	The agricultural land abutting Farandnear serves to keep a contiguous wildlife area, any development would fragment the site's ecosystems.
7	Mar 23, 2016 9:56 PM	Wildlife corridors
8	Mar 20, 2016 6:50 PM	carefully make wise use of natural resources, such as sustainable logging, on forested areas. Careful development of existing places for activities such as fishing, ice fishing, off-road bikes / even motor bikes if done well. Cutting of hay/grass fields or grazing of livestock. Shared use / mixed use - timed cutting

		of fields so that bird breeding can also take place - timber cutting AFTER birds have used nesting trees etc.
9	Mar 14, 2016 8:00 PM	We have flooded marshland where there wasn't 40 years ago because of 'progress' - people building houses and taking down trees thereby rerouting the water. We have water entering into a spring fed pond, now it is contaminated. This survey should have been sent out for all residents - including the elderly who often do not have a computer. Therefore it is not a very accurate or fair way of collecting data, you are leaving out the population who built this town.... our elderly. This town is not just for the young.
10	Mar 14, 2016 12:15 PM	Can more of former Ft. Devens land that is contiguous with Shirley be opened up starting with removing the miles of fencing that limits access by wildlife and people?
11	Mar 10, 2016 3:39 PM	Development of Shirley is inevitable, as has happened with Littleton and Ayer. Shirley should promote itself as the town to come if you value the investment made in preserving open space and wilderness recreation. Wholesale resistance of any and all residential development is futile, efforts should be made to identify areas that can be redeveloped or are of little value for our open spaces and environmental preservation.
12	Mar 8, 2016 10:24 PM	I believe the state has said that citizens of MA are entitled to clean air, clean water and a quiet environment. I would like to make sure these are protected in Shirley.
13	Mar 8, 2016 7:17 PM	The town should restrict the development of solar facilities in residential areas and in places already designated for open space/conservation.
14	Mar 6, 2016 3:19 PM	Paved walking trails to minimize tick exposure
15	Mar 4, 2016 6:30 PM	Fix up mystical maze - maybe a splash park for children
16	Mar 1, 2016 11:42 PM	Decisions must be made with reasonable accommodations allowed for homeowners and landowners. Too much government interference can impede on homeowner and landowner natural rights while not enough can interfere with the community's rights.
17	Feb 26, 2016 5:22 PM	I agree that we need to maintain existing recreation facilities, however I disagree that we need to identify new ones.

Question 12.

Of the Open Space and Recreation Priorities listed above, lettered (a) through (p), please select your top 3 choices for Shirley.		
Answer Options	Response Percent	Response Count
a	31.5%	51
b	28.4%	46
c	9.3%	15
d	44.4%	72
e	29.0%	47
f	35.8%	58
g	11.1%	18
h	14.2%	23
i	15.4%	25
j	9.3%	15
k	8.0%	13
l	6.8%	11
m	8.0%	13
n	20.4%	33
o	5.6%	9
anp	19.1%	31
Others (please specify)	3.7%	6

Here, the top five identified priorities are:

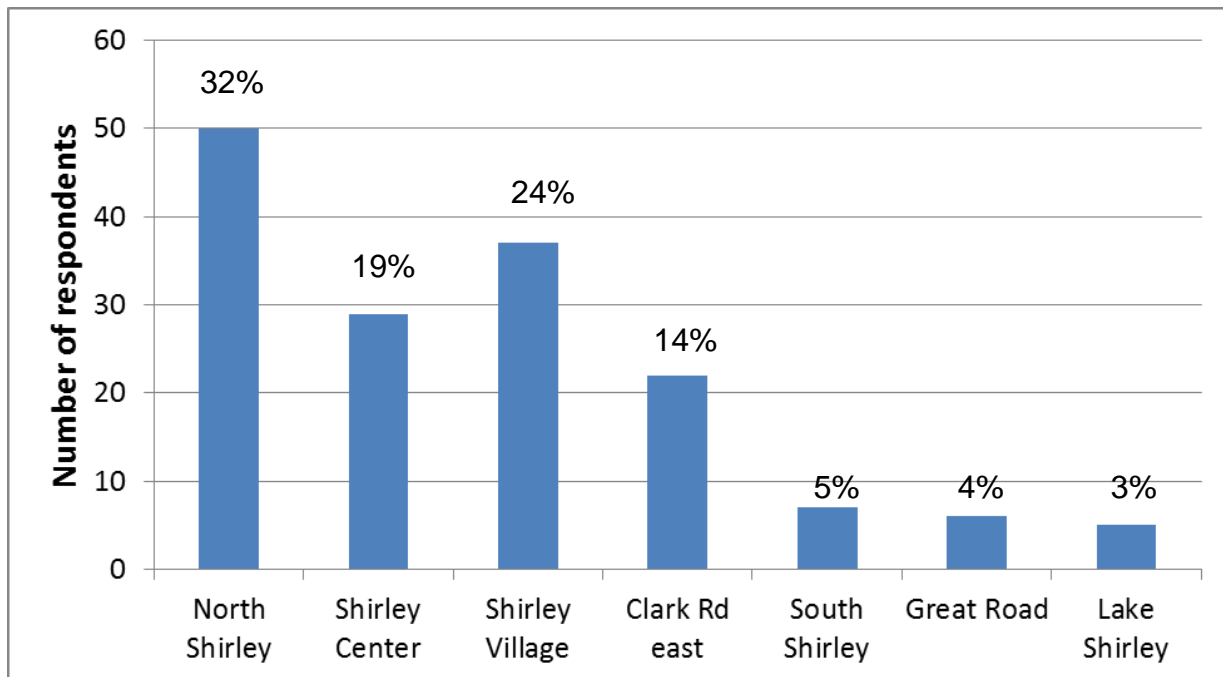
- (1) d – protect drinking water supplies,
- (2) f – protect wildlife habitat,
- (3) a – improve access to and information about open spaces,
- (4) e – protect surface waters and wetlands, and
- (5) b – manage and improve recreation fields and facilities.

<i>answered question</i>	162
<i>skipped question</i>	27

Number	Response Date	Others (please specify)
1	Apr 3, 2016 3:29 PM	I view e & n as equally important
2	Mar 14, 2016 8:00 PM	protect the trees and replenish those you have destroyed through mismanagement
3	Mar 14, 2016 7:58 PM	e. is very important too, but some of this may be covered by other local or state laws and requirements.
4	Mar 14, 2016 12:15 PM	Publicize what the town now possesses or has access to in regards to conservation land. Study and clarify the liability issues associated with the use of privately owned lands.
5	Mar 9, 2016 5:51 PM	THE STATE SHOULD TAKE CARE OF THIS NOT THE TOWN.
6	Feb 26, 2016 9:10 PM	Stop the zoning changes to encourage new businesses. It's ruining our towns rural character.

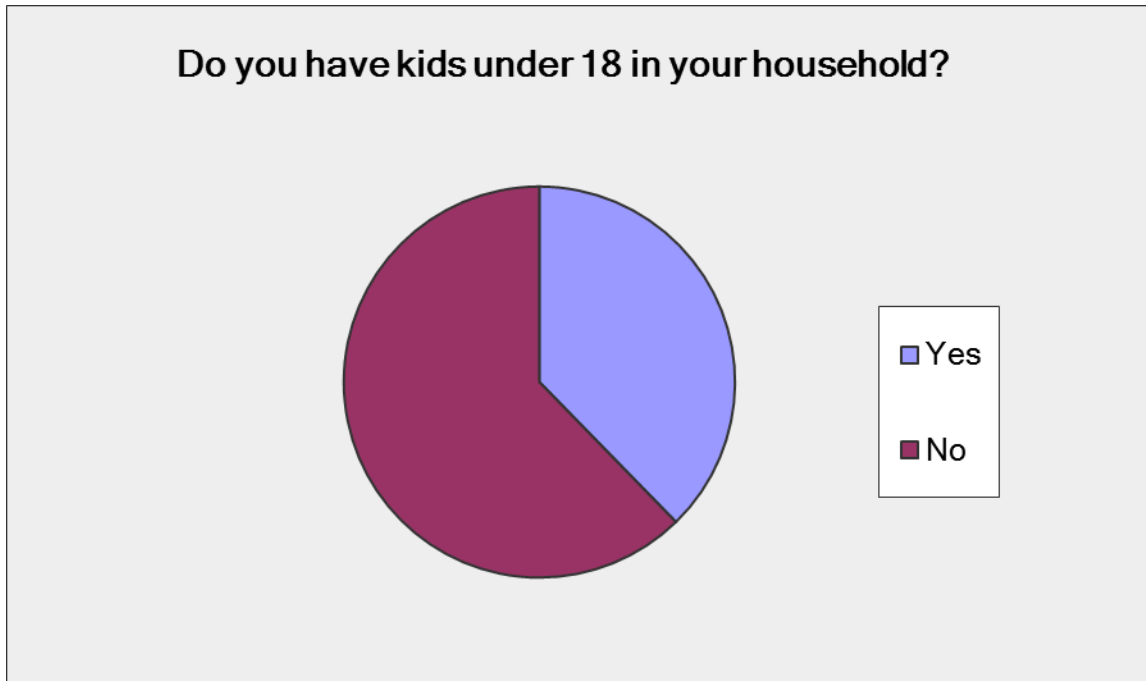
Question 13.

In what part of Shirley do you live? (No options were provided, so the breakdown below is in a few cases arbitrary - for example, "Lancaster Road" was listed under South Shirley.)



Question 14.

Do you have kids under 18 in your household?		
Answer Options	Response Percent	Response Count
Yes	37.7%	63
No	62.3%	104
<i>answered question</i>		167
<i>skipped question</i>		22



Question 15.

Please list your favorite open spaces and recreation areas in town.	
Answer Options	Response Count
	146
<i>answered question</i>	146
<i>skipped question</i>	43

Number	Response Date	Response Text
1	May 24, 2016 12:28 AM	benjamin hill, holdenwoods, farandnear, ronchetti
2	May 24, 2016 12:24 AM	benjamin hill, squannacook river in the summer
3	May 24, 2016 12:16 AM	benjamin hill, holdenwoods
4	May 24, 2016 12:12 AM	squannacook river
5	May 24, 2016 12:05 AM	benjamin hill, holdenwood, farandnear
6	May 23, 2016 11:59 PM	Valley Farm, Farandnear
7	May 23, 2016 11:55 PM	benjamin hill

8	May 18, 2016 4:19 PM	Valley Farm Conservation Area
9	May 16, 2016 8:01 PM	Lura A. White ball fields, Farandnear, Longley Farm
10	May 11, 2016 4:52 PM	Benjamin Hill
11	May 11, 2016 2:07 AM	Farandnear
12	May 6, 2016 3:49 AM	Holdenwood, farandnear, Holden Road recreation area (Herman Fields' property)
13	May 5, 2016 12:55 AM	Both sides of Townsend
14	May 5, 2016 12:51 AM	Farandnear
15	May 5, 2016 12:47 AM	Holdenwood trail/land
16	May 5, 2016 12:40 AM	Nearby conservation areas
17	May 2, 2016 3:30 PM	Far and Near Benjamin Park Holdenwood
18	May 2, 2016 2:20 PM	walking the loop off Hospital Rd by Taylor Field, especially in the winter
19	Apr 30, 2016 1:08 PM	Holden Woods, FarandNear
20	Apr 29, 2016 6:39 PM	The lake on Leominster Road. However, the amount of trash that accumulates in the small parking area across the street (and goes uncleaned) is very disturbing.
21	Apr 28, 2016 6:47 PM	softball fields and benjamin hill
22	Apr 26, 2016 9:38 PM	Pumpkin Brook
23	Apr 26, 2016 11:42 AM	New Resident - Have not checked everything out yet
24	Apr 23, 2016 10:52 PM	Brook Trail, Farandnear, Pumpkin Brook, Squannacook River, Nashua River, Catacunemaug Brook, Valley Farm
25	Apr 23, 2016 1:18 PM	Farandnear
26	Apr 21, 2016 1:30 PM	farandnear! Holden Trail! and Benjamin Hill (but the playground here always has wasps and is too hot in summer!)
27	Apr 21, 2016 11:44 AM	Shirley Center, Squannacook River, Holdenwood, Farandnear, Benjamin Hill, Longley Acres, Oxbow
28	Apr 21, 2016 10:44 AM	farandnear
29	Apr 21, 2016 10:44 AM	My backyard, which needs protection from encroaching wetlands.
30	Apr 20, 2016 11:54 PM	Farandnear, conservation land/trails on Holden Rd. (the new signage looks great!), & conservation land on Whitney Rd.
31	Apr 20, 2016 10:56 PM	N/A
32	Apr 20, 2016 6:52 PM	School playground
33	Apr 20, 2016 5:51 PM	none.
34	Apr 20, 2016 5:41 PM	Benjamin hill
35	Apr 20, 2016 5:29 PM	Farandnear
36	Apr 20, 2016 2:26 PM	benjamin hill
37	Apr 20, 2016 11:56 AM	Benjamin Hill, Farandnear, Holdenwoods
38	Apr 19, 2016 7:33 PM	Benjamin Hill Recreation Area
39	Apr 19, 2016 2:13 PM	the lake
40	Apr 17, 2016 1:16 PM	Holden Conservation Area, Ronchetti Conservation area, Squannacook River, Farandnear
41	Apr 11, 2016 11:24 PM	Water district/sand pit trails, Holdenwood, walking power lines
42	Apr 11, 2016 3:35 PM	Farandnear
43	Apr 11, 2016 12:43 PM	Farandnear, Longley Acres, Holdenwood
44	Apr 11, 2016 12:37 AM	Farandnear
45	Apr 10, 2016 5:48 PM	Squannacook town and state lands
46	Apr 10, 2016 4:03 PM	Far and Near
47	Apr 7, 2016 3:00 AM	Far and near reservation
48	Apr 7, 2016 2:05 AM	Holdenwood, Far and Near, town common, Benjamin Hill complex
49	Apr 6, 2016 11:46 PM	Far and near. Benjamin Hill
50	Apr 4, 2016 9:17 PM	Longley Farm, Farandnear

51	Apr 3, 2016 3:31 PM	Valley Farm, Farandnear & Holdenwood
52	Apr 1, 2016 9:38 PM	Far and Near
53	Mar 29, 2016 5:13 AM	benjamin hill park, whitely park, hiking trails
54	Mar 26, 2016 5:14 AM	far and near on center rd, oxbow wildlife refuge
55	Mar 23, 2016 9:57 PM	Farandnear, Holdenwood, Oxbow
56	Mar 23, 2016 9:53 PM	Conservation area behind Squannacook Woods, Holden Woods
57	Mar 23, 2016 3:47 PM	Holden Wood and FarandNear
58	Mar 23, 2016 3:08 PM	Squannacook River
59	Mar 23, 2016 12:55 PM	squannacook river access, oxbow
60	Mar 21, 2016 8:30 PM	Longley Conservation Area, Holden Road Conservation Area
61	Mar 21, 2016 3:29 PM	squannacook
62	Mar 20, 2016 6:52 PM	North post, Center Common, Benjamin Hill & Holden Conservation land / Farandnear
63	Mar 19, 2016 12:37 PM	Farandnear, Holden Woods, Longley farm,
64	Mar 18, 2016 4:21 PM	Town forests and Benjamin Hill (Oxbow too, but not directly related)
65	Mar 16, 2016 2:46 PM	Town Common, athletic fields
66	Mar 15, 2016 3:37 AM	would love to see field behind middle school developed
67	Mar 14, 2016 8:03 PM	war memorial building, town center, historical meeting house, holdenwoods
68	Mar 14, 2016 8:01 PM	Holdenwood, Longley Acres and its back fields and woods, Nashua River Rail Trail, Middle School athletic fields for dog-walking, walking areas on the north side of Mulpus Brook.
69	Mar 14, 2016 6:26 PM	Benjamin Hill Park
70	Mar 14, 2016 12:16 PM	Holdenwoods and FarandNear
71	Mar 14, 2016 1:44 AM	Hmm don't know
72	Mar 13, 2016 9:33 PM	Farandnear, Holdenwoods, end of Little Turnpike
73	Mar 13, 2016 4:04 AM	Farandnear
74	Mar 12, 2016 10:50 PM	small park near dunkin donuts, playground by school for nieces and nephew
75	Mar 12, 2016 6:07 PM	Benjamin Hill, Conservation area off of Holden Road, Farandnear
76	Mar 12, 2016 4:23 PM	The playground at Benjamin Hill.
77	Mar 12, 2016 1:29 PM	Farandnear
78	Mar 11, 2016 11:59 PM	Farandnear and Benjamin Hill
79	Mar 11, 2016 2:23 PM	Holden Road conservation area
80	Mar 10, 2016 3:40 PM	Oxbow area and power line trails in and around rich tree farm
81	Mar 10, 2016 1:55 PM	Far and Near
82	Mar 9, 2016 5:51 PM	BENJAMIN HILL
83	Mar 8, 2016 11:12 PM	Farandnear. Woods and wetlands
84	Mar 8, 2016 10:25 PM	FarAndNear
85	Mar 8, 2016 9:37 PM	Holdenwood, Far and Near, Spruce Swamp
86	Mar 8, 2016 7:50 PM	Far and Near, Holdenwood, Benjamin Hill
87	Mar 8, 2016 7:18 PM	Longley Farm, Farandnear, Benjamin Hill
88	Mar 8, 2016 7:17 PM	Walking trails, the brook, bejimam hill , hostical buildings
89	Mar 8, 2016 7:16 PM	Farandnear, Longley Acres, Mulpus brook & SquAnnacook mgmt areas
90	Mar 8, 2016 6:14 PM	Squannacook Cons. land, Holdenwood, Farandnear, BenjaminHill
91	Mar 8, 2016 5:23 PM	Historic Shirley Center, Far-and-Near
92	Mar 8, 2016 3:50 PM	Benjamin Hill Park, Lura A. White Ball Fields, Longley Acres, Farandnear
93	Mar 7, 2016 4:35 PM	all of them

94	Mar 7, 2016 4:16 PM	The baseball field
95	Mar 7, 2016 3:50 PM	Benjamin hill
96	Mar 7, 2016 3:30 PM	Im new to town. Im uninformed about recreation areas
97	Mar 6, 2016 3:19 PM	Squannacook
98	Mar 5, 2016 7:09 PM	Benjamin Hill Pool area....is there anything else in town?
99	Mar 5, 2016 2:26 PM	none - go to FT Devens
100	Mar 5, 2016 12:31 PM	Holdenwood & Farandnear
101	Mar 5, 2016 12:03 PM	Memorial Park
102	Mar 5, 2016 11:14 AM	Shirley town center. I would also say walking trails, but many are unmarked with no parking. This would be a great town or scout project for volunteers.
103	Mar 5, 2016 6:12 AM	Benjamin Hill
104	Mar 5, 2016 3:06 AM	Benjamin hill pool/ sledding hill, far and near
105	Mar 5, 2016 2:30 AM	Far and near, the town common, the playgrounds, Benjamin Hill
106	Mar 5, 2016 2:01 AM	Benjamin Hill
107	Mar 5, 2016 1:57 AM	Pool
108	Mar 5, 2016 1:53 AM	faradnear
109	Mar 5, 2016 1:22 AM	Center Common
110	Mar 4, 2016 9:50 PM	Farms
111	Mar 4, 2016 9:36 PM	I don't know of any
112	Mar 4, 2016 8:18 PM	Squannacook
113	Mar 4, 2016 6:46 PM	town park on front st
114	Mar 4, 2016 6:30 PM	Benjamin hill
115	Mar 4, 2016 6:20 PM	Benjamin hill
116	Mar 4, 2016 5:06 PM	Shirley center common area and Benjamin hill
117	Mar 4, 2016 4:06 PM	Benjamin Hill Area
118	Mar 4, 2016 3:08 PM	Swimming pool and tubing hill
119	Mar 4, 2016 2:20 PM	benjamin park.
120	Mar 4, 2016 2:13 PM	Soccer fields, town common, Benjamin hill pool
121	Mar 4, 2016 1:34 PM	Farandnear
122	Mar 4, 2016 1:25 PM	Farandnear
123	Mar 4, 2016 12:48 PM	Benjamin Hill
124	Mar 4, 2016 12:47 PM	Benjamin hill, the new park on center street!
125	Mar 4, 2016 12:38 PM	Benjamin Hill
126	Mar 4, 2016 12:38 PM	Benjamin hill
127	Mar 4, 2016 12:32 PM	Benjamin hill
128	Mar 4, 2016 12:08 PM	Playgrounds and parks
129	Mar 4, 2016 11:51 AM	Benjamin hill, farandnear
130	Mar 4, 2016 11:51 AM	The pool
131	Mar 4, 2016 12:46 AM	Conservation land off Pamela Drive. Any old farm land and poem fields.
132	Mar 3, 2016 2:36 PM	playing field on Wilde Rd; mill pond and wetlands at Phoenix Park
133	Mar 3, 2016 2:37 AM	Holden woods, Benjamin hill
134	Mar 2, 2016 7:39 PM	Benjamin Hill pool and playground; Farandnear
135	Mar 2, 2016 1:40 PM	trails, Nashua and Squannacock Rivers
136	Mar 2, 2016 1:20 AM	Benjamin Hill
137	Mar 1, 2016 11:57 PM	Catacunemaug Brook, Oxbow National Wildlife Refuge, Benjamin Hill
138	Mar 1, 2016 8:43 PM	Conservation land off of Squanacook Rd
139	Mar 1, 2016 3:50 PM	Faranenear, Squannacook wildlife area, powerline ROWs
140	Mar 1, 2016 3:54 AM	Holdenwoods

Appendix B. Public Participation Process

141	Feb 28, 2016 4:00 AM	the view on Center road thru the farm land to Longley farm
142	Feb 27, 2016 10:19 PM	Shirley Soccer fields and Benjamin Hill
143	Feb 27, 2016 1:21 PM	Benjamin Hill
144	Feb 26, 2016 11:55 PM	Benjamin Hill
145	Feb 26, 2016 6:17 PM	Soccer Fields
146	Feb 26, 2016 5:22 PM	Benjamin Hill

The following Summary of the Open Space and Recreation Survey results was presented at the Public Information forum on May 12, 2016.

2016 Shirley Open Space and Recreation Survey Summary

Demographic Data

For the OSRP survey respondents that answered the question about what part of Shirley they lived in, the breakdown was as follows:

- Shirley Center - 20%
- Shirley Village - 20%
- North Shirley - 40%
- Shirley (Misc.) - 20%

62% of survey respondents did not have kids under 18 in their household

Open Space/Conservation

Top Issues: 95% of the respondents indicated that it was important to maintain Shirley's rural character. Respondents top 5 answers regarding the importance of open space were for:

- Wildlife Protection (89%)
- Scenery (85%)
- Ponds, lakes, brooks and rivers (84%)
- Recreation (78%)
- Drinking water protection (72%)

Respondents top reasons to protect natural open spaces for residents to enjoy were for:

- Hiking/Walking (94%)
- Nature Walks (93%)
- Well being (81%)

Of the 36 write in answers to this question, having open spaces for dog walking ranked highest (19%)

Top Strategies:

Appendix B. Public Participation Process

- 63% of the respondents indicated that Shirley should acquire more land to preserve its open space and rural character.
- 92% of respondents indicated that Shirley's budget should include support for open space protection.
- 92% of respondents indicated that it was important for Shirley to work with private landowners to protect their land through means other than acquisition by the town.

Recreation

Top Issues: 42% of the respondents indicated Shirley did not have adequate recreational facilities. Top write in answers by respondents who answered "No" or "I don't know" said Shirley needed recreational facilities for:

- Youth recreation/play areas/sports fields (19%)
- Trails/Hiking areas (14%)
- Recreation access to water (9%)

Top Strategies: The top recreational activities respondents said they or a family member would participate in if playing fields/maintained areas were provided by Shirley included:

- Biking (83%)
- Picnic/Park areas (79%)
- Boat/canoe launch (78%)
- Swimming (72%)
- Sledding/Tubing/Snowshoeing (61%)
- Hockey/Ice Skating (53%)

89% of respondents indicated that Shirley's budget should include support for outdoor sports and recreation.

Threats to Shirley'Open Space

Respondents top write in answer to Shirley's greatest threat to open space were:

- Over development-commercial & residential (67%)
- Solar farms (25%)

Shirley Open Space and Recreation Plan Public Forum May 12, 2016 6:30-8:00

Meeting Summary (draft)

Approximately 30 people attended the Forum. The Forum opened with a welcome by Trish Garrigan on behalf of the Open Space and Recreation Plan Committee, she introduced other members of the committee. She explained that the purpose of the forum was to get feedback on the Open Space and Recreation Plan (OSRP), and to learn about resources in town. Another forum is to be held at the Senior Center on May 23rd at 11:30. She noted that the plan submitted to the state in 2014 was “conditionally” approved and a letter from the state listed 10 things the Town needed to do to get the plan approved. One item was to have a more recent public input process (previous one was in 2011) and to update the Action Plan and Goals based on this feedback. In addition to the public forums the OSRP committee has put out an online and paper survey for residents to fill out. At this point (200 ?) completed surveys have come in.

Presentations on Shirley’s Resources included:

- Brian Westrick from the Trustees of Reservations on FarandNear
- John Rounds presented information on Benjamin Hill
- Peg Lorenz presented information on Shirley Trails
- Sue Heinz talked about Shirley’s Playful City designation.

During the presentations we has some questions and answers then the meeting was opened up for discussion. The questions posed to the group were:

- What is on your mind related to Shirley’s Open Space and Recreation?
- What do you enjoy, what would you like to see more of?
- What are the most important priorities?

Responses were collected on flip chart paper, and are summarized here:

Issues/Concerns

- Old mill sites near Mulpus Brook
- Shirley representation during Devens meetings
- Not keeping track of open space we have now
- May not need more open space- will be a lot of work
- Are there enough ballfields?
- What to do about vandalism?
- Littering – who picks up at Fredonia Park?
- Dog poop, signage and bags
- Solar arrays on open space

Appendix B. Public Participation Process

- Longley Acres- complaint of spreading of paper waste, septage (?) from Irving that smelled very bad and may not have been applied right on a 95 degree day. Is it legitimate? Why didn't the neighbors know?
- Beaver destruction – losing buildable land

Opportunities

- Use enthusiasm to do more with what we have, ex. Rich Tree Farm
- Make connections with Ayer
- Littering receptacles
- Get stewards for individual areas
- Review existing studies
- Use existing plans
- Serve on local boards
- Groton Land Trust – area near Spruce Swamp
- Community Preservation Act

Priorities

- Protecting open space
- State fund use
- Make existing open space accessible
- Learn about what we have for open space and recreation

A summary of the preliminary survey results listing the priorities identified as “very important” and those listed as the top 3 priorities were passed out. Most people were in general agreement with these lists.

The hope is to have a revised plan at the Fall town meeting, and to have it integrated with the Town Master Plan. If folks have any questions they should contact the Conservation Commission at conservation@shirley-ma.gov. The OSRP meets the 3rd Tuesday of each month at 7 pm at the conservation office in the town office building.

Meeting adjourned at 8 pm.

Appendix C. Open Space and Recreation Land Inventory.

The Massachusetts Executive Office of Environmental and Energy Affairs (EOEEA) considers open space to be permanently protected if the property deed explicitly identifies it as being so. In this Open Space and Recreation Land Inventory for Shirley, we provide information on open space and recreation lands that are permanently protected, as well as some open space lands that are not protected but have conservation and/or recreation value. Additionally, the chart includes other public lands, such as cemeteries, that serve some open space functions. The chart includes the following:

- public lands (under Town, State, or Federal ownership), including conservation land, parks, and recreation areas, specifically protected for open space uses
- public lands that have open space values but are not protected for conservation
- private lands with permanent open space protection through fee ownership or Conservation Restriction
- certain open space lands owned by private trusts but not protected through Conservation Restriction

Contents of Appendix C	page #
1. Permanently Protected Conservation and Open Space Lands Owned by Town of Shirley. "Permanent" means deed confirms conservation status.	C-1
2. Open Spaces Owned by Town of Shirley, Not Permanently Protected, Could be Converted to Other Uses.	C-5
3. Conservation Lands Owned by Massachusetts Division of Fisheries and Wildlife and Managed by MA Department of Fish and Game.	C-8
4. Lands Owned by Shirley Water District. Water Supply Land Traditionally Protected as Open Space Under Article 97 of MA Constitution.	C-9
5. Conservation and Open Space Land Owned by Town of Groton	C-10
6. Conservation Land Owned and Managed by Massachusetts Department of Corrections, MCI-Shirley	C-11
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Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
1. Permanently Protected Conservation and Open Space Lands Owned by Town of Shirley. "Permanent" means deed confirms conservation status.															
15 E 12	Shaker Road Conservation Parcel	1.60	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Unimproved strip of land from Shaker Road along south side of Catacunemaug Brook	Buffer along Brook, wildlife habitat in woods and wetlands	NA	Potential for trail access from cemetery to brook	NA	NA	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom, Part of Cluster Development	R2
37 A 1	Ronchetti Conservation Area, Holden Road	95	Public	Town of Shirley: Conservation Commission	Conservation and Passive Outdoor Recreation	Yes	Good; Trails tend to get overgrown, but volunteers are doing a good job of keeping trails maintained and marked	Wildlife habitat, woodland, streams, wetlands	Walking, hiking, nature appreciation	Improving connected Trail Network including Ronchetti, Holden Road, Farandnear, and Birchwood Hills trails	Volunteer labor	Little or none	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom	RR
37 A 2	Sullivan Donation, backland at Lunenburg town line. In effect, part of Holden Road and/or Ronchetti Conservation Area	2.42	Public	Town of Shirley: Conservation Commission	Conservation	Not forbidden	Unimproved woodland abutting Birchwood hills and Ronchetti Conservation areas. No formal connections	Wildlife habitat, open space	None known, isolated backland	None	None	NA	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom; Gift from Jesh Realty Trust	RR
47 A 2.2	Great Road Conservation Area, Ayer-Shirley TownLine	2.6	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Undeveloped woodland and floodplain between the Mulpus Brook and Great Road west of Ayer-Shirley boundary	Riparian wildlife habitat and corridor, floodplain, abuts State Wildlife lands	Fishing/ Boating	Fully utilized	None	NA	NA -- unimproved forested land and floodplain	Protected - MGL Ch 40 Sect 8C through ConsCom, cited in Deed from J & A Realty in 2008	R1
37 A 2,1 38 A 2 54 A 4	Holden Road Conservation Area	15 39 2.23	Public	Town of Shirley: Conservation Commission	Conservation and Outdoor Recreation	Yes	Semi-maintained trails. No parking readily accessible. Trails tend to become overgrown, but in 2016 the Trails Group has done much trails clearing and marking	Wildlife habitat, woodland, streams, wetlands	Walking, hiking, nature appreciation	Connected trails links to abutting parcels	Continued trail maintenance. Provide for parking.	Volunteer time, DPW help with parking.	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom, with wildlife and conservation as explicit purposes. Self-help grant	RR

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
1. Permanently Protected Conservation and Open Space Lands Owned by Town of Shirley, continued.															
40 A 1.11	Benjamin Hill Conservation Area, Benjamin Road. See also parcel 40 A 1.13 below	41.20	Public	Town of Shirley: Conservation Commission	Conservation and Outdoor Recreation	Yes	Trails in reasonably good shape. Mostly unmanaged open space in woodland and streams, some wetland	Wildlife habitat, woodland, streams, wetlands	Walking, hiking, nature appreciation	Fully utilized	NA	NA	NA -- unimproved land. Abuts ADA-accessible Benjamin Hill Park and Recreation Area	Protected - MGL Ch 40 Sect 8C Deed through ConsCom. Also some Unprotected parcels -- see below	R1
43 A 9.1	Rich Tree Farm Conservation Area, Walker and Hazen Roads	112	Public	Town of Shirley: Conservation Commission	Conservation, Forestry, Water Supply Protection, Recreation	Yes	Mature forest, some trails.	Wildlife habitat, upland forest, forestry management	Hiking, Hunting.	Additional Hiking, Hunting, Nature Study	Volunteer trail clearing and marking	Little or none	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. Self-Help Grant	RR
55 A 1	Old Town Line Conservation Area, Backland west of Holden Road at Town Line	16.6	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Unimproved backland, no parking, old woods trails unmaintained	Wildlife, forest	None known, isolated backland	Could connect to other parcels	volunteer trail work	NA	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom	RR
57 A 2 57 A 3	Downey and Thompson Conservation Areas, Whitney Road	0.843 15.7	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Natural condition of wetland and wooded esker. No improvements. Rises steeply from road, no parking available nearby. Other frontage is wetland.	Geological and water features, water quality, wildlife habitat	None	Little to none -- site not suited to access improvements.	NA	\$0	NA -- unimproved forested land and wetlands	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom	RR
58 A 2 67 A 1	Longley Acres Conservation Area (AKA Longley Farm), Whitney Road	14.2 59.04	Public	Town of Shirley: Conservation Commission	Conservation and agriculture, community gardens	Yes, with some restrictions	Agricultural fields in active cultivation. Includes some woodland. Land leased to commercial farmer.	Grassland open space, agriculture, agricultural soils, wildlife habitat	Community Garden, Agricultural (hay), Farming events, walks	More community garden use, special farm-related events possible. Recreation must be compatible with farming use	NA	NA	NA -- unimproved agricultural and forest land. Potential for garden space accessibility for wheelchair or other disabled users	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. Self-Help Grant	R1

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
1. Permanently Protected Conservation and Open Space Lands Owned by Town of Shirley, continued.															
58 A 6.1	Mitchell Conservation Area, Whitney Road	1.02	Public	Town of Shirley: Conservation Commission	Part of land formerly grazed by abutter's livestock per agreement with Cons. Comm	Yes in theory	A small triangle of land along Whitney Road, eastern portion is cleared and grazed, rest is wooded. Abuts private lands on three sides without public access	Roadside buffer	None	None	NA	NA	NA -- unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. Gift from Kay Mitchell, 1983	RR. Hist Distr.
60 A 2.1	Spruce Swamp, Center Road	11.62	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Swampy. No improvements. Town ownership covers only half of Spruce Swamp, rest privately owned.	Wildlife habitat. Headwater of Catacune-maug Book.	Little to none. Some ice skating in winter.	Was swimming hole in 1920s. Current condition provides little to no recreational potential except nature appreciation.	NA	\$0	NA -- unimproved forested land and wetlands	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom.	R1
68 A 5	Harriet Lyon Bird Sanctuary, Whitney Road	7.83	Public	Town of Shirley: Conservation Commission	Conservation	No	Overgrown and swampy along brook. No improvements, access along brook entirely wet, no parking accessible. Can park and get access from Longley Acres.	Wildlife habitat, forest and wetland.	Little to None	Formal access from Longley Acres could enhance hiking, birdwatching/ wildlife observation potential.	Trail development and maintenance	NA	NA -- unimproved forested land and wetlands	Protected - MGL Ch 40 Sect 8C in Deed	R1
76 B 1.1	Going Road parcel	23.29	Public	Town of Shirley: Conservation Commission	Conservation	Yes	At Lunenburg town line behind former junkyard and extending toward current auto auction land. Unimproved, with woods roads and trails like most backland. No road frontage.	Forest, wetland, connectivity to other open spaces	None known	In future could become part of connected trail network along town's western boundary if further parcels are acquired.	Acquire other parcels, develop trails	Cost of protecting land and volunteer time	Unimproved forested land	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. Gift from J&A Realty	R1
95 A 7.14	Dow Conservation Area, Groton Road	16.03	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Southern portion stripped of vegetation and topsoil, rest forested	Corridor to Hunting Hill Conservation lands	none known	Abuts Fish and Game land, potential use for hunting, nature study, wildlife	NA	NA	NA	Protected Gift from WE and RL Dow -- Deed places under custody control and care of Cons Comm	R1

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
1. Permanently Protected Conservation and Open Space Lands Owned by Town of Shirley, continued.															
96 B 1 96 B 2 96 C 1	Rust Nature Conservation Areas, Townsend and Garrison Roads	17.48 7.83 13.05	Public	Town of Shirley: Conservation Commission	Conservation	Yes	OK - Overgrown	Was set aside as meadow habitat. Wildlife, recreation, corridor and connection to other open spaces	Some hiking and nature enjoyment	Connected Trail Network	Needs mowing to preserve meadow habitat	DPW time	NA	Protected -- Gifts from B. Hurd and Garrison Corp. With Deed citations of MGL Ch 40 Sect 8C through ConsCom	R1
103 B 2	Crow Island Conservation Area	2.1	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Undeveloped, island in Squannacook River. No developed parking, can park along Squannacook Road. Access by water.	Island, wildlife, water	Picnic, nature enjoyment	Fully realized	NA	NA	Small island is accessible by anyone in canoe or kayak. Too small for bridge, other developed access.	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. Gift from Kenneth Rumbo	R1
109 A 1 117 A 3	Hunting Hill Conservation Area, Townsend and Mulpus Roads	31.2 55.91	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Unimproved, no dedicated parking area, trails overgrown	Wildlife habitat, views, water	Hiking, Possibly hunting, XC ski and snowshoe	Connected Trail Network	NA volunteer trail clearing and marking	NA	Undeveloped backcountry open space.	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom. CR Held by DFW.	RR
115 A 4	Squannacook Conservation Area, Squannacook Road	12.5	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Access from Squannacook Road behind Daniel Drive to Squannacook River. Trails OK, somewhat overgrown.	Riparian corridor, water, wildlife	Hiking, fishing, river access, swimming.	Connected Trail Network	Volunteer trail work	NA	Undeveloped backcountry open space.	Protected - MGL Ch 40 Sect 8C in Deed through ConsCom	R1
118 A 1 118 A 2.3 118 B 1 121 A 1 121 B 2 122 A 2	Pumpkin Brook and Pumpkin Brook Link Conservation Area, Townsend and Spaulding Road	31.9 2.07 50.3 6.04 30.7 19.7	Public	Town of Shirley: Conservation Commission	Conservation. Extensive tree cutting for wildlife habitat enhancement planned in part of the area.	Yes	Small parking area east of Townsend Road. Kiosk with map and information. Trails throughout, many overgrown. Connect with DFW land	Water resources, wildlife habitat and corridors, forest land, linkage to state wildlife lands	Hiking, Forestry, Wildlife Habitat	Connected Trail Network	Volunteer trail work	NA	Mostly undeveloped backcountry open space. Some opportunity for small boardwalk. Trails connect to MA DFW land, where trails are not maintained, according to state policy for wildlife management areas.	Protected -- Deed restrictions, Federal Forest Legacy Funding restrictions	RR

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2. Open Spaces Owned by Town of Shirley, Not Permanently Protected, Could be Converted to Other Uses.															
10 A 1	Landfill, southwest corner, Leominster Road	0.58	Public	Town of Shirley; Board of Health	Undeveloped toe of former landfill	No	Undeveloped toe of former landfill	NA	NA	NA	NA	NA	NA	Unprotected -- can be developed consistent with closed landfill	RR
10 A 2	Former landfill, Leominster Road	41.8	Public	Town of Shirley; Board of Health and Selectmen	Closed Landfill, Solar Farm	Limited	Closed and capped landfill, solar farm along edges, much wetland habitat on eastern half of parcel	Wildlife habitat and wetlands values. Wetlands on eastern side of property, grassy habitat west of solar panels	NA	NA	NA	NA	NA	Unprotected -- can be developed consistent with closed landfill	RR
10 A 2.1	Lot east of landfill site, Leominster Road	1.05	Public	Town of Shirley; Selectmen and Board of Health	Forested lot east of former landfill parcel	Yes	Wooded, serves as wildlife corridor from Tophet swamp to wetlands and forest east of Lake Shirley	Wildlife habitat and wildlife corridor	None known	Limited	NA	NA	NA	Unprotected -- can be developed consistent with closed landfill	RR
12 C 25	Water District Pumphouse, adjacent woods and wetland, Lancaster Road	3.75	Public	Town of Shirley, leased to Shirley Water District through 2087.	Pumphouse to supply water to south Shirley; unmanaged woods and wetland	Limited; no known restrictions on use of open space behind pump house	Pumphouse fronts on Lancaster Road with parking for SWD vehicle. Woods and wetland with small stream that flows to Catacunemaug Brook	Infrastructure for water supply system	NA	NA	NA	NA	NA	Unprotected	R2
15 E 11	Fredonian Street - Harvard Road Conservation Parcel	4.00	Public	Town of Shirley Selectmen	Vacant, Conservation, wildlife. Abuts Village Cemetery. "Indian Trail" along south side of Brook with fine forest trees.	Yes	Unimproved parcel extending from Catacunemaug Brook to Village Cemetery	Woodland, riparian wetlands, wildlife habitat	Occasional use of Indian Trail. Much dumping of trash.	Improve trail and increase visibility. Southern flat area could be developed for recreation fields or a public park. May be needed for cemetery expansion	Identify preferred use(s), develop plans, determine cost	Unknown	NA at present, development of park or playing fields would incorporate ADA provisions	1969, Gift from Bukleriwicz to the inhabitants of Shirley, no protection or use provisions specified in deed	R2

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
2. Open Spaces Owned by Town of Shirley, Not Permanently Protected, Could be Converted to Other Uses, continued.															
16 D 1	Municipal parking lot, 11 Main Street	2.00	Public	Town of Shirley; Selectmen, DPW	Parking, unimproved conservation land	Yes	Dirt parking lot accessed from Main and Fredonian Streets. Rest of parcel is wooded, unimproved. Extends to Catacunemaug Brook (floodplain) and abuts Fredonian Park	Woodland on eastern portion provides wildlife habitat, floodplain services	None known	Wooded open space could be connected to Fredonian Park with trails and interpretive natural history signs. Picnic tables would be nice.	Much could be done with volunteer labor. Grants might also be available to address Environmental Justice and ADA needs.	Unknown	Dirt parking lot is accessible to anyone. There are no sidewalks from parking lot to the Village. Open space is unimproved.	Purchased for municipal parking lot, 1988	R3
16 D 15.1	Fredonian Park and Nature Center, Fredonian Street	7	Public	Town of Shirley: Conservation Commission, DPW	Conservation, some hiking and nature study, family recreation	Yes	Good. Parking. No restroom facilities. Bandstand. Bridge over brook needs work. Trails on south side of brook with rubbish and overgrowth, need some work	Nice deciduous forest on south side of brook, floodplain, pond and stream habitat	Some hiking, picnicking, casual use of the park area	Concerts/ events, more trail use. Picnics if tables were available. Possible fishing. Casual use of park for frisbee, pick-up games, family events.	Area has never been used much. May need better policing. Improvement of trails, paths, including trash removal on south side. Smoothing out bumps for wheelchairs in the Park area is needed. Bridge needs to be restored. Picnic tables also needed.	Cost unknown	Parking includes ADA spots. Bandstand steps do not have a lift. Trails on south side are on a steep slope not appropriate or modifiable for wheelchairs. Trails in the park are relatively flat but need some work.	Partially Protected -- Plan 184, 1973. Purchased for parkland. Not mentioned as purpose in deed, no formal protection language in deed.	R3
27 D 1	Nashua River Frontage, Walker Road	1.00	Public	Town of Shirley: Selectmen, should be Conservation	Conservation	Yes	No improvements, undeveloped riverbank	Riparian habitat and corridor, floodplain	Fishing/ Possible access for small boats (canoe, kayak)	More river-related recreation. Abuts DFW river access land. Adjacent to Bartkus land and Railroad, where parking is possible.	Formalize as location for fishing, small-boat launching. Signs for access, parking.	NA	NA	Deed not found. Protection not likely.	I
28 A 2.12	Bartkus Land, Walker Road and parallel to RR tracks	32	Public	Town of Shirley Selectmen	Solar farm, Wildlife Conservation.	Limited	North: wetland, stream, forest. South: inactive gravel pit; rare turtle nesting; ORV recreation; solar arrays	North portion: wildlife habitat, extensive wetlands, Morse Brook outlet to Nashua River	NA	NA	NA	NA	NA	Purchased by the town for development 1991. Plan revisions 1991, 2004, 2008.	I

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
2. Open Spaces Owned by Town of Shirley, Not Permanently Protected, Could be Converted to Other Uses, continued.															
30 B 5	Highway Department Gravel Pit, Patterson Road	28.09	Public	Town of Shirley DPW	DPW Gravel pit, Solar Farm	Limited, access to wood, sand for residents	Gravel pit, cut trees, a few trailers, solar arrays on southern side. Vernal Pool and small woodland	Turtle nesting, groundwater recharge, vernal pool habitat	None	None	NA	NA	NA	Unprotected. Vernal pool should be certified to provide some protection.	RR
30 B 6	21-Rear Patterson Road Water Resources Protection Land	11.62	Public with private lease to Solar City	Town of Shirley: Selectmen, Leased to Solar City Corp, should be Conservation	Solar Farm recreation along Morse Brook trout stream	Limited: solar arrays fenced, restrict access to stream and Conservation land	Until late 2016, unimproved for public use. No parking or trails. 2016, northern portion of site cleared, graded, and covered with solar arrays. Southern portion of site with hemlock ravine traversed by Morse Brook trout stream	Coldwater trout stream, wildlife habitat, uncommon forest habitat type, groundwater protection	Limited; trout fishing and nature appreciation along brook. Hunting in the past, may still occur in remaining wooded portion of site.	Improved access to stream would allow more recreational use	Provide pedestrian access through gate.	Little or none	NA	Deed specified land was acquired for protection of water resources and compatible uses including conservation and recreation. Fell through protection cracks. Has been developed for solar energy production.	RR
40 A 1.13	Benjamin Hill Conservation Area, Benjamin Road	0.85	Public	Town of Shirley: Conservation Commission	Conservation	Yes	Trails in reasonably good shape. Mostly unmanaged open space in woodland and streams, some wetland	Woodland, streams, some wetland; wildlife habitat	Walking, hiking, nature appreciation	Fully utilized	NA	NA	NA	Should be part of conservation land at Benjamin Hill, but it does not appear to be covered by the deed protection on 40 A 1.11	R1
97 B 15	Groton Road	6.80	Public	Town of Shirley, Selectmen	Solar energy generation by private utility, lease/tax income	No, fenced	Solar panels surrounded by fence	NA	None	Need to revisit after lease expires in 20-30 years	NA	NA	NA	Was tax title land, converted to solar	R1
121 B 1	Townsend Road, located adjacent to several Pumpkin Brook Link parcels	0.43	Public	Town of Shirley, Selectmen	"Municipal use", currently open space	Yes	Forestland	Habitat, connected corridors, water resources protection	Unknown	Primarily as part of larger protected open space and recreation area	NA	NA	NA	Acquired per Article 17 of June 10, 2006 ATM. Unlike Pumpkin Brook land nearby, no explicit protection language in deed	RR

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
3. Conservation Lands Owned by Massachusetts Division of Fisheries and Wildlife and Managed by MA Department of Fish and Game.															
28 B 12.4 28 C 1 40 A 1.3	Walker Road, Nashua River Frontage	18.73 10.47 0.48	Public	MA Department of Fish and Game	Conservation	Limited	Unimproved riverfront on either side of Walker Road	Wildlife habitat, riverfront protection	Fishing, small boat access	Little additional	NA	NA	NA	State river access land	
47 A 2.11	Mulpus Brook Wildlife Area, 40 Great Road	16.0	Public	MA Department of Fish and Game	Conservation	Limited	Unimproved woods and stream corridor on either side of Mulpus Brook, south side of Great Road opposite bus parking facility	Wildlife habitat, riverfront protection	Limited, wildlife-related recreation	Limited, wildlife-related recreation	NA	NA	NA	State wildlife management area	
77 A 2 77 A 2.4 77 A 2.5 78 A 1 78 A 10 90 A 1 90 A 2 91 B 1 92 A 3	Mulpus Brook Wildlife Area, west end Great Road	22 8.7 4.7 7.9 43.3 23 34.5 75.6 69	Public	MA Department of Fish and Game	Conservation	Limited	Unimproved marsh and upland protection, north and south sides of Mulpus Brook at Lunenburg town line to east of Townsend Road.	Wildlife habitat, riverfront protection	Hunting, birding, canoe access from Townsend Road	Limited, wildlife-related recreation	NA	NA	NA	State wildlife management area	
86 A 3.1 99 B 1 101 A 1	Squannacook Wildlife Mgmt Area, Lawton Road	5.70 6.305 2.897	Public	MA Department of Fish and Game	Conservation	Limited	Unimproved forest and wetland areas along Squannacook River backwaters	Wildlife habitat, riverfront protection	Limited, wildlife-related recreation	Limited, wildlife-related recreation	NA	NA	NA	State wildlife management area	
107 A 2.10	Hunting Hill Wildlife Area	137.5	Public	MA Department of Fish and Game	Conservation	Limited	Unimproved forest land abutting Town-owned Hunting Hill Conservation land	Wildlife habitat	Hunting, birding	Fully utilized	NA	NA	NA	State wildlife management area	
114 A 1.11 116 A 2 120 A 1 122 A 1 123 A 2	Squannacook Wildlife Mgmt Area, Townsend Road, Squannacook Road, Caleb Drive	30 138.85 75.3 48.3 20	Public	MA Department of Fish and Game	Conservation	Limited	OK - Overgrown, some old woods roads and trails	Wildlife habitat	Hunting	Limited, wildlife-related recreation	NA	NA	NA	State wildlife management area	
122 A 3 122 A 4	Pumpkin Brook Subdivision	13.63 10.2	Public	MA Department of Fish and Game	Conservation	Limited	Healthy forest parcels connecting with town Pumpkin Brook and DFG Squannacook WMA lands	Wildlife habitat	Limited, wildlife-related recreation	Limited, wildlife-related recreation	NA	NA	NA	State wildlife management area	

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
4. Lands Owned by Shirley Water District. Water Supply Land Traditionally Protected as Open Space Under Article 97 of MA Constitution.															
17 B 6	Catecunemaug Road Well	0.4	Public	Shirley Water District	Water Supply Well	No	Access drive, well house with fence around it.	Water Supply infrastructure	NA	NA	NA	NA	NA	Developed, Water Supply Infrastructure, not Open Space	RR
23 B 20	Water District HQ, Ayer Road	0.3	Public	Shirley Water District	Office and Garage, SWD Headquarters	Yes	Building, garage, shed in back, driveway and parking	NA	NA	NA	NA	NA	NA	Developed, Office, not Open Space	R1
27 C 1	Water Supply Land, 0 Walker Road	20.05	Public	Shirley Water District	Fully developed with solar arrays and access road	Limited	Developed, not yet vegetated with erosion problems documented	Water supply recharge, limited quality protection?	NA	NA	NA	NA	NA	Unprotected, Water Supply Land developed for solar energy generation	I
28 A 2.2	Walker Road Water Supply Land	3.95	Public	Shirley Water District	Water Supply Protection	Limited	Forested, surrounded by solar arrays to south, Morse Brook to North, Access road to West	Water supply recharge and water quality protection; wildlife	None known	NA	NA	na	na	Protected within 400 feet of well, otherwise Unprotected	RR
29 A 3	Walker Road Well Access	4.57	Public	Shirley Water District	Water Supply access road	Limited	Wooded hillsides with gravel road to Walker Road well	Forest, some water resource protection and wildlife	None known, Off-road vehicles on access road	NA	NA	NA	NA	Protected within 400 feet of well, otherwise Unprotected	RR
30 B 6.1	Patterson Road Well	4.88	Public	Shirley Water District	Water Supply Well	Limited	Gravel access road to well and solar arrays, fenced area with well and pumphouse, woods, Morse Brook	Limited groundwater recharge, wildlife habitat, stream habitat	None known, Off-road vehicles on access road	NA	NA	NA	NA	Protected within 400 feet of well, otherwise Unprotected	RR
30 B 7	Land abutting Walker and Patterson Wells	1.85	Public	Shirley Water District	Water Supply Protection	Limited	Wooded land north of water supply wells	Limited wildlife habitat, groundwater recharge and water quality	None known, Off-road vehicles on access road	NA	NA	NA	NA	Protected within 400 feet of well, otherwise Unprotected	RR
30 B 8	Walker Road Well	5.47	Public	Shirley Water District	Water Supply Well	Limited	Walker Road water supply well with fenced area around it, part of Patterson Well enclosure, access road, wooded hillsides	Limited wildlife habitat, groundwater recharge and water quality	None known, Off-road vehicles on access road	NA	NA	NA	NA	Protected within 400 feet of well, otherwise Unprotected	RR
30 B 9	Water District Land at north end of Town Pit, 0 Patterson Rd	0	Public	Shirley Water District	Water Supply Protection	Limited	Adjacent to solar array at north end of Town Gravel Pit and to access roadway to Patterson and Walker Road wells	Tiny parcel, limited conservation value on its own	NA	NA	NA	NA	NA	Protected, Undeveloped, land taken by eminent domain for water supply purposes	RR

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4. Lands Owned by Shirley Water District, continued.															
33 B 7	Pumping station, Center Road	0.03	Public	Shirley Water District	Water Supply Infrastructure	No	Paved with brick structure containing pump	Water supply infrastructure	NA	NA	NA	NA	NA	Developed infrastructure, not open space	R1
42 A 1	Water Supply Land, Walker Road	26.26	Public	Shirley Water District	Solar array	No	Cleared, graded, and covered with solar panels	Limited. Some water supply recharge, quality protection?	Illegal off-road motorized vehicle use	None until land is restored after solar farm lease expires in 20-30 years	NA	NA	NA	Unprotected, Water Supply Land developed for solar energy generation	RR
66 A 6	Parker Road Water Tower	0.18	Public	Shirley Water District	Water Supply Infrastructure	No	Good	Water supply storage.	None	None	NA	NA	NA	Developed infrastructure, not open space. Deed specifies acquired for standpipe and associated water pipes	R1
70 A 2.11	Farrar Lane Water Tower	0.92	Public	Shirley Water District	Water Supply Infrastructure	No	Good	Water supply storage.	None	None	NA	NA	NA	Developed infrastructure, not open space. Use not specified in deed	R1
5. Conservation and Open Space Land Owned by Town of Groton															
123 A 1	Town of Groton Squannacook Conservation Area, Townsend Road	14.8	Public	Town of Groton	Conservation	Yes	South of Groton Town Forest	Connects State wildlife lands, Squannacook River, and Shirley and Groton Town lands. Wildlife habitat, water resources, forest values.	Unknown	Limited; isolated backland parcel with no road May connect with wildlife-related recreation in DFG land	NA	NA	NA	Protected. Owned by Town of Groton, Deed specifies use as conservation land managed by Groton ConsComm	R1

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
6. Conservation Land Owned and Managed by Massachusetts Department of Corrections, MCI-Shirley															
5 A 1	Nashua River Greenway	21.0	Public	Mass.ts Department of Corrections, MCI-Shirley	Conservation	Limited-- need an OK from MCI Superintendent	Unimproved riparian forest and riverfront	Wildlife, riparian corridor, water protection, floodplain	Nature study, boating, hiking	Fully utilized	NA	NA	NA	No permanent protection -- non-binding agreement between MCI and towns	R1
7. Conservation and Open Space Lands Owned and Managed by the US Government															
13 B 17	US Government Land on Wilde Road	135.00	Public	US Army	Military use	No	Partly developed with parking and building. Nashua River frontage on East. SW has forest with some open space serving as wildlife habitat, playing fields along Wilde Road.	Riparian and floodplain habitat, woodland	Unknown	Possible negotiation between town and Army for use of playing fields along Wilde Road	Town would need to set up discussions with federal officials	NA	NA	US Military property, not permanently protected as open space, not publicly accessible	R1
26 A 1 29 B 3	Oxbow National Wildlife Refuge	72 140	Public	US Dept of the Interior, Fish and Wildlife Service	Conservation	Limited	Mixture of forest, wetlands, former sand pits. Limited parking off of Walker Road, some trails	Wildlife habiat, woodlands, eskers, wetlands, vernal pools, Nashua River, small streams	Hiking (dogs not permitted), nature study, hunting in season, fishing	Fully realized?	NA	NA	Federal land, restricted recreational use, could have boardwalk access to some areas?	National Wildlife Refuge	R1
8. Permanently Protected Private Conservation Lands Owned by Non-profit Organizations															
53 A 1.1 59 A 3 59 A 4 59 A 5 59 A 5.1 59 A 7 59 A 9.3 59 A 10	Farandnear Reservation, Center and Holden Roads	1.25 35.48 9.5 3.42 6.55 3.2 12.32 9.19	Private	The Trustees of Reservations	Conservation	Yes	Great. Parking, restrooms, pavillion and open space for events, woodland trails, pinetum with plantings of pines from all over the world.	Wildilfe habitat. Beaver wetlands, historic cranberry bog, upland hemlock and other forest, headwaters of Catacune-maug Brook.	Hiking, Nature/ Wildlife viewing, cross-counrty skiing, snow-shoeing, Private/ Public events	Fully utilized	NA	NA	Private property. ADA-accessible parking and restrooms. Developed area is fully accessible. Woodland trails are rough, many are steep, many cross through wetlands.	Protected -- both fee ownership and CR held by Conservation Organization (TTOR)	RR

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
9. Permanently Protected Private Lands with Conservation Restrictions Held by the Shirley Conservation Commission															
12 E 17.8 all parcels and 12 E 17.U all parcels-- but see CR Map	The Village at Phoenix Pond Subdivision Cons. Area, Shaker Road	14.9?	Private	Village at Phoenix Pond Property Owners	Conservation	Yes	Wooded land behind condominiums at cluster development	Air and Water quality, wildlife habitat, nature appreciation	Unknown	Unknown	NA	NA	Private land, NA	Protected -- CR #1, held by Shirley Conservation Commission	R2
18 A 5 19 A 12 19 A 12.04 19 A 12.35	Lakeview Subdivision Conservation Restriction, off Catacunemaug Road	13.09 4.3 1.48 0.44	Private	Lakeview Homeowners Association	Conservation	Yes	Parking for several cars on Lakeview Drive; trails along eskers and among ponds and wetlands, to shore of Lake Shirley, also open space in forested upland away from lakeshore, with vernal pools and wetlands	Air and Water quality, wildlife habitat, nature appreciation	Hiking and nature appreciation	Fully realized	NA	NA	Private land, NA	Protected -- CR #14, held by Shirley Conservation Commission	R1
32 A 16 32 A 18 32 A 20 -- See CR Map	Hill Lane Conservation Restriction, Hill Lane and Benjamin Road	1.64 1.29	Private	Hill Lane Residents	Conservation	No	NA	Vernal pool and woods for wildlife habitat. Air and water quality.	Hiking and nature appreciation	Fully realized	NA	NA	Private land, NA	Protected -- CR #9, Easement A, held by Shirley Conservation Commission	R1
36 B 1-1 to 36 B 1-69	Birchwood Hills Conservation Restriction, off Catacunemaug Road	92.70	Private	Birchwood Hills Condominium residents	Conservation and Outdoor Recreation	Yes	Parking is available. Trails through conservation restriction land connect with trails from Shirley conservation lands to the North. Woods, wetlands, streams, ponds.	Wildlife habitat, water resources protection, outdoor recreation.	Hiking and nature appreciation	Well realized	NA	Continued maintenance of trails	Private land, NA	Protected -- CR held by Shirley Conservation Commission	RR

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
9. Permanently Protected Private Lands with Conservation Restrictions Held by the Shirley Conservation Commission, continued.															
40 A 7.3 52 A 14 56 A 10 60 B 2 60 B 3 61 A 3.1 61 A 17 61 A 17.2 63 A 1 64 A 4.1 65 A 7 65 A 8 65 A 9 82 A 6	Holdenwood Conservation. Restrictions. Horsepond, Hazen, Clark, and Parker Roads, Great Road, Burrage Road.	2.62 12.48 1.4 1.07 9 7 8.25 7 58.53 2.52 5.1 5.51 45 7.9	Private	Holdenwood Limited Partnership	Conservation	Limited, by permission	Woods, fields, wetlands, streams. Perennial gardens and horticultural plantings. Some trails for owners' use	Wildlife habitat and corridors. Water infiltration, water quality, aquatic habitat. Fields hayed. Air quality. Gardens. Scenic values.	Nature/ Wildlife viewing. Portion used annually for public trail run to raise money for Shirley schools	Private land.	NA	NA	Private land, NA	Protected -- CR #11, held by Shirley Conservation Commission. Parcel 56 A 10 also under Ch 61b	R1, Hist, RR
53 B 5	Harriet Lyon Conservation Restriction, Hazen Road	13.64	Private	Matthew Lyon	Conservation and Residential	No	Wooded land south of Spruce Swamp with antique house in middle	Wetlands buffer for Spruce Swamp, water resources and wildlife	Family use	NA	NA	NA	Private land, NA	Protected -- CR #1, held by Shirley Conservation Commission	R1
80 A 2.9 all parcels	Longley Trace Conservation Restriction	10 Total?	Private	Longley Trace Homeowners	Conservation	Yes	Wetland, floodplain, and woods behind condominium units at 11 Longley Road.	Water resources, floodplain, aquatic wildlife, forest habitat and protections	Unkonwn	unknown	NA	NA	Private land, NA?	Protected: CR #13, held by Shirley Conservation Commission	R1
102 B 7.2 102 B 8.08 102 B 8.09	Executive Estates Conservation Restriction	15.5 1.29 1.26	Private	Executive Estates Trust, Calvin Moore, Trustee	Conservation	Yes	Mostly wetland and floodplain, extended access along Squannacook River. Some upland forest. Trails in good condition. Parking within subdivision.	Riparian buffer and habitat, forest and wetlands, floodplain storage and release of floodwaters. Outdoor recreation	Hiking	Fully realized	NA	NA	Private land, NA	Protected: CR #12, held by Shirley Conservation Commission	R1

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
10. Permanently Protected Private Lands with Conservation Restriction Held by Mass. Department of Fish and Game															
85 A 3	J Farnsworth land along Squannacook River west of Kittredge Road	18	Private	James Farnsworth	Conservation	?	Unimproved woodlands and riverfront, no road access	Floodplain, wildlife habitat, forest	NA	NA	NA	NA	Private land, NA	Protected--DFW CR	I
85 A 1 86 B 1 86 B 1.5 101 A 2	Shirley Rod and Gun Club, Kittredge Road	94 4.01 2.2 39.02	Private	Shirley Rod & Gun Club	Recreation & Conservation	No	Woodland, wetlands, streams, wetlands, Squannacook River frontage	Wildlife habitat, forest, wetlands, water resources	Members' hunting and fishing activities	Fully realized	NA	NA	Private land, NA	Protected--DFW CR; 61B classification on some parcels	R1
11. Permanently Protected Private Lands with Conservation Restrictions Held by Other than Shirley Conservation Commission or MA DFW															
53 B 3	Colburn Conservation Restriction	6.35	Private	Colburn Mirkovic Trust	Conservation	No	Unimproved. No parking. No trails.	Forest, wildlife habitat and corridor t Spruce Swamp	NA Owner uses for nature study and appreciation	Private land, NA	NA	NA	Private property, NA	Protected -- CR #10, held by TTOR	R1
35 A 3 38 A 1 54 A 3	Valley Farm Conservation Restriction	110 4.3 98	Private	Field Family Trust	Conservation	Yes	No parking set aside but available along Holden Road. Trails in reasonable shape, somewhat overgrown at times.	Forest, wildlife habitat, wetlands, Spruce Swap Brook to Catacunemaug Brook.	Hunting, X-country Ski snowshoes, Hiking, Forestry. Trails connect with Ronchetti and Holden Conservation Areas and Birchwood Hills Private Trails	Better trail maintenance and marking might be useful	Volunteer labor. Issues with illegal ORV use	NA	Private property, NA	Protected -- CR held by New England Forestry Foundation. Also Ch 61 on Parcel 35 A 3	RR

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
12. Public Parks, Playgrounds, Playing Fields, and Recreation Areas Owned by Town of Shirley															
12 C 1	Lura A. White School playgrounds and ballfields	10.33	Public	Town of Shirley	Baseball diamonds used for gym classes and by recreation program	Yes	Playgrounds recently updated and in good conditions. Ballfields adequate for current use. Drainage issues in rest of area have restricted development of soccer fields. Also concerns remain about possibility of toxic soil residues from Apple Orchard property uphill.	NA	Playgrounds used for school recess periods and by families. Several baseball diamonds are used for gym classes and recreation program games. Also used for public pick-up games.	If drainage issues and concerns about possible soil contamination were addressed, there is potential for development of soccer fields here	Testing and engineering to address issues; implementing solutions, developing fields.	Unknown	Planning is underway for eventual construction of a fully accessible walkway around the property	No protection of open space area, land was acquired by the town in 1934	R2
16 D 15.1	Fredonian Park and Nature Center (Also listed in Section 2)	7	Public	Town of Shirley: Conservation Commission and DPW	Park, Conservation area, some hiking and nature study	Yes	Good. Parking. No restroom facilities. Bandstand. Bridge over brook needs work. Trails on south side of brook with rubbish and overgrowth, need some work	NA	Some hiking, picnicking, casual use of the park area	Area has never been used much. Concerts/ events, more trail use. Picnics if tables were available. Fishing possibly in the brook. Casual use of park for frisbee, pick-up games, family events.	May need better policing. Trail improvement, trash removal on south side, smoothing out bumps for wheelchairs, bridge restoration, and Picnic tables also needed.	Cost unknown	Parking includes ADA spots. Bandstand steps do not have a lift. Trails on south side are on a steep slope not appropriate for or modifiable wheelchairs. Trails in the park are relatively flat but need some work.	Acquired for park purposes, not listed in deed. Not permanently protected under Article 97 as currently interpreted, therefore.	R2
23 C 26	Municipal Complex, Hospital Road and Keady Way	9.21	Public	Town of Shirley	Large lawn in front of library/ police/ town offices used for concerts and gatherings	Yes	Mowed lawn	NA	Gatherings	Fully utilized. Gazebo planned. Town could install picnic tables and make it more family-friendly	NA	NA	A flat lawn, easily accessible (has been used by residents in wheelchairs)	Granted to the town of Shirley from the MA Development Land Bank. Not parkland or open space	R1
23 F 1	Whiteley Park	1.54	Public	Town of Shirley	Park	Yes	Paths cross the park in an X meeting at the center. Veterans' memorial. Parking along road on Front, Phoenix, Chapel, and Whiteley streets.	NA	Annual veterans' and Halloween parades; veterans' ceremonies and other events	Fully utilized	NA	NA	NA	Deed Book and Page not found. Originally donated to town by the Shirley Shakers.	R3

Parcel	Property Name and Location	Acres	Public/Private	Ownership and Management	Current Use	Public Access	Current Condition (Required for Town land only)	Conservation Value	Current Rec Use	Recreation Potential	Work needed to reach Potential	\$\$\$ needed to reach potential	ADA Accessibility -- Town Land Only	Open Space Acquisition/ Permanent Protection Information	Zoning
12. Public Parks, Playgrounds, Playing Fields, and Recreation Areas Owned by Town of Shirley, continued.															
40 A 1.12 40 A 1.2 40 A 1.3	Benjamin Hill Park and Recreation Area	8.61 2.24 1.0	Public	Town of Shirley	Recreation -- swimming, skating, sledding and tubing, family games, picnics	Yes	Great. Playground for young children. Pool and pool house, skating rink, tennis and basketball courts, flat field for pick-up games and sports such as frisbee etc. Picnic tables. Parking area.	Habitat for some grassland species, and Woods provide habitat. Nature enjoyment by public. Outdoor exercise. Water recharge and water quality protection.	Playground use, swimming, sledding and tubing, skating, pick-up sports on fields/courts, family and community events, picnics.	Fully utilized	Ongoing maintenance of pool and other facilities.	Upkeep has mostly been the responsibility of volunteers- Need to provide funds in town budget.	Pool has a lift and is accessible. Pool house has ADA-compliant bathrooms. Parking area has handicapped spaces.	Developed Park and Recreation Infrastructure, not considered Permanently Protected Open Space, but area is fully dedicated to the uses for which it was acquired.	R1
65 A 1	Playing field at Senior Center (former Center School)	4.43	Public	Town of Shirley	Recreation: Soccer field, whiffle ball, for young children	Yes	Good: parking, port-a-potties, fields in decent condition for use received	Maintained as playing field. May provide some prey for hawks, owls, and other predators on small mammals	Soccer field used for young children	Fully utilized	Ongoing maintenance	\$ and time from Volunteers and help from DPW	Parking area has handicapped spots, Senior Center is ACA compliant. Playing field is grass.	Part of former Center School property now occupied by Senior Center. Not open space <i>per se</i> .	R1
65 A 4	Shirley Center Common and Training Field	4.50	Public	Town of Shirley	Park, events	Yes	Generally good -- mowed grass, trees.	NA	Scouts games, Annual Spring Hoe Down, Summer Concerts, other Events. Past site of Grange fairs, Summer Farmers' Market.	Fully utilized	NA	NA	Parking all around the Common. Accessible restrooms in Center Town Hall & being added to Historic Meeting House. Center Town Hall has handicapped access to the first floor. The Meeting House is improving access.	Land with Common, Training field, cemetery, etc. goes back to before Revolutionary time and is property of all the townspeople, handed over by Groton when Shirley became its own district and town.	Historic District

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13. <u>Playing Fields and Playgrounds Not Owned by the Town</u>															
97 A 1	MCI Soccer Fields at Wilde Rd	c. 10	Public	Commonwealth of MA, Department of Corrections	Recreation: Soccer program	Yes	Fields need summer irrigation.	NA	Soccer field for recreation program	Need long-term use agreement, fields could be improved	Field improvements. Lease is tenuous, needs to be confirmed for long-term use.	Time for town to negotiate, including legal fees; volunteer time for fields	Accessible.	Under short-term lease from MA Dept of Corrections	
14. <u>Cemeteries</u>															
13 A 16	St. Anthony's Cemetery	6.7	Private	Roman Catholic Diocese of Boston	Cemetery	Yes	Good		NA	NA	NA	NA	NA	Cemetery, not open space	NA
16 D 13	Village Cemetery	6.3	Public	Town of Shirley	Cemetery	Yes	Good		NA	NA	NA	NA	NA	Cemetery, not open space	NA
60 B 1	Shirley Center Cemetery	5.8	Public	Town of Shirley	Cemetery	Yes	Good		NA	NA	NA	NA	NA	Cemetery, not open space	NA
15. <u>Land Owned by Private Trusts for Conservation Purposes but not Permanently Protected by CR or other Deed Restriction</u>															
18 A 1 65 A 8	Holdenwoods land off of Mt Henry Road and Parker Road	5 5.51	Private	Holdenwoods Limited Partnership	Undeveloped open space	NA	Wooded	NA	NA	NA	NA	NA	Private property, NA	Not subject to Conservation Restriction covering other Holdenwoods parcels	R1
68 A 3	Hoddy Brook Camp	8.93	Private	Hoddy Brook Trust	Recreation/ Girl Scout Campsite	No	trail and camping area	woods, wetlands	hiking and camping, woodcraft, nature study	Fully utilized	NA	NA	Private property, NA	Temporary Protection -- Owned by Hoddy Brook Trust; may be sold and developed if not longer needed for intended purpose	R1

Appendix D: Acquisition Assessment

Historically, development in Shirley occurred along established roads. By 1996, limitations placed on development by requirements for septic system approval meant that most of the buildable frontage parcels had had houses built on them. With construction of the sewer system in the southern half of Shirley, most of the remaining frontage lots became buildable. There have been exceptions, however; as discussed in Section as frontage becomes scarce and as land prices rise, builders become increasingly interested in backland development.

Shirley still has large interior areas that are undeveloped. Often they reveal themselves only to the hiker or the hunter. These areas invariably have water resources, either in the form of wetlands or waterways. They are the areas in town where natural processes are the most active; if they are fragmented or isolated, they will cease to function as effectively and to provide the town's residents with many important and highly valued ecological "services" such as water supply protection, wildlife, and quality of life (see p. 67).

However, it is not possible to protect all these areas. When considering future land use options, it is important to remember that land development underlies a wide range of economic activity. So, where should land-protection efforts be focused? What criteria should be used to evaluate a parcel for protection? Based on sound conservation land management principles and goals established during the 1996 Shirley Open Space Planning process, the following general criteria for evaluation were established and continue to apply:

- Does a parcel add to an already protected area, or does it provide linkage between such areas? Isolated plant and animal communities typically do not thrive.
- Is a parcel related to waterways or wetlands? These are some of our most productive and valuable open spaces. Land conservation related to water resources directly impacts water quality issues, helping protect a critical resource.
- Is the parcel large and relatively intact? Larger parcels contribute more to water resources, air quality, wildlife habitat, outdoor recreation opportunities, and potential income generation from natural resources management than small, fragmented parcels.
- Does a parcel have significant value as wildlife habitat?
- Does a parcel have significant potential for active or passive recreation?
- Is a parcel in a Chapter 61 program (forestry, agriculture, or recreation)? This might indicate an owner's interest in protection, and it provides the town with a tool for acquisition by right of first refusal or assignment to a conservation group.
- Is a parcel threatened by development? If a parcel has been identified as being of conservation or recreation importance, is there an opportunity to work with a landowner or

Appendix D. Acquisition Assessment

developer to design for maximum resource protection? Does a landowner or estate faced with the necessity of generating income from the property know about alternatives to development that might conserve the resource as well as generate income?

- Does a parcel have significant scenic or historic value? Is it part of an important roadside view?
- Is there a realistic chance of protection or acquisition?
- Are there technical issues, such as degree of slope, depth of soil to bedrock, zoning bylaw limitations, wetland protection, etc., that might make building difficult and conservation a more likely option?

Appendix E: Shirley's Major Watersheds and Opportunities for Best Protection

The town's major watersheds with opportunities for their protection are listed below.

1. The Squannacook River Watershed (includes Trap Swamp Brook, Pumpkin Brook, Hunting Hill, and Kezar Hill)

A largely open corridor of upland woods (and some wetlands) that connects the Squannacook River area of Shirley's northeastern border with the Mulpus Brook area. North of Route 225, streams flow northerly and easterly toward the Squannacook River; south of Route 225, most flow is toward Mulpus Brook. For the most part, this section of North Shirley is a rolling, forested highland of poor to moderately drained soils. Gravel deposits near the Squannacook River are an exception. There is little remaining agricultural activity in this area, and the fields have grown up to, or are evolving toward, hemlock-mixed deciduous woods with extensive understories of laurel, witch hazel and other shrubs. Along Townsend Road, valuable wetlands, forested land, and frontage have been protected by the town-owned Pumpkin Brook Link parcels (140 acres), contiguous to DFW Squannacook Wildlife Management Area (393 acres). South and west are parcels held by the town and DFW at the Hunting Hill Wildlife Management area, which continues into Lunenburg. DFW also holds conservation restrictions along the Squannacook River on several parcels north of Great Road.

Opportunities:

- (a) Kezar Hill and its slopes (bounded by Townsend, Squannacook, and Groton Roads) contain a conserved area (the 20.88-acre Hurd Conservation Area off Garrison Road) that might serve as a core to further protect the Kezar Hill interior as well as provide corridor links with DFW land at Trap Swamp Brook and as yet undeveloped land across Townsend Road to the west.
- (b) A chain of narrow, connected meadows west of Lawton Road, under one ownership, forms an important open space feature on an otherwise built-out section of that road.

2. Mulpus Brook Watershed (includes Beaver Pond Brook, Brattle Hill, Deacon Hill, and Squannacook Hill)

The Mulpus Brook is characterized by alternating sections with steeply rising banks and sections with hardly any gradient adjacent. As it crosses Route 225, the Mulpus is fast flowing and confined to rocky banks; it then enters a large marsh at the southern foot of Deacon Hill and narrows again as it passes over a dam and is again relatively confined as it passes under Townsend Road and Longley Road. East of Longley Road the Brook receives drainage from Squannacook Hill and opens again into a spacious marsh behind Farnsworth Lumber. Once again it narrows as it parallels Great Road. There is ponding at the former Mill Stream Trailer Park. From there, it is a narrow stream through the breached dam behind the last house on the south of Route 2A until it meets the Nashua in a silty little delta.

Beaver Pond Brook is part of the Chaplin Hill - Flat Hill (Lunenburg) drainage. It rises in the wetland straddling the Lunenburg-Shirley town line south of Whitney Road and flows north through Beaver Pond (just south of Little Turnpike), emptying into Mulpus Brook south of Deacon Hill. In the wetland from which the stream rises (partly the town-owned Thompson Conservation Area), there is a small heron rookery that developed after beavers flooded the low-lying forest and created a swamp. A wonderful jumble of eskers rims the wetland. Frontage development on Whitney Road ignored the terrain, making progress along a conserved strip (Harriet Lyon Conservation Area) difficult. The southern portion of the Lyon Bird Sanctuary is largely low-lying and in times of high water would likely be impassable. The northern part of this conservation land, which is accessible from Longley Acres, supports a very nice mature stand of hemlock and upland red oak.

Opportunities:

(a) Squannacook Hill backlands represent the largest roadless area in Shirley. At present, only a 10-acre cluster development set aside at Longley Trace and a 4.51-acre Holdenwood Trust parcel on the north bank of the Mulpus are permanently protected. There is a 199-acre parcel in Chapter 61A [80 A 2.10] that is being managed for sustainable timber harvest, wildlife habitat, and hiking trails. This would be an excellent core for further protection, along with surrounding undeveloped properties along Longley and Lawton Roads that could provide an entrance to this core, which is contiguous to the Mulpus Brook corridor.

(b) The Mulpus Brook corridor itself, from Deacon Hill to the Nashua River, presents several opportunities for further protection. Because water quality in the Mulpus is negatively impacted by a number of substandard septic systems and the proximity of Route 2A, conservation protection should be pursued for as yet unbuilt parcels directly on the river. DFW has acquired several parcels and conservation restrictions and they have indicated an interest in further protection in the Mulpus corridor; they should be made aware of parcel availability.

(c) Much of the immediate watershed of Beaver Pond Brook on the western edge of town is undeveloped; recent activity suggests, however, that this may not long be the case. There are two conserved parcels (Thompson Conservation Area, 15.7 acres, and Harriet Lyon Bird Sanctuary, 7.83 acres) that might serve as a core to further protect land to the north and south. South of Burrage Road there is land that will be difficult to build because of access problems that could become part of a conserved corridor to already protected lands below (Holden Road Conservation Area and Valley Farm).

(d) The Brattle Hill area (bounded by Townsend Road, Route 225, Longley Road, and Route 2A) contains a great many poorly drained acres and a couple of outstanding vernal pools from which wood frogs quack in mighty chorus each spring. Although it has been heavily logged, it continues to sustain a varied wildlife population. Much of this interior land has been protected by DFW. Protection of the remaining backland remains of interest for conservation purposes.

The town owns a 8.86-acre parcel on Groton Road for which no specified use was identified in the deed. Because of a very high water table, it had previously been recommended that this parcel should be set aside as conservation land; as such it would serve a corridor function to allow wildlife passage to the Kezar Hill area. The parcel had also been suggested in prior Open Space

and Recreation Plans as a possible location for a future recreation fields in North Shirley. This parcel was developed for solar energy generation in 2015 and will be unavailable for conservation and recreational uses for up to 30 years.

(e) Mulpus Brook is a focus area for DFW acquisition. To date, DFW has acquired 156 acres to the south of Deacon Hill as well as 16 acres where the Mulpus enters the Nashua River. There are important areas to the west of Townsend Road, as well as a number of backland parcels that should be added to this project either through DFW acquisitions or other means. Other parcels along the Mulpus are also of high value as wildlife habitat. DFW has acquired a 16-acre parcel where the Mulpus enters the Nashua and is interested in connecting other parcels along the riparian corridor.

3. Nashua River smaller tributaries (includes Walker, Morse, and Trout Brook drainages and Benjamin Hill)

Walker Brook The main branch of Walker Brook arises in a wetland just south of Route 2A and north of Horsepond Road. This wetland receives flow from a second wetland fed by the runoff from the hill west of the Center School and a small hill east of it. The stream flows under Horsepond Road and Hazen Road and across the New England Power right-of-way into publicly owned conservation land (Rich Tree Farm off Hazen Road) and eventually under Walker Road and into wetlands bordering the Nashua River. In addition to the main stream, the headwaters include small streams that originate on the east slope of Pound Hill (east side of Brown Road) and make their way through mixed woods, wet meadows, and shrubby wetlands, pass in several small channels under Hazen Road, coalesce and flow through wet meadow and shrub swamp under the N.E. Power right-of-way and join the main stream just south of the right-of-way. The area supports a variety of wildlife, including white-tailed deer, grouse, great blue herons, spring peepers, green frogs, wood frogs, and spotted and Jefferson salamanders. A population of native brook trout persists in Walker Brook, and spawning behavior has been observed in the stream.

Morse Brook flows just south of Walker Brook. It arises in wetlands on the north side of Benjamin Hill behind Scots Glen, flowing under Clark Road in a narrow shrub-bordered channel, and parallels Patterson Road along much of its length. Notable here is a sandy section flowing through a dark hemlock grove. Excavation at the town gravel pit is beginning to encroach on this area. From here the stream flows east through sands and gravel that contribute to the aquifer supplying the Patterson and Walker Road wells of the Shirley Water District, then across Walker Road into wetlands adjacent to the Nashua River.

Trout Brook originates in wooded wetlands and a large vernal pool located between Benjamin and Center Roads just south of Hazen Road. The stream flows south parallel to Center and Benjamin Roads and then heads east shortly before reaching the N.E. Power right-of-way. Widening into wetlands on either side of Benjamin Road, the stream then flows south, paralleling the east side of Benjamin Road and passing through farm ponds and shrubby wetlands. A tributary that originates just west of Center Road, north of the power line corridor, and flows into a pond west of Benjamin Road, joins the stream here. Trout Brook then flows east through wetlands behind Bemis Associates, through the Meadows development, crosses Clark Road, and disappears into underground culverts for a distance before re-emerging to pass under Ayer Road,

the railroad, and Front Street, flowing into Devens before joining the Nashua. There are a good variety of habitats in this watershed, particularly in open or old fields. There are wonderful sweeps of open space with great views and a sense of wildness and distance from crowds.

Opportunities:

(a) Vernal pools exist in all three watersheds. Notable examples are found north and south of Horsepond Road and at the headwaters of Trout Brook. Vernal pools also occur at other locations throughout town, particularly in the Brattle Hill drainage. Only 13 pools have been formally identified and certified in Shirley to date, and more should be certified. It is particularly important to obtain the interest and involvement of people who own land with vernal pools, since protection of the habitat involves not only the pool itself, but also adequate amounts of forest habitat for the amphibians and to provide food for vernal pool animals.

(b) In the Trout Brook drainage, several landowners of headwater properties may be interested in options for protecting backland by conservation restrictions or other measures. They should be contacted. In addition, owners of agricultural lands in the lower watershed, especially off of Benjamin Road, should be approached and their interest in maintaining their land in open space discussed.

(c) Between Walker and Patterson roads, Shirley Water District land (93 acres, multiple parcels) adjoins the 97-acre Conservation Commission-administered Rich Tree Farm. The 2011/2014 draft OSRP recommended that the Water District should work aggressively to obtain title to the remaining key parcels in the lower Walker and Morse Brook watershed. Since that time, with the exception of parcels directly supporting the Patterson and Walker Road wells and unavailable for development, the Water District has developed solar industrial arrays on their water supply protection parcels between Patterson and Walker Roads. This does not mean that further land protection is not needed – it may be more critical than ever. The deed to any land that is acquired for water supply protection should include an explicit reference to protection under Article 97 of the Massachusetts Constitution.

There is undeveloped industrial land on Walker Road that should be investigated for protection; the cost may be high, but the benefits of protection would be long lasting. The former gravel pit along Walker Road has been acquired by the Water District and converted into a solar farm. An ecological study conducted by MassDevelopment on adjoining Devens land in 2006 found that the state-listed Wood Turtle is present in this area and is likely nesting in the gravel pits. Much of that area has been developed since the 2011/2014 draft OSRP was completed.

(d) Devens Environmental Business Zone east of Walker Road. 108 acres of land have been conveyed to MassWildlife as mitigation under the Massachusetts Endangered Species Act with NHESP permitting development of two other parts of the Environmental Business Zone. The parcel contains mixed woodlands as well as an open area that is an important turtle nesting site. There are over a dozen vernal pools on the property. This area and nearby lands including town land are mapped as Priority Habitat for state-listed rare species including the Blanding's Turtle, Blue-Spotted Salamander, and Wood Turtle. The land is zoned for Environmental Business, although its use is constrained by the need to protect rare species under the Massachusetts Endangered Species Act. There is also another 20 acre parcel that was transferred to the US Fish

and Wildlife Service in exchange for an access easement for MassDevelopment to be able to access the wastewater treatment plant. With these transfers, no further development on this section of the North Post is likely.

4. Catacunemaug Brook Watershed (includes Spruce Swamp Brook, Bow Brook and Leatherboard Pond, Tophet Swamp, Chaplin Hill, The Major Hills, and Dead Pond)

Catacunemaug Brook originates at the eastern end of Lake Shirley, where its flow is regulated by a privately owned dam. It soon passes under Catacunemaug Road, where it opens out into an extensive wetland, receiving drainage from Spruce Swamp Brook in the area of a former mill pond. The Shirley Water District has a well site and pumping station here. The mill pond then narrows as it passes under the B&M railroad bridge, at which time it turns sharply to the east, flowing alternately wide and narrow behind residential and commercial development. The brook is then contained between steep banks as it passes under Main Street on its way to the Fredonian Park and Nature Center off Fredonian Street. The park hosts amazing examples of huge hardwoods and evergreens on the slope south of the brook and Fredonian Pond. The stream enters Phoenix Pond, divided by Shaker Road. From here it is a managed flow through the old Samson Cordage (now Phoenix Park) mill building and tailraces. Two outflows run parallel and join before the Hospital Bridge on Fort Devens as the Brook meets the Nashua.

Dead Pond is located in the angle formed by the railroad tracks and Catacunemaug Road. A highly unusual feature, it has no apparent inlet or outlet. Indeed, the pond and the general area surrounding it, with steep eskers and depressions containing small ponds, is of considerable conservation value.

The Spruce Swamp Brook sub-watershed is extensive and contains much protected open space. The brook originates in Spruce Swamp, the western half of which is conserved open space. Additional protection efforts around the rest of the swamp are encouraged. The stream flows west through a narrow channel under Center Road and divides a field that is part of Farandnear from one of the Longley Homestead hay fields. Along with the remaining Longley Homestead fields, these open fields form one of Shirley's most appreciated landscapes. The stream receives seasonal flows from a stream that originates on the north side of Whitney Road and is fed by Longley Homestead wetlands, before entering a beautiful hemlock-lined ravine aptly called "Paradise" in the Farandnear Reservation.

After passing through Paradise, Spruce Swamp Brook joins a broad wetland that borders a tributary entering from the north. This tributary is fed by a number of small intermittent streams that originate north of Whitney Road and the Longley Acres farm and join in a broad swale south of the road. Longley Acres, consisting of approximately 95 acres of mostly open meadow on both sides of Whitney Road, is another scenic agricultural area, important to the town's character and permanently protected by the town through a self-help grant from the state in 2003.

As the brook flows through Farandnear, the wetlands broaden even more to the south as drainage off the southern side of Chaplin Hill joins the brook. In the past couple of decades, beavers have dammed many of the small tributaries and flooded much of the low-elevation forest. A historic cranberry bog once occupied this portion of the stream; its restoration was pursued for several

years but Nature is now being allowed to take its course. An extensive trail system surrounds the bogs as well as the adjacent uplands to the east and Chalpin Hill to the northwest. Most of this area is part of Farandnear and is protected, first by a Conservation Restriction given to Trustees of Reservations while the land was owned by Arthur Banks, and currently also by fee ownership of the property by the Trustees.

Immediately south of Holden Road lies the 58.23-acre Holden Road Conservation Area, which protects a section of Spruce Swamp Brook as well as the hills rising to its west. Continuing southwest, the stream crosses the fields at Valley Farm before reentering the forest; it then passes through a beautiful hemlock-lined ravine. Most of this area is subject to a conservation restriction given to the New England Forestry Foundation. The brook then enters a large wetland at the northwestern end of the Catacunemaug mill pond. The long narrow mill pond, lying at the western edge of The Major Hills, is a beautiful autumn sight. To the west of Valley Farm and north of the Birchwood Hills development, lie the Ronchetti and Old Town Line Conservation parcels (about 110 acres) containing a wonderful mix of wetland (Long Swamp on the town border), perched wetland, pond, and rolling upland habitats. To the west, this land attaches to Robb's Hill and other conservation land in Lunenburg.

Bow Brook flows north into the southwestern corner of Shirley from Lancaster and enters an extensive wetland known as Tophet Swamp. As it flows out of the Swamp, it enters Leatherboard Pond, which has for years served as a swimming and fishing site. The outflow from the Pond enters the Catacunemaug under the railroad bridge.

Tophet Swamp is also fed by an unnamed stream that flows northwest, crossing Lancaster Road at the Shirley Airport and entering Bow Brook west of Mountain Laurel Circle. A third stream flows into the Swamp from a pond on the southeastern side of Hazen Hill, looping around its south side. (Another outlet from this pond flows east, crossing Lancaster Road at the Lura A. White School.) Tophet Swamp is an intact ecosystem, consisting of a small area of open water surrounded by large areas of vegetated swamp. Islands and eskers of a slightly higher elevation increase the edge zones most valuable for wildlife habitat. An extensive hemlock grove extends to the south from the swamp, eventually mixing with mountain laurel and hardwoods on reaching the steep eskers that form a natural boundary of the lowland area. To the east, Hazen Hill rises steeply out of the swamp to a forest of mixed hardwoods. Extensive beaver dams provide a range of water levels and create a dramatically diversified variety of aquatic habitats within the swamp.

Opportunities:

(a) Steps should be taken to facilitate the permanent protection of the open meadows behind Longley Homestead on Center Road and not-yet-protected fields adjoining Longley Acres on Whitney Road.

(b) The trail systems at Valley Farm and Holden Road Conservation Area could be connected to the trail system at Farandnear through protection of an as yet undeveloped parcel with poor soils and vegetated wetlands on Holden Road. Additional acquisitions might also provide an opportunity for a parking area, which the trail system sorely needs.

(c) Dead Pond and its environs represent such an unusual geological and biological feature that protection of this area should be investigated. Land ownership is fragmented but there are several large parcels. Keating Company, a major sand and gravel operation, owns land directly adjacent to and containing part of Dead Pond; discussions with them about conservation of this unique resource area are worth considering.

(d) Tophet Swamp is generally protected in that most of it is not suitable for development. However, peninsulas of higher elevation protrude south from Leominster Road into the swamp and may be developable. The forested land east of the swamp along Lancaster Road contains large acreages of prime farmland soil. Repeated attempts to rezone much of this land for industrial development suggest that opportunities for formal protection of the swamp should be investigated. The old Fitchburg and Leominster Railroad right-of-way is also a continuous elevated feature of historical interest.

(e) Leatherboard Pond and the Hazen Hill uplands adjacent to it are obvious conservation targets.

Appendix F: Community-Based Forestry

Historical records show that extensive agricultural activity in the 1700-1800s resulted in 80% deforestation in New England. As agriculture in Massachusetts declined through the 1990s, forests readily regenerated from old fields and pasture lands. According to the MassWoods Forest Conservation Program at the University of Massachusetts, Massachusetts is currently the eighth most forested state in the country, with approximately 60% forest cover. Evidence of past agricultural activities in Shirley's forests include stone walls, cellar holes, and cart paths. Logging activities during the mid to late 1990s are reflected in forest characteristics, which are predominantly poletimber (4-10" diameter-at-breast height or dbh) and sawtimber stands (wider than 11" dbh). The average age of woodland trees in these forests appear to be 40-80 years.

The Shirley Conservation Commission is taking steps to develop Forest Management Plans for parcels under its care and custody. At the June 2014 town meeting, residents voted to create a Conservation Forestry Fund for income from logging on lands whose long-term management plans include periodic forest harvesting. These funds will be vital to sustaining regular open space management, such as mowing of conservation lands that are supposed to be kept open, invasive plant control, public education, and future Forest Management plans. As of the 2011 draft OSRP, the Commission had applied for and received two Forest Stewardship Cost-Share grants through the Massachusetts Department of Conservation and Recreation. A forester has been engaged to update Forest Management Plans for Pumpkin Brook Link Conservation Area and Rich Tree Farm, and forest harvesting is underway at the Rich Tree farm in March 2017. This will produce some income for conservation land management as well as enhancing wildlife habitat for species that need more open land. More extensive harvesting, along with the creation of nesting areas for rare turtle species, is anticipated at the town's Pumpkin Brook conservation land in fall of 2017.

Important forest stewardship goals for the Conservation Commission are to promote biological diversity and enhance wildlife habitat. The Commission recognizes that timber harvesting can improve the health of retained trees, enhance the vertical structure of the forest (canopy, understory, shrub and ground vegetation layers), and increase the number of bird species by creating habitat for birds reliant on early-successional forests.

Conservation forestry strategies can readily be utilized to sustain forest health and diversity. Leaving snags (dead trees), downed logs, and slash (wood debris) provides nesting and cover for birds and mammals, supports the health of the woodland soil, and decreases the influx of invasive plant species. Retaining trees with high-wildlife value, such as oaks and cherries (hard- and soft-mast trees), provides food for all types of wildlife. Thinning out less healthy trees allows desirable trees to grow faster and creates gaps in the forest canopy that support seedling and saplings. An increase in groups of shrubs, tree seedlings and saplings (1"-4" dbh) provides an important forest layer for wildlife cover, food, and perch sites.

The Conservation Commission has been working with the Massachusetts Division of Fisheries and Wildlife, which owns a number of parcels abutting Shirley conservation areas, to identify wildlife habitat needs that can be addressed through forest management. According to DFW forester John Scanlon, certain species of songbirds are decreasing by 2% each year due to loss of

early successional habitat. Many grassland birds require a minimum of 5 acres of grass and shrub habitat (the Savannah Sparrow and Eastern Meadowlark require a minimum of 15-20 acres). Pumpkin Brook Link has a large field which could be increased in size to encourage grassland birds. Enlarging the field would also support nesting habitat of Blanding's turtles, an endangered species that lives on abutting DFW land along the Squannacook River.

The town continues to evaluate its wildlife parcels for conservation management strategies. Creating a mosaic of varying forest succession can support a greater diversity of wildlife. Forest management considerations focus on evaluating uneven-aged versus even-aged trees, maintaining varying successional growth stages, and protecting biodiversity, rare and endangered species, and riparian and wetland resources.

There are opportunities for the town and private owners of forest land to work together. It is challenging to find forester who want to carry out harvesting on small land parcels, and more advantageous bids can often be obtained when there is a large amount of land involved. If Shirley chooses to increase its commitment to community forestry and to work collaboratively with private land owners in developing long-term forest management plans, this could be a mechanism for achieving the long-term protection of blocks of wooded land; accomplishing the well-planned management of forested land in Shirley for wildlife, water, recreation, and other characteristics that are valued by Shirley residents; and the ecologically desirable and sustainable generation of income for land owners and the town.

Resources:

<http://harvardforest.fas.harvard.edu/diorama-series/landscape-history-central-new-england--dioramas> from the early 20th century illustrating the history of forest clearing and regrowth in central New England

<https://northernforest.org/resources/community-forests> -- information and links to reports on community forestry in New England

<http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/upland-game-bird-habitat-management-in-massachusetts.html> -- information from MA Fish and Game on wildlife species that depend on early-successional habitat

A Policy Agenda for Conserving New England's Forests: Priorities for 2013.

<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/massachusetts/newsroom/policy-agenda-ne-forests-13.pdf>

Community Forest Collaborative. 2007. Community Forests: A Community Investment Strategy. 89 pp. https://northernforest.org/images/resources/community-forests/Community_Forests_Report_1.7MB.pdf

Community Forest Collaborative. 2011. Community Forests: Needs & Resources for Creating & Managing Community Forests. 52 pp. https://northernforest.org/images/resources/community-forests/Community_Forests_Report_1.7MB.pdf

[forests/Needs and Resources for Creating and Managing Community Forests updated Aug 2011.pdf](#)

Martha West Lyman, Cecilia Danks, and Maureen McDonough. 2013. New England's Community Forests: Comparing a Regional Model to ICCAs. *Conservation and Society* 11(1): 46-59. <http://www.conservationandsociety.org/article.asp?issn=0972-4923;year=2013;volume=11;issue=1;spage=46;epage=59;aulast=Lyman>

Robert McCullough. 2015. A Regional Town Forest Timeline. http://vtcommunityforestry.org/sites/default/files/pictures/Resource/new_england_town_forest_timeline.pdf

David J. Nowak and Eric J. Greenfield. 2008. Community forests of New England. United States Department of Agriculture, Forest Service Northern Research Station. General Technical Report NRS-38. https://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs38.pdf

US Endowment for Forestry and Communities. 2007. The Status of Community-Based Forestry in the United States. 27 pp. <http://www.usendowment.org/cbfhome.html>

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Appendix G. ADA Access Self-Evaluation

PART I: ADMINISTRATIVE REQUIREMENTS

1. Designation of an ADA Coordinator

See attached memorandum.

2. Grievance Procedure

A. A "grievance/complaint" is defined as a request by an individual or group of individuals for personal relief in any matter of concern or dissatisfaction which is subject to the control of Town management. The grievance/complaint procedure is subject to the provisions of this manual or federal and state statutes. This section shall not apply to grievances or complaints that are otherwise governed by any applicable collective bargaining agreement. Procedure for seeking redress is as follows:

(1) Step 1: Any grievance will first be presented to the immediate supervisor or Board member, within the time frame set forth in Subsection B below. That supervisor will make whatever investigation he/she deems necessary to clarify the matter in question and to resolve the problem or misunderstanding if possible. The immediate supervisor or board member should notify the Town Administrator of the grievance and the steps the immediate supervisor is taking to address the grievance. The Town Administrator shall advise the immediate supervisor or board on how best to resolve the grievance. The immediate supervisor's/board member's decision will be made as soon as practicable after full discussion by the parties concerned but not later than five business days from the date of the presentation of the grievance. Every attempt should be made by both parties to resolve the grievance at this step. If the grievance cannot be resolved at this Step 1, the grievant may proceed to Step 2A (if the grievant's immediate supervisor is not the Town Administrator) or to Step 2B (if the grievant's immediate supervisor is the Town Administrator).

(2) Step 2A: Formal Procedure. (if the Grievant's immediate supervisor is not the Town Administrator) If the grievant is dissatisfied with the decision at Step 1, he/she may take up the matter in writing with the Town Administrator within five business days of the decision. Within 14 business days after receipt of the written grievance, the Town Administrator will meet with the grievant and/or grievant's immediate supervisor. An investigation or inquiry into the grievance by the Town Administrator, including discussion with principal parties concerned, may take place. The Town Administrator will render a decision in writing within 30 calendar days from the date of the meeting with the grievant and/or grievant's immediate supervisor, a copy of which will be provided to the grievant. The Town Administrator shall keep a separate record of his/her proceedings which shall not be open to public inspection, except as may otherwise be required by law.

(2B) Step 2B: Formal Procedure (if the Grievant's immediate supervisor is the Town Administrator): The Town Administrator will render a decision in writing within 30 calendar days from the date of the meeting with the grievant and/or grievant's immediate supervisor, a copy of which will be provided to the grievant. The Town Administrator shall keep a separate record of

his/her proceedings which shall not be open to public inspection, except as may otherwise be required by law.

(3) If the grievant is dissatisfied with the decision at Step 2, he/she may, prior to bringing the grievance to Step 3, request an opinion from the Personnel Board on the validity of the grievance and request that the Personnel Board file said opinion with the Board of Selectmen at Step 3. The Board of Selectmen may, at their discretion, utilize said opinion when ruling on the grievance at Step 3. Said request to the Personnel Board for an advisory opinion shall be made within five business days of the Town Administrator's decision. The Personnel Board's opinion will be rendered in writing and filed with the Board of Selectmen within 30 calendar days from receipt of the request. The Personnel Board shall keep a separate record of its proceedings which shall not be open to public inspection, except as may otherwise be required by law.

(4) Step 3: If a grievant is dissatisfied with the Town Administrator's Decision at Step 2, the grievant may appeal that decision their Elected Board, or to the Board of Selectmen. The appeal shall be in writing and submitted within five business days after the date on which the grievant received the Step 2 decision, or within 35 business days of the request to the Personnel Board of an opinion. A decision will be issued to the grievant in writing by the Elected Board or Board of Selectmen within 20 business days from the receipt of the appeal.

B. Any grievance which is not taken up by the grievant with their immediate supervisor at Step 1 within 15 calendar days after the last occurrence of the action or event out of which the grievance arose shall not be presented or considered at a later date.

C. All time limits provided for herein may be extended by mutual agreement between the grievant and the Town Administrator or the Board of Selectmen. Failure of the Town to observe the time limits with respect to any step in the grievance procedure shall entitle the grievant to advance the grievance to the next step. Failure of the grievant to observe the time limits provided shall constitute withdrawal of the grievance.

D. Any grievance that has not been processed through the informal step (Step 1) may not be processed through the formal step(s). Any grievance not processed through Step 2 may not be processed to the Board of Selectmen.

E. Unless mutually agreed otherwise, identical grievances to which this order applies will be processed under the procedures of the order by having one grievance processed, the result of which will be binding on the other grievance(s). Identical grievances herein referred to are those where the dissatisfaction expressed and relief requested are the same.

Notice:

This handbook and its contents do not constitute an employment contract and are provided for informational purposes only. All information contained herein is subject to change without notice. References to state and Federal laws are merely summaries and some provisions of the information as they affect conditions of employment are subject to change as interpreted by the courts. In addition, specific cases may require a different approach. Applicable collective bargaining agreements supersede provisions of this handbook.

(Excerpted from Chapter 13, Town of Shirley Personnel Policy & Procedures Manual, January 2014)

3. Public Notification Requirements

A copy of the Public Notification providing citizens information regarding the town's ADA policy pertaining to hiring practices follows.

4. Participation of Individuals with Disabilities or Organizations Representing the Disabled Community

Participation of the disabled community was solicited formally through advertisement in the Shirley Council on Aging newsletter and informally through personal networks of Conservation Commission members. One member of the disabled community was available to assist with the facility inventory of Fredonian Pond.

PART II: PROGRAM ACCESSIBILITY

1. Facility Inventory and Transition Plan

This evaluation covers open space and recreation properties that are under the jurisdiction of the Conservation Commission. Maintenance on most of these properties is minimal and/or occasional, relying primarily on volunteer efforts. Factors such as uneven terrain and primitive trail conditions preclude the use and enjoyment of many conservation properties by individuals with disabilities. Such factors also render it practically infeasible to devise and implement a transition plan for greater accessibility on these properties.

Fredonian Park and Nature Center: 7 acres. Off Fredonian Street. Facilities include a gazebo, a loop trail around the small pond, and one signed handicap parking space in gravel lot with overall capacity for approximately 10 vehicles. No restrooms. The gazebo is not fully accessible, as it has two steps that are not over 32" in rise but lacks handrails or grips. The gazebo stairs are cracked and not level, and seating and tables are not provided. The path around Fredonian pond is grassy and is mowed regularly by the town, but it also has protruding roots, is not slip resistant, and has some areas with brush where the path is narrower than 3 feet in width. Invasive plants including multiflora rose, autumn olive, honeysuckle, and bittersweet periodically become overgrown and block views of the pond from the path. A 1:12 slope was noted on the path entrance from the field. The parking lot is constructed from hardpack, with holes that retain water.

This lot shows some potential for improvement. The crack in the gazebo steps should be repaired for safety and a bench could be installed. The path around the pond will require considerable work to become ADA compliant. Accessibility can be improved at the park entrance by adding a stone dust path, installing handicapped accessible picnic tables, and improving views of the pond through invasive cutting and maintenance. The parking lot could use additional hardpack to improve accessibility.

Slater's Mill/Birchwood Hills Conservation Restriction (CR#5): 92.8 acres. Pond Road. Extensive trail system links with Holden Road Conservation Area and (private) Valley Farm trails. Public access for hiking, nature study, horseback riding, cross-country skiing. Protects water resource values and wildlife habitat along Long Swamp and Catacunemaug Brook. Shirley Conservation Commission holds CR. There is a small parking area on Pond Road. Disability access from the parking area is prohibitive due to the steep slope leading to the trailhead.

Benjamin Estates Conservation Restriction (CR#7): 6.3 acres. Robertson Road. Hazen Road. No parking area; no trails. Public access by foot, horseback, skis, snowshoes. Walker Brook runs through property. Shirley Conservation Commission holds CR. Disability access is prohibitive due to lack of designated trails.

Executive Estates Conservation Restriction (CR#12): 15.3 +/-acres. Lawton Road. Public access by foot, horseback, skis, snowshoes; no motorized vehicles. Contains frontage along Squannacook River. Shirley Conservation Commission holds CR. There is a grassy pulloff area after Moore Drive with room for a small number of vehicles. A gated, gravel access road services the utility easement that parallels Moore Drive, and provides a semblance of a trail. However, there is no trail beyond the access road.

Holden Road Conservation Area: 56.23 acres. Public access off Holden Road. There is no parking area, but the Conservation Commission and Trails Group are exploring options for a pulloff area. There is a sign near the trailhead, but the trail is difficult to see in some areas. Recent trail clearing and blazing make the path more visible. Some sections are wet. Potential for disability access is limited.

Rich Tree Farm Conservation Area: 109 acres. Access from Walker and Hazen Roads. Mature mixed forest. Part of Walker and Morse Brook drainage. Contiguous to Shirley Water District well protection land to the south. Area is crisscrossed with established paths. Parcel 43A91.

Hunting Hill Conservation Area: 31.2 acres. Open to the public. See DFW 2017 policy on public recreation on Wildlife Management Area lands (Appendix J) A DFW Wildlife Management Area. Managed in cooperation with Shirley and Lunenburg. Parcel 109 A 1.

Pumpkin Brook Link Conservation Area: 140.7 acres. Managed by the Shirley Conservation Commission. Crossing Townsend Road and connecting to Spaulding Road, these parcels provide connection between large protected acres on the Squannacook River and the Hunting Hill area. A cellar hole on the site is all that remains of the homestead of William Bennett, one of the signers of the 1747 petition to separate the land west of the Squannacook from Groton to create Shirley. Pulloff parking space for 1-2 vehicles off Townsend Road.

Longley Acres Conservation Area: 73.24 acres. Managed by caretakers under the supervision of the Shirley Conservation Commission. It was acquired by the Town of Shirley in 2003 with the help of a state grant. Property maintained as active agricultural open space, is hayed every summer. The fields and trails are open to the public, and educational talks, workshops and events occur regularly. Programs include seasonal community garden plots, although plots are not currently wheelchair accessible. Facilities include a signed handicapped parking space with a hard-packed and even surface. Fields and trails are not accessible. Potential exists for one

accessible trail on a level, former cart path to the community gardens; this area has a gradual slope under 5%. No objects protrude in the grass; the lawn has slight undulations but no distinctive holes or dips. There is one handicapped parking sign located on the [west] side of the house heading towards the Community Gardens and to the back of the house. One parking spot in this area has a hard-packed and even surface; the other parking areas are lawn.

Parking is available in the circle driveway on the other side of the house; there is no accessibility parking sign. The surface is hard-packed dirt and slightly sloped. There are no curbs, ramps or handrails. A picnic table is located approximately 20 feet from the circle driveway by the east side of the house. The grade from the disembarking area to the table is a sloped, grass surface. The picnic table is not handicapped accessible, and has no arm or back rests.

Benjamin Hill Park: 11.85 acres. Benjamin Hill is managed by the Benjamin Hill Park Committee. The Mytical Maze, a Bob Leathers playground installed in the early 1990's, is partly accessible. The entrance ramp, as well as the tot lot and sitting area, comply. The latter is fitted with a ring apparatus and bar pull which can be operated from a wheelchair. Two parking spots have been designated as handicapped. The Benjamin Hill Pool is accessible, with access ramp, handicap lift into the pool, accessible toilets and showers, and two parking spots designated as handicapped. The access ramp slope is less than 5%, but it has no handrails. A one acre playing field and ¼ mile running track are fully accessible

PART III: EMPLOYMENT PRACTICES

The Town of Shirley is an equal opportunity employer. This means that it pledges that all candidates for positions and all officials and employees in Town will be equally treated in all actions affecting them. It also means that the Town has a policy of non-discrimination which guarantees that all applicants for employment and all employees are not to be discriminated against because of their race, color, religion, sex, creed, national origin, age, veteran status, disability, sexual orientation, or any other characteristics protected by law.

(Excerpted from Section 1-3, Town of Shirley Personnel Policy & Procedures Manual, January 2014)

COMPLETED ADA FORMS DESCRIBING SLOPES, RAMPS, RAILINGS, AND OTHER ACCESSIBILITY FEATURES OF DEVELOPED RECREATION AND PARK AREAS WILL BE INCLUDED AS PART OF APPENDIX G. THEY ARE NOT INCLUDED IN THIS REVIEW DRAFT.

IF YOU WOULD LIKE A COPY, PLEASE CONTACT THE OSRP COMMITTEE AND WE WILL MAKE THE FORMS AVAILABLE TO YOU.

Appendix H: EOEEA Language for Explicitly Incorporating Permanent Protection into Conservation and Recreation Land that Lacks such Protection Specified in the Deed (Edited to Fit Shirley, Explicitly)

PROTECTED OPEN SPACE - LEAVING LEGAL FOOTPRINTS

THE PROBLEM

Town-owned conservation land and parkland may not be legally protected open space.

Open Spaces across the Commonwealth may not be as protected from development as we thought. A recent ruling by the Massachusetts Supreme Judicial Court (June 2005 *Town of Hanson v. Lindsay*) found that land acquired for conservation purposes as stipulated in the Town Meeting Vote, but *not* subsequently reflected in the deed, can be “disposed”, (in this case it was sold), without going through a stringent public review process. In this particular case, the town meeting vote required that the deed reflect the conservation designation and when the deed did not have the conservation language, the court found that it was not conservation land, and not subject to Article 97.

SOME BACKGROUND

Legally Protected Open Spaces

Citizens of Massachusetts have a state constitutional *right to a clean environment* as first established under an amendment adopted in 1918. Subsequently, Article 97 of the Articles of Amendment to the Massachusetts Constitution provides that “the people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment.” “Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court.” These public lands include both state-owned lands and municipal lands acquired for conservation or recreation purposes.

ARTICLE 97

Philosophy of Article 97 – 1973 Opinion of Attorney General Quinn:

- Public has the right to clean air, water, freedom from excessive noise, natural, scenic, historic, esthetic qualities of their environment. (“The fulfillment of these rights is uniquely carried out by parkland acquisition.”)
- Land Protection: “the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources... in harmony with their conservation.”

The Quinn opinion broadly defines lands acquired for Article 97 purposes, asserts a wide definition of “natural resources” protected, gives examples of both conservation and recreation lands that are protected, and applies this protection to lands acquired both before and after the effective date of Article 97. “[W]hile small greens remaining as the result of constructing public highways may be excluded, it is suggested that parks, monuments, reservations, athletic fields, concert areas and playgrounds clearly qualify.”

REMOVING LAND FROM LEGAL PROTECTION UNDER ARTICLE 97

EOEA Article 97 Disposition Policy - No Net Loss

The policy of EOEА and its agencies is to protect, preserve and enhance all open space areas covered by Article 97 of the Articles of Amendment to the Constitution of the Commonwealth of Massachusetts. The goal of this policy is to ensure no net loss of Article 97 lands under the ownership and control of the Commonwealth and its political subdivisions (*i.e.*, municipalities and counties.) Exceptional circumstances must exist for EOEА and its agencies to support an Article 97 disposition. Determination of “exceptional circumstances” includes a finding that all options to avoid the Article 97 disposition have been explored and no feasible and substantially equivalent alternatives exist, including the evaluation of other sites for the proposed activity.

EOEA’s Disposition Process – Purposefully Onerous

- Municipal conservation commission must vote that the land is surplus to its needs
- Municipal park commission must vote the same if it is parkland in question
- Town Meeting must also vote to remove the land from protected status
- Municipality must file an Environmental Notification Form with EOEА’s MEPA Unit
- The disposition request must pass by a two-thirds vote of the Massachusetts Legislature and be signed by the Governor.

Finally, if the property was either acquired or developed with grant assistance from EOEА’s Division of Conservation Services (DCS) (*i.e.*, Self-Help, Urban Self-Help or Land and Water Conservation Fund), the converted land must be replaced with land of equal monetary value and recreational or conservation utility. While conversions do occur, the process is purposefully onerous in an attempt to protect these conservation and recreation lands in perpetuity.

A SOLUTION – RESEARCH AND RE-RECORD

Research Acquisition History and Deed

Research the acquisition history and deeds for all municipal conservation and parkland and identify those parcels that have affirmative Town Meeting Votes stipulating that the land is for either conservation or recreation use, and deeds echoing that particular purpose for acquisition. You may discover some surprises as the research uncovers which lands have the most protection as “open space.” The deed may stipulate that the land is to be managed by the conservation commission or park commission, or that it was donated to the town with deed restrictions, or for park or conservation purposes. If the property was acquired or developed with DCS grant assistance, the grant agreement should have been recorded as an adjunct to the deed. The authorizing Town Meeting Vote may also be recorded as an adjunct to the deed (*i.e.*, request that the Register of Deeds or Land Court clerk make a marginal reference on the deed or title).

Consider the following:

Appendix H-3

- Some publicly owned lands can be sold or developed easily (with local legislative approval) either to private parties or for other public purposes. For example, school playgrounds and ballfields are often not protected parklands.
- Some deed restrictions may only last for a period of years (typically, 30 years) and not in perpetuity.

THE FIX - RECORD A CONFIRMATORY DEED

If you discover that the Town Meeting Vote authorizing the acquisition of a conservation property or park property stated that the land to be acquired was for either conservation or recreation use, but the accompanying deed does not reflect that intent, fix it by recording a corrective deed. Again, it may also be prudent to record the authorizing Town Meeting Vote as an adjunct to the deed.

Sample for Conservation Land

"...hereby grants to the TOWN OF Shirley, a Massachusetts municipal corporation, through its Conservation Commission for administration, control, and maintenance under the provisions of M.G.L., Chapter 40, §8C, as amended, with _____ covenants, the land as bounded and described as follows:..."

Sample for Parkland

"...hereby grants to the TOWN OF Shirley, a Massachusetts municipal corporation, through its Park Commission (department) (or Recreation Commission) for administration, control, and maintenance under the provisions of M.G.L., Chapter 45, §3, as amended, with covenants the land as bounded and described as follows:..."

Appendix I: Open Space & Recreation Community Resources

Conservation & Community Organizations & Agencies

Nashua River Watershed Association
592 Main Street
Groton, MA 01450
Phone: (978) 448-0299
Email: alfutterman@nashuariverwatershed.org
Website: www.nashuariverwatershed.org

Dept. of Fish and Game - Division of Fisheries and Wildlife
Anne Gagnon
85 Fitchburg Road
Ayer, MA 01432
Phone: (978) 772-2145 x223
Email: Anne.Gagnon@state.ma.us
Website: www.mass.gov/dfwele/com/comhp1.htm

MA Dept of Conservation and Recreation
Christine Berry
Asbury St.
Topsfield, MA 01983
Phone: (978) 887-5931 ext. 5
Email: christine.berry@state.ma.us
Website: www.mass.gov/dcr/stewardship/landacq/

Rails-to-Trails Conservancy
The Duke Ellington Building
2121 Ward Ct., NW
5th Floor
Washington, DC 20037
202-331-9696
Website: www.railstotrails.org

Regional Environmental Council of Central Massachusetts
P.O. Box 255
Worcester, MA 01613
Tel: 508-799-9139
Fax: 508-799-9147
Email: info@recworchester.org
Website: www.reworchester.org

Alternatives for Community & Environment (ACE)
2181 Washington Street, Boston, MA 02119
617-442-3343

Website: www.ac-ej.org

Community Works
25 West Street, Boston, MA 02111
617.423.9555
Website: www.communityworks.com

Agriculture

Massachusetts Department of Agricultural Resources
www.mass.gov/agr/

Agriculture Preservation Restrictions
Melissa Adams
Program Coordinator
Melissa.AdamsAIP@gmail.com
413-268-8269

Right to Farm Bylaw
Legal Services – 617-626-1700

Glynwood Farm
PO Box 157, Cold Spring, NY 10516
(845) 265-3338
www.glynwood.org

Land For Good
29 Center Street
Keene, NH 03431
Phone: 603-357-1600
info@landforgood.org

Land for Good
P.O. Box 11
Belchertown, MA 01007
Phone/fax 413-323-9878
www.landforgood.org

New Entry Sustainable Farming Project
155 Merrimack St., 3rd Floor, Lowell MA 01850
New Entry Tufts University Friedman School of Nutrition
150 Harrison Ave, Boston MA 02111
<http://nesfp.nutrition.tufts.edu/>

Center Farmland Information Center
www.farmlandinfo.org/massachusetts/
800.370.4879

American Farmland Trust – www.farmland.org

New England
1 Short St., Suite 2
Northampton, MA 01060
(413) 586-4593, ext. 29

Energy

Massachusetts Clean Energy Center
55 Summer Street, 9th Floor Boston, MA 02110
Phone: 617-315-9355
Info@MASSCEC.com

Forestry

MassWoods Forest Conservation Program
Paul Catanzaro
413-454-4839
www.masswoods.net

Laura Dooley – Service Forester
Northeast Regional Headquarters
PO Box 1095
Lowell, MA 01853
Phone: 978-937-2092 ext 112
Email: laura.dooley@state.ma.us
Website: www.mass.gov/dcr/stewardship/forestry/service/index.htm

New England Forestry Foundation
PO Box 1346, 32 Foster Street, Littleton, MA 01460
978.952.6856
info@newenglandforestry.org
Forest Management Case Study:
<http://www.newenglandforestry.org/sustainable/NEFF%20Forest%20Management%20Case%20Study.pdf>

Land Trusts

The Groton Conservation Trust
Box 395
Groton, MA 01450
www.gctrust.org

Massachusetts Land Trust Coalition – www.massland.org
Massachusetts Audubon Society
208 South Great Road
Lincoln, MA 01773
Phone: (781) 259-9500

Website: www.massaudubon.org/index.php

New England Forestry Foundation
PO Box 1346
Littleton, MA 01460
Phone: (978) 952-6856
Website: www.neforestry.org

North County Land Trust
325 Lindell Avenue
Leominster, MA 01453
Phone: (978) 466-3900
Email: jmorrison@northcountylandtrust.org
Website: www.northcountylandtrust.org/

The Nature Conservancy
205 Portland Street, Suite 400
Boston, MA 02114
Phone: (617) 227-7017
Email: massachusetts@tnc.org
Website: nature.org/wherewework/northamerica/states/massachusetts/

Sudbury Valley Trustees
18 Wolbach Road
Sudbury MA 01776
978-443-5588
Website: www.sudburyvalleytrustees.org

The Trustees of Reservations
572 Essex Street
Beverly, MA 01915-1530
Phone: (978) 921-1944
Website: www.thetrustees.org

Public Policy

Community Preservation Act
Community Preservation Coalition
33 Union Street, 4th Floor
Boston, MA 02108
(617) 367-8998 phone

Community Land Trust
www.cltnetwork.org

503.493.1000

Massachusetts Historical Commission

Massachusetts Historical Society

1154 Boylston Street

Boston, MA 02215-3695

Tel: 617.536.1608

Fax: 617.859.0074

Preservation through Bylaws and Ordinances:

<http://commpres.env.state.ma.us/publications/PTBylaws/PTBO-6.pdf>

Open Space Zoning:

<http://commpres.env.state.ma.us/publications/PTBylaws/PTBO-3.pdf>

Recreation

Mass. Dept. of Fish and Game

Office of Fishing and Boating Access

1440 Soldier's Field Rd.

Boston, MA 02135

(617) 727-1843

Wildlife and Vegetation

Vernal Pools Association

vernal@vernalpool.org

Vernal Pool Association

PO Box 2295

Peabody, MA 01960

www.vernalpool.org

New England Wildflower Society – www.newfs.org

180 Hemenway Road

Framingham, MA 01701-2699

508.877.7630



MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

Jack Buckley, *Director*

WALKING TRAILS

POLICY OF THE COMMONWEALTH OF MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE

Approved by the Fisheries & Wildlife Board

August 23, 2016

I. Massachusetts Division of Fisheries and Wildlife Mission and Trail License Conditions

This Walking Trails Policy has been formulated by the Massachusetts Division of Fisheries and Wildlife (MassWildlife) in response to increasing trails usage at Wildlife Management Areas (WMAs). It is a policy informed by the broader Wildlife Lands Policy (Exhibit 1), which recognized MassWildlife's statutory mandates of (A) the biological protection and management of all fish, wildlife, and rare species in the Commonwealth; and (B) managing and providing hunting, fishing, and trapping opportunities for the public. It is against the backdrop of these statutory mandates that both the Wildlife Lands Policy and this Walking Trails Policy have been developed.

MassWildlife is aware of the rapidly growing public demand for outdoor recreational activities. In MassWildlife's experience, marked recreational trails do not advance and in most cases directly conflict with MassWildlife's statutory mandates. For example, recreational trails have been shown to fragment and degrade habitat, disrupt wildlife, and compromise biodiversity. Accordingly, MassWildlife does not construct or maintain trails designed for recreational passage (as opposed to access for pursuit of wildlife-dependent recreation). Furthermore, MassWildlife strongly discourages and does not normally permit trail maintenance by outside groups on WMAs or Access Areas, and will consider requests for such maintenance only as a very rare and occasional exception to MassWildlife's established preference for unimproved properties where public access is dispersed and not concentrated by trails.

MassWildlife recognizes that, in certain situations, passage across MassWildlife lands is desired to maintain the connectivity of existing major walking trails. In such cases, MassWildlife may license an outside group to mark, improve, and maintain a segment of an existing major walking trail (Licensed Trail) crossing one of MassWildlife's WMAs or Access Areas, subject to the following conditions:

MASSWILDLIFE

1. For purposes of this policy, except as otherwise provided, only the following trails that cross one of our WMAs shall be considered existing major walking trails:
 - a. Bay Circuit Trail
 - b. Wapack Trail
 - c. Mid State Trail
 - d. New England National Scenic Trail
 - e. Tully Trail
 - f. Robert Frost Trail
2. Each segment of an existing major walking trail crossing a WMA shall be identified separately in a Trail License Agreement (Exhibit 2).
3. The proponent of the trail shall be an organization or group with adequate resources and staff or volunteer capacity to meet the obligations imposed by MassWildlife's Trail License Agreement, which it must sign as a condition of approval. The maximum term of any such license is five (5) years, after which such License may be considered by MassWildlife for renewal. Licenses are revocable at the discretion of MassWildlife during or at the conclusion of the License term. An initial License term of one (1) or two (2) years may be appropriate as determined by MassWildlife in its sole discretion.
4. The attributes of any Licensed Trail must be consistent with the standards outlined in MassWildlife's Trail Standards (Section V, below), unless specifically excepted by MassWildlife in its sole discretion.
5. Recreational use of a Licensed Trail must not cause undue harm to the biological resources of the property. MassWildlife retains the right to close and block usage of any trail that is damaged by any form of use, or to direct the Licensee to do so.
6. Recreational use of a Licensed Trail must not impede or interfere with (a) general public access for wildlife-dependent recreation consistent with MassWildlife's statutory mission, including hunting, fishing, and trapping or (b) wildlife habitat restoration or management work.
7. Specific locations and routes of a Licensed Trail are subject to approval by MassWildlife. Direct (not meandering) routes from point of entry onto a WMA to the point of exit from such WMA may be permitted, and must utilize an existing trail bed, unless specifically excepted by MassWildlife in its sole discretion.
8. MassWildlife may temporarily close or re-route trails, at its sole discretion, for biological or management purposes.
9. The presence of a trail on any map or software application not specifically authorized by MassWildlife does not constitute endorsement or acceptance of any such trail under this policy.
10. Any license issued under this policy may be revoked for noncompliance with the terms of the license.

11. With the advice and consent of the Fisheries and Wildlife Board, the Director of MassWildlife shall retain the authority and discretion to make exception to this policy and may license a trail that does not meet the definition of existing major walking trail. In exercising this discretion, which rarely shall be utilized, the Director shall be guided by the purposes and terms of the Wildlife Lands Policy.

II. Proposal to License an Existing Major Trail

A request for a Licensed Trail within a WMA requires submission of a detailed description of the project (the Proposal) to the Chief of Wildlife Lands, including the following information:

1. Proponent's name, address, and contact information
2. Introduction and project background
3. Demonstration of need, including a map with GPS track of proposed trail route and waypoints at intersection with any roads, trails, wetland resources, and other points of interest, and including connectivity with established major regional trail corridors
4. A topographic map of the trail
5. An orthophoto map of the trail
6. A map of the trail showing Priority and Estimated Habitat areas, BioMap2 resources, certified and potential vernal pools, and ecologically significant natural communities.
7. A narrative showing compliance with each of the numbered paragraphs of Section I, above
8. A map of the trail in landscape context, highlighting the intersection of the trail and any WMA

III. Proposal Review

The Chief of Wildlife Lands will distribute the Proposal to the Assistant Director for Field Operations and to the District Manager of any Wildlife District affected by the Proposal. MassWildlife will respond to a Proposal once it receives all required information and will indicate whether the demonstration of need and proposed compliance with Section I are potentially acceptable. In making this determination, MassWildlife may require additional information, analysis, and documentation, including but not limited to discussion of alternate routes, and reserves final authority regarding all matters pertaining to natural resource and wildlife issues under this discretionary policy.

Once an initial determination is made, MassWildlife will so notify the proponent, including any specific design considerations or other feedback considered appropriate. If the proposal is deemed potentially acceptable, the following additional information shall be required (Project Plans):

1. Description of methodology including:
 - a. Timing considerations, especially regarding wildlife and hunting seasons;
 - b. Information on design and materials for trail maintenance, erosion control, grading, surfacing, drainage, bridges or other structures, and any other design characteristics consistent with MassWildlife's Trail Standards (Section V, below) and with other generally recognized standards.
2. Analysis of all applicable federal, state, and local regulations including, but not limited to the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and the Massachusetts Endangered Species Act, M.G.L. Chapter 131A, together with their implementing regulations. Compliance with all applicable provisions shall be demonstrated to the satisfaction of MassWildlife.
3. Analysis of trail impacts on hunting, fishing, and trapping.
4. Analysis of trail impacts on wildlife, including breeding, migration, foraging, and habitat use.
5. Analysis of trails impacts on state-listed species, where applicable.
6. Analysis of whether the trail has the support of landowners abutting the affected area.
7. Restoration Plan for areas below Trail Standards, including:
 - a. Restoration of impacted areas with native vegetation, if applicable
 - b. Description of measures to prevent and eradicate invasive and exotic plant species within and adjacent to the trail
 - c. Erosion control and mitigation
 - d. Other mitigation efforts
8. Trail Management Plan, including:
 - a. Draft copies of any proposed signage or marketing associated with the trail, including brochures, pamphlets, and Internet-based descriptions and images
 - b. Description of monitoring of the trail (how conditions on the trail will be monitored)
 - c. Maintenance protocol for the Licensed Trail (Section V, below):
 - i. Name, address, email, and telephone numbers of the person or persons who will coordinate maintenance activities on the trail
 - ii. Name, address, email, and telephone numbers of the person or persons who will communicate with the MassWildlife District Office regarding trail conditions and permission to perform maintenance activities.

IV. Plan Review

Once completed by the proponent, the Project Plans will be reviewed by MassWildlife within a reasonable time frame. MassWildlife may request (a) additional information and documentation or (b) alterations to the Project Plans. MassWildlife reserves the right to specify preferred trail maintenance, stewardship, and design parameters. If the Project Plans are approved, MassWildlife will prepare a Trail License Agreement for review and signature.

V. MassWildlife Trail Standards

1. Any improvements to a trail, including grading, surfacing, drainage, bridges, or other trail related structures must be consistent with the descriptions found in the Trails License Agreement or otherwise agreed to in writing by MassWildlife.
2. Hand tools or hand-held power tools are permitted pursuant to the Trail Management Plan specifying dates, location, and scope of work approved in advance by MassWildlife.
3. Trail surface shall consist of native materials only.
4. Maximum maintained trail tread of 2 feet.
5. Maximum maintained clearance width of 3 feet.
6. Maximum maintained clearance height of 8 feet. Canopy cover shall be maintained.
7. Blazing allowed with prior written consent of MassWildlife: maximum six inches wide; paint color to be approved by MassWildlife.
8. No signs allowed other than those provided or approved by MassWildlife; certain signage may be required to be posted and maintained as a condition of a license, including signage at points of entry onto a WMA addressing MassWildlife's statutory mandates and indicating that the property is open to hunting, fishing, and trapping.
9. Gates or other barriers shall be required to deter illegal motorized vehicle usage or other inappropriate forms of access as a condition of a license.
10. Wetland crossings are strongly discouraged, but may be considered if approved in advance by MassWildlife and, if necessary, by the local Conservation Commission.
11. All approvals shall be issued by the Director of MassWildlife or his or her designee.

EXHIBIT 1

WILDLIFE LANDS

POLICY OF THE COMMONWEALTH OF MASSACHUSETTS

DIVISION OF FISHERIES AND WILDLIFE

Approved by the Fisheries & Wildlife Board

August 23, 2016

The Massachusetts Division of Fisheries and Wildlife (MassWildlife) is charged by statute with the biological protection and management of all inland fish, wildlife, and rare species in the Commonwealth. MassWildlife is also directed by statute to manage and provide wildlife-dependent recreational opportunities for the public, including hunting, fishing, and trapping. In pursuit of these statutory mandates, more than 150,000 acres have been purchased in fee using bond capital and Land Stamp funds as of the date of this policy. These areas are managed by MassWildlife as Wildlife Management Areas (WMAs) and Access Areas. This management requires a careful balance between the protection of wildlife resources and public access. It is against the backdrop of these statutory mandates that this Wildlife Lands Policy has been developed.

MassWildlife's mission is unique among government agencies, municipalities, and private conservation organizations. No other level of government or private organization bears the statutory responsibilities of protecting the Commonwealth's biodiversity as well as providing opportunities for wildlife-dependent recreation. Although the total acreage held in fee and managed by MassWildlife is substantial, it is only a small fraction of the land area of the Commonwealth. The 150,000 acres presently conserved as WMAs and Access Areas is a tiny percentage of the roughly 5.2 million acres of land in the state. Given the relatively small number of acres of these conserved areas in comparison to the total area of the state, MassWildlife needs to be very careful about how it manages and protects these areas. In particular, it means these areas should be managed so that biodiversity and wildlife-dependent recreational opportunities are not compromised. Practically, it also means that MassWildlife's management of its WMAs should guard against the rapidly growing public demand for outdoor recreational activities that may adversely affect biological stewardship, alter wildlife dynamics, and interrupt wildlife-dependent recreation.

Accordingly, MassWildlife hereby establishes this Wildlife Lands Policy, which sets out the agency's essential perspective on permissible land uses on its WMAs and Access Areas. Henceforth, management decisions regarding proposed activities and uses on WMAs and Access Areas shall be measured in terms of consistency with the statutory mandates of protecting wildlife resources as well as managing and providing wildlife-dependent recreational opportunities, including hunting, fishing, and trapping. Under this Wildlife Lands Policy, MassWildlife shall also seek to: (1) maintain its WMAs and Access Areas by prioritizing fish, wildlife, and rare species consistent with the wildlife and habitat management goals established by the Fisheries and Wildlife Board; (2) encourage stewardship that advances this standard; and (3) discourage activities that compromise this standard.

MASSWILDLIFE

EXHIBIT 2

COMMONWEALTH OF MASSACHUSETTS

DIVISION OF FISHERIES AND WILDLIFE

TRAIL LICENSE AGREEMENT

Dated: _____

LICENSOR: Commonwealth of Massachusetts, Department of Fish and Game, Division of Fisheries and Wildlife, 251 Causeway Street, Suite 400, Boston, MA 02114

License Administrator: Division of Fisheries and Wildlife, (_____) Wildlife District Manager, (address and phone number)

LICENSEE:

PREMISES: (_____) Wildlife Management Area

I. PURPOSE AND USE: Entry and use are specifically granted for the locations, purpose and conditions as shown in Exhibits A and B.

II. TERM: (no longer than 5 years)

III. CONSIDERATION: None, other than the reciprocal promises contained herein.

IV. DUTIES OF LICENSEE: Licensee agrees to be bound by the terms of Exhibit A and the Wildlife Management Area Regulations (321 CMR 3.00 *et seq.*). Licensee further agrees to: carry out its activities so as not to interfere with the purposes for which Premises are held and managed (50 CFR 80.18); not block public access; not erect signs or structures except as specifically authorized herein ; not store or discard hazardous materials; remove all equipment when not in use; not transfer, lease or sublet activities licensed herein; not use lethal control of wildlife beyond open, regulated hunting seasons; and restore Premises to its original condition as determined by Licensor upon completion of the uses authorized.

V. DUTIES OF LICENSOR: Licensor shall not permit any obstruction to the use by the Licensee of the Premises except as provided for herein.

VI. INDEMNIFICATION: The signing of this License by Licensee shall constitute the Licensee's acceptance of complete liability for the actions or omissions of the Licensee while present upon the Premises.

The Licensee shall defend, indemnify, and hold harmless the Commonwealth from and against any and all claims or costs whatsoever arising from or related to the exercise by the Licensee and/or its members, employees, agents or invitees, of any privileges granted hereby. Both parties hereto acknowledge

MASSWILDLIFE

that the Licensor shall not be liable for any costs or claims arising from the actions or omissions of the Licensee and/or its or invitees.

The Licensee for itself and for its members, employees, agents and invitees, expressly agrees not to make any claims against the Commonwealth of Massachusetts for any injury, loss, or damage to person (including bodily injury and death) or property arising out of or in connection with the activities undertaken or omissions to act by the Licensee and/or its members, employees, agents, and invitees, as hereby licensed.

VII. INSURANCE: The Licensee shall maintain comprehensive liability insurance, with coverage for bodily injury, wrongful death, and property damage, to support the obligation of the Licensee to indemnify the Commonwealth of Massachusetts. The Licensee shall immediately notify the Licensor in writing if any of the required insurance coverage has been modified, terminated, or expired. Licensee shall provide Licensor with certificates evidencing such insurance, if deemed necessary by the Commonwealth.

VIII. CONDUCT: Licensee shall conduct themselves in accordance with directives from the Licensor and comply with all applicable laws, regulations, and policies. If requested the Licensee shall provide the Licensor with a directory of emergency personnel and telephone numbers.

IX. TERMINATION BY REVOCATION: If any of the terms and provisions of this License are breached or violated as determined by the Licensor, then this License shall be subject to termination by revocation by the Licensor. If the Licensor so elects to terminate this License by revocation in the event of such a breach or violation, the Licensor shall forward by certified mail a written notice of revocation, detailing the breach or violation in each instance.

The Licensee shall have ten (10) days from the receipt of said written notice of revocation to remedy or cure such breach or violation to the reasonable satisfaction of Licensor. At the end of said ten-day period, if the Licensee has not remedied or cured such breach or violation to the reasonable satisfaction of the Licensor, then this License shall be deemed terminated, effective on that date when said ten-day period expires, and the Licensor shall forward a written notice evidencing such termination to the Licensee by certified mail, return receipt requested.

If the Licensee remedies or cures such breach or violation during said ten-day period to the reasonable satisfaction of the Licensor, then the Licensor shall duly notify the Licensee by certified mail that this License shall continue in full force and effect.

X. NOTICE: For purposes of this License, the parties shall be deemed duly notified if notice is made to the following:

Licensor: Division of Fisheries and Wildlife
_____ Wildlife District
District address and phone number

Licensee: _____

XI. LEGAL REMEDIES OF LICENSOR: Should this License Agreement be terminated by the Licensor, then Licensor shall have the right to take any reasonable action as may be necessary or appropriate, with or without order of court, to remedy or abate this violation hereof or otherwise enforce the terms hereof, as well as the right to enforce this License Agreement by appropriate legal proceedings and to obtain injunctive and other equitable relief against any violations, it being agreed that the Licensor may have no adequate remedy at law.

If the Licensor obtains judgment from a court of law ruling that the Grantor has violated the terms of this License Agreement, the Licensee shall reimburse the Licensor for all reasonable costs and expenses incurred in connection with obtaining and enforcing such judgment, including reasonable counsel fees and reasonable costs incurred in remedying or abating the violation.

XII. NO ESTATE CREATED: This License shall not be construed as creating any estate in the Premises nor are any special rights or privileges conveyed beyond the scope of this License Agreement.

XIII. EXHIBITS AND ATTACHMENTS: All exhibits referenced herein or attached hereto are duly incorporated within this License Agreement.

XIV. SURVIVAL OF TERMS AND PROVISIONS: All appropriate terms and provisions relating to the removal of equipment, restoration of the property, and hazardous materials shall survive the termination of this License.

XV. MODIFICATION: Modification and/or amendments to this License Agreement shall be in writing and duly executed by both parties hereto to be effective.

XVI. ANNUAL REPORT: Licensee shall report annually to Licensor on or before [December 31] summarizing all trail maintenance work and any license non-compliance issues that have arisen in the previous year.

IN WITNESS WHEREOF, the parties hereto have caused this License Agreement to be executed as a sealed instrument in duplicate by their duly authorized representatives on the day and year above written.

LICENSOR: Commonwealth of Massachusetts
Division of Fisheries and Wildlife

By: _____
District Manager

For: Jack Buckley, Director

Date: _____

LICENSEE: _____

By: _____

Date: _____

Name: _____

Exhibit A: MassWildlife Trail Approval and Map of Licensed Trail

Exhibit B: Project Plans

APPENDIX K: Photo Credits WILL NEED TO BE UPDATED ONCE WE HAVE FINISHED TEXT AND LAID OUT ILLUSTRATIONS...

Front Cover: Topographical map from the University of New Hampshire

First page of document: Student photo*

Section 1 page divider: Dawn McCall (upper right), Joyce Prescott (lower right)

Section 2 page divider: Student photo* (upper right and lower left)

Section 3 page divider: Student photo (upper right), Gaynor Bigelbach (lower left)

Section 4 page divider: Dawn McCall (upper right), Gaynor Bigelbach (lower left)

Section 5 page divider: Gaynor Bigelbach

Section 6 page divider: Gaynor Bigelbach (upper right), Dina Samfield (lower left)

Section 7 page divider: Dina Samfield (upper right), Gaynor Bigelbach (upper right)

Section 8 page divider: Joyce Prescott (upper right), Susan Baxter (lower left)

Section 9 page divider: Kim Hampson (upper right), Jeannette Fox (lower left)

Section 10 page divider: Student photo* (upper right)

Section 11 page divider: Joyce Prescott (upper right), Susan Baxter (lower left)

Appendices page divider, Student photo* (upper right, lower left)

Map, Location: Student photos (top and bottom), Kim Hampson (bottom right)

Map, Zoning: Student photos* (top and bottom)

Map, Flood Hazard: Dawn McCall (top), Gaynor Bigelbach (bottom)

Map, Existing Infrastructure: Student photo*

Map, Prime Forest Soils: Jeff and Susan Barbaro

Map, Unique Features: Hugh Field

Map, Plant and Wildlife: Gaynor Bigelbach (top), Vernal Pool Association (bottom)

Map, Environmental Challenges: Student photos*

Map, Open Space Level of Protection: Rae Price

Map, Open Space Ownership: Student photos*

Map, 2006 Trail Inventory: Sketches by Kathy Lewin (center), Joyce Prescott (bottom)

Back Cover: Shirley Historical Society

*Student Photos are credited to Emily Lubahn, Zach Mermel, and Elaine Williamson from the Conway School of Landscape Design