

TOWN OF GILL 2011 OPEN SPACE AND RECREATION PLAN



Prepared by:

GILL OPEN SPACE AND RECREATION COMMITTEE

AND

FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
PLANNING DEPARTMENT

TOWN OF GILL

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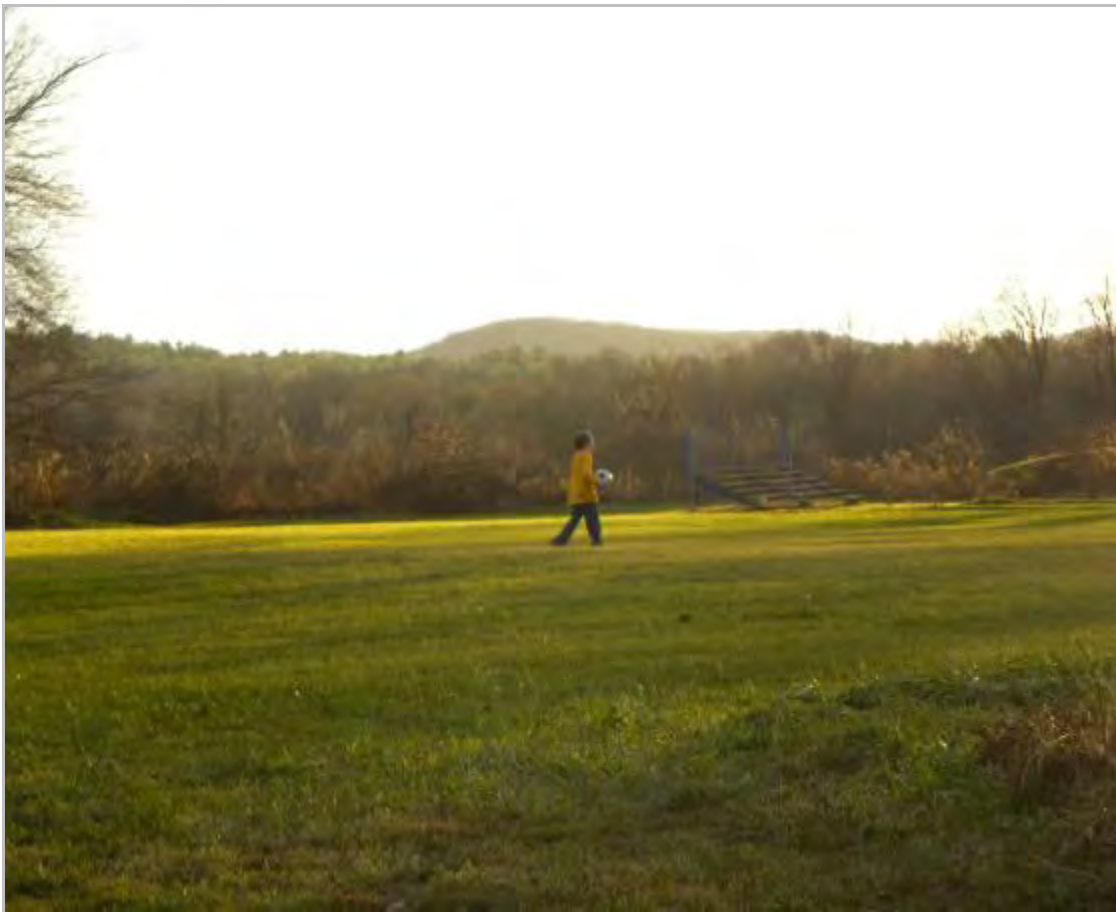
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Section 1: Plan Summary

The 2011 Gill Open Space and Recreation Plan (OSRP) articulates the open space and recreation aspirations of the community. These aspirations include: protecting prioritized open space, forests, and farmland; planning for some development to improve the Town's tax base; promoting farms, farm products, and other locally made goods; and improving or adding recreational opportunities for school children and all citizens of Gill. This Open Space and Recreation Plan contains a comprehensive inventory of the Town's natural, agricultural, and recreational resources and a plan for their stewardship and protection. The Plan also includes an analysis of the Town's needs and a Seven-Year Action Plan designed to guide important decisions about the use, conservation, and thoughtful development of the Town's land and resources.



The seven-year Action Plan includes open space and recreation goals for present and future generations.

The Seven-Year Action Plan is a roadmap for the implementation of this Open Space and Recreation Plan's goals and objectives. The Action Plan's successful implementation depends upon the ongoing commitment of a permanent Open Space and Recreation Advisory Committee as well as the involvement of dedicated municipal officials and enthusiastic community members.

Section 2: Introduction

The Gill Open Space and Recreation Plan Committee began work with the Franklin Regional Council of Governments in the spring of 2011 to update the 2005 Open Space and Recreation Plan (OSRP), which had expired in June 2010. The Committee was composed of the Gill Administrative Assistant and representatives from the town's Planning Board, as well as a member of the community. The Committee consulted other municipal officials and members of the community for expertise in the areas of agriculture, history, recreation, and property records. The Committee has produced an updated Open Space and Recreation Plan that embodies the town's commitment to protecting and enhancing its cultural, historical, scenic, archeological, and natural resources (including water resources, wildlife habitat, forests and farmlands), while promoting economic development.



One of Gill's many outstanding resources, Barton Cove, provides myriad functions including recreation and wildlife habitat.

Accomplishments

Since 2005, the Town of Gill has accomplished several Open Space and Recreation related goals including:

- Adoption of the Right to Farm bylaw
- Participation in the Connecticut River Streambank Erosion Committee
- Participation in annual Biodiversity Days as a means for building a comprehensive biological and geological inventory in Gill using community volunteers

Statement of Purpose

The purpose of this Open Space and Recreation Plan is to provide an accurate and thorough basis for decision-making involving the current and future open space and recreation needs of Gill residents in harmony with appropriate economic development. This Plan brings together and builds upon the planning efforts and accomplishments of the past years including the 2005 Open Space and Recreation Plan and the 2004 Community Development Plan. It also represents several months of consensus building on the most important community and natural resource needs of the Town and the best solutions for addressing them. The Seven-Year Action Plan, when carried out by the yet-to-be formed Gill Open Space and Recreation Advisory Committee and other town boards and commissions, will successfully implement the Town's open space and recreation goals and objectives.

Planning Process and Public Participation

The process to update the 2005 Gill OSRP officially began with the kick off meeting in June 2011. Over the next six months, the Committee met seven times and additional mapping meetings were held on four separate occasions. Staff from the Franklin Regional Council of Governments (FRCOG) attended all of these meetings. The FRCOG staff supported the work of several people who contributed to the research and writing of this Plan, including Committees members, the Town Assessor's Clerk, and citizens. The agendas and sign-in sheets for these meetings are included as Appendix C. An online and paper Public Survey was developed and the results were used to help develop Sections 6 – 9 of this Plan. The Survey and a summary of the Survey results are included as Appendix D.

The OSRP Plan Public Forum was originally scheduled to be held on November 2, 2011. It was postponed due to the power outages and damage associated with the Halloween snow storm. The Forum was rescheduled for November 16, 2011 and saw very light attendance, despite several advertising methods. These methods include information in the online and paper versions of the Gill Elementary School Newsletter (See Appendix A), an announcement on Gill's website homepage, information in the Gill Newsletter, and via flyers posted at the Town Hall and at local businesses. All Town board and committee members were also notified of the Forum. Comments expressed at the public forum were recorded and included in Section 10: Public Comments.

Draft copies of the 2011 Gill OSRP maps were on display during the Public Forum and attendees were encouraged to review the maps and write down any comments for improving the maps. A copy of Public Forum PowerPoint presentation given at the forum is included as Appendix C.

Preceding and following the Forum, copies of the draft maps and sections of the Plan were made available for public comment at the Gill Town Hall and on line at www.gillmass.org. All members of Gill boards and committees were also contacted via email and asked to review the draft sections of the Plan. After review and discussion by the Open Space and Recreation Committee, all ideas, comments, and corrections received during the public forum and comment period – and throughout the planning process – pertaining to the different sections of the plan, maps and the action steps have also been incorporated in the final version of the Gill Open Space and Recreation Plan.

Section 3: Community Setting

The diverse rural landscape of Gill—its rolling hills, river terraces, farmlands and upland forests—have been developed, utilized, and preserved by its human inhabitants thousands of years. Planning for open space and recreational opportunities in Gill must take into account the multifaceted relationships between people and the open spaces and natural resources upon which they and other living beings depend. If development occurs without consideration for natural resources such as drinking water supplies or wildlife habitats, the quality of life for current and future generations of Gill residents could be diminished over time.



Verdant farmland bordered by upland forest is a familiar scene in Gill.

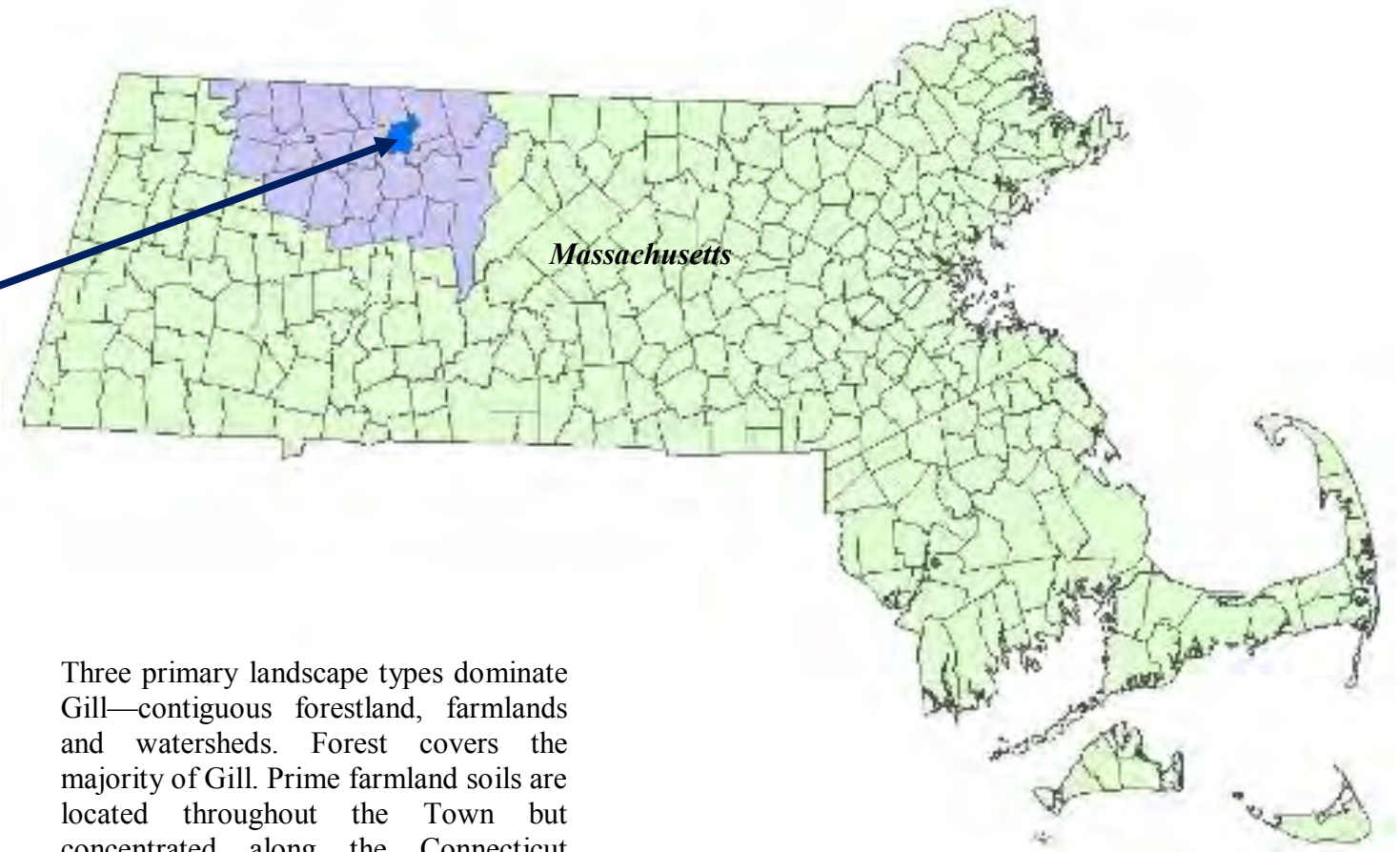
Context

Regional Context

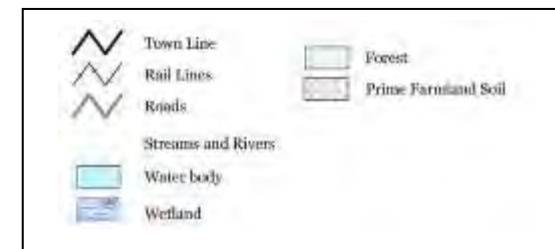
Gill is located in western Massachusetts, in the northern part of the Pioneer Valley region in Franklin County, approximately five miles south of the Vermont state line. Gill is situated in close proximity to three major transportation routes: Interstate 91 is two miles to the west, Route 2 runs along the southern portion of town, and Route 10, which accesses I-91 and Route 63 in Bernardston and Northfield, respectively, is just north of the Gill town line. Map 3-1 on the following page shows Gill's location in Franklin County.

Map 3-1: Regional Context

Located in Franklin County, Gill is bounded on the east and south by the Connecticut River and can be accessed easily via Routes 2 and 10. Neighboring towns include Bernardston to the north, Northfield to the east, Erving and Montague to the south and Greenfield to the west. Although Gill offers relatively easy access to nearby employment centers in Greenfield, Montague and Orange, Gill has not been subject to development pressures experienced in other parts of the State.



Three primary landscape types dominate Gill—contiguous forestland, farmlands and watersheds. Forest covers the majority of Gill. Prime farmland soils are located throughout the Town but concentrated along the Connecticut River. All of Gill is located within the Connecticut River watershed.



Gill is known, in part, for its water resources, particularly Barton Cove on the Connecticut River. Barton Cove draws visitors and residents alike for kayaking, birding, fishing, boating, and camping. Gill is also known for its excellent co-educational boarding and day school, Northfield Mount Hermon. And, in recent years, a revitalization of small, diversified farms has contributed to Gill being known throughout the region for its excellent farm products.

Local Context

Residents of Gill enjoy a wide range of recreational activities in their Town including hiking, skiing, snowmobiling, hunting, fishing and birding. Barton Cove is a popular spot for water recreation such as kayaking, canoeing, swimming and power boating. Barton Cove Campground, owned by FirstLight Power Resources GDF Suez, offers a picnic area and tent camping, and canoe and kayak rentals.¹ See the Appendix E for a FirstLight Power camping, canoeing and kayaking flyer.



Early morning mist shrouds distant views at Barton Cove.

Gill's Open Space and Recreation Plan aims to support the continued enjoyment of recreational activities and continued land protection efforts.

Natural Resources Context

In planning for open space and natural resource protection in the Town of Gill, residents should consider the role natural resources play across the region. Three regional landscape-level natural resources important in both Gill and in surrounding communities are abundant—contiguous forestland, farmlands and watersheds. The presence and relatedness of these significant resources present both opportunities and challenges to open space and recreation planning for Gill.

Forestlands

Forests constitute one of the most important natural resources in the Town of Gill and in the region. Forestland conserves water supplies by sustaining the soil's ability to receive precipitation and recharge ground and surface waters slowly. Woodlands and their changing foliage give residents gorgeous surroundings upon which to gaze and appreciate. Forests clean the air and provide cool air currents in warm months.

¹ <http://www.firstlightpower.com/northfield/camping.asp>

Large blocks of contiguous forestland that are not traversed or fragmented by paved roads, wide rivers, development, or by open fields are important regional resources for several reasons. Wildlife species that require a certain amount of deep forest cover tend to migrate out of fragmenting landscapes. New frontage lots and subdivisions can often result in a widening of human activity into habitats, an increase in the populations of plants and animals that thrive alongside humans (i.e. raccoons and squirrels) and a reduction in the species that have larger home ranges and unique habitat needs. Larger blocks of forest are more suitable for active forest management as well.

One significant mechanism that can be used to protect forestlands – as well as farmlands and recreational lands – in Gill is Chapter 61. Chapter 61 is comprised of three programs which require cities and towns to reduce assessments of farm, forest and open space lands, provided the owners make a commitment to keep their lands in one or more of those uses. These programs were developed in part due to rising property values, which were forcing farmers and forest landowners to sell their land because of the increasing tax burden.

These programs are known as Chapter 61—the Forestland Act; Chapter 61A—the Farmland Assessment Act; and Chapter 61B—the Recreational Land Act. Many states have similar programs to retain open space but only the three Massachusetts laws give municipalities a “right of first refusal” to purchase lands that have been enrolled in these programs.²

According to Mount Grace Land Conservation Trust’s *Land Use Planning under Massachusetts’ Chapter 61 Laws*, “most landowners classify their lands in Chapter 61, 61A and 61B to take advantage of reduced property taxes. Many of these lands are woodlots and small farms on the outskirts of expanding urban and suburban areas. As development increases around these properties, taxes rise to cover the costs of expanded town services. Without Chapter 61, 61A and 61B, these increases in taxes would force some landowners to sell their property. Today, many parcels have remained undeveloped as a direct result of the reduced annual property tax bills following enrollment in these programs.”³

More information on Chapter 61 land classifications can be found on the Town of Gill’s website at <http://www.gillmass.org/pdfs/Ch61%20Classification.pdf>.

Farmlands

Gill has a rich history of agriculture that has contributed to the Town as we know it today. Located in the Connecticut River Valley, much of the land is desirable for farming and contains prime farmland. In the late 18th century, grains – primarily wheat, rye and barley – were the primary cash crops. By the mid 19th century, broom corn and tobacco had replaced grain as a commodity in Gill and, by 1860 Gill had become one of the largest producers of butter and eggs in Franklin County, exporting them as far away as Boston. Milk became a major export after 1900 and, after World War II, most dairy farms began consolidating and increasing in size. Subsistence farming, once a way of life for many Gill residents, also declined.

² <http://www.mass.gov/dcr/stewardship/forestry/service/fortax.htm>

³ <http://mountgrace.org/publications/all>



Cattle graze at sunset on a grassy pasture bordered by woodland.

At present, only a few dairy farms remain in Gill, although out-of-town farmers rent much of the large tracts of river land to grow vegetable crops and forage. Gill currently boasts an active Agricultural Commission and, according to the Commission, the family farm is on the rebound in Gill. In 2011, the Gill Agricultural Commission's **Gill Farms: A Guide to Buying Gill Products and Supporting Agriculture in Our Community** lists 20 farms – sometimes as little as 5 or 6 acres but crammed with produce and know-how. Products from these farmers include eggs, herbs, cheese, emu meat, beef, berries, maple syrup, honey, alpaca fleece. Several have farm stores or farm stands. See the Appendix E for a copy of the guide.

In 2009, Gill adopted the Right to Farm Bylaw which essentially guarantees the right of farmers to conduct their agricultural activities as needed which may include the attendant incidental noise, odors, dust, and fumes associated with normally accepted agricultural practices. Whatever impact may be caused to others through the normal practice of agriculture is more than offset by the benefits of farming to the neighborhood, community, and society in general.⁴

Watersheds

Watersheds are the areas of land that drain to a single point along a stream or river. Sub-watersheds contain first and second order stream tributaries. These are the most extensive component of any watershed. They are also the most sensitive to land use, both the negative impacts of runoff and the positive effects of forest cover. Two of the most important things that

⁴ <http://gillmass.org/pdfs/AgComm/RightToFarmBylaw.pdf>

result from protecting forestland are maintaining the long-term integrity of wildlife habitats and water quality within the watershed's surface and ground waters. Gill is contained within the Connecticut River Watershed.

The Connecticut River Watershed is the largest river ecosystem in New England and spans four states: Vermont, New Hampshire, Massachusetts, and Connecticut. The river itself forms Gill's eastern border. Falls River forms the town's western border. It and other brooks and streams flow through the town on their way to the Connecticut River. From its beginnings on the Canadian border to its end in Long Island Sound, the Connecticut River drains a landscape that is 11,000 square miles in size, 410 miles long. The river drops 2,400 feet from its source to the sea and is one of the most developed rivers in the Northeast. It enters Massachusetts through the Town of Northfield and flows through forty-five communities before entering the state of Connecticut. The watershed is eighty percent forested, twelve percent agricultural, three percent developed, and five percent wetlands and surface waters.

The Connecticut River Watershed was designated the "Silvio O. Conte National Fish and Wildlife Refuge" by an act of Congress in 1991, the first refuge of its kind, encompassing an entire watershed ecosystem. The Connecticut River also received special attention in 1998 when it became one of only fourteen rivers in the U.S. designated as a National Heritage River. The Massachusetts Executive Office of Environmental Affairs has outlined watershed priorities for the Connecticut River which include: promoting and/or creation of riparian buffer zones along the waterways within the watershed; reducing barriers to migratory fish passages; reducing the negative effects of non-point source pollution, primarily storm run-off; and increasing the amount of water quality data available within the watershed. See Section 4 – Environmental Inventory and Analysis – for more detail on the Connecticut River Watershed, its tributaries and other water bodies in Gill.

Community History

The Town of Gill with its natural resources has attracted and sustained human settlements for thousands of years. Native Americans frequented the area to fish the waters of the Connecticut River and its tributaries and to farm the rich floodplain soils. European Colonists also used the Connecticut River for transportation, log drives, fishing, and relaxation.

Native American presence in the Town of Gill dates as far back as 5,500 B.C. Artifacts from that time period have been unearthed in Gill. The Great Falls area of Gill was a prime fishing area; tribes from as far away as Eastern New York would travel to the area to fish. This same area of the Connecticut River was the site of a brutal massacre of Native Americans by the British under Captain Turner in the King Phillip's War (1675-1677). Permanent Colonial settlements were not noted in Gill prior to approximately 1776.

Areas of Settlement

Gill was originally part of Deerfield in the seventeenth century, then part of Greenfield until Gill's incorporation in 1793. Over time, three distinct settled areas developed within the Town of Gill. They include Gill Center, Riverside, and Northfield Mount Hermon as described below.



Located in Gill Center, Gill Tavern – originally the Gill General Store – is a popular area eatery.

Gill Center

Gill was a major crossroads of travel on the western side of the Connecticut River. Organized around a town common, the Gill Center had a number of stores and manufacturing, several taverns as gathering spots and stagecoach stops. A local blacksmith shop and nearby grist mills and a pail factory made the Center a busy place. While fire and changes in industry have removed these landmarks, the Town Common is encircled by a number of historic buildings, including the Gill Meeting House which was erected in 1794, establishing Gill's civic center along this main transportation route. Other buildings near and around the Town Common include the Congregational Church (1803), a Federal period home in the style of Asher Benjamin, the original Meeting House and also the Town Hall (1867), the Slate Library (1921), and Gill General Store – now The Gill Tavern. This area still remains the focus of Gill's civic and social life and the Gill Town Common continues as a place where concerts, town picnics, and socials are held.

Village of Riverside

The Village of Riverside developed on the Gill side of Great Falls on the Connecticut River. A ferry connected Riverside with Montague as early as the 1760s. In 1798 a stone-filled crib dam was built to accommodate locks on the Montague side, allowing river traffic to bypass the Falls. A few farms, home and shops were established on the road from Gill Center to the ferry. Village growth accelerated in 1867 when a sawmill was built in Riverside and in 1878 when a suspension bridge was erected between Riverside and Montague. In the mid 1880s, a kindling

factory and pulp mill were constructed. The sawmill burned down in 1903, and the pulp mill exploded shortly thereafter.⁵

Riverside declined as a civic and commercial center, however today it remains a residential center - a quiet, peaceful haven of residential homes with a rural, close-knit neighborhood feel.



Photo courtesy of AdmissionsQuest, CreativeCommons, www.flickr.com/photos/boardingschool/4215240433/sizes/l/in/photostream/

Northfield Mount Hermon's Admission Office stands on the School's 640-acre parcel located in northeast Gill.

Northfield Mount Hermon

The Mount Hermon School for Boys founded in 1881 and The Northfield Seminary for Girls founded in 1879 were both known for their founder Dwight L. Moody. Now called Northfield Mount Hermon (NMH), the school consolidated its two campuses on the Mount Hermon property in Gill in September 2005. NMH is currently a coeducational boarding and day school for 650 students in grades 9 through 12 and postgraduate. NMH is the largest landholder in Gill, owning approximately 640 acres of property primarily in the northeastern portion of town.

The Role of the Connecticut River in the Community's History

The Connecticut River played a prominent role in the history of the Town of Gill. The River has provided fish for food and was the main mode of transportation for Gill residents. Since transporting goods by boat was more efficient than transporting over land, nearly all trade prior to the development of the railroad occurred on or along the Connecticut River. Timber, ice and farm goods were just a few of the commodities transported via the river to and from the Town of Gill.

In the mid-eighteenth century, river crossings were important factors in a town's economic development and social life. Prior to the bridges, ferries were the primary means of crossing rivers. Gill had three major ferry crossings on the Connecticut River (starting from the south):

⁵ Landscape and Material Life in Franklin County

Map 3-2: Connecticut River Greenway State Park



Smith's, Stacy's and Munn's ferries. Smith's Ferry went out of operation with the installation of the Old Red Suspension Bridge. Munn's and Stacey's Ferries went out of operation in the 1930's due to lack of demand. The Town of Gill owns a one-acre parcel at Stacey or Morgan's Ferry, which has some potential for development as a small boat launch and recreation site.

In addition to the Suspension Bridge, Gill has another spectacular, award-winning bridge at French King Gorge between Erving and Gill. The French King Bridge, completed in 1932, received the Annual Merit Award as "the most beautiful steel bridge" from the American Institute of Steel Construction. Recently restored, the bridge is listed on the State Register of Historic Places.

The Connecticut River also delineates one of Massachusetts' newest state parks, the Connecticut River Greenway State Park. As shown in Map 3-2, the Park connects open spaces, parks, scenic vistas, and archaeological and historic sites along the length of the Connecticut River as it passes through the state. There are over 12 miles of permanently protected shoreline, and numerous access points to the river⁶.

The Role of Route 2 in the Community's History

In 1913, the portion of Route 2 between Erving and the New York State Line was designated as the Mohawk Trail Scenic Auto Route, in honor of the Mohawk Indians who frequented the area's fishing grounds. As a result of the designation, commercial development began along the route to supply tourists with food, gas, lodging and souvenirs. Route 2 continues to be the primary commercial and industrial corridor in Gill.

In 1953, Route 2 between Athol and Williamstown received a Scenic Byway designation. The Mohawk Trail Scenic Byway was one of the earliest Scenic Byways in New England. The corridor is rich in cultural, historic, scenic, natural, archeological, and natural resources. There are a number of historic villages and structures along the route that provide evidence of the Byway's history. The Byway also travels through some of the most beautiful scenic areas in Massachusetts.

⁶ <http://www.mass.gov/dcr/parks/central/crgw.htm>



The French King Bridge, at French King Gorge, offers among the most stunning views along the Mohawk Trail Scenic Byway.

Significant stretches of the Mohawk Trail follow the Millers River and cross the majestic Connecticut River. The Mohawk Trail East Scenic Byway Corridor Management Plan contains greater detail on the history and resources of this Byway.⁷ A Scenic Byway designation is important to Gill in part because the designation brings with it potential funding on the state and national level.



Gill Centers includes historic structures such as the Slate Library and a federal period home

⁷ Mohawk Trail East Scenic Byway Corridor Management Plan, FRCOG, June 22, 2009

Historical Resources in Gill

Along with the historical resources mentioned earlier in this chapter, other significant historical resources located in Gill include the following:

- Riverside Archeological District (National Register of Historic Places)
- Bascomb Hollow
- French King Bridge
- Water power mill sites
- Methodist Church
- Old Bridge Crossing
- Cemeteries
- Factory Hollow (formerly the main road to Greenfield)
- Capt. Turner Monument
- Old Red Bridge Anchor

Population Characteristics

Demographic Information

A snapshot of Gill's population characteristics shows a town with a slightly declining population over the last twenty years, this after significant population growth in the 1970s and 1980s. Similar to the County's population, baby boomers comprise the largest percent of the population, suggesting a potential for increasing demands for services for elderly over the coming decades. Income rates for Gill residents are similar to those for the County and about two thirds of Gill residents work outside of Town.

Population and Population Change

Demographics are useful for forecasting the need for open space and recreational resources that may be required by residents over time. According to the 2010 U.S. Census Redistricting Data, Gill had a population of 1,500 in 2010 (Table 3-1). In 2000, data gathered by municipal officials in the Town of Gill reported the population to be 1,620. This is different from the total population figure of 1,363 that the U.S. Census reported as of April 1, 2000. Gill municipal officials believe the 2000 U.S. Census figure was inaccurate due to miscalculation of staff and faculty housing on the Northfield Mount Hermon campus as well as to a shared zip code with Turners Falls. For the purpose of this Open Space and Recreation Plan, the 2010 Census population figure will be used.

Table 3-1: Total Population from 1970, 1980, 1990, 2000 and 2010

Geography	1970	1980	1990	2000	2010
Gill	1,100	1,259	1,583	1,620*	1,500
Franklin County	59,223	64,317	70,092	71,535	71,372
Massachusetts	5,689,377	5,737,037	6,016,425	6,349,097	6,547,629

Source: U.S. Census Bureau – 1970 Census, 1980 Census, 1990 Census STF3A, 2000 Census SF3, and 2010 Census Redistricting Data. * Source: Town of Gill Census 2000.

In 2010, Gill’s population density was 101 persons per square mile, compared to the neighboring towns of Erving (125 persons per square mile), Northfield (88 persons per square mile), Bernardston (91 persons per square mile), Greenfield (796 persons per square mile), and Montague (269 persons per square mile).⁸

Table 3-2: Population Change from 1970 to 2010

Geography	1970-1980 Change	1980-1990 Change	1990-2000 Change	2000-2010 Change	40 Year Trend (1970-2010)
Gill	14.5%	25.7%	2.3%*	-7.4%*	36.4%
Franklin County	8.6%	9.0%	2.1%	-0.2%	20.5%
Massachusetts	0.8%	4.9%	5.5%	3.1%	15.1%

Source: U.S. Census Bureau – 1970 Census, 1980 Census, 1990 Census STF3A, 2000 Census SF3, and 2010 Census Redistricting Data. * Based on 2000 Town of Gill Census.

Population in Gill in recent decades has varied, with has significant growth in the 1970s and 1980s and with growth slowing in the last two decades. From 1970 to 1980, the population in the Town of Gill grew over 14 percent, and grew significantly from 1980 to 1990 by another 26 percent (Table 3-2). This is dramatically higher than both the County and the State during the same decades. For Franklin County, the rate of population growth was fairly consistent from 1970 to 1980 and 1980 to 1990 with approximately a 9 percent growth rate for each of those time periods. In the 1990s, both the Town and the County grew by approximately 2 percent, less than the State growth of 5.5 percent. Between 2000 and 2010, the Town saw a 7.4 percent decrease in population, while the County’s population remained stable and the State population grew modestly by 3.1 percent.

The overall 40-year trend for Gill shows a 36.4 percent increase in population, larger than both the County and State. This is attributable, however, to the large increase in the 1970s and 1980s. The trends of the last two decades show Gill’s population leveling out and declining slightly. It is important for the Town to determine how these trends translate into demand for open space and recreational resources.

The age make-up of the population is also an important factor when considering open space and recreational needs in Town. In 2010 residents between the ages of 45-64 made up the largest percentage of the Town’s population. Between 2000 and 2010, this age cohort grew by 9.5%, while the 25-44 age cohort declined by 7%. This is due to the aging of the Baby Boomers, those born between 1946 and 1964, a period that experienced a widespread population boom, who in 2010 were between the ages of 46 and 64.

Between 2000 and 2010, the percentage of residents age 19 and younger, and 75 and over, declined, while those between the ages of 20-24, and 65-74 increased slightly. Overall the population of Gill is aging, a trend consistent with the County and the State. Due to the large growth of residents between the ages of 45 and 64 it seems likely that in the years to come the 65 and older cohort will begin to grow, as the Baby Boomers continue to age and move into this category (Table 3-3).

⁸ Calculated using 2010 U.S. Census Redistricting Data population counts, and 2005 MassGIS Land Use data

Table 3-3: Age Distribution 2000 and 2010

Geography	Total Population	9 Years & Under	10-19 Years	20-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years & Over
Gill								
2000	1,363*	12.3%	14.5%	3.4%	26.8%	30.2%	5.9%	6.8%
2010	1,500	7.9%	13.5%	5.3%	19.8%	39.7%	8.2%	5.6%
Difference	137	-4.4%	-1.0%	1.9%	-7.0%	9.5%	2.3%	-1.2%
Franklin County								
2000	71,535	11.5%	14.3%	5.4%	28.5%	25.9%	6.7%	7.5%
2010	71,372	10.0%	11.9%	6.0%	23.1%	33.7%	7.9%	7.3%
Difference	-163	-1.5%	-2.4%	0.6%	-5.4%	7.8%	1.2%	-0.2%
Massachusetts								
2000	6,349,097	13.0%	13.3%	6.4%	31.3%	22.4%	6.7%	6.8%
2010	6,547,629	11.5%	13.3%	7.3%	26.5%	27.7%	7.0%	6.8%
Difference	198,532	-1.5%	0.0%	0.9%	-4.8%	5.3%	0.3%	0.0%

*Gill Town officials believe the U.S. Census Bureau's 2000 data understates the actual total population.

Source: U.S. Census Bureau – 2000 Census SF3, 2010 Census.

The aging population may require different recreational facilities and services including accessible walking paths, arts, and leisure programs. It appears the Town of Gill needs to be concerned about providing for an aging population in its open space and recreation programming, while continuing to provide opportunities for all residents. As Baby Boomers age, they may also require different housing options than are currently available in Town. This demand for new housing could impact the available open space in Gill. The Town should proactively identify the types of housing this population group will need and determine the best locations for development, taking into consideration the needs of an older population while also working to protect open space and natural resources. Planning for growth before it happens will help to protect open space and recreation resources into the future.

Any development of new open space and recreation resources should take into consideration where the current population resides, where any potential new development will occur, and which parts of the local citizenry require specific needs. As shown in the fourth part of Section 3 - Growth and Development Patterns - the location of future growth depends in large part on zoning, slopes, soil and groundwater related constraints, and on which lands are protected from development. Proactively identifying key parcels in town that might be future parks and walking trails close to current neighborhoods, and in areas that could be later developed for residential uses, will help ensure these resources are available in the future. Town officials should continue to look for opportunities to conserve land in Gill that protects valuable scenic and natural resources and provides public access to trail networks and open spaces.

Economic Wealth of Residents and Community

Measures of the income levels of Gill's residents as compared to the county and state are helpful in assessing the ability of the citizenry to pay for recreational resources and programs and access to open space.

Table 3-4: Per Capita Income, Median Household Income, and Percentage Below Poverty Level for Gill compared to Franklin County and the State, 2009*

Geography	Per Capita Income	Median Household Income	Individuals Below the Poverty Level
Gill	\$27,201	\$56,066	4.6%
Franklin County	\$27,305	\$52,185	12.1%
Massachusetts	\$33,460	\$64,496	10.1%

* In 2009 inflation adjusted dollars.

Source: 2005-2009 American Community Survey.

Table 3-4 describes the earning power of residents in Gill as compared to the county and the state. The Gill per capita income reported for 2009 was \$27,201, which was comparable to the county figure of \$27,305, and lower than the state figure of \$33,460. Gill had the 19th highest per capita income out of the twenty-six towns in the county in 2009. The median household income for Gill was \$56,066 in 2009, which was higher than the county (\$52,185) and lower than the state figure (\$64,496). The Gill median household income in 2009 was the 16th highest of the twenty-six towns in Franklin County. Another way to describe a community's income and economy is the poverty rate. In Gill, 4.6 percent of residents were living below the poverty level in 2009. Gill's poverty rate was significantly less than in the county (12.1 percent) and state (10.1 percent).

Although Gill's resources include both its people and its natural landscapes, the status of its finances could be affected by an interdependent relationship that exists between the two. The costs of the community services provided to residents are paid for with the tax revenues generated by different kinds of property, both developed and undeveloped. Some developed uses such as housing often require more services including education and road maintenance. The costs associated with one household are rarely paid for by the revenues generated by that same property.

One reason that towns encourage economic development is to have other types of property in town, other than residential, to share the tax burden. Protected open space on the other hand can cost towns very little in community services, provide a modest amount of tax revenues, and reduce the amount of housing that can ultimately occur in town. This relationship is explored in more detail in subsection D. Growth and Development Patterns.

Employment Statistics

Employment statistics like labor force, unemployment rates, numbers of employees, and place of employment are used to describe the local economy. Labor force figures can reflect the ability of a community to provide workers that could be employed by incoming or existing businesses. Unemployment rates can show how well residents are fairing in the larger economy while employment figures describe the number of employees in different types of businesses. Employment can be used as a measure of productivity. The number of people employed in each business can be used to determine the types of industries that should be encouraged in town. The town may decide to encourage business development to create more jobs and as a way of increasing taxable property values, which can help pay for municipal services and facilities, including recreational parks and programming as well as protected open space.



Wagon Wheel Restaurant on Route 2 is a popular small business – and breakfast spot - in Gill.

Labor Force: Gill Residents Able to Work

Table 3-5 displays Gill’s labor force from 2000 through 2010, and unemployment rate for the same period compared to the county and state. The labor force is defined as the pool of individuals 16 years of age and older who are employed or who are actively seeking employment. Enrolled students, retirees, stay-at-home parents and other persons not actively seeking employment are excluded from the labor force.

Table 3-5: Labor Force and Unemployment Data, 2000-2010

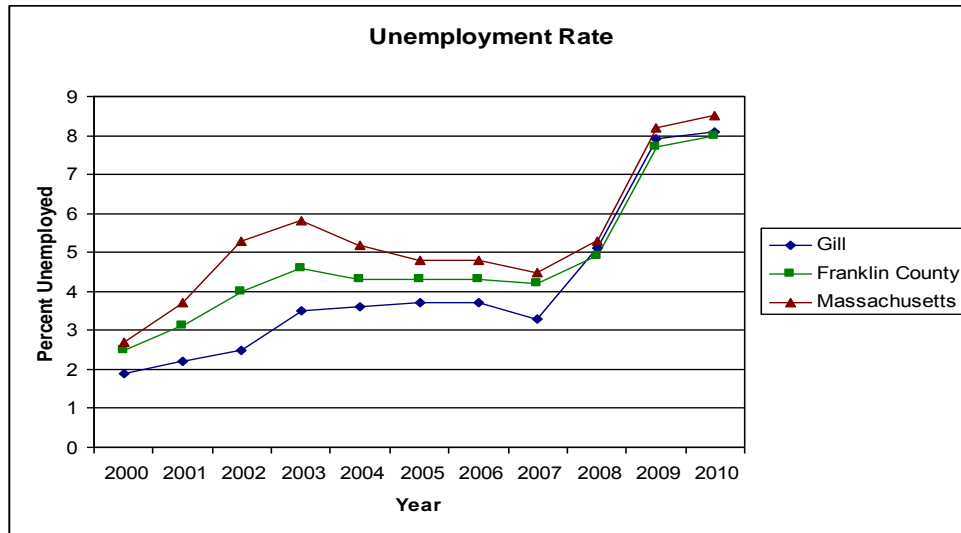
Year	Gill Labor Force	Unemployment Rate		
		Gill	Franklin County	Massachusetts
2000	787	1.9	2.5	2.7
2001	787	2.2	3.1	3.7
2002	799	2.5	4.0	5.3
2003	810	3.5	4.6	5.8
2004	808	3.6	4.3	5.2
2005	808	3.7	4.3	4.8
2006	806	3.7	4.3	4.8
2007	797	3.3	4.2	4.5
2008	805	5.1	4.9	5.3
2009	810	7.9	7.7	8.2
2010	810	8.1	8.0	8.5
% Change	+ 2.9%	N/A	N/A	N/A

Source: Massachusetts Executive Office of Labor and Workforce Development.

Labor force and unemployment data are available on a monthly and annual basis from the Massachusetts Executive Office of Labor and Workforce Development. In 2010, the Town of

Gill had a labor force of 810 with an unemployment rate of 8.1 percent (Massachusetts Executive Office of Labor and Workforce Development). Gill’s labor force increased by 23 people, or 2.9% from 2000 to 2010, though it has fluctuated over those years. Increases in the labor force may be from increases in the resident population’s participation in the labor force and/or overall population growth in a community.

Figure 3-1: Unemployment Rates from 2000-2010



Source: Massachusetts Executive Office of Labor and Workforce Development.

Gill’s unemployment rate in 2010 was slightly higher than the county’s rate of 8.0, and lower than the state’s rate of 8.5. From 2000 through 2008, Gill had a consistently lower rate of unemployment than the county and state. From 2008 through 2010, the Town’s rate has been slightly higher than the county, though it continues to be lower than the state. It is evident that Gill is influenced by the greater economy, as demonstrated by the highs and lows in Figure 3-1.

Employment in Gill: Residents and Non-Residents

The largest employer located within the Town of Gill is the Northfield Mount Hermon School, employing between 250 and 499 employees (Massachusetts Executive Office of Labor and Workforce Development). The next largest employers are Kuzmeskus Inc. bus company and Travel Kuz, each employing between 100 and 249 people. The Gill Elementary School, Gill Fire Department, and Renaissance Builders all employ between 20 to 49 people. It is not uncommon in rural communities for the town government and school to be major employers.

Table 3-6: Worker* Commute Patterns in 1990 and 2000 (ACS)

Geography	Worked in Town of Residence	Worked out of Town but in County of Residence	Worked out of County but in State of Residence	Worked out of State of Residence
Gill				
2000	13.3%	66.2%	16.8%	3.7%
2009	6.7%	64.8%	22.9%	5.6%

* Employed workers 16 years and over. Source: U.S. Census Bureau –2000 Census SF3; 2005-2009 American Community Survey

Note: Gill Town officials believe the U.S. Census Bureau’s 2000 data understates the actual total population.

According to the 2000 Census and 2005-2009 American Community Survey, the percentage of Gill residents in the labor force who worked in town decreased from 13 percent to approximately 7 percent. The greatest increase during the decade occurred with commuters traveling to jobs in other counties, from 17 percent to 23 percent.

Context and Demographics of Environmental Justice Populations

No environmental justice populations have been mapped in the Town of Gill.

Growth and Development Patterns

Patterns and Trends

Like many towns in Franklin County, Gill's historic land use development patterns can still be seen today. Gill's land use patterns include:

- The more heavily settled Riverside, an area that once supported log drives, sawmills, and the wealthy mill owners of Turners Falls.
- Gill Center, where civic life has always been focused and where the Town Hall and the Slate Memorial Library can be found.
- Working farms and farmland including active dairy farms – and Upinngil Farm and Farm Store, Cold Spring Farm and Rolling Edge Sugarhouse, to name a few. Note: The recently formed Gill Agricultural Commission has produced *Gill Farms: A Guide to Buying Gill Products and Supporting Agriculture in Our Community*. See Appendix E for a copy of the guide.
- Forest land blankets much of the town and includes active sugarbushes and other forest industries.

Within this land of farms, forests and houses are two major linear elements: the Connecticut River and Route 2. The Connecticut River floodplain contains arable prime farmland soils and is actively farmed by small, diverse farms. Commercial properties are located primarily along Route 2 and on Main Road close to where it intersects Route 2. This trend began in the early part of the 20th Century following the designation of Route 2 as the Mohawk Trail Scenic Auto Route.

Over the past two hundred years, Gill residents developed their community using the productivity of the area's prime farmland soils as well as its proximity to the Connecticut River and the Mohawk Trail. Gill's population went through a series of expansions and contractions between 1800 and 2010. Gill's population in 2000 (though contested as too small by Town Officials) represented a 97 percent increase of its population in 1800. 2010 Census data puts Gill's population at 1,500. The most rapid growth has taken place over the last 30 years. In the 1970s and 1980s, the population of Gill increased by 44 percent.

Despite the population increase, in the late 1980s Gill experienced a reduction in the number of dairy farms due to several factors including low product prices, high production costs, aging farmers and smaller families, and a federal buy-out program of dairy herds to control pricing.

Over the last century, Gill saw a reduction in the number of dairy farms and an increase in the development of residential uses outside of the historic village centers.

According to MassGIS computer mapping land use data, between 1985 and 2005, Gill experienced:

- A loss of 554 acres of forest (-3%)
- A loss of 157 acres of cropland (-6%)
- A loss of 105 acres of pasture (-18%)
- An increase of 484 acres in residential development (+62%)

Clearly, the conversion of forest and agricultural land to building sites for single-family homes is the dominant land use change in Gill and in Western Massachusetts. Future development patterns in Gill may depend on national and regional employment and population trends but also on local conditions that impact development and land use, such as growing demand for locally grown farm and forest products.



Single family homes stand adjacent to a rye field in Gill.

Infrastructure

Transportation Systems

The major transportation routes in and around Gill are:

- Interstate 91, approximately 2 miles west of the town line;
- Route 2, which runs through the southern portion of town; and
- Route 10, which connects Route 63 and I-91

According to the FRCOG Draft Regional Transportation Plan 2011, there is currently no transit service to or from this area of the county nor are there connections to other transit routes. Previous service was sporadic and based on the Northfield Mount Hermon School schedule, making it difficult for residents to use the route since the days and times of runs were inconsistent. Service was discontinued completely at the end of FY2009. The Franklin Regional Transportation Authority (FRTA) does provide demand-response transportation services for the elderly and people with disabilities in Gill.⁹

Water Supply Systems

Except for those living on the Northfield Mount Hermon (NMH) School campus, or in the Riverside area, Gill residents rely on private wells for their water supply. NMH operates its own water supply system. The Riverside Water District manages its own water system and purchases its water from the Town of Greenfield. There is also a public well at Gill Elementary School. Prior to 1976, the Riverside area got its water from a neighborhood spring that is now privately owned.

Wastewater Treatment

NMH and Riverside have their own wastewater treatment systems. After discovering that its 1962 sewage lagoon facilities were inadequate during storm events, NMH recently updated its system at a cost of \$2 million. Following a typhoid outbreak in 1957, the Riverside community began to pursue a municipal wastewater treatment facility. After years of debate and discussions over how to pay for it, the project was finally launched in 1976 and was operational by October of 1980. The Town contracts with the Montague Wastewater Treatment Facility to treat sewage from Riverside homes and businesses.

Long-Term Development Patterns

Land Use Controls

Gill's Zoning Bylaws were last updated in June 2011 and their Rules and Regulations Governing the Subdivision of Land were updated in August 2009. According to the Zoning Bylaws, the Town of Gill is divided into the following types of districts:

- Village Residential
- Residential
- Residential-Agricultural
- Village Commercial

The Town of Gill Official Zoning Map, located at the end of this section, shows the location(s) of the four districts. The vast majority of land in Gill is zoned Residential/Agricultural, with a minimum developable lot size of 2 acres. The area known as Riverside is the only part of town with Village Residential, Residential and Village Commercial Zoning. Table 3-7 shows the minimum lot size, minimum lot frontage and maximum lot coverage for each district.

⁹ Draft 2011 Regional Transportation Plan, FRCOG.

Table 3-7: Zoning Bylaws – Excerpt from Dimensional Schedule

District	Minimum Lot Area in Acres	Minimum Lot Frontage in Feet	Maximum Lot Coverage*
Village Residential	.25	100	50%
Residential	2.00	200	50%
Residential-Agricultural	2.00	200	30%
Village Commercial	1.00	150	70%

Conservation subdivisions are characterized by common open space and clustered compact lots. The purpose of a conservation subdivision is to protect farmland and/or natural resources while allowing for the maximum number of residences under current community zoning and subdivision regulations. In some cases a greater density (density bonus) may be offered in the local ordinance to encourage this approach to residential development planning. Generally, this tool is used for parcels 40 acres or larger.

Along with the Dimensional Schedule, other elements of the Zoning Bylaws¹⁰ relevant to Open Space and Recreation Planning include:

- A Solar Overlay District, which, at the time of writing, is under consideration with the Town.
- Section 6: Conservation Development. The purpose of Conservation Development is, in part, to encourage the preservation of common land for conservation, agriculture, open space, forestry and passive recreational use; to promote more sensitive siting of buildings and better overall site planning; to promote better utilization of land in harmony with its natural features; and to allow more efficient provision of municipal services.
- Section 15: Flood Plain Regulations. The Flood Plain District is established as an overlay to all other districts but does not expressly limit or prohibit development, as long as the use is in compliance with Chapter 131, Section 40 of the Massachusetts General Laws and with related state building code, Wetlands Protection Regulations, DEP’s related requirements.

The Zoning Bylaws do not prevent the town’s prime agricultural land that is not currently under a conservation or agricultural preservation restriction from being developed for future residential use. Under the current bylaws, much of Gill’s land is vulnerable to residential development. To protect the resource that is so vital to Gill’s sense of community character - its farm and forestland - the Zoning Bylaws would merit a thorough review with a particular emphasis on protecting farm and forestland.

As part of the Subdivision Regulations the Planning Board, where appropriate, may require reservation of open space for up to three (3) years upon completion of the subdivision to provide an opportunity for the Town to purchase it for open space or recreation purposes. The Planning Board shall not require reservation of more than ten percent (10%) of the gross area of the subdivision for such purposes, and shall not require reservation of areas smaller than four (4) acres, except in extraordinary circumstances.¹¹

¹⁰ Town of Gill Zoning Bylaws, <http://gillmass.org/pdfs/zba/Gill-Bylaws-updated-031610.pdf>

¹¹ <http://gillmass.org/pdfs/ZBA/SubdivisionRegulations-081309.pdf>

These same Rules and Regulations allow for endorsement rather than approval of the Planning Board for the division of a tract of land into two or more lots as long as every lot within the tract has acceptable frontage on a public way. For this type of development, a plan in any form may be submitted as long as it is acceptable to the Registry of Deeds or Land Court. The only stipulations are that centerline road profiles, drainage, utilities and road construction must be explicitly shown. In reviewing the Rules and Regulations Governing the Subdivision of Land, the community could consider incentives or other methods to more strongly encourage conservation development. This recommendation is included as an Action Item in this plan.

Another regulation in place in Gill is the Right to Farm Bylaw, adopted in 2009, discussed earlier in this Section.

The Town of Gill completed a Community Development Plan (CDP) in June 2004.¹² Chapter One: Open Space and Resource Protection is particularly relevant to long term development patterns in this Plan. Selected maps from the CDP have been including at the end of this section. A mapping of development constraints including prime farmland and permanently protected open space was conducted. One noticeable pattern relevant to development patterns is a significant area of prime farmland is located in the northeast area of Town as well as along the Connecticut River on the eastern border of Town. This is shown in Map 3-4 at the end of this section.

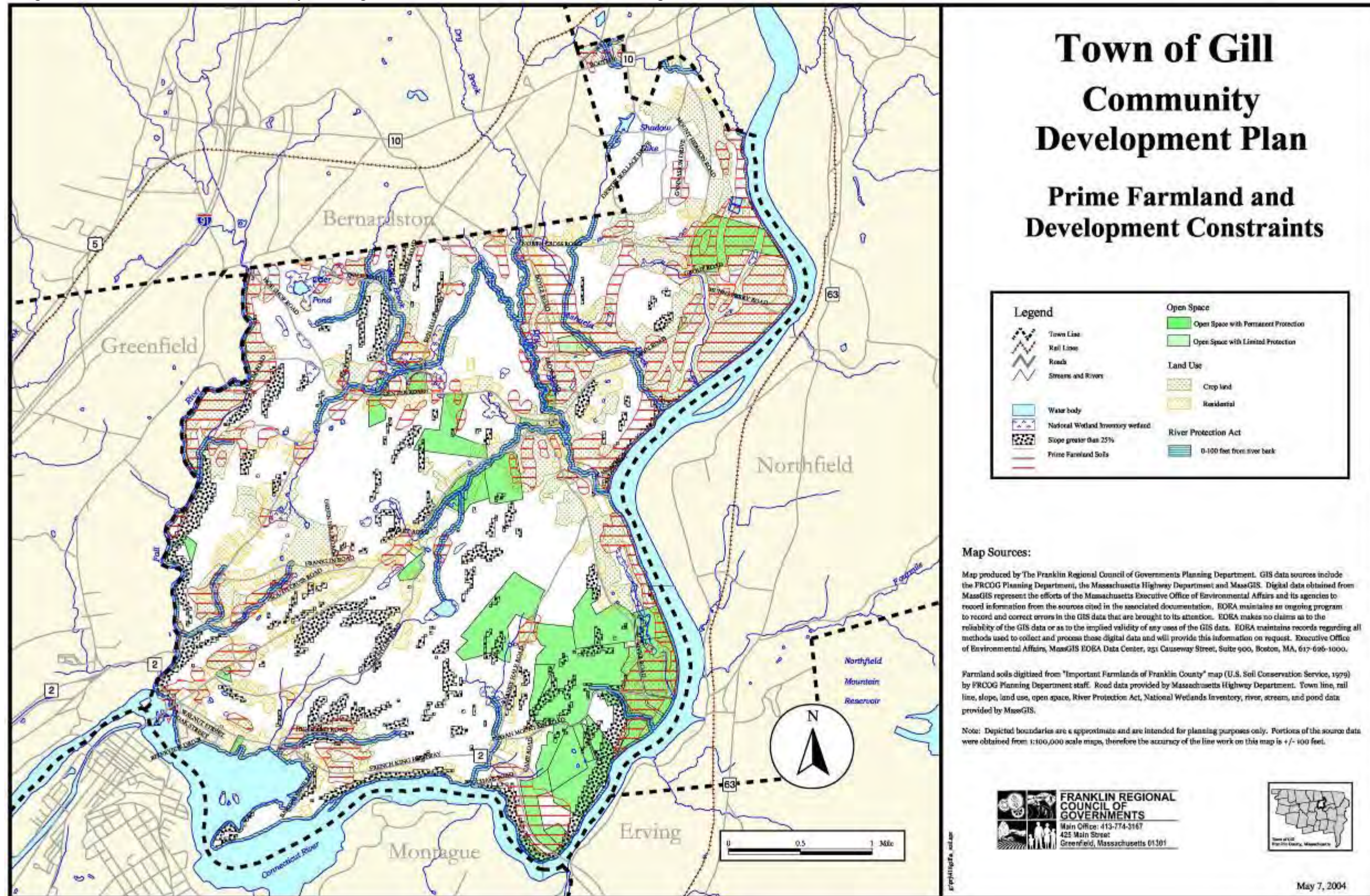
Another pattern is a large area of permanently protected open space in the southeast area of Town. Important information not contained in this map – but critical to the concept of conserving large blocks of contiguous forestland – is what lies beyond the town borders. Thinking about patterns on a more regional basis could help the Town in a goal of conserving large blocks of contiguous forestland, as well as permanently protected open space, prime farmland and other vital resources.

The other two maps from the Town's CDP (Maps 3-4 and 3-5) show potential and absolute constraints on development in Town. Potential constraints include such things as slopes of 15-25%, prime farmland soil, interim wellhead protection areas, and medium yield aquifers. Absolute constraints include wetlands, water bodies, Zone I recharge areas for public drinking water supplies, important habitat areas, steep slopes, and parcels that have been permanently protected as open space.

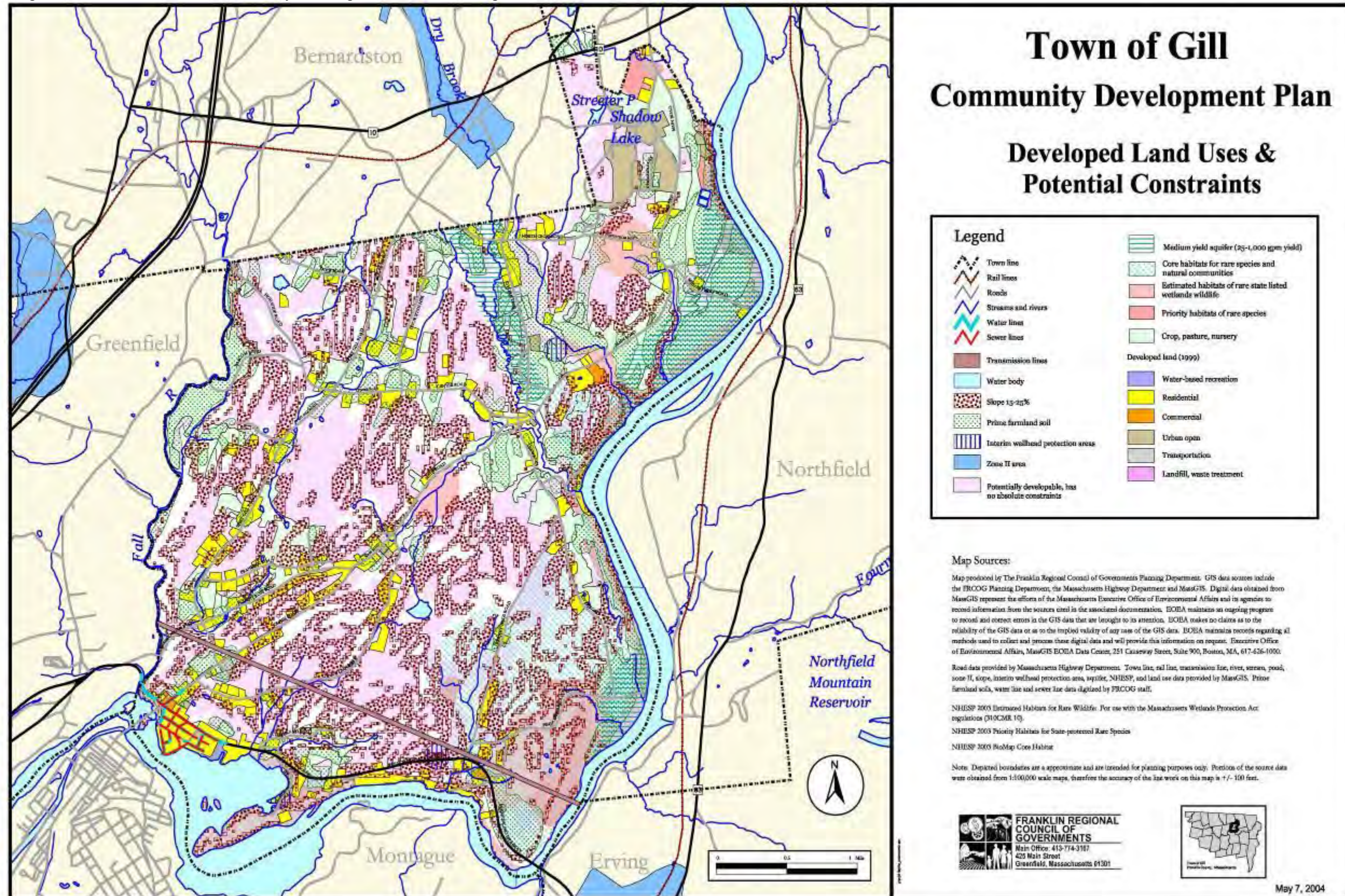
As stated in the CDP, these maps are an essential first step for prioritizing which parts of Town may be important to preserve and to protect from certain land uses, and for identifying which areas may be suitable for future development. Coupled with the methodology for determining which parts of Gill are potentially developable outlined in the CDP, this information is valuable to the work of this Open Space and Recreation Plan as well as any future master planning.

¹² <http://gillmass.org/pdfs/cdp/GILL%20CDP%20FINAL%20plan.PDF>

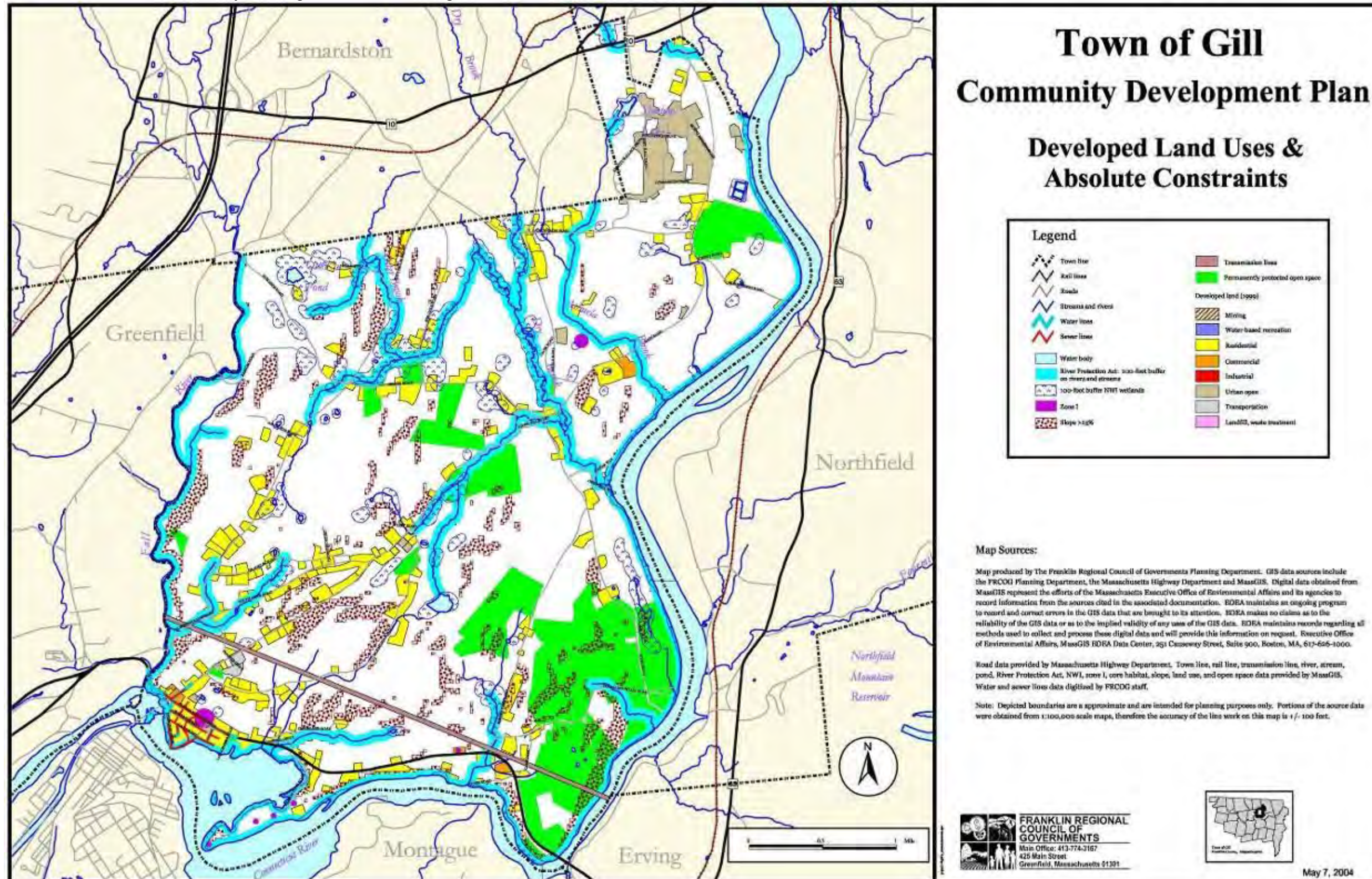
Map 3-4: From Town of Gill Community Development Plan – Prime Farmland and Development Constraints



Map 3-5: From Town of Gill Community Development Plan – Developed Land Uses and Potential Constraints



Map 3-6: From Town of Gill Community Development Plan – Developed Land Uses and Absolute Constraints



Section 4: Environmental Inventory and Analysis

This section explores the biological and physical components of some of the town's ecosystems. These components include soils, surface and ground water, vegetation, fisheries and wildlife. *Topography, Geology, and Soils* provides a general understanding of the ways different soil characteristics can impact land use values. *Landscape Character* provides an overall scenic context. *Water Resources* describes all of the water bodies in town, above and below ground, including their recreational value, public access, and any current or potential quality or quantity issues. In the subsection *Vegetation*, Gill's forest, farmland, and wetlands are documented and in *Fisheries and Wildlife*, wildlife, habitat, special corridors, and rare, threatened, and endangered species are discussed. Gill's *Scenic Resources and Unique Environments* are identified. Finally, *Environmental Problems* addresses current and potential problems that may influence open space or recreation planning.

The natural resources and scenic landscapes of the Town of Gill have been cherished by residents for generations. This Open Space and Recreation Plan is intended to help residents protect the town's scenic value and natural resources in the face of potential increasing development and changes in land use, while recognizing that people need places to live, learn, work and play. These needs – when sited in areas previously unsettled rather than as infill in existing developed areas – can require infrastructure such as homes, roads, power, water, and wastewater systems. These collective needs, in turn, depend upon and impact critical natural systems. One way to understand the impact of development on natural resources is to understand the ecosystem of the town and the region.

Ecosystems and Mapping

Ecosystems

An ecosystem is a geographically specified system of organisms, including humans, their environment, and the processes that control their dynamics. Ecosystems involve complex connections between organisms and their environment, and the processes that drive the system and can occur at different scales.¹ A large forest and a decayed tree trunk are both examples of ecosystems. The health and function of ecosystems depend on the relationship between living beings and their environment.

Ecosystems provide a variety of “services” that are very important to human communities. Wetlands, for example, filter rainwater, store floodwaters, recharge water to groundwater aquifers, and provide habitat for many aquatic plant and animal species. All ecosystems are vulnerable to any changes to the environment, whether naturally occurring or human made. Understanding the complexity of the systems in which we live can help Gill residents to consider the impact of actions and land uses on the environment and on their quality of life.

¹ http://ecosystems.noaa.gov/what_eco.htm

Documenting and Mapping Ecosystems: BioMap2

Just as the Town of Gill contains multiple and varied ecosystems, the state of Massachusetts, while relatively small, has many diverse ecosystems and habitats. Documentation and mapping of such ecosystems and habitats – and their associated flora and fauna – can be a first step toward protecting and preserving these resources.

To that end, in 2010 The Massachusetts Department of Fish and Game and The Nature Conservancy launched *BioMap2: Conserving the Biodiversity of Massachusetts in a Changing World*.² This project, produced by the Natural Heritage and Endangered Species Program (NHESP), is a comprehensive biodiversity conservation plan for Massachusetts. Last updated in 2001, this new plan endeavors to protect the state’s biodiversity in the context of projected effects of climate change.

BioMap2 combines NHESP’s 30 years of rare species and natural community documentation with the Division of Fish and Wildlife’s³ 2005 State Wildlife Action Plan (SWAP). It also integrates The Nature Conservancy’s assessment of ecosystem and habitat connections across the State and incorporates ecosystem resilience in the face of anticipated impacts from climate change. Note: *BioMap2* data replaced former BioMap and Living Waters data.

Figures 4-1 and 4-2 and Table 4-1 show the core findings summed up in *BioMap2*’s Executive Summary.

Figure 4-1: Core Habitat Statewide Summary



Figure 4-1: Critical Natural Landscape Statewide Summary



² http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap_home.htm

³ <http://www.mass.gov/dfwele/dfw/>

Table 4-1: BioMap2 Statewide Summary Total Acres and Acres Protected

	<i>Total Acres</i>	<i>Percent of State</i>	<i>BioMap2 Acres Protected</i>
Core Habitat	1,242,000	24%	559,000
Critical Natural Landscape	1,783,000	34%	778,000
<i>BioMap2 Total (with overlap)</i>	<i>2,092,000</i>	<i>40%</i>	<i>861,000</i>

Documenting and Mapping Ecosystems: NHESP Priority Habitats

Priority and Estimated Habitats is a program administered by NHESP. Identification and mapping of Priority and Estimated Habitats is based on the known geographical extent of habitat for all state-listed rare species, both plants and animals, and is codified under Massachusetts Endangered Species Act (MESA). Habitat alteration within Priority Habitats is subject to regulatory review by the Natural Heritage & Endangered Species Program. Priority Habitat maps are used for determining whether or not a proposed project must be reviewed by the NHESP for MESA compliance.⁴

Benefits of BioMap2 and NHESP Priority Habitats

On the statewide level, mapping Core Habitat and Critical Natural Landscapes helps to guide strategic conservation to protect those areas that are most critical to the long-term survival and persistence of rare and other native species and their related habitats and ecosystems. On the local level, Gill can use this information to better understand where the Town’s ecosystems and habitats fit into the bigger picture. For example, a seemingly insignificant parcel of land could be a key link to two larger, intact ecosystems. BioMap2 can help the Town of Gill look beyond its municipal boundary to plan for open space and recreation needs.

On an individual landowner level, BioMap2 – as well as NHESP Priority and Supporting Habitats – is an important tool that can be used to apply for grants to help improve, manage and monitor certain lands. An example is the Mass Wildlife Landowner Incentive Program, which helps fund efforts to maintain grasslands and create areas of young tree and shrub growth (early woodlands) to enhance wildlife habitat, with preference given to land that is classified as or nearby NHESP areas.

Information and mapping from BioMap2 and NHESP Priority Habitats will be referenced throughout this section on Environmental Inventory and Analysis. Related maps – Maps 4-1 and 4-2 – are located at the end of this section.

Geology, Soils and Topography

Decisions relating to open space and recreation planning should take into consideration the inherent suitability of a site for different uses. The condition of geology, soils, and topography is essential in determining potential sites for future development, for farming and forestry, and for new parks, hiking trails, and open space. Maps relevant to geology, soils, and topography are

⁴ http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/priority_habitat/priority_habitat_home.htm

Maps 4-3 and 4-4, found at the end of this section. Please note there are no digitalized soil data for Franklin County.

Geology

The Town of Gill as we know it today is the result of millions of years of geologic history such as great upheavals of the earth's crust and the sculpting power of moving water, ice and wind. This distinctive physical base has determined the distribution of the town's water bodies, its soils and vegetation and its settlement patterns, both prior to and since colonial times. Gill's current landscape can be better understood through its geologic history.

The Connecticut Valley was formed as a result of continental drift, almost 200 million years ago. Streams flowing into the river from higher areas brought alluvium, including gravels, sand and silt. At the time, the area that is now the Town of Gill was located south of the equator. The Dinosaur era had begun, and the footprints of these giant reptiles are still visible in the rock formed from sediments deposited on the valley floor millions of years ago. By the close of the Dinosaur age, the entire eastern United States, including Gill, was part of a large featureless plain, known as the peneplain, leveled through erosion, with the exception of a few higher, resistant areas. Today, these granite mountaintops, called monadnocks, are still the high points in this region. Local examples include Mt. Wachusett, Mt. Greylock, and Mt. Monadnock in New Hampshire.



The view up through the forest understory reveals jutting cliffs near Barton Cove's plunge pools.

As the peneplain eroded, the less resistant rock eroded to form low-lying areas, while bands of schist remained to form upland ridges. By this time, the Connecticut Valley had been filled with

sediment, while streams that would become the Deerfield, Westfield, and Farmington Rivers continued to meander eastward. The westward-flowing streams would become more significant later on. Approximately 8 million years ago, as the Rocky Mountains were forming in the west, the eastern peneplain shifted upward a thousand feet. As a result of this steeper topography, stream flow accelerated, carving deep valleys into the plain. Today, the visible remnants of the peneplain are the area's schist-bearing hilltops, all at about the same 1,000-foot elevation.

Approximately 2 million years ago, accumulated snow and ice in glaciers to the far north began advancing under their own weight. A series of ice ages followed, eroding mountains and displacing huge amounts of rock and sediment. This last glacier scoured and polished the land into its final form, leaving layers of debris and landforms that are still distinguishable. During the end of the last ice age, Lake Hitchcock, a 150 mile long inland lake formed in the Connecticut River Valley.

Four forms of bedrock can be found in the Town of Gill: Turners Falls Sandstone, Mount Toby Conglomerate, Sugarloaf Arkose and Deerfield Basalt.

Soils

Soil is the layer of minerals and organic material that covers the rock of the earth's crust. All soils have characteristics that make them more or less appropriate for different land uses. Scientists classify soils by these characteristics, including topography; physical properties including soil structure, particle size, stoniness and depth of bedrock; drainage or permeability to water, depth to the water table and susceptibility to flooding; behavior or engineering properties, and biological characteristics such as presence of organic matter and fertility. Soils are classified and grouped into associations that are commonly found together.

What is Prime Farmland?

According to Natural Resources Conservation Service (NRCS), Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if managed with acceptable farming methods.

In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding.

The majority of Gill's soils fall into two major soil groups: Hollis-Charlton (about 45 percent) and Hinckley-Windsor-Merrimac (about 40 percent). The Hollis-Charlton group is typically well drained, varies in soil depth and can be characterized by both rolling and steep wooded hills. Ledges and rock outcroppings are also common to this group. The Hinckley-Windsor-Merrimac

group also has prime farmland capabilities. It is characterized by deep well-drained soils consisting of glaciofluvial deposits of sand, gravel and cobbles.

Within these soil types, soils can be classified as “hydric,” or having certain qualities from occurring in or near a wetland. Hydric soils are good indicators for wetland delineation. The identification of hydric soils can aid in the preservation and remediation of freshwater wetlands as mandated by the Wetlands Protection Act.

Many of the soil types in Gill have prime farmland capabilities. Those areas with a prime farm land classification are good candidates for land conservation and use restrictions. In order for land to qualify for an Agricultural Preservation Restriction, it must meet several criteria including soil type. Included in any application for an APR must be a United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) Soils Map showing a breakdown of the Project’s various soil types and acreage possessing soil capability Class I through VIII as well as prime farmland, soils of state or local significance, and unique soils.⁵ Note: These soil maps have not yet been digitized for Franklin County.



Photo courtesy of Creative Commons: <http://www.flickr.com/photos/bunkosquad/306062259/sizes/z/in/photostream/>
An inactive fault line runs along the French King Gorge, separating the towns of Gill and Erving.

⁵ http://www.mass.gov/agr/legal/regs/330_CM_22.00.pdf

Topography

The Town of Gill's topography is a result of glacial deposition and river erosion. Gill's terrain varies greatly in slope from level floodplains to steep river valley terraces. Elevations in Gill range from 150 feet at the junction of the Fall and Connecticut Rivers to 816 feet at the top of Pisgah Mountain. Unsorted glacial deposits of soil and rocks, or drumlins, are present throughout Gill's landscape. A fault line, inactive for more than 140 million years, is located along the French King Gorge at the border of Gill and Erving. Other significant geologic features include the plunge pools at Barton Cove, the falls at the Turners Falls Dam, and glacial eskers at the Town Forest.

Landscape Character

As discussed in Section 3, Gill's landscape character is one of rolling hills, river terraces, farmlands, and upland forests. Distinguishing Gill from other towns in the area are its woodland brooks and streams, the Connecticut and Fall Rivers that form its eastern, southern, and western borders, and Barton Cove in the southwestern corner of town. In addition, the majority of Gill is still either forest or rolling pasture, and it boasts a number of distinctive archaeological and geologic sites of interest.

Gill also has a number of wooded wetland areas, which contribute greatly to the overall scenic quality of the town and to wildlife habitat. Gill's rural character stems from its long history as both a farming community and a mill town.

Potential Changes in Development

The overall scenic character of Gill could be affected by a number of potential changes. Potential impacts of climate change could begin to push populations further west in the State and more of Gill's land could be used for residential development. Diminishing supplies of fossil fuels – and their potential rising costs – continue to cause people to turn to alternate sources of locally produced energy sources, such as wood, which could impact Gill's woodlands. Related to the rising costs of fossil fuels, costs of shipping foods long distances could cause an even greater demand for locally grown and processed food, potentially causing more land to be farmed in Gill. Land that is currently forested and that contains prime farmlands could be converted to farmland. With thoughtful planning, though, Gill's landscape character, and the Town overall, could remain largely intact and could even return to a more lively and productive farming community.

Water Resources

The water resources discussed in this section are shown on Map 4-5 at the end of this section.

Watersheds

The Town of Gill contains one major watershed, the Connecticut River Watershed. Fall River Watershed is a sub-watershed of the Connecticut. The Connecticut River is nationally significant in that in 1991, Congress established the Silvio O. Conte National Fish and Wildlife Refuge, the only refuge in the country to encompass an entire watershed – the Connecticut River watershed

in New Hampshire, Vermont, Massachusetts and Connecticut. Seven years later, in 1998, the Connecticut River became one of only fourteen rivers in the country to earn Presidential designation as an American Heritage River.

Watershed Protection

Local watershed associations include the Connecticut River Watershed Council⁶ (CRWC) which advocates for the entire, four-state Connecticut River watershed. The CRWC works to protect water—the river, its tributaries, lakes, fish; and the land, plants, and creatures connected to that water.

The CRWC has been conducting the following activities that include Gill:

- Bacteria Monitoring at Barton Cove: The CRWC has been conducting weekly monitoring of the state boat ramp at Barton Cove in the summer of 2011. In the last couple of years prior to 2011, they have done additional bacteria monitoring around the Cove, on the Gill and Montague sides, in order to better understand sources of occasional high readings at the state ramp. See <http://www.umass.edu/tei/mwwp/ctrivermonitoring.html>.
- CRWC continues to participate in advocacy related to the operation of Northfield Mountain pumped storage facility and the Turners Falls dam, with issues related to erosion, fish passage, and recreation. The CRWC are a member of the Connecticut River Streambank Erosion Committee. From 2009-2013, there are five ongoing streambank restoration projects along the riverfront in Gill.
- CRWC owns one piece of conservation land in Gill and has a conservation restriction on a riverfront property in Gill.
- In 2011, the CRWC facilitated a rain barrel workshop with the Gill Energy Committee as part of an effort to mitigate the impact of stormwater runoff on water resources.
- In 2008 and 2009, the CRWC received grants from several town cultural commissions (including Gill) to do a river song writing contest.

At the local level in Gill, the main mechanism in place to protect watersheds and surface waters are private and non-profit land trusts. The Conservation Commission also has the ability to impact watershed protection.

Source Water Assessment Program (SWAP)

Massachusetts has over 1,700 public water systems that provide drinking water to homes, schools, businesses, and industries. Over 90 percent of the state's population depends on public water supply sources, which are often vulnerable to contamination. More than 70 communities have shut down at least one source because it was contaminated. The Massachusetts Department of Environmental Protection (MassDEP) has had a strong water supply protection program since 1980. As a result, local water suppliers and municipal officials received more hydrogeological and planning assistance from MassDEP for improved protection of local drinking water sources.

MassDEP's SWAP process included the following:

- Delineated protection areas for all public ground and surface water sources;
- Inventoried land uses in these areas that may present potential threats to water quality;

⁶ http://www.ctriver.org/about_us/index.html

- Determined the susceptibility of water supplies to contamination from these sources; and
- Publicized the results.

Source Water Assessment reports help local and state officials target inspections and focus technical assistance where they are needed the most, encourage cooperative emergency response, and contribute to comprehensive protection of all public water sources.

The results of the Assessment show the top five potential threats to public water sources are:

1. Residential lawn care/gardening;
2. Residential septic systems and cesspools;
3. Residential fuel oil storage;
4. Stormwater discharge; and
5. State-regulated underground storage tanks.

MassDEP is using this information to target technical assistance and outreach work. What does the Assessment tell the residents of Gill? The Assessment will tell the following:

- Whether your drinking water is from a surface or a groundwater source,
- The locations of the wells or the intakes,
- The water supply protection area,
- Potential Sources of Contamination (PSC) within the protection areas,
- What recommended steps you should take to maintain or improve protection.⁷

Four drinking water well or intake locations were identified in Gill including

1. Northfield Mount Hermon
2. Gill Elementary School
3. Alan's Bar B Que
4. Oak Ridge Golf Club

Each location has an overall ranking of susceptibility to contamination for the wells as ~~high~~ "high." The Assessments are available to the public and can be accessed via the Massachusetts Department of Environmental Protection's website.⁸

Surface Water Resources⁹

The following inventory describes Gill's rivers, streams, brooks, and ponds and focuses on water quality issues and the public access and recreational value of these waters.

⁷ <http://www.mass.gov/dep/water/drinking/swapover.htm>

⁸ <http://www.mass.gov/dep/water/drinking/weroreps.htm#g>

⁹ The 2010 Massachusetts Integrated List of Waters prepared by the Department of Environmental Protection (DEP) is used as a source document for the Connecticut River and all listed surface waters within the Town of Gill. The State is required by the United States Environmental Protection Agency to identify water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls. In each case, the most severe pollutant is identified. Although the affected water bodies may contain other pollutants, the Integrated List of Waters only includes the results of evaluations upon which DEP has performed some measure of quality control.

Connecticut River

The Connecticut River has a “Class B” water quality designation from the New Hampshire-Vermont border to Holyoke and is classified as a warm water fishery. Class B waters should provide suitable habitat for fish and other wildlife, and should support primary recreational activities such as fishing and swimming. Class B water should also be suitable for irrigation and other agricultural uses. Land along the Connecticut River – and the River itself – contains NHESP/TNC BioMap2 and NHESP Priority Habitats of Rare Species.

Connecticut River Water Quality Assessment

The “Connecticut River Basin 2003 Water Quality Assessment Report” published in 2008¹⁰ by the Massachusetts Department of Environmental Protection presents a summary of water quality data/information in the Connecticut River Watershed by segment. The segment relevant to Gill runs from the Route 10 bridge in Northfield to the Turners Falls Dam in Gill. The complete text from this segment is available in the Appendix F of this plan.

Report Summary Status






This segment of the Connecticut River is assessed “Support” – or supporting of – all designated uses with the exception of fish consumption, which was assessed as “Impaired”. See Table 4-1.

Aquatic Life Status

Although aquatic life status is “support”, based upon the good survival of test organisms in toxicity tests and good water quality conditions. There is an alert status however, due to the regulated flow regime, severe bank erosion issues, the presence of non-native plant species and the risk that fish tissue contaminants pose to fish-eating wildlife.

Table 4-1: Connecticut River Use Summary Table

Connecticut River (Segment MA34-02) Use Summary Table

Designated Uses	Status
Aquatic Life 	SUPPORT*
Fish Consumption 	IMPAIRED Cause: PCB in fish tissue Source: Unknown
Primary Contact 	Recreation Primary Contact
Secondary Contact 	Recreation Secondary Contact
Aesthetics 	SUPPORT*

* Alert Status, see details in use assessment

Source: Connecticut River Basin 2003 Water Quality Assessment Report (2008)

Fish Consumption Status

Because of the site-specific fish consumption advisory for the Connecticut River due to PCB contamination, fish consumption status is assessed as “impaired”. Note: As this report is a

¹⁰ Note: The Connecticut River Basin 2003 Water Quality Assessment Report is the most current data report. River samples are taken every five years. Samples taken in 2008 will be published in 2013.

number of years old, the impaired fish consumption was reviewed to determine whether the status was still valid. In September 2011, the Massachusetts Health and Human Services Department had in place a Public Health Fish Consumption Advisory¹¹ as follows in Table 4-2.

Table 4-2: Public Health Fish Consumption Advisory

Water Body	Hazard	Advisory	Fish Type
Connecticut River	PCBs (polychlorinated biphenyls)	P1 Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body.	All fish
		P2 The general public should not consume Channel Catfish, White Catfish, American Eel or Yellow Perch from this water body.	American Eel Channel Catfish White Catfish Yellow

Source: 2011 Massachusetts Public Health Fish Consumption Advisory

Primary and Secondary Contact Recreation and Aesthetics Status

These uses are assessed as “support” based upon the low bacteria counts and the lack of objectionable deposits, odors or oils. However, these uses did receive an “alert” status given the turbid conditions, regulated flow regime and severe erosion issues identified upstream.

Report Recommendations

Report recommendations include the following:

1. Due to the presence of an invasive algae found in the river, boaters should follow a check-clean-dry protocol when exiting waters
2. Continue river-bank stabilization projects
3. Continue water quality testing
4. Continue monitoring for the presence of invasive non-native aquatic vegetation

According to the Connecticut River Five Year Action Plan 2002-2007 developed by the Massachusetts Executive Office of Environmental Affairs, the Town of Gill lies in the most rural portion (the Northern Reach) of the Connecticut River Watershed in Massachusetts. Important characteristics of this part of the watershed include agricultural lands, large tracts of forestland, and the presence of two hydroelectric facilities. The Plan lists the following objectives for the Northern Reach:

- Increase awareness of the importance of riparian buffers along the mainstem of the Connecticut River and its tributaries;
- Reduce human-influenced erosion along the mainstem and its tributaries;
- Restore vegetative riparian buffers where appropriate;
- Protect water quality through the implementation of growth management strategies;
- Obtain additional water quality data;
- Reduce non-point source pollution with a particular focus on the mainstem and four priority tributaries;
- Assist communities with the protection of drinking water resources;
- Improve fish passage;
- Encourage the protection of important wildlife habitat;

¹¹ http://webapps.ehs.state.ma.us/dph_fishadvisory/SearchTown.aspx?Town=Gill

- Complete an updated inventory of existing boat access points;
- Implement an education program for boaters; and
- Assist with the development of a public access point on the Fall River in Bernardston.

Barton Cove

A part of the Connecticut River Greenway State Park, the Barton Cove Access Ramp is located on Route 2, 1.5 miles east of the Gill-Montague Bridge. Barton Cove and buffering lands contain areas of NHESP/TNC BioMap2 and NHESP Priority Habitats of Rare Species. Of special significance is the Bald Eagle, which uses the shoreline as nesting, feeding and perching habitat.

Barton Cove Boat Access and Campground

A part of the Connecticut River Greenway State Park, the Barton Cove Access Ramp is located 1.5 miles east of Turners Falls on Rte. 2. The boat ramp can accommodate recreational motorboats, canoes, and fishing boats. The Barton Cove state boat ramp is one of three state-managed public access points on the Connecticut River in Franklin County. The two others are Pauchaug Access in Northfield and the Sunderland Access.

Barton Cove Campground

Located on a rocky peninsula jutting into the Connecticut River, Barton Cove is a recreational area owned and managed by FirstLight Power Resources. People can use the site for day trips and picnicking or for a week-long camping trip. Barton Cove has bathroom and tent camping facilities and minimal automobile access. The area boasts a nature trail along a scenic rocky ridge overlooking the river, an abandoned dinosaur footprint quarry, unusual rock formations, a multitude of ferns and wildflowers, plunge pools of ancient waterfalls, and views of sunsets and bald eagles over the Connecticut River. Canoes and kayaks can be rented on an hourly or daily basis in season. Rock formations hanging out over small coves are best viewed in a canoe or kayak.

Otter Run

Otter Run flows into the Connecticut River approximately opposite the midpoint of Kidd Island's western shore.

Fall River

Fall River is located along the town's western border with Greenfield. This river empties into the Connecticut just below the Turners Falls dam and is a scenic and historic asset to the town. There are former mill sites along the Fall River, and its course meanders between cascades, small waterfalls and pools. The mills once used it for hydropower, but it is now primarily a place for fishing, swimming and is an important habitat corridor for wildlife. The middle third of section of Fall River that borders Gill is within the NHESP/TNC BioMap2. The southernmost quarter mile of the river is within the NHESP Priority Habitat of Rare Species.

Dry Brook

Dry Brook originates in the Town of Bernardston and flows into the Connecticut River near Grist Mill Road. At one time, Dry Brook was used to power five mills along its banks. Two of

the mills were known as Janes' Grist Mill and were located approximately 1,500 feet from the brook's confluence with the Connecticut River.

The entire length of Dry Brook is within the NHESP/TNC BioMap2 and is also designated as an NHESP Priority Habitat of Rare Species. Dry Brook supports a dense population of Eastern Pearlshell, a species of freshwater mussel known from only twenty-two water bodies in Massachusetts. This species inhabits streams and rivers that are cool and clean enough to support trout, its fish host.



Remnant of one of several grist mills in Gill tumbles into this stream.

Otter Brook

Otter Brook is located in the northern portion of Gill, is a tributary of Dry Brook and is fed by Otter Pond. There is also a sixty-acre marsh on Otter Brook off Ben Hale Road.

Beaver Brook

Beaver Brook is a tributary of Dry Brook. It originates in a wetland off Mountain Road and flows through Gill Center. It contains habitats for rare and endangered species.

Ashuela Brook

Ashuela Brook originates at Shadow Lake and flows into the Connecticut River approximately opposite the downstream end of Kidd Island. Parts of Ashuela Brook are within the NHESP/TNC BioMap2 and are also designated as NHESP Priority Habitat of Rare Species.

Lily Pond

Lily Pond is located off Barton Cove and is a plunge pool created by a glacial dam. It is considered part of the same NHESP area as Barton Cove.

Shadow Lake

Shadow Lake is a five and one-half acre lake located on the Mount Hermon Campus in the northeastern portion of Gill.

Cascade Brook

Cascade Brook, located in western Gill, flows into the Fall River near South Cross Road. The brook has a set of falls known as the Cascades located off South Cross Road. A wheelwright shop was once located at the falls.

Otter Pond

Otter Pond is a shallow six-acre pond located in the northwestern corner of Gill between Hoe Shop Road and Dole Road.

There are a number of other un-named streams, ponds and wetlands in Gill that are located in the Connecticut River Watershed.

Aquifer Recharge Areas

Aquifers are composed of water-bearing soil and minerals, which may be either unconsolidated (soil-like) deposits or consolidated rock. Consolidated rock, also known as bedrock, consists of rock and mineral particles that have been welded together by heat and pressure or chemical reaction. Water flows through fractures, pores and other openings. Unconsolidated deposits consist of material from the disintegrated consolidated rock like gravel and sand. Water flows through openings between particles.

As water travels through the cracks and openings in rock and soil, it passes through a region called the “unsaturated zone,” which is characterized by the presence of both air and water in the spaces between soil particles. Water in this zone cannot be pumped. Below this layer, water fills all spaces in the “saturated zone”. The water in this layer is referred to as “groundwater”. The upper surface of the groundwater is called the “water table” (Masters, Gilbert. *Introduction to Environmental Engineering and Science, Second Edition*, 1998).

The route groundwater takes and the rate at which it moves through an aquifer is determined by the properties of the aquifer materials and the aquifer’s width and depth. This information helps determine how best to extract the water for use, as well as determining how contaminants, which originate on the surface, will flow in the aquifer.

Aquifers are generally classified as either unconfined or confined (EPA and Purdue U.; 1998). The top of an unconfined aquifer is identified by the water table. Above the water table, in the unsaturated zone, interconnected pore spaces are open to the atmosphere. Precipitation recharges the groundwater by soaking into the ground and percolating down to the water table. Confined aquifers are sandwiched between two impermeable layers (Masters; 1998). Almost all the public wells in Massachusetts, including those in Gill, and many private wells tap unconfined aquifers (Mass. Audubon Society; 1985). Wells that rely on confined aquifers are referred to as “artesian wells.”

Gill's surficial geology has characteristics that would support medium yield aquifers. A medium-yield aquifer provides a yield of between 25 and 1000 gallons per minute. According to MassGIS¹² and the United States Geological Survey (USGS), the following areas support medium-yield aquifers:

- An area approximately three-fourths of a mile to the north of Munn's Ferry Road and approximately one mile to the south of Munn's Ferry Road, along the Connecticut River;
- An area approximately one half mile to the north of Pisgah Mountain Road and approximately one half mile to the south of Pisgah Mountain Road, along the Connecticut River; and
- An area bordered by the town's border with Bernardston, Boyle Road, the intersection of Main Road and Cross Road and Dry Brook

Flood Hazard Areas

Flooding along rivers is a natural occurrence. Floods happen when the flow in the river exceeds the carrying capacity of the channel. Some areas along rivers flood every year during the spring, while other areas flood during years when spring runoff is especially high, or following severe storm events. The term "floodplain" refers to the land affected by flooding from a storm predicted to occur at a particular interval. For example, the "one hundred-year floodplain," is the area predicted to flood as the result of a very severe storm that has a one percent chance of occurring in any given year. Similarly, the 500-year floodplain is the area predicted to flood in a catastrophic storm with a 1 in 500 chance of occurring in any year.

According to the Town of Gill Multi-Hazard Mitigation Plan, there are approximately 583 acres within the 100 year floodplain in Gill. The plan identifies the Riverside section of Gill as a flood prone area in Town. Other areas within floodplain include the area along the Connecticut River in the farmland area northeast of Stacey Mountain, and in the area of Barton Cove, along the Fall River, Dry Brook and Otter Brook.

Wetlands

Wetlands are transitional areas where land-based and water-based ecosystems overlap. Inland wetlands are commonly referred to as swamps, marshes and bogs. Technically, wetlands are places where the water table is at or near the surface or the land is covered by shallow water. Sometimes, the term wetland is used to refer to surface water as well.

Historically, wetlands have been viewed as unproductive wastelands, to be drained, filled and "improved" for more productive uses. Over the past several decades, scientists have recognized that wetlands perform a variety of extremely important ecological functions. They absorb runoff and prevent flooding. Wetland vegetation stabilizes stream banks, preventing erosion, and trap sediments that are transported by runoff. Wetland plants absorb nutrients, such as nitrogen and phosphorus, which would be harmful if they entered lakes, ponds, rivers and streams. They also absorb heavy metals and other pollution. Finally, wetlands are extremely productive, providing food and habitat for fish and wildlife. Many plants, invertebrates, amphibians, reptiles and fish depend on wetlands to survive. Wetlands have economic significance related to their ecological

¹² MassGIS 2007 Aquifer Data Layer information: <http://www.mass.gov/mgis/aq.htm>

functions: it is far more cost-effective to maintain wetlands than build treatment facilities to manage stormwater and purify drinking water, and wetlands are essential to supporting lucrative outdoor recreation industries including hunting, fishing and bird-watching.



This woodland wetland provides important habitat for wildlife in Gill.

In recognition of the ecological and economic importance of wetlands, the Massachusetts Wetlands Protection Act is designed to protect eight “interests” related to their function: public and private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution, land containing shellfish, fisheries, and wildlife habitat. To this end, the law defines and protects “wetland resource areas,” including banks of rivers, lakes, ponds and streams, wetlands bordering the banks, land under rivers, lakes and ponds, land subject to flooding, and “riverfront areas” within two hundred feet of any stream that runs all year. Local Conservation Commissions are responsible for administering the Wetlands Protection Act; some towns also have their own, local wetlands regulations.

Many of Gill’s wetlands can be found in its uplands in isolated forested areas. Some of these wetlands are mapped by the National Wetlands Inventory (NWI).¹³ Nearly all the wetlands mapped by NWI in Gill are classified as “freshwater forested/shrub”, defined as a forested swamp or wetland shrub bog or wetland.¹⁴ Most upland wetlands are associated with the headwaters of the major stream systems in town.

Vernal Pools¹⁵

Vernal pools are unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed. Vernal pools, also known as ephemeral pools, autumnal pools, and temporary woodland ponds, typically fill with water in the autumn or winter due to rising ground

¹³ <http://www.fws.gov/wetlands/Data/Mapper.html>

¹⁴ <http://www.mass.gov/mgis/nwi.htm>

¹⁵ http://www.mass.gov/dfwele/dfw/nhosp/vernal_pools/vernal_pools.htm

water and rainfall and remain ponded through the spring and into summer. Vernal pools may be very shallow, holding only 5 or 6 inches of water, or they may be quite deep. They range in size from fewer than 100 square feet to several acres. Vernal pools are found across the landscape, anywhere that small woodland depressions, swales or kettle holes collect spring runoff or intercept seasonal high groundwater, and along rivers in the floodplain. Many species of amphibians and vertebrates are completely dependent on vernal pools to reproduce. Loss of vernal pools can endanger entire populations of these species.

NHESP has a program to certify the existence of vernal pools when evidence is submitted to document their location and the presence of breeding amphibians that depend on vernal pools to survive. Certified vernal pools are protected by the Massachusetts Wetlands Protection Act and by additional state and federal regulations. Landowners are not required to report the existence of vernal pools on their property and landowner permission must be obtained prior to any person attempting to certify a vernal pool on private property. According to MassGIS data, there are 46 potential vernal pools in Gill and 3 certified vernal pools.¹⁶

Potential Sources of Public and Private Drinking Water Supply Contamination

Potential sources of contamination of public and private wells include septic systems, sub-surface fuel tanks, manure piles, improper use, storage and disposal of hazardous materials, herbicide runoff from farmland, utility rights-of-way, and state highway vegetation control, and road runoff.

More information on drinking water supply contamination and mitigation can be found at <http://www.mass.gov/dep/water/drinking/sourcewa.htm>.

Vegetation

The vegetated landscape of Gill includes mixed hardwood forests, farmlands and riparian lands. Farmland is made up of crop fields and rolling fields for grazing. Land that borders the Connecticut River is not the broad, flat plains characteristic of much of the Connecticut River Valley but instead is often quite steep wooded embankments. Examples of this can be seen at Barton Cove and at the French King Gorge.

Forests

Forests constitute one of the most important natural resources in the Town of Gill and in the region. While much of the town's lands are forested, privately owned forest is much more common than publicly owned. The extent of forest cover in Gill is shown in Map 4-3 at the end of this section. The values of large blocks of contiguous forestland are many. Some primary values include:¹⁷

- Ecosystem Services. Woodlands have significant ecosystems values, including water supply, nutrient retention, carbon sequestration, and climate stabilization. Large blocks of

¹⁶ According to January 2010 MassGIS Data, <http://www.mass.gov/mgis/ftpstate.htm>, there are 3 certified vernal pools in Gill. The NHESP website data, also from 2010, there are 4.

¹⁷ Wildlands and Woodlands: A Vision for the New England Landscape, Harvard Forest, Harvard University, 2010.

contiguous forests support groundwater recharge and provide ample clean water for humans. Another significant woodland service is mitigation of climate change through carbon dioxide uptake and storage.

- Habitat Connectivity. Large blocks of contiguous forest help support biodiversity and the successful migration of plant and animal species impacted by fragmentation such as that caused by new development. Forestland provides habitat for wildlife species that require a certain amount of deep forest cover and separation for humans.
- Recreation and Tourism. Forestland also provides a natural infrastructure for tourism and recreation economy. Fall foliage season is a vital part of the Western Massachusetts economy, drawing visitors to the area for leaf peeping, contributing to the hospitality industry and other sectors of the economy. Forestland also provides places for hiking, skiing, bird watching, hunting, paddling, and other outdoor activities.



A mixed hardwood forest rises up alongside Barton Cove.

Fragmentation of large blocks of contiguous forestland can be caused by a variety of impacts including:¹⁸

- Deforestation and development including subdivisions, commercial complexes, roads and infrastructure.
- Perforation of contiguous forestland including individual houses – and their associated driveways, lawns and human activities – on large parcels of land.
- Climate change – including wide fluctuations in temperature, precipitation, and length of growing season – causing impacts such as outbreaks of certain diseases and pests and changes in the range of certain plants and animals. These changes could have real impacts to the local economy such as a decline in maple sugaring.\
- Adverse forest practices such as clear cutting with erosion that often follows.

¹⁸ Ibid.

- Parcelization including increased number of owners – often absentee – and decreased parcel size.
- Invasive organisms including insects, plant species and pathogens.

The woodlands in Gill are used for hiking and nature study and are important habitat for wildlife. They also add to the scenic and rural character of the town. Gill’s forests include species associations common to the Hemlock-Northern Hardwoods Forest to the north and the Appalachian-Oak Forest to the south.

Forested lands in Gill are at varied stages of growth due to the changes in landscape, elevation and exposure to elements. Table 4-2 gives a general inventory of the typical species in Gill.

Table 4-2: General Inventory of Forest Types in the Town of Gill

Forest Type	Common Trees, Shrubs and Herbaceous Vegetation
Hemlock-Northern Hardwoods Forest	Eastern hemlock, sugar maple, red maple, American beech, yellow birch, paper birch, white ash, white pine, willow, speckled alder, sedges
Appalachian-Oak Forest	
Higher elevations	White oak, red oak, shagbark hickory, bitternut hickory, black cherry, white ash, American basswood, Eastern cottonwood
Lower elevations	American sycamore, silver maple, box elder, staghorn sumac, smooth sumac

Source: USDA; 1992

Public Shade Trees

Public shade trees are located in Gill Town Center, most notably, a majestic sycamore adjacent to the Town Hall. Public shade trees are also located in Town right of ways, at the Slate Library and in Town cemeteries. In a Town as heavily forested as Gill, preserving public shade trees may seem unnecessary; however, loss of trees in public spaces can significantly change the character of that place. Some methods towns use to protect shade trees include adopting a scenic roads bylaw, limiting the amount of salt used on roads, and requiring replacement of any trees that are lost.

Agricultural Land

In 2005, according to MassGIS data, of the total 9,478 acres of land in Gill, there were approximately 1,600 acres or 17% of agricultural land (includes cropland and pastureland). This number is down slightly from the estimated 20% in 1999. However, during this time, methodology for classifying land has changed. This change may account for the decline from 1999 to 2005.

In 2011, the Gill Agricultural Commission’s *Gill Farms: A Guide to Buying Gill Products and Supporting Agriculture in Our Community* indicated the number of small family farms are on the rise.¹⁹ Active farmland with prime farmland soils (shown in Map 4-3) in Gill is primarily

¹⁹ Steve Damon, Chairperson, 2011 Gill Agricultural Commission

located along the Connecticut River, the upper Fall River, Cascade Brook, Otter Brook, Dry Brook, Ashuela Brook, and along Main Road. Other active farmland can be found along West Gill Road, River Road, North Cross Road, Mount Hermon Road, Boyle Road, Route 2 and Franklin Road.

Vegetation in agricultural lands can include crops and fields for grazing. Along with grasses, farm fields contain many perennial herbaceous plant as well as some invasive plants, such as multiflora rose, buckthorn, and bittersweet. Farm field edges are often in an early successional forest stage, containing shrubs and small trees. These edges serve as important areas for forage, cover and escape for wildlife.

Wetland Vegetation

As discussed on previously in the Wetlands subsection, wetlands provide important ecological functions and offer important wildlife habitat. Typical wetlands in Gill are forested deciduous swamps. Vegetation found in these wetlands can vary, depending upon shade and other conditions. Some typical plants found in and near Gill wetlands are red maple (*Acer rubrum*), eastern hemlock (*Tsuga Canadensis*), winterberry (*Ilex verticillata*), sedges (*Carex* spp.), ferns, and skunk cabbage (*Symphlocarpus*).

Rare, Threatened, and Endangered Plant Species

The Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife has designated several “Priority Habitat” areas in the Town of Gill (see Map 4-2). A Priority Habitat is an area where plant and animal populations protected by the Massachusetts Endangered Species Act Regulations (321 CMR 10.00) may occur. These areas include:

- Along the banks of the Connecticut River;
- An area in the northeastern corner of Gill along Mount Hermon Road and the intersection of Mount Hermon Road and Main Road;
- An area along the eastern end of North Cross Road;
- Along Ashuela Brook from its confluence with the Connecticut River to approximately three-fourths of a mile upstream;
- An area along Main Road in the central portion of Gill, just northeast of Wyart Road;
- Along Pisgah Mountain Road; and
- An area to the west of Barney Hale Road (see Water Resources and Wildlife Habitat Maps).

Statewide, NHESP has identified 259 native plant species as rare, threatened or endangered. Twelve rare plant species have been documented in the Town of Gill (see Table 4-3).²⁰ These plants occur in some of the Priority Habitats identified above.

²⁰ These data were extracted from the database of the Natural Heritage and Endangered Species Program in September 2009: http://www.mass.gov/dfwele/dfw/nhesp/species_info/town_lists/town_g.htm#gill

Table 4-3: NHESP Rare Plant Species in the Town of Gill

Scientific Name	Common Name	MESA* Status	Most Recent Observation
<i>Aplectrum hyemale</i>	Putty-root	Endangered	2007
<i>Boechera missouriensis</i>	Green Rock-cress	Threatened	2008
<i>Carex grayi</i>	Gray's Sedge	Threatened	2008
<i>Cerastium nutans</i>	Nodding Chickweed	Endangered	2004
<i>Deschampsia cespitosa</i> ssp. <i>glauca</i>	Tufted Hairgrass	Endangered	1991
<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	White Adder's-mouth	Endangered	2005
<i>Minuartia michauxii</i>	Michaux's Sandwort	Threatened	2005
<i>Morus rubra</i>	Red Mulberry	Endangered	1987
<i>Prunus pumila</i> var. <i>depressa</i>	Sandbar Cherry	Threatened	1984
<i>Symphotrichum tradescantii</i>	Tradescant's Aster	Threatened	2008
<i>Tillaea aquatica</i>	Pygmyweed	Threatened	1980
<i>Viola adunca</i>	Sand Violet	Special Concern	2005

*Massachusetts Endangered Species Act. Source: NHESP 2010

NHESP has produced fact sheets for some species which are available at http://www.mass.gov/dfwele/dfw/nhesp/species_info/ mesa_list/ mesa_list.htm. The fact sheets include the species status, description, aids for identifying and habitat as well as drawings or photos, such as those shown below of *Morus rubra* or Red Mulberry. Plants (and animals) listed as *endangered* are at risk of extinction (total disappearance) or extirpation (disappearance of a distinct interbreeding population in a particular area). *Threatened* species are likely to become endangered in the foreseeable future. Species of special concern have been documented to have suffered a decline that could result in its becoming threatened, or occur in very small numbers and/or have very specialized habitat, the loss of which could result in their becoming threatened.



NHESP identifies *Morus rubra* (Red Mullberry) as endangered. Photos from NHESP *Morus Rubra* fact sheet and by Charles S. Eiseman

Unique Natural Resources

Gill's unique natural resources are discussed and inventoried in Section 4-G and are mapped at the end of Section 4. Dinosaur footprint quarries, a record of Gill's history, are located in several areas in Gill. Other unique natural resources include the French King Gorge and Barton Cove.

Vegetation Mapping Projects

As part of annual Biodiversity Days, efforts have been started to map vegetation in the Town Forest. A goal for future mapping projects are including in the Seven-Year Action Plan.

Fisheries and Wildlife

Gill's forests, rivers, wetlands and open farmland provide habitat for a variety of common and rare wildlife species. This section discusses wildlife species and their habitats from the perspective of natural communities, individual species, and patterns of wildlife distribution and movement across the landscape.

Natural Heritage Endangered Species Program and the Natural Conservancy BioMap2 show Core Habitats critical for the long-term persistence of rare species and Critical Natural Landscape, including buffers along Core Habitats. (BioMap2 is discussed in more detail at the beginning of Section 4.) These areas mapped in Gill are shown in Map 4-1 at the end of this section. The most notable pattern of Core Habitat is the significant area that buffers the entire length of the Connecticut River in Gill. There is also a large area of Core Habitat in the south central part of Gill, between Barney Hale Road and Mountain Road. These areas provide habitat for rare species in Gill.

In addition to BioMap2, Natural Heritage Endangered Species Program maintains a list of all Massachusetts Endangered Species Act (MESA)-listed species observed and documented in each Massachusetts town. These lists are updated once a year or when there are approved MESA list changes and are shown in the following pages.

Wildlife Corridors

Wildlife and fisheries populations move along corridors such as rivers, riparian areas, ridgelines, farm fields, and forested slopes. Wildlife seek natural cover for shelter and food and forage where human uses, such as horticultural and ornamental plantings, provide browse or food. Remote large blocks of forestland, riparian areas, farm fields, and the parcels of land connecting them together, are important areas to preserve and protect in Gill.

General Description and Inventory of Wildlife and Wildlife Habitats

Amphibians and Reptiles

Diverse amphibian and reptile species inhabit Gill. Large tracts of forested uplands and forested riparian corridors provide excellent habitat that supports amphibians and reptiles. Vernal pools and wetlands are essential habitat for two-thirds of the Commonwealth's amphibious species. Table 4-4 shows the rare amphibian and reptile species identified in Gill. The Jefferson salamander is a species of concern that inhabits upland forest areas near ponds or vernal pools. Also found in Gill are the marbled salamander, a threatened species and the wood turtle, a

species of special concern. Identifying and protecting the habitats are the best means to ensure that these species remain a part of the New England biota.

Table 4-4: NHESP Rare Amphibian and Reptile Species in the Town of Gill

Taxonomic Group	Scientific Name	Common Name	MESA* Status	Most Recent Observation
Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	Special Concern	1997
Amphibian	Ambystoma opacum	Marbled Salamander	Threatened	1997
Reptile	Glyptemys insculpta	Wood Turtle	Special Concern	2003

Source: NHESP MESA Massachusetts List of Endangered, Threatened and Special Concern Species, updated 2008

The forests, wetlands and other surface waters in Gill are home to nine snake species, five turtle species, nine frog and toad species and seven species of salamanders, such as the spotted salamander and the eastern newt.

Fish and Mussels

Migratory fish species such as shad and salmon once inhabited the Connecticut River in great numbers. When the Turners Falls dam was built in 1798 and subsequent dams were built further downstream, the salmon stopped running in the Connecticut River. FirstLight Power Resources is maintaining a fish ladder at Turners Falls in order to aid the comeback of this once abundant species.

As shown in Table 4-5, three fish species and one mussel species make NHESP’s list of rare species. The shortnose sturgeon is listed as endangered on both the state and federal level. Shortnose sturgeon spawn in fast flowing rocky areas and Longnose suckers are found primarily in cool upper sections of streams and rivers.

Table 4-5: NHESP Rare Fish and Mussel Species in the Town of Gill

Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
Fish	Acipenser brevirostrum	Shortnose Sturgeon	Endangered	Endangered	1993
Fish	Catostomus catostomus	Longnose Sucker	Special Concern		2005
Fish	Lota lota	Burbot	Special Concern		2000
Mussel	Alasmidonta varicosa	Brook Floater (Swollen Wedgemussel)	Endangered		Historic

Source: NHESP MESA Massachusetts List of Endangered, Threatened and Special Concern Species, updated 2008

Other migratory species found in Gill are shad, blueback herring and alewife. Non-migratory species present in the Connecticut River are walleed pike, carp and bass. Shadow Lake has a native population of blue-gill, crappie, perch and pickerel.

Fall River is stocked with trout for recreational fishing and native brook trout are found throughout the town’s waterways.

Birds

The Connecticut River Valley is a part of a major migratory flyway from North to South and vice versa. Game birds include ruffed grouse, woodcock, black duck, and mallard. Many shorebirds visit the Connecticut riverbanks in the summer months. Some examples of Gill shorebirds are killdeer, yellow legs, green heron, great blue heron, and spotted sandpiper.



Cistothorus platensis – or Sedge Wren – is one of two bird species listed as endangered in Gill.

Other bird species in Gill include the common loon, osprey, snow geese, wild turkey, Canada goose, hawks, falcons, nighthawks and swallows. A nesting pair of American Bald Eagles has resided on Barton Island for about a decade. In addition, the river valley is important habitat for songbirds and other migratory birds.

As shown in Table 4-6, the American bald eagle and the sedge wren are the two bird species in Gill currently identified as endangered by NHESP.

Table 4-6: NHESP Rare Bird Species in the Town of Gill

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Bird	Cistothorus platensis	Sedge Wren	Endangered	1996
Bird	Haliaeetus leucocephalus	Bald Eagle	Endangered	2009

Source: NHESP MESA Massachusetts List of Endangered, Threatened and Special Concern Species, updated 2008

Dragonflies and Damselflies

As shown in Table 4-7, there are nine species in the dragonfly/damselfly taxonomic group on NHESP's list of rare species for Gill.

Table 4-7: NHESP Rare Dragonfly/Damselfly Species in the Town of Gill

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Dragonfly/Damselfly	<i>Enallagma carunculatum</i>	Tule Bluet	Special Concern	1997
Dragonfly/Damselfly	<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	Endangered	2008
Dragonfly/Damselfly	<i>Gomphus fraternus</i>	Midland Clubtail	Endangered	2002
Dragonfly/Damselfly	<i>Gomphus vastus</i>	Cobra Clubtail	Special Concern	2008
Dragonfly/Damselfly	<i>Gomphus ventricosus</i>	Skillet Clubtail	Special Concern	2008
Dragonfly/Damselfly	<i>Neurocordulia yamaskanensis</i>	Stygian Shadowdragon	Special Concern	2008
Dragonfly/Damselfly	<i>Ophiogomphus aspersus</i>	Brook Snaketail	Special Concern	2007
Dragonfly/Damselfly	<i>Stylurus amnicola</i>	Riverine Clubtail	Endangered	2008
Dragonfly/Damselfly	<i>Stylurus spiniceps</i>	Arrow Clubtail	Threatened	2008

Source: NHESP MESA Massachusetts List of Endangered, Threatened and Special Concern Species, updated 2008

Mammals

Though many larger mammals were driven out or killed off by colonists in the nineteenth century, some are slowly returning to the area as forests have grown back across the landscape. Black bear, white-tailed deer and beaver are making a comeback in some parts of the region. Mammal species common to Gill and surrounding towns are: Eastern coyote, opossum, gray fox, red fox, eastern cottontail, New England cottontail, flying squirrel, gray squirrel, red squirrel, varying hare, mink, otter, porcupine, skunk, raccoon, fisher cat, bobcat and weasel. The NHESP list of rare species cites no mammals for Gill.

Conserving Gill's Biodiversity

Island Biogeography and landscape ecology are concepts which can be used to help explain Gill's options for pursuing the conservation of the town's biodiversity. The theory of island biogeography is based on observations that biodiversity is greater on large islands than on small ones, and greater on islands that are close to the mainland. The concept of islands surrounded by water has been applied to the idea of "islands" of protected open land surrounded by developed areas. Based on this theory, ecologists predict that increasing the size of a protected land area increases its biodiversity (MacArthur and Wilson; 1967). Therefore, connecting two protected areas via a protected corridor to create one large area should also increase natural biodiversity (Wilson and Willis; 1975).

Another model for wildlife habitat protection aggregates similar land uses while allowing other uses in discrete areas (Forman; 1997). This model is reflected in Gill in areas where agriculture is concentrated along river or stream corridors. This model allows large blocks of forest to remain intact. Individual animals move within a landscape and seek cover for shelter and food. Some species willingly forage where human uses, such as farm fields, gardens and trash cans

provide browse or food. As the land within Gill continues to be fragmented by development, it is reasonable to expect that remaining large blocks of undeveloped forest and the parcels of land connecting them will become more important to area wildlife.

Many species of wildlife in Gill have home ranges greater than fifty acres in size. Even those species with smaller home ranges move across the landscape between sources of shelter, water, food and mating areas. Some animals, including white-tailed deer and black bear, seek both interior forest habitat and wetland edges where food sources may be more abundant. Permanently protected wildlife corridors are particularly critical in a landscape which is experiencing development pressures, to ensure that animals have the ability to travel across vegetated areas between large blocks of habitat.

Connections between bodies of water and sub-watersheds are also important for wildlife and fisheries species. Some of the more common animals that use river and stream corridors are beaver, muskrat, raccoon, green heron, kingfish, snapping turtle, and many species of ducks, amphibians, and fish. Since many species rely on a variety of habitats during different periods of their life cycle, species diversity is greatest in areas where several habitat types occur in proximity to each other. With this in mind, the protection of all habitat types is vital for maintaining and enhancing biodiversity in Gill.

How will the Town of Gill determine the most appropriate conservation strategies for wildlife habitat? There are some general paths to follow in conserving the health of wildlife populations. One is to protect the habitat of specific species that are rare, threatened, or endangered. It is thought that other species will also benefit from this strategy. A second path is to conserve landscape-level resources such as contiguous forest or riparian areas. This helps to protect the habitats of a large number of species, but it might not meet the needs of all rare and endangered species. The third method is a combination of the first two. Maintaining the biodiversity of Gill over the long term will likely require the protection of both unique habitats for specific species and networks of habitat across the landscape.

Conservation strategies for the town to consider include monitoring of species locations, numbers, and movements; the protection of core habitat areas as identified by the NHESP BioMap2; the continued protection and linkage of large blocks of contiguous forestland; the retention of early successional habitats like fields and grasslands; and the protection of vernal pools, wetlands, and riparian corridors that sustain the greatest diversity of life in Gill.

Scenic Resources and Unique Environments

The characteristics that allow a stranger to distinguish Gill from other towns in the region may be different than the unique qualities and special places that only residents can really know. This section – along with the natural and historic resources discussed in Section 3 – identifies the scenic resources and unique environments that most town residents would agree represent the essence of Gill's character. In many ways the history of Gill – how people came to settle the land, use its resources, and enjoy its forests, streams, and bodies of water – can be seen in the landscapes that have retained a sense of the past. The unique environments in Gill play a very

important role in providing residents with a sense of place. Brooks, mountains, wetlands, and village centers provide markers on the landscape within which we navigate our lives.

Scenic landscapes often derive their importance from their location relative to other landscape features. The purpose of inventorying scenic resources and unique natural environments in Gill is to provide a basis for setting resource protection. Note: For the purposes of capturing all significant resources in one table, Table 4-4 includes historic resources cited in Section 3. The locations of the resources shown in Table 4-4 are shown in Map 4-6 at the end of this Chapter.

Table 4-4: Significant Gill Resources and Scenic Landscapes/Environments

Map #	Historic Resources
H1	Riverside Archaeological District
H2	Bascomb Hollow
H3	French King Bridge
H4	Water power mill sites (three)
H5	Old bridge crossing
H6	Cemeteries (four)
H7	Factory Hollow
H8	Capt. Turner Monument
H9	Old Red Bridge Anchor
H10	Sunset Rock
H11	Munn's Ferry
H12	Stacy's Ferry
H13	Miller's Ferry
Map #	Recreation Resources
R1	Oak Ridge Golf Course
R2	Riverside School Recreation Area
R3	Barton Cove Recreation Area (FirstLight Power Resources)
R4	State Boat Ramp
R5	Gill Elementary School
R6	Town Forest
Map #	Natural Resources
N1	Shadow Lake
N2	Otter Pond
N3	Otter Brook
N4	Dry Brook (formerly known as Unadilla Brook)
N5	Ashuela Brook
N6	Otter Run
N7	Fall River
N8	Fall River Tributary –"Cascades"
N9	Beaver Brook
N10	Dry Brook –"Cascades"
N11	Connecticut River
N12	Great Falls & Great Island
N13	Route 2 Geologic Corridor

N14	Submerged dinosaur footprint quarry
N15	Armored mudballs
N16	Dinosaur footprint quarry
N17	Dinosaur footprint quarry
N18	Barton Island
N19	Dinosaur footprint quarry
N20	French King Gorge
N21	French King Rock
N22	Lily Pond
N23	Horse Race
N24	King Phillip's Abyss
Map #	Scenic Resources
S1	Mt. Hermon Campus & Scenic Vista
S2	Bascom Hollow/Bascom Road
S3	West Gill Road
S4	Historic & Scenic Farm Area (Main Road north)
S5	Munn's Ferry Road
S6	Pisgah Mountain
S7	Historic & Scenic Farm Area (Main Road south)
S8	Grist Mill Road
S9	Pisgah Mountain Road
S10	Stacey Mountain & Scenic Vista
S11	River Road
S12	Riverview Drive
S13	Great Falls Overlook
S14	Mohawk Trail
S15	French King Bridge & Scenic Vista

Source: 2011 Open Space and Recreation Plan Committee

Environmental Challenges

There are two main environmental challenges in Gill:

- Fragmentation of farm and forestland, and
- Connecticut River bank erosion.

Farm and Forestland Fragmentation

Although there may not be agreement as to its severity or solution, the demand for single-family detached housing in Gill and in the region appears to be growing at a faster rate than in the state overall. Gill is far from immune to these regional trends. Taking other constraints into consideration including wetlands and buffer areas to surface waters, 7,606 acres of land could still be developed in town. This is equal to 80 percent of the town. While the scenario is unlikely, there is enough land in town to fit approximately 3,800 more building lots (based on 2-acre zoning). This means that 9,500 residents could potentially live in Gill at some point in the future.

Many of the largest undeveloped parcels in town are also the most suitable for development and include farm and forestland with slopes under 25 percent, which are also not protected from development. These open and forested lands contribute most to the town's rural character and are owned by a handful of families. Their agricultural businesses maintain the landscapes as they are: pastoral, historic, and overall, simply breathtaking. Were these farm businesses to fail, the future of the farms and their families, the farm and forestlands, as well as the rural character of the town itself, would be in jeopardy.

Unplanned residential development across town would also increase non-point source pollution like road runoff and reduce the value of remaining wildlife habitat. Increases in runoff would diminish the biodiversity in the stream network all over town. One solution to the problem could be a combination of zoning techniques applied to encourage development in suitable areas and land conservation to minimize development in those areas with the cultural, historic, scenic, natural, archeological, and natural resources values, which are also most threatened from development.

Planning for development – where and how to develop – is perhaps just as important as planning for conservation. Conserving any and all land without considering its value as a potential residential, commercial or industrial site might ultimately force further fragmentation. As such, an Action Item to continue to assess areas of potential development is included in the Action Plan.

Erosion and Sedimentation on the Connecticut River

Northfield Mountain Pumped Storage Project

The following text was developed by the Natural Resources Program of the Franklin Regional Council of Governments Planning Department, for the Final Project Report for the Connecticut River Watershed Restoration Phase II.

The Northfield Mountain Pumped Storage Project, completed in 1970, is located about five miles upstream of the Turners Falls dam. The concept behind the Pumped Storage Project is simple. This facility only provides power when it is needed; for example, during periods of peak demand. Water is pumped from the lower reservoir (the Connecticut River) to the upper reservoir (elevation 1,000 feet) that is located atop Northfield Mountain. The 300-acre upper reservoir holds 5.5 billion gallons of water. During periods of peak demand, water is released to the lower reservoir via the turbines to generate electricity. The power generating/pumping facility is located completely underground and consists of four 250 thousand kilowatt reversible pump turbines. Each of these turbines can pump a maximum of 22,500 gallons per second of river water up to the upper reservoir. To generate electricity, each turbine can discharge water from the upper reservoir back to the river at a maximum rate of 33,700 gallons per second.

During the construction of the Pumped Storage Project, the dam at Turners Falls was raised to accommodate a power generating facility to elevation 185.5 feet. A 2,500-acre lower reservoir, known as the Turners Falls Power Pool, was created behind the dam. The Turners Falls Power Pool is a 22-mile long reach of the Connecticut River between the Turners Falls Dam and the

Vernon Dam in Vernon, Vermont. The Turners Falls Power Pool, an impoundment of the Connecticut River, is referred to as the “lower reservoir,” although it was never designed to act as such in support of the Northfield Mountain Pump Storage Facility.

The hydrodynamics of the Turners Falls Power Pool are primarily controlled by the three hydroelectric generating facilities: Turners Falls, Vernon, and the Northfield Mountain Pumped Storage Project. The joint operations of the Turners Falls facility and the Northfield Mountain Pumped Storage Project have resulted in larger and faster pool fluctuations, which have significantly changed the daily regime of this reach of the Connecticut River. Typical pool fluctuations average 3.5 feet per day. Much higher pool fluctuations, on the order of 9-10.5 feet, may occur over the course of the weekly pump/release cycle.

The banks of non-cohesive, alluvial sand and silt, which dominate the Turners Falls Power Pool section of the Connecticut River, typically exceed twenty (20) feet in height. Erosive forces have destabilized many sections of bank resulting in slumping and mass wasting of large sections of bank and the loss of trees and other riparian vegetation on the top of the banks.

Over the years, several studies have been undertaken to inventory and assess erosion sites, identify the possible causes of the erosion, and propose various bank stabilization techniques for the Turners Falls Power Pool. In 1979, the Army Corps of Engineers (ACOE) issued a “Report on: Connecticut River Streambank Erosion Study, Massachusetts, New Hampshire and Vermont.” This document presented the results of a detailed study of the numerous variables that contribute to bank erosion in the 141-mile reach of the river from Turners Falls Dam to the headwaters of the Wilder Hydro Pool in Haverhill, New Hampshire and Wells River, Vermont. One of the six index sites evaluated by the ACOE was located in the Turners Falls Power Pool approximately eight miles upstream of the Turners Falls Dam.

The ACOE’s analysis in 1979 found that the natural shear stress exerted on a bank by flowing water can be increased by as much as 60 percent by such factors as flood stage variations, pool fluctuations, boat and wind waves, gravitational forces, etc. Further, they reported that causes of bank erosion in the 141-mile reach of the Connecticut River stretching north from Massachusetts into New Hampshire and Vermont, in descending order of importance were: shear stress (velocity), pool fluctuations, boat waves, gravitational forces, seepage forces, natural stage variations, wind waves, ice, flood variations, and freeze-thaw cycles. In July 1991, the ACOE released the results of a follow-up study on the erosion in the Turners Falls Power Pool. This study concluded that bank erosion in the Power Pool had increased almost threefold since the 1979 study and approximately one-third of the bank in the Power Pool was actively eroding.

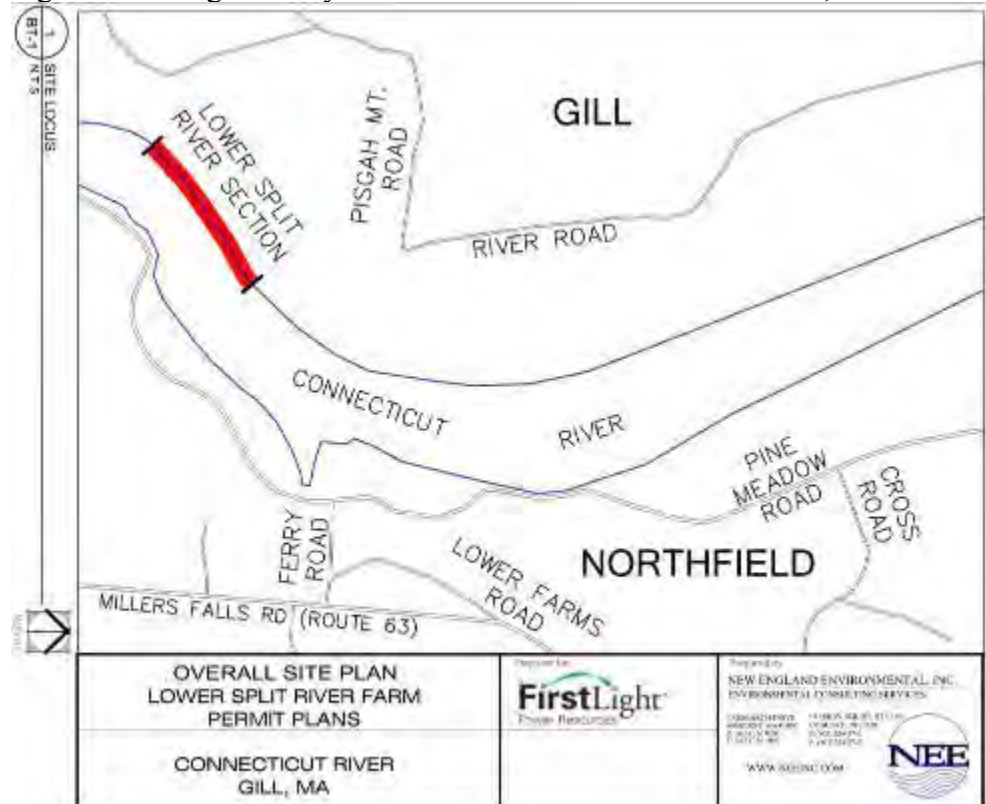
In the spring of 1994, the Franklin County Commission (now the Franklin Regional Council of Governments) convened the stakeholders to encourage a cooperative approach to assessing and mitigating the erosion in the Turners Falls Power Pool. The Connecticut River Streambank Erosion Committee (CRSEC) was formed and its membership is comprised of local officials, state and federal agencies, non-profit environmental groups, landowners, and utility representatives. This time, the stakeholders reached consensus and the utility prepared a Draft Environmental Impact Report, which described a bank project that would stabilize several thousand feet of eroding riverbank using bioengineering techniques. The necessary

environmental permits were secured and the utility committed \$1.2 million over six years toward what would be called Phase I of the bank stabilization work.

The Franklin Regional Council of Governments (FRCOG) was awarded \$142,000 from the Massachusetts Department of Environmental Protection’s s.319 Non-point Source Competitive Grant Program in order to monitor, document and report on three of the sites to be restored under Phase I, to staff the CRSEC, and to provide partial funding for construction of one of the sites. The purpose of Phase I was to demonstrate the feasibility and effectiveness of using various bioengineering techniques, an innovative, “soft” alternative to rip-rap, gabions, and other traditional “hard” engineering solutions.

Bioengineering techniques incorporate woody and/or herbaceous plants and plant materials to construct a living system of bank stabilization. Using bioengineering to stabilize eroding banks has many advantages when compared to traditional armored bank treatments, including: the restoration and enhancement of wildlife habitat, the restoration of aesthetic resource values and the compatibility of the treatment with on-site environmental resources. The use of vegetation to stabilize banks also provides a buffer that can reduce the pollutant and sediment loading associated with overland runoff and flood flows. The June 1999 report prepared by the Franklin Regional Council of Governments for the s.319 grant describes the work completed at three Phase I sites. A total of 2,250 linear feet of eroding riverbank were stabilized.

Figure 4-1: Large Woody Debris Bank Stabilization Site in Gill, MA



Following the completion of work at the three sites monitored under the s.319 grant, the CRSEC and NU continued their bank stabilization work. Two additional sites, approximately 3,180 linear feet in total length, were stabilized between 1998 and 2000 using bioengineering techniques. In April 2000, the FRCOG was awarded a second s.319 grant for Phase II of the Connecticut River bioengineering restoration work.

A 2007 Fluvial Geomorphology Study of a reach of the river in the Gill area recommended the use of large woody debris (LWD) to protect eroding river bank. The LWD would preserve existing beaches and promote the development of new beaches by trapping fine sediment. The beaches help to dissipate the erosive forces of water level fluctuations caused by the operation of the Northfield Mountain Project and boat wakes. The LWD bank stabilization site is located in Gill, MA and is approximately 1,200 feet long (see Figure 4-1).

At time of writing, the initial bank stabilization project has been installed and will continue to be monitored in 2011. A Tri-State Connecticut River Targeted Watershed Initiative virtual tour of the site can be found at the at http://www.cesd.umass.edu/twi/TWI_Projects.



Photo Courtesy of New England Environmental, Inc.
Construction of the large woody debris structure



Photo Courtesy of New England Environmental, Inc.
Testing the stability of the large woody debris structure

The remaining issue regarding erosion along the banks of the Turners Falls Power Pool is that erosion is occurring at a faster rate than the completion of the riverbank bioengineering restoration work. The full restorative work, paid for by FirstLight Power, takes time to do correctly. There have been some discussions as to the best strategies for stemming the erosion by faster, less expensive means in advance of the full bioengineering method.

Other Environmental Challenges

Recreational Boating Waves

Boat waves continue to be a significant problem on the Connecticut River in Gill. As is mentioned in the ACOE's 1979 study, stream bank erosion and other problems are caused by boat waves. The Commonwealth of Massachusetts General Laws include a prohibition of open water speeds in excess of 45 mph. However, there are no restrictions on motor craft speed near the banks of a river or on the number of craft that can be in operation at any one time. Other problems that are associated with the amount and speed of motor craft on the Connecticut River

in Gill include water pollution from silt and mud churned-up by motorboats, noise pollution, and the impacts of large numbers of big motor craft on other forms of recreational boating (e.g. canoeing and kayaking).

Chronic Flooding Areas

The Town of Gill Multi-Hazard Mitigation Plan identifies the Riverside section of Gill as a flood-prone area in Town. No other areas subject to significant chronic flooding have been identified.

Landfills and Hazardous Waste Disposal Sites

According to 2009 MassGIS data, there are no hazardous waste sites in Gill. According to MassDEP data²¹, there is one inactive private landfill owned by Northfield Mount Hermon School and located at 1 Lamplighter Way. The 3-acre site operated from 1982 to 2001 and is now capped but unlined.

Forestry Issues

The Gill Open Space and Recreation Plan Committee identified no significant forestry issues in Gill. There are no major diseases effecting Gill's forests and no major blow-down areas which could serve as fuel for forest fires. There are areas of steep forested land along and above the embankments of the Connecticut River, as discussed in the **Erosion and Sedimentation on the Connecticut River** section earlier in this chapter. These steep forested areas could be difficult to access in the event of a forest fire.

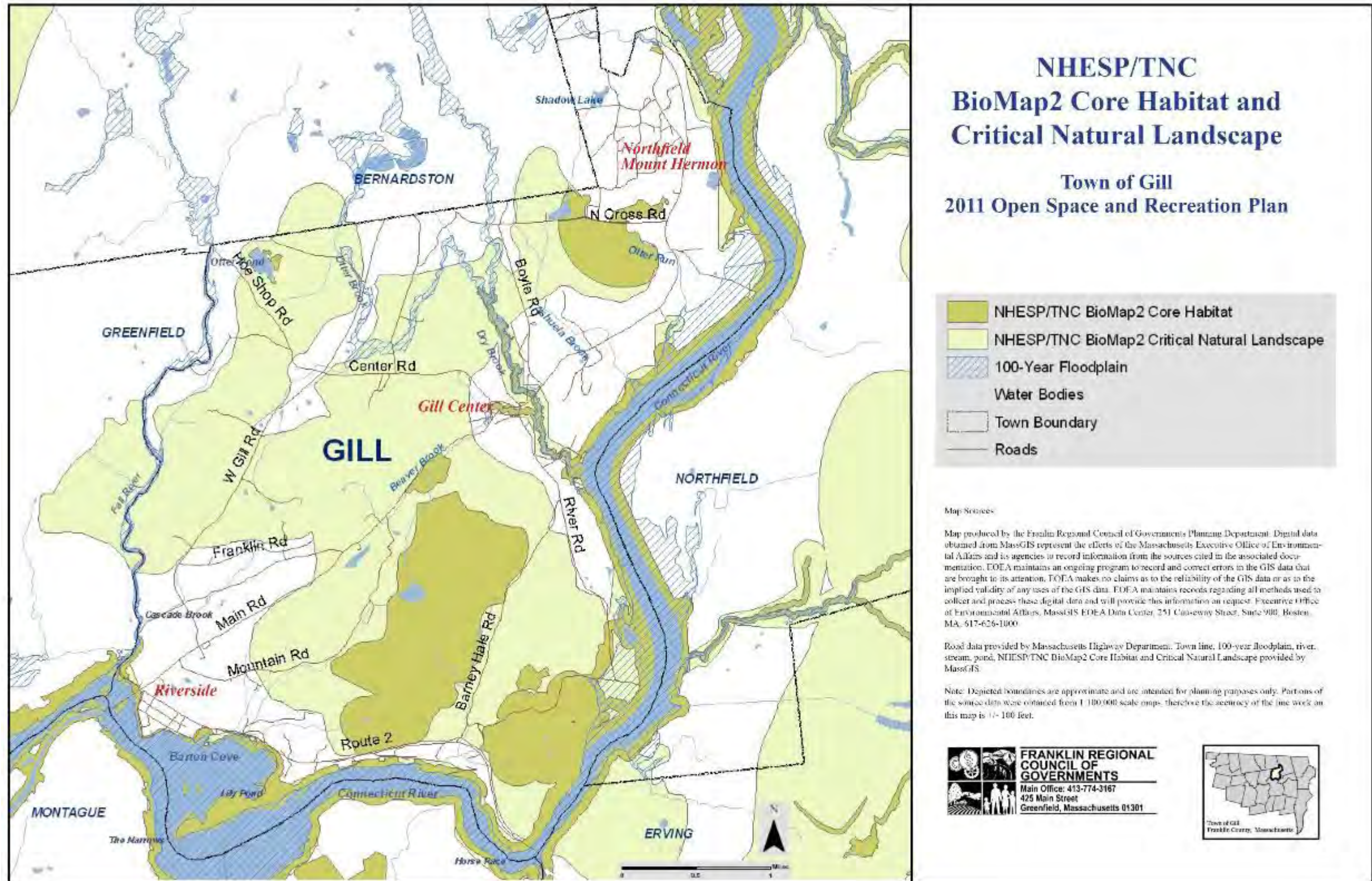
Ground and Surface Water Pollution

The Town of Gill has no known major problems with nonpoint source pollution. However, as described in the **Erosion and Sedimentation on the Connecticut River** section earlier in this chapter, the Connecticut River is subject to erosive forces which have destabilized many sections of 20-foot-high river banks near the Northfield Mountain Pumped Storage Project. The resulting slumping and mass wasting of large sections of bank and the loss of trees and other riparian vegetation on the top of the banks could contribute to issues with water quality. Erosion could cut channels from the upland areas into the River, encouraging potential runoff from farm fields. Ongoing riverbank stabilization projects will continue to address these issues.

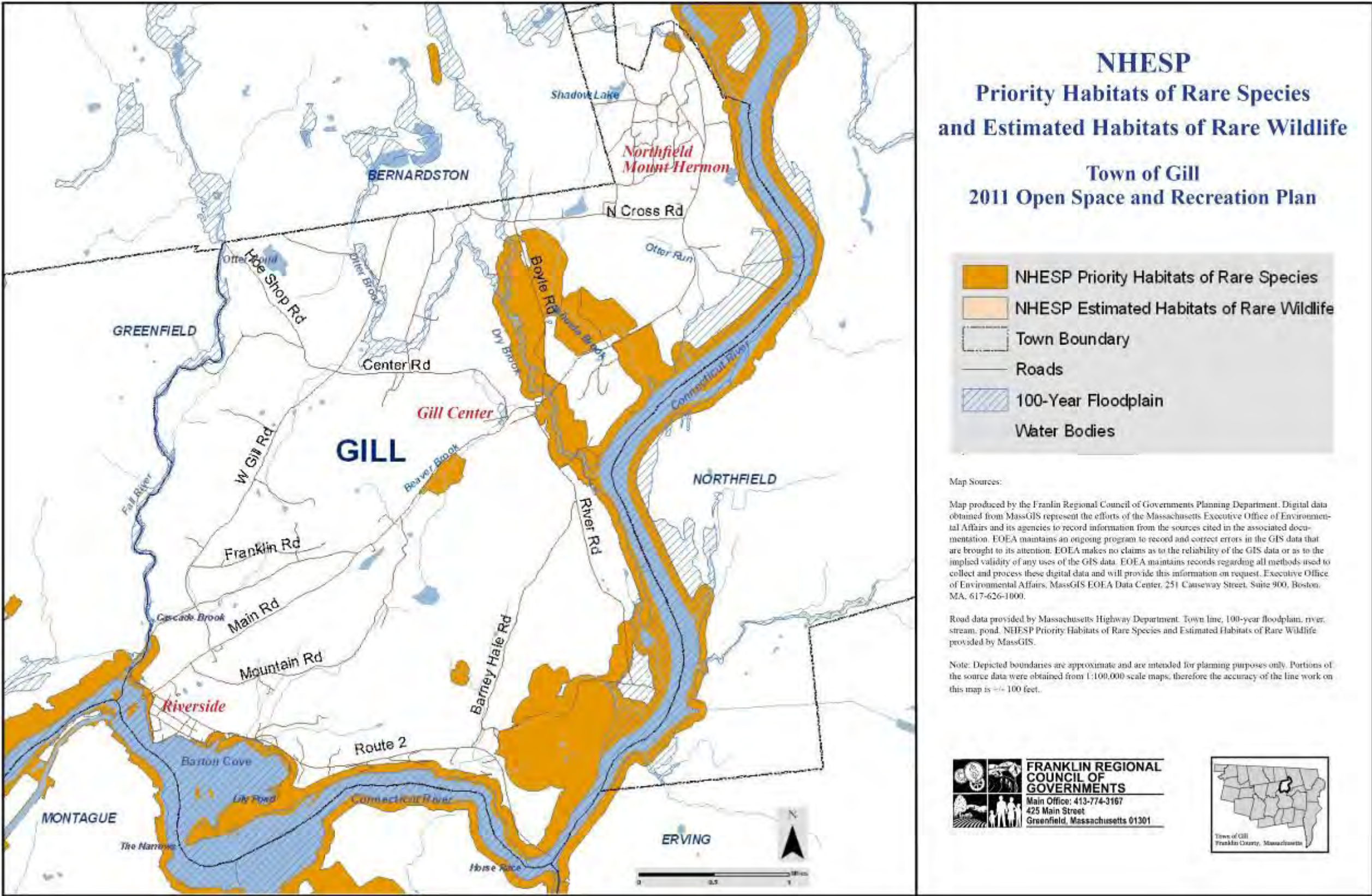
Other potential ground and surface water pollution causes include run off from roads, including salt and chemicals, agricultural fertilizers and pesticides, and issues with failing septic systems. Public outreach and education can assist in making people aware of ways to mitigate such potential issues.

²¹ <http://www.mass.gov/dep/recycle/solid/swfacil.htm>

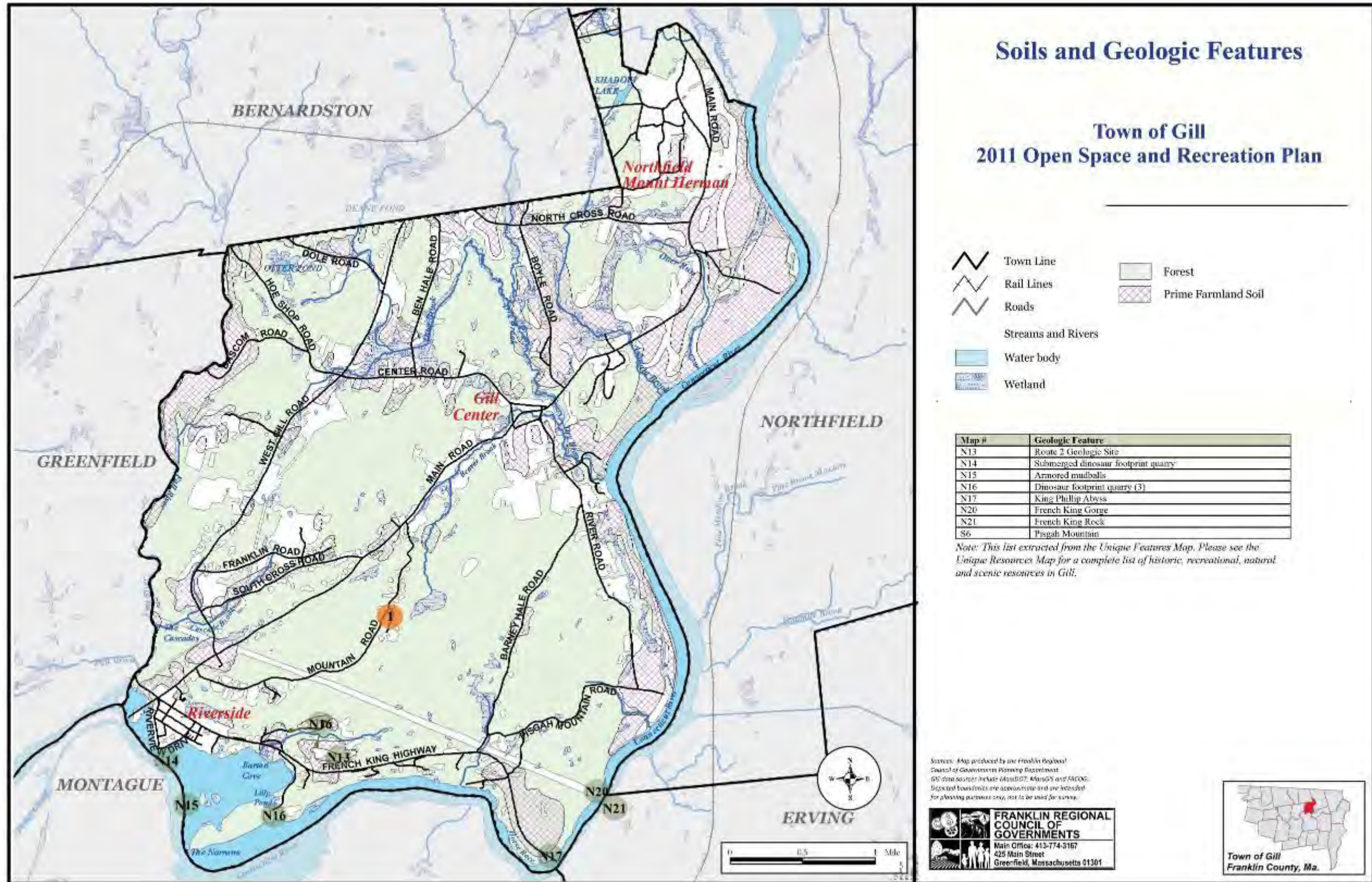
Map 4-1: NHESP/TNC BioMap2 Core Habitat and Critical Natural Landscape



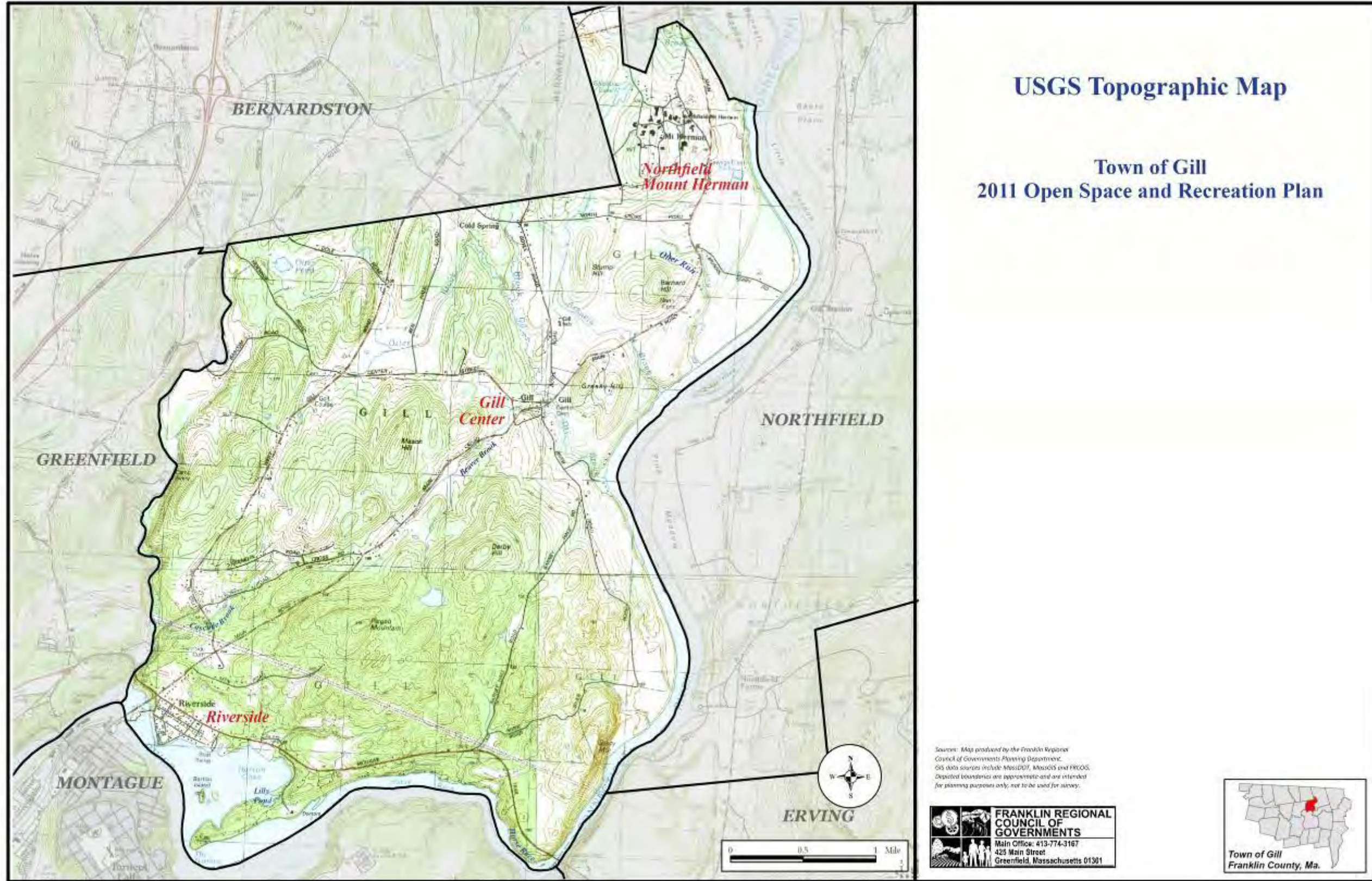
Map 4-2: NHESP Priority Habitats of Rare Species and Estimated Habitats of Rare Wildlife



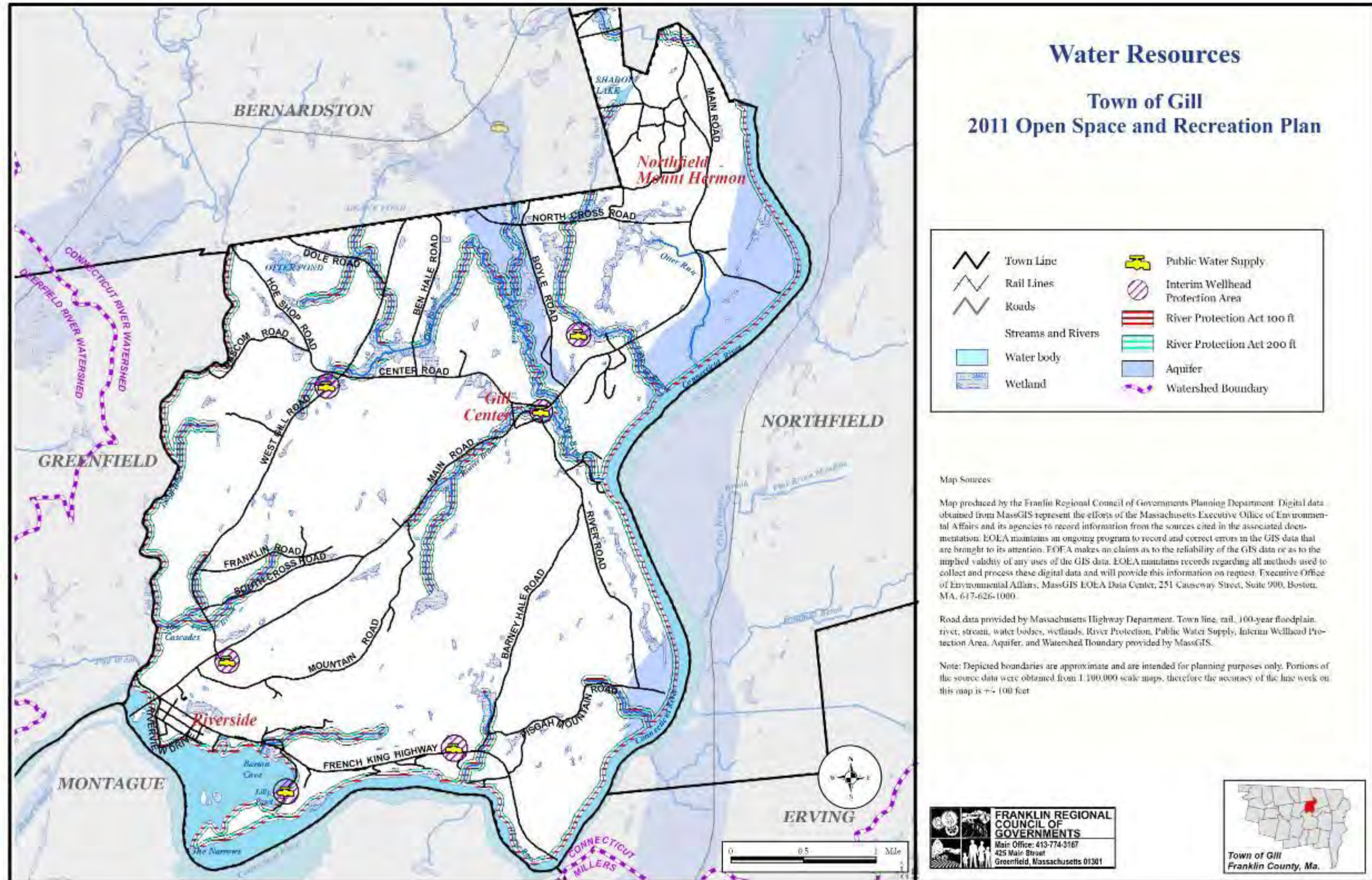
Map 4-3: Soils and Geologic Features



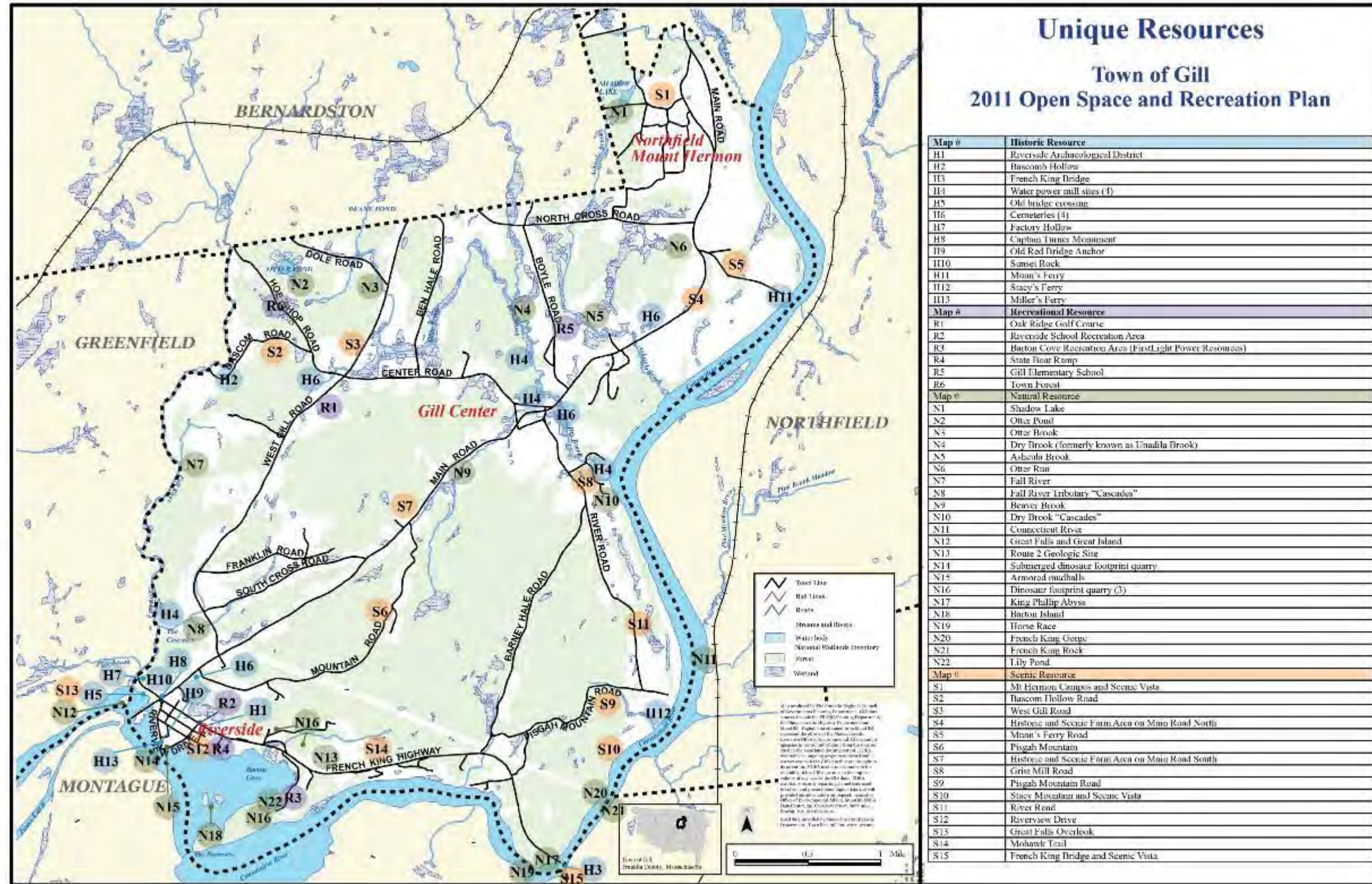
Map 4-4: USGS Topographic Map



Map 4-5: Water Resources Map



Map 4-6: Unique Resources Map



Section 5: Inventory of Lands of Conservation and Recreation Interest

The previous sections have identified areas within the Town of Gill that are significant for their cultural, historical, scenic, archeological or ecological values. This information is helpful for understanding the character of Gill and for outlining issues that may be of particular interest in open space and recreation planning decisions.

What is open space?

The term “open space” is often used to refer to land types such as conservation land, forested land, recreation land, agricultural land, corridor parks, green buffers and any open area owned by an agency or organization dedicated to conservation, this according to the Mass Division of Conservation Services. Open space may also be defined as any parcel of land or water that remains either in its natural state or in agricultural use, and is otherwise free from intensive development. It can also include water bodies such as lakes and wetlands. The definition of open space can depend in part on the context of its location. In an urban area a vacant lot or a small wetland may be open space. In a town such as Gill, agricultural fields, the river’s edges and the Town Forest may be counted among its open spaces. For the purposes of this plan open space is further defined by having some level of protection from development.

Protecting open space serves not only to preserve land but also to:

- Preserve areas of cultural, historical, scenic, archeological or ecological values
- Provide space for food production and forest products
- Offer opportunities for outdoor recreation
- Protect ecological functions areas such as flood plains and estuaries (green infrastructure)
- Conserve habitat vital for endangered plant and animal species
- Allow public access and ecotourism potential
- Mitigate the impacts of natural hazard events such as flooding

Section 5 provides a detailed parcel-by-parcel inventory of existing open space land in Gill. It is organized by ownership, discussing protected privately owned lands followed by protected publicly owned lands. Information provided includes current land use, the degree of protection, as well as existing land management practices, where available. This information, especially when mapped, can help show patterns of protected land. For example, protecting land in Gill’s flood plains is important in order to preserve its vital ecological functions and to protect their adjacent water bodies. Mapping protected land in flood plains may reveal a key unprotected parcel which serves as an important link between other tracts of already protected areas. This parcel could be prioritized to protect when the opportunity becomes available.

Table 5-1 offers a summary of all types of open space in Gill, categorized by private and public ownership as well as those with permanent protection and temporary protection. In all, there are 5,473 acres of land under some level of protection in Gill. With a total land area of 9,479 acres, about 58% of all land in Gill is under some level of protection. Of this protected land, 51% is

privately owned. The Open Space and Recreation Inventory Map at the end of Section 5 shows the location of all protected open space in Town. Note: In cases where a parcel is both under an Agricultural Preservation Restriction (APR) and Chapter 61A, parcel acreage will be counted as APR only, so that no parcels are counted twice.

Table 5-1: Summary Open Space by Ownership and Level of Protection in Gill

PRIVATE PARCELS	Area in Acres	% of Total Open Space in Gill	% of Total Land Area in Gill
Privately Owned PERMANENTLY Protected Open Space			
Permanently Protected Farmland in Agricultural Preservation Restriction and Conservation Restriction: Table 5-2	797	12.13%	8.41%
Permanently Protected Forestland in Conservation Restriction: Table 5-4	490	7.46%	5.17%
Privately Owned TEMPORARILY Protected Open Space			
Temporarily Protected Farmland in Chapter 61A Agricultural Use: Table 5-3	1,731	26.34%	18.26%
Temporarily Protected Forestland in Chapter 61 Forestry Use: Table 5-5	999	15.20%	10.54%
Temporarily Protected Forestland in Chapter 61B Recreational Use: Table 5-6	493	7.50%	5.20%
Temporarily Protected Privately Owned Utility Land: Table 5-7	335	5.10%	3.53%
TOTAL PRIVATE PARCELS WITH SOME LEVEL OF PROTECTION	4,845	73.73%	51.12%
PUBLIC PARCELS	Area in Acres	% of Total Open Space in Gill	% of Total Land Area in Gill
Publicly Owned PERMANENTLY Protected Open Space			
Permanently Protected Land Owned by State: Table 5-8	239	3.64%	2.52%
Permanently Protected Land Owned by Town: Table 5-9	164	2.50%	1.73%
Permanently Protected Land Owned by Town - Cemeteries: Table 5-10	7	0.11%	0.07%
Permanently Protected Land Owned by Quasi-Public Entities: Table 5-12	176	2.68%	1.86%
Publicly Owned TEMPORARILY Protected Open Space			
Land with Limited Protection & Owned by Town: Table 5-11	42	0.64%	0.44%
TOTAL PUBLIC PARCELS WITH SOME LEVEL OF PROTECTION	628	9.56%	6.63%
TOTAL PROTECTED OPEN SPACE (Private and Public Ownership)	5,473	Acres	
TOTAL LAND IN GILL	9,479	Acres	
PERCENT TOTAL PROTECTED OPEN SPACE		58%	
TOTAL PERMANENTLY PROTECTED OPEN SPACE (Private and Public Ownership)	1,873	Acres	
PERCENT TOTAL PERMANENTLY PROTECTED OPEN SPACE		20%	

Source: Town of Gill Assessor's Maps, 2010; 2011 OSRP Committee

Privately Owned Open Space Parcels

Privately Owned Agricultural Land

There are 797 acres of permanently protected privately owned farmland, which constitute over 12 percent of the total amount of open space in Gill with some level of protection from development. This land, except for one parcel, is protected by the Agricultural Preservation Restriction (APR) Program. These restrictions are held by the Massachusetts Department of Agricultural Resources. One parcel is under a Conservation Restriction (CR). Information on permanently protected farmland in Gill is shown in Table 5-2, including ownership, holder of the restriction, map and lot numbers, acreage and value.

Table 5-2: Privately Owned Permanently Protected Agricultural Lands (Primarily Agricultural Preservation Restrictions)

Owner/Manager	Holder of Restriction/APR* or CR*	Assessor's Map	Assessor's Lot	Acres	Value
* APR = Agricultural Preservation Restriction CR = Conservation Restriction					
Bascom Hollow, LLC	Department of Agricultural Resources/APR	215	22.2, 23, 22.3	161.70	Prime Farmland Soils
Dunklee	Department of Agricultural Resources/APR	203	3	92.00	Prime Farmland Soils
French	Franklin Land Trust/APR	213	4, 17	73.00	Prime Farmland Soils
Hatch	Department of Agricultural Resources/APR	210	8.2, 8.3, 8.4, 8.5, 8.6	10.07	Prime Farmland Soils
Hatch	Mount Grace Land Conservation Trust/CR	214	5.1	12.10	Prime Farmland Soils
Hatch	Department of Agricultural Resources/APR	211	4.1	30.00	Prime Farmland Soils
Lilly	Department of Agricultural Resources/APR	213	15	43.85	Prime Farmland Soils
Podlesny	Franklin Land Trust/APR	209	8	20.00	Prime Farmland Soils
Remillard	Department of Agricultural Resources/APR	215	24.1	52.00	Prime Farmland Soils
Split River	Department of Agricultural Resources/APR	220	11, 13	131.80	Prime Farmland Soils
Split River	Department of Agricultural Resources/APR	227	10	52.00	Prime Farmland Soils
Storrow	Department of Agricultural Resources/APR	219	9	30.00	Prime Farmland Soils
Storrow	Department of Agricultural Resources/APR	219	7	18.00	Prime Farmland Soils
Urgiel	Department of Agricultural Resources/APR	204	2, 6	70.68	Prime Farmland Soils
TOTAL ACRES:				797.20	

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Note: Parcel shaded in blue is under more than one type of protection, but its acreage is counted only in this table.

There are 2,413 acres of temporarily protected privately owned farmland, which make up about 37 percent of the total amount of open space in Gill with some level of protection from development. Information on temporarily protected farmland in Gill is shown in Table 5-3, including ownership, map and lot numbers and acreage. This land is enrolled in Chapter 61A. In order to participate in the Chapter 61A program, a landowner must have at least 5 acres of land currently in active agriculture and must apply every year to enroll their parcel/s of land in the program. The aim of this program is to temporarily keep farmland in active agricultural production.



Many agricultural lands in Gill are temporarily protected under the Chapter 61A program.

Lands in the Chapter 61 program are considered only temporarily protected because a landowner may remove land that is enrolled in the Ch. 61 program at any time and pay any additional taxes due. If the landowner receives a formal offer from another party to purchase his/her parcel of land, which is in one of the Ch. 61 programs (61, 61A, 61B), the landowner must notify the Town. The Town has 120 days from the day the offer is made to exercise its right-of-first-refusal or transfer this right to a conservation organization. The Town would likely be much more successful in taking advantage of this opportunity if a Chapter 61 protocol is established ahead of time to outline the steps involved in the process. Ideally, the Town should also prioritize parcels or groups of parcels of conservation interest ahead of time.

Table 5-3: Privately Owned Temporarily Protected Agricultural Land (61A)

Owner	Assessor's Map	Assessor's Lot	Acres	Notes
Bascom Hollow	215	22.2, 23, 22.3	161.70	Calculated in Table 5-2
Bathory	220	10	14.00	
Berniche	216	4	77.00	
Brown	212	18	34.00	
Caron	226	21	39.00	
Cotter	203	5.2, 5.11, 5.3	95.00	

Owner	Assessor's Map	Assessor's Lot	Acres	Notes
Cutting	206	1	77.95	
Cutting	207	1.1, 1.2, 4.1, 4.2	143.60	
Dunklee	203	3	92.00	Total acreage counted only in Table 5-2
Flagg	204	8, 13.2, 14	331.00	
Flagg	211	3	5.42	
French	213	17, 4	73.00	Total acreage counted only in Table 5-2
Giknis	103	5	50.00	
Hastings	207	5, 6.1	123.00	
Hatch	211	10.1, 4.1	70.00	30 acres counted in Table 5-2, the remaining 40 acres are counted in this table
Hatch	210	8.2	10.00	
Johnson	212	15	11.00	
Keech	216	14	45.00	
Kramer	206	28.21	34.03	
Lemieux	219	10	18.00	
Lilly	213	15	43.85	Total acreage counted only in Table 5-2
McComb	208	11.1, 11.2	16.00	
Podlesny	209	13, 8	24.00	20 acres counted in Table 5-2, the remaining 4 acres are counted in this table
Remillard	215	24.1	52.00	
Schechterle	209	3.1, 3.2, 5	93.00	
Split River	220	11, 13	131.80	Total acreage counted only in Table 5-2
Split River	227	10	52.00	Total acreage counted only in Table 5-2
Storrow	219	7.1, 9	48.00	30 acres counted in Table 5-2, the remaining 18 acres are counted in this table
Urgiel	204	2, 3.1, 6	85.00	
Wallace	220	9	30.00	
Zak	211	22	43.00	
Zak	212	8, 20, 22	230.80	
Zak	213	5, 6	11.60	
TOTAL ACRES:			1,731.40	

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Note: Some or all portions of parcels shaded in blue are also under CR or APR protection. Those portions of the shaded parcels under CR or APR are calculated in Tables 5-2 or Table 5-4 and are not included in this table's total acreage.

Much of the land enrolled under Chapter 61A also abuts rivers and streams. While agriculture can have negative impacts on water quality, these impacts can be reduced or avoided through the use of best management practices. When best management practices are observed, agriculture is

compatible with watershed protection because it keeps the land open, while development results in conversion of land to impervious surfaces with negative impacts on water quality.

Agricultural lands enrolled under the Chapter 61A program offer much value to the town even if the farmlands are only temporarily protected. These agricultural parcels often contain prime farmland soils that should be preserved for continuing use. These privately owned open spaces also contribute to the town’s tax base and generate revenue, employment, and food products. In addition, some landowners may allow access to their property for recreational purposes, like hiking or snowmobiling. Most Chapter 61A landowners take pride in their land and practice good stewardship. They help to define a sense of place for Gill and contribute to community stability.

Privately Owned Forested Land

Approximately 490 acres are permanently protected privately owned forestland, which constitute approximately 7½ percent of the total amount of open space in Gill with some level of protection from development. This land is protected by conservation restrictions. These restrictions are held by the Massachusetts Department of Agricultural Resources. Information on permanently protected farmland in Gill is shown in Table 5-4, including ownership, holder of the restriction, map and lot numbers, and acreage.

Table 5-4: Privately Owned Permanently Protected Forested Land (Conservation Restrictions)

Owner/Holder of Conservation Restriction	Assessor's Map	Assessor's Lot	Acres
Brown/Dept. of Conservation and Recreation (DCR)	212	18	31.00
Flagg/Massachusetts Audubon	211	3	5.20
French/DCR	218	4	103.00
French/DCR	219	14	15.00
French/DCR	221	11.1	13.50
French/Mount Grace Land Conservation Trust	217	22	10.50
Gallagher & Bathory/Dept. of Conservation and Recreation (DCR)	220	5, 10	105.00
Jenkins/ DCR	218	5	81.30
Jenkins/ DCR	219	16, 17	5.00
Plante/The Nature Conservancy	227	13.2	2.25
Polatin/Sculley/Mount Grace Land Conservation Trust	218	2.1	88.00
Watson/Wallace/Dept. of Conservation and Recreation (DCR)	220	9	30.00
TOTAL ACRES			489.75

Source: Town of Gill Assessor’s Maps, 2011; 2011 OSRP Committee

Note: Parcels shaded in blue are also under Chapter 61, Table 5-5 but their acreage is counted only in Table 5-4.



Forest land in Gill includes sugar bush, which supplies sap for local maple sugaring products.

Properties with conservation restrictions may have the potential for passive recreational use or for activities such as fishing or hunting but recreational use is dependent upon the wishes of the landowner.

Privately owned forestland with temporary protection from development is shown in Tables 5-5 and 5-6. Approximately 1,278 acres are under the Chapter 61 program, which make up over 19 percent of the total amount of open space in Gill with some level of protection from development. Approximately 493 acres are under Chapter 61B, or about 7½ percent.

Table 5-5: Privately Owned Temporarily Protected Forestlands (61)

Owner	Assessor's Map	Assessor's Lot	Acres	Notes
Bascom Hollow Farm, LLC	215	22, 23	94.00	
Bathory	220	5, 10	50	Total acreage counted only in Table 5-4
Cowls	227	12	39.00	
Cutting	206	1	10.00	
Cutting	207	1.1, 4.1	120.00	
Diemand	210	4	20.00	
French	207	2, 3,	44.00	
French	213	4, 13	128.00	

Owner	Assessor's Map	Assessor's Lot	Acres	Notes
French	217	22	10.50	Total acreage counted only in Table 5-4
French	218	4	103.00	Total acreage counted only in Table 5-4
French	219	14	19.00	Total acreage counted only in Table 5-4
French	221	11.1	13.50	Total acreage counted only in Table 5-4
French	222	5.2, 11, 5.B	74.00	
French	227	3	17.00	
Georgian	217	37	74.00	
Hisz	222	14	81.00	
Jenkins	218	5	81.30	Total acreage counted only in Table 5-4
Krejmas	215	17, 18	67.00	
LaPointe	224	39	19.00	
Parsons	218	3.1	67.80	
Parsons	221	2.9, 2.14	40.00	
Stotz	223	7, 12	25.70	
Stotz	224	45	31.00	
Streibel	205	10	47.00	
TOTAL ACRES			998.50	

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Note: Parcels shaded in blue are also under CR protection, shown in Table 5-4. The shaded parcels in this table also under CR are calculated in Table 5-4 and are not included in this table's total acreage.

Unless noted as permanently protected under an APR or CR, all the parcels in Tables 5-5 and 5-6 are temporarily protected in Chapter 61 or 61B programs. Protection of these parcels is short term. There are no public grants awarded as a result of the program. The owner agrees not to change the land's use for ten years while paying reduced property taxes during that time period. These lands are located in the Residential/Agricultural zoning district.

Privately owned forestland offers many values to the community and is an important resource for several reasons. Many forestlands are large parcels with a low degree of fragmentation, preserving wildlife and plant habitats. When these forestlands are protected from development, they help to protect and provide clean water, air, and healthy wildlife populations. Forest soils have a high infiltration capacity, absorbing moisture and permitting little surface runoff. Once absorbed, water is released gradually, reducing flooding during large rain events and maintaining streamflow during low water months. Because forest soils are absorptive, soil erosion is reduced and fish habitat is preserved.

Table 5-6: Privately Owned Temporarily Protected Forestlands (61 B)

Owner	Assessor's Map	Assessor's Lot	Acres
Bidwell	215	14	41.39
Boyer	215	6	20.00
Chase	227	9, 16.1	12.20
Conway	224	34, 35	16.00
Draper and Shilo	227	16.1	5.00
Giknis	221	5, 6	36.30
Giknis	222	1	26.00
Giknis	226	22	80.00
Girard	219	10, 12	48.00
Holmes	214	3.1	37.00
Kramer	210	14	19.00
Mackin	217	35, 36	40.00
Meyer	222	4	64.00
Pratt	227	17.112	7.70
Putnam	212	9	24.00
Yarmac	222	17, 18.1, 18	16.00
TOTAL ACRES:			492.59

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Chapter 61 lands are managed for forest products, which result in the employment of loggers, foresters, and local mill workers, income for landowners, and the availability of locally grown wood for flooring, furniture making, and firewood. Many forested lands also provide recreational value for Gill residents. The Chapter 61 program contributes to the preservation of forested landscapes valued by Gill residents.

Other privately owned land in Gill that has temporary protection from development is land owned by FirstLight Power Resources. FirstLight Power Resources currently has licenses to operate the Turners Falls Dam and Northfield Mountain Hydroelectric Projects on the

Connecticut River. These projects affect the Connecticut River, which borders the town of Gill. The Federal Energy Regulatory Commission (FERC) licenses for these projects have been granted for fifty years and will expire on April 30, 2018.

The FERC license agreement requires that FirstLight Power Resources obtain flowage rights to the land bordering the river. Flowage rights are similar to land easements and allow for the impacts of a project dam including backwatering onto adjacent properties. The company is responsible for minimization and prevention of soil erosion and other adverse effects associated with hydroelectric projects within the flowage boundary. FirstLight Power Resources has implemented an erosion control plan to manage these properties. The erosion control plan outlines bank stabilization repair and erosion prevention measures that should be undertaken while FirstLight Power Resources operates the projects.

The primary purpose of the erosion control plan is riverbank stabilization and erosion control. In addition, FirstLight Power Resources has committed to provide recreational and environmental education facilities in areas impacted by the projects. These facilities serve to protect the areas scenic and historical assets as well as wildlife species habitat and are located in Gill, Northfield, and Montague.

The property owned by FirstLight Power Resources is considered temporarily protected as open space for the duration of the project license. The company owns parcels totaling about 335 acres as shown in Table 5-7, or about 5 percent of the total protected open space in Gill.

Table 5-7: Other Privately Owned Temporarily Protected Land

Owner	Assessor's Map	Assessor's Lot	Acres
Firstlight Hydro Generating Company	101	58, 59, 83, 84, 85, 89, 118, 119, 120	45.70
Firstlight Hydro Generating Company	102	26, 31, 32, 33	3.84
Firstlight Hydro Generating Company	103	17	139.70
Firstlight Hydro Generating Company	203	6	26.75
Firstlight Hydro Generating Company	204	7	27.50
Firstlight Hydro Generating Company	219	6	21.50
Firstlight Hydro Generating Company	224	43	4.00
Firstlight Hydro Generating Company	228	9	28.50
Firstlight Hydro Generating Company	229	1	37.10
TOTAL ACRES			334.59

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Publicly and Quasi-Publicly Owned Open Space Parcels

Publicly owned and quasi-publicly owned protected open space make up approximately 14 percent of all of the open space that has some level of protection in town. The following inventory includes those parcels that are owned by the Commonwealth of Massachusetts, the Town of Gill, and state conservation organizations.



The public can access Barton Cove via the public boat ramp or via the Barton Cove Campground and Canoe/Kayak area owned by FirstLight Power.

Publicly Owned Open Space

A total of 239 acres of permanently protected publicly owned state land are located in Gill, accounting for about 3½ percent of the total amount of open space in Gill. This land includes open space owned by the Department of Conservation and Recreation and by the Department of Fish and Game. These lands are described in Table 5-8.

Table 5-8: Publicly Owned Permanently Protected Land (State Owned)

Property Owner	Site Name	Assessor's Map	Assessor's Lot	Acres	Current Use
DCR	Connecticut River Greenway State Park (CRGSP)	220	4	180.00	Conservation and Recreation
DCR	CRGSP	228	1	14.20	Conservation and Recreation
Department of Fish and Game	Barton Cove Boat Ramp	102	28	3.80	State Boat Ramp
DCR	CRGSP	228	6	41.00	Conservation and Recreation
TOTAL ACRES:				239.00	

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

The Town owns two parcels of permanently protected open space, consisting of 164 acres or about 2½ percent of the total open space in Gill, as shown in Table 5-9.

Table 5-9: Publicly Owned Permanently Protected Land (Town Owned)

Property Owner/ Management Agency	Site Name	Assessor's Map	Assessor's Lot	Acres	Degree of Protection	Current Use	Public Access?	Condition	Recreation Potential
Town of Gill/Conservation Commission	Stacy's Ferry	227	10	0.91	Permanent	Little used, not maintained	Yes, but undeveloped	Not maintained	Non- motorized boat launch, picnic area
Town of Gill/Conservation Commission	Town Forest	208	1, 7	163.00	Permanent	Conservation Recreation	Yes, but undeveloped	Undeveloped	Trails, hunting, fishing
TOTAL ACRES:									163.91

Source: Town of Gill Assessor's Maps, 2010; 2011 OSRP Committee

Table 5-10 lists the cemeteries in Gill that are owned by the town or by an association and are protected from development. Most cemeteries represent well-maintained open space areas that are sometimes appropriate for walking and bird watching. These parcels total a little over 7 acres, a small percent of the overall protected open space in Town.

Table 5-10: Publicly Owned Permanently Protected Land (Cemeteries)

Owner/Property Manager	Site Name	Assessor's Lot	Assessor's Map	Acres
Riverside Cemetery Assn.	Riverside Cemetery	224	6	1.60
Riverside Cemetery Assn.	Riverside Cemetery	224	7	2.80
Town of Gill	North Cemetery	204	15	1.80
Town of Gill	Center Cemetery	212	1	0.71
Town of Gill	West Cemetery	214	11	0.47
TOTAL ACRES:				7.38

Source: Town of Gill Assessor's Maps, 2010; 2011 OSRP Committee

The Town of Gill also owns 42 acres of open space under limited protection, or less than 1% of the total protected open space in Gill (see Table 5-11). These parcels are under the authority of the Select Board and are considered to have limited protection from development. If residents wanted to sell Town land for development, the Select Board or a Town Meeting vote could provide the authority.



Slate Library is one of Gill’s twelve town-owned temporarily protected parcels.

Table 5-11: Publicly Owned Temporarily Protected Land (Town Owned)

Property Owner/ Management Agency	Site Name	Assessor's Map	Assessor's Lot	Acres	Degree of Protection*	Current Use	Public Access?	Condition	Recreation Potential
Town of Gill	Elementary School	211	5	12.50	Temporary	Elementary School	Yes	Good	Playground structures, ball fields
Town of Gill	Elementary School Nature Area	211	6	6.60	Temporary	Education	Yes	Not maintained	Trails, education
Town of Gill	Boyle Parcel (Center Road)	212	30	2.90	Temporary	Hay field	No	Rented	Ball fields
Town of Gill	Slate Library	212	2	0.49	Temporary	Library	Yes	Good	Site for educational events
Town of Gill	Town Hall	212	27	0.47	Temporary	Administrative	Yes	Good	Site for educational events
Town of Gill	Common	212	26	0.32	Temporary	Events	Yes	Good	Outdoor public performances
Town of Gill	Riverside Municipal Building (Old Green School)	101	14, 15	1.40	Temporary	Historical Commission, Water District, Playground, Private School	Yes	Good	Ball fields, basketball, potential site for rec facility and/or senior center
Town of Gill	Riverside Sewer Pumping Station	101	117	0.12	Temporary	Pumping Station	No	Good	None
Town of Gill	Municipal Building	217	20	4.34	Temporary	Highway, Police, Fire	No	Good	None
Town of Gill	Mariamante	224	34.1, 34.2, 34.3, 34.4, 34.5, 34.6	12.00	Temporary	Undeveloped Land	No	Hayfield	Educational or historical site

Property Owner/ Management Agency	Site Name	Assessor's Map	Assessor's Lot	Acres	Degree of Protection*	Current Use	Public Access?	Condition	Recreation Potential
Town of Gill	Pisgah Mt./Route 2	226	29	0.29	Temporary	Vacant	Yes	Right-of-Way	None
Town of Gill	Mountain Road	221	1-14.1	0.20	Temporary	Vacant	Yes	Right-of-Way	None
TOTAL ACRES:									41.63

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

*See previous page for explanation of Level of Protection

It is not unusual for a community to set aside land for future expansion of schools, sports fields, police and fire stations, and drinking water supplies. Open space planned for these purposes might be used as open space today and placed under the authority of the Select Board. It may also be sensible to place town-owned land that clearly contains wetlands or wildlife habitat, but which does not provide for easy development, under the authority and protection of the Conservation Commission.

Quasi-Publicly Owned Open Space

There are 176 acres of quasi-publicly owned permanently protected open space accounting for about 2½ percent of the total amount of open space with some level of protection. This land is owned by The Nature Conservancy, the Connecticut River Watershed Council, or Mount Grace Land Conservation Trust. Information on the parcels is shown in Table 5-12.

Table 5-12: Quasi-Publicly Owned Forested Land Protected from Development

Owner	Assessor's Map	Assessor's Lot	Acres
Mount Grace Land Conservation Trust	209	6	5.60
Ct. River Watershed Council	223	9	7.40
The Nature Conservancy	227	11, 13.1, 14, 15, 16.2	97.97
The Nature Conservancy	228	8, 10	47.70
Mount Grace Land Conservation Trust	218	4	17.00
TOTAL ACRES:			175.67

Source: Town of Gill Assessor's Maps, 2011; 2011 OSRP Committee

Opportunities for Funding Open Space and Conservation Projects in Gill¹

Opportunities for the Town of Gill to procure funding for open space projects can be a challenge. While the town has many outstanding conservation values, only private land subject to

¹ This section and Section D, Criteria for Open Space Protection were adapted from the 2010 Warwick OSRP.

conservation restrictions is truly protected. Potential resources for funding open space and conservation projects include:

LAND Grant Program (Formerly the Self-Help Grant Program)

The Commonwealth of Massachusetts offers a grant program through the Executive Office of Energy and Environmental Affairs, Division of Conservation Services, to assist municipalities with open space projects. The LAND Program (formerly the Self-Help Program) was established in 1961 to assist municipal conservation commissions acquiring land for natural resource and passive outdoor recreation purposes. Lands acquired may include wildlife habitat, trails, unique natural, historic or cultural resources, water resources, forest, and farm land. Compatible passive outdoor recreational uses such as hiking, fishing, hunting, cross-country skiing, bird observation, and others are encouraged. Access by the general public is required. This state program pays for the acquisition of land, or a partial interest (such as a Conservation Restriction) and associated acquisition costs such as appraisal reports and closing costs.²

Land Trusts

Mount Grace Land Conservation Trust and Franklin Land Trust are local non-profit organizations that assist farmers and other landowners who seek to protect their land from unwanted development. A land trust does not seek to own land, but instead encourages private stewardship. Although land trusts could assist the Town of Gill in land conservation, they generally do not have funds to donate to the Town for protecting open space. Land trusts may be most helpful by serving towns on a consultant basis, by recommending funding sources, and by partnering with towns to provide public education and outreach.

Regional and Statewide Land Conservation Trusts

In addition to local land trusts, several other regional and statewide conservation organizations are available for partnership conservation projects. The New England Forestry Foundation (NEFF) has a focus in conserving managed forest lands. Massachusetts Audubon Society (MAS) works to protect the diversity of Massachusetts natural resources. Additional organizations include The Trustees of Reservations and The Nature Conservancy. Each of these conservation organizations has access to no-interest or low-interest loan funds to assist in the conservation of significant natural resources through the Norcross Wildlife Foundation's loan program and the Open Space Institute's Western Mass Loan Fund.

Conservation Partnership Program

This is a state grant program that is designed to help land trusts and other non-profit conservation organizations receive a 50% reimbursement for open space projects (fee or Conservation Restriction). This is a resource that could help to conserve parcels within Gill with high conservation value. However, no matter how worthy a project may be, the non-profit conservation organization will not be interested in applying for these funds unless a town can supply the other 50% .

² Mass.gov Department of Energy and Environmental Affairs, Division of Conservation Services, Grant Programs, <http://www.mass.gov>

Forest Legacy Program

This is a federal grant program administered for the purpose of conserving forestland nationwide. Participation in Forest Legacy is limited to private forest landowners. To qualify, landowners are required to prepare a multiple resource management plan as part of the conservation easement acquisition. The federal government may fund up to 75% of project costs, with at least 25% coming from private, State or local sources. In addition to gains associated with the sale or donation of property rights, many landowners also benefit from reduced taxes associated with limits placed on land use. Forest Legacy projects also tend to be large – often 100 acres or more.

As a national program, Forest Legacy funding is very competitive. For Fiscal Year 2011, there were 38 proposed Forest Legacy projects for a total of \$1.1M in funding. One drawback of this program is that it can take up to four years for landowners to receive payment for selling the fee interest in the land or a Conservation Restriction once they agree to participate in one of the grant applications. This may be a longer time than some landowners can afford to wait to receive compensation.

Community Preservation Act

The Community Preservation Act is legislation that allows cities and towns to exercise control over local planning decisions. The Community Preservation Act (CPA) provides new funding sources that can be used to address three core community concerns:

- Acquisition and preservation of open space
- Creation and support of affordable housing
- Acquisition and preservation of historic buildings and landscapes

The CPA allows communities to create a local Community Preservation Fund to raise money through a surcharge of up to 3% of the real estate tax levy on real property for open space protection, historic preservation and the provision of affordable housing. The act also creates a significant state matching fund, which serves as an incentive to communities to pass the CPA. To enact the CPA, voters must approve it at a Town-wide election.

A minimum of 10% of the annual revenues of the fund must be used for each of the three core community concerns, and up to 5% may be used for administrative expenses of the Community Preservation Committee. The remaining funds can be allocated for any combination of the allowed uses, or for land for recreational use. This gives each community the opportunity to determine its priorities, plan for its future, and have the funds to make those plans happen. Projects using CPA funds must have those funds approved by a Town Meeting vote. If residents don't feel the CPA is working as they expected, they can repeal it or change the surcharge amount.

Criteria for Open Space Protection

As part of a blueprint for conserving open space and recreation land in Gill, developing criteria to identify and prioritize land for conservation (as well as for development) could help focus Gill's efforts and could assist in applying for funding to acquire open space and recreation lands.

A systematic approach, including applying criteria, enables Gill to be strategic in its allocation of program funds by giving the Town a tool to both proactively identify parcels and resources that meet the goals of the open space program; and to analyze the merits of individual parcels of land and projects as they present themselves.

Criteria for rating open space are unique to a community. The following information is presented as a stepping off point for the Open Space and Recreation Committee to use and modify to suit the Town's unique resources.

Basis for Generating Criteria

As a starting point for generating criteria, Gill could assess which parcels possess such exceptional open space and recreational values that they are worth conserving as open space as well as which parcels pose the greatest potential for development.

To generate an answer, the following should be reviewed:

1. *State-Wide Value:* Are there unprotected open spaces in Gill that are so exceptional statewide that the Town is very fortunate to possess them within its boundaries; and therefore Gill has the incentive to preserve these open space "treasures" for the benefit of its own residents as well as for the citizens of the Commonwealth. Newly discovered rare wildlife habitat is a likely example in this category.
2. *Town-Wide Value:* Are there unprotected parcels that are particularly critical for preserving Gill's culture, active farming community, historic landscapes, scenic views, rural economy, ecology or recreational resources. Such parcels would be beloved and meaningful to a large number of Gill residents.
3. *Neighborhood Value:* Are there parcels that are exceptionally significant to and highly used by residents of a particular section of Town (as well as by residents from other parts of Gill) that if lost to unplanned development would clearly diminish the quality of life in that neighborhood and in the Town as a whole?
4. *Future Development Value:* Is there a parcel in Town that is particularly well suited for future residential or small scale commercial development that Gill would consider purchasing so that it can plan its own development (such as senior housing); and if so, are there also accompanying open space, recreational and green corridor amenities that the Town would also like to secure to fulfill that vision of a well-planned development.

Simultaneous Highest Priorities and Open Space Protection Opportunities

Gill might include parcels of land that are high priority for open space protection in several different categories simultaneously. In this scenario, it is the availability of opportunities that will control which projects are undertaken. Open space protection can move forward only when a landowner is interested in conserving their land or when funding is available to pay full market value when critical parcels come on the open market.

Preferred Type of Open Space Protection for Gill – To Retain Private Ownership

Given concerns about keeping land on the tax rolls, the ideal form of open space protection for the future is the purchase of Conservation Restrictions and trail easements (in which private landowners agree to allow the public use of a trail that passes through their land). In this way, the land itself remains in private ownership and stays on the tax rolls. An open space and

recreation budget stretches further when it is possible to purchase just a CR or trail easement, rather than having to pay for the entire parcel.

Open Space Criteria

As explained above, the open space criteria categories listed below are not necessarily listed in any particular order, given that Gill may have high priorities in different open space categories *simultaneously*. However, for discussion purposes, examples of scenarios that might occur within each category are presented. For example, under the Open Fields category, land with prime agricultural soils currently in active use might be given a higher priority than fields in Town that are being used for crops, hay or pasture, or just being faithfully mowed and maintained. The highest priorities would represent projects of such high value that the Town may want to raise funds in order to accomplish them; whereas with lower priority projects, the Town might not be willing to expend funds but would consider accepting the gift of a Conservation Restriction or trail easement if it were donated by the landowner.



Open space criteria categories include open fields, some of which have prime agricultural soils.

Open Fields

- a) Fields with Prime Agricultural Soils currently in active use
- b) Fields with soils designated Prime Agricultural Soils or Soils of Statewide Importance
- c) Fields that are adjacent to farmland preserved with an Agricultural Preservation Restriction (APR) that are actively farmed or have the potential to be farmed
- d) Fields that have particular scenic, historic or cultural value

Unfragmented Forest Blocks

- a) In-holdings in large blocks of forest
- b) Forestland adjacent to or near already preserved forests, such as Gill Town Forest or Connecticut River Greenway State Park

- c) Forest parcels that connect existing permanently protected forested parcels for the sake of the integrity of wildlife and trail corridors

Ecological Significance

- a) A parcel, or group of parcels, that has been identified by GIS mapping as containing one or more of the following:
 - i. NHESP BioMap Core Habitats
 - ii. NHESP BioMap Supporting Landscapes
 - iii. Priority Habitats of Rare Species
 - iv. Certified Vernal Pools
- b) Ridge-line corridors – Gill has several undeveloped ridge lines; ridge tops are known to be used by large mammals with extensive territories.

Hydrological Significance

Land that abuts or contains the following:

- a) A parcel, or group of parcels, that has been identified by GIS mapping as containing all or portions of rivers, streams, lakes or ponds
- b) Aquifers or floodplains
- c) Significant upland or wetland habitat
- d) Public or private drinking water supplies

Recreation Resources

- a) Trail Corridors – Land that would contribute to the creation of a comprehensive trail network including parcels that form linkages with an existing or planned trail system
- b) Scenic Views – preserve outstanding views by fee purchase or conservation easements.
- c) Land that would provide access to water for swimming, canoe and kayak put-ins and fishing.

Scenic Resources

- a) Views Across Fields – Roadside views across fields are an important scenic amenity Gill; their scenic value reinforces the importance of protecting agricultural fields adjacent to Town roadsides.
- b) Views of Ridgelines – Gill has some undeveloped ridgelines that are an important part of the Town’s rural scenery. Maintaining undeveloped ridgelines benefits both the scenic value of the Town and the quality of the wildlife habitat. Maintaining undeveloped ridgelines could potentially become more challenging as the market for new homes rebounds.

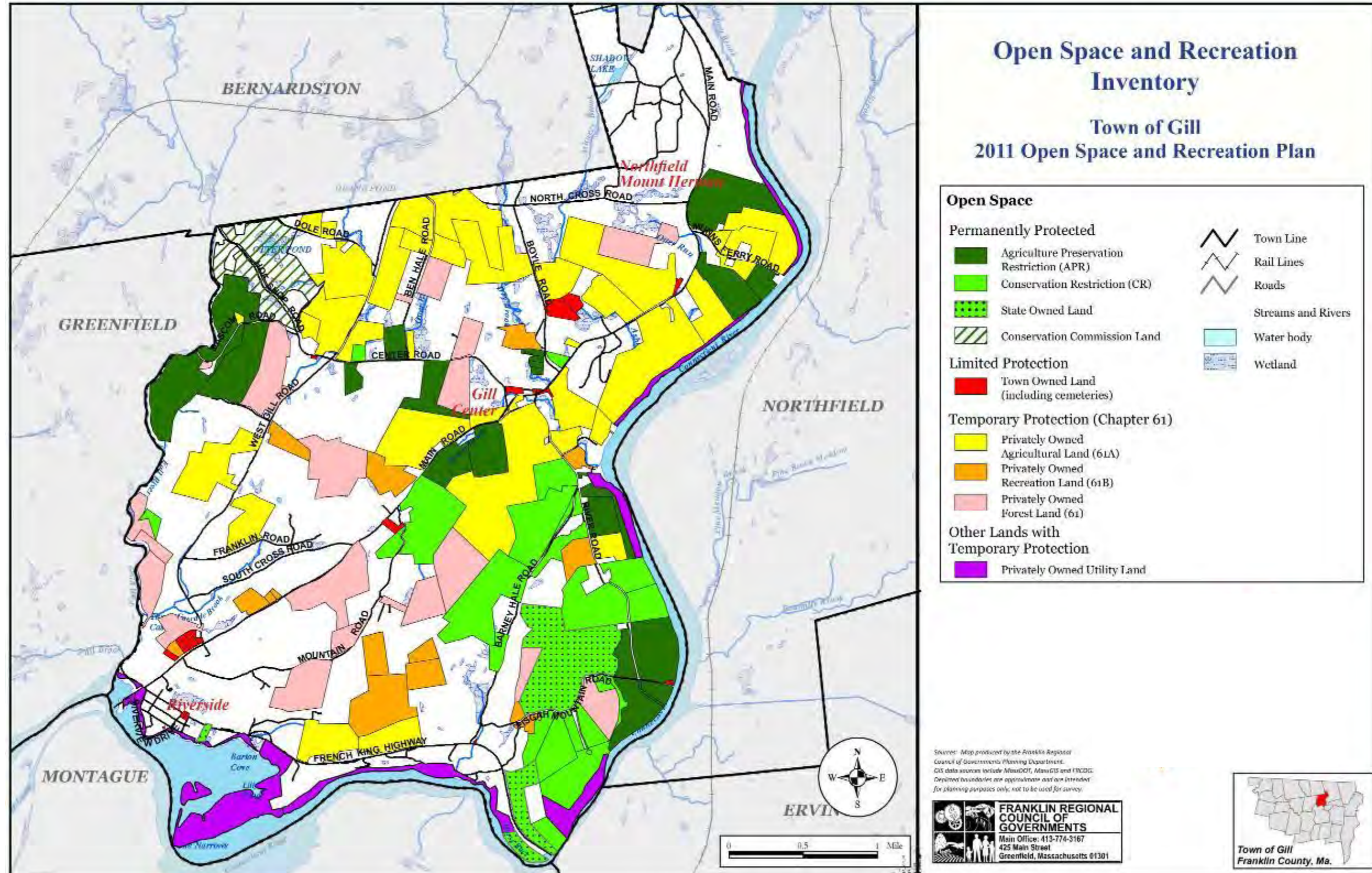
Historic and Cultural Resources

- a) Historic Village Center District – Helping Gill Center to remain undiluted by incongruously modern construction will help preserve the Town’s historic heritage.
- b) Historic Farmsteads – Gill contains many historic farmsteads where the original farmhouse, barns and outbuildings, stonewalls, and fields are intact. Each of these is an historic artifact worthy of inventory and preservation through conservation easements.

Implementing Open Space Criteria

Once a set of criteria have been defined and adopted, the Open Space Committee could move forward with related objectives and action items in Sections 8 and 9, such as identifying and inventorying viewsheds and historic sites as well identifying and seeking funding sources for protecting that land with the highest conservation value. Additional steps could include collaborating with adjacent towns and with area land trusts to build land conservation coalitions and to create public outreach and education materials, as defined in Section 9. A public outreach brochure example is located in the Appendices of this document.

Map 5-1: Open Space Inventory Map



Section 6: Community Vision

Description of Process

The Town of Gill's open space and recreation goal statement was developed through the following planning process:

- In 2011, the Select Board approved an Open Space and Recreation Committee to update the 2005 Gill Open Space and Recreation Plan. The Committee held six public meetings, two section review sessions, a mapping session, and a public forum.
- The Open Space and Recreation Plan Committee developed an Open Space and Recreation Survey. The survey was advertised via the Gill Elementary School weekly newsletter and via flyers posted around town including at the Slate Library, Town Hall, Upinngil Farm, and the Wagon Wheel Restaurant. The survey was made available online through SurveyMonkey. A link to the Survey was posted on the homepage of the Town of Gill's website. Paper copies of the Survey were available at the Town Hall and the Slate Library.
- Survey responses gave a sampling of public opinion.
- Results of the Survey – along with the draft goals and objectives – were presented at the public forum, held on November 16, 2011.
- The results of the Survey and input from the Forum – as well as analysis of existing conditions and the Inventory of Lands of Conservation and Recreation Interest were used as the basis for the development of the final goals statement as well as the final goals and objectives.
- The Open Space and Recreation Plan Committee developed draft sections of Gill's Open Space and Recreation Plan with input from members of the community. The Committee was comprised of five residents and included the Town Administrator, a member of the Planning Board and a resident of Riverside and included collaboration with the Recreation Committee.

See the Appendix B for meeting sign in sheets, agendas and a copy of the Survey.

Vision Statement of Open Space and Recreational Goals

General Open Space and Recreational Goals

People live in Gill in part because they like its rural, small town character. According to the 2011 Open Space and Recreation Survey, respondents also highly value the open fields and working farms, forests and trails, and rivers and streams. Nearly 80% of survey respondents indicated that it is very important to use more of Gill's land for agriculture. A majority of respondents believe the town should prioritize agricultural lands and river and stream banks to permanently protect. Along with this desire to protect its resources, there was a common theme of concern for the Town's economic vitality. Residents generally want to see more farmland protected but want equally to see a plan for bringing more economic development to Town in the form of new commercial and industrial business.

Residents who responded to the Open Space and Recreation Survey and participated in the process of developing this Open Space and Recreation Plan helped develop a vision for the future of Gill's natural, recreational and agricultural resources and its economic vitality.

Vision Statement

In a vision of its future, the Town of Gill will preserve its valued agricultural landscapes and working farms and forests and support sustainable economic development that protects the Town's natural, historic, and cultural resources, strengthens the tax base, and provides goods, services, and jobs for its residents. The Town will support a proactive planning process that encourages land uses to sustain the health of its waters, forests, wildlife and working farms and forests, preserves historic resources and that identifies areas appropriate for carefully planned commercial and industrial development. The Town will also identify ways in which working farms, forests, and waterways could contribute to the Town's economic development by potentially supporting agritourism and ecotourism.

The Town will strive to provide more information to residents on options to protect open spaces to assist landowners and developers in designing projects that sustain and enhance the community's shared assets and character. The Town will also strive to enhance the recreational experiences of its school children – and of all citizens – by supporting improved recreational opportunities and/or facilities. This Open Space and Recreation Plan is a vital component of a proactive, sustainable land planning and development process that will strive to effectively and equitably manage growth and development in Gill while preserving natural resources and wildlife habitat, historic features, scenic roads and vistas, and recreational opportunities for current and future residents of the town.

Goals

From this Visions Statement and general goals, several broad goals emerge. They include protecting Gill's natural, recreational and agricultural resources, responding to the needs of farmers and foresters, maintaining or improving recreational programs and facilities, collaborating with other entities to protect Gill's open space and recreational resources, and supporting economic development. The Vision Statement and Goals figure into the Analysis of Needs (Section 7), the Goals and Objectives (Section 8), and the Seven-Year Action Plan (Section 9).

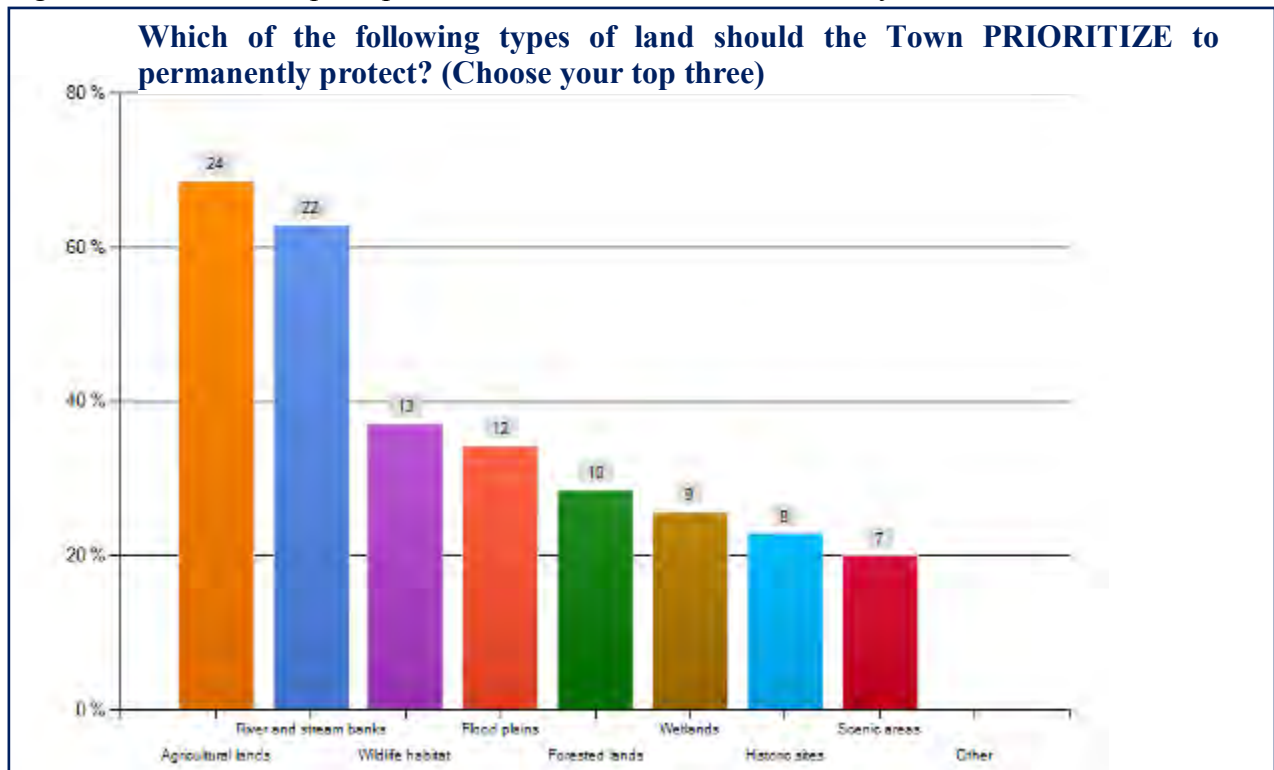
Section 7: Analysis of Needs

The Gill Open Space and Recreation Plan incorporates the inventory of all the land-based cultural, historic, scenic, natural, archeological, and natural resources that are available in town (Section 4), identifies the areas that contain these resources (Section 5), and, based on the community's general goals (Section 6), makes comparisons between the supply of resources and the demand (Section 7). In **Summary of Natural Resource Protection Needs**, the most important environmental issues are highlighted. In **Summary of Community's Needs**, the recreation and open space needs of the residents are discussed. Finally, in **Management Needs**, the obstacles to the effective resolution of these needs are addressed.

Summary of Natural Resource Protection Needs

The Town of Gill has an impressive number of cultural, historic, scenic, natural, archeological, and natural resources, many of which are shown in Map 4-6. Of all its resources, one in particular has been discussed repeatedly throughout the planning process. As the demand for local food continues to grow in Franklin County, and as the number of small, diversified farms continues to increase, residents of Gill identify agricultural land as one of their most valuable resources.

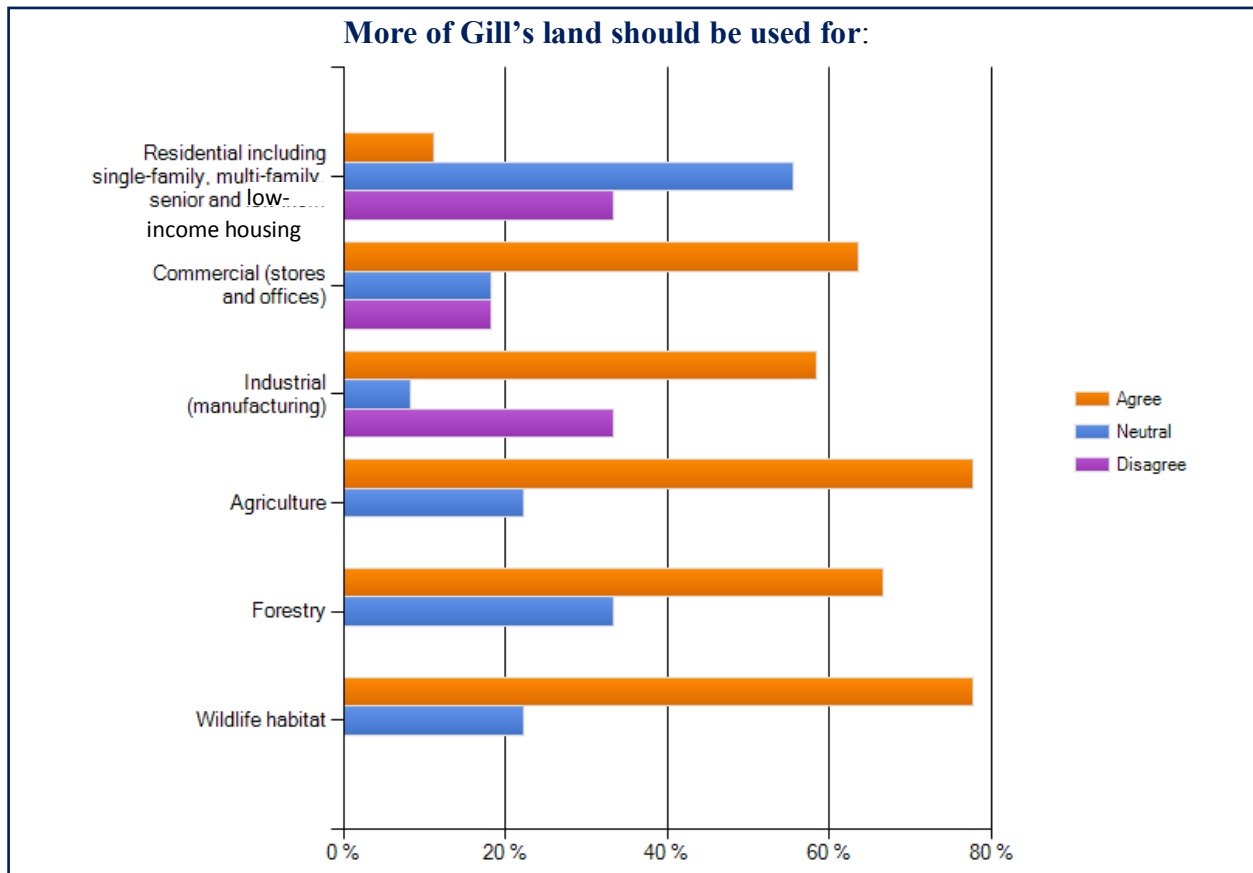
Figure 7-1: Gill 2011 Open Space and Recreation Plan Public Survey, Land Protection



As shown in Figure 7-1, when asked in the 2011 Open Space and Recreation Plan Public Survey which types of land the Town should prioritize to protect permanently, the respondents' top choice is agricultural lands, followed closely by river and stream banks. When asked how more

of Gill's land should be used, Figure 7-2 shows the top choice is agriculture (tied with wildlife habitat).

Figure 7-2: Gill 2011 Open Space and Recreation Plan Public Survey, Land Use



Preserving Agricultural Lands

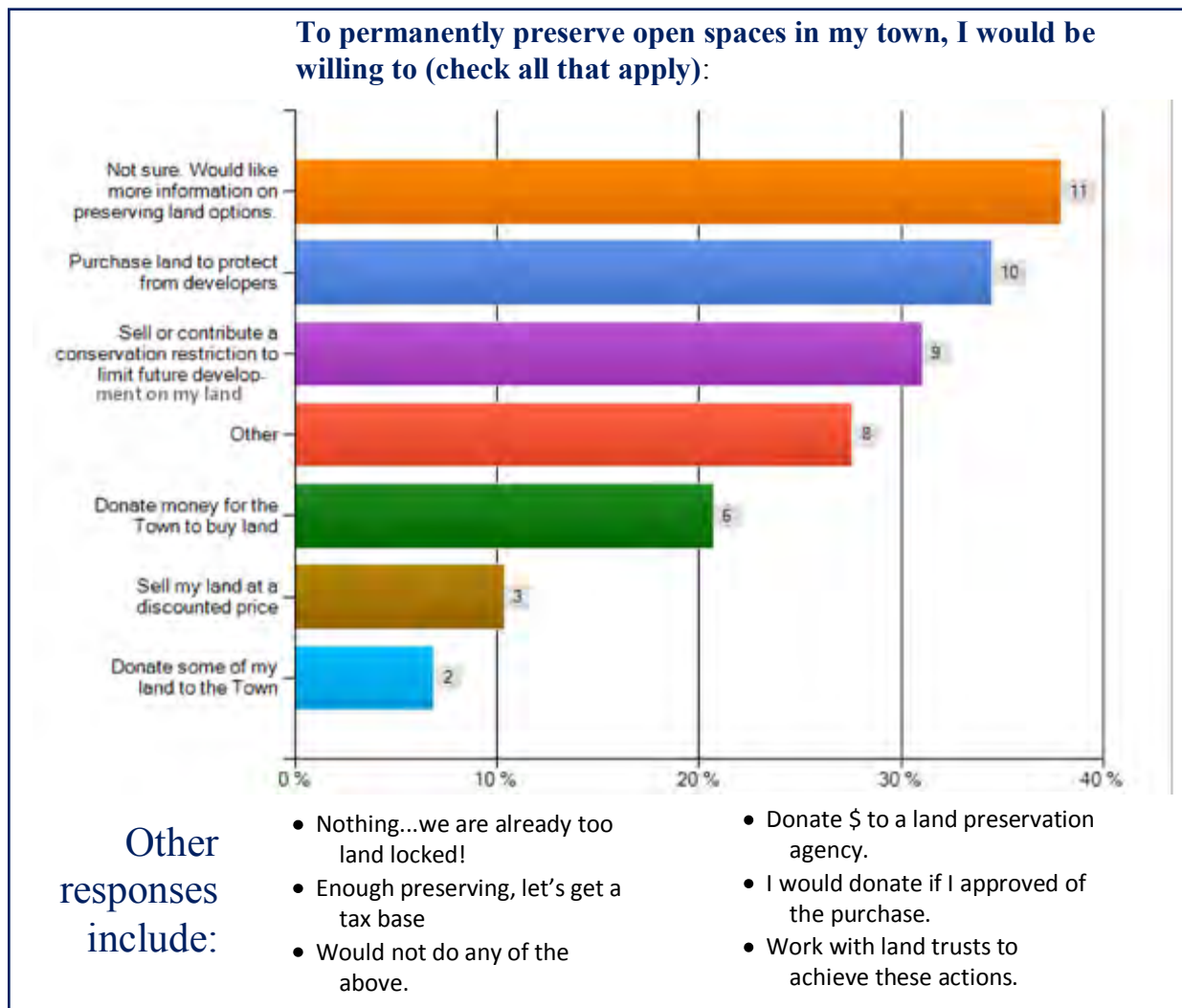
In some ways, Gill is positioned well to continue to grow its small, diversified farms and to continue to preserve agricultural land. With a modest population decline in the last 20 years (see Section 3C for population characteristics), development pressures on owners of farmland may not be as intense in Gill as in other towns in Massachusetts. With the recent depression in new residential construction, the related fall in land values has been somewhat of a boon for land trusts. Unable to sell their land for as much as they had hoped – if at all – some land owners are taking a second look at the option of putting their land into permanent protection.

Currently, nearly 800 acres of land containing prime farmlands is permanently protected and an additional 1,700 acres of agricultural land is temporarily protected under Chapter 61A. The Town of Gill should actively continue public outreach and education on land protection options and should work on developing criterion to help prioritize additional parcels for protection.

It is important to note that many residents also voiced a concern that too much land is being protected and that the focus should really be on economic development. As shown in Figure 7-3,

when asked what they would be willing to do to preserve more land, the most popular choice is “not sure” followed by “purchase land to protect from developers”. Some of the responses to “Other” in the same question indicated that Gill has preserved enough land and should work on improving its tax base. Rather than choosing one over the other, it is possible that, for Gill, agricultural preservation and economic development can go hand-in-hand. As the Town of Gill considers ways to balance land protection and economic development, careful thought should go into how farming helps Gill’s economy. Farming, farmland preservation, diversified farm products, agritourism – all these things could help fuel the engine for Gill’s economic development.

Figure 7-3: Gill 2011 Open Space and Recreation Plan Public Survey, Land Preservation



Where farming and farmland protection is concerned, one of the best resources Gill has is its active Agricultural Commission. This group of enthusiastic farmers could be encouraged to endorse some of the agricultural land protection objectives included in the Action Plan, including:

- Considering ways that the town might support agricultural operations as they would other commercial or industrial businesses in town.

- Continuing to support marketing of Gill farm and forest products.
- Exploring the options for encouraging agritourism in Gill.

Protecting Wildlife Habitat

Gill offers excellent wildlife habitat in the form of forestland, farmland, open fields, floodplains and water bodies, as discussed in Section 4. Since wildlife habitat was identified as a priority for Gill in the Survey, the Town of Gill may want to focus on continuing the good working relationships with regional land trusts for the purpose of assigning the Town's right-of-first refusal in the event that a key parcel containing excellent wildlife is put up for sale. Often land trusts are able to bring together sources of income and potential buyers of land and development rights in a shorter time frame than if the Town were to try on its own. By being prepared, Gill may be more likely to see the preservation of choice parcels of forest containing wildlife habitat and other important natural resources. Several action items address the protection of wildlife habitat, including prioritizing land to protect and continuing relationships with local land trusts.

Protecting River and Stream Banks

Protecting rivers and streams – particularly the Connecticut River – have been a priority in Gill for many years. As discussed in Section 4 in **Erosion on the Connecticut River**, ongoing riverbank stabilization projects have been conducted in Gill since the mid-1990s. Gill has had landowners serve as representatives on the Connecticut River Streambank Erosion Committee. The Town could continue to support a representative – potentially from the Conservation Commission – to serve on the Committee.

Along with addressing erosion on the Connecticut River, Gill has been successful in protecting its floodplain. Nearly all of the land in the 100-year floodplain along the Connecticut River has been protected.

The Town of Gill could also encourage residents to participate in the annual Connecticut River Source to Sea Clean Up. Involving youth – including students from Northfield Mount Hermon – in this program could help plant a seed for good stewardship of Gill's natural resources.

Action items relating to protecting river and streambanks include joining the Connecticut River Streambank Erosion Committee and exploring model floodplain protection bylaws.

Summary of Community Needs

Planning for a community's open space and recreation needs must satisfy the present population's desires for new facilities, spaces, and services, and also must interpret and act on the available data to prepare for the future needs of Gill residents. Although the Gill Open Space and Recreation Plan will be updated in seven (7) years, the types of actions identified in Section 9 will take into account the needs of the next generation as well.

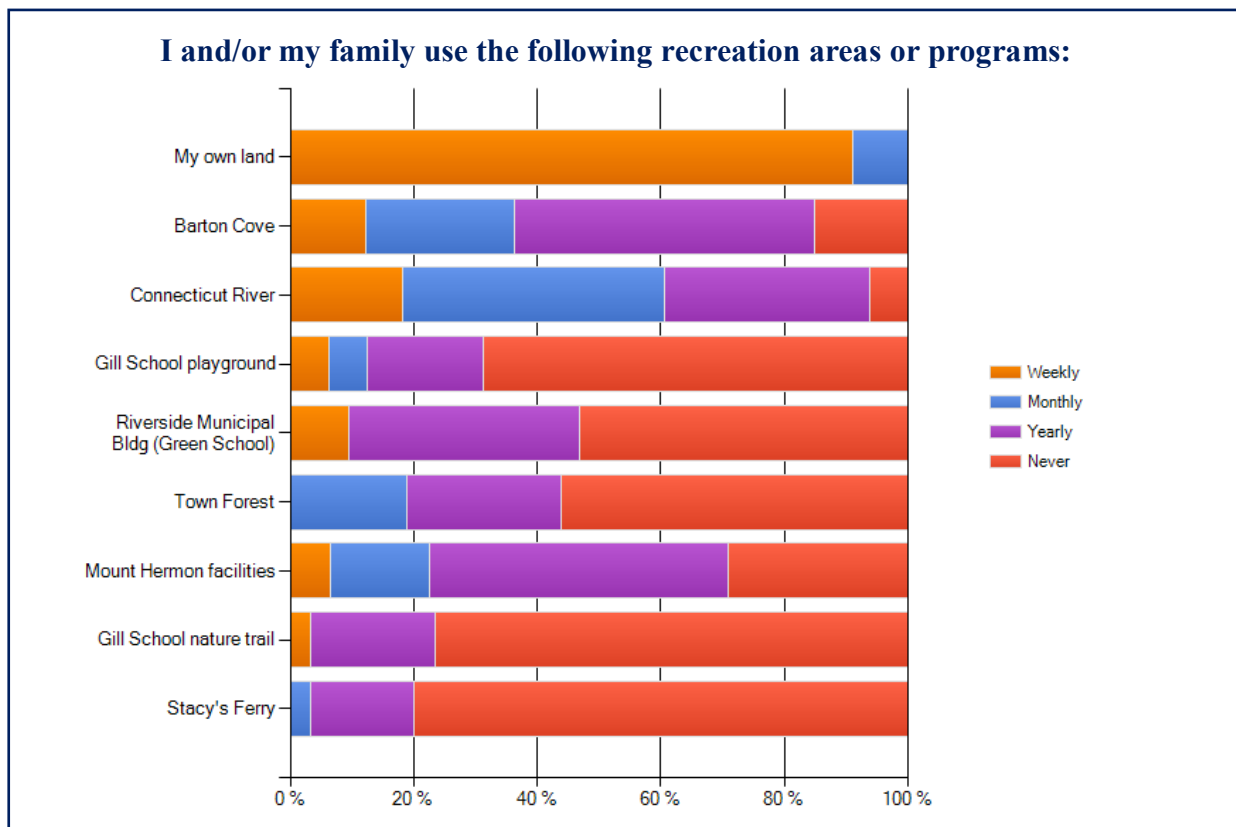
The most important community need identified multiple times throughout the 2011 Open Space and Recreation Plan planning process is the desire to encourage economic development, even while protecting agricultural land, river and stream banks, and wildlife habitat. As shown in Figure 7-2, around 60% of respondents indicated they thought more land should be used for

commercial and industrial development. As already discussed, comments in Figure 7-3 indicate a desire to balance land preservation with economic development. Concern about balancing open space and recreation needs with development of new business and/or industry was a common theme expressed throughout the planning process by the public and Committee members alike.

The Town’s commitment to encouraging a permanent Open Space and Recreation Committee could be a next step in the process of achieving some of the natural resource protection and recreation needs, keeping economic development in mind. The Committee could continue the work started during this Plan update process by providing leadership to follow through on several key action items to address balancing conservation and recreation needs with some development. Some of those action items include:

- Identify priority areas to conserve based upon patterns such as contiguous forest land, corridors along rivers and streams, and locations near already conserved land.
- Identify suitable areas to pursue additional commercial or industrial businesses in Town. Revisit the 2005 Community Development Plan as a first step toward doing so.
- Identify businesses needed in town through public outreach.
- Consider conducting a cost of community services study - potentially through American Farmland Trust - to determine the fiscal contributions of residential, commercial, industrial, and farm and open land in the town.

Figure 7-4: Gill 2011 Open Space and Recreation Plan Public Survey, Recreational Use

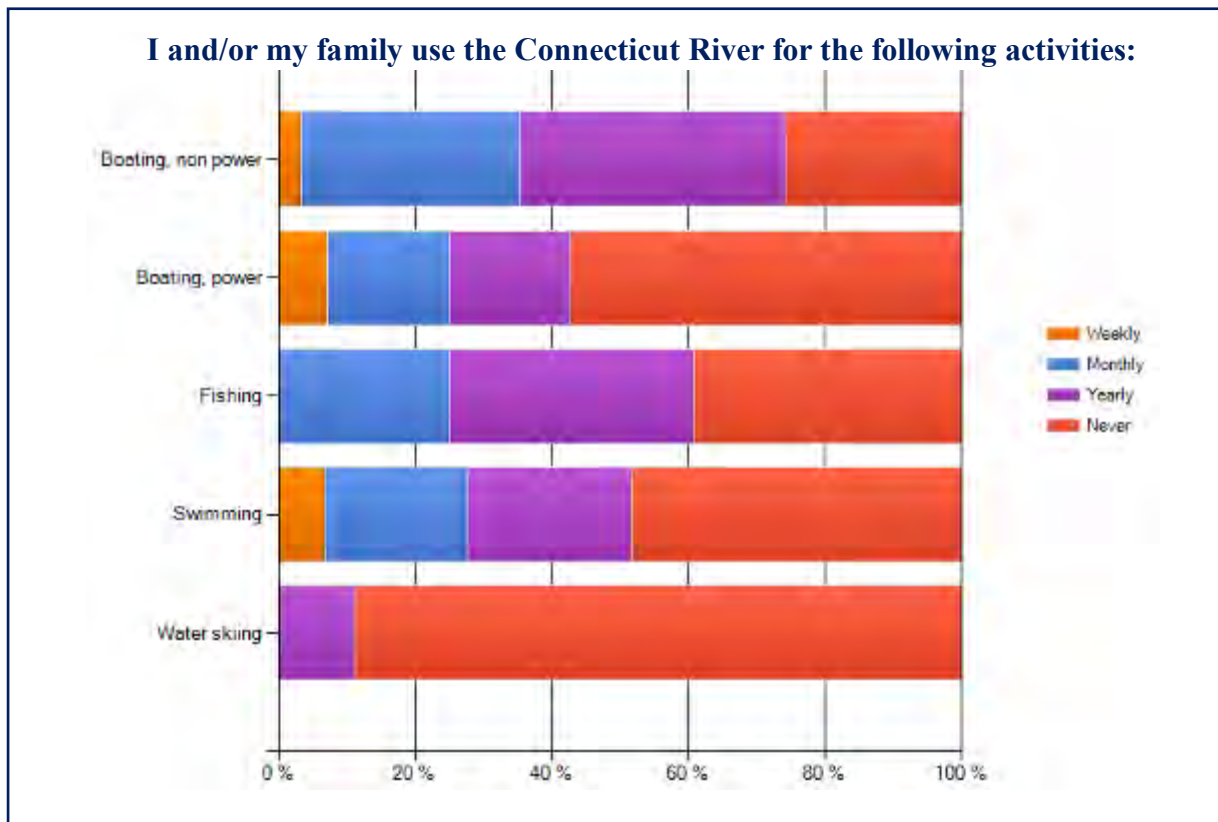




Children enjoy an unseasonable warm fall day at Gill Elementary School (left) and at the Green School.

As shown in Figure 7-4, many of Gill’s recreational facilities are infrequently used and most people recreate on their own land. However, some recreational facilities do need improvement and might be used more frequently if they were upgraded. A community need identified is better recreational options, particularly for those attending the Gill Elementary School. Presently the School does not have a gymnasium or swimming pool and the Gill Elementary School nature trail, once a source of recreation and enjoyment for schoolchildren and residents, has fallen into disrepair and is seldom used. Action items to address these deficiencies, including assessing the possibility of a new recreational facility for the school and/or community and repairing the trail, are included in the Action Plan.

Figure 7-5: Gill 2011 Open Space and Recreation Plan Public Survey, Connecticut River

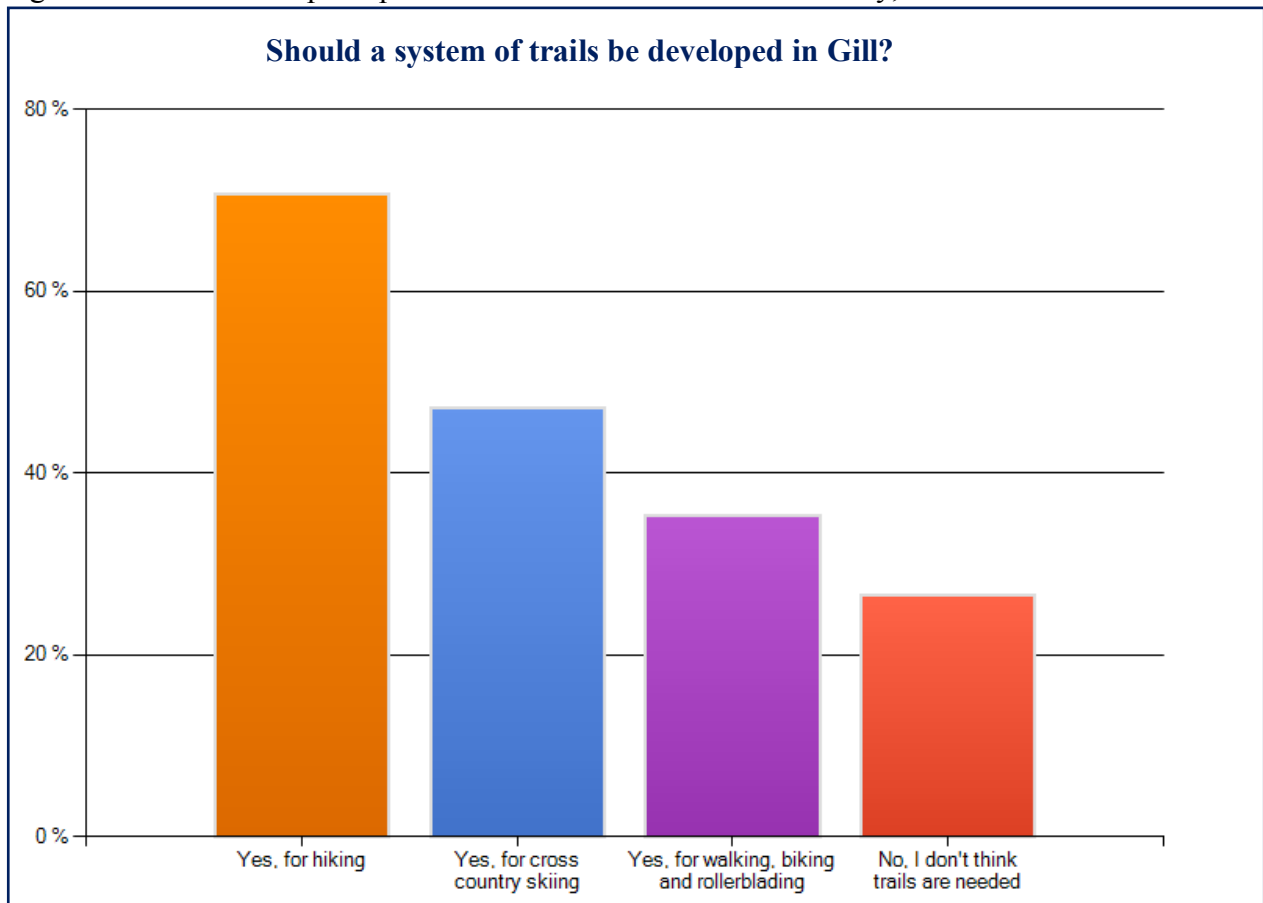


The Connecticut River is an excellent natural resource that is the focus for recreational activities for Gill residents. As shown in Figure 7-5, the most popular activity on the Connecticut River is canoeing and kayaking. Residents can access the River via the public boat launch in the Riverside area. An additional access point in town is the little-used Stacy’s Ferry, a one-acre Town-owned property. Stacy’s Ferry was identified during the Public Forum as a recreational area in need of improvement. Assessing strategies for improving Stacy’s Ferry are included in the Action Plan. Some ideas include better non-power boat access to the river, a picnic area and a park.

Summary of Management Needs

The Survey asked how well publicized recreational programs and facilities are in Town. About 45 percent say the programs are well publicized while 55 percent say they are not. The Committee discussed improving publicity by contributing a regular OSRP column to the volunteer-published Gill Newsletter and a regularly-published guide to OSRP facilities and programs. These strategies are included in the Action Plan.

Figure 7-6: Gill 2011 Open Space and Recreation Plan Public Survey, Trails



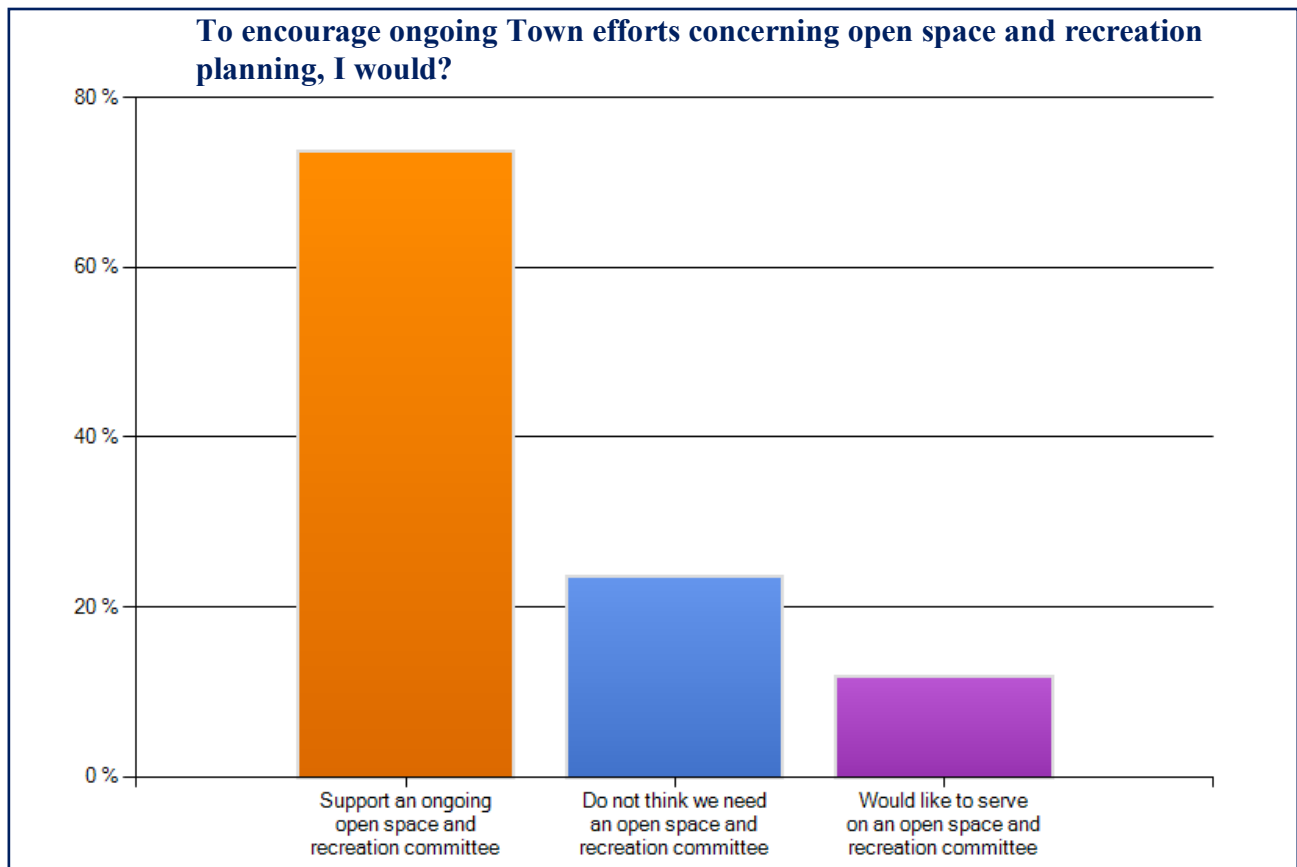
Nearly all respondents think that the recreational facilities in Gill are well-maintained. Volunteer efforts refurbished the ballfield at the Riverside Municipal Building, an important facility for Riverside residents. Some recreational needs include the addition of a Gill Elementary School recreational facility and refurbishment of the nature trail at the School. Upgrading Stacy’s Ferry

is another recreational need. Residents were also asked to list any additional recreational facilities or activities they would like to have in Town. Responses include:

- Cross country skiing and biking
- Zumba
- Gym for the Gill Elementary School...Swimming/pool area, basketball, path for walking, biking, cross country skiing or snow shoeing
- Good maps for cross-country skiing/ hiking
- Red Sox trip

About 70 percent of respondents are in favor of developing a system of trails for hiking and about 45 percent for cross country skiing, as shown in Figure 7-6. Trails is a topic that came up during Committee meetings as well. Therefore, forming a trails committee and producing a trails map are included in the Action Plan.

Figure 7-7: Gill 2011 Open Space and Recreation Plan Public Survey, OSRP Committee



About 75 percent of respondents to the Survey support an ongoing Open Space and Recreation Committee, although few are willing to serve on the committee (Figure 7-7). General comments on open space and recreation in Gill were requested as well. Responses include:

- We have enough (protected land) tied up already, NO more!
- Please have a committee to bring some business into town
- It would be good to have some formal connectors for x-country ski trails and a map.

- I do not believe more open space is needed. I strongly feel that we need more business revenue in the town.
- We have enough open space and developing trails costs money.
- Getting permission to hike through someone's corn field makes for the best hike.
- I believe the town should provide more focus on developing business in our community.
- How awesome it would be to have a booklet with everything in it. It would be nice if residents had access to the Falls River.

Implementing the 2011 Open Space and Recreation Action Plan will require the support of the community and the oversight of an active, permanent OSRP Committee. Perhaps the most pressing management need is community support, an active, ongoing OSRP committee, and the support of such entities as the Select Board, Planning Board, Recreation Committee, Conservation Commission, Historical Commission, and Agricultural Commission. Strong and diplomatic leadership of the OSRP Committee will be key to good public involvement and successful implementation of the Action Plan over the coming years.

Note: Complete Public Survey results are included in the Appendix C.



Barton Cove provides a peaceful setting for a pair of fall fishermen.

Americans with Disabilities (ADA) Act Findings

Two Town-owned properties show promise for development as recreational areas. They are the Town Forest and Stacy’s Ferry. Neither has been developed to date but, as they are, ADA access will be part of the planning process.

Park and Open Space Equity

Are open space and recreation opportunities available to all residents of Gill on a relatively equal basis? Traditional measures of park and open space equity assess whether environmental justice

populations in urban areas have the same access to open space and recreation resources as others in their community. Measuring park and open space equity is difficult in small, rural towns. In the case of Gill, no environmental justice populations are identified. These populations, as defined by the Executive Office of Energy and Environmental Affairs, are made up of “high minority, non-English speaking and low-income neighborhoods”.

Where Gill is concerned, there are few established parks and other public recreation spaces. However, the established parks and recreation spaces are distributed fairly equally throughout Town. In the north part of Gill, Northfield Mount Hermon’s recreational facilities are available for Town residents to use, albeit on a rather limited basis. There are also hiking trails throughout the School, which are available for residents to use. In Gill Center, the Gill Elementary School’s nature trail is available to the public. Once it is rehabilitated, it will return to being an excellent open space and recreation resource. In the Riverside area of Gill, the Riverside Municipal Building’s recreation fields are open to the public. The boat ramp in Barton Cove is also a recreational resource open to all residents.

Also, there is much open space that everyone has access to, either through ownership or through permission of friendly neighbors. And, as shown in the OSRP Public Survey, 90% of respondents indicated that their own land is the most often used “recreation area or program” in Gill. Easy access to open space is one measure of open space and recreation equity in Gill.

As the population of Gill continues to age, as is the trend in Town and throughout the Country, there may be more pressure placed upon the Town to provide open space and recreational activities for older citizens. Any future development of land or facilities for open space and recreation should include careful consideration of access for older citizens, as well as for handicapped. These needs should be also addressed as a matter of course under ADA requirements. However, specific programs could be specifically targeted at those citizens with special needs.

Regional Strategies for Open Space, Natural and Recreational Resource Protection

A variety of state and regional studies have been done which can help the Town of Gill further identify local recreation and land protection priorities. The Commonwealth completed The Statewide Comprehensive Outdoor Recreation Plan (SCORP), *Massachusetts Outdoors 2006*¹ a five-year plan. SCORP plans are developed by individual states to be eligible for federal Land and Water Conservation Fund (LWCF) grants and serve as a tool for states to use in planning for future needs and uses of outdoor resources for public recreation and relaxation.

The SCORP provides information about use of and demand for outdoor recreational resources in the Connecticut River Valley region that may be relevant to Gill’s open space and recreational planning efforts. When assessing resource use in this region, the SCORP notes that rivers and streams, historic and cultural sites, lakes and ponds, forests, coastal beaches and shorelines, and mountains, all have 40% participation rates or greater. When reporting on satisfaction levels of

¹ <http://www.mass.gov/eea/docs/eea/dcs/massoutdoor2006.pdf>

users of resources in this region, residents report being most satisfied with historic and cultural sites, mountains, and trails and greenways resources. Somewhat lower than statewide levels of satisfaction were reported in this region for rivers and streams, and lakes and ponds. Rivers and streams were the area where Connecticut Valley Region residents who use these facilities were least satisfied overall. When considering new recreational and open space projects, the Town may want to consider the following response from regional residents about future needs and interest from the SCORP:

“In contrast to demand (or present use patterns), respondents in this region place the highest priority for new facilities on road biking (14.5%), walking (13.9%), swimming (13.8%), playground (11.3%), hiking (10.0%), and mountain biking (10.3%)”.

In 2009, the Franklin Regional Council of Governments completed a corridor management plan for the 29-mile eastern portion of the Mohawk Trail Scenic Byway (Route 2) from Greenfield to Athol. The vision for the plan is to expand economic, tourism and recreational opportunities along the Byway while educating people about the Byway and preserving its unique scenic qualities, natural resources, historical structures/places, industrial and agricultural heritage and community character.

Section 8: Goals and Objectives

The following goals and objectives were formulated from the results of the 2011 Gill Open Space and Recreation Planning Survey and were reviewed and modified through the public meetings of the Gill Open Space and Recreation Committee. Review of the 2005 Gill Open Space and Recreation Plan, the 2004 Gill Community Development Plan, the as well as public input and comment were also considered in the formulation of the goals and objectives.



Improvements to the Gill Elementary School nature trail are included in Goal 3.

To help achieve this Open Space and Recreation Plan's goals and objectives, a Seven-Year Action Plan is included in Section 9. The Action Plan includes responsible parties and potential funding sources as well as projected start dates. Establishing an ongoing Open Space and Recreation Committee is critical to a successful implementation of the Action Plan.

Goals and Objectives

GOAL 1:

Ensure that the Town of Gill continues to protect its valued cultural, historical, scenic, archeological and natural resources (including water resources, wildlife habitat, forests and farmlands) through conservation and stewardship.

Objectives Related to Goal 1:

- Prioritize areas in Gill with significant cultural, historical, scenic, archeological and natural resources so that town officials and residents can act efficiently when a parcel of land containing such resources becomes available for protection.
- Encourage landowners interested in protecting their land from development to work with Franklin Land Trust, Mount Grace Land Conservation Trust, with state and federal conservation agencies, and with the Town of Gill.

- Use the annual Biodiversity Days as a means for building a comprehensive biological and geological inventory in selected areas of Gill using community volunteers.
- Support the training of local volunteers in vernal pool certification for students and citizens.
- Explore revisions to Gill’s zoning bylaw that would result in greater protection of valued “natural and cultural resources” and, which could also help to ensure any land development provides benefits that reflect the town’s natural resource conservation goals.
- Explore the potential for developing a private conservation land trust or land fund for Gill.
- Continue to protect river and stream banks, particularly the portions of the Connecticut River bank subject to chronic erosion.

GOAL 2: Ensure that the Town of Gill is responsive to the needs of farm and forest landowners and of other businesses producing local products in Town.

Objectives Related to Goal 2:

- Consider ways that the town might support agricultural and forest operations as they would other commercial or industrial businesses in town.
- Support the marketing of Gill farm and forest products as well as other locally produced products.
- Explore the options for encouraging agritourism in Gill.
- Encourage a connection between Gill farmers and foresters and Gill's school children to foster knowledge of natural systems in children and to help satisfy any unmet recreational needs of children in an innovative manner.

GOAL 3: Ensure that the Town of Gill maintains or improves the quality and accessibility of all its recreational facilities and programming.

Objectives Related to Goal 3:

- Evaluate the needs of all municipal recreational facilities and properties.
- Explore the feasibility of developing a new recreational facility for Gill Elementary School and residents of Gill.
- Promote existing and future recreational facilities and services.
- Continue to cooperate with private entities in town such as FirstLight, Gill-Montague School District, The Nature Conservancy, and Northfield Mount Hermon School that provide recreational facilities used by Gill residents.
- Support the development of multi-use and limited-use trail systems, which can be accessed from publicly owned land or private lands with permission.
- Identify recreational needs of residents of all ages and develop new programs and facilities as appropriate.

GOAL 4: Ensure that the Town of Gill residents and Town officials successfully work together and with others to guide the conservation of open space and recreation resources.

Objectives Related to Goal 4:

- Form a permanent Open Space and Recreation Advisory Committee.
- Conduct public outreach regarding the activities of the Open Space and Recreation Advisory Committee.
- Explore opportunities to partner with local, regional, and statewide land conservation organizations and agencies to better leverage limited town dollars and volunteer hours towards the conservation of priority resource areas.

GOAL 5: Identify ways to balance open space and recreation resources preservation in Gill with commercial and industrial development to ensure an adequate tax base to support the Town.

Objectives Related to Goal 5:

- Provide support and planning to individuals wishing to start new commercial or industrial businesses.
- Identify suitable areas to pursue additional commercial or industrial businesses in Town.
- Evaluate the revenues produced by each type of land use in Town.
- Determine what types of businesses, products and services are supported in town.

Section 9: Seven-Year Action Plan

This Seven-Year Action Plan on the following pages is intended to provide concrete steps towards implementing the goals and objectives discussed in previous sections of this Open Space and Recreation Plan. The Action Plan restates the goals and objectives followed by recommended actions, potential funding sources, the board or group responsible for implementation, and projected start dates. By implementing the recommended actions, each of the objectives will begin to be realized. The Action Plan Map at the end of this section is a graphical representation of highlights of the Action Plan.

Successful implementation will require the participation of existing town boards, committees and staff, including, but not limited to: the Open Space and Recreation Advisory Committee, Recreation Committee, Board of Selectmen, Planning Board, Conservation Commission, Historical Commission, and Agricultural Commission. Successful implementation will also require the collaboration of the town with other local and regional entities working in the town and the surrounding area such as the Connecticut River Watershed Council, Mount Grace Conservation Land Trust, Franklin Land Trust, the Franklin Regional Council of Governments (FRCOG) and the Natural Resources Conservation Service (NRCS).

Accomplishing the actions identified in this section will require time and commitment from dedicated volunteers. Forming an ongoing Open Space and Recreation Advisory Committee is critical to this Plan's success. Where money is required, it may be sought from state and federal governmental agencies, private non-profit conservation agencies, foundations, and individual donations in addition to municipal funds. A broad base of community support for the Open Space and Recreation Plan should facilitate the fundraising which may be needed to implement the action items.

Gill Open Space and Recreation Plan – Seven-Year Action Plan

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
GOAL 1: Ensure that the Town of Gill continues to protect its valued cultural, historical, scenic, archeological and natural resources (including water resources, wildlife habitat, forests and farmlands) through conservation and stewardship.					
Prioritize areas in Gill with significant cultural, historical, scenic, archeological and natural resources so that town officials and residents can act efficiently when a parcel of land containing such resources becomes available for protection.	Develop a list of criteria which, if identified on a parcel being offered as a donation or for sale in Town, would signify priority for action. If the parcel is under Chapter 61, 61A, or 61B, this could trigger the town’s official consideration of its right-of-first-refusal to acquire or otherwise seek to conserve a parcel of land.	Not started.	Town, Volunteers	Open Space and Recreation Advisory Committee, Conservation Commission, Agricultural Commission	2013
	Develop a protocol for how the town would consider using its right-of-first-refusal (or assigning the right to a conservation land trust or conservation agency) regarding Chapter lands that are put up for sale for development.	Not started.	Town, Volunteers	Open Space and Recreation Advisory Committee and Select Board	2013
	Using the list of criteria and the GIS maps in the Gill Open Space and Recreation Plan, identify general areas of conservation interest that would be considered to be priority areas with significant cultural, historic, scenic, natural, archeological, and natural resources.	Not started.	Town, Direct Local Technical Assistance	Open Space and Recreation Advisory Committee and Conservation Commission	2013
	Meet with local land trusts to better understand the details of holding conservation restrictions and provide training for Town boards and other interested parties.	New in 2011.	Town, Local land trusts	Open Space and Recreation Advisory Committee, Select Board, Conservation Commission, Land Trusts	2012
	Include an ongoing “what’s new in land conservation in Gill” article in the Gill Newsletter.	New in 2011.	Town, Volunteers	Open Space and Recreation Advisory Committee, Town Administrative Assistant	2012
	Along with prioritizing areas to protect, prioritize areas not to protect so that some development is possible. See also Goal 5.	New in 2011.	Town, Volunteers	Planning Board, Open Space and Recreation Advisory Committee, Development Committee (yet to be formed)	2013
Encourage landowners interested in protecting their land from development to work with Franklin Land Trust, Mount Grace Land Conservation Trust, with state and federal conservation agencies, and with the Town of Gill.	Invite Mount Grace Land Conservation Trust and Franklin Land Trust to a town forum to provide a presentation on their current activities and on the assistance they have to offer to Gill landowners.	Mount Grace and Franklin Land Trust did hold presentations in 2010. This is an ongoing education action item and should remain in the plan.	Volunteer or supported by land trusts.	Open Space and Recreation Advisory Committee and Select Board	2011 (ongoing process)

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
Use the annual Biodiversity Days as a means for building a comprehensive biological and geological inventory in selected areas of Gill using community volunteers.	Work with the Massachusetts Association of Conservation Commissions (MACC) to coordinate annual spring walks to inventory animals, insects, fish, plants, trees and significant geological features in the Town Forest.	Action has been started.	Town, Volunteers	Open Space and Recreation Advisory Committee, Conservation Commission and MACC	2013
Support the training of local volunteers in vernal pool certification for students and citizens.	Encourage Northfield Mount Hermon and Gill-Montague Schools and residents to participate in a training program in vernal pool certification.	Not yet done. Still relevant.	Town, Volunteers	Open Space and Recreation Advisory Committee, Gill-Montague School	2012
Explore revisions to Gill's zoning bylaw that would result in greater protection of valued "natural and cultural resources" and, which could also help to ensure any land development provides benefits that reflect the town's natural resource conservation goals.	Request the Franklin Regional Planning Board – or Citizen Planner Training Collaborative (CPTC) - to present a program on zoning bylaws for the conservation of "natural and cultural resources" and encourage Gill residents to attend the meeting.	Not yet done. Still relevant.	UMass Extension Citizen Planner Training Collaborative	Planning Board and Open Space and Recreation Advisory Committee	2013
	Develop, publicize, and if received well by the residents of Gill, seek to adopt a bylaw(s) that will help to protect valued "natural and cultural resources."	Not yet done. Still relevant.	Direct Local Technical Aid through Department of Housing and Community Development	Planning Board	2014
	Revisit the benefits of conservation/cluster development and determine whether current conservation development zoning is still the best option for Gill.	New in 2011.	Direct Local Technical Aid through Department of Housing and Community Development	Planning Board	2015
Explore the potential for developing a private conservation land trust or land fund for Gill.	Invite members of a small, private land trust, such as the trust in Whately, to a meeting of the Open Space and Recreation Advisory Committee as a first step to understanding the value and risks associated with having a local land trust.	New in 2011.	Town, Volunteers	Open Space and Recreation Advisory Committee	2014
	Further explore the possibility of adopting the Community Preservation Act.	New in 2011.	Town, Volunteers	Select Board, Planning Board, Historical Commission	2014
Continue to protect river and stream banks, particularly the portions of the Connecticut River bank subject to chronic erosion.	Participate in the Connecticut River Streambank Erosion Committee.	New in 2011.	Town, Volunteers	Conservation Commission	2012
GOAL 2: Ensure that the Town of Gill is responsive to the needs of farm and forest landowners and of other businesses producing local products in Town.					
Consider ways that the town might support agricultural and forest operations as they would other	At Town Meeting, vote to set aside funding each year for agricultural and forestland conservation.	New in 2011.	None needed	Agricultural Commission and Conservation Commission	2012 and ongoing annually

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
commercial or industrial businesses in town.	At Town Meeting, vote to remove excise taxes on farm animals.	Completed	N/A	N/A	N/A
Support the marketing of Gill farm and forest products as well as other locally produced products.	Broaden publicity for events that feature local products—such as Gill Cheese Night—to attract attendees from area towns.	Item is underway and is ongoing.	Volunteers, local farmers	Agricultural Commission	2012
	Update the Gill Farm Guide brochure annually.	Item is underway and is ongoing.	Volunteers	Agricultural Commission	2012
Explore the options for encouraging agritourism in Gill.	Consider hosting a farm tour to highlight farm products and strengthen the connection between farmers and potential and/or existing customers.	Begun and ongoing.	Volunteers, local farmers	Agricultural Commission	2013
Encourage a connection between Gill farmers and foresters and Gill's school children to foster knowledge of natural systems in children and to help satisfy any unmet recreational needs of children in an innovative manner.	Evaluate whether there is a way in which some of Gill school children's recreational needs could be met through field trips to farm or forest operations.	New in 2011.	Volunteers, MDAR	Agricultural Commission, Open Space and Recreation Advisory Committee, Gill Elementary School Staff	2013
GOAL 3: Ensure that the Town of Gill maintains or improves the quality and accessibility of all its recreational facilities and programming.					
Evaluate the needs of all municipal recreational facilities and properties.	Inventory and assess all existing recreational facilities, properties and programs.	New in 2011.	Town, Volunteers	Recreation Committee	2012
	Partner with Northfield Mount Hermon and the Gill-Montague School System to work on making their recreational facilities available to Gill residents during the week.	New in 2011.	Town, Volunteers	Recreation Committee, Northfield Mount Hermon representative, Gill-Montague School representative	2012
	Explore the feasibility of improving the Stacy's Ferry public land for use as park, picnic area and river access for kayaks and canoes, including ADA accessibility.	New in 2011.	Town, Volunteers	Recreation Committee, Select Board	2012
Explore the feasibility of developing a new recreational facility for Gill Elementary School and residents of Gill.	Apply for an MA Parkland Acquisitions and Renovations for Communities (PARC) Program (formerly Urban Self Help Program) grant to fund the development of a new recreational facility for Gill Elementary School and for residents of Gill.	New in 2011.	MA Division of Conservation Services, School Building Assistance Program	Recreation Committee and Open Space Advisory Committee	2013
	Make more information available about current Riverside School recreation facilities and encourage more use of them.	New in 2011. Note: A committee is currently accessing public uses at the Riverside School.	Town, Volunteers	Recreation Committee, Town Administrative Assistant	2012
	Assess the potential to continue to upgrade the Riverside School recreational facilities.	Some upgrades completed by volunteers. Ongoing.	Town, Volunteers	Recreation Committee	2015

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
	Support the repair and ongoing maintenance of the Gill Elementary School nature trail.	New in 2011.	Town, Volunteers, MA Division of Conservation Services	Recreation Committee	2015
Promote existing and future recreational facilities and services.	Submit a regular "Open Space and Recreation" column to the Gill Newsletter.	New in 2011.	Volunteers	Recreation Committee, Open Space and Recreation Advisory Committee	2012
	Develop a guide to facilities, programs, and trail systems in town.	New in 2011.	Town, Volunteers	Recreation Committee, Open Space and Recreation Advisory Committee, Volunteer with graphics skills	2012
	Develop a one-page, easily reproduced flyer that shows the locations of different recreational facilities in and around Gill. Mail to all residents each year as part of a regular Gill Newsletter mailing.	Not yet done. Still relevant.	Town, Volunteers	Recreation Committee, Volunteers	2013
Continue to cooperate with private entities in town such as FirstLight, Gill-Montague School District, The Nature Conservancy, and Northfield Mount Hermon School that provide recreational facilities used by Gill residents.	Include FirstLight, the Gill-Montague School District, The Nature Conservancy, and Northfield Mount Hermon School as well as other entities on the mailing lists for meetings of the Open Space and Recreation Advisory Committee and the Recreation Committee as a way of communicating the town's interest in a mutually beneficial relationship with these organizations.	New in 2011.	Town, Volunteers	Recreation Committee, Open Space and Recreation Advisory Committee	2012
Support the development of multi-use and limited-use trail systems, which can be accessed from publicly owned land or private lands with permission.	Encourage the formation of a non-municipal trails committee.	New in 2011.	Town, Volunteers	Bernardston-Leyden-Gill Snowmobile Club, Volunteers	2012
	Inventory and map the existing system of largely informal trails on Town and State-owned land.	New in 2011.	MA Division of Conservation Services, Franklin Regional Council of Governments	Town Forest Committee	2013
	Use the Gill Newsletter to promote a meeting on trails and trail development. Gauge interest among landowners for the creation of new trails in town. If interest is strong, encourage a secondary meeting to establish a course of action.	New in 2011.	Town, Volunteers	Recreation Committee and Open Space and Recreation Advisory Committee, Volunteers, Newsletter Committee	2013
Identify recreational needs of residents of all ages and develop new programs and facilities as appropriate.	Use the Gill Newsletter to report results of the OSRP survey and to request volunteers to take on activities that most interest them. If volunteer recruitment is unsuccessful, seek grants from the Massachusetts Cultural Council to fund staff time and direct costs for the most desired program.	Not started. Still relevant.	Massachusetts Cultural Council	Recreation Committee and Open Space and Recreation Advisory Committee, Volunteers, Newsletter Committee	2013

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
GOAL 4: Ensure that the Town of Gill residents and Town officials successfully work together and with others to guide the conservation of open space and recreation resources.					
Form a permanent Open Space and Recreation Advisory Committee.	Request the Select Board approve a warrant article for Town Meeting vote that asks to establish a standing Open Space and Recreation Advisory Committee.	Not started. Still relevant.	Volunteers	Select Board	2012
	Monitor the implementation of the 2011 Gill Open Space and Recreation Plan.	New in 2011.	Volunteers	Open Space and Recreation Advisory Committee	2012 (ongoing)
	Revise and update any sections of the OSRP throughout the seven-year period in preparation for the next OSRP.	New in 2011.	Volunteers	Open Space and Recreation Advisory Committee	2012
Conduct public outreach regarding the activities of the Open Space and Recreation Advisory Committee.	Create an online presence for Open Space and Recreation activities in Gill via a webpage or Facebook.	New in 2011.	Volunteers	Open Space and Recreation Advisory Committee	2013
Explore opportunities to partner with local, regional, and statewide land conservation organizations and agencies to better leverage limited town dollars and volunteer hours towards the conservation of priority resource areas.	Meet annually with conservation organizations such as Mount Grace Conservation Land Trust, Franklin Land Trust and other entities to discuss any potential conservation projects.	Not begun. Still relevant.	Volunteers	Open Space and Recreation Advisory Committee	2012
	Send a town representative to attend quarterly meetings of the North Quabbin Regional Landscape Partnership to engage land conservation agencies and organizations and other town open space committees in efforts that focus on Gill priorities as well as on broader landscape-scale conservation.	Not begun. Still relevant.	North Quabbin Regional Landscape Partnership	Open Space and Recreation Advisory Committee	2014
GOAL 5: Identify ways to balance open space and recreation resources preservation in Gill with commercial and industrial development to ensure an adequate tax base to support the Town.					
Provide support and planning to individuals wishing to start new commercial or industrial businesses.	Establish a study committee to promote new commercial and industrial development in Town. Learn about and publicize availability of assistance for individuals wishing to state new businesses in Town.	New in 2011.	Town, Volunteers	Planning Board, Development Study Committee (yet to be formed)	2012-13
	Conduct outreach to regional organizations, such as the Franklin County Community Development Corporation and the Franklin Regional Council of Governments, to research existing business development and entrepreneurial resources	New in 2011.	Town, Volunteers	Planning Board, Development Study Committee (yet to be formed)	2012-13
	Based upon results of research, create a public outreach and education webpage and/or a brochure that identifies resources to individuals wishing to start a new business in Town.	New in 2011.	Town, Volunteers	Development Study Committee (yet to be formed)	2013-14
	Encourage home-based businesses in order to expand the number of commercial businesses without developing new parcels of land.	New in 2011.	Town, Volunteers	Development Study Committee (yet to be formed)	2013-14
Identify suitable areas to pursue additional commercial or industrial	Revisit the 2004 Gill Community Development Plan as a starting point to identify areas in Gill suitable for commercial or industrial	New in 2011.	Town, Volunteers	Planning Board, Development Study	2013

GOAL/OBJECTIVES	ACTIONS	NOTES / STATUS OF ACTION ITEM IF CARRIED OVER FROM 2005	POTENTIAL FUNDING SOURCES	RESPONSIBLE BOARD/ GROUP	PROJECTED START DATES
businesses in Town.	development.			Committee (yet to be formed)	
	Conduct periodic reviews of the zoning bylaws to determine if they continue to accommodate economic development efforts.	New in 2011.	Town	Planning Board, Zoning Board of Appeals	2012 (ongoing)
Evaluate the revenues produced by each type of land use in Town.	Consider conducting a cost of community services study - potentially through American Farmland Trust - to determine the fiscal contributions of residential, commercial, industrial, and farm and open land in the town.	New in 2011	American Farmland Trust	Planning Board, Development Study Committee (yet to be formed)	2013
Determine what types of businesses, products and services are supported in town.	Conduct a survey to evaluate the types of businesses, products and services are supported in Town.	New in 2011	Town, Volunteers	Development Study Committee (yet to be formed)	2012-13

Seven-Year Action Plan Highlights

Town of Gill 2011 Open Space and Recreation Plan



Support the repair and ongoing maintenance of the Gill Elementary School nature trail throughout town.

Formalize an agreement for more public access to recreational facilities located at Northfield Mount Hermon.

At Town Meeting, vote to set aside funding each year for agricultural and forestland.

Inventory and map the existing system of largely informal trails throughout town.

Explore the feasibility of improving the Stacy's Ferry public land for use as a park, picnic area and river access for

Form a permanent Open Space and Recreation Advisory Committee.

Assess the potential to upgrade the Riverside School recreational facilities.

Participate in the Connecticut River Streambank Erosion Committee.

- Town Line
- Rail Lines
- Roads
- Streams and Rivers
- Water body
- Wetland
- Slope > 25%
- Prime Farmland Soil

Goals, objectives and action items in the Seven-Year Action Plan include – among others – resource and land protection, recreational facilities upgrades, economic development, and river preservation and access, highlighted in this map.

Successful implementation of the Plan will require the participation of existing town boards, committees and staff as well as dedicated citizen volunteers.

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

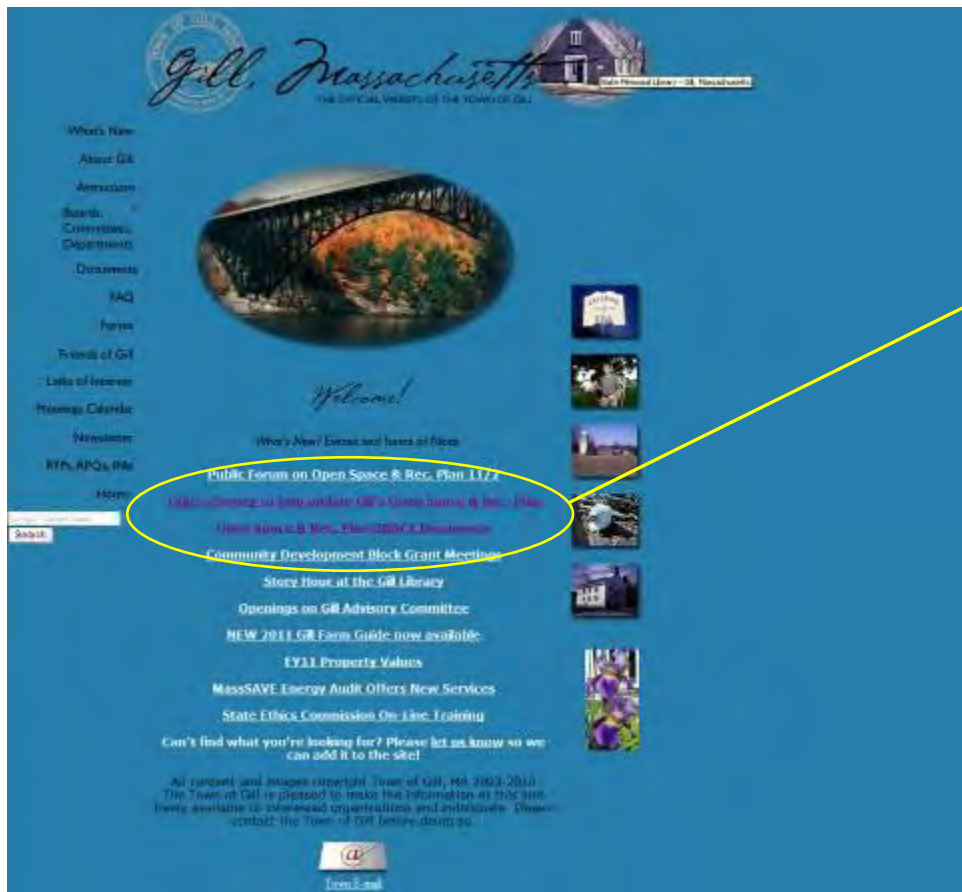
FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS
Main Office: 413-774-3167
425 Main Street
Greenfield, Massachusetts 01301



Section 10: Public Comment

Public input was encouraged throughout the planning process. As described in the Introduction, the Open Space and Recreation Plan Public Forum was originally scheduled to be held on November 2, 2011. It was postponed due to the power outages and damage associated with the Halloween snow storm. The Forum was rescheduled for November 16, 2011 and saw very light attendance, despite several advertising methods. These methods include information in the online and paper versions of the Gill Elementary School Newsletter (See Appendix A), an announcement on Gill’s website homepage, information in the Gill Newsletter, and via flyers posted at the Town Hall and at local businesses. All Town board and committee members were also notified of the Forum Comments expressed at the public forum were recorded and included in Section 10: Public Comments.

Draft sections of the OSRP were posted on the Town’s website throughout the planning process and members of all Town Boards and Committees were notified of their location and were asked to comment. Letters of support were received from several entities and are included in the Appendix H.



The Town’s website was updated regularly with OSRP planning information and documents.

Public feedback provided during the entire planning process is difficult to document due to the fact that the plan constantly incorporated these changes and enhancements.

Public input was gathered via the Public Survey. Along with answering specific questions, the public was given the opportunity to offer general comments as well. Those comments are shown in Section 7.

Public Comments recorded at the Public Forum on November 2, 2011:

- Edit action items including:
 - Add Conservation Commission as responsible party to help evaluate and prioritize open space for protection
 - Encourage home-based businesses as way to improve economic development with low impact to land use and land development
 - Consider types of potential commercial and industrial businesses compatible with Town's other goals
 - Offer resources to help residents start small businesses
 - Establish a committee to help identify types of businesses needed in Gill
 - Identify ways to balance open space preservation with commercial and industrial development to help provide a broader tax base.

The Action Plan includes additional surveys of the Town on various topics. It is hoped these additional surveys will help further clarify the needs of citizens. The successful implementation of this Plan will depend upon involvement of citizen volunteers to help the Open Space and Recreation Advisory Committee complete many of the action items included in the Action Plan.

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Please note: In addition to the following references, other sources are cited in the body of the text or as footnotes.

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