1.0 PLAN SUMMARY

Holden's 2012 Open Space and Recreation Plan (OSRP) is a planning document designed to provide direction to Town government and others interested in protecting the Town's open spaces, recreational and historical resources. The 2012 OSRP evaluates property in Holden that has been identified as significantly contributing to the open space and recreation needs and overall character of the Town. The plan includes a Five-Year Action Program to further the following goals:

- To preserve the aesthetic and natural resources in Holden;
- To preserve wildlife habitats;
- To preserve water supplies for Holden and surrounding towns;
- To provide active recreation resources and facilities;
- To promote passive recreation resources and integrate them with conservation and open space activities; and
- To develop funding sources to accomplish these goals.

The 2012 OSRP, which replaces and supersedes the 1999 OSRP, maintains the Town of Holden eligibility for grant programs administered by the Division of Conservation Services (DCS) of the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA).

2.0 INTRODUCTION

2.1 Statement of Purpose

Holden is a nice place to live with pastoral scenery, wooded uplands and quiet neighborhoods. These features belie the proximity to the City of Worcester business hub on its southern border. Holden is also a growing town; the expansion of the Town's sewer services has fostered large residential and infill development. Holden residents and Town officials recognize that retaining the New England small town flavor they so enjoy requires systematic planning to offset a threat posed by current levels of residential growth and continuing development pressures.

The 2012 Holden Open Space and Recreation Plan (OSRP) represents a comprehensive effort on the part of the Town of Holden to revise and update the 1999 Holden OSRP, which was revised from the original 1994 plan. Factual information and policy recommendations embodied in this document have been developed to guide Town government, boards and committees, and others interested in meeting Holden's open space and recreation needs, over the next seven year period, 2012 through 2019.

2.2 Planning Process and Public Participation

2004- 2005

In 2004, various committees chose representation to participate in the Open Space and Recreation planning process. Town Manager, Brian J. Bullock, officially appointed the Holden Recreation and Open Space Planning Committee as an *ad hoc* committee on June 21, 2004 to revise and update the 1999 Holden OSRP, in a manner that would achieve the following local planning goals:

1. Provide a comprehensive planning document to give direction to Town boards and committees in planning for the open space and recreation needs of the community.

2. Provide a comprehensive open space and recreation planning document to ensure Town of Holden eligibility for any of the grant programs administered by the Massachusetts Division of Conservation Services (DCS) in the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) which could potentially aid in the acquisition of land for the retention of open space and the provision of recreational facilities.

The 2004 Committee consisted of the following residents and Town officials of Holden:

Ad Hoc Recreation and Open Space Committee

James Jumonville	Board of Selectmen
Craig F. Stanovich	Planning Board
Ida Nystrom	Wachusett Greenways
David Sabourin	White Oak Land Conservation Society
Anthony Costello, Chair	Conservation Commission
Lucy Banks	Recreation Committee
Alan Berg	Finance Committee

Ex officio members of the committee:

Brian J. Bullock	Town Manager
Denise M. Morano	Recreation Director
Pamela Harding	Town Planner and Conservation Agent

For the 2004 leg of this effort, the Holden Assessing Department provided parcel information for the Recreation and Open Space Planning Committee. The Recreation Department and Department of Growth Management provided administrative, research and compilation assistance. Department of Public Works Civil Engineer, Daniel Nason, contributed in his specific areas of expertise and mapping. Judith Haran of the White Oak Land Conservation Society provided expertise on open space resources.

The Recreation and Open Space Planning Committee (the Committee) was charged by the Town Manager with completing the plan revision process and subsequent final document for submission to the DCS. The Committee adopted and adapted to their needs the information and format guidelines as provided by the Executive Office of Energy and Environmental Affairs (EOEEA) document entitled "2001 Open Space And Recreation Plan Requirements" and its companion recently updated "Open Space Planner's Workbook, March 2008 revision".) Information provided in the previous plan was updated and categorized in accordance with the workbook's standards for open space and recreation plans.

After its initial organizational meetings in July of 2004, the Committee held public meetings every other week until the month of December to actively revise the 1999 OSRP. The Landmark, a local newspaper, supported the Committee by publishing reports of Committee activity and emphasizing the need for community involvement. The background technical data and information required for Sections 1 through 4 was updated by staff assisting the Committee in an ex-officio capacity. This enabled the Committee to review and quickly comment and focus on the goals, objectives, and the five year program for implementation. A public forum intended to solicit public comment and input on the revised draft document was held on October 13 and October 27, 2004. A great deal of input was received from the public through two visioning meetings. The results of the meetings were incorporated into the draft document for subsequent submission to the Board of Selectmen, the Holden Planning Board and the Central Massachusetts Regional Planning Commission (CMRPC). Commentary from these groups is presented in this document in Section 10.0.

2008-2012

Following the significant efforts of town officials and volunteers in 2004 and 2005, a draft OSRP was prepared. This plan was never finalized. With a desire to develop resources for open space and recreation projects, town officials and volunteers sought assistance from CMRPC. In 2007 and 2008, working with CMRPC, the draft document from 2004 and 2005 was updated. In September and October of 2008, additional community input was sought by means of an on-line survey and a community forum. The results of the survey are attached in Appendix D. Though announced on the town web-site and in the Landmark newspaper, attendance at the October 8, 2008 community forum was very low. Comments from the on-line survey and the forum were incorporated in the document.

Immediately preceding the efforts to finalize this document, the Town of Holden undertook an extensive Master Planning process. Relevant comments and information from that process and 2010 census data were incorporated to update the plan.

3.0 COMMUNITY SETTING

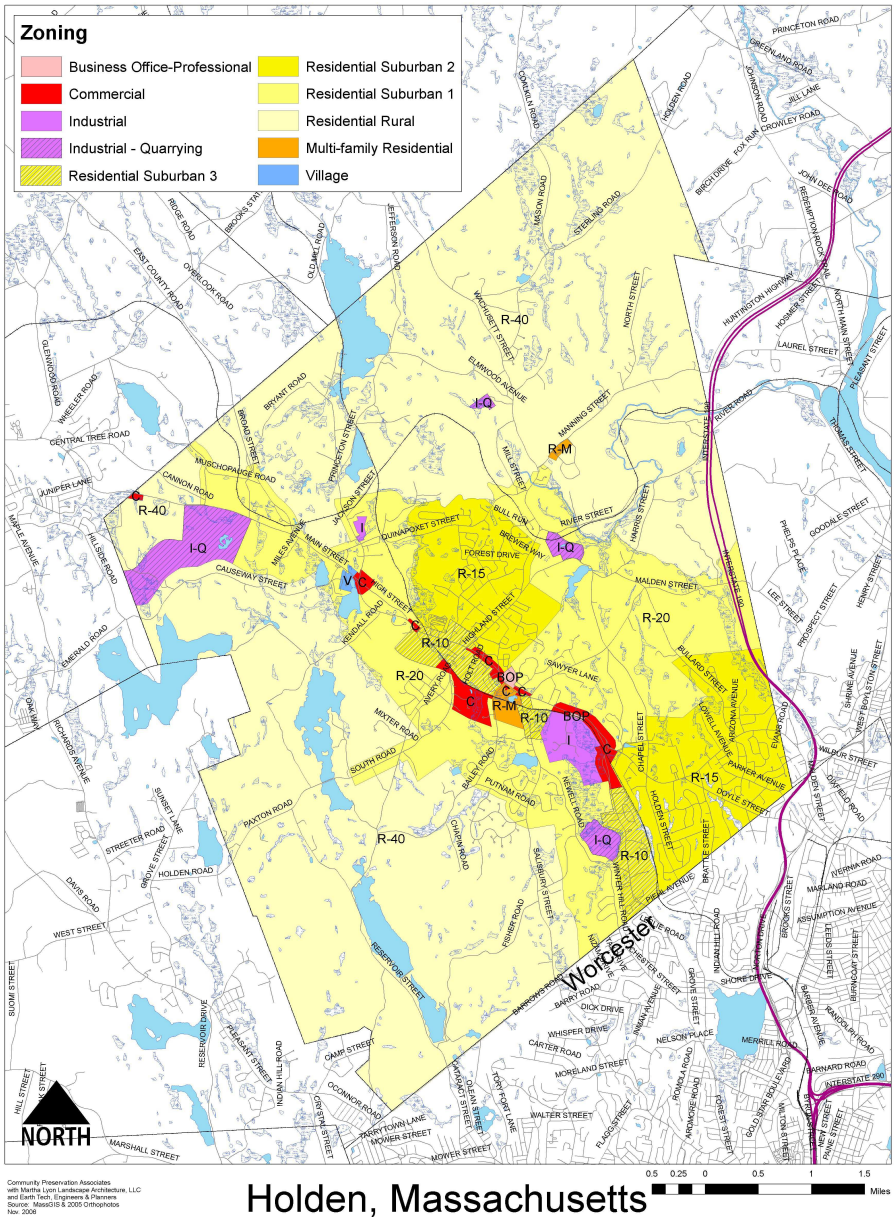
3.1 Regional Context

Holden is located in the Central Region of the Commonwealth of Massachusetts, approximately 55 miles west of the City of Boston. Holden is located northwest of, and directly abutting, the City of Worcester. Holden is one of 9 towns bordering the City of Worcester and serves as a residential resource community for this business and industrial center. Holden's development is 97% residential, with only 3% of the local land area consisting of retail and industrial uses. The Zoning Map is included. Holden has carefully scaled its industrial and business development to be compatible with its desired small town New England character. Despite a loss of open space over the past 20 years, Holden remains 77.9% open space. Of the remaining land area, 17.9% is residential with only 1.2% is used for industrial or commercial uses.

Table 1: Land Use in Holden 1985 – 2005 (Source: MassGIS and updates based on 2005 orthophotos)

Land Use	1985 Acres	%	1999 Acres	2005 Acres	%	20 year change
Open Uses						
Cropland	597.9	2.6%	578.4	521.4	2.2%	(76.6)
Pasture	550.4	2.4%	521.1	435.5	1.9%	(114.9)
Nursery/Orchard	14.2	0.1%	21.4	21.4	0.1%	7.2
Forest	16,681.8	71.8%	16,181.2	15,709.1	67.6%	(972.7)
Unforested Wetlands	227.2	1.0%	240.5	240.4	1.0%	13.2
Open Land, Abandoned Fields	213.9	0.9%	280.8	370.9	1.6%	156.9
Water	814.4	3.5%	814.8	814.6	3.5%	0.2
Total Open Uses	**19,099.9**	**82.1%**	**18,638.2**	**18,113.3**	**77.9%**	**(986.6)**
Gravel Pit, etc.	166.31	0.7%	145.71	145.44	0.6%	(20.9)
Participation Recreation	161.77	0.7%	170.39	172.46	0.7%	10.7
Water-based Recreation	2.52	0.0%	2.52	2.52	0.0%	(0.0)
Multi-family Residential	15.38	0.1%	31.18	61.57	0.3%	46.2
Residential < 1/4 acre	148.51	0.6%	148.57	152.43	0.7%	3.9
Residential 1/4 to 1/2 acre	1,926.37	8.3%	2,120.91	2,200.36	9.5%	274.0
Residential > 1/2 acre	1,030.60	4.4%	1,291.20	1,722.82	7.4%	692.2
Commercial	134.58	0.6%	145.68	163.81	0.7%	29.2
Industrial	105.14	0.5%	110.41	110.30	0.5%	5.2
Urban Open/Institutional	252.26	1.1%	284.22	244.15	1.1%	(8.1)
Transportation	138.52	0.6%	134.58	134.53	0.6%	(4.0)
Waste Disposal/Landfill	67.96	0.3%	26.32	26.31	0.1%	(41.7)
Total	**23,249.9**		**23,249.8**	**23,249.9**		

Approximately 82% of Holden is located within the Nashua River Watershed; the remaining southern area of Town is located within the Blackstone River Watershed. Holden, particularly the Quinapoxet River, is a major tributary to the Wachusett Reservoir, located in West Boylston. The Wachusett Reservoir is a major water resource for the City of Boston. Protection of this water resource is regulated by the Department of Conservation and Recreation (DCR) (formerly known as Metropolitan District Commission (MDC)). DCR has greatly increased land acquisitions for the purposes of water quality protection. These open space acquisitions have provided great aesthetic and passive recreational resources for the Town.



Map 1 – Zoning Map (Excerpted from Master Plan - Holden Tomorrow)

There are 5 water supply reservoirs located in Town and owned by the City of Worcester, the City has recently increased their efforts to permanently preserve surrounding land. In the fall of 2004, Holden expanded its purchase of water from the City of Worcester, which is now the Town's largest water resource. Muschopauge Pond was a shared water resource with neighboring Rutland. The Pond was taken off line in the end of 2000 and is only used as an emergency supply. Holden is very cognizant of its need to protect its own water resources and the water resource areas of its neighboring towns.

Being a major water supply area Holden has approximately 30% of its area permanently preserved as open space. Many of these land holdings contain trails, which are utilized by area residents for a variety of passive recreational opportunities. Holden also has a number of active recreational opportunities which are open to non-residents for a fee.

As a residential community with a limited tax base, Holden strives to find creative methods to establish and maintain quality open and recreational spaces for its citizens. A lack of discretionary funds makes it difficult for Holden to properly maintain its recreational spaces and severely limits its ability to obtain additional facilities and open spaces. Land acquisitions by the DCR, the City of Worcester, and the passage of the Watershed Protection Act (Cohen Bill) supplement Holden's open space and the Town's natural land resources.

3.2 History of the Community

Colonial Period
(1675-1775)

The first permanent settlers came to the eight square mile area known as "North Worcester" in the 1720s. Jonas Rice (of Marlborough) discovered limestone (near Shrewsbury Street in the eastern part of Holden) in 1723 and set up kilns. Soon afterward, surveys were made of the area, the lands were divided into lots, and four roads were built. Proprietors owned the lots, and settlers developed them. In 1737, the settlers built a meetinghouse near the corner of Main and Highland Streets. In 1741, Holden became a town, named after the Honorable Samuel Holden, a London merchant and benefactor of the New England colonies.

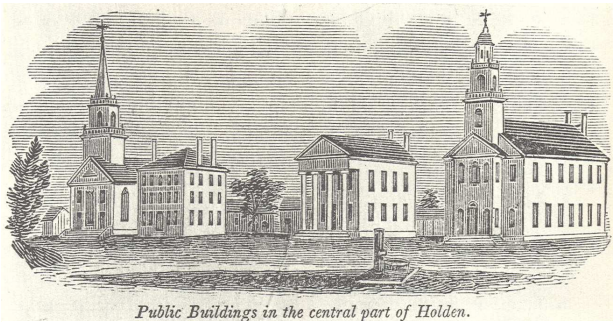

Public Buildings in the central part of Holden.

Figure 4-3: The Holden ("Hancock") Common in 1839. Courtesy of the American Antiquarian Society.

Holden's Colonial Period economy was centered on subsistence farming and saw and grist milling. Farmers grew vegetables and herbs, and maintained cows, sheep, pigs and oxen (for hauling crops, logs and other milled items). Fibers for clothing came from sheep (wool) and flax (linen). In 1750, 55 families lived in Holden.

While most of Holden's extant historic resources date to the 19th and 20th centuries, several landscapes and structures survive from the Colonial period. According to the Town's inventory of historic resources, the oldest remaining building is the Rogers House (1733) on Boyden Road.

Federal and Early Industrial Periods
(1775-1870)

Farming in Holden began to decline following the completion of the Erie Canal (1825) and opening of the west to large-scale agriculture. By the early 1800s, textile mills – cotton and woolen – began to emerge on Holden's many waterways, creating a series of small mill villages within the larger Town. The first mill, a cotton mill, was established in 1809 on the Quinapoxet River (near the junction of Wachusett and Bullard Streets) by Eleazer Rider & Sons (of West Boylston). Along with the mill, the Riders built several tenement houses and established Holden's first mill village – Unionville. A

second textile mill appeared in 1817 in the south part of Town. Built by Royal Chaffin, it specialized in dyeing wool and coloring yarn. In the years immediately following, other mills developed at Lovellville (1820),

North Woods (or Ruralville, 1827), Eagleville (1826), Quinapoxet (1831), Dawsonville (1862), and other locations along Holden's many waterways.

Many of Holden's significant historic buildings and landscapes date to the Federal and Early Industrial periods. Examples of extant Federal period (1775-1830) buildings include the Bassett-Brewer House (1813) on Union Street, the Blake Farm (1800) on South Road, the Nathan Chaffin House (1793) on Salisbury Street, and the Davis-Flagg House (1779) on Main Street. Civic buildings from the Federal period include the Old First Baptist Church (1819) on Highland Street and the First Congregational Church (1789) on Main Street. The Park Avenue Burying Ground (1826) is one of Holden's prominent Federal period landscapes.

The Early Industrial period brought the construction of many mill complexes. Housing and other amenities accompanied the mills. The only extant mill complex stands at Jefferson – the Jefferson Manufacturing Company on Main Street, built in 1850. However, many examples of mid-19th century architecture still remain in both vernacular and high styles. Vernacular buildings include the Eagle Lake Woolen Company Worker Housing (1860s), located in Jefferson. The Miles Funeral Home (1854) on Main Street is an example of a high style Early Industrial period building. Grove Cemetery (1854) and St. Mary's Cemetery (1867) were laid out during this period and serve as fine examples of the rural/garden cemetery style.

Holden in 1870. Mills stood throughout the Town, dominating the local economy. From the F. W. Beers Atlas of Worcester County, Massachusetts. Published in 1870.

Late Industrial Period (1870-1915)

Mill activity dominated the Holden economy through much of the 19th century. In 1871, the railroad came to Holden, eventually offering stops at Chaffins, Dawson, and North Woods, as well as at the Center, Jefferson and Quinapoxet. The immigrant population (largely Irish, Canadians and Swedes) grew to dominate the manufacturing labor force. In 1885, 40% of the workforce was foreign-born.

Many examples of late 19th and early 20th century architecture remain in Holden. Residential buildings include the Charles L. Hendricks House (1884), Charles Pomeroy House (1903) on Walnut Street, William Howe Warren House (1910) on Maple Street, and Benjamin H. Robbins House (1913) on Highland Street. Civic buildings include the Damon Memorial Building (1888) on Highland Street, and Marjery A. Rice School (1911) on Phillips Road.

Early Modern & Modern Periods (1915-Today)

Holden's location near an urban area and on a railroad line made it desirable as a rural retreat. Several summer hotels operated in the Town at the end of the 19th and beginning of the 20th centuries.

Beginning in the 1890s, the Metropolitan District Commission, charged with providing water to 41 Boston communities, began acquiring lands in Holden to protect the Wachusett Reservoir. Several of Holden's mills stood on these lands. The mill buildings were little by little demolished, and the lands preserved as open space. Today only one mill village – at Eagleville and Jefferson – remains, with its manufacturing

buildings, mill housing, Catholic Church and cemetery, and mill owner houses. Remains of the mill buildings and dams remain at ten other mill sites.

As the 20th century progressed, agricultural activity in Holden declined along with the mill industry, and the Town evolved slowly into a commuter town and bedroom community for Worcester and Boston. The construction of Interstate 190, to the east of Holden, contributed to this trend.

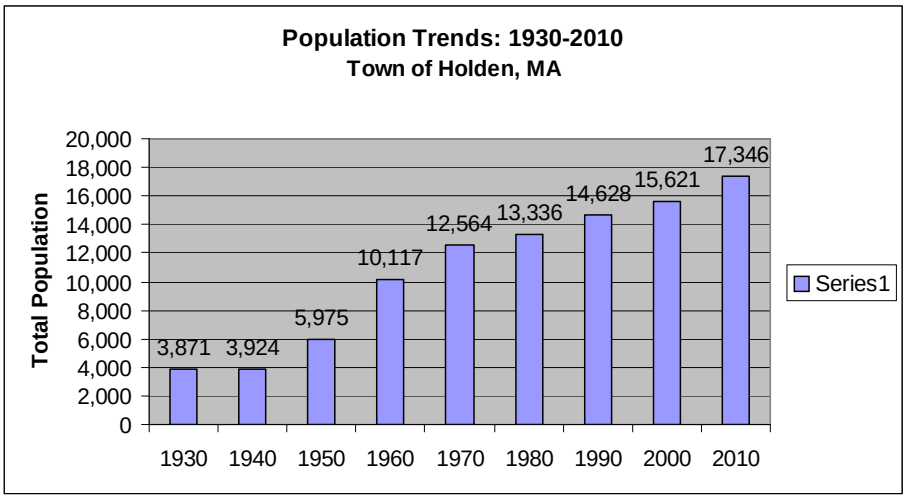
Several fine examples of 1920s-1940s architecture remain in Holden, including the William H. George House (1937) on Walnut Terrace, and the Dr. Gardner Cobb House (1920) on Stone House Hill Road. During the 1930s, the Works Progress Administration constructed several bridges over the Quinapoxet River, including those located at River Street and Princeton Street (both 1937). The Alden Laboratories, originally constructed in 1911, added a Rotating Test Boom Control House in 1937.

Until the 1950s, residential properties accounted for most of Holden's land use. In the late 1950s, 1960s and 1970s, Holden became a suburb, and as a result, many residential properties along Route 122A were demolished to make way for newer, commercial structures. Since the 1970s, however, demolition has slowed. The Chaffins School was replaced by the electric department building, and an 18th century home on Boyden Road was removed to make way for a medical arts building.

3.3 Population Characteristics

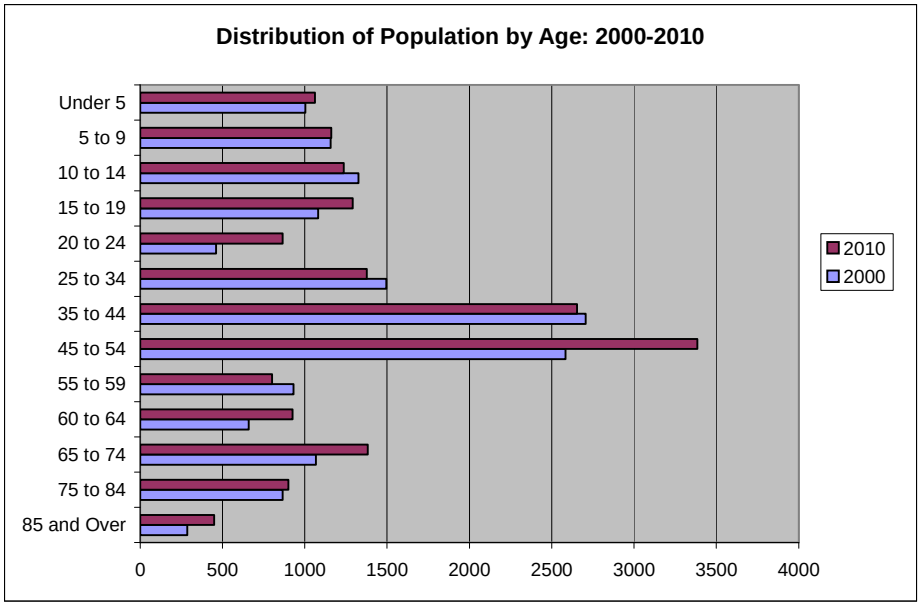
Holden's population has substantially increased over the past few decades and continues to grow. In 1990 the US Census reported a 14,628 residents, in 2000 the population for the Town of Holden was 15,621 residents, witnessing a 6.8% growth rate. The 2010 US census reported a population of 17,346 residents, increasing the growth rate over the last decade to 11.04%.

Figure 1 - Population Trends 1930-2010



Census 2010 indicates that Holden is balanced in its male (48%) and female (52%) populations.

Figure 2 - Distribution by Age 2000-2010



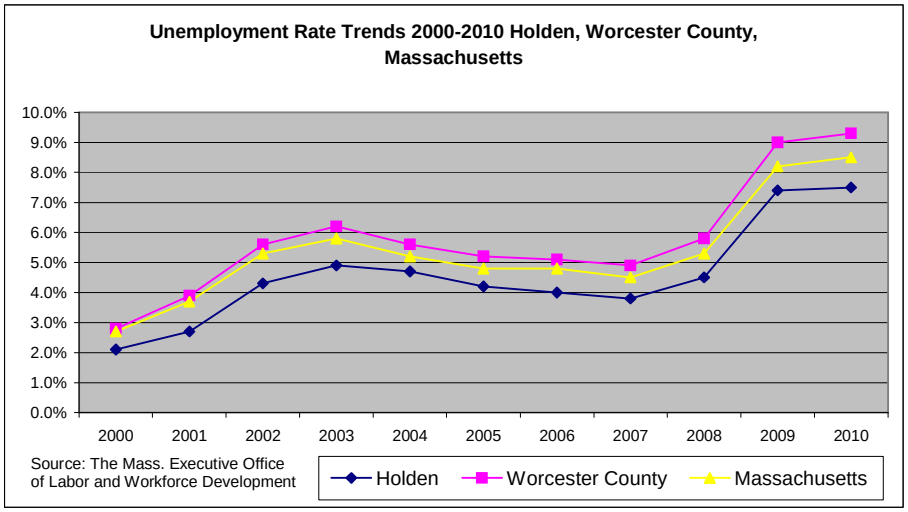
Source: US Census

While Holden's population continues to increase, the age composition is shifting to an increase of both senior citizens and school-aged children. Approximately 13% of Holden's current population is seniors age 65 and over. To accommodate this population segment's increasing needs; the Town of Holden has a Senior Center, made possible through the combination of State, Town, and voluntary contributions. This Senior Center provides a variety of services including recreational activities, outings, crafts, and game programs. According to enrollment projections, the school-age population is increasing. This regional trend has resulted in a significant addition to the Wachusett Regional High School. The High School serves five surrounding communities all of which have been witnessing significant growth patterns. An increase in school children required Holden to upgrade its elementary schools - the Davis Hill Elementary School located on Jamieson Road recently opened; the Dawson Elementary School has undergone major renovations, and the Mountview Middle School was also recently renovated.

Employment

Figure 3 - Unemployment Rate Trends: 1990-2010

According to 2005 data from the Massachusetts Department of Employment and Training, there were 3,781 jobs within the Town of Holden. This number is based on employees who are eligible to receive unemployment compensation benefits. The majority of positions are in the trade and government field. The Town has shown a recent decline of 1.5% in manufacturing based jobs, this decline contrasts with the surrounding regional trend which saw an increase of 18.5%. This provides further evidence that Holden is increasing its status as an affluent bedroom community, which is again reinforced by zoning, 81% of Holden's land area is designated for residential use.



Holden's median household income in 2010 was $84,745. The Town's unemployment rate for 2010 was 7.8%, which is consistently below both the Worcester County average of 9.3%, and the statewide average of 10.20%.

Education is a priority in the Town and 94% of its residents are high school graduates with 45% of the population holding college degrees.

3.4 Growth and Development Patterns

3.4.1 Patterns and Trends

In the last twenty years, Holden has lost about 1,134 acres of forest, 115 acres of pasture, and 77 acres of cropland, while about 1,020 acres have been converted to residential use and 34 acres to commercial and industrial use. In 1985, about 82% of the lands in Town were "open" uses (forest, agriculture, un-forested wetlands, and water). By 2005, this percentage had dropped to 78% and the Town's population had grown from 13,336 in 1980 to 17,036 in 2005, an increase of almost 28%. Population is predicted to continue to grow to 19,500 by 2030.

As part of its 2020 Growth Strategy Study CMRPC notes that many towns in Central Massachusetts have responded to pressures for services to growing numbers of residents by adopting large-lot residential zoning in an attempt to control population growth Recent land use data indicate an alarming trend towards suburban sprawl—scattered, low-density housing, stripping of highway corridors with business developments, deterioration of town centers, and loss of unprotected open spaces and town character. In response, CMRPC has adopted and encourages the concept of more compact development with a concentration of both residential and commercial uses in appropriate village centers—or "Smart Growth" as well as Open Space Residential Development that clusters residential development and preserves larger contiguous open space.

Most of Holden's open acreage is located in the northern and southwestern areas of the Town. The DCR and the City of Worcester own roughly 48% of the Town of Holden for watershed protection, drinking water reserves, or conservation purposes. As of May 2008, DCR owned 7,255.27 acres of protected open space. DCR has developed a public access plan to allow guided use of its properties by providing signage. According to Assessor's records, the City of Worcester owns 3m18.27 acres (including water bodies). Worcester watershed protection parcels offer open space protection but render large portions of the Town inaccessible to public recreational use for the foreseeable future.

Residential densities at the center of Town are characteristic of the traditional land use patterns. Many lots no longer conform to the zoning dimensional requirements developed to control density. Typically denser development has followed the sewer lines. Larger lot sizes and development more rural in character radiates outward from the center of Town, along roadways, including Route 31 which runs north-south from Princeton to Paxton. The Shrewsbury Street and Salisbury Street areas will continue to experience development on scattered remaining vacant parcels because of their convenient access to Worcester.

In 1997, CMRPC conducted a Sewer Expansion Project Impact Study for the Towns of West Boylston and Holden under a Municipal Incentive Grant from the Massachusetts Department of Housing and Community Development (DHCD). The study indicated that without additional growth management, Holden can anticipate up to 2,295 acres of additional development. According to CMRPC, a controlled growth scenario could reduce this number to 899 acres. Under a by-law change initiated by the Holden Planning Board, lot size requirements in a majority of residential zones were doubled to deter the growth rate. The change resulted in the submission of numerous subdivisions to provide grandfathering of smaller lot size requirements. Table 2 shows approved and potential developments in the Town of Holden through March 2010.

Table 2 - Development projects, 2012

Subdivision Name	Date of Approval	Expiration Date	# of lots	* Vacant
Wagner Meadows	Jul-03	08/15/12	29	5
Highlands of Holden Subdivision	Apr-05	06/20/09	37	12
Oaks of Holden Retirement Community			108 du	36
Subdivision Name	**Date of Approval**	**Expiration Date**	**# of lots**	*** Vacant**

Newell Road Retirement Community	Aug-03	05/23/13	125	109
Mt. Pleasant	Jun-07	09/10/12	48	0
Fisher Terrace 40B	Dec-05	N/A	32	24
Stanjoy Estates Phase I	Aug-05	4/27/15	10	10
Mill Pond Place	Sep-06	Expired	46	46
Alden Woods II	23-May-06	05/23/13	11	0
Wachusett Woods	Apr-06	06/23/13	39	23
High Ridge	14-Nov-06	4/27/14	9	2
Bullard Estates	11-Apr-06	6/9/13	10	10
Stoney Brook Estates	5/23/2006	5/23/13	75	67
Wingspan Estates	8-Jan-08	6/23/14	11	0
Walgreens	1/8/2008	12/15/2009	N/A	N/A
Greenwood Estates	3/11/08	3/11/2011	96	96
Winterberry Hollow (40B)			192	192
Total Vacant Lots				881

Information provided by the Holden Department of Growth Management.

Industrial and commercial land use comprises approximately 13% of the Town's total land use inventory and contributes only 3% to town revenues. Industry is centered in the Holden Industrial Park off Main Street and adjacent to Chaffin Pond. The Town currently is not zoned to provide for additional industrial development and proposals to provide such zoning have been repeatedly defeated by Town Meeting vote. Almost all of the Town's commercial development is located along the Main Street (Route 122A) strip, from the intersection of Route 31/Route 122A southeastward to the Route 122A/Shrewsbury Street intersection. Subdivision development has been steady and continues to put pressure on the Town's local schools, town services, recreational facilities, and open spaces in particular.

Holden's Main Street completed substantial improvements designed to facilitate commuter traffic movement and enhance commercial development along the Main Street corridor. In association with a substantial sewer system replacement throughout much of the Town, DCR, Massachusetts Highway Department (MHD) and Town of Holden worked cooperatively to bury all utilities, widen the street, construct new sidewalks, plant street trees and enhance the Historic District with period lighting and additional landscaping. A Main Street Design Review and Zoning Study Committee initiated a multi-use zoning district over Main Street to provide a compatible mix of residential and commercial uses. In addition to this by-law, landscaping and lighting by-laws were adopted to improve the aesthetics of future development along this important corridor.

Limited developable land has increased construction costs, developers are significantly increasing density to compensate for the high costs of land acquisitions. This, combined with the Town of Holden's deficit in providing the state mandated 10% affordable housing percentages, has resulted in an increase of MGL Chapter 40B filings during the height of the economy in 2005=2007. Chapter 40B allows larger tracts of land to be purchased and developed with high densities, bypassing local area requirements. The increase in residential growth is placing a strain on the Town's infrastructure and school system. This has resulted in an increased need to protect the valuable open space remaining in the Town while balancing the creation of affordable units and providing adequate recreation services for the growing population.

Throughout the history of Holden there have been numerous sand pit operations. Many of these large tracts of land have utilized all marketable material leaving optimal land open for development. These parcels should be evaluated thoughtfully prior to redevelopment because the land could be utilized for high density development but are adjacent to valuable ecosystems.

3.4.2 Infrastructure

3.4.2.1 Transportation

According to the DHCD Community Profile, transportation in and around Holden involves the following features.

Holden is located in the Worcester area, which has three major cross-state highways: the Worcester Turnpike (Route 9), Route 20, and the Massachusetts Turnpike (I-90). I-495 borders to the east, I-190 connects to the Fitchburg-Leominster area, I-84 and I-395 connect to Connecticut and points south. The region is well connected by rail and highway to the ports, airports, and intermodal facilities of Boston and Providence.

Principal highways in Holden are State Routes 31 and 122A.

Passenger rail service to Boston, Springfield, Providence, and all other points on the Amtrak network is available through neighboring Worcester. The Providence & Worcester Railroad provides freight rail service to Holden.

Holden is a member of the Worcester Regional Transit Authority (WRTA). The WRTA offers para transit services for the elderly and disabled. Fixed Route service from Worcester was eliminated in Holden in 200 due to limited ridership.

3.4.2.2 Public and Private Water Supply Systems

Approximately 80% of the Town is served by public water. The water supply consists of a mix of groundwater sources (owned and operated by the Town) and interconnections with the City of Worcester water system. This results in a blend of groundwater (Town's sources) and surface water (Worcester sources). Most of Holden's drinking water supply is drawn from reservoirs in Town, treated at the City of Worcester Treatment Plant and then piped into local households. The location of these surface water reservoirs and associated watershed areas is discussed further in the Water Resources Section 4.3.

1. The 2012 Town's groundwater sources consist of the following wells:

2. Quinapoxet River Gravel Packed Wells (2) – rated capacity of 514 gallons per minute (gpm), 37.7%
3. Mill Street Tubular Well-field – rated capacity of 208 gpm, 15.6%
4. Mason Road Tubular Well-field – rated capacity of 111 gpm, 7.0%
5. Spring Street Gravel Packed Replacement Well – rated capacity of 140 gpm, 10.7%

There is also a well field at Poor Farm Brook off Newell Road that has not received Massachusetts Department of Environmental Protection (DEP) approval due to potential wetland drawdown effects on wildlife. Holden has discontinued the use of Muschopauge Pond; the line has been disconnected and can only be reinstalled for emergency use.

Worcester reservoirs provide the remaining 29.1%. Based upon the existing sources and the Inter-municipal Agreement with the City of Worcester, the Town's water system is considered adequate relative to water supply and has sufficient capacity to serve these projected development demands through at least the year 2030. As further development occurs within Town, it is imperative that each proposed development be evaluated in terms of its potential impact on the existing water.

Future development will largely depend on Holden's ability to manage access to water and sewer resources. The Town of Holden recently installed water mains to provide an additional interconnection to the City of Worcester; this will enable the Town to purchase additional water from the City. This increased water supply became available at the end of the construction season in 2004. The average consumption of water for the Town is approximately 2.0 million gallons per day (mgd), 1.5 million gallons were purchased from the City of Worcester, the total available water with the interconnection to the City and from the Town's other sources will be approximately 4 mgd. Increased densities would be appropriate where water service is provided and also where adequate pressure is available. The area on Route 122A Main Street, between Shrewsbury Street and Newell Road is serviced by an antiquated 6-

inch water main and therefore will not provide for a significant increase in demand. Due to the increase of water supply and the extent of the water service infrastructure, the more imperative factor determining areas appropriate for high density development is limited sewer capacity.

3.4.2.3 Municipal Sewer Service and Individual Septic Systems

The Town's sewer system can be separated into the following distinct components:

- Collection System
- Rutland/Holden/West Boylston Trunk and Relief Sewers
- City of Worcester Trunk Lines
- Upper Blackstone Water Pollution Abatement District Treatment Plant (WWTP)

Collection System: The Town's sewer collection system consists of approximately 52 miles of pipe, ranging in age from 1930's to recent. In order to protect the Wachusett Watershed and deal with the long-standing septic effluent pollution, the DCR in conjunction with the towns of Holden and West Boylston embarked on a $78 million municipal "Fast Track" Sewer Project. The project was completed in 2008 and now services 65% of the Town. The completed sewer project added 229,000 linear feet of sewer pipe to Holden's existing system. The sewer effluent flows out of Holden through the City of Worcester infrastructure with final treatment at the Upper Blackstone Wastewater Treatment Facility in Millbury.

To accommodate the varying elevation changes throughout Town, there are 25 publicly-owned and operated sewer pump stations within the collection system.

Rutland/Holden Trunk and Relief Sewers (RHTRS): All wastewater flows from the Town are discharged into the Rutland/Holden Trunk and Relief Sewers, which extend through Town from Rutland to Worcester. These two interceptor sewer lines are owned, operated and maintained by the DCR. The West Boylston collection system is separate from Holden's, but all their wastewater, once collected, is pumped into a common point in Holden joining the Rutland/Holden trunk system as it enters the Worcester trunk lines. The capacity of the trunk and relief sewers is allocated by Agreement between the City of Worcester and DCR. The existing capacity of the trunk and relief sewers has been established at 2.85 mgd annual average daily flow with an 8.95 mgd peak flow.

Based upon data from 2010-2011, the annual average daily flow was 1.40 mgd, which is just below the current capacity allocation limit of 1.48 mgd. Additionally, there are potential sewer connections remaining within the recent constructed sewer expansion area, for which capacity must be reserved within the Rutland/Holden Trunk and Relief Sewers. A portion of wastewater flows appears to be related to wet weather events, which would suggest infiltration/inflow (I/I) flows entering the sewer system. In the past seven years, the Town was able to identify and remove some infiltration from the collection system and thereby create limited additional capacity. Further study of potential infiltration/inflow is needed.

City of Worcester Trunk Line: All of the above wastewater travels some 8 miles through the City of Worcester system before reaching the wastewater treatment plant located in Millbury. Sewage must flow from the Holden/Worcester line on the north side of the City through the entire city network of lines before exiting to the Upper Blackstone Wastewater Treatment plant on the south side of the City. As a critical part of the City's agreements to allow the initial allocations to flow in their trunk lines, long over due improvements were completed within the City of Worcester in 2011, potentially increasing capacity within the existing sewer infrastructure.

Upper Blackstone Water Pollution Abatement District Treatment Plant (WWTP): The wastewater that is discharged into the Rutland/Holden Trunk and Relief Sewers is ultimately treated at the Upper Blackstone Water Pollution Abatement District Treatment Plant (WWTP), after passing through the City of Worcester sewer system. As a member of the Upper Blackstone Water Pollution Abatement District, the Town is responsible for a proportionate share of the costs associated with the operation, maintenance and improvements of this facility including extensive efforts necessary to comply with recent water quality regulations.

Resolving the problem of septic effluent pollution through the installation of municipal sewers has created another problem regarding infrastructure capacity. Many lots that previously would not have met Title 5

standards for septic systems are now viable for development through connections to the municipal system. These additional lots place an increasing demand on potable water, sewer capacity, school space and public safety personnel.

In recognition of this problem, the Holden Planning Board has taken steps to protect the environment and add some relief to infrastructure demands. A "phased growth by-law" which controls the rate of growth was enacted in 1994. As a result of a Build-out Analysis completed by CMRPC as part of the Community Development Plan, the Planning Board recognized that Holden's population could potentially increase by 17,696 residents. To prevent this significant increase, the Planning Board doubled lot size requirements in R-20 zones from 20,000 to 40,000 square feet and in R-15 zones from 15,000 square feet to 30,000 square feet.

3.4.2.4 Stormwater Management

The Town's storm water collection system has evolved over time, as the Town developed and streets have been constructed. This system encompasses many roads in Town, ranging from open culverts/swales to catch basins and associated piping. As road improvements have been made over the years, the Town has evaluated and addressed drainage improvements in those project areas.

The Town's existing storm water system is typically covered under a General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, as issued by the US Environmental Protection Agency. The intent of these regulations is to eliminate the potential discharge of pollutants to local rivers and streams, through implementation of a local storm water management plan. Given its location within the watershed of the Wachusett Reservoir, the Town is aware of the importance of protecting the natural resources and implementing an appropriate storm water management plan which have included the following ongoing tasks:

- Locating and mapping all storm water outfalls
- Mapping all storm water system components
- Integration of storm water data into Town's geographic information system (GIS)
- Development and enactment of bylaws for construction site activities
- Street sweeping and catch basin cleanout

3.4.3 Long Term Development Patterns

In 2000, CMRPC conducted a build-out analysis for each of its 40 communities with funding from the Executive Office of Environmental Affairs. This study focused on what the Town would be like if all the developable land were to be built upon. The study removed already developed land, protected land and land that is un-buildable due to environmental constraints (including wetlands and slope). Using this criteria, CMRPC predicted 6,327 additional residential lots. These new lots would bring an estimated 17,696 new residents of which an estimated 4,483 would be school children. New residents would have an impact on services; for instance, water use would increase from 1,138,850 gallons per day (gpd) in 1998 to 2,465,850 gpd at build-out. Similarly, Holden would add an additional 6,456 tons of non-recyclable solid waste and 4,215 tons of recyclable solid waste for a total of 10,671 tons of additional solid waste. At build out, 64.3 more miles of roadway would be necessary. As a result of the build-out the Holden Planning Board initiated a zone change to double lot size requirements in the R-15 and R-20 zoning district from 15,000 to 30,000 and from 20,000 to 40,000 square feet, respectively. The hopes were to decrease build out numbers.

Table 3 - CMRPC Build-out Projections

	2000	2010	Build-out
Population	15,621	17,491	33,446
Children	4,224	4,304	8,513
Households	5,715	6,440	12,052
Water Use (gallons per day (gpd))			2,465,850

Sewer capacity, or lack thereof, may well define how Holden will manage its future in terms of growth, housing, and economic development. These are not only important unto themselves, but provide the financial ability to address the many other needs and desires of the community. These include quality schools, road maintenance, upkeep of the Town's infrastructure, library services, and all the other services instrumental in making and keeping Holden a good place to live and raise a family.

Holden is, however, both blessed and challenged by the abundance of its natural resources, as within the Town's boundaries are major components of the two largest water systems in the State, the City of Worcester reservoirs and watershed for the Wachusett Reservoir which services the entire metropolitan Boston area. The State has invested millions of dollars to upgrade the Town's sewer system to allow thousands of homeowners to terminate use of septic systems that can degrade the quality of surface and groundwater within these watersheds.

The sewer system, shared by Holden, Rutland, West Boylston, and Anna Maria College in Paxton, is a maze of complexities that limit the Town's ability to determine for itself the additional capacity for continued growth. Each community has a contractual sewer capacity, which together utilize the physical capacity as determined by the operator of the trunk lines, the DCR through which all of the waste flows before entering the City of Worcester sewer system.

The current allocation leaves Holden with only enough capacity to allow less than 250 new homes between now and the year 2020, which breaks down to some 15 homes a year. Any new capacity needs for commercial, industrial, educational, or municipal facilities would further deplete the Town's allocation. The only way Holden can increase its allocation would be for major trunk line work in Worcester to be completed. These were critical parts of the City's understandings and agreements to allow the initial allocations to flow through their trunk lines. Those projects have been seriously under funded by the State. Based on what Holden currently has for new projects, it is likely Holden will be facing a sewer moratorium within the next 2 to 3 years. The Town of Rutland, in July of 2007, was notified by the State that it had reached its allocation limit and told not to allow any further hookups without demonstrating they can do such within their current allocation.

Absent available sewer capacity, the Town could be placed in a stranglehold on new growth. Under such circumstances developers may propose using forms of septic systems again which, absent serious thought and controls by the Town, could place the very groundwater the Town has worked so hard to protect, back in jeopardy.

Holden needs to work on several fronts simultaneously, to minimize major adverse impacts that would come from a crisis in this critical infrastructure service. It needs to work with the other sharing members to apply pressure where needed to keep important work on track, or support sustainable arguments, if any exist, to increase current allocations. It also needs to continue to examine whether any inflow and infiltration could be reduced to gain increases through reducing illegal hookups, such as sump pumps, or groundwater through lines or manholes. Perhaps most significant and daunting is the need to examine what Holden would propose to do under conditions of sewer connection prohibition. This may include policies, zoning changes, and evaluation of what types of local systems may be acceptable and under what conditions.

4.0 ENVIRONMENTAL INVENTORY AND ANALYSIS

4.1 Geology, Soils and Topography

The topography of Holden is moderately hilly terrain with the western section of Town steeper than that of the eastern section. USGS elevations range from a high of 1,395 feet above mean sea level on Asnebumskit Hill at the Paxton/Holden line, to less than 550 feet above mean sea level on the Quinapoxet River resulting in a relative relief of 845 feet within the 35.75 square mile area. Elevations of 650 to 750 feet above mean sea level are more common throughout the Town.

A joint study by the Soil Conservation Service (SCS) of the U.S. Department of Agriculture (USDA) and the Central Massachusetts Regional Planning Commission (CMRPC) of the soil conditions found in Holden delineates 6 "general soil areas" with different soil characteristics and development (filtering) limitations with each category. Most of Holden's soil falls into the Paxton-Woodbridge-Canton and Hinckley-Merrimac-Windsor groupings with moderate limitations toward development. Although almost 7% of Holden's developable land has slopes in excess of 15%, development in these areas could occur with technological changes. The Department of Growth Management is currently working with a consultant on the creation of Comprehensive Stormwater Management Regulations. These regulations will increase required construction standards and erosion control measures.

Map 2 shows the local surficial geology in the Town of Holden while Map 3 depicts the soil typologies and their limitations. These maps were prepared for the Holden Master Plan – Holden Tomorrow.

4.2 Landscape Character

Holden's landscape character is that of a typical small New England town. Rolling hills of pasture land and wood lots provide the perfect backdrop for the white church steeples and clock towers that are so characteristic of the New England countryside. As winding country roads traverse terrain ranging from gently rolling land to steep hillsides, many opportunities are presented for beautiful views and vistas across the undeveloped watershed and reservoir properties as well as the preserved conservation and recreation areas throughout the Town.

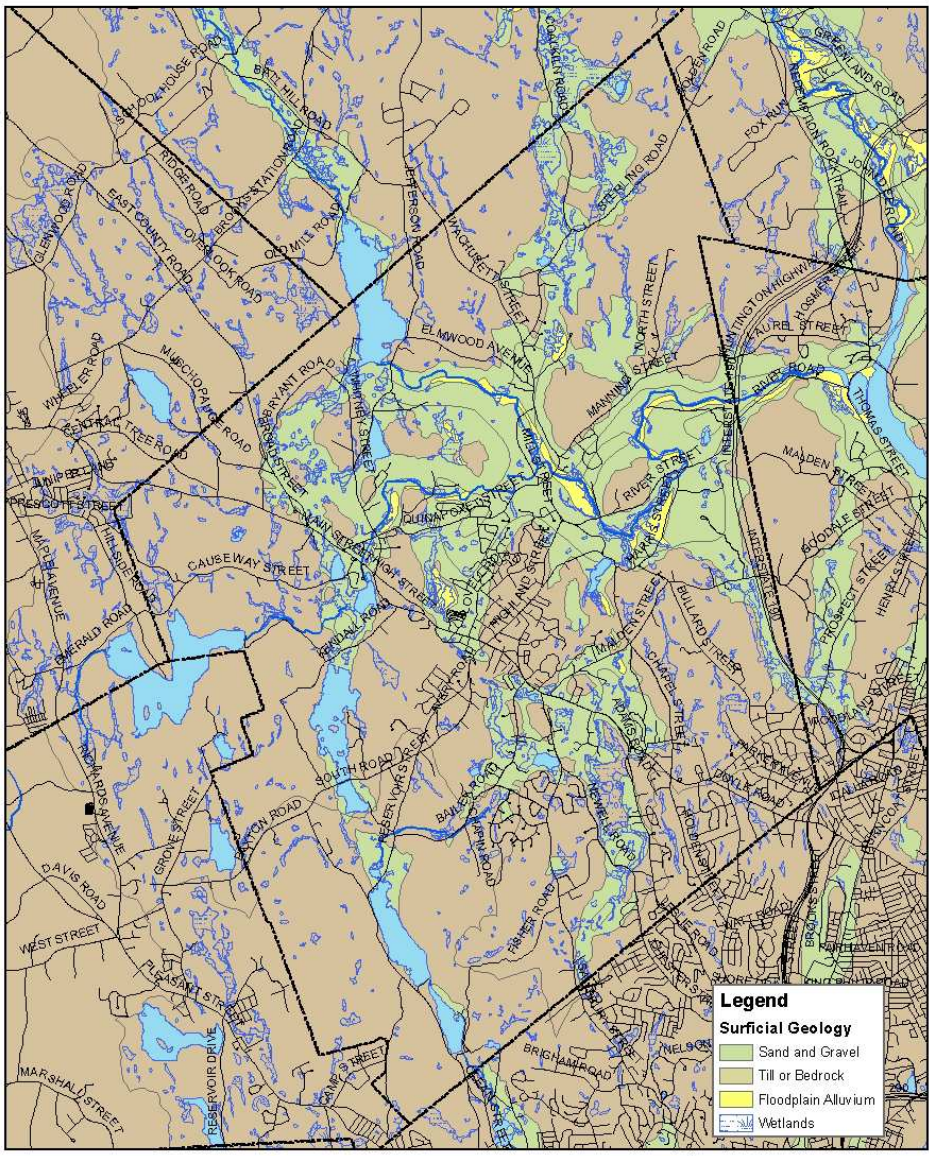
The Town is committed to preserve the landscape character and aesthetics of Holden. Future development of much needed commercial and industrial sites for economic development as well as residential growth should be managed carefully to ensure that Holden remains a town with substantial open spaces for the maintenance of wildlife and for its residents to enjoy.

4.3 Water Resources

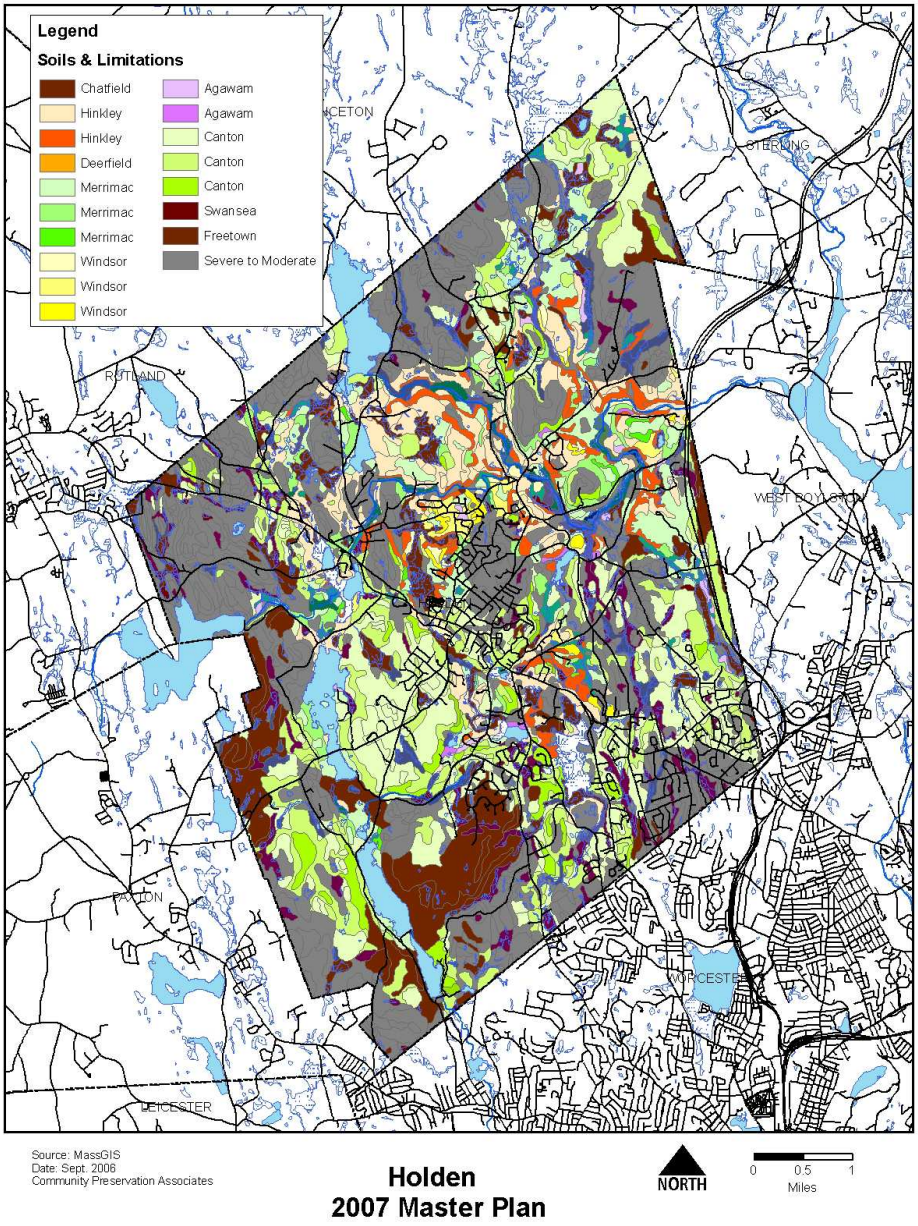
4.3.1 Watersheds

4.3.1.1 Blackstone River Watershed
The watershed of a river is a basin in which all precipitation that falls ultimately runs into the river. Holden resides in part in the Blackstone River Watershed and in part in the Nashua River Watershed. Only about 18% of the Town falls in the Blackstone River Watershed. Southern parts of Holden lie in the Tatnuck Tributary Basin and the Beaver Brook Tributary Basin of the Blackstone River Watershed Basin. The boundaries are shown on Water Resources Map 1 located at the end of this chapter.

Originating as a series of streams in the hills of Worcester, the Blackstone River flows 48 miles south into Rhode Island, dropping 450 feet before emptying into Narragansett Bay near Providence. The Blackstone River Watershed comprises a total of 640 square miles, with 382 square miles located in south central Massachusetts and 258 square miles in northern Rhode Island. The length of the Blackstone River is evenly divided between Massachusetts and Rhode Island, with 24 river miles in each state. The major tributaries of the Blackstone River are the Quinsigamond, West, Mumford, Mill, and Peters Rivers.



Map 2 – Surficial Geology (Excerpted from Master Plan - Holden Tomorrow)



Map 3 – Soils and Limitations (Excerpted from Master Plan - Holden Tomorrow)

1,300 acres of lakes, ponds, and reservoirs are also located within the watershed. Twenty-nine Massachusetts municipalities and ten Rhode Island municipalities are located either entirely or partially within the Blackstone River Watershed. Of these thirty-nine towns, nineteen are located either entirely or predominantly (>50% of land area) within the Blackstone River Watershed. The boundaries of the Watershed Basins and their Tributary Basins are shown on the Water Resources Map 1.

The Blackstone Watershed to the south and southwest includes the area around Holden Reservoirs 1 and 2. As noted below, the reservoirs in this area form the backbone of the City of Worcester public water supply system. The City of Worcester owns and protects significant tracts of undeveloped Holden forestland within the watershed.

4.3.1.2 Nashua River Watershed

Overview.
About 82% of the Town of Holden lies within the Nashua River Watershed. The Nashua River is located in the central highlands of southern New England. The river flows northward into the Merrimack River in Nashua, New Hampshire. The Nashua River's Watershed encompasses 538 square miles and 31 communities, (including Holden) in north central Massachusetts and southern New Hampshire, providing drinking water for over one million people. Water quality is monitored at several locations; however there is no monitoring station in Holden. The nearest is located in Lancaster.

The Nashua River Watershed has 4 major sub-basins. That part of Holden that lies within the Nashua River watershed lies entirely within the Wachusett Reservoir Sub-basin. The remaining 3 major sub-basins are the Mainstem, the North Nashua, and the Squanassitt Nissitissitt.

Within the Nashua River Watershed and Wachusett Major Sub-basin, Holden lies mostly in the Quinapoxet River Tributary Basin and only slightly in the Stillwater River Tributary Basin and the Wachusett Reservoir Tributary Basin. The boundaries are shown on Water Resources Map 2. Appendix A contains detailed information on each of the major tributary basins in the Nashua River Watershed in Holden. For each tributary basin there is an overview, a discussion geographic and ecosystem overview, an accounting of land ownership and land use patterns, a summary of major water resources issues, a review of recreation and priority habitat areas, and finally a presentation of resource protection goals and recommended actions.

The Quinapoxet River Tributary Basin
Most of this tributary basin lies in the Massachusetts communities of Holden, Princeton and Rutland with parts extending into Paxton and West Boylston. Located in the "fuzzy" zone encompassing parts of both the Upper Worcester Plateau and the Southern New England Coastal Plains and Hills ecoregions of central Massachusetts, this area drains into the Wachusett Reservoir, the largest body of open water in the greater Nashua River watershed.

Topography is generally hilly, encompassing numerous flatter wetlands, broad valleys, and floodplains. A low percentage (8.2%) of total impervious surfaces — namely, paved areas such as streets, driveways, and parking lots — for this whole sub-basin indicates that concerns of compromised stormwater and other non-point sources of contaminants (for example: pesticides, fertilizers, oils, asphalt, pet wastes, salt, sediment, litter and other debris) is not a pressing concern. As detailed below, there is a large amount of permanently protected undeveloped open space in this tributary basin.

The land-use pattern is predominantly forest (hardwood mixed with softwood) or wetland plus low-density residential settlement as well as concentrated settlements and strip development located near town centers and along major roads. Agriculture (notably "hobby farms" and backyard horse paddocks), gravel extraction, commercial operations, industry and other developed land uses are less significant.

Water from a significant portion of the land that lies within the natural drainage basin to the Quinapoxet River (and thus the Nashua River watershed) is collected within a series of reservoirs and transmitted by man-made diversions in the City of Worcester water supply system. Outflows from Maple Spring Pond (also know as Peter Carr Pond) enter the Quinapoxet Reservoir. Water from the Quinapoxet Reservoir provides some flow to form the headwaters of the Quinapoxet River, but in large part is pumped out of the Nashua River watershed to the City of Worcester reservoir system in the southern part of Holden. Similarly, water from Pine Hill Reservoir (located mostly in Paxton and Rutland), Stump Pond, Eagle Lake, and Kendall Reservoir is directed, in large part to Holden Reservoir #1, within the Worcester potable water system.

The Stillwater River Tributary Basin
Most of this tributary basin lies primarily in the communities of Sterling, Princeton and West Boylston with parts extending into Holden, Leominster, and Westminster. Also, located in the "fuzzy" zone encompassing parts of both the Upper Worcester Plateau and the Southern New England Coastal Plains and Hills ecoregions of central Massachusetts, this area drains into the Wachusett Reservoir.

Topography is generally hilly, encompassing numerous flatter wetlands, broad valleys, and floodplains. This sub-basin has a large amount (49%) of permanently protected undeveloped open space owned by Department of Conservation and Recreation (DCR), the municipalities, and others, particularly along the lower Stillwater. Another significant portion of private lands are classified as MGL Chapter 61, 61A or 61B. (See page 47 for a explanation of Chapter lands and their open space significance.)

A low percentage (less than 8%) of total impervious surfaces -- namely, paved areas such as streets, driveways, and parking lots-- for this whole tributary basin indicates that concerns of compromised stormwater and other non-point sources of contaminants (for example: pesticides, fertilizers, oils, asphalt, pet wastes, salt, sediment, human litter and other debris) is not a pressing concern. As the Stillwater watershed becomes increasingly developed, there will be more threat of water quality deterioration from risks associated with urbanization, including thermal pollution, over-fertilization of lawns, improper handling of hazardous wastes, septic system leachate, street runoff, and the like.

The land-use pattern is predominantly undeveloped forest (hardwood mixed with softwood) or wetland plus low-density residential settlement in the hilly upland areas. Concentrated settlements and strip developments are located near town centers and along major roads. Heavily traveled Interstate 190 runs through this tributary basin. The highway which connects Worcester and Leominster has led to and will continue to lead to increased development pressures, primarily of single-family residences. Agriculture (notably "hobby farms" and backyard horse paddocks), commercial operations, industry and other developed land uses are less significant. However, sand and gravel extraction operations are contributing to sedimentation and land use change.

The Wachusett Reservoir Tributary Basin
Most of this 16,024 acre (surface water not included) tributary basin lies in the Massachusetts communities of Boylston and West Boylston with parts extending into Sterling and Holden. Located in the Southern New England Coastal Plains and Hills ecoregion of central Massachusetts, this area drains into the Wachusett Reservoir. The Southern New England Coastal Plains and Hills ecoregion is an area with generally similar soils, vegetation, shape of the land, and especially, moderate climate and bedrock geology (glacial tills and outwash deposits). Topography is generally hilly, encompassing numerous flatter wetlands, broad valleys, and floodplains.

The land-use pattern is nearly 75% forest (hardwood mixed with softwood) or wetland plus low-density residential settlement as well as concentrated settlements and strip development located near town centers and along major roads. Agriculture (notably "hobby farms" and backyard horse paddocks), gravel extraction, commercial operations, industry and other developed land uses are less significant.

Appendix A contains a more in-depth description of each Nashua River Watershed Tributary Basin Major Water Resource Issues, Recreation and Priority Habitat Areas, and Resource Protection Goals and Recommended Actions.

For each community in the Nashua River Watershed, a 5-year action plan, as described in the Nashua River Watershed 5-year Action Plan 2003 -2007, was developed. (Note: EO 418 is no longer in

existence and therefore no longer a potential funding source. In addition, some of the name and funding sources may have changed, since this action plan was published.)

Table 4 - Nashua River Watershed: A 5-Year Action Plan

5-Year Plan Issue	Recommended Action	Responsible & Potential Partners	Potential Funding*	Timeline
Capacity-building	Implement Phase II Stormwater Program (Holden)	CMRPC/ DEP/ NRWA/ Towns	319*/ 604b/	M to L
Capacity-building	Acquire GIS capacity and inventory/prioritize parcels	MassGIS/ Municipalities/ Regional Planning Commissions	Planning for Growth	M to L
Open Space	Continued protection of local water supply lands and continued support for DCR-MWRA water supply protections (Holden)	DCR/ DFWELE/ Land trusts/ NRWA/ Towns	Community Preservation Act/ DCS Self help/ Forest Legacy/ LCIPS	I to L
Recreation	Support greenways to link communities via inter-municipal trails and open spaces, and in particular the Mass Central Rail Trail (Holden, Paxton, Rutland, Sterling, W. Boylston) and White Oak Trail connected to Trout Brook Reservation	DCR/ Land trusts/ NRWA/ Rails to Trails Conservancy/ Towns/ Wachusett Greenways	DEM Trails/ TEA 21	I to L
Recreation	Improve gating to control detrimental activities (Boylston, Holden, Paxton, Sterling, W. Boylston)	DCR/ Towns	Staff time	I
Recreation	Support Wachusett area greenway protection and promote rail trail development (Holden)	City of Worcester/ Friends of Wachusett Watershed/ Land trusts/ DCR/ NRWA/ Wachusett Greenways	DCS Self-help/ DEM/ DFWELE/ Forest Legacy	I to L
Water Quality	Promote water quality improvements at West Boylston Brook (Holden)	[as noted in the DCR Sanitary Surveys] DEP/ DCR/ Towns	319/ DEP Source Protection/ DCR TA grants	I to L
Water Quality	Help develop and disseminate BMPs for small-scale, hobby type agricultural operations e.g.: horse stables (Holden)	DEP/ DFA/ DCR/ NRCS/ Towns/ Worcester Conservation District	319/ staff time	I to L
Water Quality	Protect and enhance flows in the Quinapoxet within Holden	City of Worcester/ DCR/ MWRA	Staff and volunteer time	I to L
Water Quality	Improve water quality conditions in Chaffins Brook (Holden)	DCR/ Towns	Staff time	I to M

Water Quantity*	Medium flow stress[1]; therefore, work in Quinapoxet sub-basins experiencing flow stress to plan for future water supply and habitat protection needs. These are current conditions which are expected to continue to 2020.	DCR/ DEP/ SRF/ Municipalities	604B	I to L

I=Immediate, M=Mid range, L=Long Range.

The Habitat Cores Areas of the Nashua River Watershed within Holden includes the following:

- 3 Important ridgeline corridors
- 1 Large focus area – the Savage Hill WMA/Quinipoxet Reservoir
- 2 Medium Focus Areas – Pine Hill Reservoir and the Poutwater Pond
- 1 Small Focus Area- Unionville Pond/Quinipoxet River.

Because a large area of Holden is located within the Wachusett watershed many of the Town's lakes and streams are further protected beyond state regulations by the WaterShed Protection Act (WsPA), often referred to as the Cohen Bill, under the jurisdiction of the DCR. DCR has greatly increased their land holdings in the Town and allowed passive recreation on all DCR property.

4.3.2 Surface water

Like many communities, Holden's water resources are an invaluable asset to the Town, providing drinking water, flood control, recreational opportunities, wildlife habitat and scenic diversity. Holden has at least 12 ponds, 4 reservoirs, 1 lake, 1 river, and 9 brooks in addition to possible unnamed water bodies. These are indicated on the Water Resources Map 2. All surface waters in Town are classified as "Class B" (fishable, swimmable) waters with the exception of the reservoirs and their tributaries, which are "Class A." (Note these designations refer to purposes not necessarily existing conditions.) As noted previously, because many of the reservoirs are used for drinking water purposes, access to the areas surrounding them is severely limited. Holden has 936.02 acres of surface water bodies not including rivers and streams.

All of the reservoirs (Quinapoxet, Pine Hill, Kendall, and Holden Nos. 1 and 2) are restricted from public access of any kind. Eagle Lake has a Town beach and a shallow boat launch area. Some ponds, including Dawson, Maple Spring, Chaffin, and Unionville lack designated public access areas but are frequented by fishermen and other users of small boats. The locations of the surface water bodies are shown on the Water Resources Maps 1 and 2. The following ponds, lakes, and reservoirs are located in Holden:

- Bailey Road Pond — Bailey Rd.
- Bryant Pond — Main St.
- Chaffin Pond — 122A
- Cournoyer Pond — Mason St.
- Dawson Pond — Highland St.
- Eagle Lake — Causeway St., North Main St. & Kendall Rd.
- Edson Pond — Pommogussett Rd. & Campbell St.

[1] Medium flow stress means that the net 7Q10 outflow from the sub-basin equals or exceeds the estimated natural 7Q10. 7Q10 is the lowest consecutive 7 day stream flow that is likely to occur in a ten year period in a particular river segment.

- Holbrook Swamp
- Holden Reservoir Number One — Reservoir St.
- Holden Reservoir Number Two — Reservoir St.
- Kendall Reservoir — Between Kendall Rd. & South Rd.
- Maple Spring Pond — Princeton St. & 122A
- Muschopauge Pond — Muschopauge Rd., Central Tree Rd., Wheeler Dr., & State Hospital Rd.
- Norcross Pond No. 3 — Off 122A
- Pine Hill Reservoir — Emerald Rd.
- Poutwater Pond — Near Sterling & Mason Rds. near the Princeton Line
- Quinapoxet Reservoir — Old Mill Rd., Princeton St.
- Streeter Pond — Pond St.
- Stump Pond — Causeway St. & North Main St.
- Unionville Pond — Union Street St., Harris St & Wachusett St.
- Unnamed Pond — Off of Willow Brook Rd.

One of Holden's prize natural resources is the Quinapoxet River. More than 6 miles of the river's 7.4 miles run through the Town. Beginning at the Quinapoxet Reservoir, this river corridor offers Holden opportunities for active and passive recreation, education, and habitat preservation. The Quinapoxet is a major tributary of the Wachusett Reservoir, located in West Boylston. The Wachusett Reservoir is part of the water supply system for the City of Boston and many of its surrounding communities. Holden residents are not consumers of this potable water. Protection of this water resource is regulated by the DCR. DCR has greatly increased land acquisitions for the purposes of water quality protection. These open space acquisitions provide great aesthetic and passive recreational resources for Holden. DCR also regulates, through the Watershed Protection Act Regulations, development in close proximity to the mapped rivers and streams that are tributaries to the Wachusett Reservoir. DCR regulations also limit development on some mapped areas of sand and gravel deposits. In addition to the Quinapoxet River, the following rivers, streams, and brooks are located in Holden and shown on the Water Resources Maps 1 and 2:

- Asnebumskit Brook flows into the Quinapoxet River
- Ball Brook flows into Trout Brook
- Cedar Swamp Brook
- Chaffin Brook flows into Unionville Pond
- Cold Brook flows into Cournoyer Pond
- Poor Farm Brook flows into Chaffin Pond
- Scott Brook flows into Holden Reservoir 1
- Silver Spring Brook flows into Holden Reservoir 1
- Tatnuck Brook flows into Holden Reservoir 1
- Trout Brook flows into the Quinapoxet River
- Wadsworth Brook flows into Holden Reservoir 1
- Warren Tannery Brook
- Worcester Brook.

Kendall Reservoir and Holden Reservoir Number 1 and 2 are located in Holden and owned by the City of Worcester for purposes of water supply. To protect the water quality of these reservoirs the City of Worcester has greatly increased land acquisitions. Unfortunately Worcester does not permit any recreational activities, or even trespassing on land holdings servicing water protection. Increased access to these properties would significantly enhance the Town's passive recreational opportunities.

4.3.3 Aquifer Recharge areas

Some important aquifers or ground water recharge and source areas are found within the boundaries of Holden. A small high yield aquifer, coarse sand and gravel soils with a potential well yield of more than 300 gallons per minute (gpm), lies under the Quinapoxet well fields. Medium yield aquifers (100 to 300 gpm potential well yield) are located along Asnebumskit Brook and Warren Tannery Brook and along Chaffin Brook and Unionville Pond. Another medium yield aquifer is located along a segment of Trout Brook. The Town's existing water supply wells are located on the Quinapoxet aquifer and at these medium yield aquifers.

Due to the extensive use of Holden reservoirs for drinking water by the City of Worcester and surrounding towns, the Zones of Contribution have been thoroughly mapped and delineated, Holden Water Department receives its drinking water from four wells. The wells are located in the western corner of the town, with Well 01G north of route 122A, Wells 02G and 03G west of Route 31 and well 04G east of Route 31 Wells 01G and 02G have Zone Is of 400 feet. Wells 03G and 04G are tubular well fields with Zone Is that are 250 feet radii from each well point, essentially a 250 foot buffer around the perimeter of the well field. The locations of the existing and potential drinking water supply wells are shown on the Water Resources Map 2.

Well 01G has a Zone II and Well 02G, 023G and 04 G have Interim Wellhead Protection Area (IWPA). The system also includes an emergency source at Muschopauge Pond. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (such as clay) that prevent contaminant migration.

The water supply protection areas are mostly a mixture of residential and forested land uses. The overall ranking of susceptibility to contamination (shown in the table below) for the systems is high, based on the presence of at least one high threat land use within the water supply protection area.

Table 5 - Well Susceptibility

Well ID	Well name	Susceptibility rank
Well 01G	Spring Street Gravel Packed Replacement Well	Highly Susceptible
Well 02G	Quinapoxet River Gravel Packed Wells (2)	Moderately Susceptible
Well 03G	Mill Street Tubular Well-field	Moderately Susceptible
Well 04G	Mason Road Tubular Well-field	Moderately Susceptible

In the year 2020 within the Holden area between 0.893 and 2.864 MGD per year can expect to be lost from the Quinipoxet River 1 and 2 and the Wachusett Reservoir.

The DEP Source Water Assessment and Protection (SWAP) Report for Holden Water Department elaborates on Recommendations for Zone I, Residential Land Use for Zone II and IWPAs (20%), transportation corridors through Zone II and IWPAs, hazardous materials storage and use in Zone II and IWPAs, protection planning, and finally source water protection.

4.3.4 Flood hazard areas

Most of Holden falls with areas of minimal flooding. The significant floodplains exist along the Quinapoxet River, its tributaries, and their associated wetlands. Flood Insurance Rate Maps (FIRM) for the Town of Holden, Massachusetts Worcester County Community Panel Number 250309 (July 2, 1981) demonstrate the flood prone areas. Five maps (panels 0005, 0006, 0007, 0008, 0015, and 0020) cover the town of Holden. Most water bodies in town are described as Zone A – Area of 100-year flood; base flood elevations and flood hazard factors not determined. Some water body shorelines and low lying areas are described as Zone B – Areas between limits of the 100 year flood and 500 year flood; or certain areas subject to 100 year flooding with average depths less than one foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. Most land areas are described as Zone C – Areas of minimal flooding. According to the FIRM maps prepared by the Federal Emergency Management Agency (FEMA), Holden has approximately 1792.75 acres of land falling within the 100-year flood plan. The locations of the flood plains are shown on the Water Resources Map 2.

Among those areas described as Zone B are Worcester Brook, Warren Tannery Brook, Dawson Pond, Poor Farm Brook, a low lying area east of Kendall Reservoir, a low-lying area between Mason and Moscow Roads, and low-lying areas near Pine Haven Drive, Chapel Drive, Lowell Avenue, and Mark Circle. Among those areas described as Zone A are Pine Hill Reservoir, Eagle Lake, Asnebumskit Brook Maple Spring Pond, Unknown Pond, Kendall Reservoir, Quinapoxet Reservoir, Quinapoxet River, Trout Brook, Unionville Pond, Cedar Swamp Brook, Holden Reservoirs 1 and 2, and Chaffin Pond.

Along the Asnebumskit River, further study has indicated that flood elevations are between 579 feet in the north and 560 in the south (Zone A4). Furthermore the Poutwater Pond was previously determined to have a flood elevation of 695 feet (Zone A1). The town of Holden participates in the National Flood Program.

These flood-prone areas serve as giant sponges that can soak up enormous amounts of water and protect downstream areas more suitable for development and already developed areas from more severe flooding. Existing environmental regulations restrict development in such areas.

4.3.5 Wetlands

Wetlands, including both forested wetlands (1,188 acres) and non-forested wetlands (395 acres), are important water resources in Holden. They play a critical role in flood control and in maintaining water quality. There are no expansive areas of wetlands. Instead, smaller wetlands are found scattered about the Town. These wetlands provide visual variety, wildlife habitat, and help maintain a healthy environment. Carefully orchestrated access to some of these wetlands could increase community awareness of their value and interest as natural habitat. Examples can be found at the trails at Trout Brook Reservation and the bog boardwalk at Poutwater Pond. More information on wetlands will be provided in the section on vegetation.

The Town recognizes that there is an increasing threat placed on the environment. Wetlands are a valuable resource for water quality protection, wildlife habitat and general environmental health. In 1996, the Massachusetts Rivers Protection Act amended the State's Wetlands Protection Act to establish an additional wetland resource area - Riverfront Area. Streams that are perennial (i.e. those which flow all year except during periods of drought) are designated as "Rivers" and the land within 200 feet of each side of the channel is protected from most incursions under the Massachusetts Wetlands Protection Act regulations as "Riverfront." The Holden Conservation Commission administers the state's Wetlands Protection Act regulations.

The Town has increased the protection of wetland resources by adopting a local Wetlands By-law in May 2000. This by-law enacts a jurisdictional buffer area for isolated wetlands, and certified and uncertified vernal pools. A vernal pool is

> *"a seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out completely in the hotter months of summer, and often refills in the autumn. Vernal pools range from broad, heavily vegetated lowland bodies to smaller, isolated upland bodies with little permanent vegetation. They are free of fish and provide important breeding habitat for many terrestrial or semi aquatic species such as frogs, salamanders, and turtles."*

Holden is home to 23 certified vernal pools and 118 potential vernal pools. To deter non-compliance of both the local and state regulations the Conservation Commission has also adopted a provision to assess fines for violations.

According to the National Wetlands Inventory maintained by the US Fish & Wildlife Service, Holden contains 1680.52 acres of wetlands. Wetlands areas are typically found near the perimeter of most

surface water bodies, including ponds, lakes, brooks, and rivers, but also in low lying areas where groundwater approaches the surface. The locations of the wetland areas are shown on the Water Resources Map 2.

4.4 Vegetation and Core Habitats

Five water bodies in Holden have been found to have populations of exotic weeds. They are Chaffin Pond, Dawson Pond, Eagle Lake, Stump Pond, and Unionville Pond. Exotic weeds often crowd out native vegetation because they have few if any natural predators to control their growth. They can expand to become a nuisance and impair water quality. Biannual drawdown has proven successful in controlling the Milfoil in Eagle Lake. Currently, little else is being done to manage exotic weeds in the ponds. Weed watcher and boat ramp monitoring programs may be considered for implementation at problem locations. To minimize the spread of such weeds, residents and businesses should be encouraged to minimize the use of fertilizers, which contribute to weed growth. Similarly, efforts should be made to ensure that all septic systems are fully functional and that connections are made to the sewer system, where feasible.

According to the document, classification of the Natural Communities of Massachusetts, drafted in 2001 by the Natural Heritage and Endangered Species Program (NHESP) within the Massachusetts Division of Fisheries and Wildlife (DFW), Holden lies within the Southern New England Coastal Plains and Hills of the Northeastern coastal Zone and the Worcester/Monadnock Plateau of the Northeastern Highlands. The Worcester/Monadnock Plateau contains the most hilly and mountainous area of Massachusetts' central upland. Elevations range from 500 to 1400 feet with some peaks above 1800 feet (Mt. Watatic and Mt. Wachusett). Transition hardwoods are common, but northern hardwoods also occur. Forested wetlands are common, and forested and non-forested peat lands are abundant. The Southern New England Coastal Plains and Hills is the largest sub-ecoregion in southern New England and is variable in its topography and bedrock. Bedrock types are mostly granites, schist and gneiss. Central hardwoods are dominant.

Holden has four areas identified by the state's BioMap Project as "core habitats" for conserving biodiversity for future generations. The NHESP of the DFW has mapped these Core Habitats as the state's "hotspots" for biodiversity. These areas are identified as the most viable natural communities and habitats for rare plants and animals and the most critical sites for biodiversity conservation across the state. One such area is Poutwater Pond in the northern part of Holden. In 1998, the Poutwater Pond Nature Preserve was the first such preserve dedicated in Massachusetts due to the area's unique acidic bog mat and associated plant and animal communities. The Preserve is owned by the DCR and it contains a boardwalk allowing visitors access to this unusual natural feature. The NHESP mapping includes a total of approximately 1,500 acres of designated Core Habitat and about 8,800 acres of "Supporting Habitat" in Holden.

Core Habitat BioMap (BM) 625
This Core Habitat encompasses riparian habitats and adjacent uplands along several miles of the Stillwater River and its tributaries. These areas provide significant habitat for rare turtles, contain a good-quality Level Bog community, and house the unusual Dwarf Mistletoe plant growing on Black Spruce trees. Approximately half the Core Habitat is already protected as conservation land.

This Core Habitat contains a Level Bog in good condition that is well-buffered by naturally forested upland. Level Bogs are dwarf shrub peat lands, generally with pronounced hummock and hollow formations. These wetland peat lands are the Town's most acidic and nutrient-poor, because they receive little overland water input, and are not connected to the water table.

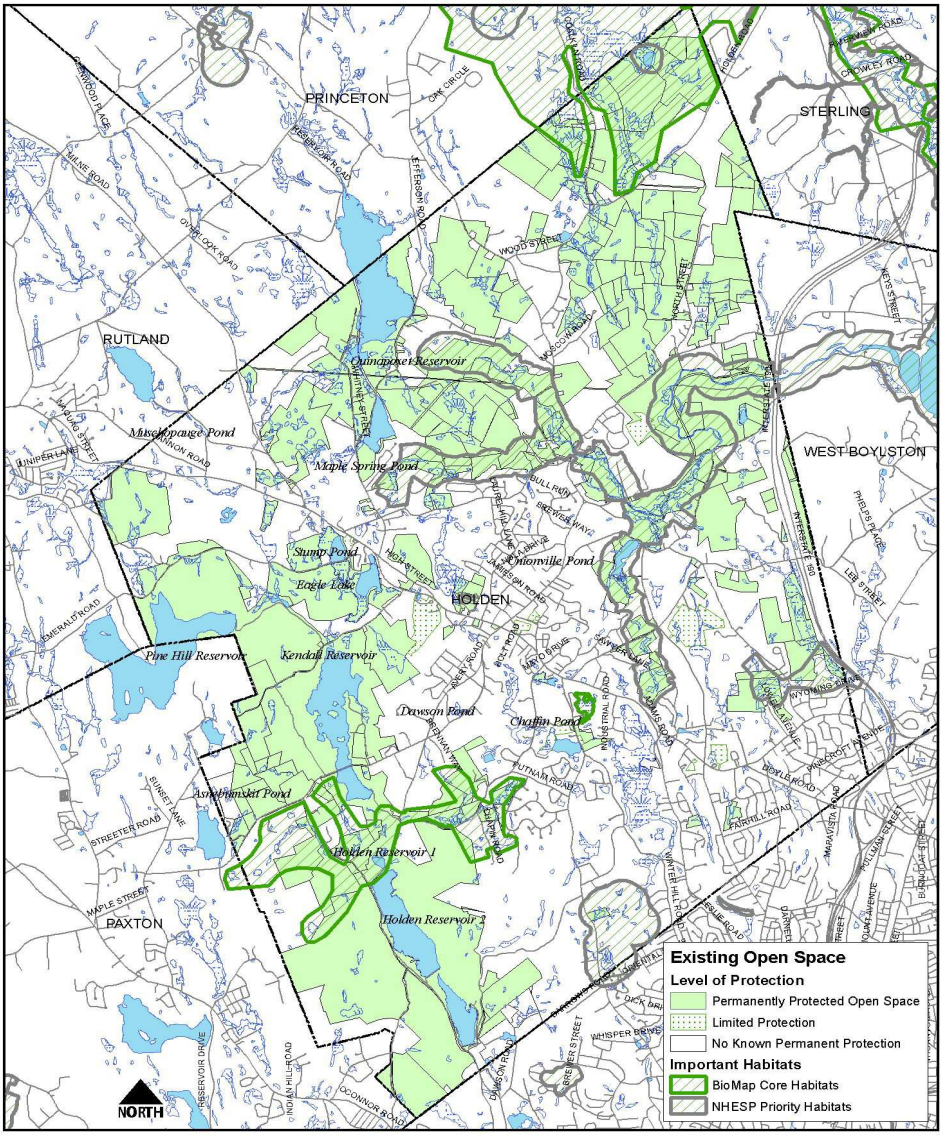
Areas of this Core Habitat support a population of the uncommon Dwarf Mistletoe, a parasitic plant that forms a "witch's broom" on Black Spruce trees. This Core Habitat also contains over 7 miles of riparian habitat along the Stillwater River that provide significant habitat for Wood Turtles. The freshwater wetlands and forested uplands along the Stillwater River and west along Ball Brook to Poutwater Pond and Governor Brook contain significant habitat for Spotted Turtles. Blanding's Turtles have also been observed in the area.

Core Habitat BM763

This Core Habitat contains a Shrub Swamp of moderate size and quality that has a little undeveloped land buffering it. Shrub Swamp communities are a common and variable type of wetland occurring on seasonally or temporarily flooded soils. They are often found in the transition zone between emergent marshes and swamp forests.

Core Habitat BM767
This Core Habitat contains a small Black Gum Swamp within a larger wetland system that includes a Shrub Swamp. Black Gum Swamps are forested acidic basin wetlands with accumulations of peat that form hummocks and hollows on the ground. Black Gum is the dominant canopy tree, growing primarily on the hummocks, which results in a relatively open canopy. Meanwhile, Shrub Swamp communities are a common and variable type of wetland occurring on seasonally or temporarily flooded soils. They are often found in the transition zone between emergent marshes and swamp forests.

Core Habitat BM773
This Core Habitat encompasses high gradient brooks and adjacent forested wetlands and uplands that feed into Holden Reservoir #1. These habitats support one of the easternmost populations of Spring Salamanders in Massachusetts.



MAP 4.1 BIOMAP CORE HABITATS

Table 6 - Core Habitats

Core Habitat		Common Name	Scientific Name	Status
BM625	Natural Communities	Level Bog		Vulnerable
BM625	Plants	Dwarf Mistletoe	Arceuthobium pusillum	Special Concern
BM625	Vertebrates	Blanding's Turtle	Emydoidea blandingii	Threatened
BM625	Vertebrates	Spotted Turtle	Clemmys guttata	Special Concern
BM625	Vertebrates	Wood Turtle	Clemmys insculpta	Special Concern
BM763	Natural Communities	Shrub Swamp		Secure
BM767	Natural Communities	Black Gum Swamp		Imperiled
BM773	Vertebrates	Spring Salamander	Gyrinophilus porphyriticus	Special Concern

Endangered species are native species that are in danger of extinction throughout all or part of their range, or are in danger of extirpation from Massachusetts, as documented by biological research. Species of Special concern are native species that have been documented by biological research to have suffered a decline that could threaten the species if allowed to continue unchecked or that occur in such small numbers or with such restricted distribution or specialized habitat requirements that the could easily become threatened within Massachusetts.

Table 7 - Endangered Plant Species, Threatened Species and Species of Concern

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Vascular Plant	Scheuchzeria palustris	Pod-grass	Endangered	1917
Vascular Plant	Arceuthobium pusillum	Dwarf Mistletoe	Special concern	1985
Dragonfly / Damselfly	Ophiogomphus aspersus	Brook Snaketail	Special concern	2004
Dragonfly / Damselfly	Enallagma carunculatum	Tule Bluet	Special concern	Historic
Reptile	Glyptemys insculpta	Wood Turtle	Special concern	1999
Reptile	Emydoidea blandingii	Blanding's Turtle	Threatened	1999

Priority Wildlife Habitats and Estimated Habitats of Rare Wetlands Wildlife as mapped by the NHESP receive an extra degree of protection from the Massachusetts Endangered Species Act (MESA), administered by NHESP and the Massachusetts Wetlands Protection Act, administered by DEP and the Holden Conservation Commission. There has been no intensive natural history inventory done in recent years and two of these rare species have not been noted within Holden for many decades. It is likely that there are other important wildlife habitats and many more vernal pools in Holden.

These wildlife habitats are located along brooks feeding Dawson and Chaffins Ponds, Tatnuck Brook, Anesbumskit Brook and the Quinapoxet River and its tributaries. Project review procedures for the town include review by the Conservation Commission to ensure that these habitats are preserved. Holden has 23 certified vernal pools and 118 potential vernal pools. Data has been collected for at least ten potential vernal pools by a local land trust; this information is currently being reviewed by the NHESP.

Although a majority of DCR-owned land in Wachusett watershed is forested, there are several unique areas that support rare or unusual habitat. DCR owns a large number of vernal pools. Although not rare on DCR-owned land, these unique breeding areas are becoming increasingly rare on a regional level.

General Vegetation
Holden's vegetation ranges from standard field crops, such as hay, feed corn and sweet corn to a variety of natural species including typical forest mixed wood species and typical vegetation associated with wetlands, swamps and bogs. Farming has greatly diminished in the Town. There are no vegetable farms and there are only a few cattle fields on the outskirts of the Town.

Woodlands are comprised of oaks, maples, white and red pines, hemlocks, spruce, hornbeam, ash, chestnut, walnut, beech, birch, and alders. Over 1200 acres of marketable tree species are managed under Chapter 61, the Forest Cutting Program. Two Town-owned parcels with untouched forests, Trout Brook Reservation and the Town Forest located at Harris and River Streets, have pleasant hiking trails and streams with typical riparian vegetation. Low-bush blueberries, mountain laurel and wild lily of the valley can be seen at higher elevations and mosses, ferns, and jewelweed abound in low-lying areas.

The Asian longhorned beetle (ALB) (anoplophora glabripennis), an insect native to China, Japan, Korea, and the Isle of Hainan, is a destructive pest of hardwood trees. It attacks many healthy hardwoods trees including maple, horse chestnut, birch, poplar, willow and elm. In addition nursery stock, logs, green lumber, firewood, stumps, roots, branches, and wood debris of an half an inch or more in diameter are subject to infestation. The beetles lay eggs in the tree and feed on the tree, eventually killing the tree. A new generation of ALB is produced each year. If this pest moves into the hardwood forests of the United States, the nursery, maple syrup, and forest product industries would experience severe economic losses. In addition, urban and forest ALB infestations will result in environmental damage, aesthetic deterioration and a reductions in public enjoyment of recreational spaces.

An infestation of ALB has been identified in areas of Worcester, Holden, West Boylston, and Shrewsbury, Worcester County, Massachusetts. DCR issued an Order to prevent the spread of ALB, suppress, control and eradicate ALB in any area of Worcester County and Massachusetts on August 8 and August 20, 2008. These orders identify the affected areas, indicate an indefinite quarantine period, regulated articles and regulated activities. Treatment includes the removal of host trees and injection of pesticides to surrounding host trees. Eradication efforts have begun but it is still vital to monitor and prevent the spread of the beetle which could result in detrimental affects to protected open space in Town. The status of the ALB is currently monitored by the United States Department of Agriculture.

Holden has over 17 perennial streams feeding 7 reservoirs and ponds. The majority of bordering vegetative wetlands has ferns, skunk cabbage, pokeweed and cattails. Within Poutwater Pond, one of the best examples in the state of an acidic fen and Massachusetts first Nature Preserve, a 28-acre freshwater bog treats hikers to arrow-arum, spike-rush and Jack-in-the-pulpit, Golden Club, and Dwarf Mistletoe. A floating bog mat provides very rare habitat for a number of uncommon species. Five other bogs, 2 of which produce cranberries, are located at Chaffin Pond (2), Laurel Hill Lane, and west and north of River Street respectively.

Holden's wildlife community is typical of central Massachusetts towns. Species are limited by habitat availability. The mix or forest, lakes, ponds, streams, rivers, and wetlands found in Holden provide a diversity of habitats for fish and wildlife. While substantial portions of the town have been developed and are no longer suitable for larger game species, bear and deer are still found in wooded areas and grasslands. Hunting for small game, such as ducks, squirrel, and grouse has decreased in recent years.

A diversity of wildlife is an indicator of the health of the environment and is a source of joy for children and grownups alike. As the forests of New England continue to rebound after the abandonment of many farms in the 1800s and subsequent years, some species of wildlife have begun to move back into Holden and other areas of central Massachusetts. These include beaver, coyote, moose, turkey, bear, and fisher as well as others. The resurgence of these species is generally considered to be a positive occurrence, but there may be negative consequences as well. Beaver dams can create localized flooding, and small house pets can be vulnerable to the increasing population of fisher and coyote. The following describes the Town's major wildlife habitats, agricultural land, open land, forests, and wetlands, and some of the more common wildlife likely to be found in them.

4.5.1 Agricultural Land

In the 2005 land use map, the 521 acres of land identified as cropland and 436 acres of pasture and 21 acres identified as nursery or orchard (a total of 978 acres or 4.2% of the Town's total area) are still important resources for the diversity of wildlife in Holden. Most of the remaining agricultural land is located in the northern section of Town—north of Main Street and River Street. There are also other small farm parcels scattered in other parts of Town.

Grassland birds, like eastern meadowlarks and bobolinks, may still use some hayfields, meadows, and pastures in Holden. In many Massachusetts Towns, once plentiful fields are now too small and scattered to attract all but a few passing examples of these once plentiful grassland specialists. Holden contains some remaining significant field habitats, however in order to maintain the habitat value of these areas, the existing grasslands and croplands must be maintained without further loss or fragmentation. Many other bird species nest near these fields and use the fields as well as other habitats for hunting and feeding on seeds, insects, and small mammals. Many migrant songbirds, those that move between northern and southern latitudes with the seasons, can still be found feeding in farm fields in Holden and other nearby Towns during migration. Many hawks and owls, such as American kestrels and northern harriers, rely on grasslands for hunting small mammals, while other hawks and owls, such as red-tailed hawks and great horned owls, hunt in these fields as well as in the Town's forested areas. In addition to birds, voles, white-tailed deer, woodchucks, coyotes, and eastern cottontail rabbits and other mammals often use agricultural areas. Several snakes, such as the eastern hognose snake and the northern brown snake can also be found in fields and pastures.

4.5.2 Open Land

Power line corridors and unused open land, like agricultural fields that are no longer being cultivated, are also areas used by many of the same species of wildlife that use agricultural land and some species that specialize in using these areas. There are just over 370 acres of this type of habitat in Holden (1.6% of the total area). Power line and other utility rights-of-way are also often used as movement corridors for wildlife, providing a means of getting from one habitat to another. The birds, mammals, and reptiles that use these open areas are likely to be the same as those that use agricultural areas in the Town.

4.5.3 Forest Land

Holden has an abundance of forestland, but as large lots are developed along the Town's roadways, the effect of suburban development has begun to mask the visual impact of such natural wealth. The habitat map shows 15,709 acres of forest in Holden (68% of the Town's total area), including primarily Central Hardwoods-Hemlock-White Pine association and relatively small areas of the Swamp Hardwood association. The Central Hardwood Forest type is located on generally drier outwash soils and tills. The most common trees are red oak (with mixtures of other oaks) and hemlock as well as red maple, aspen, hickories, and gray birch. White pine is common on more sandy soils. Portions of forest owned by the City of Worcester around Worcester reservoirs have remained uncut for many decades and contain

unusually mature and tall woodlots. Common forest shrubs and herbs include lowbush blueberries, wintergreen, clubmosses, and witch hazel. The Central Hardwood Forest type is found in all parts of the Town while the Swamp Hardwood Forest type is concentrated along streams or around ponds. The Central Hardwood Forest habitat type is likely to be the most threatened because it is often generally suitable for development.

Some of the common animals found in the Central Hardwood Forest include spotted salamander, redback salamander, wood frog, American toad, eastern milk snake, and eastern garter snake. Common birds include red-tailed hawk, Cooper's hawk, mourning dove, downy woodpecker, great-horned owl, eastern wood pewee, blue jay, American crow, white-breasted nuthatch, brown creeper, scarlet tanager, ovenbird, yellow-rumped warbler, Baltimore oriole, broad winged hawk, ruffed grouse, pileated woodpecker, red-eyed vireo, black-capped chickadee, wood thrush, indigo bunting, and wild turkey. Several species, such as the hawks, are most often found at forest edges, where woodlands abut more open areas such as agricultural fields. A diversity and juxtaposition of habitat types is not only aesthetically pleasing, but often an enhancement to wildlife as well. Common mammals include Virginia opossum, eastern chipmunk, woodchuck, gray squirrel, red squirrel, white-footed mouse, red fox, eastern coyote, raccoon, river otter, white-tailed deer, and striped skunk. All of these species occupy Holden's forests.

Swamp Hardwoods, found in the scattered wetland areas of Town and along streams, are so dominated by red maples that they are often referred to as Red Maple Swamps. Other less common trees include American ash, cedars, and black gum. Wetland understory shrubs are common, including alder, viburnums, blueberries, and others. Herbs are abundant and include sedges, ferns, false hellebore, and skunk cabbage. These woodlands are an important component of the Town's remaining forested lands and wetland laws generally protect them.

Some of the common animals found in the Swamp Hardwood association and not in the Central Hardwood Forest include northern spring peeper, gray tree frog, bullfrog, common snapping turtle, painted turtle, northern water snake, and northern ringneck snake. Birds common to this habitat and not so likely encountered in Central Hardwood Forest include red-shouldered hawk, swamp sparrow, barred owl, cedar waxwing, yellow warbler, and common grackle. Many of the same mammals found in the Central Hardwood association are also likely to be found in Red Maple swamps.

4.5.4 Forest Fragmentation

Many ecologists agree that one of the biggest threats to natural communities and biodiversity in Massachusetts and much of the rest of New England is the fragmentation of large expanses of uninterrupted forest habitats. Many wildlife species, like these, depend on the interior of forests (areas far from an edge) for a significant portion of their life cycle and many biologists agree that the loss of large uninterrupted tracts of forest is contributing to the decline of many species of birds and mammals.

As a result, the remaining uninterrupted forests in Holden and surrounding Towns are particularly valuable for a broad diversity of wildlife. Three relatively large forest areas remain. One is along the Town's western boundary and includes many protected watershed lands. Another runs along the northern Town boundary from North Main Street to Manning Street and includes many state-owned watershed lands. The third runs along the eastern Town boundary from Manning Street almost to Shrewsbury Street. This area also includes several state-owned watershed lands. These large uninterrupted forest areas are important habitat areas for wildlife.

4.5.5 Non-forested Wetlands

The vegetation map identifies 240 acres of non-forested wetlands in Holden (1% of the total area) and 815 acres of water (3% of the total area). The majority of the Town's non-forested wetlands are found upstream of Chaffin Pond and around Stump Pond and Eagle Lake. These rich wildlife resources include bogs, meadows, shallow marshes, deep marshes, shrub swamps, and ponds. Other non-forested wetlands are located at scattered locations throughout the Town.

Level Bogs are dwarf shrub peatlands, generally with pronounced hummock and hollow formations. These wetland peatlands are the Town's most acidic and nutrient-poor, because they receive little overland water input, and are not connected to the water table. The Poutwater Pond bog in Holden is a

level bog that provides habitat for populations of wood turtles and dwarf mistletoe—the Massachusetts NHESP lists both as protected species.

Wet meadows are characterized by sedges and cattails, surface water depths to 6 inches in winter and early spring, and exposed but saturated soil surface in summer, and typically provide habitat for the following wildlife species: Northern leopard frog, big brown bat, star-nosed mole, and short-tailed shrew.

Shallow Marshes are characterized by persistent emergent vegetation such as cattails and water depths to 1.5 feet, and provide preferred habitat for the following wildlife species: Northern spring peeper, painted turtle, and northern leopard frog. Common birds may include great blue heron, green heron, Wilson's snipe, Virginia rail, mallard duck, tree swallow, red-winged blackbird, and American goldfinch. Common mammals may include Virginia opossum, little brown bat, muskrat, mink, and raccoon.

Emergent vegetation and floating-leafed plants such as water lilies (Nymphaea and Nuphar), and water depths to 6 feet characterize Deep Marshes. They typically provide preferred habitats for the following species: Painted turtle, spotted turtle, and red-spotted newt. Common birds may include wood ducks as well as migrating pied-billed grebe, and American coot. Common mammals include the same species found in Shallow Marshes.

Woody shrubs such as buttonbush, alder, silky dogwood, and red maple, and saplings characterize Shrub Swamps. They typically provide preferred habitat for the following species: American woodcock, yellow warbler, common yellowthroat, common grackle, song sparrow, swamp sparrow, and American goldfinch. Common mammals include Virginia opossum, little brown bat, eastern cottontail, and raccoon.

Ponds are small bodies of water that are characterized by emergent vegetation such as cattails or floating-leafed plants, or both. Vernal pools are small seasonal ponds that often are not connected to streams or other water bodies. Thus, they depend on groundwater, snowmelt and rainwater and usually become dry by late summer. Fourteen Certified Vernal Pools are identified on the Habitat Map for Holden. Vernal pools are critical habitats for some salamander species, wood frogs, and a wide variety of other wildlife. Some species of salamanders and wood frogs migrate from surrounding forested uplands to these pools in the spring to breed. Without these vernal pools, we would lose these animals. Many more potential vernal pools may exist, but have not been documented. Potential vernal pools are small topographic depressions or small pockets of suspected standing water identified from topographic maps and aerial photographs by NHESP as possible candidates for being vernal pools. A vernal pool is certified by NHESP following submission of documentation that a species of animals that require vernal pool habitat are actually present. Ponds and vernal pools also provide preferred habitat for the following wildlife species: bullfrog, pickerel frog, eastern painted turtles, little brown bat, big brown bat, mink, and beaver.

4.5.6 Fisheries

Three local warm water ponds, Chaffin Pond, Unionville Pond and Dawson Pond also support hornpout, small mouth bass, pickerel, blue gills and perch. These ponds and additional water bodies are annually stocked by Massachusetts Wildlife. In addition, native trout populations have been reported in Town streams.

With the exception of an extremely small area at the northern tip of Holden, there are no Living Waters Critical Supporting Watersheds. The goal of the Living Waters Project (formerly the Aquatic Biodiversity Project) is to promote the strategic protection of freshwater biodiversity in Massachusetts. Natural Heritage tracks 58 species of rare fish, aquatic vascular plants, freshwater mussels, crayfish, snails, and other aquatic invertebrates. Because changes in water flow and degradations in water quality threaten these and other freshwater species, Natural Heritage developed the Living Waters conservation plan to identify the State's most critical sites for freshwater biodiversity in the Commonwealth. These sites, referred to as Core Habitats, represent the rivers, streams, lakes, and ponds where we should focus proactive conservation activities in order to protect freshwater habitats. The Living Waters project was funded from 2001-2003 with bond funds.

4.5.7 Riparian Corridors

One hundred-meter natural riparian corridors along waterways are thought to provide avenues of movement for some wildlife species and fulfill other ecological functions.

4.6 Scenic Resources and Unique Environments

Table 8 contains a list of Unique and Scenic resources relevant to the Open Space and Recreation. Sites are classified according to their relevance as the following:

- Cemetery,
- Church,
- Conservation Area Or Park,
- Farm, Historic Business,
- Historic District Or Area,
- Historic School,
- Military, Memorial, Monument,
- Municipal Or Other Institution,
- Native American Archeology,
- Structure, Or
- Recreation Area.

A more complete list of historic and cultural resources is contained the 2008 Holden Master Plan – Holden Tomorrow.

Historic Sites
Holden has the visual character of a typical New England undulating countryside, with terrain ranging from steep hillsides to gently rolling land. Twelve hills with rounded peaks often serve as neighborhood references to the local populace. The unique clusters of mostly 18th and 19th century residences, churches and Town government structures in the historic Town Center and Boyden Road areas, as well as the many attractive newer residences and commercial buildings combine to create in Holden's pastoral setting a sense of tradition, tranquility and stable growth.

The Town of Holden covers some 35.75 square miles of area. Holden's water bodies are a dominant physical feature of the landscape. Its large wetland areas are vital in terms of reservoir replenishment, flood control and as a natural wildlife environment.

Currently there are a total of 27 recorded Prehistoric Native American sites within, or in close proximity to, the Wachusett Watershed. Within the greater Nashua River Basin, of which Wachusett is a part, at least another 35 sites have been recorded. This quantity is known to be low as it represents only those recorded at the Massachusetts Historical Commission, and does not take into account the many more that are known to collectors but are not recorded. Combined, the recorded and unrecorded sites, clearly attest to the viability of this region's habitat for human habitation for thousands of years, and establish the archaeological sensitivity of the region.

According to Wachusett Reservoir Watershed – DCR/DWM Land Management Plan 2001-2010, within Holden, 11 areas are believed to be Prehistoric Native American sites. These sites are not mapped because of possible threats to site integrity.

1. 19-WR-21 Quinapoxet Pond

2. 19-WR-29 Eagle Lake (E)
3. 19-WR-30 Eagle Lake (SE)
4. 19-WR-31 Eagle Lake (SW)
5. 19-WR-33 Maple Spring Pond (E)
6. 19-WR-34 Maple Spring Pond (W)
7. 19-WR-181 Chaffin Pond
8. 19-WR-182 Chaffin Pond
9. 19-WR-183 Chaffin Pond
10. 19-WR-184 Rockshelter
11. 19-WR-253 Quabbin Aqueduct

Significantly, there may be as many as 6 historic period Native American burials recorded within the Town of Holden. This is an unusually high number for a single community. These sites are also not mapped because of possible threats to site integrity.

A mile and a half from the start of the Mass Central Rail Trail in Oakdale Massachusetts, snug between the Quinapoxet River and the section of the Mass Central Rail Trail now being built in the Springdale area of Holden, are the remaining stone foundations of The Springdale Mill. Once a thriving woolen mill located at the end of Springdale Road, the site also includes the remains of a mill village. Under the auspices of the DCR and Wachusett Greenways, the Springdale Mill Historic Site Committee is undertaking the preservation and historical interpretation of the Springdale Mill site and mill village. While channeling public access to ensure water quality, the project will open up the mill site, develop safe footpaths for viewing the remaining foundations of the mill and village, and provide signs with text and illustrations explaining the history and use of the mill.

Reservoirs
Quinapoxet Reservoir provides the headwaters of the Quinapoxet River, the principal waterway in Holden. Asnebumskit Brook, Muschopauge Brook, Warren Tannery Brook, Trout Brook, and a number of unnamed perennial streams also feed the Quinapoxet, as does Unionville and Chaffins Pond. Quinapoxet River winds through Holden and eventually flows into the Wachusett Reservoir. The river and its tributaries provide a protected greenbelt for passive enjoyment.

Almost all of Holden is drained by streams entering public water supply reservoirs. Approximately two-thirds of the Town lies in the Nashua River Basin and the headwaters of the Blackstone River accept drainage from the southern portions of Town. Part of Worcester's water supply also is served by two drainage sub-basins within the Nashua River Basin - the Kendall and Quinapoxet Reservoir areas. The reservoir system that serves Worcester provides scenic water views along winding roads. Stone House Hill, located along Holden Reservoirs 1 and 2, reportedly contains Indian relics and at one time an occasional rattlesnake. These impressive rock faces add splendor to the magnificent view as one travels along the opposite shore of the waters at their base.

Preserves and Conservation Land
The Poutwater Pond Nature Preserve area (also known as "The Quag"), located in the very northern tip of Holden, is a natural bog. The pond environs represent the Commonwealth's first nature preserve and are designated as a national natural landmark by the Department of the Interior. This fragile habitat, which consists of living and decaying moss and other acidic vegetable matter floating on water, is located in a remote 28-acre site and is accessible to the public through DCR and Mass Wildlife lands. Metallic grids placed over the surrounding bog allow the public to cross through the wetlands and wildlife habitat to the serene and picturesque pond near its center without destroying the underlying vegetation.

Trout Brook Reservation, White Oak Land Conservation Society, Mass Wildlife and DCR lands, adjacent to and including Poutwater Pond Nature Preserve, form a body of more than 1,500 acres of scenic open space interconnected by trails. In the Trust for Public Land's (TPL's) first project with the Worcester DPW, the watershed of the Tatnuck Brook (75 acres), which supplies water to the Holden #1 Reservoir, has been substantially protected with the acquisition of a Watershed Preservation Restriction. The easement is managed by the City's Department of Public Works (DPW), which also funded the acquisition.

In TPL's fourth project with the City of Worcester Department of Public Works, 75 acres of beautiful wooded land with more than one mile of frontage on Scott Brook were permanently protected through the

acquisition of a Watershed Preservation Restriction. Protection of this property will ensure continued high quality drinking water to 200,000 residents of Worcester and surrounding towns, will protect Holden's rural character, and will continue Worcester's long tradition of proactive watershed management. Funding was provided by a Massachusetts Drinking Water Supply Protection Grant and City of Worcester DPW funds.

TPL's Massachusetts Land and Water Program completed the protection of the 114-acre Blair property, concluding the Muschopauge Brook project on behalf of the City of Worcester. The Blair and the Namiotka property together comprise 209 acres of forested wetland and upland that safeguard nearly two miles of frontage on the Muschopauge Brook, a major tributary to the Quinapoxet Reservoir. The Quinapoxet is a high quality public water source that provides 200,000 people with clean, safe drinking water in the City of Worcester and surrounding communities. Conservation of this critical watershed protection land continues Worcester's land protection heritage, which stretches back to the mid 1800's. Funding for this project was provided by the Federal/ USDA Forest Legacy Program and Worcester's DPW.

Arteries and linear features

The Mass Central Rail Trail, which follows the bed of the abandoned 104 mile Northampton to Boston Massachusetts Central Railroad, is being developed by Wachusett Greenways in cooperation with town governments and state and private agencies. The planned 30+ mile Wachusett Greenways section of the route travels approximately 8 miles through Holden connecting a section already open in West Boylston to the northeast with a Rutland link to the northwest. Through fund raising, grant writing, volunteers, and a cooperative effort with Town officials the Wachusett Greenways has completed 3.5 miles of continuous trails, including the installation of two bridges, in Holden since the 1999 OSRP. The Wachusett Greenways is currently working on planning the remaining trails.

The main traffic artery through Holden, Route 122A (Main Street), follows the approximate location of the Sixth Incorporated Turnpike of Massachusetts, built in 1799 and one of seventeen turnpikes chartered by the State and constructed by private companies between 1799 and 1830. According to the Massachusetts Historical Commission, it also had been an important trail during the Quinsigamond Plantation Period of 1500 - 1675.

The Quabbin Aqueduct which supplies water for the Metropolitan District of Boston passes through Holden for a distance of about 4.5 miles in nearly an east-west direction through what was formerly Quinapoxet Village. This aqueduct is a tunnel 24.6 miles in length and is the second longest completed continuous tunnel in the world, being of a size sufficient to run a standard trolley car through it. It is constructed entirely in rock ranging in depth below the ground surface from about 200 feet to 800 feet. It takes water from the Ware River at Coldbrook and from Quabbin Reservoir at a point about one mile south of the former Greenwich Village. It is lined with concrete, forming a waterway 12 feet 9 inches high and 11 feet wide.

The portion of the tunnel within the Town of Holden was constructed during the years of 1927 to 1931 inclusive, and was first put into service in March, 1931, when water from the Ware River was first diverted through the tunnel from Shaft 8 at Coldbrook to Wachusett Reservoir at Oakdale. During the construction of the shafts and tunnel, an average of about 150 men was employed within the Holden's town limits. A camp for workers was maintained at Shaft 2.

During the construction of the tunnel a detailed study of the geological structure was made and specimens of rock were taken throughout the length of the tunnel at intervals of about 50 feet. These were preserved and are available for public inspection at the Intake building at Coldbrook. This tunnel passed through a dike of trap rock in Holden about 1/2 mile east of the Rutland town line. This is part of the same formation afterwards developed and now operated as a quarry by the Holden Trap Rock Company, at Jefferson.

Two of the 13 shafts in this tunnel are in Holden. Shaft 2 adjacent to the Quinapoxet River, about one mile east of the West Boylston town line, is about 315 feet deep and Shaft 3 in North Woods district, and also adjacent to the Quinapoxet River, is about 350 feet deep. The tunnel crosses under Manning Street near Shaft 2 where it is 330 feet below the street; under Wachusett Street at the former Quinapoxet Village, 310 feet below the street; 360 feet below Princeton Street; 400 feet below Whitney Street; 430 feet below Bryant Road and about 470 feet below Broad Street which it crosses near Shaft 4 just west of the Holden line in Rutland.

The DCR Sewer Trunk line, built in 1935 by legislative act and expanded in 1981, is an evident feature through much of Holden. The 35 foot wide easement for use for sewer access is held by DCR and maintained by the Massachusetts Water Resource Administration (MWRA).

Table 8 contains a list of Unique and Scenic Features that are shown on the Unique and Scenic Features Map. No DEP Areas of Critical Environmental Concern (ACEC) are located in the Town of Holden.

Table 8 – Unique and Scenic Features

Map No.	Property Name	Street	Year Built	Category
1	Grove Cemetery	Main St	1854	Cemetery
2	Old Burying Ground	Main St	1742	Cemetery
3	Park Avenue Burying Ground	Main St	1826	Cemetery
4	St Mary's Cemetery	1304 Main St	1867	Cemetery
5	Abbott - Lindgren Farm	744 Reservoir St	1812	Farm
6	Allen - Scott Farm	619 South Rd	1860	Farm
7	Blake Farm	383 South Rd	1800	Farm
8	Broad, Ira Farm	1878 Main St	1820	Farm
9	Brown - Davis - Frost Farm	17 Whitney St	1780	Farm
10	Chaffin, Capt. John Farm	530 Salisbury St	1831	Farm
11	Cheney - Graham Farm	624 Malden St	1816	Farm
12	Crystal Spring Farm	57 Reservoir St	1883	Farm
13	Doyle Farm	150 Doyle Rd	1802	Farm
14	Estabrook - Howe - Hall Farm	River St	1805	Farm
15	Heiding, Erick Farm	306 Bullard St	1895	Farm
16	Hennessey, Thomas Barn	50 Fairview Ave	1885	Farm
17	Hubbard, Elisha Farm	1870 Wachusett St	1775	Farm
18	Hubbard, John Farm	57 Mill St	1840	Farm
19	Hubbard, Simon Farm	381 Causeway St	1820	Farm
20	Johnson Farm	81 Lincoln Ave	1820	Farm
21	Lovell Farm	55 Lovell Rd	1899	Farm
22	Lovell, Jonathan Farm	Malden St	1752	Farm
23	Moy Ranch	Moy Ranch Rd	1793	Farm
24	Paddock Farm	259 Salisbury St	1780	Farm
25	Parker Farm	248A Parker Ave	1797	Farm
26	Parmenter - Mason Farm	Mason Rd	1818	Farm
27	Phillips, Oscar Barn	17-23 Phillips Rd	1880	Farm
28	Red Barn	Shrewsbury St		Farm
29	Rogers Farm	Chapin Rd	1783	Farm
30	Smith - Stratton - Parsons Farm	Bryant Rd	1813	Farm
31	Stony Farm	428 Salisbury St	1790	Farm
32	Veitch Farm	108 Mill St	1872	Farm
33	Warner - Maynard Farm	Muschopauge Rd	1870	Farm
34	Willard - Fisk Farm	123 Whitney St	1772	Farm
35	Alden Research Labs	30 Shrewsbury St	1911	Historic Business
36	Canada Mills	Manning and River Streets		Historic

Map No.	Property Name	Street	Year Built	Category
				Business
37	Jefferson Mill Historic Area	156 Princeton St	1850	Historic Business
38	Springdale Mill	Springdale Rd.	1865	Historic Business
39	Boyden Road Historic District	Boyden Rd		Historic District or Area
40	Eagleville Area		1832	Historic District or Area
41	Holden Center Historic District			Historic District or Area
42	Camp Kinneywood	Stone House Hill Rd.		Recreation
43	Chaffins Recreation Area	439 South Main St.		Recreation
44	Dawson Recreation Area	Salisbury St.		Recreation
45	Holden Hills Golf Club	Main St. & Mt.Pleasant St.		Recreation
46	Holden Towers Tennis	38 Brattle St.		Recreation
47	Nimrod Sportsman's Club of Holden	168 Coal Kiln Rd	1923	Recreation
48	North Worcester Fox & Coon Club	399 Mason Rd.		Recreation
49	Town Beach at Eagle Lake	Eagle Lake		Recreation
50	Cascades	Reservoir St.		Reservoir or Conservation Area
51	Chapin Rd. (WOLCS)	Chapin Rd.		Reservoir or Conservation Area
54	Jefferson Park	Princeton St.		Reservoir or Conservation Area
56	Kimball Park	Wyoming Dr.		Reservoir or Conservation Area
57	Mason Park	Off Mason Rd. (Adjacent to & contiguous with Trout Brook Reservation)		Reservoir or Conservation Area
58	Mass Audubon Eagle Lake Wildlife Sancutary	Causeway St		Reservoir or Conservation Area
59	Mayberry Park	Bullard & Shrewsbury Sts.		Reservoir or Conservation Area
60	MDFW Land			Reservoir or Conservation Area
61	Penny Lot			Reservoir or Conservation Area
62	Poutwater Pond Nature Preserve	Sterling Road		Reservoir or Conservation Area
63	Salisbury St. (WOLCS)	Salisbury St.		Reservoir or Conservation

Map No.	Property Name	Street	Year Built	Category
				Area
64	South Road (WOLCS)	South Road (western edge)		Reservoir or Conservation Area
65	Town Forest	Harris and Paul Streets		Reservoir or Conservation Area
66	Winthrop Oaks	South Main St. & Colonial Dr.		Reservoir or Conservation Area
67	WOLCS	Sterling Line		Reservoir or Conservation Area
68	Worcester Natural History Camp	Paxton Rd and Grove Street		Reservoir or Conservation Area
69	Zwiep Lot (WOLCS)	Birchwood Dr		Reservoir or Conservation Area
70	Trout Brook Reservation and Conservation Area	Manning St.		Reservoir or Conservation Area
71	Causeway Street	Causeway St		Scenic Roadway
72	South Road	South Rd		Scenic Roadway
73	Eagle Lake Dam			Structure
74	Massachusetts Central Railroad	Massachusetts Central Railroad	1887	Structure
75	Mill Street Bridge over Quinapoxet River	Mill St	1800s	Structure
76	Princeton Street Bridge over Quinapoxet Outlet	Princeton St	1937	Structure
77	Quinapoxet Dam Marker	Princeton St	1953	Structure
78	Reservoir Street Bridge	Reservoir St	1914	Structure
79	River Street Bridge over Quinapoxet River	River St	1937	Structure
80	Shrewsbury Street Bridge over Chaffins Pond Outlet	Shrewsbury St	1850	Structure

4.7 Environmental Concerns

4.7.1 Oil and Hazardous Waste Releases

The Town of Holden has 52 Reportable Releases listed with the Massachusetts DEP. These sites include sites where oil, hazardous material or both have been released into the environment. The sites date back to 1987 and include such residential properties, schools, churches, gas stations, bottling companies, state police facilities, among others. Some sites have been remediated to DEP satisfaction

while at other sites clean up or monitoring are ongoing. Sites are classified in decreasing degree of risk as Tier 2, 1D, 1C, 1B, and 1A. Six Tier 2 sites are located either on Main Street or on Industrial Drive. Other sites include one at 770 Main Street (Tier 1C); one at 944 Main Street (Tier 1D); one 1401 Main (Tier 1D); and one at South Elmwood Ave. (Tier 1D). All of these sites are under cleanup orders or their cleanup has been completed. Tier 1 sites require a state permit.

There are 17 known underground storage tank locations in Holden. Most of these are also located along Main Street but some are scattered in other parts of Town.

Table 9: Reportable Releases (as of December 2, 2011)

RTN	Address	Site Name	Category	Notification Date	Compliance Status	Chemical Type
2-0010968	Wachusett St	1.2 Mi N Of Ctr	Two Hr	10/24/1995	RAO	Oil
2-0015640	176 Reservoir St	Agar Supply Co Inc	Two Hr	3/15/2005	RAO	Oil
2-0010201	Rte 190 Exit 2	Arrarat St Exit	Two Hr	2/22/1994	RAO	Oil
2-0012658	203 Shrewsbury St	Bell Atlantic	Two Hr	2/10/1999	RAO	
2-0013961	170 Main St	Bell Property	Two Hr	8/27/2001	RAO	
2-0011968	717 Wachusett St	BFI	Two Hr	11/10/1997	RAO	Oil
2-0013693	189 Holden	Bottcher Residence	120 Dy	2/14/2001	RAO	Haz Mat
2-0014153	60 Salisbury St	Central Mass Disposal	Two Hr	1/8/2002	RAO	Oil
2-0015014	Princeton And High St	Central Mass Disposal	Two Hr	11/20/2003	RAO	
2-0000835	770 Main St	Charter Fuel Sta Fmr	None	7/15/1991	RAO	Oil
2-0013667	27 Shrewsbury St	Daniels Transport ation	Two Hr	1/28/2001	RAO	Oil
2-0014991	Rte 190 South Mm 7	DSI Transports Roadway Release	Two Hr	11/6/2003	RAO	Haz Mat
2-0012779	15 Elmwood Ave	Durant Realty Trust	72 Hr	5/6/1999	TIER 1B	Haz Mat
2-0014567	South Elmwood Ave	Durant Realty Trust	72 Hr	12/6/2002	RTN CLOSED	Haz Mat
2-0011096	Elmwood Ave	Durant Realty Trust Property	72 Hr	5/3/1996	TIER 1B	Haz Mat
2-0013022	15 Elmwood Ave	Durant Realty Trust Property	Two Hr	11/10/1999	TIER 1B	Haz Mat

RTN	Address	Site Name	Category	Notification Date	Compliance Status	Chemical Type
2-0016955	18 Elmwood Ave	Elmwood Realty Trust	120 Dy	1/31/2008	UNCLASSIFIED	Oil
2-0000565	346 Shrewsbury St	Emmanuel Lutheran Church	None	3/30/1989	RAO	
2-0014253	525 Main St	Former Mandel Property	120 Dy	4/1/2002	TIER 2	Oil & Haz Mat
2-0016714	47 Phillips Rd	Former Rice School	72 Hr	6/1/2007	RAO	Oil
2-0013528	70 Industrial Dr	Foster Associates Inc	120 Dy	10/13/2000	DPS	Oil
2-0010546	513 Main St	George Luddy Chevrolet	120 Dy	10/26/1994	RAO	Oil
2-0012848	770 Main St	Gibbs Service Sta	Two Hr	6/28/1999	RAO	Oil
2-0015264	770 Main St	Hess Station 21320	72 Hr	5/24/2004	TIER 1C	Haz Mat
2-0014252	359 Main St	Hillside Auto	120 Dy	4/1/2002	TIER 2	Oil & Haz Mat
2-0012765	752 Main St	Holden Heat	Two Hr	4/27/1999	RAO	Oil
2-0011553	752 Main St	Holden Heating Co	120 Dy	12/31/1996	DPS	Oil & Haz Mat
2-0012316	752 Main St	Holden Heating Co	120 Dy	7/23/1998	RAO	Oil
2-0011691	Heritage Ln	Holden Water Dept	72 Hr	4/17/1997	RAO	Oil
2-0000613	515 South Main St	Hunts Shell	None	4/15/1989	DEPNFA	
2-0012812	56 Industrial Dr	Inner Tite Corp	Two Hr	6/3/1999	RAO	Oil
2-0015529	110 Industrial Dr	Inner Tite Corp	120 Dy	12/16/2004	RAO	Oil & Haz Mat
2-0011937	110 Industrial Dr	Innertite	120 Dy	10/7/1997	REMOPS	Haz Mat
2-0016532	1745 Main St	Jefferson School	Two Hr	1/8/2007	TIER 1C	Oil
2-0013769	450 Main St	Joseph Muner	72 Hr	4/6/2001	RAO	Oil
2-0010572	122 Main St	Lovell St	Two Hr	12/7/1994	RAO	Oil
2-0013015	512 Main St	Luddy Chevrolet	120 Dy	11/4/1999	RAO	Oil & Haz Mat
2-0000764	1042 Main St	Marane Texaco Fmr	None	10/15/1990	RAO	
2-0016368	525 Main St	Mass Stickers	120 Dy	8/22/2006	DPS	Oil

RTN	Address	Site Name	Category	Notification Date	Compliance Status	Chemical Type
		Plus Inc				
2-0013791	1175 Main St	Mobil Service Station 01-En3 11849	72 Hr	4/26/2001	RTN CLOSED	Oil
2-0000753	1175 Main St	Mobil Station 01-En3	None	7/15/1990	REMOPS	
2-0010698	Main St	New Police Sta	Two Hr	3/11/1995	RAO	Oil
2-0014035	90 Industrial Dr	Pepsi Cola Bottling Co Of Worcester	72 Hr	10/15/2001	RTN CLOSED	
2-0013669	90 Industrial Dr	Pepsi Cola Bottling Co Of Worcester Inc	72 Hr	1/29/2001	RAO	Oil
2-0013843	90 Industrial Dr	Pepsi Cola Bottling Co Of Worcester Inc	72 Hr	6/8/2001	RAO	Oil
2-0014740	90 Industrial Dr	Pepsico Of Worcester	Two Hr	4/22/2003	RAO	Oil
2-0015006	90 Industrial Dr	Pepsi-Cola Bottling Co	120 Dy	11/14/2003	RTN CLOSED	Oil & Haz Mat
2-0015578	752 Main St	Petro Heat & Power Corp	Two Hr	1/26/2005	RAO	Oil
2-0015412	1401 Main St	Pytko Construction Corporation	Two Hr	9/28/2004	TIER1D	Oil
2-0012028	18 Industrial Dr	Reed Rico	72 Hr	12/12/1997	RAO	Oil
2-0012031	18 Industrial Dr	Reed Rico	Two Hr	12/16/1997	RAO	Oil
2-0012816	18 Industrial Dr	Reed Rico	72 Hr	6/4/1999	RTN CLOSED	Oil
2-0013658	18 Industrial Dr	Reed Rico	120 Dy	10/13/2000	TIER 2	Oil
2-0015148	18 Industrial Dr	Reed Rico Inc -South East Landfill Area	72 Hr	3/5/2004	RTN CLOSED	
2-0000058	18 Industrial Dr	Reed Rolled	None	1/15/1987	DEPNFA	

RTN	Address	Site Name	Category	Notification Date	Compliance Status	Chemical Type
		Thread Die Co				
2-0012049	409 Manning St	Residence	Two Hr	12/30/1997	RAO	Oil
2-0013990	28 Orchard Rd	Residence	72 Hr	9/14/2001	RAO	Oil
2-0016016	82 Birchwood Dr	Richardson Residential Release	120 Dy	11/30/2005	RAO	Oil & Haz Mat
2-0012478	Doyle Rd	Roadway Release	Two Hr	10/30/1998	RAO	Oil
2-0014314	90 Industrial Dr	South Side Of Bldg	120 Dy	5/17/2002	RTN CLOSED	Oil & Haz Mat
2-0012547	Rte 122a Main St	State Police Barracks	72 Hr	12/9/1998	REMOPS	Oil
2-0014131	612 Main St	State Police Barracks	72 Hr	12/19/2001	RTN CLOSED	Oil
2-0016925	612 Main St	State Police Barracks	120 Dy	12/20/2007	UNCLASSIFIED	
2-0011892	944 Main St	Sunnyside Motor Co	72 Hr	9/22/1997	RAO	Oil
2-0001081	1 Old Salisbury St	Sunnyside Motors	None	9/28/1993	LSPNFA	Oil
2-0013283	944 Main St	Sunnyside Motors	120 Dy	5/10/2000	URAM	Oil
2-0000741	944 Main St	Sunnyside Motors Co	None	4/30/1990	WCSPRM	
2-0016633	15 Putnam Ln	Vacant Residence	Two Hr	3/25/2007	RAO	Oil
2-0011513	2 Newell St	Village Green	Two Hr	12/5/1996	RAO	Oil
2-0012520	1401 Main St	Wachusett Reg High School	72 Hr	11/23/1998	RAO	Oil
2-0012551	1401 Main St	Wachusett Reg High School	Two Hr	12/10/1998	RAO	Oil
2-0016095	1401 Main St	Wachusett Regional High School	120 Dy	1/27/2006	RAO	
2-0015106	85 Holden Industrial Dr	Waste Management Hydraulic Release	Two Hr	1/30/2004	RAO	
2-0010195	2443 2451 North Main St	Worcester Brook Rte 122a	Two Hr	10/18/1993	RAO	Haz Mat
2-0017412	359 South Main St.	Hillside Auto & Truck	72 Hr	2/6//2009	RTN CLOSED	Oil

RTN	Address	Site Name	Category	Notification Date	Compliance Status	Chemical Type
		Repair				
2-0017522	525 Main St.	Former Rice School	72 Hr	5/19/2009	RTN Closed	Oil
2-0017825	Woodridge Road	Hydraulic Line Rupture	2 Hr	3/24/2010	RAO	Oil
2-0017889	45 Somerset Ln	No Location Aid	120 DY	5/28/2010	RAO	Oil & Haz Mat
2-0018245	30 Shrewsbury St	Alden Research Lab	2 Hr	6/22/2011	Unclassified	
RTN = Release Tracking Number						
RAO = Response Action Outcome						

4.7.2 Erosion Chronic Flooding, & Sedimentation

According to the "2010 Annual Report of Town Officers", 1,755 drainage structures were cleaned and inspected. 117 miles of roads were swept, plowed, sanded and inspected for defects, in addition to 20 miles of sidewalks and municipal buildings. The Holden Department of Public Works (DPW) and the Board of Health were asked whether there were issues of erosion chronic flooding, and sedimentation in town. No problems were identified.

Increased development has resulted in erosion and sedimentation depositing into many of Holden's water resources increasing the eutrophication process, which significant increases aquatic vegetation growth. The Town recently received a grant in coordination with the White Oak Land Conservation Society to drawdown Eagle Lake during winter months to reduce vegetation. This measure will only address the situation temporarily. As a preventative solution the Town is pursuing the adoption of Stormwater Management Regulations which will increase the, erosion controls, stabilization efforts and filing requirements for all construction projects within the Town.

4.8 Solid Waste Disposal

The 16-acre town landfill site located on River Street was closed and capped by the Town in 1992. The Town of Holden currently conducts composting of yard wastes at this site.

In May 2001, the Town of Holden initiated a Town-wide solid waste and recycling program. Trash removal and recycling services provided by the Town through Central Massachusetts Disposal Services. Recycling waste is collected every other week. In February 2005, changes were implemented to the curbside trash collection program which encouraged recycling and reduction of solid waste. To those ends, trash limits were imposed, the overflow trash bags were sold through various vendors in Town. The recycling amounts increased across the board and the amount of residential trash disposed of decreased. Through the burnable bulk item collection effort, over 1500 items were collected by Central Mass disposal.

Wachusett Earth Day, in cooperation with the Town of Holden, provides a bi-annual collection of household recyclables, facilitates a "swap or donation" of reusable items. Year round drop-off sites for oil, antifreeze, button and nickel-cadmium batteries are available. Wachusett Earth Day manages the Recycled Resource Center which provides free to the general public, paper, fabric and other surplus household items from A to Z.

5.0 INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Map 7 displays the inventory of lands of conservation and recreation interest.

5.1 - Tax exempt properties – Overview

Within each type of ownership, parcels may be under permanent protection, or limited protection and/or no protection. Article 97 of the Articles of Amendment to the State Constitution provides permanent protection of certain lands acquired for natural resource purposes, meaning "conservation, development and utilization of agricultural, mineral, forest, water, air and other natural resources." Lands of this nature are often owned by the municipal conservation commission, recreation commission, water department, or by a state or federal conservation agency (i.e. the Executive Office of Energy and Environmental Affairs (EOEEA), or Division of Fish and Wildlife (DFW)). Public and private non-profit conservation and recreation lands can also be protected under Article 97. Removing the permanent protection status of such lands is extremely difficult, as is evidenced by the following required steps:

- The municipal conservation commission or recreation commission must vote that the land in questions is surplus to its needs;
- The removal of the permanent protection status must be approved at a Town Meeting/city council vote and pass by a two-thirds vote.
- The municipality must file an Environmental Notification Form (ENF) to satisfy the Massachusetts Environmental Policy Act (MEPA).
- The removal of the permanent protection status must be approved by the State Legislature and pass by a 2/3 vote.
- In the case of land either acquired or developed with grant assistance from EOEEA's Division of Conservation Services (DCS), the converted land must be replaced with land of equal monetary value and recreational or conservation utility.

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

Town-owned lands such as cemeteries, town forests and other conservation- or recreation-related lands may be considered permanently protected. However, municipal lands under active use (schools, town halls, highway department facilities, police/fire facilities, etc.) are not considered permanently protected. Since the future use of many privately (often a private non-profit) and publicly-owned lands can be altered with a change in ownership or alteration of a deed, their protection is considered limited.

Table 10 - Holden Land Protection Summary – Exempt properties

Protection	Ownership	Owner	Parcels	Acreage	Land Use Codes	% of Town Land Area
Town of Holden				**23180.80**		
Perpetuity and/or limited	Public Town	Town Open Space Unclassified	52	323.46	903V & 903I	1%
Perpetuity	Public Other	City of Worcester	40	3918.27	903V	17%
Perpetuity	Public State	DCR	165	7255.27	915V & 9150	31%
Perpetuity	Public State	DFW	10	456.18	9110	2%
Perpetuity	Public Town	Town Cemeteries	7	41.24	9039 & 903X	0%
Perpetuity	Public Town	Town Forest	43	1095.90	903W	5%
Perpetuity	Public Town	Town Water	23	67.59	9034 & 903K	0%

Protection	Ownership	Owner	Parcels	Acreage	Land Use Codes	% of Town Land Area
Limited	Private Non-Profit	Appalachian Mountain Club	1	1.60	905V	0%
Limited	Private Non-Profit	Chaffins	2	9.50	905C & 905V	0%
Limited	Private Non-Profit	Greater Worcester Land Trust	4	116.06	905V	1%
Limited	Private Non-Profit	Mass Audubon	11	347.75	905V	2%
Limited	Private Non-Profit	North Worcester Fox and Coon Club	1	81.42	905C	0%
Limited	Private Non-Profit	WOLCS	8	194.26	905V	1%
Limited	Private Non-Profit	Worcester Girls Club/Greater Worcester Land Trust	7	97.93	9050, 905V & 905C	0%
Limited	Private Non-Profit	Worcester Natural History Society	4	7.78	905V & 905C	0%
Limited	Public State	MHD	13	386.60	924V & 9240	2%
Limited	Public Town	Schools (Town of Holden or Wachusett Regional)	15	205.68	9033 & 903C	1%
		Totals	**405**	**14606.49**		63%

5.1.1 Permanently Protected Exempt Properties

The Massachusetts Department of Conservation and Recreation (DCR) owns a significant amount of land in Town for the purpose of protecting the Nashua River catchment basin. Of the 7255.27 acres owned by the DCR, most, particularly along the old Massachusetts Central Railroad bed, is open to the public, with a well developed principal trail and several side trails.

While there are very few established trails, the Massachusetts Department of Fisheries and Wildlife (DFW) owns 456.18 acres. Open to the public, this land was purchased for wildlife protection and hunting is permitted.

The City of Worcester owns land which protects reservoirs within the Nashua River basin which feed the City's water supply. The City of Worcester owns 39 parcels for watershed protection totaling 3918.27 acres, approximately 17% of Holden. At present, none of this land is open to the public because of the limitation of the City's filtration plant.

Town-owned land considered to have permanent protection includes the cemeteries, the town forest, and land with drinking water related uses (well protection areas).

5.1.2 Limited Protection Exempt Properties

Limited protection exempt properties include various state-owned properties such as those owned by Mass Highway, and town-owned properties without conservation restrictions, town or region-owned schools with related open space and recreation facilities, lands owned by non-profit organizations. Mass Audubon's property around Eagle Lake is likely protected in perpetuity.

5.2 Non-exempt properties - Chapter 61 lands

In addition to the above open space resources there are 1852.61 acres registered in the Chapter 61 tax abatement program. Private lands that are within the State's special taxation programs (Chapter 61) are not considered permanently protected. The vast majority of privately-owned parcels that have "limited protection" status fall under the Chapter 61 taxation program. The Chapter 61 program is an avenue for larger land holders to receive tax relief for undeveloped parcels. Private owners must meet certain criteria to qualify for property tax reductions. In return, the reduced taxes serve as an incentive for them to continue using their land for agriculture, forestry, or recreation. The landholder may apply to one of three categories within the Chapter 61 program to receive a substantial tax reduction. If the property is taken out of Chapter 61 classification, the Town is given the first option to purchase the property at fair market value. If the Town refuses this option, the owner must pay a penalty for removing the property from Chapter 61 status.

Chapter 61(Forest) land requires ten contiguous acres with a ten year management plan approved by the State Forester. Chapter 61A (Agricultural/Horticultural) requires an applicant to make a long term commitment to farming. The property must be a minimum of five contiguous acres and the owner must receive a minimum gross sale profit of $500 a year for the first five acres and $5 for each additional classified acre. Chapter 61B (Recreational) lands require the owner to make a long term commitment to preserve land for outdoor activities. The property must be a minimum of 5 contiguous acres. The property does not have to be open to the public. The parcel can be held as private undeveloped, open space land or utilized for a variety of recreational purposes.

In the Town of Holden there are 114 parcels listed as Chapter lands. There are 1817.36 acres in the agricultural program Since these protections can be removed, the number and type of properties may vary from year to year.

Holden Land Protection Summary – Chapter 61 properties

	Acreage	Land Use Code	Percentage	Parcels
Chapter 61	697.18	6000+	38.36%	37
Chapter 61A	895.41	7000+	49.27%	63
Chapter 61B	224.77	8000+	12.37%	14
	1817.36		100%	114

Table 12 - Chapter 61 Properties

Map	Parcel	St. #	Location	Owner	Acres	Zone	Classification
69	1		Muschopauge Rd	Jordan, WR, RE & BH	5.81	R-1	APR
21	2.1		Wachusett St	Oldakowski, J	15.80	R-40	APR
30	1		Wachusett St	Oldakowski, J	103.11	R-40	APR
101	5		High St	Sandstrom, J J	88.82	R-40	APR
94	6		Bond Rd	Sandstrom, J & M M	234.78	R-40	APR
94	1		Bond Rd	Sandstrom, J & M M	15.43	R-40	APR
94	3		Bond Rd	Sandstrom, J & M M	0.06	R-40	APR
30	2.1		Wachusett St	Sloan, F P, Jr & M L	38.30	R-40	APR
129	14	1490	Main St	Wilde, M C	4.50	R-1	APR
				Total APR	**506.61**		
206	3		Reservoir St.	Berg, B F	41.88	R-40	Chapter 61
220	1	125	Chapin Rd	Boisvert, M	9.68	R-40	Chapter 61
220	38		Chapin Rd.	Boisvert, M	4.34	R-40	Chapter 61
220	39		Chapin Rd.	Boisvert, M	1.75	R-40	Chapter 61
193	5	616	South Rd	Brooks, R W & C M	28.00	R-40	Chapter 61
229	1		Holden/Paxton Townline	Burque, J H R & A C	41.41	R-40	Chapter 61
239	1		Holden/Paxton Townline	Burque, J H R & A C	5.06	R-40	Chapter 61
239	2		Holden/Paxton Townline	Burque, J H R & A C	9.50	R-40	Chapter 61
151	5	420	Bullard St	Carlson, H W & L A	13.12	R-1	Chapter 61
183	5	506	Reservoir St	Drawbridge, S L & E C	6.58	R-1	Chapter 61
17	2		North St.	Dresser, G L	4.19	R-40	Chapter 61
18	2		North St.	Dresser, G L	39.72	R-40	Chapter 61
67	2		Manning St	Dresser, G L	21.25	R-40	Chapter 61
181	2		Paxton Rd.	Durham, S	7.75	R-40	Chapter 61
192	1		South Rd.	Durham, S	90.00	R-40	Chapter 61
205	1	619	South Rd	Durham, S	75.00	R-40	Chapter 61
193	1	540	South Rd	Engelsted, K E & M H	10.70	R-40	Chapter 61
168	3	383	South Rd	Harrison, D J Trustee	31.16	R-40	Chapter 61
181	4		South Rd.	Harrison, D J Trustee	0.19	R-40	Chapter 61
181	5		Paxton Rd.	Harrison, D J Trustee	0.92	R-40	Chapter 61
181	9		South Rd.	Harrison, D J Trustee	8.73	R-40	Chapter 61
219	2		Chapin Rd.	Howatt, L H Trustee	87.64	R-40	Chapter 61
71	2	17	Whitney St	Mierzejewski, E & B	32.50	R-40	Chapter 61
9	1		Mason Rd.	Nimrod League of Holden	5.00	R-40	Chapter 61
153	2		Kendall Rd.	Parent, D G & J A	24.00	R-40	Chapter 61
35	1		North St.	Parker, Teresa A Tr	13.41	R-40	Chapter 61
Map	**Parcel**	**St. #**	**Location**	**Owner**	**Acres**	**Zone**	**Classification**

221	12.1		Salisbury St.	Puffer, F W & A L	59.24	R-40	Chapter 61
13	1		North St.	Wolfe, M J & J E Truesdell	24.46	R-40	Chapter 61
				Total Chapter 61	**697.18**		
250	6.1		Salisbury St.	Ahearn, Donna L etal Trustee	29.99	R-40	Chapter 61A
94	5	260	River St	Antinarella, G & M	5.58	R-1	Chapter 61A
106	10	214	River St	Antinarella, G & M	8.00	R-40	Chapter 61A
36	1.4		Princeton St.	Bradway, Carol A etal	11.22	R-40	Chapter 61A
106	7	138	River St.	Crowley, P & N Antinarella	8.88	R-40	Chapter 61A
29	1.1	1040	Princeton St	Cummings, D M & P F	8.00	R-40	Chapter 61A
45	9		Manning St.	Dresser, G & M McCandless	5.40	R-40	Chapter 61A
45	13		Manning St.	Dresser, G & M	6.02	R-40	Chapter 61A
45	15		Manning St.	Dresser, G & M McCandless	8.70	R-40	Chapter 61A
6	1.2		Princeton St.	Drugan, W L	12.20	R-40	Chapter 61A
69	6	199	Muschopauge Rd.	Dunn J C III & J W	34.91	R-1	Chapter 61A
69	8		Muschopauge Rd.	Dunn J C III & J W	1.20	R-40	Chapter 61A
69	10		Muschopauge Rd.	Gove, C J & D L Trustees	0.52	R-1	Chapter 61A
69	9		Muschopauge Rd.	Gove, C J & D L Trustees	6.85	R-1	Chapter 61A
11	4	10/6	Sterling Rd.	Heath, Karen A.	19.50	R-40	Chapter 61A
91	4	300	River St	Hill, M A III & D J	5.58	R-40	Chapter 61A
83	1		Muschopauge Rd.	JDF Enterprises, LLC	33.08	R-40	Chapter 61A
83	8		Main St	JDF Enterprises, LLC	14.50	R-40	Chapter 61A
137	3		Causeway St.	Jarvi, W E & J S	12.77	R-40	Chapter 61A
137	4		Causeway St.	Jarvi, W E & J S	3.27	R-40	Chapter 61A
135	1	624	Malden St.	Keskula, R J & F M	28.00	R-1	Chapter 61A
183	27		Reservoir St.	LaPrade, R A & D L	0.18	R-1	Chapter 61A
183	28		Reservoir St.	LaPrade, R A & D L	11.00	R-1	Chapter 61A
183	1.1		Reservoir St.	Lindgren, R W Trustee	42.39	R-40	Chapter 61A
183	2	575	Reservoir St.	Lindgren, R W Trustee	3.15	R-40	Chapter 61A
209	23	428	Salisbury St.	MacPhee, G W & B R Trustees	6.97	R-1	Chapter 61A
122	1		Malden St.	Malden River, LLC	36.95	R-40	Chapter 61A
136	1	776	Malden St.	Malden River, LLC	16.36	R-1	Chapter 61A
136	10		Malden St.	Malden River, LLC	18.76	R-1	Chapter 61A
137	1		Causeway St.	Mann, H H & N S	1.00	R-40	Chapter 61A
135	4	729	Malden St.	Marshall, G C Trustee	11.61	R-1	Chapter 61A
151	2		Malden St.	Marshall, G C Trustee	17.00	R-1	Chapter 61A
Map	**Parcel**	**St. #**	**Location**	**Owner**	**Acres**	**Zone**	**Classification**

16	3	560	Mason Rd	Mason, O W Jr & C L	5.00	R-40	Chapter 61A
71	2	17	Whitney St.	Mierzejewski, E & B	15.60	R-40	Chapter 61A
97	5	57	Broad St.	PLMCO Realty, Inc	7.98	R-1	Chapter 61A
22	4	1803	Wachusett St.	Ribeiro, S C	20.08	R-40	Chapter 61A
90	33		River St.	Riley, LLC	53.00	R-40	Chapter 61A
106	14		River St.	Riley, LLC	0.99	R-40	Chapter 61A
106	15		River St.	Riley, LLC	0.95	R-40	Chapter 61A
106	16		River St.	Riley, LLC	0.92	R-40	Chapter 61A
106	17		River St.	Riley, LLC	0.94	R-40	Chapter 61A
204	2		Holden/Paxton Townline	Sandberg, Kerri	53.00	R-40	Chapter 61A
236	1	740	Salisbury St.	Sherbourne, R A & M G	9.41	R-40	Chapter 61A
36	3		Princeton St.	Sobol, F J & A V	3.58	R-40	Chapter 61A
36	5		Princeton St.	Sobol, F J & A V	2.06	R-40	Chapter 61A
29	1.2	1090	Princeton St.	Sobol, S M	21.27	R-40	Chapter 61A
36	1.03		Princeton St.	Sobol, S M	0.55	R-40	Chapter 61A
134	29	502	Malden St	Stark, J C Jr & H S	5.86	R-1	Chapter 61A
1	3		Holden/Sterling Townline	Thompson, R S	30.75	R-40	Chapter 61A
108	10		Malden St.	Tyde Brook Farm, LLC	12.32	R-1	Chapter 61A
122	8		Malden St.	Tyde Brook Farm, LLC	12.00	R-1	Chapter 61A
68	4		Cannon Rd.	Uptegrove, C L	0.65	R-40	Chapter 61A
55	2		Bryant Rd.	Urbanovitch, J T etal	29.70	R-40	Chapter 61A
55	2.01	140	Bryant Rd	Urbanovitch, J T etal	55.88	R-40	Chapter 61A
55	2.02		Broad St	Urbanovitch, J T etal	1.20	R-40	Chapter 61A
55	4		Bryant Rd.	Urbanovitch, J T etal	8.46	R-40	Chapter 61A
55	5		Bryant Rd.	Urbanovitch, J T etal	0.14	R-40	Chapter 61A
56	4		Bryant Rd.	Urbanovitch, J T etal	6.90	R-40	Chapter 61A
56	6		Bryant Rd.	Urbanovitch, J T etal	47.42	R-40	Chapter 61A
69	2		Bryant Rd.	Urbanovitch, J T etal	17.23	R-40	Chapter 61A
69	3		Bryant Rd.	Urbanovitch, J T etal	3.71	R-40	Chapter 61A
69	4		Broad St	Urbanovitch, J T etal	28.00	R-40	Chapter 61A
70	3		Bryant Rd.	Urbanovitch, J T etal	6.49	R-40	Chapter 61A
70	4		Bryant Rd.	Urbanovitch, J T	3.83	R-40	Chapter 61A
				Total Chapter 61A	**895.41**		
85	5		Broad St	Amons, P P	7.00	R-1	Chapter 61B
45	1		Manning St	Barton, L D, Jr & T	20.00	R-40	Chapter 61B
45	2	650	Manning St	Barton, L D, Jr & T	20.46	R-40	Chapter 61B
193	5	616	South Rd.	Brooks, R W & C M	6.50	R-40	Chapter 61B
23	2	315	Mason Rd	Cournoyer, L J	27.30	R-40	Chapter 61B
Map	**Parcel**	**St. #**	**Location**	**Owner**	**Acres**	**Zone**	**Classification**

208	1	35	Chapin Rd.	Erickson, H R & A R	8.30	R-40	Chapter 61B
173	24.2		Old Salisbury St.	Himmer, R P & D A	8.87	R-10	Chapter 61B
226	84		Brattle St	Najemy, G R	6.38	R-2	Chapter 61B
87	52	77	Summit Rd.	Parker, A	30.76	R-1	Chapter 61B
183	21		Brennan Way	Prachniak, K & B	2.36	R-1	Chapter 61B
184	3.01		Bailey Rd	Prachniak, K & B	13.00	R-40	Chapter 61B
184	4		Bailey Rd	Prachniak, K & B	25.97	R-40	Chapter 61B
195	1		Bailey Rd	Prachniak, K & B	32.09	R-40	Chapter 61B
196	1		Bailey Rd	Prachniak, K & B	13.52	R-40	Chapter 61B
208	5	462	Bailey Rd	Prachniak, K & B	2.26	R-40	Chapter 61B
				Total Chapter 61 B	**224.77**		
TOTAL Chapter 61 Properties					**1,817.36**		

5.3 Non-Exempt Properties - Other

Private lands can be protected in perpetuity through deed restrictions or conservation easements. Privately-owned farm land is considered protected under an Agricultural Preservation Restriction (APR), when the development rights have been bought by the state in order to preserve the land for active agricultural use. According to Town assessment records, the list of 2011 land protected with Agricultural Preservation Restrictions includes 507.61 acres of land.

Table 13 - Agricultural Preservation Restrictions

OWNER	PROPERTY LOCATION	MAP/PARCEL	ACRES
Jordan, W	Muschopauge Rd	69/1	5.81
Oldakowski, J	Wachusett St	21/2.1	15.80
Oldakowski, J	Wachusett St	30/1	103.11
Sandstrom, J	Bond Rd	94/6	235.78
Sandstrom, J	Bond Rd	101/5	88.82
Sandstrom, J	Bond Rd	94/1	15.43
Sandstrom, J	Bond Rd	94/3	0.06
Sloan, F	Wachusett St	30/2.1	38.30
Wilde, M C	1490 Main St	129/14	4.50
Total		**9**	**507.61**

In addition, land owned by Susan Durham consisting of 98 acres located on South Road has a conservation restriction to the White Oak Land Conservation Society on it.

5.4 Unprotected Land

Around the center of Town there are few undeveloped parcels, and elsewhere few of significant size that are not under Chapter 61, and that are not deeded with either an agricultural preservation or a conservation restriction. This means that many parcels on which development may be proposed in the future will come before the Planning Board for review.

5.5 Open space and other areas intended for the enjoyment of the natural beauty of the environment

5.5.1 Publicly-owned

Site Name	Owner	Location	Facilities	Acres
Trout Brook Conservation Area	Holden	Manning St.	Soccer field, trails, picnic area, pavilion, lodge, restrooms	664.4

Trout Brook Reservation is open to the public, and has publicly accessible trails. Though because of the slope or nature of the land, not all trails are suitable for access for those who are disabled. The wooded trails are maintained by volunteers. This area has good parking space, a lodge available for community activities, picnic shelters and a small field used for junior soccer. The Holden Department of Public Works helps maintain Trout Brook Reservation.

Site Name	Owner	Location	Facilities	Acres
Mason Park	Holden	Off Mason Street	Trails	Part of Trout Brook

Mason Park is adjacent to and contiguous with Trout Brook Reservation also offers hiking trails.

Site Name	Owner	Location	Facilities	Acres
Town Forest	Holden	Harris St.	Trails	153.04

The Town Forest was deeded by a former resident as a wooded lot. It has attractive hiking trails which continue onto adjacent DCR land. The gradients are likely too steep for the disabled and there is limited off-street parking. In 2006 the Town of Holden Conservation Commission hired Chestnut Forestry Services to complete a Forest Stewardship Plan for the 157.04 acre Town Forest located on Harris Street utilizing a grant awarded from the Department of Conservation and Recreation. In an effort to maintain a healthy growing forest the Commission completed Phase I of a IV phase harvesting plan, Phase I was successful and the Commission expects to complete the remaining phases over the next several years.

Site Name	Owner	Location	Facilities	Acres
Jefferson Park	Holden	Princeton Street	Benches	Less than 1 acre

Jefferson Park is a small parcel adjacent to St Mary's Church, which provides a pleasant mown area and some benches for passers by to rest on.

Site Name	Owner	Location	Facilities	Acres
Kimball Park	Holden	Wyoming Drive	Trails	8.9

Kimball Park is a small residential neighborhood pocket park in developed area.

Site Name	Owner	Location	Facilities	Acres
Winthrop Oaks	Holden	S. Main & Colonial Dr.	Playground	25.0

Winthrop Oaks is a 25 acre park with a playground.

Site Name	Owner	Location	Facilities	Acres
Mayberry Park	Holden	Bullard & Shrewsbury	Benches	.3

Mayberry Park is another small quiet parcel with a bench.

Site Name	Owner	Location	Facilities	Acres
Eagle Lake Town Beach	Holden	Causeway Street	Picnic area, swimming beach, changing rooms, beach volleyball court, playground, basketball court, nature trail	10.3

Eagle Lake has a nature trail created by the Boy Scouts along part of the shoreline. Accessible paved ramp to beach and accessible bathrooms are available. The parking lot needs lines for parking spaces and handicapped spaces indicated.

Site Name	Owner	Location	Facilities	Acres
Mass. Dept. of Fish and Wildlife	Mass. Dept. of Fish and Wildlife	Causeway Street	Hunting	456.18

Massachusetts Department of Fish and Wildlife owns 456.18 acres on land with few trails but where hunting is permitted.

5.5.2 Privately-owned

- The White Oak Land Conservation Society (WOLCS), a local non-profit, owns 194.26 acres within 10 parcels. On North Street trails link to the Trout Brook Reservation. At their South Road site, their Salisbury site, Chapin Road site and Zwiep site, there are not really any existing maintained trails. However, a trail is planned at the Zwiep site. WOLCS also owns conservation restrictions on four areas with very limited public access. The most recent acquisition was 49.63 acres from the Worcester Natural History Society.

- The Eagle Lake Sanctuary, a 332 acre wildlife conservation area, is owned by Mass Audubon, a state-wide, membership-based, non-profit organization. An entry fee is charged for non-members. A three-mile marked trail loops through forests of oak, pine, and hemlock and skirts the meandering Asnebumskit Brook.

- The Worcester Natural History Society (dba as Ecotarium) owns 7.78 acres of land on Paxton and Grove Streets. Little is know about the availability of trails or public access. Two large parcels of land were sold to WOLCS in June of 2008.

- The Mass Central Rail Trail (MCRT) is maintained by Wachusett Greenways. This trail was constructed on the former rail road bed in large part by volunteers. The trail is used for hiking/walking, biking, cross country skiing, and snow shoeing,

handicap accessible. Wachusett Greenways also hosts Historical Mill tours. In 2006 the Holden DPW spent many man and equipment hours on the Rail Trail between River Street Holden and West Boylston at the Wachusett Reservoir. The 104-mile Massachusetts Central rail line between Boston and Northampton was destroyed by a hurricane in 1938 and was never rebuilt. The MCRT is envisioned as a non-motorized recreational rail that will follow the entire length of this right-of-way, which encompasses 25 communities and splits the state in half. Approximately 25 miles has been completed as of July 2002, including 13 miles that run through the communities of Sterling, West Boylston, Holden, and Rutland in CMRPC's region. A trail section that starts in the Oakdale part of West Boylston and continues along the Quinapoxet River for 3.4 miles and ends in Holden was completed within the last few months of 2003. Wachusett Greenways is planning to make this 3.4-mile section part of a trail network in central Massachusetts that stretches over 30 miles from Sterling, through West Boylston, Holden, Rutland, west to Coldbrook Springs in Oakham, and eventually through South Barre to Hardwick. A separate trail in Holden, also spearheaded by Wachusett Greenways, connects Trout Brook Park conservation land with Sterling Road. It is approximately 3 ½ miles in length and was completed prior to 2003.

5.6 Active Sports Recreation Facilities
Numerous fields, courts and facilities are available around town for active sports recreation.

5.6.1Publicly-owned Non-School Facilities

- Dawson Recreation Area has two swimming pools with accompanying changing rooms and staff offices, tennis courts, paddleball court, basketball courts, a playground and playing fields. This attractive facility was built with the aid of the Town Infrastructure Investment Fund.

- The Municipal Light Department, former Chaffin's School, offers a full sized soccer field, basketball court and playground equipment.

- Senior Center (the Bubar field) has a Babe Ruth baseball field, 2 U-10 fields, and a small playground.

- Wachusett Regional School Offices, the former Jefferson School and now the Regional School Administrative Offices, has a soccer field, a softball field and a playground.

- The Former Rice School has a T-ball field, tennis courts, and playground equipment.

5.6.2 Publicly-owned School Facilities

- Mountview Middle School has a full size soccer field, 3 U-10 fields, softball, and a Babe Ruth baseball field.

- Mayo Elementary School Fields has a full size soccer field, a Babe Ruth baseball field.

- Dawson Elementary School has a soccer field and baseball fields.

- Davis Hill Elementary School has 2 full size soccer fields, 1 U-10 field, a Babe Ruth baseball field, a softball field, and playground equipment.

- Wachusett Regional High School has ongoing extensive expansion and reconstruction of its recreational field areas. The grounds will include a full size running track, full size football field, two baseball fields, a soccer field, and an outdoor adventure field.

5.6.3 Privately-owned Recreational Facilities
Chaffin's Recreation Association on South Main Street has "questionable" tennis courts, 2 baseball fields (little league and triple A), and two outdoor basketball courts with concession stand and vending machines. Ample parking area could be lined for greater efficiency. Handicapped spaces should be indicated. Chaffins Recreation Area is a valuable recreational resource in the Town of Holden, and managed by a non-profit organization. The building has suffered from a lack of maintenance; the Town should work with the organization to ensure long term protection of the building and fields.

- Holden Hills Golf Course is an 18-hole golf course with a pro shop and restaurant.

- The North Worcester Fox and Coon Club provides a shooting range for its members that includes outdoor pistol, outdoor rifle, muzzle loading, trap, sporting clays, and archery.

- Holden Towers Tennis club has 6 outdoor clay tennis courts for its members. In addition to club house and off-street parking, the club house has men's and women's showers and lockers.

- Camp Kinneywood is located on Stonehouse Hill Road and owned and operated by the non-profit Girls Inc of Worcester. The compound is located on 110 acres of woodlands that gently slopes to private waterfront. A private pond for swimming and boating, a field for organized games, a tetherball set up, a basketball hoop, picnic tables with a grill, hiking trails, and a recreational hall are located at the facility. These are available for family functions, church groups, and organizational outings on weekends from May through October.

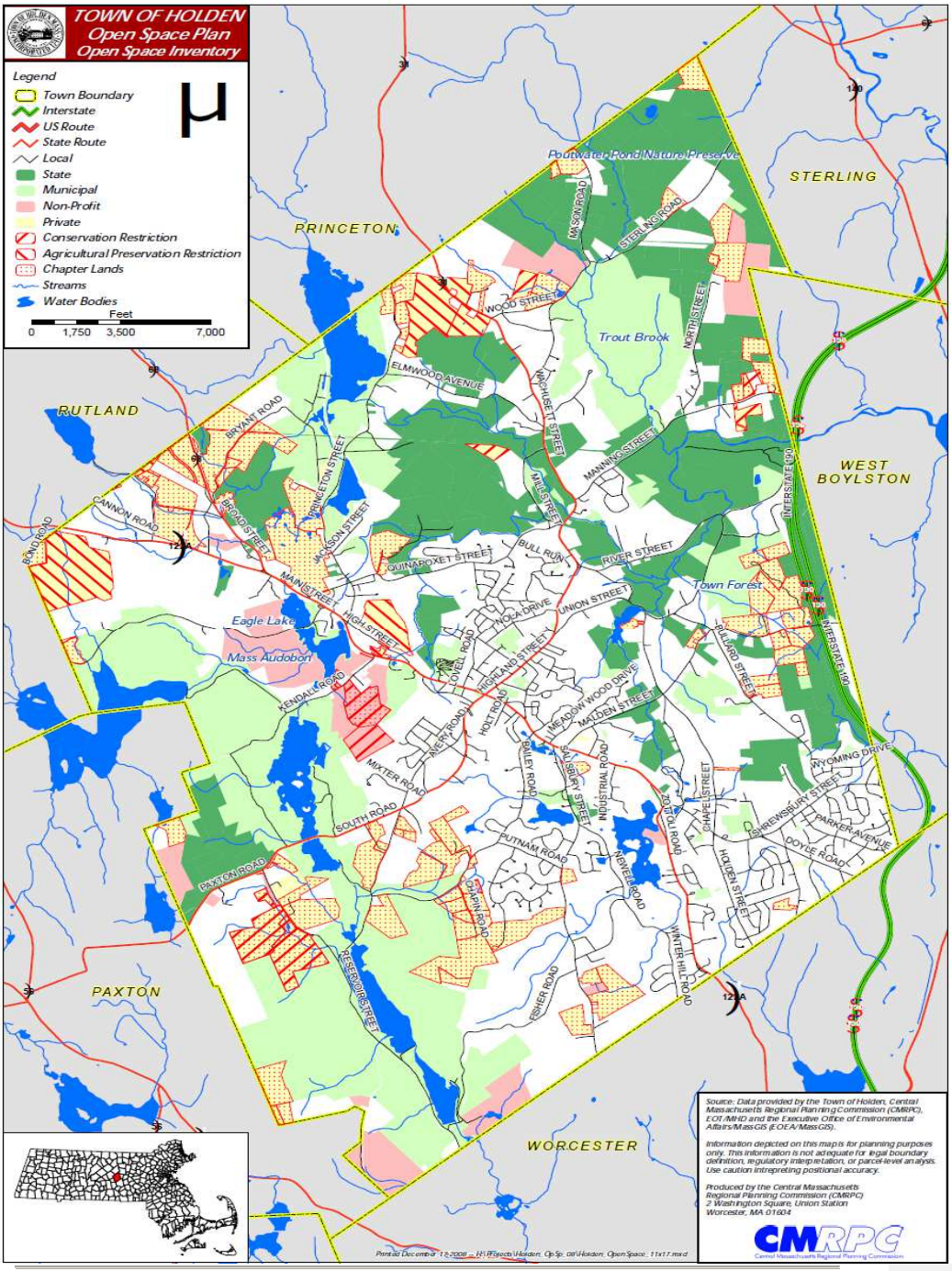
- The Nimrod League of Holden was established in 1923 to promote, protect, and perpetuate hunting, fishing, and trapping with equal rights for all, special privileges to none, and strict observance of the fish and game laws of this Commonwealth. Located on Coal Kiln Road in Princeton, Massachusetts, the club occupies 450 picturesque acres of land that straddles the border of Holden and Princeton, MA. The terrain of the land varies from hardwood to conifer forest, including fields, swamp, laurel, rolling hills, and rocky ledge. There are networks of trails that intersect the property that can be used for hiking, camping, and ATV riding (club members only). The land is host to many species including deer, turkey, fox, coyote, moose, bobcat, hare, grouse, pheasant, and more. As a non-profit organization the Club is maintained through the volunteer efforts of its members.

Table 14 holds information on privately-owned open space and recreation facilities. The table shows property owned by both private non-profits and private organizations. Each facility is described as either as open space, sports recreation, both or other. Open space for the purpose of this table includes outdoor activities such as hiking, walking, mountain biking, cross country skiing and other similar non-motorized movement, hunting, fishing and passive sitting. “Sports recreation” includes active sports such as basketball, baseball, football, swimming, soccer, shooting, etc. “Other” typically indicates a community space or lodge for indoor activities.

Table 14 - Privately-owned Open Space and Recreation Facilities and Areas

Name	Address/ Location	Owner Type	Owner	Managing Agency/ Main-tenance	Size (acres)	Use Type	Use
Eagle Lake Wildlife Sanctuary	Old Broad St. and Causeway St	Private Non-profit	Mass Audubon Society Inc	Mass Audubon Society Inc	190	Nature Recreation	Hiking trails
Girls Inc. -Camp Kinneywood	Stone House Hill Rd. on the Worcester Line and Reservoir St.	Private Non-profit	Worcester Girls Club	Worcester Girls Club	102.94	Sports Recreation, Nature Recreation, other	Camping, Swimming, Small Pond, Hiking Trails
Worcester Natural History Soc	Paxton Rd	Private Non-profit	Worcester Natural History Soc	Worcester Natural History Soc	7.78	Nature Recreation & other	Hiking trails
North St.	North St	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	7.11	Nature Recreation	Hiking trails (Extension of the Trout Brook Conservation Area)
Zwiep Lot	Birchwood Dr	Private-Non-profit	White Oak Land Conservation Society	WOLCS. A neighborhood group of members has been active in cleaning up this parcel, and a trail is planned.	7.05	Nature Recreation	Hiking trails
Eagle Lake Dam	Eagle Lake	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	2.8	Nature Recreation	Dam
South Road	South Road (western edge)	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	11.89	Nature Recreation	Hiking trails
Salisbury St.	Salisbury St.	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	8	Nature Recreation	Hiking trails
Chapin Rd.	Chapin Rd.	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	9.94	Nature Recreation	Hiking trails
Paxton Rd.	Paxton Rd.	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	49.63	Nature Recreation	Hiking trails
	Sterling Line	Private-Non-profit	White Oak Land Conservation Society	White Oak Land Conservation Society	18.41	Nature Recreation	Hiking trails
Chaffin's Recreation Area	439 Main St	Private organization	Chaffin's Recreation Assoc Inc	Private Non-profit	2.4	Sports Recreation	

Name	Address/ Location	Owner Type	Owner	Managing Agency/ Main-tenance	Size (acres)	Use Type	Use
Holden Hills Golf Course	Main St. & Mt. Pleasant St.	Private organization	Hills Country Club Ltd. Partnership/ Stow Acres Golf Properties, Inc.	Holden Hills Country Club	130.52	Sports Recreation	18-hole public golf course, Pro shop,
Holden Towers Tennis	Brattle St.	Private organization	Holden Towers Tennis Club Inc	Holden Towers Tennis Club Inc	4.64	Sports Recreation	Outdoor Tennis
North Worcester Fox & Coon Club	399 Mason Rd.	Private organization	North Worcester Fox and Coon Club	North Worcester Fox and Coon Club	81.42	Sports Recreation	Shooting ranges


TOWN OF HOLDEN
Open Space Plan
Open Space Inventory
Legend
Town Boundary
Interstate
US Route
State Route
Local
State
Municipal
Non-Profit
Private
Conservation Restriction
Agricultural Preservation Restriction
Chapter Lands
Streams
Water Bodies
Feet
0 1,750 3,500 7,000
PRINCETON
STERLING
RUTLAND
WEST BOYLSTON
PAXTON
WORCESTER
Poutwater Pond Nature Preserve
Trout Brook
Eagle Lake
Mass Audubon
Town Forest
WOOD STREET
ELMWOOD AVENUE
BRYANT ROAD
PRINCETON STREET
CANNON ROAD
BOND ROAD
BROAD STREET
HOSKINS STREET
MAIN STREET
HIGH STREET
QUINAPOXET STREET
BULL RUN
RIVER STREET
UNION STREET
NOKA DRIVE
HIGHLAND STREET
LOVELL ROAD
KENDALL ROAD
MEADOW WOOD DRIVE
MALDEN STREET
BULLARD STREET
INTERSTATE 190
INTERSTATE 290
MANNING STREET
WACHUSETT STREET
NORTH STREET
MASON ROAD
STERLING ROAD
HOLT ROAD
RILEY ROAD
BAILEY ROAD
SALISBURY STREET
INDUSTRIAL ROAD
MIXTER ROAD
SOUTH ROAD
PAYTON ROAD
PUTNAM ROAD
CHAPIN ROAD
RESERVOIR STREET
FISHER ROAD
RENTER ROAD
WATER HILL ROAD
ZOTTOLI ROAD
CHAPEL STREET
HOLDEN STREET
SHREWSBURY STREET
PARKER AVENUE
DOYLE ROAD
WYOMING DRIVE
Source: Data provided by the Town of Holden, Central Massachusetts Regional Planning Commission (CMRPC), EOT/MHD and the Executive Office of Environmental Affairs/MassGIS (EOEA/MassGIS).
Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution intrepreting positional accuracy.
Produced by the Central Massachusetts Regional Planning Commission (CMRPC)
2 Washington Square, Union Station
Worcester, MA 01604
CMRPC

6.0 COMMUNITY GOALS

6.1 Description of Process

The 2004 Recreation and Open Space Planning Committee established a five month time frame within which to complete the Plan revision process. From August, 2004 through November of 2004 the Committee met an average of once every two weeks to actively revise plan sections and develop new strategies and goals.

The Committee solicited public input through newspaper articles announcing public hearings held October 13, 2004 and again on October 27, 2004 to gain public comment and input. A final public hearing was held in 2005. The information and comment that was received at these hearings and meetings reflected the established goals and objectives and was incorporated into the document.

Unfortunately, this draft 2004 Open Space and Recreation Plan (OSRP) was never finalized. Conversations about the OSRP were reopened in late 2007. In 2008, Central Massachusetts Regional Planning Commission (CMRPC) was asked to assist with the completion of an OSRP that would satisfy the state requirements and create the needed update to the previously submitted 1999 plan on file with the Department of Conservation Services (DCS).

The public hearings held in 2004, were the last ones outside of the master plan process. Fortunately in early 2008, the Town was already in the final stages of completing a master planning exercise. The Town of Holden contracted with Community Preservation Associates based out of Arlington Massachusetts and lead by Brian Barber to facilitate the process. This OSRP draws from some of the information derived and presented in that process. The Steering Committee and Element Team, consisting of at-large Town residents, committee members, and Town officials met frequently between March 6, 2006 and January 29, 2008. Community Visioning workshops were held on October 3, 2006 and December 7, 2006. The minutes of the Steering Committee meetings and the Community Vision Workshops are presented on-line at www.holdentomorrow,net. In addition, the 2008 Holden Master Plan, entitled "Holden Tomorrow", is presented at the same web-site. In 2008, CMRPC took up where the 2004 draft plan was left, revised, updated, held community meetings to gather input, and finalized. On October 8, 2008 a community forum was hosted with very low turnout. Comments were received and incorporated into this document.

6.2 Statement of Open Space and Recreation Goals

It is the goal of the Recreation and Open Space Committee to preserve the aesthetic and natural resources in Holden including wildlife habitats, wetlands, scenic vistas, unique natural areas and historic resources; to provide active recreation resources and facilities; to promote passive recreation and open space resources and integrate them with conservation and open space activities; and to develop funding sources to accomplish these goals.

From Holden Tomorrow, 2008 Master Plan:

> *"I really like driving home to a Town with a 'Moose Crossing' sign at the Town line." This statement was voiced during one of the Master Plan visioning and outreach sessions. While many echoed this sentiment, the variations were as numerous as the participants in the outreach process. At the same time, neither the moose aficionado nor any other resident interviewed seemed to be aware that Holden contains significant areas of state-designated "Core Habitat" – natural areas deemed to be special on a scale much larger than just our Town. Similarly, few residents know that we have a Town Forest.*
>
> *Holden residents value open space. Many say that they choose to live here because of the abundant open space and rural character. They enjoy seeing open farm vistas and forested landscapes and participating in outdoor activities—both active recreation and just taking a quiet walk in the woods. We are fortunate that, in the interest of protecting the drinking water watersheds within which we reside and play, the State of Massachusetts and the City of Worcester are the largest landowners in Holden. Those two entities own and preserve over 7,000 acres of undeveloped land in Holden.*

Still, many thousands of acres are privately held and available for development. Recognizing that protection of natural resources can be at odds with the legitimate needs of economic development and housing, this Master Plan hopes to provide a thoughtful roadmap for encouraging the wise and creative stewardship of all of the land in Holden. If the Town proceeds in a rational, responsible and creative manner, our most important natural resources will be protected for the generations to follow, despite inevitable growth over the next few decades. Poorly planned development, on the other hand, will lead to loss of open space and loss of community character. Therefore, it is critical that efforts to preserve open space be ramped up considerably.

Some of the goals that came to light in the Master Planning Process of 2008 include the following:

- With regard to Natural Resources, a high priority goal for Holden residents is to maintain the rural and semi-rural character of the Town and the quality of the town's natural areas and wildlife. Natural resources in the form of fields, pasture lands, forests, ponds, streams, wetlands, hills and wildlife make up a large part of the character that residents value.

- With regard to Historic and Cultural Resources, Holden's historic and cultural resources add significantly to its character, and as noted, preserving existing character is very important to townspeople. These resources include not only buildings and their grounds and settings such as the Town Common, but also heritage landscapes and scenic roads and views. It will be important to preserve and enhance these resources for the enjoyment and education of existing and future Holden residents and visitors.

- With regard to Open Space and Recreation, while Holden has considerable open space because of the watershed protection lands located in Town, some of these lands are not accessible to the public and are therefore not available for recreational use. It is therefore wise for the Town to be vigilant and pro-active in seizing opportunities to add to its protected open space. Holden residents identified preservation of open space as a high priority objective; in visioning sessions held on the Master Plan. Additionally, Holden has recreational facilities, some of which are in need of repair and better maintenance.

- With regard to Land Use Planning, land use implementation measures for Holden are intended to retain the town's existing character, to concentrate some future development in the Main Street Corridor where infrastructure and services exist, to provide for mixed land uses where appropriate, and to ensure that land development is done in a responsible way that protects resources and has as few negative impacts as possible. It is assumed that Holden will continue to grow as the result of regional and market forces.

7.0 COMMUNITY NEEDS ANALYSIS

7.1 Summary of Resource Protection Needs

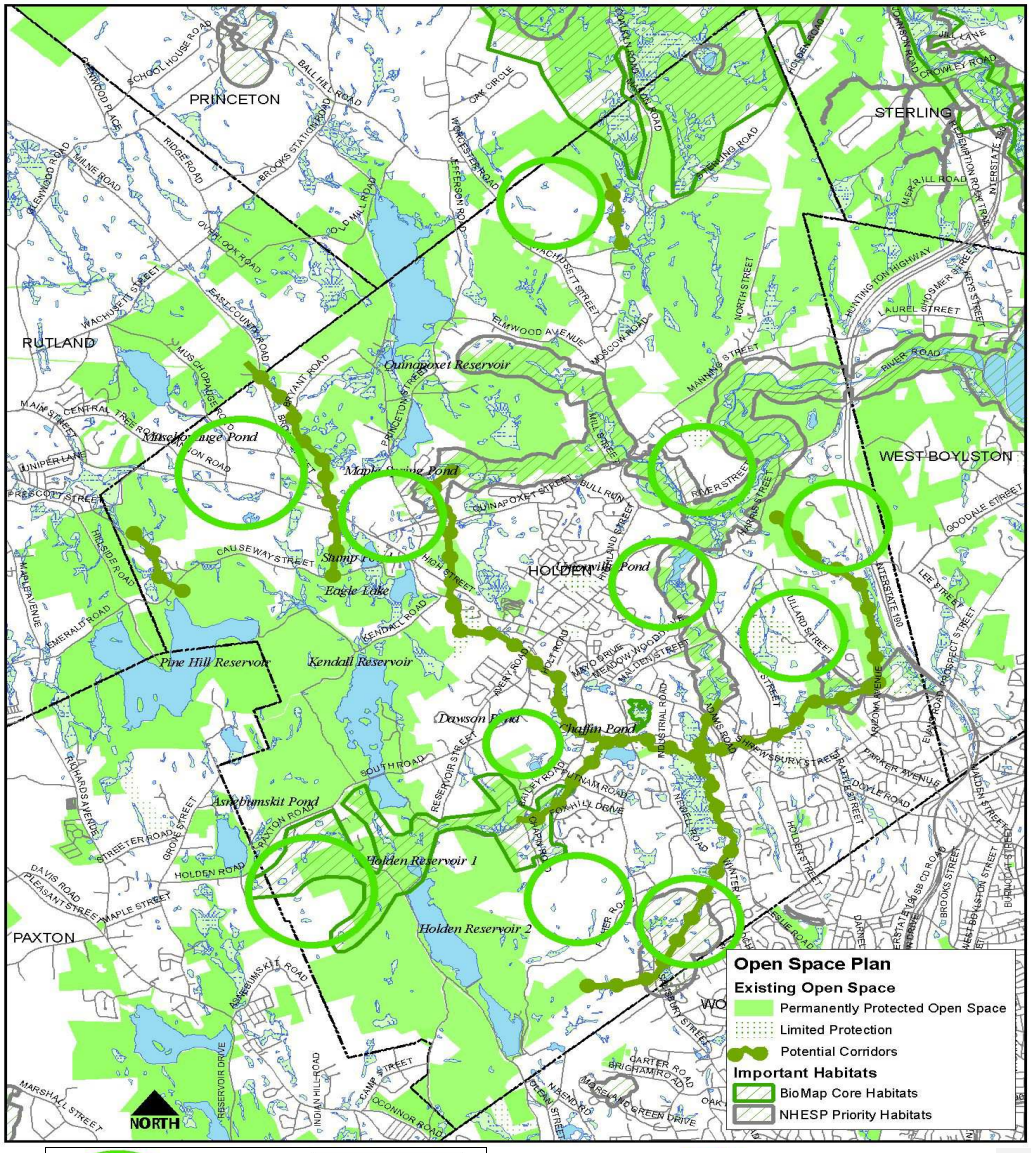
The goal of this section is to ascertain further open space and recreation land acquisition and preservation needs in the various areas of Holden. Further needs considerations for publicly owned and critically sensitive parcels can be found in the 5-year action plan sections in Section 9.

The objective of this needs analysis is primarily to develop general recommendations toward guiding Town government policy for meeting open space and recreation land needs.

Holden's primary resource protection need involves finding a way to protect as much land as possible by increasing chapter 61 lands and those with other conservation restrictions particularly in the Core Habitat areas and in the watershed protection areas. With limited funding, sites should be prioritized for acquisition.

Recommendations from the Natural Resource Section of the Master Plan

- Soil limitations mean that many areas are poorly suited for septic tank leaching fields, although recent sewer projects make septic systems unnecessary in many areas. Wetlands, streams, ponds and water supplies need to be carefully monitored to prevent contamination from incompletely filtered septic system effluent in areas that are not served by the municipal sewerage system.
- Holden still has some important agricultural areas that have not been developed and are in need of protection. These include areas to the east of Broad Street, areas to the north of North Main Street, some areas to the north of Malden Street, and other smaller areas scattered about Town. These scattered agricultural areas are both important to wildlife and provide part of the distinctive character of the Town.
- Holden is an important water supply area for several Towns. Regional cooperation is necessary for conserving this limited resource. Many of these watershed lands are important recreation areas, but some, particularly watershed lands owned by the City of Worcester, lack public access.
- Several of the Town's ponds and streams offer good fishing (although often without official designated access) and serve as wildlife corridors. Access to these resources needs to be protected and in some cases improved.
- The protection of upland forests offered by watershed lands will help preserve the Town's semi-rural character.
- Much of the Town's wildlife diversity is a result of its variety of habitat types. Maintenance of that diversity requires protection of large areas like those identified in the BioMap Core Areas and in both small and large areas of different habitats; non-forested wetlands, forested uplands, open/vacant areas, and open space corridors that make connections between areas.
- Holden has about 2,300 acres in BioMap Core and Supporting Habitats with about 20% currently unprotected. Protection of BioMap Core Areas is an important conservation priority for the region as well as the Town. These areas include several already protected areas. Conservation of the remaining unprotected areas should be a priority.
- One vital aspect of retaining the Town's semi-rural quality lies in retaining some of the visual impact of the Town's forested land. Forests on hills are particularly desirable, since such land is both highly visible and highly vulnerable to development pressures and the concomitant erosion and runoff problems often associated with development. Holden's changes in topography contribute to the importance of these hills.



Map 7.1: Open Space System

7.2 Summary of Community's Needs

Recommendations from the Open Space Section of the Master Plan include:

- Establish a Standing Open Space Committee
- Have an approved and up-to-date Open Space and Recreation Plan
- Continue efforts to preserve farmland.
- Protect rare landscape elements, such as wetlands, vernal pools, riparian zones (the areas along streams, rivers, and wetlands), state designated "priority habitats," BioMap areas, and large forested tracts.
- Retain large contiguous or connected areas that provide habitat for a diversity of wildlife.
- Increase appropriate public access to watershed protection areas.
- Protect riparian buffers to preserve/improve water quality and wildlife habitat.
- Minimize the introduction and spread of invasive, non-native species.
- Encourage additional use of tax incentives for private open space.
- Expand Trail Systems with a vision of creating an interconnected Town-wide system.
- Create linkages or corridors between already protected areas.
- Pursue adoption of conservation related bylaws and policies.
- Create skate park/ice skating rink.
- Increase utilization of Eagle Lake.
- Develop an Indoor Recreation Facility for Winter Use

The 1999 Open Space Plan also recommended several strategies to meet community recreation needs. These included the following:

- Upgrade existing recreation facilities.
- Explore the options for providing a skating venue.
- Continue to provide for handicapped access to recreation and open space facilities.
- Continue maintenance and expansion of playfields and parks.
- Require appropriate parkland set-asides in new subdivisions.
- Continue to develop passive recreation opportunities on open space land. Explore increased access for passive recreation on City of Worcester watershed lands.
- Continue to work with Wachusett Greenways on the development of the Mass Central Rail Trail.

In addition, 175 Highland Street, the Town's Recreation Program Office, should be considered for upgrades. This building is really a great place to run an office, but it is not at all suited to recreation programs. It is not ADA compliant. Space could be improved to allow for programs such childcare instruction, card games, or small sedentary classes, such as writing workshops, piano lessons, scrap booking classes or staff trainings. Currently the Recreation Department conducts summer program registrations off-site because their office is too small.

The Town of Holden Recreation Department does not have exclusive use of a facility that houses a gymnasium (or something comparable in size with a wood floor) or larger meeting or program space. Classes and programs could be run from early morning until 10:00p.m. Many recreation programs around the country are seeing a surge in co-ed team sports, and high on the list of the most-popular are dodge ball and kick ball. These recreation programs could be offered to the Town's adult population in the evenings in such a facility. Very popular and very much sought after "Mommy & Me" programs could be made available as well. The Recreation Department is in need of such an exclusive facility where it can conduct a variety of programs (even simply program registration) without threat of "getting bumped" for a user with higher priority.

The following table compares Holden's existing recreation facilities to national standards.

Table 15 - Recreation Standards

Type	Standard	Suggested for 2005 Population	Suggested for 2030 Population	Existing	Needed to Meet Standard
Playgrounds	1.5 acres per 1,000 persons	26 acres	30 acres	Schools = 20 acres estimate	None
Playfields	1.5 acres per 800 persons	32 acres	37	Schools = 30 acres estimate	None
Neighborhood Parks	2 acres per 1,000 persons	34 acres	39	15	19 acres
Community Park Min size 40 acres	3.5 acres per 1,000 persons	60 acres	68	664 (Trout Brook)	None
Regional Park Min size 500 acres	15 acres per 1,000 persons	255 acres	293 acres	State forests/ parks Watershed lands Limited facilities	None
Baseball/Softball Fields	1 per 1,500 persons	10	13	11	None
Trails	3 mile per 3,000 persons	15	20	Trout Brook, Mason Park, Eagle Lake and others	Trout Brook, Mason Park, Eagle Lake and others should be sufficient.
Tennis Courts	1 per 1,500 persons	10	13	6 + private	?
Soccer Fields	1 per 4,000 persons	4	5	13	None
Football Fields	1 per 4,000 persons	4	5	2	2
Picnic Areas	4 acres per 1,000 persons	68 acres	78 acres	Trout Brook, Eagle Lake	None
Golf Course	1 per 25,000 persons	1	1	1	None
Indoor Recreation Center	1 per 10,000 persons	1.5	2	Schools	Sufficient
Water Sports Rowing, Fishing	1 lake or river per 25,000 persons	1	1	1 Access?	None

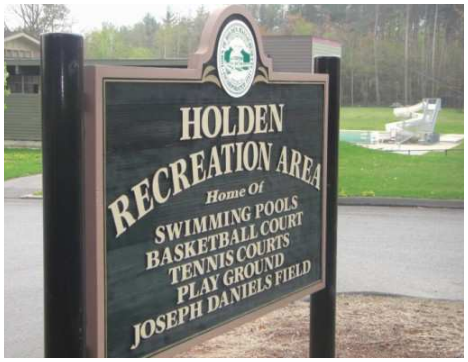
Standards suggested by National Recreation and Park Association

Based on the above estimates, Holden meets or exceeds the majority of these national standards. A deficiency noted for neighborhood parks is also documented. While many trails are available, there is

strong support for additional recreation facilities, especially hiking and bike paths. Adequate recreation facilities are important for good health and enjoyment.

7.3 Management Needs, Potential Change of Use

The Town of Holden must be judicious in its use of funds. The current fiscal situation of the State is likely to result in fewer resources for the purposes of open space protection and recreation. Identification of funding and staffing resources will be key elements of the Town's strategy for open space acquisition and upgrading of recreation facilities. Several properties identified for protection on the Action Plan Map are currently in State Chapter 61 Land Protection Program. Should the Town of Holden purchase land currently classified as agricultural under chapter 61A, it is probable that the land would instead be used for conservation or recreation purposes. Thus the land would technically undergo a change in use. However, there is little likelihood of other changes in use.



Review of private open space land holdings for suitability as future recreation land sites must take into account continuing residential growth and locational needs in Holden. As indicated in the background information section of this plan, Holden is undergoing continuing residential development which is consuming open space. Associated population growth further increases demand for recreational opportunities. In addition, the realization of goals from the 1999 Plan to bring new recreational facilities on line has increased maintenance demands on the Town.

Parcels are available for consideration as potential future recreation sites throughout each of the Town's five voting precincts. However, in light of ongoing Recreational Committee site analysis efforts, as well as residential growth patterns, the Committee recommends that the town continue to review use, and upgrade and maintain as appropriate its various recreational facilities.

The Town Pool
In 1934 the DCR donated and converted the Dawson Mill for a town facility. Dawson Pond was the source for the water. According to research conducted by our local newspaper, when the 1999 Plan was written, the pool had gone beyond its useful life. Conditions included severe cracking and sink holes, State Code violations, an outdated filter system, a lack of office and storage area and decrepit bath house..: The pool was leaking 60,000 gallons (about 10% of capacity) of water per day. The chlorinated water was contaminating a perennial stream which is a tributary to Chaffins Pond. The pool was replaced with two new facilities. The first pool provides for lap swimming and classes, and contains a deep end and a diving board. The second pool services toddlers and contains very shallow water, wading area and water fountains. The use of the pool has increased dramatically. Regular maintenance should be conducted. User surveys should be administered to determine level of satisfaction. The Recreation Department oversees swimming at the pool.

Eagle Lake Facilities
Plant growth within the lake is out of control in and about the swimming areas and could become a safety factor if not addressed. In addition the bathhouse and playground facilities need to be updated. The Town of Holden, in cooperation with the WOLCS, utilized a grant awarded from the DCR (formerly Department of Environmental Management) to conduct a drawdown of Eagle Lake in late 2003-2004. Aquatic vegetation surveys were conducted upon completion of the drawdown which proved a significant decrease. It is expected that draw downs will continue in the following years. Eagle Lake still remains under utilized due to problems with leaches, and poor beach conditions. The Recreation Department oversees swimming at Eagle Lake. Fishing is available at Eagle Lake, but motorized boats are not permitted. There is no "defined" access, except from the beach area at Eagle Lake.

Recreation Office
After the demolition of the previous office location, at the time of the 1999 plan, the office was relocated into another abandoned school. Due to heating problems and mold conditions, the office was again moved in November 2004. The offices are now located in a Town-owned building on Route 31. It is hoped that this building will be renovated to accommodate the new use.

Ice Skating Opportunities
Efforts to provide ice skating opportunities need to be addressed. Current usage of area ponds is not monitored and poses safety concerns. An alternative to their use should be provided. While the field at the Bubar site has been flooded for this purpose, the Committee feels that the Town should investigate a more permanent skating venue.

Handicap Accessibility
The Town should continue to pursue methods of funding to provide handicap access for its existing facilities. With the exception of the Town Recreation offices, all Town-owned recreation facilities are believed to be ADA compliant. In 1997, the Town was the recipient of a Department of Environmental Management Lake and Pond grant which funded the creation of a unisex restroom and a paved walkway from the parking lot to the beach. Access needs should continue to be an element of all upgrading and development of facilities.

Maintenance and Expansion of Playing Fields
The Town has been successful in meeting many of its field needs in conjunction with the construction of two new elementary schools - Mayo Elementary School located on Bullard Street and a Davis Hill Elementary School located on Jamieson Road. However, the need still exists to have private sports leagues. The Schools and the Town work together to deal with overuse issues, maintenance funding, and new field development. Specific items of concern include:

- The Former Jefferson School field needs to be rebuilt and irrigated.

- Consideration should be given when necessary to assist private organizations in preserving and maintaining their own sites for recreation. The Chaffin's Recreation Association currently is working on a proposed expansion of their facility. Coordination between the Planning Department and the Conservation Commission, which has jurisdiction over the wetlands portion of this property, is encouraged to ensure that both the recreation needs and the need to protect the adjoining wetland areas are met.

Maintenance and Upgrading of Neighborhood Facilities
The Town should further survey and inventory neighborhood recreational land opportunities to create small scale neighborhood park and playground locations. The following Town-owned properties serve this purpose to some extent:

- A small parcel of land at the corner of Princeton and Quinapoxet Streets, across from the Jefferson Post Office.
- Kimball Park located in the vicinity of Wyoming Drive and Arizona Avenue.
- Winthrop Oaks Neighborhood Park, seven acres with a small playground in the Winthrop Oaks subdivision.

Inspection of these sites reveals little or no active recreational use or maintenance. As the Town's neighborhoods continue to grow, the existing facilities will be inadequate to meet the growing need. Active upgrading policies need to be developed for implementation at these sites. The Town can institute a successful park/playground policy to meet Holden neighborhood needs by implementing policies for upgrading these sites in combination with development of subdivision parks through cooperation with area developers. Under Section V-C (Open Spaces and Parks) of the Holden Subdivision Regulations, the Planning Board may require (with just compensation) definitive subdivision plans to include park land "suitably located for playground or recreation purposes..." The Recreation and Open Space Planning Committee encourages the Planning Board to require such park land set asides from the developer in appropriate instances. The use of this requirement does not prohibit the gift of such land to any public or private cooperative non-profit organization for recreational and open space use and should be encouraged during the review of subdivision plans submitted to the Planning Board.

Use and Maintenance of Passive Recreation Opportunities

The Town of Holden is fortunate to have several fine passive recreation resources and programs located on public open space lands. Particular resources that are successfully managed and utilized are the trails at the Town Forest, Trout Brook Reservation and adjacent open space. These trails are used for hiking, cross-country skiing, nature observation, and general outdoor enjoyment. Maintenance is often done by volunteers—Boy Scouts earning their Eagle Scout ranking and Girl Scouts earning their Gold Award. Wachusett Greenways continues to maintain and clear trails, and update and secure footbridges. A variety of equipment is available for use at the facility for ponding, birding, identifying trees and insects. Available materials include nature books and guides, identification posters, maps, aquariums, and collection nets. Trail identification maps currently are being updated. The lodge and pavilion at Trout Brook were renovated in 2004, work included painting of the interior and exterior of the building, rehabilitation of the kitchen, replacement of floors and expansion of the bathroom facilities. Trout Brook trail system has been incorporated as a link of the Wachusett Greenways Rail Trail system. The Conservation Commission is working on creating a Forest Stewardship Plan for a portion of the Town Forest and Trout Brook property.

The Recreation Department oversees swimming at Eagle. Fishing is available at Eagle Lake, Trout Brook, Dawson Pond, Chaffins Pond and the Quinapoxet River. Motorized boats are not permitted in Eagle Lake, Chaffins Pond and Dawson Pond, but there is no "defined" access, except from the beach area at Eagle Lake.

Unfortunately, Holden residents are denied enjoyment of several unique and special passive recreation opportunities located on lands that surround local reservoirs which provide the City of Worcester water supply. Current City of Worcester policies do not allow access onto most of the watershed lands located in Holden. Although we understand that the City of Worcester must apply stringent restrictions to protect water quality in the watershed lands, some passive recreation might be appropriate and should be explored with the City.

DCR authorities have developed a public access plan to guide the use of DCR lands. The DCR, Wachusett Greenways, the Holden Recreation Department and the Conservation Commission are cooperating to provide additional trail and vista opportunities for Holden residents while protecting watershed land.

The 1994 Open Space and Recreation Plan included a provision for the creation of a Greenway Study Committee to deal with interconnecting trails and developing bike paths. Bike paths improve safety issues concerning bikes on the more heavily traveled roads. Interconnecting trails greatly enhance passive recreation opportunities locally and regionally. The Holden Greenways Committee, created shortly after the adoption of the 1994 Plan, rapidly became Wachusett Greenways. Wachusett Greenways, an all volunteer, non-profit group dedicated to connecting the communities of the Wachusett Region with trails and greenways, has committed to developing eight miles of the former Mass Central Railroad through Holden as a multi-use recreational trail. To date 11 miles of trail have been completed, including the installation of two bridges crossing the Quinapoxet River. When complete, the Holden section of the Mass Central Rail Trail will be a piece of a 104 mile trail connecting Boston to Northampton. This Greenways group has been awarded several grants and has numerous volunteers whose goal is to enhance appreciation of greenways and establish a network of multi-use trails for recreation and transportation. Holden Town Departments, have historically lent staff support to the trail expansion. The Town of Holden DPW has dedicated time, machinery and excess materials needed to construct these trails. A map of the Wachusett Greenways trails is attached.

8.0 GOALS AND OBJECTIVES

Table 16 - Goals and Objectives

Goals	Objectives
Preserve aesthetic and natural resources in Holden, including wildlife, wetlands, scenic vistas, unique natural areas and historical resources.	• Identify aesthetically valuable or sensitive land parcels or areas of town. • Promote town government/private landowner cooperation and education in planning for conservation and preservation of aesthetically valuable land inventories. • Encourage cluster developments for the preservation of green spaces in residential and commercial developments. • Continue to develop and support connections of existing and future green spaces to create greenbelts and sidewalks for pedestrian access.
Provide active recreation resources and facilities in Holden.	• Preserve, maintain and upgrade existing fields, parks, and recreational facilities in Holden. • Expand active recreation opportunities by developing new active recreation fields and facilities to meet expanding youth and adult needs in town. • Recent trends in recreational sports have increased the need for specialty fields such as lacrosse and soccer.
Promote passive recreation and open space resources	• Promote and maintain greenways including nature trails, bike trails, hiking areas, and cross-country ski trail areas on open space/conservation parcels. • Develop partnerships between conservation groups, regional land trusts and the Town of Holden. • Increase education awareness by creating a comprehensive trail brochure. • Increase the markings and signage for trail systems throughout town with particular need in the Eagle Lake and Trout Brook areas. • Increase public awareness of the benefits of open space preservation.
Develop and implement funding sources.	• Use funding sources to create, preserve and maintain open space and recreational facilities. • Encourage self-supporting and income-generating strategies through fee for service programs for recreational use and apply resulting revenues to the maintenance and upgrading of recreational facilities. • Utilize creative conservation developments to fund preservation, i.e., develop large estate lots on roadway to preservation larger plots of open area.

9.0 FIVE YEAR ACTION PROGRAM

Open space and recreation planning strategies must reflect long range trends. Today's policy makers face fluctuating resources regarding open space land acquisition, and land and facilities maintenance, upgrading, and utilization policies. Economic initiatives at all levels of government dictate the success of efforts to maintain open space and recreation facilities for the Town's future generations.

The Recreation and Open Space Committee recommends that the Town Manager designate a standing Open Space Committee, and assign the existing Recreation Committee with the task of implementing the Five Year Action Program and making steady progress to accomplish the goals and objectives of this 2012 Open Space and Recreation Plan and its Action Program.

The Committee explored various strategies as "action tools" to carry out the open space and land acquisition and management objectives of a five year action program for the Town. The Five Year Action Program and the action strategies outlined below are intended to guide the Town, its officials and committees in carrying out open space and recreation land management practices. Successful implementation and completion of any or all of these strategies is contingent upon sufficient availability of funding and staffing levels in the appropriate department, board or commission assumed to be responsible for each individual strategy. Likewise, projected time frames may need to be adjusted accordingly as a result of changes in resource or staff availability. Map 10 is a graphic depiction of the Town's Five Year Action Plan. The matrix below takes each goal and objective to meet that goal and outlines action steps, time frames, responsible and possible assisting parties.

Table 17 – Action Plan (this is a really rough estimate of who, what, when.)

Goal → Objective→ Action	**Timing**	**Responsible Parties**	**Potential Assisting Parties & Resources**
Goal 1: Preserve aesthetic and natural resources in Holden, including wildlife, wetlands, scenic vistas, unique natural areas and historical resources.			
a. Identify aesthetically valuable or sensitive land parcels or areas of Town.	<1 year	Recreation and Open Space Committee (ROSC)	White Oak Land Conservation Society (WOLCS)
• *Selection of parcels for designation as recreation space or preserved and protected open space should be prioritized utilizing the following criteria: Viewscapes, Water Resources, Historic Landscape, Connection, Wildlife Habitat, Wetland Issues*	<1 year	ROSC	WOLCS
• *Continue efforts to preserve farmland.*	Ongoing	Conservation Commission (CC)	
• *Protect rare landscape elements, such as wetlands, vernal pools, riparian zones (the areas along streams, rivers, and wetlands), state designated "priority habitats," BioMap areas, and large forested tracts.*	Ongoing	CC, Department of Growth Management (DOGM)	Board of Selectman (BOS) Planning Board (PB)
• *Protect riparian buffers to preserve/improve water quality and wildlife habitat.*	Ongoing	CC, DOGM	BOS, PB

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *Minimize the introduction and spread of invasive, non-native species.*	Ongoing	CC	WOLCS, Mass Audubon (MA), Wachusett Greenways (WG), BOS, PB
• *Protect large forested areas to avoid forest fragmentation*	Ongoing	CC	WOLCS, MA, WG, BOS, PB
• *Identify and protect vernal pools and other critical wildlife resources*	Ongoing	CC	WOLCS, MA, WG, BOS, PB
• *Continue to protect important agricultural areas*	Ongoing	Agricultural Committee, CC	WOLCS, MA, WG, BOS, PB
• *Provide special protection for forested slopes to preserve views and reduce erosion and stormwater runoff.*	Ongoing	CC	WOLCS, MA, WG, BOS, PB
• *Pursue adoption of conservation related bylaws and policies.*	Ongoing	CC	WOLCS, MA, WG, BOS, PB
• *Monitor the impact of the Asian Longhorned Beetle*	Ongoing	CC	BOS, WG
b. Promote Town government/private landowner cooperation and education in planning for conservation and preservation of aesthetically valuable land inventories.	Ongoing	CC	WOLCS, MA, WG, BOS, PB
• *A land acquisition policy should be developed and geared toward maintaining a balance within the land inventory of preserved land set aside for passive recreation, active recreation and conservation uses. Specific conservation land acquisition efforts within the five year plan should focus upon acquiring open space in areas most vital for protection of wildlife habitat, present and potential Town groundwater supplies.*	1- 3 years	CC, DOGM	WOLCS, MA, WG, BOS, PB
• *Private land trusts are a means of privately protecting the Town's open spaces which were suggested to the Recreation and Open Space Committee during a public meeting. Expand and support local land trusts with a Town Committee. Town support would increase accessibility to various funding sources.*	1- 3 years	CC, DOGM	WOLCS, MA, WG, BOS, PB
c. Encourage cluster developments for the preservation of green spaces in residential and commercial developments.	Ongoing	CC, DOGM	WOLCS, MA, WG, BOS, PB

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *Incentives for cluster development of residential housing as well as commercial facilities to preserve communal open spaces should be encouraged within Town regulations. New neighborhood playground/park facilities can be developed in subdivision projects, through Planning Board enforcement of the park lands provision within the Subdivision Control Regulations. The Committee recommends that the Town find ways to encourage developers to include recreation sites in their plans to accommodate the growing demand for facilities.*	Ongoing	CC, DOGM	WOLCS, MA, WG, BOS, PB
d. Continue to develop and support connections of existing and future green spaces to create greenbelts and sidewalks for pedestrian access.	Ongoing	CC, DOGM	WOLCS, MA, WG, BOS, PB
Goal 2: Provide active recreation resources and facilities in Holden.			
a. Promote and maintain greenways including nature trails, bike trails, hiking areas, and cross-country ski trail areas on open space/conservation parcels.	Ongoing	CC, DOGM	WOLCS, MA, WG, BOS, PB
• *In addition to land acquisition for the protection and preservation of wildlife species and open spaces, priority must be given to maintenance and utilization of open space/recreation land and facilities currently owned by the Town of Holden.*	1-3 years	CC, DOGM	WOLCS, MA, WG, BOS, PB
• *Increase appropriate public access to watershed protection areas.*	1- 3 years	CC, DOGM, BOS	WOLCS, MA, WG, PB
• *Expand Trail Systems with a vision of creating an interconnected Town-wide system.*	1- 3 years	CC, DOGM, BOS	WOLCS, MA, WG, PB
• *Increase public access to ponds and streams for recreational uses*	1- 3 years	CC, DOGM, BOS	WOLCS, MA, WG, PB
• *Explore partnerships with Chaffin's Recreation Association.*	1-3 years	BOS	PB
b. Expand active recreation opportunities by developing new active recreation fields and facilities to meet expanding youth and adult needs in Town. Recent trends in recreational sports have increased the need for specialty fields such as lacrosse and soccer.	1- 3 years	CC, DOGM, BOS	WOLCS, MA, WG, PB
• *The Committee recommends the development of a maintenance plan for existing parks and sports playing fields and those coming on line should be made a priority to ensure their continued use to the Town. Supplies, staffing and equipment necessary to achieve this goal should be provided per the direction of the Recreation Department, which sees the use of these facilities firsthand on a daily basis, and the DPW Building and Grounds Maintenance Division, which does the actual maintenance of the facilities.*	Less than 1 year	ROSC, CC, DOGM, BOS	PB
• *Create skate park/ice skating rink.*	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *Develop an Indoor Recreation Facility for winter use*	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB
• *Establish a standing Open Space Committee*	1	BOS	
• *Create linkages or corridors between already protected areas.*	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB
• *Pursue adoption of conservation related bylaws and policies.*	Ongoing	CC	WOLCS, MA, WG, BOS, PB
Goal 3: Promote passive recreation and open space resources.			
a. Promote and maintain greenways including nature trails, bike trails, hiking areas, and cross-country ski trail areas on open space/conservation parcels.	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB
• *The Committee recommends that Wachusett Greenways, which was created to identify and develop of interconnecting trails locally and regionally, continue to receive Town support. Wachusett Greenways should be encouraged to research the feasibility of a network of bike paths throughout Town. The DPW, Growth Management and Recreation Departments should continue working closely with Wachusett Greenways.*	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB
• *Create linkages or corridors between already protected areas.*	Less than 1 year	ROSC, CC, DOGM, BOS	WOLCS, WG, PB
b. Develop partnerships between conservation groups, regional land trusts and the Town of Holden.	Ongoing	ROSC, CC, DOGM, BOS	WOLCS, WG, MA
• *The Committee recommends that town departments, boards, commissions and committees coordinate to assist private foundations and recreational entities in expanding and preserving their facilities. White Oak Land Conservation Society has greatly increased their efforts and membership since the 1999 plan protecting various parcels, raising funding, and enhancing town awareness on the value of open space protection. Town departments should work closely with this organization. The development of partnerships with existing conservation groups will maximize the potential for open space acquisition and maintenance.*	Ongoing	CC, ROSC, DOGM	WOLCS, MA, WG
• *Increase utilization of Eagle Lake.*	Ongoing	CC, ROSC, DOGM	WOLCS, MA, WG
c. Increase education awareness by creating a comprehensive trail brochure.	Ongoing	ROSC	WOLCS, MA, WG
• *Town and non-profit organizations should cooperate to develop a comprehensive trail brochure including access points, trail connections and types of trail systems. Trail markings on existing trail systems should be increased to promote ease of use.*	Ongoing	ROSC	WOLCS, MA, WG

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *Minimize the introduction and spread of invasive, non-native species.*	Ongoing	ROSC, CC	WOLCS, MA, WG
• *Pursue adoption of conservation related bylaws and policies.*	Ongoing	ROSC, CC	WOLCS, MA, WG
d. Increase the markings and signage for trail systems throughout town with particular need in the Eagle Lake and Trout Brook areas.	Ongoing	ROSC, CC	WOLCS, MA, WG
• *Trail markings on existing trail systems should be increased to promote ease of use.*	Ongoing	ROSC, CC	WOLCS, MA, WG
e. Increase public awareness of the benefits of open space preservation	Ongoing	ROSC, CC	WOLCS, MA, WG
Goal 4: Develop and implement funding sources.			
a. Use funding sources to create, preserve and maintain open space and recreational facilities.	Ongoing	ROSC, CC	WOLCS, MA, WG
• *The following avenues should be explored for resource development to achieve the goals and objectives of this plan: Infrastructure Investment Fund; Self-sustaining/funding programs; Regional sharing initiatives; Town transfer tax or fee; Public/private partnerships; Private gifts and donations of land or conservation restrictions or services; Private land trusts; Conservation self help and other government funding; Creative conservation development.*	1-3 years	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *The Infrastructure Investment Fund is a potential tool to help finance larger capital budget items or projects to provide for the open space and recreational needs of the Town. The Recreation and Open Space Committee recommends the inclusion of its goals and objectives in the allocation of these funds.*	1-3 years	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *Town government officials could investigate the potential for the creation of a local land bank, to be funded by a real estate transfer tax or other mechanism which would allow the Town to purchase at market value desirable open space and recreation lands that come up on the market.*	1-3 years	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *The tax title holdings which are continuously reviewed by the Town Treasurer should be analyzed for inclusion in the Town's open space and recreation land inventory and should be reviewed by standing Open Space and Recreation Committees. The Conservation Commission, Planning Board, Recreation Committee, and facilitating committee established under these guidelines, as well as their respective associated Town staff advisors, should be included in a procedure which evaluates the acquisition of these parcels.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *The Town should investigate the merits of financing Open Space Inventory lands through the outright purchase of desirable properties offered for sale on the open market and subsequent sale of portions of the properties which are not needed, thereby funding preservation of the more desirable portion of the land. The outright purchase through Town Meeting appropriation should be considered for high priority open space and recreation lands. The Committee recommends that the Town pursue this option as far as possible to protect the Town's remaining open space inventory.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *Programs administered by the Division of Conservation Services within the Executive Office of Energy and Environmental Affairs should be annually reviewed for applicability in furthering the goals and objectives of the 2005 Open Space and Recreation Plan. The Town should assist the continued appropriation of funding for these programs. The Town also should provide assistance through various Town offices to organizations which are interested in acquiring/matching these funds for Town ownership of additional lands and facilities.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *The Town should increase communication and support with the Department of Conservation and Recreation and the City of Worcester for the preservation of property. Both of these organizations are a large funding source of revenue for open space preservation.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *The Trust for Public Land is a possible source for Open Space preservation, which provides temporary funding for open space preservation.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *Additionally the committee should seek and be open to the donation of services that support these goals and objectives. An example of a donated service might be legal services or surveying or landscaping.*	Ongoing	ROCS, CC, DOGM	BOS, WOLCS, MA, WG
• *Have an approved and up-to-date Open Space and Recreation Plan*	< 1 year	ROCS, DOGM	BOS
b. Encourage self-supporting and income generating strategies through fee for service programs for recreational use and apply resulting revenues to the maintenance and upgrading of recreational facilities.	< 1 year	ROCS, DOGM	BOS
• *The Town of Holden should continue to develop and expand self-supporting strategies through fee for service programs.*	Ongoing	ROCS, DOGM	BOS
c. Utilize creative conservation developments to fund preservation, i.e., develop large estate lots on roadway to preservation larger plots of open area.	Ongoing	DOGM	PB, BOS

Goal → Objective→ Action	Timing	Responsible Parties	Potential Assisting Parties & Resources
• *Private gifts and donations of land to the Town should be encouraged through educational programs. The Town should take an active stance through the media and other outlets to ensure that its residents are aware of this option. Acquisition by gift or purchase of Conservation Restriction on suitable open space parcels. Property offered for sale on the private market which is under a conservation restriction is not necessarily open to the public but should be encouraged for the preservation of wildlife habitat and protection of local water supplies from the impacts of development. Under M.G.L. Chapter 61, 61A and 61B, the Town of Holden holds the first right of purchase for private parcels taxed at reduced rates due to tax classification as forest land, agricultural/horticultural lands or recreational lands. This first purchase right, or transfer of this right, by Town Government, is an effective preservation tool which should be seriously considered by Town officials each and every time a parcel becomes available under this program.*	Ongoing	DOGM	BOS
• *The Massachusetts APR Program, managed through the Massachusetts Department of Food and Agriculture, is an effective tool for the preservation of farmland open space in communities. The APR Program purchases the land development rights from farmers as a means of insuring the continual inventory of local farmland. Although APR agreements are developed between the Commonwealth of Massachusetts and the individual farmer, Holden Town officials should lend active support to the program by promoting program awareness to local farmland owners, as well as providing written support of local APR applications. Additionally the committee should seek and be open to the donation of services that support these goals and objectives. An example of a donated service might be legal services or surveying or landscaping.*	Ongoing	CC, DOGM	BOS, MA, WOLCS
• *Retain large contiguous or connected areas that provide habitat for a diversity of wildlife.*	1-3 years	CC, DOGM	BOS, MA, WOLCS
• *Encourage additional use of tax incentives for private open space.*	1-3 years	CC, DOGM	BOS, MA, WOLCS

10.0 PUBLIC COMMENTS

The following summaries are from the notes of the Public Hearings on October 13, 2004 and October 27, 2004.

10.1 Open Space
Standing Committee to look at innovative techniques to preserve open space.
More defined process to evaluate Chapter 61 Property
Cooperative effort with a regional Land Trust Group
Increase education to the public of expenses of single family development on a municipality
Educate public on benefits of Open Space
Prioritize Open Space parcels utilizing the following criteria;
Viewscapes
Water Resources
Historic Landscape
Connection
Wildlife Habitat
Wetland Issues
Direct development to already disturbed and developed areas
Pursue adoption of the Community Preservation Act (CPA)
Argue against increasing industry because of the associated increase in residential development that accompanies it

10.2 Recreation Goals and Objectives
Preserve and increase maintenance of existing fields
Improve Eagle Lake swimming area
Ensure even distribution throughout Town of all recreational resources
Replace gymnasium from the Rice School facility
Develop a plan for the new Recreation offices to accommodate changing needs
Continue craft activities and programs

10.3 Passive Recreation
Expansion of the rail trail
Good street signage
Increase aware of all trail systems, create a comprehensive trail brochure.
Increase DCR bike trail awareness
Increase trail signage at Eagle Lake
Increase trail signage at Trout Brook
Obtain access to City of Worcester property

10.4 Funding Sources
Town ongoing committee to pursue various funding sources
Pursue creative conservation developments

10.5 Letters of Support
Letters of support for the Holden Open Space and Recreation Plan from the following are attached:

- Central Massachusetts Regional Planning Commission CMRPC
- Holden Board of Selectmen
- Holden Planning Board
- Holden Historic Commission
- Holden Board of Health
- Holden Recreation Committee
- Holden Conservation Commission
- Holden Water Department

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11.0 REFERENCES

BioMap and Living Waters: Guiding Land Conservation for Biodiversity in Massachusetts - Core Habitats of Holden; Produced by Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, Executive Office of Environmental Affairs, Commonwealth of Massachusetts, 2004

Blackstone River Watershed Action Plan (July 2001, MA-DEP)

Central Massachusetts Regional Planning Commission, Build-out Analysis for Holden, 2001.

Central Massachusetts Regional Planning Commission, Intercommunity Trail Connection Feasibility Study – CMRPC North Subregion, 2004.

Central Massachusetts Regional Planning Commission (CMRPC) 2003 Regional Transportation Plan

Charles J. Fausold and Robert J. Lilieholm, The Economic Value of Open Space: A Review and Synthesis, a Lincoln Institute of Land Policy Research Paper [Cambridge, MA], 1996.

Duerksen, Christopher J. et al. Habitat Protection Planning: Where the Wild Things Are. APA Planning Advisory Service Report #470/471, Chicago, IL, 1997.

Ecotarium http://www.ecotarium.org/about/news/20000714history.html

Executive Office of Environmental Affairs (EOEA) and the Department of Environmental Protection (DEP), A TMDL Alternative Regulatory Pathway Proposal for the Management of Selected Mercury-Impaired Waters, 2004.

Executive Office of Environmental Affairs (EOEA) and the Department of Environmental Protection (DEP), Draft Total Maximum Daily Loads of Total Phosphorus for Quaboag Pond & Quacumquasit Pond, 2005.

Executive Office of Environmental Affairs (EOEA) and the Department of Environmental Protection (DEP), Massachusetts Section 303(d) Lists of Waters, 2004.

Girls Inc. of Worcester http://www.girlsincworcester.org/facilities-rental

Holden Hills Country Club http://www.holdenhillsgolf.com/index.htm

Holden Tomorrow, final draft, Master Plan, May 2008.

Holden Towers Tennis Club http://www.httennis.net/

Mass Audubon website http://www.massaudubon.org/Nature_Connection/Sanctuaries/Eagle_Lake/index.php

Massachusetts Historical Commission (MHC) Reconnaissance Survey Town Report- Holden, 1984. www.sec.state.ma.us/mhc

Massachusetts Statewide Comprehensive Outdoor Recreation Plan, EOEA Division of Conservation Services. 2004.

Nashua River Watershed 5-year Action Plan 2003 -2007, developed by the Nashua River Watershed Association and the Massachusetts Watershed Initiative Nashua Team, http://www.nashuariverwatershed.org/

National Recreation and Park Association http://www.nrpa.org/

Central Massachusetts Regional Planning Commission, 2020 Growth Strategy for Central Massachusetts, 2002.

National Recreation and Parks Association and the American Academy for Park and Recreation Administration, Park, Recreation, Open Space and Greenway Guidelines, 1996.

National Rifle Association http://www.nrahq.org/shootingrange/findlocal.asp?State=MA

Natural Heritage and Endangered Species Program within the Division of Fisheries and Wildlife, Classification of the Natural Communities of Massachusetts, 2001.

Nimrod League of Holden website, http://www.nimrodleague.org/

Massachusetts Department of Community Development (DHCD) Community Profile of Holden, MA, 2000.

Open Space And Recreation Plan Requirements, Executive Office of Environmental Affairs, Division of Conservation Services, 2001

Report of Town Officers, Town of Holden, Massachusetts, Year Ending December 31, 2006

Small, Stephen J. Esq., Preserving Family Lands: A Landowner's Introduction to Tax Issues and other Considerations.

State of Massachusetts Departmental Websites: EOEEA, DCR, DEM, DEP, DFWLE and DFA.

The Open Space Planner's Workbook, Executive Office of Environmental Affairs, Division of Conservation Services, 2001

The Trust for Public Lands, Community Choices: Thinking through Land Conservation, Development, and Property Taxes in Massachusetts, 1998.

USDA Natural Resource Conservation Service (NRCS), Soil Survey of Worcester County, Massachusetts – Southern Part, 1992.

A joint study by the Soil Conservation Service (SCS) of the U.S. Department of Agriculture (USDA) and the Central Massachusetts Regional Planning Commission (CMRPC)

Wachusett Reservoir Watershed – MDC/DWM Land Management Plan 2001-2010

White Oak Land Conservation Society http://www.whiteoaktrust.org/

Wikipedia - "Vernal Pool." The American Heritage Science Dictionary. Houghton Mifflin Company. 03 Jun. 2007.