Town of Sterling

Open Space and Recreation Plan

Year 2002 Update

Prepared by:

The Sterling Open Space and Recreation Committee

With assistance from:

The Montachusett Regional Planning Commission

And

The Nashua River Watershed Association

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ACRONYMS

ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
AFT	American Farmland Trust
AHRI	American Heritage Rivers Initiative
ANR	Approval Not Required
APFO	Adequate Public Facilities Ordinance
BOA	Board of Appeals (or Adjustment)
CC&R's	Conditions, Covenants and Restrictions
CCRC	Continuing Care Retirement Community
CDBG	Community Development Block Grant
CDC	Community Development Corporation
CDF	Community Development Fund
CEDAC	Community Economic Development Assistance Corporation
CEDS	Comprehensive Economic Development Strategy
CGWS	Community Groundwater Supply
CHAS	Comprehensive Housing Affordability Strategy
CIP	Capital Improvements Plan (or Program)
C. of A's	Conditions of Approval
CPA	Community Preservation Act
CPTC	Citizen Planner Training Collaborative
CSWS	Community Surface Water Supply
DEM	Massachusetts Department of Environmental Management
DEP	Massachusetts Department of Environmental Protection
DFWELE	Division of Fisheries, Wildlife and Environmental Law Enforcement
DHCD	Department of Housing and Community Development
DPW	Department of Public Works
E.O. 418	Executive order for the production of affordable housing
ECHO	Elder Cottage Housing Opportunities
EDA	Economic Development Administration
EDC	Economic Development Council
EDD	Economic Development District
EMF	Electromagnetic Field
EOEA	Massachusetts Executive Office of Environmental Affairs
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FHA	Federal Housing Administration
FIRM	Flood Insurance Rate Maps
FMHA	Farmers Home Administration
FPZ	Frontage Protection Zone
GIS	Geographic Information Systems
GM	Growth Management
GW	Groundwater Source
HOD	Historic Overlay District
M.G.L. Ch 30B	Law governing municipal procurement
M.G.L. Ch 40A	Law governing zoning
M.G.L. Ch 40B	Law governing planning/comprehensive permits
M.G.L. Ch 41 Ss, 81K-81GG	Law governing subdivision control
MassGIS	Massachusetts Geographic Information System
MEPA	Massachusetts Environmental Policy Act
MF	Multifamily

MGD	Million Gallons per Day
MGL	Massachusetts General Laws
MHC	Massachusetts Historical Commission
MIG	Municipal Incentive Grant
MISER	Massachusetts Institute for Social and Economic Research
MOD	Massachusetts Office on Disability
MRPC	Montachusett Regional Planning Commission
MSA	Metropolitan Statistical Area
MWI	Massachusetts Watershed Initiative
NEFF	New England Forestry Foundation
MWRA	Massachusetts Water Resources Authority
NFIP	National Flood Insurance Program
NHESP	Massachusetts Natural Heritage and Endangered Species Program
NHPA	National Historic Preservation Act
NPS	Nonpoint Source Pollution
NRCS	Natural Resources Conservation Service
NRWA	Nashua River Watershed Association
NTHP	National Trust for Historic Preservation
ORV	Off-Road Vehicle
PCS	Personal Communication Services (cell towers)
PDR	Purchase of Development Rights
PID	Planned Industrial Development
PPP	Public Participation Process
PRD	Planning Residential Development
PUD	Planned Unit Development
PWED	Public Works/Economic Development
PWS	Public Water Supply
RLF	Revolving Loan Fund
ROW	Right of Way
RV	Recreational Vehicle
SEPA	State Environmental Protection (or Policy) Act
SFD	Single Family Dwelling
SLO	Sensitive Lands Ordinance
SW	Surface Water source
TDR	Transfer of Development Rights
US EPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WCCD	Worcester County Conservation District
WHPA	Wellhead Protection Area
WMD	Watershed Management Program
WQMP	Water Quality Management Plan
WWTP	Wastewater Treatment Plant
ZBA	Zoning Board of Adjustment (or Appeals)
ZLL	Zero Lot Line
ZO	Zoning Ordinance

SECTION 1 - PLAN SUMMARY

This plan comes during a boom in the economic development of Worcester County. During the 1980's, the Town of Sterling faced several years of rapid transformation of farmlands into residential developments. During the 1990's the rate of growth slowed briefly. Now, in a new century, we are again addressing rapid residential development of open spaces and farmlands. We hope to address this issue to the benefit of generations to come in Sterling. In the past two decades, there has been catastrophic decline in agriculture in town. Rapid growth and a changing economy may cause property owners to shift their lands out of the Chapter 61a program to capitalize on the sale of their land for real estate development. Through the planning process, we have the opportunity to protect many of these open spaces in an effort to retain the rural character of Sterling, and provide for the recreational needs of the town. With this in mind, the Open Space and Recreation Plan serves as a tool for the town in conserving its open land, so that Sterling can remain a peaceful home for its residents when development pressures rise again. The Open Space and Recreation Plan aims to balance the economic, social, and ecological needs of the community to create a more sustainable future. The plan intends to:

- Identify and promote the distinctive features that help define the community;
- Preserve the character of the landscape despite future urban development;
- Protect critical resources, especially the water supplies, from the adverse effects of development;
- Enhance recreational resources in the Town through linkages, facility upgrades and diversification;
- Encourage commercial and industrial development that compliments local and regional needs;
- Empower the residents to take a proactive role in shaping the future of the Town;
- Address issues of compliance with the Americans with Disabilities Act on representative conservation and recreation properties, and
- Develop a five-year action strategy that pinpoints specific actions to satisfy open space and recreation goals and objectives.

Significant elements of this update include a public opinion survey in April of 2002, a Section 504 Self-Evaluation of selected town-owned properties for compliance with the Americans with Disabilities Act, extensive revisions to the text, revisions to the population characteristics and the regional context, an analysis of land use characteristics, changes from 1985 to 1999, land use controls, and long term development trends, a summary of the buildout analysis completed in 2001, a description of infrastructure resources and environmental problems in the town, a comprehensive list of cultural resources and unique environments, and an updated inventory of lands of conservation and recreation interest.

SECTION 2 - INTRODUCTION

A. STATEMENT OF PURPOSE

The Town of Sterling is experiencing significant growth pains. Once a rural farming community, the Town has faced a tragic loss of valuable farmland to residential development. Continued residential growth is rapidly encroaching on the few remaining unprotected open spaces, slowly transforming the town into a bedroom community populated by people who work elsewhere, and prompting heightened concerns for protecting the resources and character that define the quality of life in Sterling. In addition, the redevelopment of the former Army base at Fort Devens is expected to yield 7,000 to 8,000 new jobs within the next forty years (MassDevelopment 1998). At present, the site has a new federal prison, a hospital, a Job Corps Center, the Devens Industrial Park and Jackson Technology Park, a golf course, and a freight intermodal center. The creation of these jobs may significantly impact the economic and social character of the Town of Sterling, as people seek residences near their employment. With an increase in the demand for housing comes an increase in the demand for municipal services.

This plan updates the original approved Sterling Open Space and Recreation Plan of 1984. It is the latest step in the town's continuing active interest in conserving land for open space and recreation. Since the original "Conservation and Recreation Plan " of 1984, the Town has made significant progress in developing public awareness of conservation issues, and acquiring and protecting land. Past efforts included

- Support for obtaining agricultural preservation restrictions
- Natural Resources Planning Program (1977-78)
- Town-wide planning survey (1990)
- Draft Open Space and Recreation Plan (1990)
- The opening of Butterick Nature Trail
- Sterling Land Trust (when, who, why), What have they accomplished? (one paragraph)
- Nature walks, canoe trips, television broadcasts, vernal pool workshops, and a town cleanup day (See Appendix A).

The Town is an active participant in a plan for development of the Central Massachusetts Rail Trail. Opportunities also exist to create linkages to protected natural resources in the bordering towns of Clinton and Lancaster. Future efforts will include activities encouraging landowners to place conservation restrictions on their property and even purchase, hold and manage threatened parcels pending transfer to the Town.

The primary motive for preserving open space is to retain the rural character of Sterling in light of escalating regional growth and development. Another purpose is to keep some land available for future unanticipated uses. The planning process aims to identify critical resources in need of protection and direct growth to areas that are most appropriate for it. Hopefully, this plan will inspire residents to play an active role in determining an appropriate path for Sterling's future.

B. PLANNING PROCESS AND PUBLIC PARTICIPATION

Development of this Open Space and Recreation Plan was the result of combined efforts of an earlier adhoc committee of the Conservation Committee, formed in 1998, and a formally appointed Open Space and Recreation Committee, appointed in 2001. Involvement of the Historical and Recreation committees, and the Selectmen Board and the recreational leagues (Soccer, Little League, Babe Ruth, Pop-Warner Football, Basketball) was critical to the success of the 1999 draft plan. In addition, the town contracted with the Montachusett Regional Planning Commission and the Nashua River Watershed Association for technical assistance and development of the Final Plan, with accompanying mapping products.

The formal planning process began in March 1998, with the examination of 1990 Open Space and Recreation Plan Requirements, and the editing of an outline plus the former draft (1992) written by the Conservation Commission. Meetings were held bi-monthly with public postings and public involvement highly encouraged. Over the eighteen-month process a wide variety of townspeople and town officials participated in the discussion and the writing of the plan. These participants and their affiliations include: Ken Williams (Conservation Commission), Gale Rossi (Conservation Commission), Jim French (MDC), Cathy diGrazia (Historical Commission), Nancy Perry (Assessors Office), Philip Truesdell (Massachusetts Division of Fisheries and Wildlife), George Snow (Montachusett Regional Board).

The main organizers of the 1999 draft plan were Brian Cline, Gale Rossi, William Gauld, Cathy Harragian, Marion Larson, Marie Kolanda, Marty Gaffney, Laura Giard, and Steve MacAulay (Chairman).

The process recommenced in September 2001 with the formation of the Appointed Open Space and Recreation Plan Committee. Meetings were essentially held on a bi-monthly basis. Public postings at the Butterick Municipal Building announced the meetings and public involvement highly encouraged. Appointed members included Maryanne MacLeod (Chair), Sue Valentine (Conservation Commission), Marion Larson (at large), Frank Julian (at large), Robert Protano (Chair, Planning Board), Robert Spencer (Town Representative to the MRPC Board of Commissioners), Renee Tambling (Recreation Site Selection Committee), Leslie Fanger (at large), Joanne Cummings (Chair, Recreation Committee), and Paul Sushchyk, (Select board member). Volunteers included Brian Cline, Russell Fitch, and Joe Testagrossa.

Public participation was achieved through two town-wide surveys and two public meetings. The first town-wide survey had a broader scope and the committee focused upon the questions dealing with open space and recreation. The second survey was specifically oriented toward open space and recreation. This latter survey was distributed through the Landmark newspaper in its total market coverage issue of April 4, 2002. The first public meeting was held in November of 1999. The second public meeting was held in June of 2002.

Goals in the plan are derived from analysis of growth trends, the natural resources, maps of the town, an assessment of compliance with the requirements of the Americans with Disabilities Act, and public perspectives gathered from the surveys of the townspeople (Winter 99, Summer 02) and the two public forums. In the 1999 public meeting, the audience of seven expressed their desire for protection in the Northern part of town. This area has important water resources that need the attention of protection from development. In the 2002 survey, the respondents expressed strong interest in protecting open space for a variety of reasons, including water resources and wetlands habitat protection. They strongly supported state and town efforts to purchase land to protect the rural character of the Town, and the lakes, ponds and wetlands against pollution. Strong support also exists for a bylaw establishing a watershed protection district for East Lake Waushacum that would restrict permitted land uses and apply performance standards to limit contaminant flow. In addition, there is strong interest in improving the tennis courts and adding new ones. Respondents were split on the need for acquiring land for a soccer field. (See Appendix C, Survey Findings)

SECTION 3 - COMMUNITY SETTING

A. REGIONAL CONTEXT

Sterling is an agricultural town of 21,000 acres, located in Central Worcester County between Fitchburg and Worcester. It lies prominently on the Lower Worcester Plateau, a regional escarpment that separates the Wachusett Highlands from the Nashua River. Its neighbors are the towns of Princeton and Holden to the west; Boylston and West Boylston to the south, Clinton and Lancaster to the east, and the city of Leominster to the north. The construction of the railroads in the 1800's and Interstate 190 in the late 1970's, afforded ease of access to the urban centers of Clinton, Leominster, Fitchburg, Worcester, and Gardner, making Sterling attractive for industrial development in each era.

Sterling is blessed with abundant water resources. The town rests at the confluence of the Quinapoxet and Stillwater Rivers, which feed the Wachusett Reservoir. To the north, the Wekepeke Brook flows southeast to the Nashua River. Half of the town, located in the southwest sector, is in the Stillwater River Watershed, a part of the Wachusett Watershed. The MDC has sought to protect the quality of water entering the Wachusett Reservoir by acquiring nearly 5000 acres of the Stillwater River Watershed.

The rural character of the Town is due to its forests, open spaces, and many farmlands. Sterling has a rich agricultural history in dairy production and fruit crops. The many hillsides also offer scenic vistas of the Nashua River Valley and Wachusett Mountain. Leominster State Forest on the northern border, managed by the Department of Environmental Management, provides year-round outdoor activities. In addition, the proximity of the Wachusett Mountain Ski Area, to the north on Route 140, makes the Town an attractive place to live.

Sterling and the Montachusett Region experienced significant residential growth in the last two decades. The completion of Interstate 190 and the overheated housing market of the Route 128 and Interstate 495 corridors coupled with an abundance of relatively inexpensive open land precipitated the unprecedented regional residential growth. As in other agricultural towns, a considerable amount of farmland is becoming available for development due to the decline of dairy farming. Farms that were sold and developed include the Kristoff, Janovitz, Pillsbury, and Eckert farms.[1] Development pressures have affected forested lands, as well.

B. HISTORY OF THE COMMUNITY

The present day town of Sterling has been inhabited for at least 9,000 years, first by nomadic hunters who followed the game and lived here seasonally; then increasingly by more settled groups who took advantage of its many lakes, ponds, streams and ample natural resources. By the time of European contact in the 1600's, the Nashaway Indians had established large villages throughout the Nashua River Valley area, and were living in clusters about the East and West Waushacum Lakes. They had extensive acreage under cultivation. Early colonial sources indicate that hundreds of acres were farmed.

European settlement of the region began when Nashawhenon, the sachem, or chief, of the native Nashaway Indians sold 80 square miles to Thomas King in 1644 in exchange for establishment of a trading post. Sterling comprises the western part of the land purchase. In 1644, the Massachusetts Bay Colony built a fort the protection of the Nashaway Indians from the Mohawk and Narragansett Indians as part of the terms of a treaty with them. By order of the legislature, ten well-armed English soldiers were sent to Sterling to build a strong, palisaded fort and to guard the Nashaway. The surrounding land was called the Nashaway Plantation and later was incorporated as the Town of Lancaster in 1653. Another 112 square miles was added to Lancaster in 1701.

Early white settlements in the 1600's also centered about the Waushacum Lakes and several Indian paths. Some had come in search of iron and silver. Others came to fulfill the requirements of the General Court in

[1] 1992 Open Space and Recreation Plan
Town of Sterling with assistance from *Montachusett Regional Planning Commission and Nashua River Watershed Association*

claiming Indian lands for themselves. In 1663, the General Court of Massachusetts Bay Colony granted 500 acres to the Town of Charlestown upon present day Kendall Hill for iron and silver mining.

The English colonists made much use of Indian paths in the area. One path, now known as Redemption Rock Trail, served as the main road for the Nipmuc and Wampanoag Indians between Wachusett Mountain and Rhode Island. Along this path, north of Sterling is a rock ledge known as Redemption Rock, where Mary Rowlandson was redeemed from her Indian captors in 1675.

Another path that ran from Boston to Springfield eventually became known as the Massachusetts Bay Path. The path came over Flanagan Hill Road from Lancaster, over North Row Road, Upper North Row Road and Justice Hill Road to Princeton. It is believed that Mary Rowlandson traveled over this trail during her captivity following the February 1676 raid on Lancaster during King Philip's War and again after her release at Redemption Rock in Princeton.

A third path winded from Lancaster to the Waushacum Lakes. By the 1660's this path, now known as Chace Hill Road, had become a colonial cart path used by settlers who owned property by West Lake Waushacum. In 1717, the town of Lancaster widened the path and it became the first official road, later linking Lancaster (and Sterling) with points west.

The colonists considered the Nashaway sachem, Sholan, to be one of the most important Indian leaders of the colonial era. But upon the untimely death of the sachem, hostilities began. On February 20, 1676, Wampanoag Indians attacked Lancaster, led by Metacomet (King Philip), following the execution of three of Philip's men in a bid to reclaim Indian land from the colonists. Mary Rowlandson was kidnapped and held captive for eleven weeks before being released for twenty pounds ransom at Redemption Rock.

The Nashaway played a prominent role in King Philips War (1675-1676) and their sachem, Shoshanim (son of Sholan), had a large bounty placed on his head by the Massachusetts Bay Colony government. In May of 1676, East Lake Waushacum was the scene of the massacre of Nashaway women and children who were fishing on the lake. The Massachusetts Bay soldiers killed several women and sold 29 women and children into slavery in the West Indies. As a result of King Phillip's War, the original settlement was abandoned in 1676.

"Land of Foxes"

The first permanent white settler, Gamaliel Beaman, came in 1720 to the section northwest of Waushacum Lake, near the present Beaman Road. All of the first permanent settlers clustered in this section of town. The town was then known as "Woonksechocksett" from the Nashaway words for "land of foxes." The majority of the early settlers built their homes in the Beaman Road, Chace Hill and Kendall Hill sections of town.

The present center is the original religious and political center of the town of Sterling. In 1741 the town was set off from Lancaster as the second or west precinct parish to provide for the large number of residents who found it difficult to attend Church in Lancaster. The center village was founded the following year, in 1742, when Lancaster voted to build a meetinghouse for the new West Parish. The General Court mandated the church be built where a stand of the largest oak trees grew. It did not matter that the land was hilly and marshlands lay just below. Thus, the first meetinghouse was built at the southern foot of Ridge Hill, very near the present day First Church, on three acres donated by a descendant of the original proprietor, Elias Sawyer. Noon houses, a school and a town pound were also built on the land, which later became the Town Common and First Church grounds.

Timothy Dwight, the colonial chronicler of the New England landscape, described Sterling center as "a hard and almost impenetrable swamp, interspersed with Gravel knolls, and crowned with rugged oaks." Until just before the Revolutionary War, only 7 or 8 other houses were located in the center. By 1770, the central village had grown to about 30 houses. Apart from the meetinghouse and the school, the first buildings in the center were the homes of physicians, ministers, lawyers and storekeepers.

After nearly 40 years of petitions, the parishioners voted to separate from the mother town at the annual town meeting, which had rotated to Sterling. The parish voted to incorporate as the town of Sterling in 1781, naming the town after General William Alexander, Lord Stirling, under whom several prominent citizens had served in the Revolutionary War.

The First Meetinghouse that separated Church and State

The economic development of the center coincided with Sterling's growth as a social and civic center. After incorporation in 1781, commercial properties developed along Main Street, south of the common, at the junction of the Princeton, Worcester and Leominster Roads. Residential development in the center first clustered on Maple Street, Meetinghouse Hill Road, Princeton Road and Worcester Road, radiating out from the Common toward local farms and surrounding towns. Small manufacturing shops intermingled with residential buildings and barns along these roads.

In 1799, the town decided to rebuild the first meetinghouse in its original location. The church was demolished, and its common land was regraded. The marsh, located where the town hall and business block is today, was drained and filled in. A new church was built very near the site of the old church of 1800. In 1801 a town hall was built on the same location as the present town hall. It was the first town hall in Massachusetts that separated church and state.

Advent of the Railroad

From 1800 to 1840, the town center developed rapidly as a small nucleus of light industry powered by small streams. Chairmaking was the most prosperous industry. At its height in 1826, 24 small shops throughout the town employed about 100 people, and produced about 70,000 chairs per year for markets in the south and west (at an 1800's market value of $30,000 to $40,000). Some shops were private, one-person, operations run by local farms during the winter, while others were full-scale establishments. Hat manufacturers produced over 17,000 hats a year and employed over 30 people. Princeton Road was home to blacksmith shops, a tannery, shoemakers, cabinet makers, scythe-snaithes makers, taverns and stores.

After the 1840's Sterling center declined as a manufacturing center as insufficient waterpower made it uncompetitive with well-watered mill towns such as nearby Clinton. Yet Sterling retained a nitch as a cradle for other industries. The Butterick Pattern Company is an example of a business that began in the center and moved to other towns as they grew in size and economic scope.

Another expansion of the center village came with the construction of the railroad in the 1840's. Irish immigrants came to Sterling to build the railroad and the first mile of the state road south of the center (Worcester Road). Many also worked in the mills of neighboring West Boylston and Clinton. The arrival of the Fitchburg and Sterling line in 1849 opened a new era of activity and prosperity as a freight depot for farm products, an era which lasted through the rest of the century and changed the agricultural focus of the town. The rail service also opened commercial markets in more urban centers. By 1850, three railroad lines, serving Boston, Fitchburg and Worcester and points beyond, made thrice-daily stops for freight and passengers. [2]

The Fitchburg and Worcester Railroad, constructed between 1848 and 1850, connected Fitchburg to stations in Leominster and Pratts Junction. Its southern terminus was Sterling Junction, where it connected with the Worcester and Nashua Railroad. Passenger service between Fitchburg and Sterling Junction was available from 1850 until 1925. Today, Conrail operates the surviving segment of the rail line, serving local roundtrip freight once a day, Monday through Friday between Framingham and Leominster, through Pratts Junction.

The Worcester and Nashua Service connected Worcester, Clinton, and Ayer to Nashua, NH. Stations on the line included Oakdale, Sterling Junction, Clinton, Junction, and Clinton. An important bridge line between Worcester and Nashua and several intersecting services, it operated from 1848 to 1934, though service to Ayer

[2] Karr, Ronald Dale, *The Rail Lines of Southern New England: a Handbook of Railroad History*, Branch Line Press, Peperell, MA © 1995.

was available until 1960. In the late 1800's the Boston and Main acquired the rail line, and in the 1920's, re-built the line between Ayer and Worcester to handle the heaviest trains. Passenger service to Ayer ended in 1953. Guilford acquired the line in the 1980's and renovated it to serve through freight trains between Maine and Worcester, where they interchange with Conrail.

The Agricultural Branch, built between 1849 and 1855 and operated by Boston and Worcester Rail Road, connected Framingham, Marlboro, Northborough, Clinton, Pratts Junction and Fitchburg. In 1866, the line was extended from Northboro to Pratts Junction, where it intersected the Fitchburg and Worcester service. Passenger service was available between Marlboro and Pratts Junction until 1931. Conrail has operated freight rail services since 1976 and continues to carry freight to this day.

The railroads made possible a general New England trend toward specialty market products. By the 1880's, the railroad service spurred the dairy and fruit crops markets in Boston. Milk production in Sterling reached its peak between 1911 and 1918 at 15,000 quarts of milk per day. The success of the orchards led to the establishment of two cider mills, one near the junction of School and Worcester Road (now demolished) and the other at Waushacum Avenue, which only recently became an active craft center. Apple cider was produced from the mid 19th century until just a few years ago. The boundaries between village and farm were close. Barns still surviving in the center attest to Sterling's agrarian origins.

The advent of the railroads sparked a twenty-year period of intense real estate speculation by farmers, entrepreneurs and businessmen throughout town. During this time builders, wealthy manufacturers, and businessmen built homes for speculative sale or as rental properties, a departure from the previous custom of building homes for specific persons. The railroad also enhanced the popularity of the Methodist Association Campgrounds near Sterling Junction. The town became a summer resort destination and the railroad traffic led to the development of Waushacum Park and an excursion ferry on the West Waushacum Lake.

Following the Civil War, the manufacturing sector of the Sterling economy declined, although chair production continued on a small scale until the 1940's. Sterling's industries in the 1870's were pottery, leather tanning, lumber mills and gristmills. Slaughterhouses were located at the corners of Bird and Maple Streets and Newell Hill Road near the center depot. By 1870, the only substantial industry remaining in Sterling was the pottery works in West Sterling on the Stillwater River. Only a few small shop buildings remain of the light industrial activities prevalent in the center village during the 19th century. The small streams that powered the lathes of the early chair shops are now piped underground. Only the stream that runs through the marsh near the old cider mill buildings remains open.

In the 1880's a new prosperity and a growing population in the largely agricultural community prompted a need to expand the facilities of the town. Italian workers came after 1870 to build the second mile of Worcester Road, Wachusett Reservoir, and the Fitchburg to Worcester trolley line. Some of the people lived in the rental properties built by the real estate speculators. The town built a high school to accommodate and overcrowded school system. It was used as a high school until 1934 and is now the Electric Light building. Edwin Conant built the Conant Public Library and gave it to the town.

Regional population growth led to the construction of the Wachusett Reservoir beginning in 1895. The construction of Metropolitan District Commission water system forced the abandonment of nearly 1,400 acres of Sterling farmland. With the construction of the reservoir came the abandonment of the excursion boat and park at West Waushacum Lake, reducing the vacation business brought into the town's stores and hotels and lessening the demand for the railway.

19th century character

Despite the 20th century intrusions in the center and its outskirts, Sterling retains the atmosphere or a rural 19th century village that grew outward from a civic center. The town common has always served as a focal point of community activity. For over a hundred years it was the site of the annual Cattle Show and Sterling Fair. Despite a lapse of some years, the tradition of the Sterling Fair continues, but now it is staged at the Sterling Airport.

Changes in the regional economy in the early 20th century led to a decline in the importance of Sterling as a commercial center. By 1900, the agriculturally dependent cider mill was the only large manufacturing left in the center of the town. An electric trolley line from Worcester to Fitchburg (most of it still buried under route 12) through Sterling's Main Street opened in 1906, but was abandoned by 1927. The building of the state roads and the introduction of the automobile reduced the farmer's dependence on rail transport and the depots in the center, Pratts Junction and Sterling Junction. Town residents could drive to larger and more numerous shops in Clinton and Worcester, reducing the need to patronize local stores. The first bus service replaced passenger rail service in 1926. By 1920, the population had declined to 1,205, which led to the closing of the district schools. The economic stagnation preserved the 19th century character of the town.

In the last quarter of the 20th century regional growth pressures began to threaten the 19th century character. The construction of Interstate 190 in 1978 rekindled the residential and commercial development of Sterling. As the population of Sterling increased, many of the former farmlands that once enclosed the center were converted to modern residential subdivisions. The growth pressure continues to threaten the prehistoric evidence and ancient history of the town. The overheated housing market of the greater Boston area is forcing an ever-expanding ring of development at the perimeter of the Boston commuter range. Since 1990, at least 34 residential subdivisions have been approved and are in various stages of construction. As most of the 19th century light manufacturing buildings are now gone, information about these small early industries can only be obtained through archaeological investigation, which may reveal important knowledge about building and use of materials. The open lawns surrounding the First Church, Conant Library, and Wilder House are the original nucleus of the town, and should provide evidence of patterns of municipal construction and demolished structures such as the first school, meeting house, fire house and church sheds.

C. POPULATION CHARACTERISTICS

Over the last three decades, the Montachusett Region and several communities on its borders have grown significantly, increasing by nearly 23 percent. Communities near Sterling and Leominster have also shown considerable growth in population, as listed in Table 3-1. Leominster is the fastest growing community in the region, in terms of raw numbers, with an increase of 3,158 people between 1990 and 2000. Rutland, Holden, Sterling, and Harvard, are also growing rapidly, each adding over three thousand people in the twenty-five-year period. The population of Sterling increased by two-thirds over the last three decades, from 4,247 in 1970 to 7,257 in 2000. Since 1990 the town's population increased by nearly twelve percent, as 776 new residents moved to town.

Proximity to I-190 and I-495 as well as significant growth pressure and an over-heated housing market in the greater Boston region make these communities attractive to live in. Many of these towns grew from agrarian roots in dairy and orchard farming. As these uses have declined, much of the land has become available for building houses, and a location on the perimeter of the Boston commuter shed make housing in these towns more affordable than in communities further east.

Table 3-1: Regional Population Changes Over 30 Years

	1970 Census	1980 Census	1990 Census	2000 Census	Change from 1990 to 2000	% Change 1990-2000	Change from 1970 to 2000	% Change 1970-2000
Leominster	32,939	34,508	38,145	41,303	3,158	8%	8,364	25%
Rutland	3198	4334	4936	6353	1,417	29%	3,155	99%
Holden	12564	13336	14628	15621	993	7%	3,057	24%
Harvard	2,962	3,744	4,448	5,981	1,533	34%	3,019	102%
Sterling	**4,247**	**5,440**	**6,481**	**7,257**	**776**	**12%**	**3,010**	**71%**
Bolton	1905	2530	3134	4148	1,014	32%	2,243	118%
Princeton	1681	2425	3189	3353	164	5%	1,672	99%
Lancaster	6,095	6,334	6,661	7,380	719	11%	1,285	21%
Boylston	2774	3470	3517	4008	491	14%	1,234	44%
West Boylston	6369	6204	6611	7481	870	13%	1,112	17%
Berlin	2099	2215	2293	2380	87	4%	281	13%
Clinton	13,383	12,771	13,222	13,435	213	2%	52	0%
Regional Total	**90,216**	**97,311**	**107,265**	**118,700**	**11,435**	**11%**	**28,484**	**32%**

Source: US Census 1970, 1980, 1990, 2000

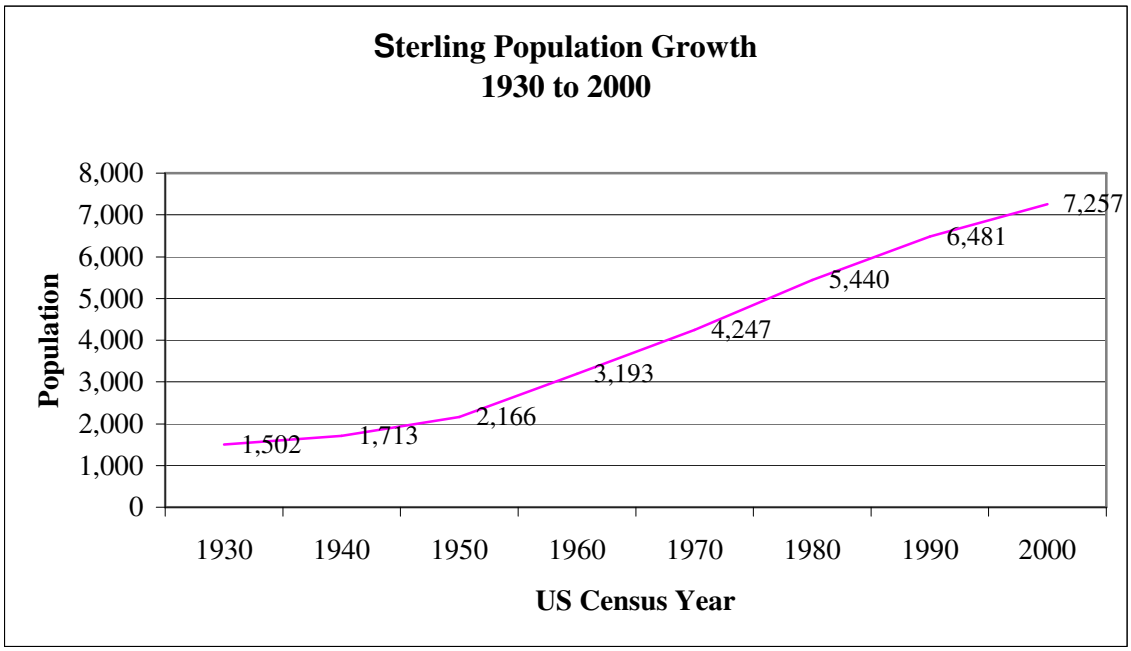
By far the most significant period of growth was during the 1950's, when the population grew by 47.4 % in ten years, as shown in Table 3-2. Growth continued between 1950 and 1980, as the population of Sterling increased steadily from 2,166 to 5,440, an average annual growth rate of 5%. After 1980, the rate of growth began to level off, as shown in Figure 3-1. Between 1990 and 2000, the population grew by just 11.9 %, reflecting significant changes in the housing economy, diminishing availability of buildable land and the inevitability of future buildout. Population density in 1983, based on a town census, was 183 persons per square mile. By the 1990 census, density had grown to 207 persons per square mile.

Table 3-2: Population Trends in Sterling

Year	1930	1940	1950	1960	1970	1980	1990	2000
Population	1,502	1,713	2,166	3,193	4,247	5,440	6,481	7,257
Increase		211	453	1,027	1,054	1,193	1,041	776
Percent		14%	26.4%	47.4%	33%	28.1%	19.1%	11.9%

Source: US Census, 1930-2000

Figure 3-1: Sterling Population Growth Curve



Source: US Census Bureau data, 1930 to 2000

The growth trend is expected to continue, according to the Massachusetts Institute for Social and Economic Research of the University of Massachusetts at Amherst. MISER uses a cohort-component projection model to produce its projections using past and current population estimates from the US Census and its own intercensal population estimates. The growth curve factors in vital statistics of births and deaths from the Massachusetts Department of Public Health (DPH), International immigration data from Immigration and Naturalization Services (INS), and Domestic migration data provided by both the Internal Revenue Service (IRS) and the U.S. Bureau of the Census. The projections are strictly demographic projections. The methodology does not use economic variables or land use suitability data. Thus the model is a trends-extended estimate without modifying constraints.

Since 1980, the population of Sterling has grown increasingly older. Changes in age cohorts for children and young adults, by comparison, have remained relatively stable. Though raw numbers may have increased within an individual age cohort, as shown in Table 3-3, the percent share of the total population remained nearly the same for all cohorts between the ages of 0 and 34. By far, the groups with the greatest rate of change from 1990 to 2000 were those between the ages of 45 and 59. In the previous decade the growth was in the age groups between 35 and 49. This speaks to a population that is aging in place, or perhaps to a town that is affordable only to those who have significantly higher incomes, and greater equity investments.

The school enrollment of Sterling residents aged 19 and under has increased by 124 students since 1990, representing a 6% increase. The comparatively small increase in the number of children points to a trend toward smaller families, as well as an increase in the number of families without children or families whose children have grown and moved away. These trends are expected to continue, and the Town should prepare for the needs of an elderly population in ten years. Housing affordability is a key component of the demographic patterns. Since homes in Sterling are increasingly more expensive, it will only be families with high incomes who will purchase housing stock as units become available.

Overall, MISER anticipated a rate of growth by 2010 of 16% (1,1818 new residents). Increases were anticipated for all age groups but young children under nine, middle-aged residents between the ages of 40 and 49,

and senior citizens between the ages of 75 and 79. Anticipated growth was considered most likely for young families with school-age children, and empty nesters between 50 and 70 years of age. To accommodate the new young families about 200 new homes would be needed by 2010. To accommodate the new elderly residents about 390 homes would be needed. Based upon the MISER calculations about 126 homes could be expected to be released to these populations as the middle-aged populations declined, leaving a potential shortfall of 460 homes. However the type of homes that will be needed are a matter of concern.

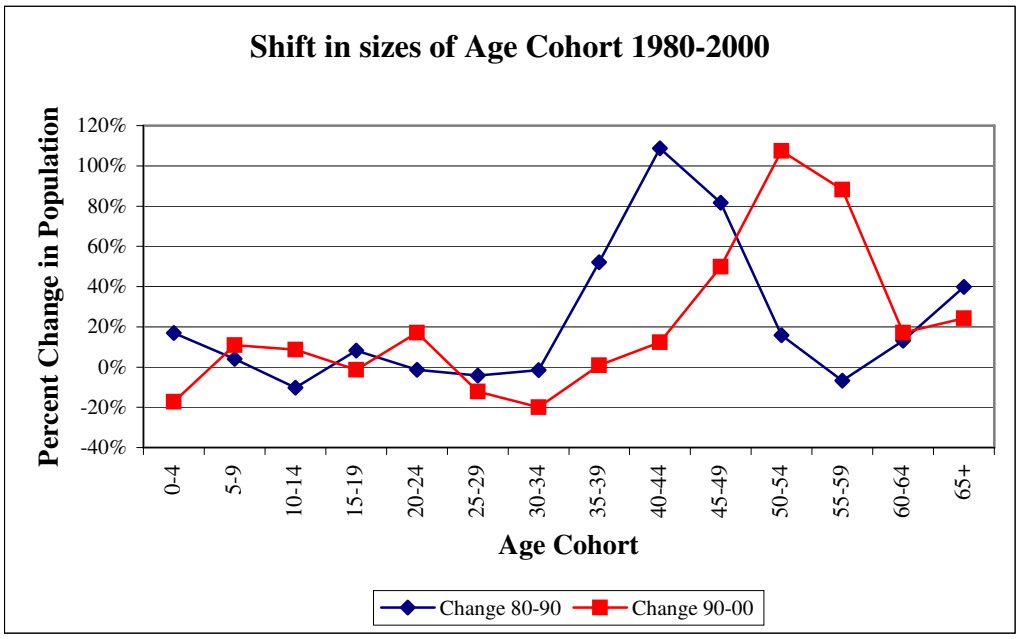
If the MISER statistics prove to be correct, the majority of homes that will be needed will be homes for an aging population with changing needs. Some will need housing tailored to accommodating disabilities that come with the aging process, others will simply need smaller homes that are easier to manage than the four bedroom, large scale homes being built in many communities today.

Table 3-3: Population Projections by Age Group for the Town of Sterling

Age Group	Census 1980	Census 1990	Census 2000	MISER Est.1995	Difference Census/ MISER 2000	MISER Baseline Mid-Level Projections			Forecast change	% Forecast change
						2000	2005	2010		
0-4	437	511	483	485	5	478	475	480	-3	-1%
5-9	477	496	619	632	37	582	568	566	-53	-9%
10-14	565	507	590	563	-124	714	675	656	66	11%
15-19	456	493	439	393	-22	461	592	544	105	24%
0-19	*1,935*	*2,007*	*2,131*	*2,073*	*-104*	*2,235*	*2,310*	*2,246*	*115*	*5%*
20-24	361	356	275	411	-39	314	384	491	216	79%
25-29	423	405	332	422	-152	484	384	454	122	37%
30-34	601	592	444	564	-145	589	667	564	120	27%
35-39	445	677	659	614	70	589	615	697	38	6%
40-44	323	674	795	741	106	689	662	687	-108	-14%
20-44	*2,153*	*2,704*	*2,505*	*2,752*	*-160*	*2,665*	*2,712*	*2,893*	*388*	*15%*
45-49	252	458	791	652	66	725	674	648	-143	-18%
50-54	265	307	511	421	-96	607	668	620	109	21%
55-59	236	220	408	291	3	405	582	641	233	57%
60-64	197	223	256	185	-4	260	362	523	267	104%
45-64	*950*	*1,208*	*1,966*	*1,549*	*-31*	*1,997*	*2,286*	*2,432*	*466*	*24%*
65-69	N/A	205	187	181	29	158	226	315	128	68%
70-74	N/A	157	165	160	0	165	144	207	42	25%
75-79	N/A	86	162	122	29	133	138	120	-42	-26%
80-84	N/A	64	85	64	-10	95	104	107	22	26%
85+	N/A	50	56	76	-23	79	99	118	62	111%
65+	*402*	*562*	*655*	*603*	*25*	*630*	*711*	*867*	*212*	*32%*
Total	5,440	6,481	7,257	6,977	-270	7,527	8,019	8,438	1,181	16%

Sources: Massachusetts Institute for Social and Economic Research (MISER), Monday, August 2, 1999;
Profiles of General Demographic Characteristics 2000, May 2001, 2000 Census of Population and Housing, Massachusetts.

Figure 3-2: Shifts in Age Cohort Distribution 1980-2000



In 1980 Sterling had a median household income of $21,840, somewhat higher than the state median of $17,575. In the 1990 census, the medium household income rose to $49,345, thirty-three percent above the state average of $37,102. Prior to releasing its 2000 results, the Census Bureau estimated that the 1999 median household income for Sterling was $67,188, a little more than thirty percent above 1990 figures, and more than triple the figure for 1980.[3] In a recent Boston Globe analysis of the US Census data, Sterling was ranked third in median household income for the Montachusett Region, behind Harvard at $107,934, and Groton at $82,869. The town outpaced the statewide average of $54,629, by $12,559.

According to the 1990 census, the median value of homes in Sterling was $171,400. The median home value in 2000 was $215,000 an increase of 25 percent. Alternatively, The Warren Group of Boston, showed the median price for single-family homes as $150,000 in 1990 and $225,000 in 2000, an increase of 50 percent. By 2002, their statistics indicate that the median price for a single-family home has increased to $229,675, an increase in value of two percent in two years. This value is the highest in the Wachusett Regional High School District, and among the top five in the Montachusett Region. According to the US Census 2000, a total of 153 homes were sold. Sterling reported a total of 2,573 houses an occupancy rate of 97.6 % and a vacancy rate of just 2.4%.

These figures could indicate that Sterling is attractive to upper-middle income families who desire to raise their children in its rural environment. Sterling's neighborly village clusters and the beauty of the rolling landscapes are an intrinsic part of the community's quality of life. They could also point to the desirability of homes with easy access to major highways and regional employment centers.

Yet these statistics indicate that affordable housing for low to moderate income families is increasingly out of reach. Low-income for a family of four in Sterling is considered to be $46,700 per year. A similar family with a very low income would be earning $29,200, and a family of four at poverty level would have an income of $17,500 or less. By contrast, the Department of Housing and Community Development has determined that the

[3] Until the 2000 census income figures become available in June of 2002, the Census Bureau is using the Bureau of Labor Statistics Consumer Price Index (CPI-U-RS) – 187.1 for 1989 and 244.1 for 1999 they computed a multiplier of 1.304650 to estimate the 1999 median household income.

affordable purchase price for a house for a middle income family would be about $285,600, based upon an income of $87,600 per year. Affordable rent for a similar family would be about $1,460 per month. On an income of $46,700 a family could realistically only afford to spend $98,000 for a home, with $23,500 down-payment, and a monthly payment of $700.[45] Typical low-income families would include young single mothers and elderly on a fixed income who retired several years ago. Typical moderate income families would be those who work for towns, school systems, or public services, or in low-tech manufacturing jobs or retail services.

In 1990, a total of 3,139 residents were employed, roughly 48% of the population. In 2000, Sterling had a working age population of 5,262, roughly 73 % of the total population. Of these people, a total of 3,725 are considered to be part of the labor force, an increase of 19 %, or 586 employed residents, over the 1990 work force.

Increasingly the Town is becoming a bedroom community. According to the 1990 census, over 87% of Sterling commuters drove alone to work. About 472 Sterling residents worked in Sterling. The balance of workers, 2,667 residents, commuted to other towns or cities for their employment. The top five work destinations were Worcester, West Boylston, Clinton, Marlborough, Leominster, and Lancaster, which are all within an average travel time of 24 minutes. About 446 residents commuted south for their employment, another 424 drove east, and only 208 commuted to distant towns within the MRPC region. 2000 figures will be available in 2003.

The majority of industries in Sterling are small operations with less than 10 employees, as shown in Table 3-4. The Commercial and industrial zoning districts in the town are comparatively small and are located in water protection districts which control the permitted uses and require industry practices that are sensitive to protection of public drinking water supplies. Major Sterling employers are listed in Table 3-5.

Table 3-4: Number of Employers by Industry Classification and Employment Size Class

		Employment-size class					
Industry Code Description	**Total places**	**'1-4'**	**'5-9'**	**'10-19'**	**'20-49'**	**'50-99'**	**'100-249'**
Forestry, fishing, hunting, and agriculture	3	1	1	1			
Utilities	1	1					
Construction	32	23	6	3			
Manufacturing	20	2	4	2	8	2	2
Wholesale trade	12	8	1	2		1	
Retail trade	16	10	3	1	2		
Transportation & warehousing	5	1	2	2			
Information	3	3					
Finance & insurance	7	4	2	1			
Real estate & rental & leasing	8	7		1			
Professional, scientific & technical services	12	11		1			
Administration, support, waste management, remediation services	7	5	1	1			
Health care and social assistance	11	3	4	2	2		
Arts, entertainment & recreation	4	1		3			
Accommodation & food services	14	9	1	3		1	
Other services (except public administration)	11	6	2	3			
Unclassified establishments	4	4					
Total	**170**	**99**	**27**	**26**	**12**	**4**	**2**

Source: U.S. Census Bureau

[4] Department of Housing and Community Development Revised Fiscal Year 2002 Income Limits for HUD Programs.

[5] Fleet Mortgage Calculator, http://mortgagecenter.fleet.com/

Table 3-5: Major Employers in Sterling

Business Name	Em-ploy-ees	Description
Admore Inc	30	Advertising & point of purchase displays
Advanced Digital Motion	14	Design and Manufacture of automated machinery
Albright Technologies	1	Custom prototype & injection molds, plastic molding
Chocksett Inn	21	Inn and restaurant
Cycles Inc	74	Injection molding: plastic medical parts
Don-Jo Manufacturing Inc	47	Lock accessories
Essex Thermo Corp	4	Multi-fuel boilers
Ewell Herman R Inc		(trucking)
Fiberoptic Components Inc	35	Fiberoptic Light Guides
Glidden Computer Publishing	1	Typesetting and Desktop Publishing
Heat Technology, Inc.	25	Research and Development: computer system cooling products
Hendrickson Advertising, Inc.	4	Textile Screenprinting, decals & posters
Horace Mann Educational Assoc.	50	Nonresidential rehabilitation center for mentally challenged adults
Hudson D M Inc		(trucking)
Ideal Industries Inc	138	Power connectors, injection molds & molded medical equipment
Image Diagnostics, Inc.	17	Manufacture monitor suspension systems & radiological tables
J D Industries Inc	48	Automation machinery; plastic injection molding & assembly
J. A. Webster, Inc	80	Distributors of veterinarian supplies
Kyle Equipment Co. Inc	5	Manufactures hydro-fracturing machinery & water well drilling equipment
Laddawn Inc	87	Wholesales poly bags
Lawrence Sigler Machine Co	10	Plastic abrasive tumbling media
Lee Plastics Inc	40	Custom plastic injection molding
Loan Associates		(trucking)
Morse Manufacturing Inc	40	Truck mounting equipment
New England Mold Sterling	35	Steel molds for the plastic industry
Northeast Poly Bag Co	125	Manufactures polyethylene bags
Stromberg Tool & Machine Co	20	Machine Shop: precision machining tool & die
Wachusett Precast, Inc	4	Precast concrete
Wireway Huskey Corp	32	Woven wire enclosures
Total Employment	**987**	

Source: Harris Infosource

According to the Sterling Youth Sports Committee (SYSC) there is a need for key active recreational resources. Existing recreation fields at Griffin and Muddy Pond Roads are used seven days per week, all day and into the evening, serving a population of well over 1,200 youths. The fields are over-used in the Fall and must be re-seeded in the Spring. The SYSC represents eight sports organizations that currently must compete for game and practice time on the existing fields. Sterling Youth Soccer and Pop Warner Football represent the two largest organization, serving 550 and 400 participants respectively during the Fall season. In addition, Sterling Softball and Sterling Babe Ruth, serving 125 and 75 participants respectively, must share their ball fields, which were never designed for soccer use, with the Soccer League. Mountain Club Soccer, which plays in the Spring currently is unable to use the playing fields due to overuse in the fall. They look for any field they can find to practice, and many teams are forced to seek fields out of town.

SYSC has determined that they need a site of approximately 15 acres to develop a soccer field, which would relieve the pressure on the existing fields, satisfy growth in the existing organizations and allow for the establishment of new recreational activities, including a skateboard park, a deck hockey and ice hockey rink, walking

paths, additional softball fields, and a playground. It would also allow the Sterling Babe Ruth to install an out-field fence, and permit the softball and little league organizations to use their fields in the Fall season.

Such a site would contain two large and five small soccer fields, a new adult softball field, a new skate park, an outdoor skating rink for deck and ice hockey, and basketball or tennis courts. It would also include space for 200 parking spaces.

The inventory of existing fields and their intensity of use is as follows:

Field	Fall Users	Spring Users	Summer Users
Upper and Lower Griffin Complex - consisting of four baseball/softball fields a track and soccer field, a basketball court and a playground.	Sterling Soccer, Babe Ruth, Wachusett Pop Warner,	Babe Ruth, Girls Softball, Adult Softball, Mountain Club Soccer	Sterling Soccer, Babe Ruth, Adult Softball, Wachusett Pop Warner
Muddy Pond – consisting of two baseball/softball diamonds and used for soccer.	Sterling Soccer, Little League, Softball, Wachusett Pop Warner,	Little League Baseball, Girls Softball, Adult Softball, Mountain Club Soccer	Sterling Soccer, Adult Softball, Wachusett Pop Warner
West Sterling – consists of two baseball diamonds, a basketball court and two tennis courts	Sterling Soccer, Little League Baseball, Tennis	Babe Ruth, Mountain Club Soccer	Sterling Soccer, Little League, Outdoor Basketball,
Redstone Fields – two diamonds near the Town Cemetery, in need of replacement.	Sterling Soccer, Little League Baseball	Little League Baseball, Mountain Club Soccer	Sterling Soccer,

Additional needs:

Activity	**Land area**	**Purpose**
Sterling Soccer	3 acres	one full field and two practice fields
Babe Ruth	One acre	One field
Little League	Two acres	Renovate Houghton Field to make it playable, future need for two fields when Redstone is replaced
Lassie League	Two acres	Two fields
Softball	One acre	Renovate Houghton Field to make it playable, if appropriate size, or one more field
Wachusett Pop Warner	Two acres	Two more practice fields
Deck Hockey/Ice skating Rink	One acre	One new rink
Skateboard Park	One acre	One new park site
Playground	One acre	A structure and one site
Tennis/Basketball Court	One acre	The committee envisioned a combined court, but tennis enthusiasts and survey respondents indicated a need for two new tennis courts with lighting for night use.
Total acreage Needed	**Fifteen**	

D. GROWTH AND DEVELOPMENT PATTERNS

1. Patterns and Trends

The town began as an outpost of the Nashaway Plantation (Lancaster). Proximity to the Waushacum lakes and the presence of Indian paths facilitated the growth of Sterling as a farming community. Although thriving small enterprises produced hats, clocks, pottery, cider, chairs and other wooden items; agriculture, chiefly dairy and fruit crops, formed the town's economic base. Development of the Railroads in the mid-1800's dramatically enhanced the agricultural success of the town, providing convenient, rapid access to regional markets in Central and Eastern Massachusetts. Construction of the Wachusett Reservoir led to a shift in the development of the town as thousands of acres of farmland were abandoned and acquired by the Metropolitan District Commission. Later, regional economic decline in the first half of the 19th century preserved the rural character of the town.

For many years people have expressed concern over attaining public access to the MDC properties, for hunting, fishing and other forms of passive recreation. Major tracts of land are owned by the MDC and it seems to many that public access isn't permitted. Some portions of the MDC properties are open to the public for passive recreation such as fishing, hiking, or birdwatching, however, the MDC restricts some activities to protect against pollution of the Stillwater River and Wachusett Reservoir watersheds. The MDC provides for public access as described in its Public Access Plan.[6] Public access to and recreational use of drinking water supply lands and surface water supplies can serve as potential routes for the introduction of disease causing agents, so purveyors of drinking water must exercise caution when considering policies for recreation on water supply lands.

Since 1950, Sterling has shifted away from farming, as significant amounts of forest and farmland have been converted to residential market rate subdivisions. Post war economic success and the baby boom resulted in tremendous population growth. Yet in atmosphere, Sterling remains rural, with most residences clustered in village centers or interspersed across broad stretches of open land. The watershed protection efforts of the MDC have confined the development of the town to the northeast quadrant of the town. Almost two-thirds of Sterling's land is still in forest or farms.

Agriculture is still a significant land use in Sterling. The town has a higher proportion of its land dedicated to farming than is generally the case in Worcester County. Sterling's farms are prosperous; the town has more high-rated members of the Farm Bureau than any other town in the county. Orchards are the primary source of agricultural income in Sterling, but the agricultural base is quite diversified, and includes dairies, nurseries, a goat farm, and several tree farms.

But the development trends of the past fifty years have threatened the farms and forests that are not owned or protected by the MDC. The general trend has been to convert large tracts of land into large subdivisions. During the past two decades, the trend has been to build larger and larger homes on each buildable lot, prompting one Sterling resident to coin the term "McMansion", to describe the source of frustration with the development practices of builders. Over 87 percent of the town is zoned for Rural Single-Family Residential uses. This district does not specifically provide for development of recreation resources. Prior to 1997, the town had a one acre minimum lot size. In an effort to control growth the town voted in a zoning change requiring a minimum of two acres per lot. This prompted many land owners to sell their land to developers or to file subdivision plans themselves while a five year grand fathering of the prior dimensional requirements remained in effect.

The town does not have sewer infrastructure, and thus requires zoning that ensures the septic wastes can be properly disposed of through septic systems. Also, large tracts of land are held in public trust to protect the Wachusett Reservoir watershed. The two acre zoning and the MDC controlled properties are effective limits on some of the growth potential. But two acre zoning with large frontage requirements can promote a sprawl pattern of development.

[6] http:// www.state.ma.us/mdc/pacc.htm

Town zoning provides for a Light Industrial district that encompasses about five percent of the total land area. Conversations with the Planning Board during the development of the EOEA Buildout Analysis revealed that anticipated new industries are most likely to be a mix of the following uses:

- Motor Vehicle Repair or Body Shop
- Rail or Motor Freight Terminal, bus storage yard
- Bus or Railroad Station
- Storage of coke, coal, sand, or other materials whether indoors or not
- Open lot storage of building materials, contractor's equipment, and similar materials
- Greenhouse
- Wholesale, warehouse, or distribution facility
- Restaurant
- Earth removal
- Manufacturing, assembly, processing, packaging, or other industrial operation

For many of these uses the town will need to take care that the industries do not adversely affect the Wekepeke aquifer, since the Industrial Zone is fully enveloped in the Water resource Protection Overlay District.

2. Land Use Changes from 1985 to 1999

Sterling has a total land area of 20,230 acres. At present, the MDC owns or controls 4,624 acres or twenty three percent of the land area, for the purpose of water protection for waters flowing to the Wachusett Reservoir. As of 1999, over fifty six percent of Sterling was still forested. Agricultural uses such as cropland, pasture and orchards accounted for over fourteen percent of the land area, while residential uses accounted for fifteen percent at 3,035 acres. In contrast, in 1985, forestland accounted for nearly sixty percent of the land area, agricultural uses accounted for sixteen percent, and residential uses accounted for just eleven percent. Water accounted for four percent of the area in both 1985 and 1999. Table 3-7 lists the 1999 land uses and the changes since 1999. Table 3-8 documents the pattern of land use shifts over the fifteen year period.

From 1985 to 1999, a total of 2,010 acres of land has shifted in use. Since 1985, the most significant change was a loss of 897 acres of forestland to a variety of uses, the largest of which was 368 acres converted to residential lots of one acre or more. Another 147 acres of forest was converted to residential uses on lots of less than one-half acre. The development of a golf course converted another 112 acres of forestland. At the same time, over 300 acres reverted to forestland from other uses, including: Cropland, Open Land, Pasture, Mining, Urban Open, Transport, Industrial, and Waste Disposal.

Another major change was the development of 809 acres of land for residential uses, 584 acres for residential lots greater than one-half acre and 225 acres for residential lots less than one-half acre. None of this development was considered to be multifamily residential use.

A total of 264 acres of cropland shifted to a variety of new uses including: 154 acres for residential uses, 20 acres for participant recreation, and 9 acres for a new orchard. A total of 14 acres reverted to Forest and 58 acres are considered abandoned cropland or Open Land. Changes in open land were diverse. A total of 244 acres shifted out of Open land , while another 341 acres reverted to Open Land. Among the changes were reforestation of abandoned lands, development of residential properties, some clear-cutting, abandonment of croplands, orchards, and pasture, and completion of sand and gravel excavation.

A total of 193 acres of pastureland shifted to other uses while only fourteen acres was regained for the forest or Open Land. Most of the pastureland that changed became classified as Open Land, at 131 acres. Thirty-one acres were developed for residential use, 13 acres reforested, twelve acres were converted to either cropland or orchards, and 5 acres were developed for participation recreation.

Table 3-7: Summary of Sterling Land Use Changes from 1985 to 1999

LU Code	Land Use	Acres 1985	Acres 1999	% of Total Land Area 1999	Change in acres From '85 to '99	% Change
1	Cropland	2,013.9	1,827.5	9%	-186.4	-9%
2	Pasture	525.2	349.9	2%	-175.3	-33%
3	Forest	11,929.9	11,339.5	56%	-590.3	-5%
4	Wetland	200.6	202.4	1%	1.9	1%
5	Mining	206.7	133.0	1%	-73.7	-36%
6	Open Land	468.9	562.2	3%	93.4	20%
7	Participant Recreation	58.7	84.8	0%	26.1	44%
9	Water Based Recreation	3.9	3.9	0%	0.0	0%
10	Residential Multi-family	3.9	36.2	0%	32.3	828%
11	Residential < 1/4 Ac	46.3	46.3	0%	0.0	0%
12	Residential 1/4 to 1/2 Ac	608.0	832.1	4%	224.0	37%
13	Residential > 1/2 Ac	1,546.6	2,120.4	10%	573.8	37%
15	Commercial	51.8	73.2	0%	21.4	41%
16	Industrial	77.4	151.6	1%	74.2	96%
17	Urban Open	81.7	51.1	0%	-30.6	-37%
18	Transport	469.2	416.9	2%	-52.3	-11%
19	Waste Disposal	44.3	94.0	0%	49.7	112%
20	Water	808.3	808.3	4%	0.0	0%
24	Powerlines	262.4	262.4	1%	0.0	0%
26	Golf	0.0	111.6	1%	111.6	100%
31	Urban Public	52.3	53.2	0%	0.9	2%
34	Cemeteries	28.5	29.7	0%	1.2	4%
35	Orchard	731.1	632.1	4%	-99.0	-14%
36	Nursery	11.2	8.4	0%	-2.8	-25%
	Total Acres	**20,230.7**	**20,230.7**	**100%**		

Sources: MassGIS Land Use Coverages for 1985 and 1999, based on MacConnell land use surveys for 1985, and 1999 and updated through the EOEA buildout project.

Table 3-8: Land Use Shifts in Sterling from 1985 to 1999

From\To	Residential > 1/2 Ac	Open Land	Forest	Residential 1/4 to 1/2 Ac	Golf	Industrial	Cropland	Waste Disposal	Urban Open	Residential Multi-family	Mining	Participant Recreation	Orchard	Commercial	Pasture	Water	Nursery	Wetland	Cemeteries	**Total Change**
Forest	368	84		147	112	21	23	55	12	27	25		5	8	8				1	**897**
Cropland	94	58	14	56					9	5		20	9							**264**
Open Land	44		171	12		1	5		2		2			1	6					**244**
Pasture	28	131	13	3			3					5	9							**193**
Mining		22	9			47			21			2								**101**
Orchard	35	10					46		4											**95**
Urban Open	4	21	18			25								10						**78**
Transport			50													2				**52**
Industrial	11	6	15																	**32**
Waste Disposal		3	27			2														**32**
Residential > 1/2 Ac				7										2			2			**11**
Nursery		5																		**5**
Water	1																	2		**3**
Residential 1/4 to 1/2 Ac														1						**1**
Participant Recreation																1				**1**
Total Change	**584**	**341**	**317**	**225**	**112**	**97**	**77**	**55**	**47**	**32**	**28**	**27**	**23**	**21**	**14**	**3**	**2**	**2**	**1**	**2,010**

Sources: Sources: MassGIS Land Use Coverages for 1985 and 1999, based on MacConnell land use surveys for 1985, and 1999 and updated through the EOEA buildout project.

Growth in industrial, commercial and residential land uses are inevitable, given the increased accessibility to metropolitan areas provided by I-190. Industrial and commercial development has taken place mainly in the Pratt's Junction area, where the land is so zoned, near the interchange of I-190 and Route 12. This trend is expected to continue, and to lead to a related growth in residential use in other areas of town. Since this industrial zone lies largely in the Wekepeke Aquifer, great care must be taken in the siting and material handling practices of industries. If possible, industries that use or produce hazardous substances should be especially well designed, monitored frequently and carefully regulated. If such a program is not possible, these types of industries should not be permitted to locate on valuable groundwater resources.

Between 1990 and 2000, the Planning Board approved a total of 689 new residential construction permits (an average of 86 units per year), as shown in Table 3-9. In the same decade, a total of 34 new subdivisions were approved in the Town as summarized in Table 3-9 and listed in Table 3-10. The permits were a mix of both Approval Not Required (ANR) units and subdivision developments. In February 1997, Sterling changed its residential zoning from one-acre minimum lot size to two-acre lot size for a single family home to accommodate adequate septic systems. The zoning change spurred a development boom as many property owners, seeking to take advantage of the five-year period of grand-fathered one-acre lot sizes, filed subdivision plans. Of the 450 new residential construction permits issued for these subdivisions (an average of 46 units per year), approximately 307 housing units have been built.

Table 3-9: New Building Permits Issued

Year	1990	1991	1992	1993	1994	1995	1996	1997*	1998	1999	2000	Total
Permits Issued		24	96	80	70	130	62	96	131	N/A	N/A	689
Buildout Analysis	17	24	42	46	44	50	52	73	65	54	41	508

Source: Sterling Planning Board. **Change in zoning law,* N/A=These figures were unavailable at the time of printing.

3. Infrastructure

a). Transportation System

The principal highways serving the town are Interstate I-190 and State Routes 12, 62 and 140. The construction of I-190 in the early 1980's reduced driving time to either Worcester or Leominster to less than 20 minutes and provided Sterling with much improved access to job markets and shopping. It also provided much needed access to Route 2, a major east/west highway and the primary link to the greater Boston area, and to Interstate 290, which passes through Worcester and connects to the Turnpike and Interstate 395 serving Connecticut. Since its opening, traffic on I-190 increased steadily, and the highway provided much needed relief in the traffic volumes on Route 12. I-190 is classified as a Principal Arterial, and as of 1998, the highway carried an average daily traffic volume of 34,668 vehicles.

Route 12 is Main Street through the Center of Sterling, Leominster Road north of the center, and Worcester Road south of the Center. Interstate 190 intersects Route 12 in Sterling at Exit 6 about 1.5 miles north of the town center, providing ready access to the town from the north. Sterling's industrial zone is located north of the center on Route 12, near the I-190 interchange, making it very attractive for development. Route 12 is classified as a Principal Arterial/Minor Arterial, and carried an average daily traffic volume of 7,867 vehicles as of 1998.

Table 3-10: Subdivisions Approved or Built Since 1990

ID	Name	Total Units	Date Approved	Units Built As of 2002
1	Stuart Farms Estates	4	-	4
2	Bird Haven	4	Sep-97	0
3	Country Club Estates (road not town approved)	9	May-94	9
4	Chocksett Estates/ ANR lots	7	-	7
5	Cynthia Lane	12	Jan-98	12
6	Elizabeth Lane	5	Apr-99	5
7	Elliott Road Extension	13	Jun-87	-
	Evergreen Heights	8		8
8	Evergreen Heights Extension	3	Sep-92	3
9	Fitch Farm Lane	12	Jan-95	12
10	Flanagan Farm Estates	21	Jun-97	16
11	Greenview (Country Club States)	39	Jun-00	0
12	Hampton Rhodes	46	Apr-98	20
13	Heywood Heights	13	Jun-97	13
14	Juniper Brook	9	Feb-93	9
15	Kendall Hill Estates	29	1987	29
16	Larson Estates	11	Feb-98	11
17	Pamela Lane	9	Jun-95	9
18	Lesley Lane	9	-	-
19	Newell Hill	?	-	-
20	Pine Woods	8	Feb-98	5
21	Pinecrest Estates II (a Chapter 40b proposal?)	9	Mar-88	0
22	Redstone Estates	12	May-92	-
23	Redstone Woods	12	Jan-98	12
24	Blueberry Lane (Rolling Ridge Acres)	12	Jan-96	12
25	Snug Acres Estates (Calvin's Lane)	10	Feb-96	9
26	Spring Hill Estates (Michael Lane)	12	Jun-88	12
27	Sterling Heights Estates (Sunset Drive)	12	Jun-88	6
28	Sterling Meadows Condos	46	-	46
29	Strawberry Patch	1	Jul-90	1
30	Sky Farm (Stuart)	12	May-98	12
31	Tara Heights	7	Jul-92	7
32	Tucker Hill Estates	14	1992	9
33	Laurelwood (Village Green)	12	1997	9
34	Windy Hill (originally 12 were approved)	8	Feb-90	-
	Total	**450**		**307**

Source: Sterling Planning Board./Buildout Analysis

Both Exits 5 and 6 on I-190 provide access to the town from the south. Route 140 intersects I-190 at Exit 5 and provides easy access to Wachusett Mountain, a regional recreation center 10 miles northwest of Sterling. The land located in the vicinity of Exit 5 is zoned Rural Residential/Agriculture. Most of that land is currently open space with ANR residential development. A Performance Zone Overlay District provides for commercial uses near the interchange that must meet strict water quality standards for Site Plan Approval. Recently, several new business ventures were developed in this zone, including a new retail nursery/greenhouse and a self-storage company. A new nursing home is currently under construction on Dana Hill Road. Growth pressure due to proximity to the interchange could result in significant changes in land use in that area over the next few years.

Route 140, also known as Redemption Rock Trail (formerly Johnson Road), was once an old Indian trail that served as the main road for the Nipmuc and Wampanoag Indians between Rhode Island and New Hampshire. It takes the traveler to Wachusett Mountain, passing the Redemption Rock, in Princeton, where Mary Rowlandson was redeemed from her Indian captors after months of captivity in 1675. In Sterling, the State route follows the course of the Stillwater River. The road is noted for its role in the historical economy of the Town. A village of thirty residences sprang from the cottage pottery industry made possible by the clay found in the nearby Stillwater River. Today the road is classified as a Principal Minor Arterial.

Route 62, known as both Clinton Road and Princeton Road, is another state road that had origin as an Indian path. The road links Princeton and Princeton, passing through the center of Town as Main Street, the Junction of Routes 62 and 12. In its past, the Princeton Road portion of Route 62 was the cradle of small cottage chair-making and hat-making shops. Clinton Road today still retains the expansive farmlands that define the rural character of Sterling. This road is classified as a Minor Arterial/Major Collector

Route 110 at the southern edge of Sterling links the towns of Harvard, Lancaster, Clinton and West Boylston, skirting the Wachusett Reservoir. The road intersects Route 12 in West Boylston, slightly east of Oakdale.

Many of the roads in Sterling have been designated as Scenic Roads at several town meetings. The Historic Commission wrote the scenic roads bylaw. The Planning Board has accepted all of these scenic roads and they are the enforcing agency.

1996 – Flanagan Hill Road, Pratt's Junction Road, North Row Road, Upper North Row Road, and Justice Hill Road,
1997 – Albright Road, Chace Hill Road, Heywood Road, Meetinghouse Hill Road, Rowley Hill Road, Swett Hill Road, Williams Street
1998 – Beaman Road, Bean Road, Bird Street, Boutelle Road, Bridge Street, Burpee Road, Campground Road, Chamberlain Road, Charles Paten Drrive, Clemence Avenue, Crowley Road, Dana Hill Road, Elliott Road, Fairbanks Road, Ford Road, Gates Road, Gates Terrace, Goulding Road, Greenland Road, Hardscrabble Road, Hastings Road, Hawkins Lane, Holden Road, Houghton Road, Jewett Road, John Dee Road, Johnson Road, Justice Hill Cutoff, Kendall Hill Road, Kilburn Road, Laurelwood Road, Legate Hill Road, Maple Street, Mellen Hollow Road, Mortimer Road, Muddy Pond Road, Newell Hill Road, North Oakdale Cutoff, Old Princeton Road, Osgood Road, Palmer Road, Pine Street, Redstone Hill Road, Redstone Place, Reed Road, Roper Road, Rugg Road, School Street, South Nelson Road, Squareshire Road, Stuart Road, Taft Road, Tuttle Road, Twine Road, Waushacum Avenue, Westland Farm Road, Wilder Lane, Wilder Road, Wiles Road.

At the height of the railroad era, Sterling had three railroads, The Fitchburg and Worcester Railroad, the Worcester and Nashua Railroad, and The Agricultural Branch. The railroads played a major role in the agrarian economy of Sterling bolstering its dairy and fruit crop markets and spurring a cider mill industry. They also sparked real estate speculation and enhanced the popularity of the Methodist Association Campgrounds near Sterling Junction. For a time the railroad made Sterling a summer resort destination by providing access to the Waushacum Lakes.

The Fitchburg and Worcester Railroad, constructed between 1848 and 1850, connecting Fitchburg to stations in Leominster, Pratts Junction and Sterling Junction. Passenger service between Fitchburg and Sterling Junction was available from 1850 until 1925. Today, Conrail operates the surviving segment of the rail line, serving local roundtrip freight once a day, Monday through Friday between Framingham and Leominster, through Pratts Junction. The remaining right of way south of Pratts Junction has been abandoned, and the segment between the cider mill and West Lake Waushacum (owned by the MDC) now forms the proposed Sterling Rail Trail. Another abandoned segment that runs north from the Town center to Pratts Junction is owned by the Conservation Commission.

The Worcester and Nashua Service connected Worcester, Oakdale, Sterling Junction Clinton, and Ayer to Nashua, NH. The service operated from 1848 to 1934, though service to Ayer was available until 1960. In the 1920's, the Boston and Maine company rebuilt the line between Ayer and Worcester to handle the heaviest trains. Passenger service to Ayer ended in 1953. Guilford acquired the line in the 1980's and renovated it to serve through freight trains between Maine and Worcester, where they interchange with Conrail.

The Agricultural Branch, built between 1849 and 1855 and operated by Boston and Worcester Rail Road, connected Framingham, Marlboro, Northborough, Clinton, Pratts Junction and Fitchburg. In 1866, the line was extended from Northboro to Pratts Junction, where it intersected the Fitchburg and Worcester service. Passenger service was available between Marlboro and Pratts Junction until 1931. Conrail has operated the service since 1976 and continues to carry freight to this day.

Biking is popular with many Sterling residents and the Town is featured on the Central Massachusetts Bicycle and Road Map by Rubel, as having several roads that are recommended for bicycling. A 14 mile bike route through West Boylston and Sterling is listed in "Short Bike Rides in Greater Boston and Central Massachusetts," by Howard Stone. The ride begins at the picnic area at the junction of Routes 12 and 140 near the Wachusett Reservoir, in Oakdale. The bike route starts north on Route 140, and bears right on Waushacum Street in the village of Oakdale. At the intersection of Dana Hill Road and Muddy Pond Road, the tour bears right again on Muddy Pond Road and proceeds up Jewett Road. Along this stretch there is a view of Wachusett Mountain. At the end of Jewett Road it follows Route 62 east to the junction of Route 12 (Main Street, Sterling). The trail follows Main Street through the busy town center to Clinton Road, where it bears right and proceeds uphill on Redstone Hill Road to its crest. The reward for this steep climb is a "Long lazy downhill through farms and Orchards with views of distant hills" across Nashua Valley.

At this point, the rider can choose the short loop that continues through Sterling or take a long loop through Lancaster. The Sterling bike route turns right on Route 62 and continues to Chace Hill Road, where the rider will turn right. The bike route continues on Chace Hill Road to a fork where the rider will bear left on Squareshire Road. From there, the tour continues to Route 110 and bears right to the intersection of Route 12. A little to the east of this point on Route 110 the rider has a sweeping view of Wachusett Reservoir. The bike tour continues on Route 12 to end at the picnic area where the ride began.

Bicycling enthusiasts in town are strong advocates for trail planning both for the Mass Central Rail Trail and for a proposal to create a Sterling Rail Trail that would create a link between the Mass Central Rail Trail and the center of town following the abandoned right of way of the old Fitchburg and Worcester Railroad.

b). Water Supply

Most of the water for the municipal system is pumped from the Stillwater Aquifer, which runs through West Sterling. The primary well field, referred to as the "West Sterling" or "Redemption Rock" wells, is located off of Route 140 near the intersection of Burpee Road, adjacent to the Stillwater River at a point where the aquifer is capable of yielding 2 million gallons per day (GPD). The well field presently includes three wells (Wells #3, #4, and #5). Due in part to its location along the Stillwater River, the town land on which the well field lies is surrounded by MDC protected lands. During the year 2001[7], the Sterling Municipal Water System pumped approximately 233,545,000 gallons of water (639,849 GPD on average) to residents, schools, and businesses. As of 2002, the water department pumped approximately 1 million gallons per day to supply Sterling's entire municipal system[8]. The municipal system serves 78 percent of Sterling households, while the remainder of the population uses private wells. This rate of consumption represents between 32 % and 50% of the existing well pump rate.

Sterling also maintains a standby well (Well #2) at a second well field located adjacent to Route 12 near Greenland Road. This well field is also well protected by surrounding MDC lands. Historically, another well (Well #1) was present in the same well field, but it has been inactive for several decades. Past salt contamina-

[7] 2001 Annual Water-Quality Report issued by The Town of Sterling, Department of Public Works.
[8] June 11, 2002 interview with Lou Manring, Sterling DPW.

tion of Well #1 was attributed to treated sand storage at a nearby facility on Route 12, owned by the Department of Public Works.

According to the Sterling Water Department[9], the peak daily consumption level is approximately 1.3 million GPD. In the past, this consumption level has tested the limits for water storage, so the Town is now installing a 1.3 million gallon storage tank near Tuttle Road. Due to the elevations of the storage tanks, extension of water service to elevations above 630 feet would require an expensive, secondary pumping system to serve these locations. Therefore, large areas of the Town, chiefly in the northern and western sections, will likely need to rely on private wells for the long term.

The water in the Stillwater Aquifer is high in iron and somewhat corrosive. There is a history of plugging at the West Sterling wells due to iron bacteria. The Town recently installed an ultraviolet water disinfection system was at the Stillwater well field location. The system minimizes the level of bacteria, parasites, and other pathogens by impacting their ability to reproduce. The decision to install the ultraviolet system was partly in response to recent pathogen problems that were attributed to beaver damming in the vicinity of well field.

Although it has not been a problem with the municipal water supply, arsenic has been detected in private well water of some Sterling residents[10]. Potential sources of this element include natural deposits which are accessible in bedrock wells and contamination from past use of orchard chemicals, treated lumber, manufacturing. In New England, low to moderate (1 to 50 micrograms per liter) concentrations of arsenic are known to occur in ground water. Increasing evidence indicates that the source of the arsenic in New England is predominantly natural, originating from minerals within the rocks of the region. [11]

Pending significant reductions in the allowable amounts of arsenic contamination in well water may limit the number of future wells approved by the Board of Health. [12] Since existing wells are not subject to Board of Health re-inspection even at the time of home resale, it is critical that homeowners be aware of the potential health risks private well water may bring. Engaging homeowners in voluntary monitoring of their wells for arsenic will both facilitate this education and provide a baseline for mapping the extent of the problem and its source. The Executive Office of Environmental Affairs could both sponsor the volunteer monitoring program and provide guidance or technical assistance.

c). Sewage Management

At present Sterling does not have a public sewer system. In the late 1970s, the Town gave consideration to installing sewer lines as part of the Town of Clinton's wastewater system.[13]. To date, the Town has rejected all alternatives other than onsite subsurface disposal systems due in part to costs and the potential for dramatic changes in development patterns[14].

Economic development goals and continued growth pressure may necessitate a change in perspective in the future. Studies based in the 1970's do not reflect current economic and environmental reality and the town may be forced to consider alternatives to achieve its future economic goals. Sterling townspeople may want to reconsider developing access to sewer systems of neighboring towns to support industrial development in the industrial zone as a protection for the Wekepeke Aquifer. It may also prove prudent for the Town to conduct a

[9] June 11, 2002 interview with Lou Manring, Sterling DPW.
[10] Based on personal communication with Allen Hoffmann, Sterling Department of Health.
[11] Ayotte, Joseph D. Denise L. Montgomery, Sarah M. Flanagan, Keith W. Robinson, and Laura Hayes., Arsenic in Ground Water in Eastern New England: Occurrence, Controls and Implications for Human Health., U.S. Geological Survey, 361 Commerce Way, Pembroke, NH 03275 .
[12] Based on input from the Central Massachusetts office of the DEP, a reduction in the MCL from 50 ppb to 10 ppb is being instituted.
[13] Anderson-Nichols study of feasibility of connecting to sewerage systems in other towns. Allen Hoffman suggested that we contact Ken Williams to obtain a copy of this study.
[14] Per June, 2002 phone interview with Allen Hoffman, Sterling Board of Health.

Wastewater Management Plan that takes into consideration the potential future outlined in the EOEA sponsored buildout analysis conducted in 2001 by the Montachusett Regional Planning Commission. Such a plan would update the prior studies with current population statistics, and development related changes to the environment, as well as the recommendations of the Camp Dresser and McGee hydrology study.

In 2001, the Massachusetts DEP took over jurisdiction of the sewage treatment concerns on the land owned by the Camp Meeting Association along Campground Road. Since it was estimated that over 10,000 gallons of sewage was discharged from this location in a given day, the property requires a DEP Groundwater Discharge Permit. As of early 2002, an administrative consent order had been signed and efforts were underway to develop a plan for implementing an improved sewage treatment system for the homes located on this land.

The Sterling Nursing Home, a facility presently under construction along Dana Hill Road recently filed a Groundwater Discharge Permit with the DEP. As of June 2002, there were no other DEP-controlled sites in the Town of Sterling[15].

The Town may want to consider evaluating whether any of the neighborhoods surrounding East Lake Waushacum meet guideline of the Department of Housing and Community Development for a Community Development Block Grant for infrastructure improvement. If guidelines are met, the Town could apply for a block grant to establish a septic management program to address failing septic systems around the lake.

4. Long-term Development Patterns

a). Land Use Controls

For many years Sterling's citizens have expressed concern for the rural character of their community. Since 1981, townspeople have voted for several changes in the Town's General and Protective By-Laws. The trend in current laws reflects interest in environmental and agricultural protection.

A Site Plan Review process (Adopted October 5, 1981) provides for general erosion control and more specific requirements for construction involving more than 60,000 square feet. With regard to subdivisions, community and environmental impact statements are required, addressing those subjects specifically required by the Planning Board.

Agricultural Districts General Bylaw (Adopted in 1982) - The Town adopted an Agricultural Districts bylaw offering residents the opportunity to establish agricultural districts, one of the first in the state. The Bylaw provided for an Agricultural District Committee to work on creating the districts. Creation of districts is initiated by petition. Districts must contain at least fifty acres. The bylaw requires assessments of the consequences of public investments, such as infrastructure extensions, land acquisitions, and zoning by-law changes on Agricultural District properties. Priority for purchase of proposed Agricultural Preservation Restrictions is given to property located in an Agricultural District.

Flood Plain Overlay District (Adopted April 26, 1982) - The Town established a Flood Plain Overlay District that requires conformance with the state building codes and is based Federal Emergency Management Act Flood Insurance Rate Maps. The Overlay District consists of Zone A and A1-30 on the Sterling Flood Insurance Rate Maps, and the Flood Boundary and Floodway Maps on file with the Town Clerk, the Planning Board, and the Building Inspector. The District rules prevent any encroachment of land within the 100-year flood boundary. The Floodplain Districts are depicted on the Zoning Map.

MultiFamily Development (Adopted April 26, 1982) - Multifamily structures are currently only allowed by special permit and are not to exceed eight dwelling units per structure. This bylaw specifies the design requirements for multifamily developments, and specifically provides that at least 60% of the development will be maintained as open space to be used for conservation, recreation, agriculture, horticulture, forestry or a combi-

[15] Per June 17, 2002 phone interview with David Boyer of Mass DEP Central Region Office.

nation of these uses. At least 40% must be contiguous open space. Issuance of the Special Permit is contingent upon the findings of the Board of Appeals.

The Stillwater River Protection Overlay District (Adopted September 22, 1986)– This bylaw protects the waters of the Stillwater River, Justice Brook and Stuart's Pond, as well as their contiguous wetlands, with a 100 foot buffer landward from each bank. The Conservation Commission issues determination of whether or not a proposed activity or an areas is subject to this by-law. This bylaw prohibits new construction within 100 feet landward of either bank, dumping, filling, dredging, and clearcutting.

The Aquifer and Watershed Protection Overlay District (Adopted May 20, 1993)- The Sterling Protective Bylaw includes a provision for an Aquifer and Water Resource Protection District that protects the groundwater quality of the portions of the Stillwater Aquifer that have a potential well yield greater than one hundred (100) gallons per minute. It also protects all areas in the Town that are within either a delineated Zone II or are within a ½ mile radius of municipal wellheads lacking a Zone II delineation. This includes the Wekepeke Aquifer within Sterling and encompasses the entire Industrial Zone of the Town. Permitted uses are subject to special permit approval to ensure conformity with the bylaw. Noxious uses are prohibited. Yet, according to the Planning Board, the development potential is only constrained by fifty percent within the overlay district, as determined from the recent buildout analysis by the Montachusett Regional Planning Commission.

Rate of Development Limitation (Adopted May 11, 1998) – phases growth to prevent straining the Town's ability to provide basic public facilities and services, to provide the town boards information, time and capacity to incorporate the growth into the Master Plan, and to preserve and enhance the existing community character and the value of property. The bylaw limits issuance of building permits for new residential construction to 30 units in each of five full calendar years following adoption of the bylaw. The five year period recently expired and the town voted to renew it for another five years.

Subdivision Phasing (Adopted May 11, 1998) - phases growth to prevent straining the Town's ability to provide basic public facilities and services, so that it will not disturb the social fabric of the community, so that it will be in keeping with the community's desired rate of growth , and so that the town can study the impact of growth and plan accordingly. The bylaw limits issuance of building permits on any tract of land to 7 permits in any twelve month period, except through special permit where the benefits of the project greatly outweigh the adverse effects to the town.

Scenic Roads General Bylaw (Adopted 1999) – this bylaw authorizes the Planning Board to adopt reasonable rules and regulations for their administration of MGL Chapter 40 Section 15C. It also establishes a fine of $300 for each violation of the law. Each tree cut or removed constitutes a separate violation. Any repair, maintenance, reconstruction, or paving work done on designated scenic roads requires prior written consent of planning board after a well publicized public hearing for the cutting or removal of trees, or the tearing down or destruction of stone walls.

In 1997 the building lot size was increased from 1 acre to 2 acres. Two acre zoning promotes suburban sprawl, but offers enough space to accommodate adequate septic systems. Most of Sterling's approximately 2,200 housing units are single-family homes, about evenly divided between one-half and one acre lot locations. Many downtown properties are running into Title V problems when selling the property, due to small lot sizes in the downtown area. Although considered to be low-density in the town's zoning by-law, one acre is too small for successful onsite sewage disposal under less than ideal soil conditions. Such conditions tend to prevail throughout much of the town. If the expense of installing a central sewer system is to be avoided, public health guidelines should include provisions for larger lot sizes depending on soil conditions for septic systems.

As an alternative, subdivisions can be planned following the guidelines for Open Space Residential Design. These designs relax the dimensional requirements for individual lots in exchange for open space set-asides that allow for public parks or conservation land. By allowing the homes to be built in close proximity, more compact and practical infrastructure systems can be built to manage septic wastes and stormwater runoff efficiently and with less environmental impact.

Nationally, trends in new housing are tending toward clustered developments or attached dwelling units, since the traditional single family home has become too costly for most families to afford. The forms of housing, if well designed, can result in more effective land use, providing necessary housing on lesser amounts of land. They can be served by specially designed septic systems. In return for permitting more intensive use of land, town officials could require that developers set aside associated land for conservation. Many towns have adopted this practice, in order to retain a rural atmosphere while accommodating growth.

Finally, the Conservation Commission has submitted a proposal for a new Conservation Bylaw, and is interested in developing a base of support for its passage. The bylaw would enhance the protections established by the Wetlands Protection Act, the Rivers Protection Act, the Watershed Protection Act, and the Clean Water Act. Its purpose is to protect the wetlands, water resources, and adjoining land areas in the Town by controlling activities deemed likely to have a significant or cumulative effect upon resource area values. It would prohibit removal, fill, dredging, construction, degrading, and discharge into wetlands, marshes, wet meadows, bogs, swamps, vernal pools, banks, reservoirs, lakes, ponds, rivers, streams, creeks, beaches, lands under waterbodies, lands subject to flooding, and lands abutting these resources. The Conservation Commission would be given jurisdiction over implementation of the bylaw. Agricultural uses would be exempt, as per the Wetlands Protection Act (310 CMR 10.04). The bylaw establishes a permitting procedure that is required for any plans filed under the Wetlands Protection Act. It also establishes a fee structure covering advertising, assessment, and wetlands impact per square foot of wetlands altered, as well as a fee to cover expenses born by the Conservation Commission for procuring consulting services for analysis of site impacts.

b). Growth Management Strategies

In Sterling, a good example of conservation protection associated with land development is ***the Wheaton-Jones Protective Covenants*** for subdivided land on East Lake Waushacum. These covenants require that no more than half of each lot be cleared, and no building may be erected within 100 feet of the lake. A 60-foot band of undisturbed vegetation must remain along the shore, although 50 feet of lake frontage may be altered for lake access. East Lake Waushacum Association oversees compliance with the covenants.

Most farmland in Sterling is under the Chapter 61A program for agricultural tax assessment, a strong indication of the concern for the future of farming in town. However, Chapter 61A does not provide permanent protection for farmland; landowners can change the use after paying a conveyance or rollback tax. ***Conservation restrictions*** can provide more lasting protection. By relinquishing the development rights through a conservation restriction, a landowner can continue to farm while enjoying reduced property taxes and a reduction in income taxes equal to the value of the restriction if it is given to a conservation organization.

The state offers an ***Agricultural Preservation Restriction (APR)*** program through Chapter 780, providing funding for the purchase of development rights on actively farmed, high-quality land threatened by development. Competition is strong for these funds. Although the major portion is provided by the state, local contributions are required toward development rights purchases. If a town is not in a position to expend funds for this end, owners of the land involved can make a gift of the difference between the appraised development value and the state's investment. The support of the local boards and commissions helps in the success of applicants for APR monies. Two farms in Sterling are currently in this program.

Priority lands for agricultural protection restrictions should be determined, so that appropriate actions may be taken as applicants are made. In 1983, Sterling volunteered to participate in a program of ***Land Evaluation and Site Assessment (LESA)*** offered by the Natural Resources Conservation Service as a means for setting priorities for farmland protection. LESA offers a technical framework to numerically rank land parcels based on local resource evaluation and site considerations. In agricultural land evaluation, soils are rated and placed into groups ranging from the best to the least suited for a specific agricultural use, such as cropland, forestland, or rangeland. Site assessment includes non-soil factors related to agricultural use of a site, factors related to development pressures, and other public values of a site. Then, a relative value is determined for each group. For example, the best group may be assigned a value of 100, while all other groups are assigned lower values.

In 2002, the Federal Legislature passed the ***Farm Security and Rural Investment Act***, which establishes a number of conservation resources to aid farmers in dealing with issues such as soil erosion, wetlands, wildlife habitat, and farmland protection. These resources consist of several voluntary programs that offer technical and financial assistance to farmers to encourage environmentally sound solutions to preserving agricultural resources. The programs are as follows:

The ***Conservation of Private Grazing Land Program*** (CPGL helps owners and managers of private grazing land address natural resource concerns while enhancing the economic and social stability of grazing land enterprises and the rural communities that depend on them.

The ***Conservation Security Program*** provides financial and technical assistance for the conservation, protection, and improvement of soil, water, and related resources on Tribal and private lands. The program provides payments for producers who historically have practiced good stewardship on their agricultural lands and incentives for those who want to do more. The program will be available in fiscal year 2003.

The ***Environmental Quality Incentives Program*** (EQIP) is a voluntary conservation program that promotes agricultural production and environmental quality as compatible National goals. Through EQIP, farmers and ranchers may receive financial and technical help to install or implement structural and management conservation practices on eligible agricultural land.

The ***Farmland Protection Program*** helps farmers and ranchers keep their land in agriculture. The program provides matching funds to State, Tribal, or local governments and non-governmental organizations with existing farmland protection programs to purchase conservation easements or other interests in land.

The ***National Natural Resources Conservation Foundation*** (NNRCF) promotes innovative solutions to natural resource problems and conducts research and educational activities to support conservation on private land. The NNRCF is a private, nonprofit 501(c)(3) corporation. The foundation builds partnerships among agencies and agricultural, public, and private constituencies interested in promoting voluntary conservation on private lands.

The ***Community Preservation Act (CPA)*** is a state law (G.L. Ch. 44B) passed in September 2000 giving cities and towns a new funding source for protecting open space and historic properties, and creating affordable housing. The goal of the CPA is to preserve the character of our communities by addressing sprawl, the rapid loss of remaining open land and historic landscapes, and the need for housing affordable to town employees, senior citizens and others. Local priorities are researched and acquisitions and expenditures recommended by a Community Preservation Committee.[16] Specifically the funds are for:

- acquisition, creation and preservation of ***open space***. Open space includes land to protect existing and future wellfields, aquifers and recharge areas, watershed land, agricultural land, grasslands, fields, forests, fresh and salt water marshes and other wetlands, frontage along the ocean and other water bodies, beaches, dunes and other coastal lands, scenic vistas, wildlife/nature preserves and land for recreational use. Land for recreational use here includes land for active or passive recreation e.g. community gardens, trails, parks, playgrounds, and athletic fields - but not stadiums, race tracks for animals, gymnasiums or similar structures.

- acquisition and preservation of ***historic resources***. This includes structures, vessels and landscapes eligible for listing on the state register of historic places or determined by the local historic preservation commission to be significant to local history, archeology, architecture or culture.

- creation, preservation and support of ***community housing***. Affordable community housing includes low and moderate income housing for individuals and families, and includes senior housing.

[16] Massachusetts Association of Conservation Commissions, *Questions and Answers Concerning The Community Preservation Act* http://maccweb.org/q_a-cpa.html.

Funding is a combination of locally-raised money and a match provided by the state. Local funds raised are matched by state funds raised through a new surcharge on the fees on filings in the Registry of Deeds and the Land Court. The town meeting must vote to adopt the statue and specify the level of the surcharge that will be added to the real estate property tax (up to 3%) and the exemptions to the surcharge. Then there is a vote on a ballot question at the next regular state or municipal election to accept the CPA in the form voted by the legislative body. If it passes, the town meeting creates a Community Preservation Committee (CPC) of five to nine members, with representation of the Conservation Commission, the Planning Board, the historic commission, the housing authority, and the park commission (DPW), through a bylaw or ordinance.

The locally-raised surcharge money is placed in a Community Preservation Fund. The state money is placed in the Community Preservation Trust Fund administered by the Department of Revenue. After disbursal each October, the town places the state money in its Community Preservation Fund.

The deed transaction fees are expected to generate about $25 million annually. Gifts, settlement and other monies can also be placed in the fund. Eighty percent of the money received by the state fund each year will be distributed to participating communities as a percentage of the money they have raised locally. Each community will receive the same percentage match. The other twenty percent of the state money will be distributed according to a formula spelled out in the statute; the formula for this portion is based on population and property valuation criteria, and favors smaller and poorer communities.

Despite support for the Community Preservation Act at the Annual Town Meeting, residents of Sterling recently voted against it on a ballot question at general election. Some voters felt that the complexities of state funding programs limit the local control, and that the Town should raise money for land preservation independently. Others felt that the Town generally accommodates appropriations for land purchases when they come before Town Meeting and that there was no need for a dedicated fund.

Coincidentally, two other ballot questions asking the town to purchase Chapter 61A land parcels failed. One, a 15-acre parcel on Swett Hill Road, would have protected important uplands of the East Lake Waushacum watershed. The other, a 20-acre property on Meetinghouse Hill Road, included wetlands and an historic yellow barn, and would have been used for both passive and active recreation. Total cost to acquire the two parcels was $370,000. For the property at East Lake Waushacum, the Conservation Commission had offered $20,000, and the East Lake Waushacum Association had offered an additional $3,000. Additional funding for the parcel was sought through a state grant program.

The value of the Conservation Preservation Act is that it would help the Conservation Commission and the Town to be prepared for opportunities to acquire lands, such as those coming out of the Chapter 61 tax abatement programs, as the opportunities arise.[17] If purchase decisions must wait until Town Meeting appropriations are approved and passed on ballot questions, then many opportunities that come before the town could be missed due to a limited window of opportunity to exercise the Town's right of first refusal. The Community Preservation Fund would create a dedicated resource that could strengthen the Town's ability to preserve its natural cultural and historic heritage. The Sterling Open Space and Recreation Committee should work on educating people about the Community Preservation Act and its value to the town as a source of funding for acquiring land for conservation as the need arises, and make another attempt at adopting the Act.

c). Scheduled and Proposed Development Projects

As of 2002, the Town is in process of constructing a new state of the art Police Station on the old capped landfill site. A new nursing home facility is under construction in the Performance Zone off Dana Hill Road. Renovation projects are planned for both the Fire Station and the Old Town Hall. Beyond that, the Planning Board has indicated that there are no scheduled development projects. There have been two preliminary proposals for Chapter 40b affordable housing subdivisions. At present these proposals are in stasis, and the town has taken

[17] The Landmark, *Preservation and Land Articles Fail at Polls After Town Meeting Success*, May 24, 2001

no action regarding them. The growth rate limitation of 31 new units per year will dictation a slower rate of growth for at least another five years.

d). Planned Expansions to Infrastructure

Water resources are seen as a critical component of growth potential for the Town. Both town-owned lands and MDC-owned lands are under consideration for possible well sites in future years. In 2002, Sterling was assessing a potential alternative well field location along Muddy Pond Road, directly across from Muddy Pond and just east of the Stillwater River.

The Wekepeke Aquifer underlying the Wekepeke Brook and its tributaries offers another potential water source. Department of Environmental Protection testing in the past showed the water quality of the Wekepeke to be very high, and U.S. Geological Survey estimates indicate that the Wekepeke Aquifer is capable of yielding over two million gallons per day (GPD).

The City of Leominster presently has wells in the aquifer off of Jungle road near the intersection of Interstate 190 and Route 117. These wells can only supply a safe yield of 0.3 MGD. They are only utilized three months out of the year during peak season. [18] The Town of Lancaster has performed exploratory drilling for a potential water source. The Town of Sterling also performed exploratory drilling along the Wekepeke in the past, but has generally tabled this option due in part to projected costs of land acquisition and utilities infrastructure associated with the envisioned well field. [19]

The Town of Clinton maintains a reserve supply at the headwaters of Wekepeke Brook, as well. The Heywood Reservoir, Fitch Basin and Lynde Basin are all part of this system. As of 2002, the Town of Leominster is in the process of negotiating water rights to this water resource[20]. Concerns for the future protection of the Heywood Reservoir may be alleviated if a recent MDC request for a Conservation Restriction is granted. According to the MDC[21], they have applied for a conservation restriction for 400 of the 600 acres surrounding the reservoir.

Camp Dresser and McGee, under contract with EOEA for the Massachusetts Watershed Initiative Nashua Team recently conducted a Hydrologic Analysis (inflow/outflow) of the Wekepeke Aquifer.[22] Their findings indicate that the Wekepeke sub-watershed is currently under a medium level of stress. By definition, this means that the net outflow from the sub-watershed equals or exceeds the estimated lowest consecutive 7-day streamflow that is likely to occur in a ten-year period in a particular river segment (the "7Q10"). The calculated 7Q10 Virgin (undeveloped or pre-development) flow is 0.125 MGD (million gallons/day) and the existing 7Q10 is -0.712. The negative value indicates that a groundwater recharge scenario is predicted. That is, the Wekepeke Brook would actually draw water from the aquifer to maintain its flow during a 7Q10 drought event.

The CDM data indicates that the unique coldwater brook habitat of the Wekepeke Brook is at risk during drought events[23]. The calculated average August virgin flow of the Wekepeke Brook is 5.254 MGD and the existing average August flow is 4.416 MGD—a deficit of about 15%. The calculated 2020 average August virgin flow remains the same at 5.254 MGD and the 2020 average August flow is 4.211 MGD—a deficit of about 20%.

[18] The Leominster water system has seven surface reservoirs and three groundwater wells. Leominster also maintains a connection to the Wachusett Reservoir to supplement the city system. The wells that tap the Wekepeke Aquifer are used to augment local surface water supplies, when necessary.
[19] Based on input from Lou Manring, Sterling DPW.
[20] Per Matt Morrow of the Town of Leominster.
[21] Per Jim French, personal communication at Sterling Open Space and Recreation Committee's Public Forum on June 13, 2002.
[22] Study results reported by JoAnne Carr, Nashua Basin Team Leader at EOEA MA Watershed Initiative via phone and email communication.
[23] JoAnne Carr, Nashua Basin Team Leader at EOEA MA Watershed Initiative.

The location of Sterling's industrial zone relative to the Wekepeke Aquifer, poses potential risks to users of the water supply and potentially to the Wekepeke Brook. The Town's landfill, which was closed and capped per order of the DEP in the early 1990's, is also located adjacent to the aquifer. As of 2002, a monitoring program was in place to detect the leakage of toxic materials. No known problems have been reported to date[24].

An ultraviolet water disinfection system was installed at the West Sterling well field during 2001 and was in full operation as of 2002. This disinfection system minimizes the level of bacteria, parasites, and other pathogens by impacting their ability to reproduce. The decision to install the ultraviolet system was partly in response to recent pathogen problems which were attributed to beaver damming in the vicinity of well field.

Sterling is presently in the process of installing a 1.3 million gallon storage tank near Tuttle Road to accommodate the peak daily consumption level of 1.3 million GPD. Extensions of water service will be confined to elevations above 630 feet. The northern and western sections of Town will likely need to rely on private wells for the long term until a secondary pumping station can be built. Careful attention should be given to the installation of septic systems in these areas to prevent contamination of on-lot wells.

For the foreseeable future, the town will continue to manage septic disposal with private onsite subsurface disposal systems. Alternatives are viewed as too costly, and too likely to radically alter development patterns in town.

The Town should make a concerted effort to study the opportunity costs of certain types of development along the Wekepeke aquifer given the results of the Camp Dresser and McKee Study. In addition, it may be critical for Sterling to partner with the City of Leominster and the Town of Clinton in cooperative efforts to protect both surface and ground water resources for the integrity of the Wekepeke Aquifer and the health of the trout and other wildlife habitats of the Wekepeke Brook. Sterling leaders may also want to spearhead a volunteer monitoring program in search of arsenic in private well water.

e). Buildout Analysis

In 2001, the Executive Office of Environmental Affairs (EOEA) sponsored the creation of buildout analyses for all 351 towns and cities within the Commonwealth of Massachusetts in support of the Community Preservation Act.[25] At the local level, EOEA believes that Community Preservation is about maintaining quality of life in our municipalities by empowering cities and towns to preserve what is important to their individual character. This community preservation effort is also about recognizing the potential negative effects of sprawl development, and the potential for disproportionate growth in certain regions. EOEA contracted with the Montachusett Regional Planning Commission to develop buildouts for the communities in its region. For more information on the buildout analysis project see the Executive Office of Environmental Affairs website on the Community Preservation Initiative at http://commpres.env.state.ma.us/content/buildout.asp. Also check out their publication, ***The Buildout Book: Where Do You Want to be at Buildout?,*** available in PDF format to either read or print from the website. Additionally, the buildout map series and analysis for Sterling are also available in both PDF and ArcView format on this web site.

Buildout analyses illustrate the maximum development permitted as-of-right by the local zoning bylaws in place at the time of the analysis. The buildout provides an estimate of the total number of houses and commercial/industrial square footage that could result if every piece of unprotected, buildable land is developed, if no more land is permanently protected within a community, and if zoning remains unchanged. In addition, the buildout can provide insight to the potential burdens on community infrastructure. That is, the analyses used a projected growth rate based upon past growth trends, population forecasts and economic forecasts, communities can anticipate the length of time needed to reach buildout and to reach certain growth thresholds such as when

[24] Based on interviews with Sue Valentine, Conservation Commission, and Lou Manring, Sterling DPW, in June, 2002.

[25] Executive Office of Environmental Affairs, Community Preservation Initiative at http://commpres.env.state.ma.us/content/buildout.asp.

additional schools, water supplies and sewer systems will be needed. This information can provide a framework for planning future community budgets as well.

The methodology defines buildable land as undeveloped, un-protected, upland that does not include transmission lines or land within 100 feet of a stream or river. The analysis reflects a community's zoning bylaws and regulations, especially concerning the way they treat resource areas such as wetlands and floodplains. For example, if wetland areas can be included in gross building lot area minimums, then wetlands are not considered an absolute constraint to development. Yet wetlands may be considered partial constraints if they restrict the density or type of development in a given area. For example, there may be a 25% limit on all impervious surfaces on parcels located within a certain distance of a wetland. The methodology takes this into account.

For Sterling, the MRPC conducted interviews with the Planning Board to develop a set of assumptions regarding the types and intensity of future developments anticipated that were built into the analysis. Environmental constraints were taken into consideration including the 0-200' Rivers Protection Act buffer, the 100-Year flood plain buffer, Wetlands, The Aquifer Overlay District (Greater than 100 gallons per minute yield), and The Watershed Protection District River Buffers (0'-200' River Buffers). The views of the Planning Board regarding the level and amount of development permitted in these environmental buffer zones were also incorporated into the analysis. Absolute Constraints to development included the 100 yr Floodplains, the Rivers Protection buffer of 0-200 feet inside the Wachusett Watershed and of 0-100 feet outside the Watershed. Partial constraints included Wetlands, and Aquifers of yield >100 gpm, both of which were assumed to constrain development by 50%. Outside the Watershed the Rivers Protection Act buffer of 100-200 feet was assumed to constrain development by 20%.

Dimensional requirements for residential districts established the criteria for determining the potential number of new housing units and the their impacts on the town's infrastructure. Nearly 88% of the Town is zoned as rural residential. Sterling has a two-acre minimum for single-family house lots in its rural residential zone. Two-family homes require two and one-half acre minimum lot sizes. The town also requires significant frontage for each lot, at 225 feet for single family lots and 270 feet for two family lots. In addition there is a maximum limit of 650 feet for the length of a cul de sac street. This requirement limits lot creation on a cul de sac to six lots.

Table 3-11: Dimensional Regulations for Residential Development

Residential Zoning	Minimum Lot Size	Frontage	R.O.W.	Units per Lot
Rural Residential (RR)				
Single Family	87,120	225	40'	1
Two Family	108,900	270	40'	2
Neighborhood Residential (NR)				
Single Family	21,780	125	40'	1
Two Family	43,560	185	40'	2

Source: Sterling Protective Bylaw

Commercial and industrial buildable lots were determined using an "effective" floor area ratio. For the Neighborhood Commercial, General and Industrial zoning districts, the major alternative land uses were examined in relation to height, maximum lot coverage and parking requirements. An effective floor area ratio (FAR) for all use categories (e.g. offices, warehouses) in a particular district was developed for analysis purposes. The effective FAR for the entire district was estimated by averaging the FARs for the various potential land use types. Limits placed on the total square footage of a building because of environmental constraints were also taken into account. The Commercial and Town Center Districts were considered built out already.

The buildout calculations yielded a figure of 7,016 acres of developable residentially zoned land and commercial/industrial potential of 12,487,512 square feet of Floor Area. Under the current dimensional requirements, the town could anticipate a maximum of 3,484 new dwelling units. At buildout, the population would increase

by 8,232 new residents, based on the 2000 average of 2.36 persons per household. Total population would be 15,489. The student body at buildout would increase by 1,064, based on the 2000 average of 0.305 students per household. The total number of students in town would be 1,886. (See Table 3-12)

The increase in water demand is based upon a residential usage rate of 75 gallons per person per day and a Commercial/Industrial usage rate of 75 gallons per 1,000 square feet of floor space per day. The increase in water demand was added to the reported 1999 consumption rate for the public water system. Data on water consumption from private wells was unavailable. Future water demand is estimated to be 2,114,926 gallons per day. This rate of consumption would max out the current pump rate for the Stillwater River Wellfield. The rate is based upon a statewide average, so if the Town opts to approve commercial land uses that are significantly large consumers of water, a careful balance must be struck between the commercial use and remaining opportunities for residential use.

Table 3-12: Summary of Potential Buildout Impact

Buildout Impact for the Town of Sterling	Current	Additional	Future
Population	7,257	8,232	15,489
Students	822	1,064	1,886
Households/New Dwelling Units	2,696	3,484	6,180
Water Demand (gallons per day)	561,000	1,553,926	2,114,926
Residential Water Use (gallons/day)	*~222,881*	*617,363*	*~840,244*
Comm./Ind. Water Use (gallons/day)	*~338,119*	*936,563*	*~1,274,682*
Municipal Solid Waste (tons/year)	N/A	4,223	
Non-Recycled Solid Waste (tons/year)	N/A	*3,003*	
Recyclable Solid Waste (tons/year)	N/A	*1,220*	
Road Miles	106	75.9	182

Sources: Montachusett Regional Planning Commission, Sterling Planning Board, Sterling Department of Public Works, N/A = these figures were unavailable at the time of printing.

All solid waste estimates are for residential use only. Statistics on the present day volume of solid waste per day were unavailable at the time of the buildout analysis. However the State provided a formula for calculating the solid waste potential impact based upon the number of new households likely to be built. Non-Recycled Solid Waste was based on 0.3648 tons per person per year and Recyclable Solid Waste was based on 0.1482 tons per person per year. Total expected increase in residential solid waste is 4,223 tons per year.

While the intent of large lot dimension requirements is to ensure proper management of septic wastes, lengthy frontage requirements translate into significant increases of road miles and large conventional lots consume the land and result in a suburban sprawl development pattern. According to the 2000 MassHighway Road Inventory File, Sterling has 106 miles of road, most of which are under the jurisdiction of the Town. At buildout, the total road miles under town jurisdiction would increase by 76 miles, based upon the frontage requirements specified in the dimensional regulations. The estimate of new roads takes into account house lots on both sides of the road and Approval Not Required development on existing ways.

During the last decade the town issued over 500 (690) building permits for new residential construction. Many of these were for housing units that were included in subdivisions. The annualized rate of permit issuance in the Town of Sterling was an average of 50 to 51 units per year. At this rate, residential buildout would be achieved in less than 70 years (50). The town could anticipate up to 20 new students per year. If the regional growth trends continue, Sterling may also be faced with an increasing rate of growth, as other communities either buildout themselves or restrict their growth. These estimates should be considered with caution, however, as many factors can affect the local economy and growth rate. Land that is zoned for commercial or industrial uses will be developed according to the needs and limitations of the regional economy.

SECTION 4 - ENVIRONMENTAL INVENTORY & ANALYSIS

A. GEOLOGY, SOILS AND TOPOGRAPHY

1. Geology

Sterling owes its rich and rolling landscape to violent upheavals that took place over hundreds of millions of years as continents drifted apart and collided. These turbulent eons created early volcanic plains formed from Basalt dikes and fissure flows that occurred during the Acadian Mountain Building events of the Devonian to Silurian Age. This period was a 50 million year history of faulting, sediment deposition, and lava eruption that left behind the underlying bedrock that preceded the Glacial ages.

The Merrimack Terraine is the underlying bedrock of most of Sterling, consisting of a group of meta-sedimentary and intrusive igneous rocks of Devonian to Silurian Age (~400 million years old). In Sterling, it consists of two distinct belts of rock including the Wachusett Mountain Belt and the Nashua Belt. The Nashua Belt is further made of two sub-belts, the Worcester formation and the Oakdale formations. The Wachusett Mountain Belt, a giant fold of crystalline rock, includes a pluton of Fitchburg granite that intruded as igneous rock over 400 million years ago, The Wachusett Mountain belt was thrust upward and east in Devonian time to rest on top of a block of Paxton schists. [26]

The western border of Sterling rests on a five-mile wide north/south trending ridge of Fitchburg granite. I-190 and Route 12 run generally parallel to this ridge, though they trend a little more northeasterly. The eastern edge of the Fitchburg granite is banded by an uplifted fault block referred to as the Massabesic Gneiss Uplift. It rose with the massive intrusions of early Devonian igneous granite, prior to the upward thrust of the Wachusett Mountain Belt. This ridge is home to many beautiful antique colonial homestead farms and offers views of scenic landscapes toward Wachusett Mountain to the west and Harvard and Lancaster across the Nashua River Valley to the east.

Route 12 runs north on the Nashua Belt, a band of Silurian and Devonian age metamorphic sedimentary rock that lies between the Clinton-Newbury Fault and Wachusett Mountain Belt. It is comprised of two sub-belts, the Worcester Formation and the Oakdale Formation. The Worcester Formation is a wide band of carbonaceous slate and phyllite at the southeastern edge of the Wachusett Mountain Belt. The rolling hills and farms on the eastern border of Sterling are on the Worcester Formation and offer beautiful scenic views eastward toward Lancaster. The Oakdale Formation consists of beds of interlayered calcareous siltstones, slate, quartzite and marble, deposited in submarine fans at the base of canyons on the ocean floor. It underlies the Wachusett Reservoir, and continues north along the eastern border of Sterling.

The eastern portion of the Town of Sterling sits astride the Worcester Formation. The southern end of the formation is the drainage divide between the Nashua River watershed and the French and Blackstone River watersheds. The northeast trending Wekepeke Normal Fault Zone, a faulted fold in the Worcester Formation, runs parallel to Route 12 and I-190, east of the two roads. The fault extends from the junction of Route 9 with I-290 in Worcester northward into New Hampshire. It forms the western edge of the Nashua belt and the western wall of the Nashua Valley. The feature underlies the historic town center district and continues north. The east slope of the ridge is comprised of slate and phyllite. It intersects the Clinton-Newbury Fault in Worcester at the northern end of Lake Qunsigamond.

In Sterling, I-190 and Route 12 run parallel along this ridge to their junctions with Route 2 in Leominster. These highways cross the Stillwater River, a major tributary of the Nashua River. This river flows southeast, empting into the present-day Wachusett Reservoir at the southern end of the Nashua Valley. The Nashua Belt, comprised of easily eroded, low-grade metamorphic siltstones, phyllites, slates, and schists underlies the Nashua Valley. The Clinton-Newbury Fault bounds the Nashua valley to the east.

[26] Skehan, James W., Roadside Geology of Massachusetts, © 2001, Mountain Press Publishing Company

The Clinton-Newbury Fault Zone forms the border between the Merrimack Terraine and the Nashoba Terrain to the east. It is a major structural dislocation consisting of west-dipping thrusts and reverse faults that marks the line of subduction where the Nashoba Terrain sank beneath the edge of the Merrimack Terrain during continental collision. The fault zone extends from the Atlantic Ocean near Salisbury in a southwesterly trending arc toward eastern Connecticut, passing under the dam that impounds the Wachusett Reservoir.

The surficial geology is a result of glacial activity. A succession of great ice sheets, estimated to have a thickness of up to two miles, scraped and wore deep grooves into the land during the Pleistocene Era, 11,000 to 1.8 million years ago. The last of these was the Wisconsinian Ice Sheet. As the glaciers advanced, materials scraped from the underlying bedrock were carried south. As the Wisconsinian ice sheet melted, it left behind dense glacial till deposits, consisting of a mixture of sand, silt, clay, gravel and boulders, that form a thin veneer over the bedrock surface throughout most of the town.

A series of glacial lakes formed in the Nashua Valley. As the glacial ice receded northward, successive great deposits of sand formed under the impounded waters of Glacial Lake Nashua at the toe of the glacier. Melt-water that occupied the confluence of the Stillwater and Quinapoxet River valleys deposited sediments that filled the southern end of the lake, leaving behind beds of sand plain. Similarly, melt-water occupied the Wekepeke valley, depositing sands that today underlie the northeast quadrant of Sterling. Eventually, the lakes increased in size and filled the Nashua Valley, encompassing an area with a combined length of 35 miles. The north flowing Nashua River drained Glacial Lake Nashua over thousands of years. Over time, the water levels lowered, leaving behind extensive kame deposits of delta sand and gravel up to 165 feet thick. Two broad bands of stratified glacial deposits (sand and gravel) stretch across the lowlands of Sterling, forming the Stillwater and Wekepeke Aquifers.

2. Topography

Geologic activity and glacial sculpting also left a deep imprint on the topography. The terrain in Sterling is very hilly with well-defined valleys. Elevations above sea level range from 330 feet where Wekepeke Brook flows into the Town of Lancaster to1,010 feet on the northern border with Leominster . The hills surrounding the center and found throughout the town were named for geographic features such as Ridge and Redstone Hills or for the prominent families whose farms covered them, such as Kendall, Ross, Fitch, Swett, and Chace Hills, or places of origin, such as Rowley. The following hills offer many scenic vistas:

- Chace Hill
- Fitch Hill
- Hog Hill
- Justice Hill
- Kendall Hill
- Redstone Hill
- Ridge Hill
- Ross Hill
- Rowley Hill
- Swett Hill

Much of the land on Justice Hill, Fitch Hill, and Hog Hill remains undeveloped and protected by MDC holdings. These upland areas are highly important since they represent the watershed of the Stillwater River and the Stillwater Aquifer, providing drinking water to both the Town wells and the Wachusett Reservoir.

The geologic history of the rolling topography created a complex drainage network of numerous streams and wetlands. These streams flow southeast toward the Wachusett Reservoir and the Nashua River Basin, following the ancient path of the glaciers. The two major flood plains in Sterling are along the Stillwater River and Wekepeke Brook, but zones of flooding exist along almost every stream, as shown on the Federal Emergency Management Administration Flood Insurance Rate Maps. These areas lie in the lowlands at the feet of the glacially carved hills.

3. Soils

Soils in Sterling are the result of glaciation, and include the deposition of till in the uplands and sand and silt in Glacial Lake Nashua. The shores of this great lake spread along the Stillwater River and Wekepeke Brook valleys. Over thousands of years, sediments ran off surrounding hills and collected as thick layers of sand, silt and gravel on the lake bottom. When the lake drained, the rich sediments were left behind. Over time, modern day rivers and their tributary streams carved valleys and terraces into these deep, varied glacial deposits. Regular flooding of these rivers and streams enhances the soils by leaving alluvial deposits within the level areas of their floodplains.

The Natural Resources Conservation Service produced a Soil Survey of Worcester County Massachusetts Northeastern Part which includes Sterling.[27] The report describes the soils in the area, both at a general level and a specific level, and their suitability and limitations for agricultural, forestry, recreation, building, and sanitation. In general, Sterling has five naturally recurring soil associations: Paxton-Woodbridge, Hinckley-Merrimac-Sudbury, Peat-Ridgebury-Walpole Whitman, Hollis-Paxton, and Charlton, firm substratum-Sutton, firm substratum. The name of each association reflects the dominant soils in that association. The less extensive soils (which can comprise 10 to 30 percent of the soil area) are not distinguished in the name.

The soils within a general soil area can vary widely. Commonly the properties of the dominant soils of each association have about the same degree of limitation for a particular use. Soil associations can indicate overall soil suitability, but the general soil map cannot be used as a basis for decisions concerning small plots of land. Site specific planning requires the use of the detailed soil map accompanied by the interpretive ratings on limitations produced by the Soil Conservation Service.

Paxton-Woodbridge: This association is comprised of very stony, moderately well-drained soils underlain by hardpan. It occupies about 55 percent of the town's area. It has few limitations for woodland, and if stones are removed, for agriculture. The less stony and less sloping variants of Paxton and Woodridge are considered to be prime agricultural soils. There are moderate limitations for roads and commercial, industrial and residential development using sewer systems. However, soils underlain by slowly permeable hardpan can severely limit the use of on-site sewage disposal with septic tank systems, if the hardpan layer is at a shallow depth.

Hinckley-Merrimac-Sudbury: This association occupies about 25 percent of the town and is comprised of droughty and moderately well-drained sandy and gravelly soils. Uses such as roads, commercial, industrial and residential and agricultural development may be subject to limitations ranging from slight to severe, depending on the slope gradient. The soils are rapidly permeable and readily absorb septic system effluent. However, shallow wells near septic systems may become contaminated.

Peat-Ridgebury-Walpole-Whitman: This association is comprised of very poorly drained organic and mineral soils. It occupies about 12 percent of the town. It has few limitations for wetland wildlife, but has severe limitation for residential, industrial and agricultural uses, due to high water tables and low bearing strength.

Hollis-Paxton: This association occupies about seven percent of the town. It consists of soils that are shallow to bedrock, and very stony well-drained soils underlain by hardpan. Most of this general soil area has few limitations for woodland and some recreational uses. Bedrock close to the surface severely limits the use of the area for residential, commercial, industrial and agricultural purposes.

Charlton. firm substratum – Sutton firm substratum: This association occupies about six percent of the town. Soils in this association have a range of stoniness, but all are well to moderately well drained, with hardpan at a depth of three to five feet. Most of this general soil area has few limitations for woodland and some recreational uses. Stoniness, slope and hardpan place limitations on the use of the area for residential, commercial, industrial and agricultural uses.

[27] Taylor, William, and Charles F. Holz, *Soil Survey of Worcester County, Massachusetts, Northeastern Part,* USDA Natural Resources Conservation Service, in cooperation with Massachusetts Agricultural Experiment Station.

At present, only the hand drawn field maps on aerial photos are available from the Natural Resources Conservation Service (NRCS) to determine specific soil characteristics. NCRS is currently engaged in digitizing these maps, but the final data will not be ready for release until 2004. Montachusett Regional Planning Commission (MRPC) obtained the field maps and generalized the soils information for the prime classifications for agricultural and forestry uses. This information was then digitized and overlain onto the Geographic Information System (GIS) maps for the Town (*See **the Soils Map***). Identification of these soils can help the town prioritize areas for agricultural protection efforts.

a). Prime Farmland Soils and Farmland

It is a priority of the USDA to identify prime agricultural farmland, which is best suited to grow food, feed, forage, fiber, and oilseed crops. Prime farmland soils produce the highest yields with minimal energy and economic resources, and farming it results in the least damage to the environment. The soils are first grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. Eight capability classes rank soils from minimal to severe in limitations. Soils with severe limitations are precluded from commercial crop production.

The soils are further grouped into sub-classes that reflect the main limitation of the soil for farming. Subclasses are designated by letters: 'E' is for risk of erosion if not properly managed, 'S' is for shallow, droughty, or stony soil, and, 'W' is for soil that is watery or that requires artificial drainage. Some characteristics that determine the degree of limitation of a particular soil for a particular use are: wetness, slope, depth to bedrock, and soil permeability. Soil information indicates what problems might arise if development were to occur on areas with unfavorable characteristics. Table 4-1 lists the categories of Prime agricultural soils found in Sterling. Most of the soils are Class II, indicating moderate limitations that may require special conservation measures. Some require measures to control erosion, some are stony, and some are wet. For the purposes of this plan the soils were aggregated in a map of the Prime agricultural and forestry soils. The Soils Map shows the locations of the prime agricultural soils.

Table 4-1: Prime Agricultural Soils in Sterling

SYMBOL	NAME	Capability Class
AgA	Agawam fine sandy loam, 0 to 3 percent slopes	I
AgB	Agawam fine sandy loam, 3 to 8 percent slopes	IIe
CaB	Canton fine sandy loam, 3 to 8 percent slopes	IIe
PaB	Paxton fine sandy loam, 3 to 8 percent slopes	IIe
MeA	Merrimac fine sandy loam, 0 to 3 percent slopes	IIs
MeB	Merrimac fine sandy loam, 3 to 8 percent slopes	IIs
SdA	Sudbury fine sandy loam, 0 to 3 percent slopes	IIw
WrA	Woodbridge fine sandy loam, 0 to 3 percent slopes	IIw
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes	IIw
PaC	Paxton fine sandy loam, 8 to 15 percent slopes	IIIe

Source: *Soil Survey of Worcester County, Massachusetts, Northeastern Part,* USDA Natural Resources Conservation Service

The deep, well-drained Agawam fine sandy loams are found in broad areas and in areas adjacent to strongly sloping soils. The soils are well suited to cultivated crops, hay, pasture, and trees. The soil has no major limitations for building or for roads, though it is a poor filter for septic tank absorption fields and effluent seepage through the substratum causes a hazard of ground contamination. Agawam sandy loams with a 3 to 8 percent slope would require farming practices that control for erosion.

The Canton fine sandy loams are very deep, strongly sloping and well drained. These soils are found on the upper slopes of hills, often in association with small areas of Paxton and Woodbridge soils. Most areas of this soil are covered with trees, and the soil is well-suited to support tree growth. It is also suited to cultivated crops, hay and pasture using farming practices that control for erosion.

Paxton fine sandy loam, on slopes of 3 to 8 percent are considered to be Soils of State significance. The soils are very deep to bedrock. They are nearly level to steep soils on till plains, hills, and drumlins. Many areas are cleared and used for cultivated crops, hay, or pasture. Scattered areas are used for community development. Most areas where stones have not been cleared and slopes are steeper are wooded. Common trees are red, white, and black oak, hickory, sugar maple, red maple, gray and black birch, white pine, and hemlock.

Merrimac fine sandy loam, on slopes of 0 to 3 percent, and slopes of 3 to 8 percent. These soils are very deep, somewhat excessively drained soils formed in glacial outwash. Merrimac soils are mainly cultivated and used for growing hay, pasture, silage, corn, or truck crops. Forested areas are mostly white pine, gray birch, hemlock, red maple, and red, black, white, and scarlet oaks.

Sudbury fine sandy loam, on slopes of 0 to 3 percent. The Sudbury soils are very deep, moderately well and somewhat poorly drained soils on outwash plains. They are nearly level to strongly sloping soils in slight depressions and on terraces and foot slopes in areas of glacial outwash. The Sudbury series is mostly cultivated. Used for growing hay, pasture, field and truck crops. Forested areas are mainly red maple, gray birch, hemlock, larch, white pine, and red, black, and scarlet oaks.

Woodbridge fine sandy loam, 0 to 3 percent slopes, 3 to 8 percent slopes. These are moderately well drained loamy soils formed in acid subglacial till derived mostly from schist, gneiss, and granite. They are very deep to bedrock. Many areas are cleared and used for cultivated crops, hay, or pasture. Scattered areas are used for community development. Some areas are wooded. Common trees are red, white, and black oak, hickory, white ash, sugar maple, red maple, hemlock, and white pine.

The Soils Map shows the locations of the prime agricultural soils. Sterling has roughly three thousand five hundred eighty-three (3,583) acres of prime agricultural soils. Table 4-2 lists the acreage of the prime agricultural soils by level of protection. The Chapter 61 and 61A Programs are considered temporary protection and they provide landowners a reduction in their property taxes in exchange for keeping their land in farming or forestry uses. In addition, a lien is placed on their property. The Town also has the right-of-first-refusal with any land in the Chapter 61 Programs. Under Chapter 61A, the landowner must renew his status yearly. Under Chapter 61, the land is held for a ten year period before the owner must reapply.

Only a small percentage of the agricultural soils are on lands under Chapter 61 Forestry. About 835 acres (23%) of prime agricultural soils are on lands under Chapter 61A., and 995 acres are on lands under permanent protection (Federal or State) from development. Only 71 acres (2%) are on lands that are Municipally owned. Information on lands under Chapter 61B is unavailable at this time. Over half of the acreage containing prime agricultural soils is under some form of protection. Another 1,666 acres (46%) of these desirable soils have no level of protection. Because remaining farmland in Sterling contributes to the Town's scenic and rural character, as well as its local economy, it would behoove residents interested in conserving these remaining lands to consider all farmland to be rare, and vulnerable to development, and to seek options for protection.

Conservationists appreciate both working farms and forests because productive land provides the landowner income, a possible incentive for keeping the land in its undeveloped state. Sterling has considerable acreage in the Chapter 61 A farmland program, most of which is used for wood products (60%). The balance is used primarily for truck and field crops (20%). Pastures and nurseries make up only very small percentages of the acreage under Chapter 61 A. Table 4-3 describes the number of acres voluntarily enrolled in the Chapter 61A Program.

Table 4-2: Acreage of Prime Agricultural Soils in Sterling

Protection Level	Acres*	%
Ch 61	16	0%
Ch 61A	835	23%
Ch 61B	N/A	
Municipally Owned	71	2%
Permanently Protected	995	28%
Acres of Prime Agricultural Soils under Permanent or Temporary Protection	1,917	54%
Acres of Privately Owned, Unprotected, Prime Agricultural Soils	1,666	46%
Total Prime Soils Acreage	**3,583**	**100%**

Sources: Sterling Assessors Records 2002; *Soil Survey of Worcester County, MA Northeastern Part,* USDA Natural Resources Conservation Service

Table 4-3: Acreage in Chapter 61A by Agricultural Category

Category	Acreage	%
Truck and Field Crops – Vegetables/Hay	858.3	20%
Wood Products	1,918	60%
Pasture	129	2%
Orchard	282	
Nurseries	0.9	0%
Total	**3,188**	**100%**

Source: Town of Sterling Board of Assessors; 2001.

b). Forestland Soils with Moderately High Productivity and Working Forests

The USDA has a policy to locate prime forestlands and protect them from conversion to non-agricultural uses. USDA funded a project by the Department of Forestry and Wildlife Management of the University of Massachusetts to define, classify, and map the prime forestlands in the state. They developed the Massachusetts Prime Forest Classification System as a model for determining the productive capacity of forests. The system assigns productivity values for both white pine (Pinus strobus) and northern red oak (Quercus rubra) to different soils throughout the State based on associated land characteristics including slope, aspect, and moisture levels. The system has nine categories of forestland soils based on productivity and wetness.[28] Prime 1, 2, and 3, Prime 3 wet, Statewide Importance and Statewide Importance wet, Local Importance and Local Importance Wet, and Unique.

Prime forestland soils support a production of white pine wood fiber at a rate greater than eighty-five cubic feet per acre per year, and northern red oak wood fiber at a rate greater than forty cubic feet per acre per year. The forestland with Prime 1, 2, and 3 soils would be the most important to conserve for commercial forest management. Soils of statewide and local importance still have the potential for producing wood products but the financial return may not be as high.

The Soil Survey for Worcester County lists the soils that are suitable for wood crops and assigns each an ordination symbol that indicates the level of productivity and the major management limitations associated with the soil. The soils are rated from 1 to 5, with 1indicating very high productivity, and 5 indicating low productivity. Major limitations are indicated with a letter: *x* for stoniness, *w* for excessive water, *d* for restricted root depth, *s*

[28] "Prime Forestland Classification for Forest Productivity in Massachusetts", October 1985, University of Massachusetts, Department of Forestry and Wildlife Management in cooperation with Massachusetts Department of Environmental Management and the USDA Forest Service.

for sandiness, and *r* for steep slopes. In Sterling, the Soil Survey did not reveal any soils that were rated 1 or 2. Table 4-4 lists the soils that were rated 3, moderately high productivity, and their limitation rating.

Table 4-4: Sterling Soils Suitable for Woodland Management and Productivity

Symbol	Name	Farming Class	Prime Forest Class*	Forest Class**
Moderately High Forest Productivity				
PaB	Paxton fine sandy loam, 3 to 8 percent slopes	IIe	II	3o
PaC	Paxton fine sandy loam, 8 to 15 percent slopes	IIIe	II	3o
WrA	Woodbridge fine sandy loam, 0 to 3 percent slopes	IIw	II	3o
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes	IIw	II	3o
PbB	Paxton fine sandy loam, 3 to 8 percent slopes, very stony	VIs	II	3o
PbC	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	VIs	II	3o
WrC	Woodbridge fine sandy loam, 8 to 15 percent slopes	IIIe	II	3o
WsB	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	VIs	II	3o
Moderately High Forest Productivity with Steep Slope				
PaD	Paxton fine sandy loam, 15 to 25 percent slopes	IVe	II	3r
PbD	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	VIs	II	3r
Moderately High Forest Productivity in Stony Soils				
ChC	Chatfield-Hollis-Rock outcrop complex, 3 to 15 percent slopes	VIs	III/S	3x
ChD	Chatfield-Hollis-Rock outcrop complex,15 to 25 percent slopes	VIIs	III/S	3x
PcC	Paxton fine sandy loam, 8 to 15 percent slopes, extremely stony	VIIs	II	3x
PcD	Paxton fine sandy loam, 15 to 25 percent slopes, extremely stony	VIIs	II	3x
PcE	Paxton fine sandy loam, 25 to 35 percent slopes extremely stony	VIIs	II	3x
WtB	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	VIIs	II	3x
WtC	Woodbridge fine sandy loam, 8 to 15 percent slopes, extremely stony	VIIs	II	3x

Sources: *Forest Productivity Mapping of Massachusetts, Research Bulletin Number 735, Massachusetts Agricultural Experiment Station, University of Massachusetts at Amherst; **Soil Survey of Worcester County, Northeast Part, Table 8.

The table also includes their rating by the Massachusetts Agricultural Experiment Station. The Capability Class relates to their suitability for agricultural crops, and indicate their management considerations for farming as described earlier under Prime agricultural soils: *e* for erosion, *w* for wetness, *s* for stoniness. Three soils groups are listed, Paxton, Woodbridge, and Chatfield-Hollis Rock outcrop complex, in varying degrees of slop and stoniness. The Paxton series is the State soil of Massachusetts, and it is found extensively throughout Worcester County.

Trees that are best suited to the soils and to commercial wood production include Red Pine, Eastern White Pine, Norway Spruce, and European Larch. Commonly grown trees that woodland managers favor in intermediate or improvement cuttings include Northern Red Oak, Red Pine, Eastern White Pine, Red Spruce, Sugar Maple.

MacConnell Land use data for 1999 shows Sterling has eleven thousand, three hundred and thirty-nine (11,339) acres of land in forested uses. Of this acreage, Sterling has just 241 acres of land in temporary protection under the Chapter 61 Forestry Program. Roughly four thousand acres (4,000, or 35%) is under MDC control, the town manages one hundred twenty six (126) acres for forestry purposes, and the State Division of Fisheries and Wildlife owns ninety three (93) acres in the northwest corner of the town. Another 2,908 acres is in temporary protection under Chapter 61 A. The balance of forested lands, a total of three thousand nine hundred seventy-one (3,971) acres is privately owned and unprotected.

Most of the Chapter 61A lands have soils considered to have moderately high productivity for forestry uses (3,379 acres, 43%). Over 1,900 acres of these soils are privately owned and considered unprotected. Another 2,208 acres (28%) are considered permanently protected. Again, only a small percentage of the forest produc-

tivity soils are managed though Chapter 61 forestry. These forestry soils are located in areas that are deemed to have significant value as water resource districts or scenic landscapes. These aspects enhance their value as economically productive lands.

Table 4-5: Acreage of Moderately High Productivity Forestry Soils in Sterling

	Acres	**%**
Chapter 61	183	2%
Chapter 61A	3,379	43%
Chapter 61B	16	0%
Municipally Owned	236	3%
Permanently Protected	2,208	28%
Acres of Forestry Soils under Permanent or Temporary Protection	6,022	76%
Acres of Privately Owned, Unprotected, Prime Agricultural Soils	1,905	24%
Total Forestry Soils Acreage	**7,927**	**100%**

Sources: Northwestern Worcester County Conservation District and USDA Natural Resources Conservation Service, Interim Soil report for Northwestern Worcester County, Massachusetts, and Montachusett Regional Planning Commission Department of Geographic Information Systems.

c). Recreation Soils and Septic Systems

The NRCS has created a draft map for presentation purposes in this plan (See **Town of Sterling – Soils Map**). This map depicts each soil in Sterling and categorizes them by their value as prime farmland soils or soils of State/Local Importance. Each soil abbreviation on the map can be seen in relationship to the major water features in the town. Until the final release of the NCRS data, this information will not be available as a datalayer, so it could not be used for analysis. It does show the location of soils best suited for recreation and septic systems.

The Soil Survey rates soils for their suitability to several categories of recreation based on the limitations or restrictive features such as wetness, slope, and texture of the surface layer. Since the Town is actively engaged in identifying potential sites for a new soccer facility, it should examine the soils that are suitable for playgrounds, which require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. Most of the soils in Sterling have moderate to severe limitations for playgrounds. Only the Agawam fine sandy loams have a rating indicating slight limitations. As it happens, these are also the soils best suited to agricultural uses.

In the past, the Board of Health reported that many areas of the Town are not well suited for septic systems because the soils do not perc well. For example, growth in the Center Village and at Sterling Junction (Campgrounds) has taken place on soils unsuited for septic systems. Failure rates for Systems in these areas are estimated to be around 10 percent.[29] Since much of the land in Sterling poses severe constraints on the use of the septic systems, great care and consideration should be given to the location and degree of concentration of future development. It may prove useful to map the soils that are well suited to septic systems and overlay this onto the map of developable lands as determined from the EOEA Buildout Analysis from 2001, by the Montachusett Regional Planning Commission. MRPC could develop this map through the funds for Local Technical Assistance from the Town's local assessment.

[29] Sterling Board of Health

B. LANDSCAPE CHARACTER

The Worcester Plateau and the rolling foothills of Wachusett Mountain define the character of the Sterling landscape. Sterling is distinct for its picturesque farms nestled into the valleys and cresting the hillsides of Justice Hill, Rowley Hill, Ross Hill, Fitch Hill, Redstone Hill, and Kendall Hill. Many of these hillsides offer magnificent views across the Nashua River Valley and the hillsides of Clinton, Lancaster, and Harvard. The relatively flat valley of the Stillwater River affords a sweeping view of Wachusett Mountain (visible also from Interstate 190, above the Sterling Airport). East and West Lakes Waushacum offer refreshing views of aquatic landscapes. Associated wetlands reward visitors with frequent sightings of waterfowl such as the Great Blue Heron, and other wildlife.

MDC ownership and protection of the watershed lands of the Stillwater River preserve many of the beautiful forested regions in the town. These forest areas were once cleared for farming, but have since reverted to secondary growth of transitional forest trees. Evidence of their early farming heritage can still be seen in the numerous stone walls that thread the landscape. The Stillwater Interpretive Farm provides a wonderful example of the changes that the landscape has endured over the past four hundred years.

The rich beauty of the town is punctuated by its extensive sand and gravel mining industry. Views of the impact of mining can be seen from Chocksett Road and Worcester Road (Route 12). Large hillsides have been excavated, leaving behind gaping holes in both sand deposits and rock escarpments. Over time these landscapes will change as the resources are exhausted and the mining operations transition to other uses.

The Sterling Town Center is a postcard perfect example of the traditional New England Town Center, replete with pristine white churches and meeting houses, and traditional colonial and Victorian homes. The compact development pattern of the properties in the town center are a testament to the colonial, and pre and post industrial past of rural New England. The impact of the railroad on the development of the community is also well represented in the town center.

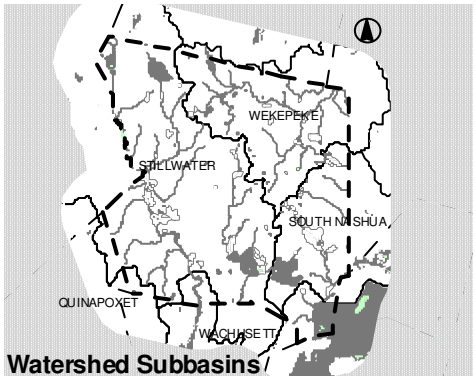
C. WATER RESOURCES

The town of Sterling has abundant water resources of excellent quality, with its many streams, ponds, wetlands and significant aquifers. Indeed, the water resources of Sterling are of regional importance in their quality and abundance. The town contains sources of pure water beyond its own present or likely future needs. The citizens of metropolitan Boston, through the Metropolitan District Commission (MDC), are presently sharing in some of Sterling's water resources. The Stillwater River and West Lake Waushacum are part of the Wachusett Reservoir system. The town of Clinton has used water from Sterling in the past and could do so again, since it still holds reservoir lands in northern Sterling.

1. Watersheds

The entire town of Sterling is located in Nashua River Watershed. Due to the amount of watershed lands owned by the Metropolitan District Commission in what that agency calls the Wachusett Watershed, citizens may forget the large watershed context in which Sterling resides. The extreme southeast corner of Sterling is encompassed by the Wachusett Reservoir, Boston's main source of drinking water. Several other bodies of water are found in Sterling, including East and West Waushacum Ponds and the Quag, HyCrest Pond, Stuart Pond, the Clinton Basin Reservoirs and Muddy Pond. The Stillwater River is the largest stream flowing through town. Smaller streams bisect the town including the Wekepeke, South Meadow, Wilder, Scanlon and Houghton and Rocky Brooks.

Sterling has two subwatersheds of the Nashua River watershed: the Wachusett Watershed which drains into the MDC reservoir (of which the Stillwater River watershed is an integral part), and the Wekepeke watershed which drains into the North Nashua River.



The Wachusett watershed covers the majority of Sterling's area to the west. The Stillwater River is its chief stream, with its tributaries of Justice Brook, Bailey Brook, Rocky Brook, Ball Brook, Wilder Brook, Scanlon Brook, Houghton Brook, Connelly Brook and Waushacum Brook. The Stillwater is met by the Quinapoxet River at the southwestern end of the Wachusett Reservoir. South Meadow Brook flows into South Meadow Pond in Clinton.

In the northeastern quarter of Sterling lies the Wekepeke watershed, which drains to the two branches of Wekepeke Brook, and one named tributary, Lynde Brook. Beneath these two watersheds are the rich sand deposits that comprise the Stillwater and Wekepeke aquifers

2. *Surface water*

Lands near water bodies offer the most attractive sites for outdoor recreation. Some water bodies have limited informal public access for boating and fishing, generally located where roadways abut the ponds, as in the case of Stuart Pond. Access to Sterling's water bodies should be improved to enhance recreational opportunities in the community.

a). Rivers, Streams, and Brooks

Stillwater River – Rising from the confluence of Keyes and Justice Brooks in Princeton, the river extends from Princeton to Wachusett Reservoir, a distance of 7.8 miles. It forms part of the western boundary of Sterling, then flows across the southwest corner of the town into Wachusett Reservoir. In its northern reaches, the Stillwater is a narrow, swift-moving stream, but below West Sterling the river opens out into a broad swamp. Then it becomes wider, with riffles and pools, creating a stream popular for both fishing and canoeing. Numerous tributaries flow into the Stillwater River including Wachusett Brook, Ball Brook, Bailey Brook, Rocky Brook, Wilder Brook, Scanlon Brook, and Houghton Brook. These brooks are noted for their value as fishing areas, historical resources, and scenic resources, as well as their relatively pristine water quality.

A surface water source of exceptional quality, the Stillwater River is designated as one of the State's 16 Recreational Natural Landscape Rivers under the Massachusetts Scenic Rivers Program. Criteria for this designation are, in addition to scenic quality: the existence of exceptional river recreation opportunities on the stream, a minimum of development along the banks, accessibility, and the presence of publicly owned land on the stream. Possible recreational opportunities offered by Recreational Natural Landscape Rivers include canoeing, kayaking, fishing, hunting and swimming.

Stillwater River has also been designated as an area of Outstanding Resource Waters. Since the Stillwater contributes to the drinking water supply of Wachusett Reservoir, protection of its presently high quality is vitally important. It is estimated that 10 to 15 percent of the total water yield of the MDC system comes from the Stillwater. Although the MDC has extensive land holdings along both banks of the Stillwater's lower reaches, this is not a sufficient protective corridor. Most of the river's banks are in private hands.

Route 140, a major road, runs parallel to the river. Strip development along this road could degrade water quality; much of the soil along here is not suitable for septic systems. The use of de-icing salts on Routes 140 and 62, as well as on Interstate 190 which crosses the river, also pose a threat to water quality in the river. Past salt contamination of the town well field on Route 12 was attributed to storage of de-icing salts at the DPW facilities nearby.

Wekepeke Brook - Flowing from the Clinton water supply reserves of Heywood Reservoir, the Wekepeke Brook extends along the northern tier of Sterling flowing from the Clinton Reservoir lands south east for a distance of 3.5 miles before joining the North Nashua River. The Conservation Commission named this brook as a conservation priority for the 1988 State Comprehensive Outdoor Recreation Plan (SCORP), and Greenway protection is recommended. The brook is known to be a native trout stream.

The high water quality of the brook and the underlying Wekepeke Aquifer make this brook and its watershed valuable as a source for water supplies. Lynde Brook, an important tributary, flows through an impoundment known as Fitch Basin and another pond known as Lynde Basin. Both of these waterbodies are held as part of the Clinton water reserves. Leominster also has a wellfield tapping the underlying aquifer across the northern border near the confluence with the North Nashua River. The Sterling Land Trust owns land along the river that extends from Pratts Junction Road west to the rail bed of the former Agricultural Branch, now operated by Conrail. This parcel affords public access to the Wekepeke for fishing and nature walks. In the past, the fish habitat has been threatened by road runoff from Route 12 and Pratts junction, as well as the former landfill.

Connelly Brook – This brook flows south from Rowley Hill Road to the Quag, passing beneath I-190. It continues south through two MDC parcels and several privately owned parcels, including the Pandolf-Perkins Quarry until it reaches Route 12. At Route 12 is passes through a culvert onto property owned by the MDC for the protection of the Quag.

South Meadow Brook – This brook flows south east across the farmlands where Mary Sawyer of "Mary Had a Little Lamb" fame grew up. It flows to Fitch Pond through extensive wetlands, then it crosses Chace Hill Road and continues south across Rota Springs Farm into Clinton to South Meadow Pond.

Waushacum Brook – flows from East Lake Waushacum, between Sterling Junction and Sterling Campgrounds into West Boylston and its confluence with the Stillwater River. The brook is noted for its filtering wetlands. In the past, the brook also drained East Lake Waushacum, but the MDC sealed off flow from this segment of the brook to West Lake Waushacum when East Lake Waushacum was returned to the Town.

b). Ponds and Lakes

Sterling has 12 ponds and lakes encompassing a total of 734 acres. Several of these waterbodies serve as public water supplies, and have limited recreational uses. Table 4-6 describes the lakes and their existing and potential uses. The largest ponds are the two Waushacum Lakes, the Quag and the Wachusett Reservoir.

Only East Lake Waushacum provides formal public access, at Sholan Park, the town beach, which is limited to Sterling residents. The beach is one of the most popular recreational areas in the town and it includes picnic sites a volleyball court, a half basketball court, and a boat launch. Another feature is the adjoining Swett Hill Nature Area.

The majority of the shoreline at East Lake Waushacum is residentially developed. Careful monitoring of the lake's water is necessary to help protect its quality. According to Dr. Blodgett of the East Waushacum Lake Association (ELWA) the town is supplying funding for an aluminum treatment to curtail algae growth in the lake. The ELWA conducted a study that concluded that the water quality in the lake is affected by septic systems serving residential development along the shore, where soils with a shallow hardpan layer cannot properly absorb and filter wastewater before it reaches the lake. The effluent contributes to the summertime algae growth in the lake. Fertilizer use may also be a contributing factor. In 1999 the lake was closed to swimmers as the algal growth had limited visibility in the water. The hilly topography and poor soils of the area surrounding the lake makes development within one mile of the lake a contributing factor to pollution in the lake.

Hycrest Pond is a picturesque impoundment on Upper North Row Road below Justice Hill. The pond is owned by the MDC and is surrounded by MDC property and a privately owned parcel of Chapter 61A land. The area has potential for development of a nature trail through the surrounding woods, which would compliment a similar trail on nearby conservation land.

Heywood Reservoir is located on the northern border of Sterling, between Upper North Row Road and Heywood Road, at the headwaters of Wekepeke Brook. It is the primary component of the Clinton reserve water supply system.

Table 4-6: Inventory of Sterling's Ponds and Lakes

SITES	ACRES	CURRENT RECREATIONAL ACCESS
East Lake Waushacum	188	Town Beach and picnic area. This popular lake is used intensively for swimming, fishing, boating (motored and non-motored), water-skiing. Majority of shoreline is residentially developed.
Fitch Basin	9	Clinton water supply system, held in reserve. Headwaters of the Wekepeke Brook, drains to Lynde Basin, of conservation interest.
Fitch Pond		
Heywood Reservoir	37	Clinton water supply system, held in reserve. Has recreation potential for a hiking trail that would surround the reservoir.
Hycrest Pond	90	Private access. Water body is owned by MDC.
Lynde Basin	10	Clinton water supply system, held in reserve. A pond along the headwaters of the Wekepeke Brook
Quag Basin	36	Fishing, limited boating (no gasoline motors, boats no bigger than can be carried to top of a car), hiking and cross-country skiing on watershed lands, dogs on leashes. Prohibited: motorized recreation, bicycles, horseback riding, bicycle riding
Spring Basin	2	
Stuart Pond	4.5	A privately owned pond with informal access, used for fishing. Potential uses: swimming, picnicking, ice-skating.
Stump Pond	5	Wildlife habitat. Potential for trails on town land here.
Wachusett Reservoir	225	MDC water supply. Allowed uses: fishing from shore (no boats, no waders). Prohibited: Swimming, Horseback riding, pets.
West Lake Waushacum	112	Fishing, non-motorized boating (boats no bigger than can be carried to top of a car), hiking and cross-country skiing on watershed lands, dogs on leashes. Prohibited: motorized recreation, bicycles, horseback riding, bicycle riding.

Fitch Basin, Lynde Basin, and Spring Basin are a chain of ponds off Heywood Road that are owned by the Clinton Waterworks. They area a part of the Clinton reserve water supply system. Fitch Basin, a quiet pond off Heywood Road surrounded by woodland, is protected to the west by two parcels of conservation land. An attractive nature trail on these properties provides pedestrian access to the pond.

Stuart Pond is a privately owed pond on Farm Road off of Justice Hill Road. The owners have contracted with the Division of Fisheries, Wildlife, and Environmental Law Enforcement to place a Conservation Restriction on a portion of the property abutting the pond. The MDC owns an adjacent parcel that also abuts the pond. Another two acre parcel on Farm Road that abuts the pond is of undetermined ownership, as of this writing.

Fitch Pond is a privately owned pond surrounded by extensive wetlands, at the feet of the farm where Mary Sawer, the poetry inspiration, and her family had a farm. The pond and associated wetlands are surrounded by hills on three sides. It is fed by South Meadow Brook, which flows from Maple Street through the Pond and continues on across Rota Springs Dairy Farm to South Meadow pond in Clinton.

3. Aquifers and recharge areas

Two broad bands of stratified glacial deposits (sand and gravel) stretch across the lowlands of Sterling, forming the Stillwater and Wekepeke Aquifers. Several streams and wetlands flow southeast toward the Wachusett Reservoir and the Nashua River Basin, following the ancient path of the glaciers, and recharging these aquifers. The Stillwater River is the surface manifestation of a highly productive groundwater resource, the Stillwater

Aquifer. The Stillwater Aquifer is estimated to be capable of yielding 2 million gallons of water per day (GPD). The water in the Stillwater Aquifer is high in iron and somewhat corrosive.

Wekepeke Aquifer is a broad band of gravelly deposits along Wekepeke Brook extending into Leominster and Lancaster. The U.S. Geological Survey estimates this aquifer to be capable of yielding over two million gallons per day. The City of Leominster presently has wells in the aquifer, and the Town of Lancaster has recently done exploratory drilling for a potential water source. Testing by the state Department of Environmental Protection has shown the water quality of the Wekepeke to be very high. Based on yield and quality information, this aquifer offers one possible future water supply for Sterling, should it prove necessary. However, in addition to the risk of quality deterioration by industrial development, the Town's landfill, which is closed and capped, is located adjacent to the aquifer.

To preserve water quality, land uses in aquifers and their recharge areas should be carefully regulated. Because sand and gravel aquifers are porous and transmit water rapidly, they are very susceptible to pollution. Once a pollutant enters an aquifer, its movement is governed by the groundwater, and it may remain in the aquifer for an extended period of time. Sources of aquifer pollution are often located on the ground surface directly above or contiguous to the aquifer. Septic tank effluent, landfill leachate, ruptured fuel tanks, industrial chemicals and agricultural fertilizers and pesticides are possible sources of aquifer pollution. Many towns have lost water supplies from aquifer pollution.

Covering the ground above an aquifer with impervious material can reduce its productivity. Extensive paving and building can interfere with aquifer recharge. To prevent the loss of aquifer productivity, land development in an aquifer should be kept to a low concentration.

Since aquifers are found in deep gravel deposits, gravel removal is likely to occur in these areas. This can have a detrimental effect on water quality, through sedimentation from eroding pits or through the removal of gravel too close to the water table. A buffer layer of at least eight feet of gravel is needed above the water table so that subsequent land uses do not pollute the groundwater. Regulations should be adopted to require all gravel operations in Sterling's aquifers to leave this filtration layer. Sterling has adopted a good set of regulations governing erosion control.

The Aquifer and Water Resource Protection District in the Sterling Protective Bylaw protects the groundwater quality of the portions of the Stillwater Aquifer that have a potential well yield greater than one hundred (100) gallons per minute. It also protects all areas in the Town that are within either a delineated Zone II or are within a ½ mile radius of municipal wellheads lacking a Zone II delineation. Permitted uses are subject to special permit approval to ensure conformity with the bylaw. Noxious uses are prohibited. Yet, according to the Planning Board, the development potential is only constrained by fifty percent within the overlay district, as determined from the recent buildout analysis by the Montachusett Regional Planning Commission.

4. Flood Hazard Areas

Floodplains are the lowlands adjacent to streams, rivers, or lakes, that are susceptible to flooding. A floodplain has two main components, the floodway and the flood fringe. The floodway is the area adjacent to the water body that is subject to frequent flooding. It serves as a channel for diverting floodwaters. The flood fringe is the area to the outer edge of the floodplain that is subject to flooding less often, and at more shallow depths. A floodplain serves two primary functions: (1) to channel floodwaters downstream, and (2) to impede the flow of floodwater throughout the area.

Historically floodplains have been desirable places for development to occur. Early parishes located near water to keep their animals, manufacturers sought fast flowing water to power their mills, and communities grew around these centers. The typically flat terrain, and the proximity to the water-powered mills, made the floodplains desirable places to build.

However these attractive attributes also put people and property at risk. Flooding in developed areas has caused significant property damage and in some cases even loss of life. Development within the floodplain not only

places property in the path of floodwaters; it also reduces the absorption of waters into the ground, as more of the surface is rendered impervious. As a result, floodwaters tend to rise higher, causing more extensive damage.

The frequency of floods that are large enough to cover a specific area determines the extent of the floodplains. As an example, a 100-year floodplain has a chance of being flooded every 100 years, or a statistical probability to flood at 1% per year. A 500-year floodplain has a chance of being flooded every 500 years, or a statistical probability of 0.2% per year. Flood frequencies are calculated by plotting a graph of the occurrence and size of all known floods for a specific area and thus determining how often floods of a particular size will occur.

The Sterling Protective Bylaw established a Floodplain District that regulates land uses within the areas defined on the Flood Insurance Rate Maps (FIRM) and the Flood Boundary and Floodway maps of 1982, on file with the Town Clerk, the Planning Board, and the Building Inspector. The Bylaw prohibits any encroachments within the District unless certified by a registered professional engineer or architect demonstrating that the encroachment will not increase flood levels during the 100-year flood. The Flood Plain Protection District is depicted on the ***Zoning Map.***

5. Wetlands

Wetlands, as defined under Section 404 of the Clean Water Act of 1972, are those areas that are inundated or saturated by ground water (hydrology) at a frequency and duration sufficient to support a prevalence of vegetation (hydrophytes) typically adapted for life in saturated soil conditions (hydric soils). Wetlands are generally areas with low relief or depressions formed by glacial activity or former locations of shallow lakes and ponds. Categories of wetlands generally include swamps, marshes, bogs, fens and similar areas. Wetlands can be flooded permanently, seasonally, or only intermittently, or they can be boggy areas that simply have soils that are saturated to the surface most of the time.[30]

Wetlands provide valuable wildlife habitat. These hot spots of biological diversity support approximately forty-three percent (43%) of the nation's rare and endangered species. Inland wetlands perform crucial functions including flood storage and control and pollution filtration. They reduce flood hazards by temporarily storing peak flows during times of heavy precipitation. The filtering action of aquatic plants in wetlands protects water quality by taking up excess nutrients in surface water, releasing water of improved quality from the wetlands. They are also common recharge zones for groundwater sources. For all these reasons, wetlands in Sterling should be protected from destruction.

Many wetland types exist along the rivers, streams and ponds in Sterling, from vernal pools and forested wetlands to shrub swamps, bogs, and both deep and shallow marshes. Wetlands occupy almost 10 percent of Sterling's land area, about 1,900 acres, according to the National Wetlands Inventory maintained by MassGIS. Wetlands are found along the lower reaches of the Stillwater River, in the vicinity of Moore's Corner and along Wekepeke Brook in Pratt's Junction. A sizeable swamp surrounds Fitch Pond off Chace Hill Road in southeast Sterling. At the foot of Hog Hill in the southwest corner of town sits a 30-acre swamp. Other significant estimated wetland habitats delineated by MassWildlife include a wetland on Waushacum Brook near the Sterling Campground area and the Town of West Boylston and the Wekepeke drainage wetland on Flanagan Hill Road near the Lancaster town line. Numerous smaller ones exist along Houghton Brook, Rocky Brook, Connelly Brook and in the lowland spots of the hilly terrain.

Though the MDC controls the wetlands of the ponds and streams around West Lake Waushacum and Stillwater River to protect its watershed, and by extension, the Wachusett Reservoir, future urban development and harmful land use practices may threaten other wetland areas in the Town.

To the extent that wetlands exist within protected aquifer recharge areas, The Aquifer and Water Resource Protection District in the Sterling Protective Bylaw protects them from noxious land uses. Similarly, to the extent

[30] Michael J. Caduto, *Pond and Brook, a Guide to Nature in Freshwater Environments,* 1990, University Press of New England.

that the wetlands fall within the Flood Plain Overlay District, these areas are protected from encroachment unless a certifying engineer can show that development will not significantly alter the flow dynamics of the floodplains during major storm events.

Beyond zoning, the provisions of the Federal Clean Water Act, the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40, February 14, 1997), and the Massachusetts Rivers Protection Act, as amended in 1996, provides some protection to wetlands.

The Clean Water Act prohibits virtually any ground-disturbing activities within one hundred (100) feet of all wetlands unless approved through special permit. However, historic enforcement of the law does not meet the stated policy of "no net loss" of wetlands acreage, nor are there adequate systems for tracking the losses annually, according to a report by the National Academy of Sciences . The United States Fish and Wildlife Service estimated that the nation was losing fifty eight thousand, five hundred (58,500) acres of wetlands to development or agriculture annually, as of 1997. According to the National Audubon Society, wetlands losses are closer to one hundred thousand (100,000) acres a year.

The Massachusetts Wetlands Protection Act prohibits removal, dredging, or alterations of any river or stream bank, freshwater or coastal wetlands, beach, dunes, flat, marsh, meadow or swamp bordering on any resource area as defined in the Act without a permit from the Commission to perform the work. Its intent is to ensure the protection of public and private drinking water and groundwater supplies, land containing shellfish, wildlife habitat, and fisheries, to control flooding, and to prevent storm damage and pollution.

The Rivers Protection Act, Chapter 258 of the Acts of 1996, creates a two hundred (200)-foot riverfront corridor on each side of a perennial river or stream, measured from the mean annual high-water line of the river, to protect the natural integrity of rivers and to encourage and establish open space along rivers . The riverfront areas protect water quality, stabilize stream banks, reduce flood peaks and downstream flooding, support fish and wildlife habitat, and protect groundwater. Riverfront areas may contain wetlands and floodplains, but intermittent streams are not subject to the Rivers Protection Act.

The law builds on the strength of the existing permitting procedures under the Wetlands Protection Act. The local conservation commission or the state Department of Environmental Protection (DEP) reviews projects located within the riverfront area. Work in the riverfront area is not prohibited, but applicants must demonstrate that their projects have no practicable alternatives and will have no significant adverse impacts. Existing structures such as single-family homes and accessory uses are exempt from the Rivers Protection Act. [31]

6. Outstanding Resource Waters

According to 314 CMR 4.00: "Certain waters shall be designated for protection under this provision in 314 CMR 4.06(3) including Public Water Supplies (314 CMR 4.06(1)(d) 1). These waters have outstanding socio-economic, recreational, ecological and/or aesthetic values. The quality of these waters shall be protected and maintained." The entire Stillwater River Watershed has received designation as Outstanding Resource Waters under the Massachusetts Surface Water Quality Standards of 1995, due to its significance to the Wachusett Reservoir and the Sterling Wells. They may be subject to more stringent regulation in accordance with the Massachusetts Drinking Water Regulations (310 CMR 22.00). The extent of the designated outstanding resource waters in Sterling is shown on the Water Resources Map.

D. VEGETATION

1. General Inventory

Sterling has a picturesque mix of forests, fields and orchards. Apple orchards in Sterling and its neighboring towns serve as regional recreation centers, particularly for people from Worcester and Leominster who enjoy weekend outings to pick apples and take in the fresh air.

[31] Athol Master Plan 2002, Natural Resources Chapter, Montachusett Regional Planning Commission

As of this writing, Sterling has yet to conduct a botanical survey to determine whether the Town has any unique vegetative environments. Neighboring towns, particularly Lancaster, have conducted extensive surveys, in conjunction with the Reuse Plans for Fort Devens and the efforts of the Nashua River Watershed Association to protect the extensive and valuable wetland resources of the Oxbow National Wildlife Refuge. Presumably, the species found in these towns would likely be found in Sterling as well. It would be worthwhile for the town to conduct its own survey.

2. Forest Land

New England forests are comparatively young, since in colonial days, extensive tracts of land were clear cut for pasture and cropland. Stillwater Farm, on Redemption Rock Trail (Route 140) provides an interpretive trail describing the historical ecology of a typical New England Farm. On this trail, one can also see evidence of the devastation left by the Hurricane of 1938, which felled many trees as it passed.

As of 1999, over half the town is forested, at 11,340 acres. The dominant tree species are oaks, pines, maples and hickories. Some large blocks of woodlands are located in the north central part of town, and on extensive reaches of MDC owned lands on the west and south sides of town. The Town also maintains two town forests, one in the north central part of town off Tuttle Road, the other on the western edge of town off Route 62 and Holden Road. Remaining forest lands are in private ownership. Some are listed in the Chapter 61 and 61 A programs, others are completely unprotected.

In 1971, nearly 12,400 acres were forested, but by 1977 nearly 2000 acres had converted to other uses. The trend continued during the past two decades, as roughly 1,000 new homes were built in Sterling. Many of these new homes were built in forested areas, though some farmland pastures and fields have also sprouted dwellings. Slowly, parts of Sterling's blocks of forests and fields are becoming more fragmented. The ***Land Use Map*** depicts the locations of the large subdivisions that were built from 1990. The loss of forested lands is further described in Section 3-D-2 Land Use Changes 1985 to 1999.

Through the Massachusetts Forest Stewardship Program, Sterling has an opportunity to encourage private owners of forested land to participate in educational programs describing principals of forest management, forest stewardship, wildlife management, and estate planning. Their programs can serve as an alternative resource to acquiring land as it becomes available.

3. Rare, threatened and endangered plant species

By understanding the habitat needs of rare or threatened plants, the Town can take steps to preserve these habitats to protect the species. The MassWildlife Natural Heritage & Endangered Species Program documents sightings of rare and endangered species throughout the State. The NHESP listing is a valuable resource in making wetlands determinations and conservation decisions. Only those rare species records that are less than 25 years old are used in Natural Heritage project review associated with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and the Massachusetts Endangered Species Act Regulations (321 CMR 10.00). The listing includes the taxonomic group, scientific name, state rank, and most recent observations.

The last recorded observations of dwarf mistletoe were in a bog inundated by Wachusett Reservoir; and the golden club has been observed in a bog in Holden. Two plants on the list of Rare Species Occurrence have been observed in Sterling, as listed in Table 4-7. One is the Roundleaf Shadbush (Amelanchier *sanguinea*), a low growing shrub found in rocky and gravelly areas. In Massachusetts it is especially noted to be found in exposed riverbeds, riverside ledges open to semi-shaded montane ledges, in some cases in acidic rocky ledge areas. Other plant species which tend to be found with this "Species of Special Concern" include alders, hop hornbeam, columbine, harebell , silverrod and sandbar cherry.

The second plant, an orchid named the Pale Green Orchis (Plantanthera *flava*), is considered to be “Threatened” in Massachusetts. It is a leafy, single-stemmed ground orchid with tuberous roots, and broad, shining dark

leaves. The upper stalk has a cylindrical spike of 10 to 40 small greenish-yellow flowers. This plant is found in sunny to semi-shaded habitats in wet, rich, moderately acidic soils which are periodically flooded, such as forested streamside Red Maple swamps, floodplains, and open wet situations under power lines where ferns, sedges and meadowsweet dominate. Historically, this orchid occurred on pond shores and wet meadows that experienced periodic flooding. Threats to the species are due to a loss of the wet meadow habitats from urban encroachment. The plant does not grow in shade. To protect the species, NHESP recommends a program to prevent ecological succession, through mowing of the wet meadows. The plant is also protected by the Massachusetts Endangered Species Act from illicit removal and sale by collectors and poachers.

Table 4-7: Massachusetts NHESP Rare Vegetation Species Occurrence List

Taxonomic Group	Scientific name	Common Name	State Rank	Most Recent Obs
Vascular Plant	Amelanchier sanguinea	Roundleaf Shadbush	SC	1940
Vascular Plant	Platanthera flava var herbiola	Pale Green Orchis	T	

Source: Natural Heritage Database, Massachusetts Natural Heritage & Endangered Species Program
http://www.state.ma.us/dfwele/dfw/nhesp/nhdat.htm

A more comprehensive survey of Sterling's plant life by local naturalists would be very valuable and serve as a guide to setting priorities for conservation protection. An inventory of Sterling's wetlands by local naturalists would provide a useful baseline for recording the existence of any rare plant species and would serve as a guide in setting priorities for conservation protection.

E. FISHERIES AND WILDLIFE

1. Inventory

Sterling hosts a wide variety of wildlife species. In recent years, due to population trends and movements in New England, some species of wildlife are more commonly seen and some are taking up residence in the area. The Town has not conducted a formal survey of the wildlife, however, numerous sightings of wildlife have been reported over the last two decades.

As was noted in the 1992 Open Space and Recreation Plan by the Sterling Conservation Commission, turkeys have been seen in areas near Princeton—likely due to the restoration efforts of the Division of Fisheries & Wildlife. Nut producing hardwood forests and extensive meadows have helped these birds flourish and establish themselves in the area. In the mid 1990's turkey hunting seasons in Central Massachusetts provided hunters with a new recreation opportunity as well as a special food for the table.

In the 1992 Open Space Plan, the Mass Division of Fisheries & Wildlife expressed concern that the construction of Route I-190 would be detrimental to the size of the deer population in the town. Now, deer populations are known to be on the rise in Worcester County, and there is concern that there will be a possible overpopulation problem in the next few years.

More recent sightings of wildlife species in Sterling include black bear and moose. A few black bear are estimated to be occupying territories in northern and central Worcester County. It appears that young male black bears are wandering through Sterling in search of a new territory to occupy. One bear was seen in the Kendall Hill Road area in the Spring of 1998. For the most part, people report sighting bears exploring backyard bird feeders and compost piles, then moving through other towns in the area. In recent years, moose have been moving into the north central part of the state and reports indicate that some moose are breeding in this area, utilizing the waterways and woodlands of Sterling and other parts of the Wachusett Reservoir area. In response to the number of moose reported in the area, MassHighway has erected moose crossing signs on Interstate 190.

Coyotes, also mentioned in the 1992 draft, are now considered as common here as in the rest of the county. Beaver have built dams on the Stillwater River, and mink have been spotted scampering the banks of Rocky Brook.

West Waushacum Lake, surveyed in 1981 by the Division of Fisheries & Wildlife, revealed the following species of fish in order of abundance: bluegill, largemouth bass, pumpkinseed, yellow perch, chain pickerel, white sucker, yellow bullhead, rainbow trout, brown bullhead, rock bass, white perch and golden shiners.

Wild trout streams are uncommon in the central part of the state, but Sterling has an unusual number of streams with native trout populations. Native trout streams are characterized by cold water temperatures and high levels of dissolved oxygen with little pollution. The Division of Fisheries & Wildlife has found native trout populations in Wachusett Brook, Rocky Brook, Scanlon Brook, South Meadow Brook, and Wekepeke Brook. Not only does Wekepeke Brook contain wild trout, but studies deem it one of the better trout streams of the state, due to its relatively productive waters and abundant ground water input.

The Stillwater River is the major spawning area for the self-perpetuating Wachusett landlocked salmon population. The fall run reaches the general area of West Sterling, depending upon beaver dams, flow regimens and rain events. Salmon fry and parr remain in the river for two years and migrate to Wachusett Reservoir and return as four year old adults to spawn.

The Division of Fisheries and Wildlife stocks trout during the spring in the following Sterling waters:

- Justice Brook-approximately 100-200 brook trout
- Stillwater River, classified as a major river, this waterway is stocked with 2,500-3,000 brown and rainbow trout.
- West Waushacum is stocked with 2,000-3,000 rainbow and brown trout. This body of water has an opening day of April 1 set by the MDC.

2. Vernal Pools

A vernal pool is a seasonal wetland contained in a depression that lacks a permanent above ground outlet. It appears when the water table rises in the fall and winter, when the snow melts in the late winter and early spring and, and with runoff from rain. The water lasts for a few months in the spring and early summer.[32] By late summer, a vernal pool is generally dry or is otherwise free of fish. The periodic drying does not support breeding populations of fish, but many organisms have evolved that must use a vernal pool for various parts of their life cycle. Species such as the mole salamander, the wood frog, and the fairy shrimp have come to be known as indicators of the existence of vernal pools.

Wood frogs and mole salamanders live in upland forests, but migrate to ancestral vernal pools to lay their eggs in vernal pools in early spring. The eggs hatch in the pool, and, in the case of the frogs, the tadpoles develop in the pool and eventually follow the adults to adjacent uplands. The tiny fairy shrimp spend their brief lives in vernal pools. Eggs hatch in early spring. Females eventually drop an egg case which remains on the pool bottom after the pool dries. The eggs pass through a cycle of drying and freezing, and then hatch another year when water returns. Evidence of breeding by mole salamanders (breeding congress, spermatophores, egg masses or larvae) and by wood frogs (chorusing or mating adults, egg masses or tadpoles), and evidence of all aspects of fairy shrimp life cycle indicates the presence of a vernal pool.

Vernal pools range in size from very small to very large, yet they are generally shallow (about three to four feet deep. Pools might be found in low areas of a forest, in the floodplain or a river or stream, within a vegetated wetland, in an open field, between coastal dunes, in abandoned quarries or natural rock formations and other areas where water might pool.

The Town has catalogued nineteen vernal pools and certified them through MassWildlife. NHESP has mapped the Certified vernal pools and made the information available through MassGIS, as shown on the Special Land-

[32] The Vernal Pool Association of Reading Memorial High School, Reading, Massachusetts.

scape Features map. Some of these are located in the Albright Road area. Salamander crossings on roads have been noted by local naturalists over the years and concerns have been expressed about the need to document more of these special habitats on which salamanders, frogs, toads and other creatures depend for breeding.

The State highly recommends surveying the known vernal pools and salamander crossings for possible sightings of Blue Spotted Salamanders and other obligate species that depend on these habitats. For example, the area near the Heywood Reservoir similar wetlands and hillside slopes to areas documented on the Leominster side of the town line. A survey of the Heywood Reservoir area may reveal the presence of some rare species there.

Potential Vernal Pools

In addition to the certified vernal pools, NHESP has also mapped the areas where potential vernal pools are thought to exist. These pools may be located in areas that represent a high priority for protection in that they may contain an abundance of species listed on the Endangered Species list. Vernal pools are protected in Massachusetts through the Wetlands Protection Act Regulations, as well as several other federal, state, and local rules. The Natural Heritage & Endangered Species Program certifies the occurrence of vernal pools based on documentation of the presence of one or more groups of species that rely on vernal pools. It may make sense to investigate their existence and pursue certification to prioritize these areas for further protection under the Wetlands Protection Act. Should these species be found, they should be reported to the NHESP, and the Conservation Commission should take steps to certify the pools and protect the uplands surrounding them. However, in many cases, this may prove to be a private decision for private landowners.

3. *Corridors for wildlife migration.*

Due to aggressive land acquisition activity by the MDC, there are certain areas that could be considered as corridors providing wildlife populations with the ability to move and intermingle with others of their kind. The most dramatic example of a wildlife corridor in Sterling is the protected lands of the Stillwater River sub-basin that extends through both Sterling and Princeton. (See GIS map of Protected Open Space) MassWildlife strongly recommends further protection of wetlands adjacent to the entire Stillwater River and its tributaries The Wekepeke Brook area and the unspoiled wetlands area around Fitch Pond and South Meadow Brook might also serve as corridors for some wildlife species. The Wekepeke already has some protection through the Aquifer and Water Resource Protection Overlay District. The area would benefit from further protection efforts. Fitch Pond, its surrounding wetlands and South Meadow Brook have only the Wetlands and Rivers Protection Acts.

In Sterling there are extensive areas that are valued by the State as Core and Supporting habitats for rare plants, rare animals, and natural communities. These areas are mapped on the recently completed State of Massachusetts Biomap. The BioMap identifies those areas most in need of protection to conserve biodiversity for the future. This project, conducted by the Natural Heritage and Endangered Species Program, identified the areas most crucial to protecting the State's Biodiversity, through an evaluation of their extensive records of rare plants, animals, and natural communities. The Biomap also includes the supporting natural landscape areas that safeguard the Core Habitat. The information on the BioMap is made available for conservation planning efforts through the MassGIS.

Sterling is prominently featured on the BioMap as part of the Southern New England Coastal Plains and Hills geographic region. The Town is notable for having extensive areas of the Core and Supporting Habitats already in permanent protection. Core Habitat areas include the lands surrounding the Heywood Reservoir, the lands off of Flanagan Road and Albright Road, and uplands of the Stillwater River from the confluence of Bailey Brook and Rocky Pond Brook to the Wachusett Reservoir. Supporting habitat areas include the Southwest corner of Sterling west of Route 140, the northern tier of Sterling encompassing all of the water resource lands and the headwaters of Wekepeke Brook, and the hillsides northwest of I-190. (See ***Special Landscape Features Map***)

4. Rare, threatened and endangered species

The NHESP Rare and Endangered Species list includes records of six vertebrate species and one invertebrate species sighted in Sterling: the Spotted turtle (species of special concern); the Wood turtle (species of special concern); the American bittern (endangered in Mass.); the Common loon (species of special concern); the Bald eagle (endangered in Mass.); the Pied-bill grebe (endangered in Mass.) and the Triangle floater (species of special concern). The bittern and 2 turtle species are dependent on wetland areas, particularly in river or stream-side habitats. Spotted turtles utilize vernal pool habitats. Wood turtles are also found in fields, forests and alongside roads during daylight hours, returning to slow moving streams in late summer to mate and over winter. The loon, grebe and eagle all require large bodies of water for food. The grebe prefers waterbodies with an abundant supply of cattails, reeds and other vegetation which provide nesting and cover. The special habitat requirements of Eagles include stands of forest next to water for nesting and perching. These birds are more often seen around the Wachusett Reservoir, as it is a good wintering area for birds from further north. Eagles need winter roosting habitat, protected from wind, as far as 20 km from water bodies.

Table 4-8: Massachusetts NHESP Rare Animal Species Occurrence Lists

Taxonomic Group	Scientific name	Common Name	State Rank	Most Recent Obs
Reptile	Clemmys guttata	Spotted Turtle	SC	2000
Reptile	Clemmys insculpta	Wood Turtle	SC	2000
Bird	Botaurus lentiginosus	American Bittern	E	1992
Bird	Gavia immer	Common Loon	SC	2000
Bird	Haliaeetus leucocephalus	Bald Eagle	E	1976
Bird	Podilymbus podiceps	Pied-Billed Grebe	E	1954
Mussel	Alasmidonta undulata	Triangle Floater	SC	1997

Source: Natural Heritage Database, Massachusetts Natural Heritage & Endangered Species Program
http://www.state.ma.us/dfwele/dfw/nhesp/nhdat.htm

Turtles - Spotted turtles inhabit a variety of wetland habitats in Massachusetts, including marshy meadows, wet woodlands, boggy areas, beaver ponds, and shallow muddy-bottomed streams. They can be found in Red Maple and Atlantic White Cedar swamps and woodland vernal pools. They require a soft substrate and prefer areas with aquatic vegetation. The Wood Turtle inhabits slow-moving streams with sandy bottoms and heavily vegetated stream banks. They nest in sandy, gravelly banks and hibernate in the bottoms and muddy banks in winter. They spend summers in the tangled vegetation of meadows and upland forests, returning to the streams in late summer to mate.

The greatest threats to the survival of the Spotted Turtle and the Wood Turtle include:

- Commercial exploitation by the pet trade;
- Pollution of streams;
- Increased development of wooded stream banks;
- Road construction and wetland alteration;
- Habitat fragmentation;
- Nest predation by nocturnal animals;
- Highway casualties of egg-laying females; and,
- Hay-mowing operations that destroy the tangled vegetation.

The Massachusetts Natural Heritage and Endangered Species Program recommends a number of strategies to protect these turtles. Enforcement of the Massachusetts Endangered Species Act should provide protection from the pet and biological supply trades. Timber harvesting should be restricted to frozen winter conditions. Forest cutting regulations under the Forest Cutting Practices Act (304 CMR 11.04 8G) should be strictly observed. Harvesting practices should include a fifty-foot no-cut buffer zone along the streams and rivers, erosion control measures, and use of portable or temporary bridges to avoid fording streams. Within a buffer of fifty

(50) to three hundred (300) feet of streams inhabited by wood turtles, foresters should employ selective cutting instead of regeneration cutting. Timber harvesting equipment should be kept at least fifty (50) feet from vernal pools during mud season. Vernal pools should be strictly protected from encroachment.

Birds - All four birds depend on wetlands, ponds and lakes for their survival. All are migratory and rely on smaller waterbodies and rivers for food as they migrate.

The American Bittern, a medium-sized brown heron, thrives in wetland habitats containing cattails, bulrushes, sedges and grasses. They are likely to be found in marshes, and wetland borders along lakes, ponds, rivers, and streams. When the secretive bird feels threatened it stands upright and freezes with its bill pointing upward, swaying from side to side, like the tall reeds and grasses surrounding it. They nest on the ground in dense grassy uplands, near water. They eat small reptiles, amphibians, mice and grasshoppers. The American bittern is considered threatened because of disturbance and the continuing disappearance of the wetland habitats it needs to exist.

The Pied-billed Grebe, a stocky waterbird, requires a suitable wetland habitat to breed. The grebe breeds in vegetated lakes, ponds, sluggish streams and marshes. They build shallow platform nests of decaying vegetation anchored in open water among reeds and rushes. A typical clutch will have 5 to 7 blue-white eggs that are chalky, and nest-stained buff or brown. Unless flightless young are observed later in the summer, an extensive wade in the marsh is usually required to detect a nest. They have a secretive nature. Once sighted foraging in open water, they may slowly submerge and move to the vegetated edge of the pond, where they are more difficult to detect. They are perhaps best detected at night, when they are most vocal. Their range extends from South central Canada, all North America to South America. They migrate in mid-April though some will arrive when the ice melts from ponds and lakes. Threats to the Pied-billed Grebe include a loss of habitat due to destruction of wetlands and persecution.

The Common Loon spends summers nesting along the shores of lakes and ponds in New Hampshire, Maine, and Vermont, and migrates to coastal waters from the Chesapeake Bay to the Gulf of Mexico for the winter. They eat a broad range of fish species, including sticklebacks, young trout, and alewives, some aquatic invertebrates, particularly crustaceans, and occasionally aquatic plants. Their shoreline nests are often subject to predation by wolves, foxes, and martens. Large aquatic species such as northern pike and snap-ping turtles eat the chicks. Adult loons are at special risk from lead poisoning. Nearly 30% of dead loons retrieved near fresh water in Canada over the last decade had succumbed to lead poisoning. They may take bait-fish from lines or eat fish that escaped the fishing line, swallowing both the bait and the lead sinker at the same time. They may also accidentally swallow lost lead sinkers when they search on lake bottoms for gizzard stones.

The Bald Eagle is the largest raptor in Massachusetts, with a body length of 3 feet, a wingspan of 7 feet, and weighing in at 8 to 15 pounds. In Massachusetts, sightings occur during migration periods in the Spring and Fall. The species usually inhabits coastal areas, estuaries, and larger inland waters. Notably, the bird uses the Quabbin Reservoir as a year round nesting habitat. It requires stands of forest for nesting and perching, a supply of medium to large fish, and freedom from human disturbance. They also require suitable trees for communal night roosting.

Mussels - The Triangle Floater is a freshwater mussel, found mostly in small to medium streams and rivers, burying themselves within mud, sand, silt, or gravel. They feed by filtering water for zooplankton, detritus, and small plants and animals. They improve water quality by straining particles and pollutants from rivers. Mussels are food sources for raccoons, muskrats, ducks, herons and fisheries. [33]

Historically, fresh water mussels have been harvested for food and the nacre of their shells, which was used to produce pearl buttons. Today, in many states, they are still harvested to produce the tiny seed beads used in the Japanese cultured pearl industry to encourage pearl production in oysters.

Freshwater mussels serve as environmental indicators of the water quality of rivers, streams, ponds, and lakes. Freshwater mussels are towards the bottom of the food chain. Toxic contaminants from chemical spills, runoff from the application of herbicides, pesticides, and insecticides to fields, and other sources can be detected in their tissue. Predation of the polluted freshwater mussels could eventually lead to biomagnification of the pollutant within the predator thus leading to the death of the predator.

Mussels are negatively impacted by pollution, siltation, recreational boat facilities, and some forms of timber harvesting. Pollution that adversely affects the host fish, which the mussels use in their reproductive cycle, would result in diminished numbers of mussels. Excessive siltation can decrease the amount of dissolved oxygen present within the water, afecting both the mussel community and other aquatic life that need the oxygen to survive. Creating impoundments and increasing water depths for boats results in decreasing water temperatures within the benthic region. Temperature decreases inhibit the reproduction cycle of freshwater mussels, delaying or preventing the cycle until the water temperature increases. This delay reduces maturation time of the juvenile mussels, threatening their survival through the winter. Timber harvesters should use proper bridges to ford streams during logging operations to prevent crushing or burying any mussels present.

The NHESP strongly urges that efforts be made to preserve and protect the rare species habitats that support these species. The town can support this through a variety of approaches, including conservation restrictions or easements, special zoning regulations and districts, or land acquisition. Town commissions and boards are encouraged to request the assistance of the NHESP early in the planning and review of development projects under the Wetlands Protection act and other laws. Wetlands that are adjacent to the Stillwater River provide great habitat for wetland birds and for turtles, as do the Certified vernal Pools off Albright Road..

[33] Assessment of Potential Nonpoint Source Pollution for the Millers River Watershed in Massachusetts, Montachusett Regional Planning Commission and Franklin Regional Council of Government for Massachusetts Department of Environmental Protection and US Environmental Protection Agency, Region 1

F. SCENIC RESOURCES &UNIQUE ENVIRONMENTS

1. Scenic landscapes

"Protecting Massachusetts' scenic beauty will play an important role in the future desirability of the Commonwealth as a place to locate." The Massachusetts Landscape Inventory published in 1981 by the Department of Environmental Management remarks that extensive areas of pastoral scenery are becoming rare due to development.[34] These areas are valuable not only for scenic beauty, but for agricultural, historic and environmental qualities. The same can be said for Sterling. Scenic landscapes play a significant role in the way Sterling residents characterize the town.

Articles in the Meetinghouse News and The Landmark describe cases in which people spoke out against changes on Kendall Hill Road where orchards and overgrown fields turned into a housing development in 1999 and a recent Selectmen's meeting at which a developer presented a plan for 20 new townhouse units on Kendall Hill to be designed in cooperation with the town boards under the Chapter 40b legislation. These articles reflect the concern people have for preserving this rural nature.

Surveys collected in late 1998, early 1999, and in the Spring of 2002 revealed that respondents expressed a common theme focusing on the positive aspects of Sterling's "rural character". However, other than the Town Common, respondents identified few specific places or vistas. In the 1991 town-wide Planning Survey, townspeople identified scenic landscapes at the Kristoff Farms, Justice Hill, Hy-Crest Farm, Davis Farm and Hilltop Estates, areas around the Waushacum lakes and the intersection near Rte 62 and Rte 140 as areas to be prioritized for Open Space Protection.

Sterling is primarily noted in the Landscape Inventory as the Sterling Unit, though a portion of Sterling is also found in the Upper Nashua Valley Unit as well. Within these two inventoried Units, several geographic areas qualified as either "Distinctive" or "Noteworthy" features. The Sterling Unit, beginning in the northwestern portion of town, identified several distinctive features, including Justice Hill, Justice Hill Extension, Stuart Pond, the fields and pastures of the Allen and Starbard Farms on Tuttle Road and Fitch Hill. All these areas feature open fields and pastures as well as views of the Wachusett highlands. Several areas were identified as "noteworthy":

- The lands surrounding Justice Hill and Stuart Pond due to the presence of pasture and fields, the old Clinton water basins, the riparian zone of the Stillwater River, and some views of Wachusett Mountain.
- The area that extends into Sterling from the Fallbrook Reservoir in Leominster, following the Wekepeke Brook drainage, which also features agricultural and open vistas.
- The landscape located along Rowley Hill Rd, Osgood Road, Wilder and South Nelson Road, crossing Rte 62 and I-190 to the landscape by the Sterling Airport, Greenland Road and its environs.

Much of the lands featured in the Landscape Inventory unit are protected either by the MDC through ownership or conservation restriction or through town conservation or agricultural protections. One agricultural restriction area is located on Tuttle Road and the Massachusetts Division of Fisheries & Wildlife holds a conservation restriction on land adjacent to Stuart Pond.

Within the Upper Nashua Valley Unit, Sterling has other areas designated as either noteworthy or distinctive. The land area and wetland around the landlocked Fitch Pond, near the junction of Kendall Hill Rd and Chace Hill Rd, is deemed "Noteworthy". The undeveloped pond has a relatively pristine small drainage from Kendall and Redstone Hill. The summit of Kendall Hill is deemed a "Distinctive" feature and on the east side of the Fitch Pond the Landscape Inventory lists the orchards, fields and pastures of the farms on Redstone Hill as both "Distinctive" and "Noteworthy". These areas are not only scenic, they offer excellent vistas to the east of Clin-

[34] from NRWA Visions 2020 and DEM Landscape Inventory

ton, and the ridges of Bolton and Berlin and views north to Leominster and beyond. None of the areas mentioned in this unit are known to be under any protective conservation or agricultural restrictions at this time.

2. Cultural, Archeological, and Historic Areas

Sterling is rich in historic sites that testify to its colonial origins and it economic success during the age of the railroad. The Town has a Historic District that is listed on the National Register of Historic Places, and tow more districts that could potentially be listed due to their unique historic significance. There is also archaeological evidence in Town of Indian encampments that predate European discovery of the continent. Finally, a recently completed Farm Survey commissioned by the Historic Commission documented the historical significance of fifty-seven farms in the town.

a). Historic Sites

In 1995, The Sterling Historical Commission developed a tour and guidebook of historic sites of the Town. These sites and some others are summarized here in chronological order of significance. The sites portray the rich pre and post colonial history of the Town, as well as its development to a small manufacturing community and resort destination in the 1800's, with the advent of the railroad. [35]

Table 4-9: Chronologically Ordered Historic Sites and Areas of Sterling

9000 BC 1676	East and West Waushacum Lakes – These lakes are located in the southeast sector of the town. Evidence indicates that nomadic hunters lived and hunted game around the lakes as early as 9,000 years ago. By the time the Europeans arrived, the Nashaway Indians had established large villages in the area. The Nashaway played a prominent role in King Philips War (1675-1676) and their sachem, Shoshanim (son of Sholan), had a large bounty placed on his head by the Massachusetts Bay Colony government. In May of 1676, East Lake Waushacum was the scene of the massacre of Nashaway women and children who were fishing on the lake. The Massachusetts Bay soldiers killed several women and sold 29 women and children into slavery in the West Indies.
1640's	Massachusetts Bay Path - In the 1640's, the English colonists made much use of a path from Boston to Springfield that became known as the Massachusetts Bay Path. Through Sterling the path came generally over Flanagan Hill Road from Lancaster, over North Row Road, Upper North Row Road and Justice Hill Road to Princeton. It is believed that Mary Rowlandson traveled over this trail after her captivity in the February 1676 raid on Lancaster during King Philip's War and again after her release at Redemption Rock in Princeton. During the French and Indian War, colonel soldiers traveled over this trail as did soldiers during the Revolutionary War. The Bay Path fell into disuse after the Revolutionary War.
1644	Indian Fort – Newell Hill Road. Built by the Massachusetts Bay Colony to protect Nashaway Indians from the Mowhawk and Narragansett Indians, as part of the terms of a treaty with them. By order of the legislature, ten well-armed English soldiers were sent to Sterling to build a strong, palisaded fort and to guard the Nashaway.
1663	Charlestown Grant – In 1663, the General Court of Massachusetts Bay Colony granted 500 acres upon present day Kendall Hill for the use of the town of Charlestown. Kendall Hill and surrounding areas had been explored as early as 1641 by Thomas King, who believed that iron, silver and other precious metals might be found here. Iron was mined intermittently, and low-grade silver was also mined. The silver mine was abandoned following the great earthquake in 1755 that collapsed a shaft of the mine, trapping some miners forever within its depths. In 1777, the land was sold to Josiah Kendall, who, with his brothers, had settled upon the hill about 1740, and who gave the name to the entire hill. Today the silver mine, and part of the original grant, are part of MDC holdings to protect the MDC water supply. An apple orchard and a bed and breakfast inn remain. The rest of the grant has been developed.

[35] Sterling Heritage Trail: A Tour of the Historic Sites, The Sterling Historic Commission, 1995.

1675	Redemption Rock Trail – State Route 140, formerly Johnson Road. This old Indian trail served as the main road for the Nipmuc and Wampanoag Indians. It takes the traveler to Wachusett Mountain, passing the Redemption Rock, in Princeton, where Mary Rowlandson was redeemed from her Indian captors after months of captivity in 1675. The homes of the Pottery Village Historic District are located on the Redemption Rock Trail.
1676	Nashaway Villages – an historic marker on the western shore of East Lake Waushacum marks the site of an Indian massacre during King Phillip's War, c. 1675-76. In May of 1676, East Lake Waushacum was the scene of the massacre of Nashaway women and children who were fishing on the lake. The Massachusetts Bay soldiers killed several women and sold 29 women and children into slavery in the West Indies.
1707	Indian Fight Site – Rowley Hill Road. In 1707, Indians attacked a garrison in what is now Marlboro, killing several settlers. Jonathan Wilder was taken hostage. The colonists overtook the Indians at this site. Wilder, two colonists and nine Indians were killed in the ensuing fight. Today only a marker stands to recall the history of the site.
1720	Chace Hill Road – This centuries-old Indian trail was the first Road in Sterling, circa 1720. Chace Hill Road winded from Lancaster to the Waushacum Lakes. The first English colonial explorers traveled on it as early as the 1630's. The earliest settlers of Chocksett (now Sterling) lived in this area prior to 1720. By the 1660's it became a colonial cart path used by the settlers who owned property by West Lake Waushacum. In 1717, the town of Lancaster voted to improve the road so that it was uniformly four rods in width and to make it more passable. During the eighteenth century, it was the country road to Worcester from Lancaster. Much of the road still follows its original route. The oldest house on Chace Hill Road is believed to date to the early 1700's. The large colonial home now owned by the Chandlers was built about 1790 and operated for some time as a tavern.
1720	Chocksett Settlement – Princeton Road/Beaman Road/Osgood Road. In 1720, the area known as Chocksett included the land extending from Kendall Hill on the east, to Sterling Junction (Campground Association area) on the south, to the eastern side of the Stillwater River on the west, and to Justice Hill on the north. The first Chocksett settler, Gamaliel Beaman, moved from Boston in 1720. The house at #3 Beaman Road is said to be the site of Gamaliel's home and may contain part of the original home.
1736	Chocksett Cemetery – This cemetery, located on Clinton Road (Route 62) is the first cemetery of the original permanent settlement. It inters the remains of the earliest settlers of Chocksett (Sterling).
1750 1806-1889	Sawyer Homestead – (c. 1806-1889). 108 Maple Street, listed on the National Register of Historic Places 9/13/2000. The former home of Mary Elizabeth Sawyer, immortalized in the poem "Mary Had a Little Lamb" by John Roulstone, the house was built in approximately 1750 and has always remained in the Sawyer family. It was built in the middle of the field. There were no roads in either direction, only paths. Mary Elizabeth was born in this house in March, 1806. In 1830, the road now known as Maple Street was built. The school she attended and where the lamb followed her to school was located on the corner of Redstone Hill and Rugg Roads. At that time, John Roulstone was studying in Sterling for Harvard College with his uncle, Reverend Samuel Capen, when he authored the poem. The house is currently awaiting renovations and National History Registry status.
1756	Legg Cemetery – 43 Redemption Rock Trail
1759	Ebenezer Buss House – 382 Redemption Rock Trail. Determined eligible for inclusion on the National Register of Historic Places 06/05/1980. This house is also included in the Pottery Village Historic District.
1760	Fairbanks Family Cemetery – Chace Hill Road, near Rota Springs Farm. Jebez Fairbanks, who gained much fame as an Indian fighter in the late 17th century, settled in this area shortly after 1700. He also served in the House of Representatives in 1714 and from 1721 to 1724. At about 1750, the Fairbanks family suffered a smallpox epidemic. No one who died of smallpox could be buried in the Town cemetery, so the Fairbanks began their own family plot on Chace Hill Road. The last Fairbanks died in the mid 1800's.

1777	Richardson Tavern – Located on Route 62 just before the Princeton town line, Richardson purchased this property in 1777. Benjamin Richardson was born in Leicester and served as a captain in the Revolutionary War under Lord Stirling, with whom he became friends and for whom Sterling is named. His friends included George Washington, with whom he shared a birth date, and the Marquis of Lafayette, who visited him in 1824 on his tour from Boston to New York. He was a prominent citizen of Sterling, one of its incorporators, and was involved in town politics most of his life. Benjamin's son, William, improved the house and added a large arched hall, which was used as a Masonic Hall. At its height, this farm had four barns, a chair ship, a cider mill, a store and a gristmill. The house was also a frequented tavern on the stage road from Boston to Albany, until the coming of the railroad removed much of the traffic. However, the Richardson family continued to run it as a tavern until 1894. Henry David Thoreau stayed overnight on his famous walk to Wachusett. This site is included in the Pottery Village Historic District.
1790	Stillwater Farm – This farm was originally an Indian habitation site. The Indians were still living on the west side of the Stillwater River as late as 1720. The Farmhouse was built by Zebedee Redding, a captain in the Revolutionary War, around 1790 on the Indian travel route known as Redemption Rock Trail. Redding died in 1856 and is buried in the Leg Cemetery. The Barn was built in 1868. The farm was purchase in 1990 by the MDC and is currently operated as an Interpretive Trail illustrating the succession of forest growth and human effects on the environment.
1809-1850	Mary Sawyer's School House: - (c. 1809-1850) The school she attended and where the lamb followed her to school was located on the corner of Redstone Hill and Rugg Roads. Though now gone, this historic schoolhouse was once located on Redstone Hill Road at Rugg Road. An historic marker now stands at the location of the former schoolhouse.
1820	Oak Hill Cemetery – Clinton Road (Route 62)
1820's	Rocky Brook Conservation Area – This area was set aside to preserve the remains of two mill foundations that mark the old Rocky Brook Chair Manufacturing site. At the height of the chairmaking industry in the 1820's, chairs were the staple export commodity of Sterling. The fast running Rocky Brook provided power to turn the lathes. Nearby, a trail leads visitors through the MDC protected lands of the Rocky Brook. The site has roadside access and access off a driveway just east of the site. The mill foundations are on both sides of the road, however the town-owned land is on the south side of Beaman Road.
1825	Pottery Village – this village in West Sterling consists of 31 sites aligned along Route 140 (Redemption Rock Trail) and the Stillwater River, and three sites on Beaman Road. The Village is significant as a small, mid-nineteenth century village that grew around two industrial complexes, the Buss Family Mills and the Tolman Pottery Works, between 1825 and 1850. The survival of architectural styles from the mid-18th through the nineteenth century and the remains of two mills make the area a significant historic and archaeological resource. The village is listed with the National Register of Historic Places as a Potential Historic District.
1835	West Sterling School House – The River District Schoolhouse, located on Princeton Road (Route 62), near the West Sterling ball field. It was established in 1835 when the student enrollment in the first school house had become too big. The land for the school was purchased from Robert Thomas, the originator of the Old Farmer's Almanac, and was built between 1835 and 1840. The River District School House remained in use until 1935 when the Butterick School opened. The town continues to own this building. Today the building houses the West Sterling Community Club.
1850	The Stuart Needle Shop – This is the location of a farmstead owned by Samuel Sawyer in the 1720's. In 1746, Charles Stuart bought 70 acres of the original farm from Jonathan Biglo. In 1850, Silas and Lucian Stuart moved a building to the property and built a house on the old farmhouse foundation. Lucian Stuart invented the sewing machine needle and manufactured them at this site for many years.
1850	Hasting – Jones – Wheaton House – 14 Campground Road, Preservation Restriction placed on the property on 12/06/1984.

1850	Sterling Camp Meeting Association Campground – This sixty acre area just east of Sterling Junction was a summer colony for groups of Methodist Churches in the Worcester area, made possible by the introduction of passenger rail service in the 1840's. Originally church members camped in tents for a week during the summer to participate in recreation and religious services. In the decades following the Civil War, it evolved into a year-round community of 142 cottages owned by the Sterling Camp Meeting Association. The nearby Waushacum Park area had great recreational opportunities, such as boating, fishing, a dance hall, a bowling alley, a restaurant, a skating rink, and a baseball diamond. These resources ended with the construction of the Wachusett Reservoir. Today the Camp Meeting Association properties are listed on the National Register of Historic Places.
1890	Sterling Inn – Route 12. This Inn was built in 1890 as a replacement for the Old Sterling Inn that burned in 1759.
1915	Sterling Mill Works – This building is the old Sterling Cider Mill. Today it is an arts and crafts colony offering studio space for artisans of hand blown glass, sculptured candles, quilts and hand made furniture. It also houses an antique store and a panoramic model of the village in 1915, complete with a model of the turn of the century rail service as it existed.

Source: Sterling Heritage Trail: A Tour of the Historic Sites, The Sterling Historic Commission, 1995.

Sterling Historic District. In 1991 the Sterling Historical Commission created an Historic District in the center of town to highlight the old village center (see Special Landscape Features map). The district is listed in the National Register of historic Places as a Local Historic District, commencing April 14, 1988. The district is roughly bounded by Main, Maple, Pine, School, and Bird Streets, Meeting House Hill, Princeton, Worcester, Newell Hill, and Houghton Roads. The Sterling Historical Society has created a map covering a walking tour past many historic sites. Table 4-10 describes the historic sites within the district and places them within their chronological context.[36] The town code corresponds to the location on the tour

b). Historic Farms

In August of 2001, the Sterling Historical Commission completed a survey of historic farmsteads in Sterling.[37] The intensive project was funded with a Survey and Planning Grant from the Massachusetts Historical Commission (MHC) and matching Town funds. The survey was tailored to document surviving farmstead complexes to prepare for a community-wide preservation plan. The project established the historical context of the agricultural properties, and their eligibility for nomination to the National Register of Historic Places. The following criteria were used to determine whether a property warranted inclusion in the survey:

1. Historic or architectural importance, including National Register Eligibility
2. Endangerment, by demolition, deterioration, or alteration,
3. Lack or inaccuracy of prior documentation
4. Some remnant of a property's agricultural history, such as a dwelling, significant outbuilding, or agricultural landscape

The 57 farms surveyed were categorized as individual properties or farm areas depending upon the amount of historic resources found at each property. A total of 15 areas and 10 individual properties were found to be eligible for listing on the National Register of Historic Places. Some of the individual properties may also be eligible as part of a district. Many of the barns and outbuildings in Sterling are deteriorating, and the written and photographic record may eventually be all that remains of the agricultural architecture. Table 4-11 lists the properties and their eligibility for the National Register of Historic Places. (See ***Historic Features Map***)

These beautiful farmsteads are a primary element of the prized rural character of Sterling. Often these landscapes overlap with the important water resources of the Town. Efforts to preserve the historic value of these properties should be complemented with similar efforts to protect the landscapes they rest upon.

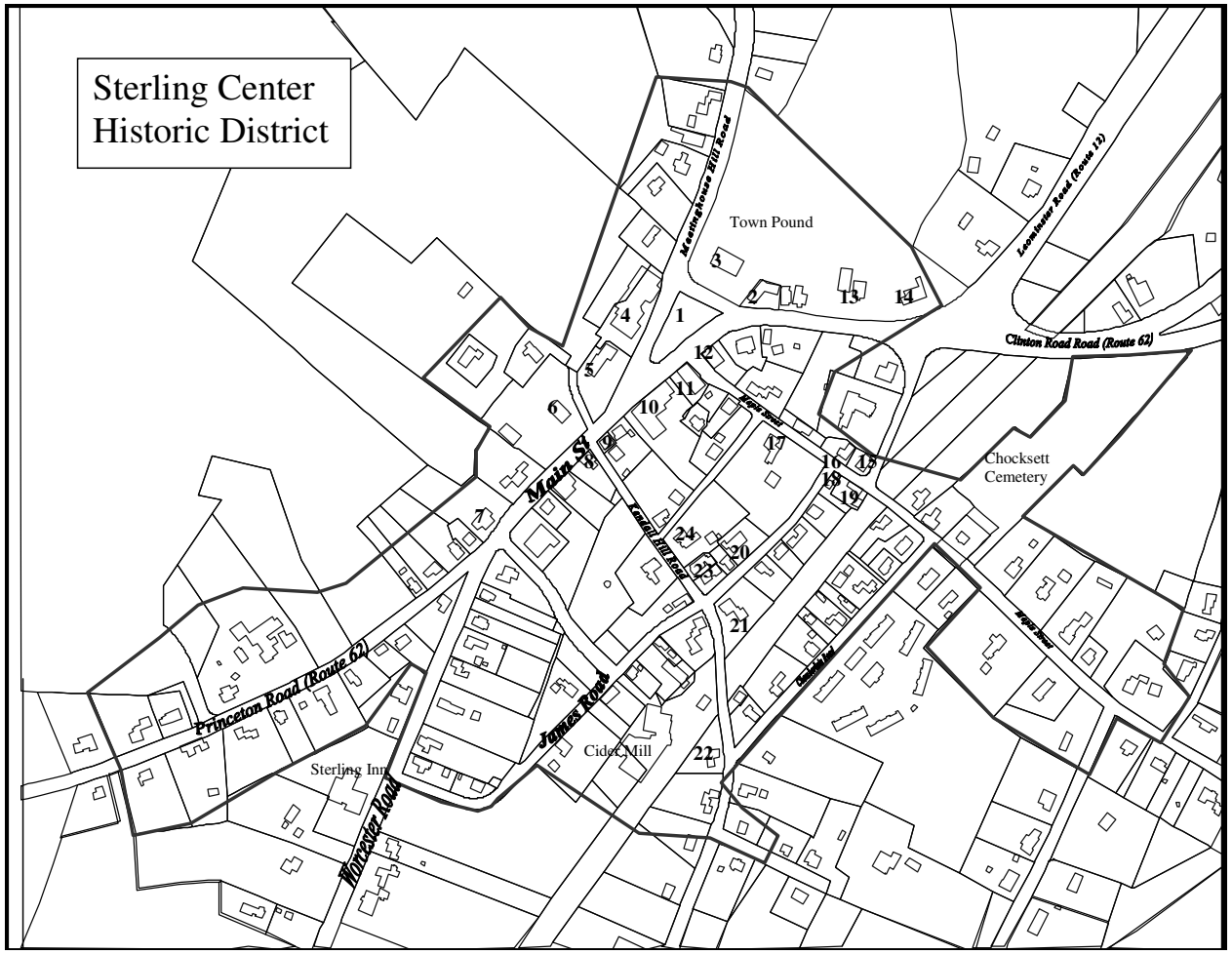
[36] Sterling Historic District, a Brief History and Walking Tour, Sterling Historical Commission, 1991.
[37] Forbes, Anne McCarthy, and Schuler, Gretchen G., *Historic Farmsteads Survey, Final Report,* August 2001.

Table 4-10: Sites in the Sterling Historic District

Date	Tour Code	Location/Historic Note
1742		Town Pound – Meetinghouse Hill Road – part of a parcel donated by the Sawyer Family in 1742.
1742	1	Town Common: A three acre parcel donated by the Sawyer family was the site chosen for a Meeting House, stables and two "noon" houses (one for men and one for women) in 1742. Until 1924, there were three churches facing the common. Mary Had a Little Lamb Statue is prominently featured on the Town Common. This statue, commemorating the inspiration for the Poem "Mary Had a Little Lamb", by John Roulstone, was dedicated in 1991.
1759	6	Mitchell House: Resting on the site of one of Sterling's oldest taverns (1759), which was destroyed by fire. Through the past two centuries three different Inns have occupied this site.
1778	7	Josiah Leavitt House: c. 1778. One of the earliest fine homes of Sterling. Later sold to Joel Houghton and his wife, Mary Kendall, who passed on the home to their daughter, Fannie and her husband, Samuel Wilder. The property has remained in the Wilder family.
1788	9	Moses Smith House/Shop: c. 1788. The shop was rebuilt in 1795 after a fire destroyed the shop and all the town records in the possession of Mr. Smith, the town clerk. The second floor of the shop was used as a meeting hall in the 19th century. A tunnel that connects the two buildings is said to be the place where Moses Smith kept his supply of rum. Legend has it, that the tunnel was also part of the Underground Railroad.
1792	8	Joseph Loring House: c. 1792. Joseph Loring, a clockmaker, ran a general store on this site. The house was later owned by the Estabrooks who continued the business. Originally a single story home, a second story and a brick facade were added when the home was moved to this site.
1835	11	Town Hall: c. 1835. The present building is actually the second structure to occupy this site. The first Town Hall was built here in 1801 and later moved to its present location on Worcester Road. Construction of the Town House in 1801 made Sterling the first town in Worcester County to separate church and town business..
1838	12	Old Universalist Church: c. 1838. Used by various denominations until the 1940's. In the Greek Revival style, it once had two front doors and a steeple.
1840	2	Bartlett-Butterick Building: c. 1840. Originally built as a general store and post office, Ebenezer Butterick made the first sewing pattern here in 1863. The second floor once housed the town library for ten years.
1843	4	First Church of Sterling: c. 1843. The exisung building is the third church built on the site. The first church was built in 1742, the second chuch was built in 1800 and the present structure was built after a fire destroyed the second building in 1842. Classrooms and a Parish Hall were added in the 1950's.
1850	10	Commercial Block: c. 1850's. Originally two houses and a barn occupied the site. The first floors of the houses were shops.
1855	20	The Old Brick School House – Today it is the Legion Hall
1885	17	Sterling Library: c. 1885. Built by Edwin Conant, a Sterling native, in memory of his daughter.
1935	3	Mary Ellen Butterick School: c. 1935. Built on the site of Baptist Church and Waite-Goodnow residence. Mary Ellen purchased the property, and donated the land to the town for a school and a park.

Sources: State and National Registers of Historic Places, Sterling Historic Commission

Figure 4-1: Sterling Center Historic District



1. Town Common
2. Bartlett-Butterick Building
3. Mary Ellen Butterick Building
4. First Church of Sterling
5. Sterling Library
6. Mitchell House
7. Josiah Leavitt House
8. Joseph Loring House
9. Moses Smith House/Shop
10. Commercial Block
11. Old Town Hall
12. Old Universalist Church
13. First Church Parsonage
14. Old High School (Light Dept)
15. Grange Hall
16. Station-Master's House
17. Sterling Historical Society House
18. Copeland Gun House
19. Manasseh Houghton House
20. Old Brick School
21. Kendall House
22. Amini Brooks House
23. Pratt House
24. Moses Thomas House

Sources: Sterling Historic Commission, Sterling Assessors Office

Table 4-11: Historic Farmsteads and Areas in Sterling

Historic Name	ST. #	Street Name	Assessors Map	Year	Inv #	NR Status
Chace-Chandler Farm / Meadowbrook Farm	191- 209	Chace Hill Road	110, 131	1700s-late 20th c.	E	Eligible
Clinton Road Farms	100	Clinton Road	70	ca. 1796-mid 1960s	K	
Wright-Flanagan Farm	64-70	Flanagan Hill Road	47	late 18th-late 20th c.	L	
Taylor-Boutelle-Kristoff Farm	70	Greenland Road	125	mid 19th-late 20th c.	O	
Goss-Hawkins-Broderick Farm / Sunny Crest Orchards	24	Hawkins Lane	109	late 18th -20th c.	G	
Carey-Wilder Farmstead / Dun Rovin Farm	6	Heywood Road	43, 54	ca. 1796-mid 1960s	AA	
"Sagatabscot /Old Holman Place	19-21	Johnson Road	118	ca. 1802- mid 20th c.	R	
Stuart-Williams Farm	105	Justice Hill Road. Cut-Off	15, 16	ca. 1870-ca. 1950s	AG	
Gould- Blanchard Farmstead	175	Justice Hill Road	13, 18	1898-mid 20th c.	AE	
Kendall Farms	31	Kendall Hill Road	106, 111, 112	late 18th - 1950s	F	Eligible
Stuart-Nelson Farm	34	Lucas Road	4	early 19th-mid 20thc.	AH	Eligible
Happy Hollow Farm	10	Merrill Road	139, 159	ca. 1895-1970s	Q	
Palmer-Lewis & Martin-Lamarche Farmsteads	35	North Row Road	23, 30	1790s-mid 20th c.	AB	
Lewis Homestead	71	North Row Road	23, 30, 31	1790s-mid 20th c.	AC	Eligible
33-46 Princeton Road Allendale Academy	33	Princeton Road	105	1840s-1870s	N	Eligible
Richardson Tavern	321	Princeton Road	98	mid 18th-late 19th c.	T	Eligible
Brown Farm	7, 25	Princeton Road	93, 105	early 19th - mid 20th	M	Listed
Heman Kendall Farm	132	Redemption Rock Trail	123	ca. 1829-mid 20th c.	P	Eligible
Redding-Chandler Farm / Stillwater Farm	228	Redemption Rock Trail	107	1790s-mid 20th c.	S	Eligible
Goss-Butterick Farms	170	Redstone Hill Road	89	early 19th early 20th	H	
Davis Farms	140, 150	Redstone Hill Road	89, 90	ca. 1790-late 20th c.	I	Eligible
Hycrest Farm / Sylvester Roper Homestead	5	Roper Road	4, 5, 12-14, 18, 19	ca. 1804-mid 20th c.	AF	Eligible
Butterick-Nourse Farm	26	Rugg Road	90	late 18th -mid 20th	J	Eligible
Bigelow-Stuart Farmstead	23	South Nelson Road	55	mid 18th-mid 19th c.	W	Eligible
Old Nelson Place	53	South Nelson Road	56	ca. 1800-mid 20th c.	V	
Taft-Listowich Farm	70	Taft Road	74	mid 19th-late 20th c.	U	
Jermiah Burpee Farmstead	29	Tuttle Road	64, 73	1732-40	X	Eligible
Maple Brook Farm / Uriel Tuttle Farm	155	Tuttle Road	44	ca. 1800-mid 20th c.	Y	Eligible
Crystal Brook Farm / Jewett-Tuttle Farm	192	Tuttle Road	43, 54	ca.1740-early 20th c.	Z	Eligible
205-230 Upper North Row	205-230	Upper North Row Road	20	ca. 1800-1950	AD	

Table 4-11: Historic Farmsteads and Areas in Sterling

Historic Name	ST. #	Street Name	Map and Lot	Year	Inv #	NR Status
Old Whitney Place/Seven Pines Farm	109	Beaman Road	77-19	ca. 1785/ ca. 1849	105	Eligible
Fairbanks, Paul Farm	95	Chace Hill Road	133-05	early 1800s	296	
Bailey, Milton House	117	Chace Hill Road	133-03	ca. 1848	292	
Truell, G.W. House (1898)	181	Clinton Road	88-13	1800s	301	
Unknown	31	Flanagan Hill Road	28-01	early 1900s	186	
Old Eager House	17	Griffin Road		late 18th c.	57	
Putnam, Andrew Maj. House/ Windsor Farm	77	Heywood Road	21-08	ca. 1786	27	Eligible
Roper, Asa House	49	Justice Hill Road	41-03, 41-05	1790s	71	
Bailey-Breck-Rugg Farm /Clearview Farm	4	Kendall Hill Road	106-11	ca. 1800	65	Eligible
Sawyer-Butterick Farmstead	96	Kendall Hill Road	129-02	mid 19th c.	50	Eligible
Clark, Samuel House	22	Legate Hill Road	24-17	mid to late 1700s	41	
Keyes-Burpee House	226	Leominster Road	29-01	1819	173	Eligible
Smith-Hosmer-Robinson House	32	Maple Street	92-16	ca.1840	29	Listed
Merrick Roper House	12	Meetinghouse Hill Road	93-66	ca. 1850	134	Listed
Porter, Capt. John Farm	63	Newell Hill Road	127-12	ca. 1830s	298	
Burpee-Osgood House	54	Osgood Road	75-39	ca. 1750/ca.1835	122	Eligible
"Hilldale" / Jonathan Buttrick/Benjamin Houghton Ho.	98 & 99	Osgood Road	63-32	1791	121	Eligible
Whitcomb, Col. Asa House	146	Princeton Road	95-06	mid 18th c.	63	
Buss- Harris House	169	Princeton Road	96-23	ca.1790s	164	
Barnard-Springer-Rugg Farm	80	Redstone Hill Road	90-01	ca. 1780s	205	
Pratt-Buree Farmstead	7 & 15	Rowley Hill Road	84-20	early 19th c.	132	
Sawyer-Rugg Farm / Sholan Lodge	48	Rugg Road		1868	206	
Roper-Nelson Farmstead	1	South Nelson Road	42-05	ca.1780-90s	110	
Burpee, Moses House	36	Tuttle Road	64-05	ca.1775/1907	127	Eligible
Wilder Homestead	7	Wilder Lane	76-13	ca. 1784	93	Eligible
Buck, Silas House	14	Wilder Road	96-11	early 19th c.	158	
Johnson-Burpee-Wiles House	35	Wiles Road	87-02	late 18th /mid 19th c.	169	

Source: Forbes, Anne McCarthy, and Schuler, Gretchen G., *Historic Farmsteads Survey, Final Report,* August 2001. for the Sterling Historical Commission

c). Archeological sites

The waning of the Ice Age left three lakes, East and West Lakes Waushacum and Fitch Pond; and numerous ponds and streams such as the Stillwater River, the Wekepeke Brook and their tributaries. For thousands of years before the arrival of the Europeans, an indigenous people inhabited the area around these freshwater ponds and streams. They left behind many artifacts that reveal the ancient history of the town, which can still be found today.. The artifacts offer evidence of four periods of ancient indigenous occupation of the Sterling land area. The Sterling Historical Society has many fine artifacts dating to these periods in its collection.

The oldest habitation sites include the hilltops surrounding the lakes, Sweat Hill, Kendall Hill and Newell Hill. The three oldest projectile points found in Sterling, were discovered by Maryanne MacLeod on these hills. Approximately 9,000 years old, these points belong to a period known in archaeology as Early Archaic, dates from 10,000 to 8,000 years ago. People then lived a nomadic lifestyle, following big game, such as mammoth, that roamed over a tundra-like landscape. At that time, the Waushacum Lakes, Fitch Pond and the lowlands of Sterling center were one huge lake. This was also a time of radical environmental and climatic change.

The Middle Archaic Period, 8,000 to 6,000 B.C., is represented by a large increase in native population with an accompanying greater number of sites. These include the lands around the Waushacum Lakes, Sterling Center, the Chace Hill Rd, Flanagan Hill Rd., Albright Rd., and the Stillwater River drainage. The lifestyle, though still semi-nomadic, included more settled areas around lakes and ponds where people could avail themselves of the abundant food resources. Artifacts typical of this time include woodworking tools, such as adzes and axes, and projectile points made from local stone, such as Sterling argillite and quartz.

The Late Archaic, 6,000 to 1,700 BC ,the terminal Archaic, 1,700 to 700 BC are well represented in Sterling's ancient history. The Historical Society houses many drills, knives, scrapers, pestles and mortars from this time period in its collection. A sizable population engaged in a semi-nomadic seasonal round of activities, ranging from hunting, fishing, and food gathering. Known site areas include all sites previously mentioned. Burial sites, believed to date to this period, have also been discovered. Two of them, on Kendall Hill and on Flanagan Hill, were destroyed by development, despite attempts to save them. A third site on Campground Rd. still remains, and it is hoped that this one will be preserved. It is against the law in Massachusetts to destroy Indian burial sites.

The Early Woodland (700 BC to 200 BC) and the Middle Woodland (200 BC to 500 AD) Periods were times of great change for the indigenous people. Pottery and agriculture were introduced. By the Late Woodland Period (500 AD to 1,500 AD) there were many agricultural sites in Sterling. Cornfields covered much of the plains extending from Sterling center to the West Boylston town line and the flat lands along Route 62 to the Lancaster town line. Fewer artifacts from these periods have been found in Sterling, but this is true of southern New England as a whole.

d). Unique Environments and Recreational Assets

Scenic Vistas/Scenic Roads – Sterling is blessed with many rural roads that offer scenic vistas of its historic farmlands and pastures, barns and farmhouses. In the highlands of the town, these can roads offer longer range views of the surrounding valleys and nearby hills of neighboring towns, most notably, Wachusett Mountain. The best view of the mountain is afforded from Muddy Pond Road, not far from Chocksett School. Here, open fields and the peat bogs lie in the floodplain lands of the Stillwater River. Across from this area, on the north side of I-190, the Sterling Airport takes advantage of the extensive lowlands for its runways.

The Waushacum Lakes – These beautiful lakes in the southern part of town offer attractive scenery and some wonderful opportunities for lake trout fishing. At East Lake Waushacum the Town beach at Sholan Park af-

fords local residents a range of summer recreational activities including swimming, sunbathing, volleyball, basketball, picnicking, fishing and boating.

The Sterling Rail Trail – There is a proposal for creation of a recreation trail on the abandoned rail bed of the Fitchburg and Worcester Railway, that runs between the Sterling Works of Arts and Crafts in Sterling Center and the Quag and West Waushacum Pond, off Gates Road. It crosses a marsh not far from the crafts center, and a brook between the Quag and West Lake Waushacum. The abandoned rail bed is currently under the control of the MDC and other private owners, although the Conservation Commission and the Board of Selectmen control a significant segment of it. There are plans to install a bridge at this brook. This trail is included in the planning efforts for the Mass Central Rail Trail. The proposal is dependent upon selecting an appropriate means of connecting the trail to the Mass Central Rail Trail. This involves identifying a location for crossing Route 12. Wachusett Greenways, the MDC and Sterling residents are exploring routes to connect the trail from Gates Rd. to Pleasant Street in West Boylston. Potential also exists to continue the trail north to Pratts Junction and create a connection to a proposal for a rail trail through Leominster and Fitchburg.

The Stillwater River Trail – This proposed 6.5 mile trail would begin in Princeton at the Leominster State Forest and run along the Stillwater River until it connects with a piece of protected property that fronts on Pleasant Street in West Boylston. At its northern end the Trail would connect with a proposed trail link to Wachusett Mountain. At its southern end the trail would link up with the Mass Central Rail Trail. Stillwater River has long been popular for its fishing opportunities, and fishermen and wildlife have created paths by its banks to gain access to favored riffles and pools. The trail would likely connect these existing paths.[38]

G. ENVIRONMENTAL CHALLENGES

A number of environmental challenges face communities today that stem from earlier uses of land. Impacts to water quality can result from stormwater runoff that is not properly managed or from septic systems that were designed for summer use only that are now supporting year round use at recreational lakes. Sterling, too, has a number of environmental challenges that need to be addressed.

1. East Lake Waushacum

The two environmental issues facing East Lake Waushacum are increased nutrients that support algae growth and bacterial contamination from animals and septic systems. The East Lake Waushacum Association (ELWA) monitors water clarity and the DPW monitors bacterial counts at Sholan Park. In addition, from 1996 through 1998, the Massachusetts Water Watch Partnership cooperated with the U.S. Geological Survey and Mass. Department of Environmental Management on a Satellite Ground Truthing project. Volunteers sampled their lakes on days when the LandSat satellite was overhead. USGS bought the LandSat images and is correlating the image signatures with the lake data for the purpose of assessing lake health from LandSat images in the future.[39] In 1998, the volunteers reported that for East Lake Waushacum the Chlorophyll level was 22.45 (µg/l). This translates to a relatively eutrophic state, and indicates a water quality problem for the lake.

For many years the East Lake Waushacum Association has sought a solution to these problems. The State awarded a grant of $10.000.00 to support an initiative to improve water quality on the lake in response to an algae bloom in July of 1996 that rendered the lake a murky green and unsuitable for recreational activities. The Town approved matching funds for the grant in November of 1996. The multi-faceted project included Watershed Management and Pollution Prevention, Awareness and Education, Public Access and Development, and a Lake Management Plan. Components of the Plan included a discounted septic-system pumping program, an educational video outlining responsibilities of residents for lake maintenance, and a culvert at Sholan Park to minimize sedimentation of the lake. Despite these efforts the Lake suffered another bloom in September of 1997.

[38] North Sub-Region Trail Feasibility Study, Central Massachusetts Regional Planning Commission, June 2002.
[39] http://www.umass.edu/tei/mwwp/satellite.html

The Town approved $5,800 for a leachate study to better evaluate the sources of nutrient loading.[40] Phase One of the study, completed in September of 1997, identified some areas of high leachate concentration around the lake. It may prove useful to review the Board of Health records on failing septic systems for properties surrounding the lake to see if they correlate with the identified areas of concentrated leachate. These records could also be correlated with the records of those who participated in the discounted pumping program, to monitor the effectiveness of that program.

In August of 1998, the lake was treated with copper sulfate, in an effort to control the algae but the results were not promising. In July of 1999, another algae bloom forced closure of the beach from July 28 to August 2. ELWA requested $30,000 for an alum treatment but the article did not pass.

During the summer of 2000, the beach was closed several times for both algae and high bacterial counts. The swimming program at Sholan Park was cut short. In May of 2001, townspeople approved a warrant article requesting $30,000 for an alum treatment planned for Spring of 2002. In August of 2001, the beach was again closed for both algae bloom and high bacterial counts. A feasibility study to maximize the filtering benefits of the swamps at Sholan Park was approved at town meeting in 2001 and will be completed this summer. The beach septic system will be included in the study. Lycott was awarded the bid for the alum treatment, which was conducted in mid-June of this year.

2. Town Water Supply

In September of 1999, the Massachusetts Department of Environmental protection issued a boil order to many town residents following a major rainstorm that brought over nine inches of rain, causing the Stillwater River to swell. Routine water samples taken be the Water Department showed the presence of Total and Fecal/E. Coli Coliform bacteria* in the water distribution system. The floodwaters brought unusually high levels of surface water that infiltrated the well field on Route 140. The presence of E. Coli bacteria is generally a result of a problem with water treatment or the pipes that distribute the water, and indicates that the water may be contaminated with organisms that cause the disease. was not known, as it can be from both human and animal wastes, as explained by the DPW at a Special Town Meeting in December of 1999.[41]

The State Department of Environmental Protection has ordered the town to install a permanent disinfection facility. At the December 13, 1999 Special Town Meeting voters approved funding for construction of an ultraviolet water purification system. Design work was completed in fall 2000, and construction began in February 2001.

3. Non-point Source Pollution

Non-point source pollution is a growing concern for water resource protection interests across the State. Non-point source pollution is contaminated run-off that is deposited into surface and ground waters. Potential sources of contaminants include underground storage tanks, failing septic systems, salt/sand applications to roadways, fertilizer run-off from lawns and golf courses, some agricultural activities, heavy equipment dumps, gas stations, and run-off from residential developments. These land uses may lead to the runoff of sediments, pesticides, fertilizers, chlorides, effluent and hazardous wastes into water bodies, and they should be monitored and restricted in areas that are particularly sensitive to contamination.

There is a growing concern over arsenic and lead contamination from the disruption of old orchards by developers. These chemicals were at one time commonly used for farming and remain trapped in the soil. This spring a developer building a miniature golf course on Route 12 had to have all the top soil stripped and shipped to the midwest for proper disposal because of contamination. New soil was brought in to complete the project. (this has not been confirmed)

[40] Obtain the Leachate Study, September 1997

* a bacteria that causes illness in humans. Symptoms: diarrhea, cramps, nausea, jaundice, headaches, or fatigue.

[41] Sterling Water Department, 2000 Annual Water Quality Report

Salt contamination of Town Well #2, located adjacent to Route 12 near Greenland Road, has been a problem. Water from these wells has exceeded recommended limits for sodium concentration. The salt entered the well from a previously open salt pit, but the well is also contaminated from salt spread on Route 12 during icy driving conditions. (Such salt use has since been reduced.) The well is flushed periodically to dissipate the salt. Routes 140, 62, and I-190 intersect the Stillwater River's watershed and present the possibility for contamination from road salts and spills resulting from highway accidents.

The Town's landfill, which was closed and capped following an engineering study, is located adjacent to the aquifer and above the Wekepeke Brook near Chocksett Road, and should be carefully monitored. DEP required the town to monitor the landfill to detect any leakage of toxic materials. To date no leakage has been reported.

Sterling's industrial zone, located on Route 12, near the I-190 interchange, is also located above the Wekepeke Aquifer, posing potential risks to water quality.

The water in the Stillwater Aquifer is high in iron and somewhat corrosive. There is a history of plugging at the West Sterling well due to iron corrosion.

4. Chronic Flooding

Beaver dams exacerbated the flooding of the Stillwater River in September of 1999, following a major rainstorm that brought over nine inches of rain. DPW crews have also had to deal with blocked culverts from beaver activity in some parts of town. The floodwaters brought unusually high amounts of surface water, which infiltrated the Wellfield and likely carried E. Coli bacteria into the water distribution system forcing DEP to advise residents to boil their water until the E. Coli tests were clear.

SECTION 5 - INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Sterling residents express concern for the preservation of the rural character of the town. Community-based land protection measures offer a means to protect properties that exemplify this rural character. They also offer a means of protecting valuable water resources from pollution and urban encroachment. During the past several decades, the Metropolitan District Commission has actively worked to protect thousands of acres in Sterling, primarily acquiring the lands that are the headwaters of the Stillwater River and the river's drainage basin.

This section includes an inventory of all of the parcels of land that are of conservation or recreation interest to the residents of Sterling. These parcels are listed by protection status: permanent, limited, temporary, or unprotected. Within each of these protection categories, the parcels are listed by public and private ownership. These resources are also identified on the ***Open Space Map***.

Sterling encompasses a land area of 30.53 sq miles or 19,539 acres of land and 808 acres of water. Of this land, a total of 9,904 acres, approximately 49%, is considered to be protected open space, as summarized below in Table 5-1. The MDC owns 4,932 acres, roughly 24%, and controls another 324 acres through conservation restrictions. The Town owns 421.3 acres, nearly 2%, comprised of Conservation Commission and Town Forest holdings. The Division of Fisheries and Wildlife owns93 acres, and the Sterling Land Trust owns 19 acres.

Table 5-1: Acreage of Open Space in Sterling by Level of Protection

Land Permanently Protected from Development	**Area in Acres**
Department of Environmental Management, Division of Fisheries and Wildlife Law Enforcement	93
Sterling Conservation Commission	300.0
Town Forest	121.3
Sterling Land Trust	19.0
Metropolitan District Commission	4,932.1
MDC Conservation Restrictions	324.2
Agricultural Preservation Restrictions	176.0
Total	**5,965.6**
Land with Limited Protection from Development	
School Department	71.5
Sterling Board of Selectmen	42.1
Sterling Department of Public Works	105.9
Other	22.0
Town Buildings	12.6
Total	**254.1**
Land Temporarily Protected from Development	
Chapter 61 – Forestry	241.4
Chapter 61A –Agriculture	3,097.2
Chapter 61B – Recreation	422.1
Total	**3,860.7**
Total Open Space Land	**9,904.4**

Source: Sterling Assessor's Office, May 2002

According to the EOEA Division of Conservation Services, land is permanently protected if it is owned by the Town's Conservation Commission, one of the State's conservation agencies (i.e. the Massachusetts Department of Environmental Management or the Metropolitan District Commission), a nonprofit land trust (i.e. the Nature

Conservancy), or if the Town received State or Federal funds to purchase or improve the property. Private land is considered protected if it has a deed restriction in perpetuity, if an Agricultural Preservation Restriction (APR) has been placed on the property, or if DEP has placed a conservation restriction on it as part of the Wetlands Conservancy Program. Removing land from permanent open space protection status so that it may be developed requires an affirmative vote by two thirds of the State Legislature. In most cases, the watershed district would be required to show the Massachusetts Department of Environmental Protection just cause for converting the use of the land.

A town-owned parcel of land under the authority of the Select Board and not the Conservation Commission, is considered to have limited protection. The parcel in question could be called a wildlife sanctuary, but not have the long-term protection afforded by Conservation Commission lands. Without permanent protection status, and a legal restriction on uses attached to the deed, it is possible that town-owned parcels could be converted to school playgrounds, parking lots or other town uses, upon Town meeting approval to do so. The level of protection afforded publicly-owned parcels with limited protection depends on the policies of each community.

Chapter 61 tax abatement programs affords parcels temporary protection. The Chapter 61 programs offer landowners a reduction of their property taxes in return for signing a contract promising that the predominant use of the land will not change during an agreed upon time (ten years for Chapter 61 and 61B, one year for Chapter 61A). The Chapter 61A program helps farmers by reducing their taxes while they farm their land. The Chapter 61 program helps lower the expenses of maintaining actively managed forestland. Landowners with parcels in the Chapter 61B program receive lower property taxes in exchange for keeping their land in open space for ten years. The tax abatement programs can also provide the community an opportunity to permanently protect land. When parcels enrolled in one of the Chapter 61 programs are put up for sale, the Town has a one hundred and twenty (120) day waiting period during which it can exercise its right of first refusal to purchase the property.

A. PRIVATE PARCELS

1. Agricultural Properties

The Allen Properties on Heywood and Tuttle Roads are a significant agricultural resource for which the Department of Food and Agriculture has approved an Agricultural Preservation Restriction.

2. Areas of Significant Water Resources

Both the Clinton land holdings and the Wekepeke Aquifer represent significant water resources in the northern tier of Sterling. The properties owned by the town of Clinton support their reserve water supplies and are protected to some extent through property holdings of the Conservation Commission and the MDC. The Wekepeke aquifer has a Zone II delineation that represents the boundaries of the Water Supply Protection Overlay District. Stricter standards for land use apply in this district, yet the best method for protecting a water supply is to acquire the land that supports it. Wekepeke Brook and its watershed are the recharge area for the aquifer and efforts to protect these assets should include protection of land resources around the brook.

3. Priority Areas for Natural Heritage

In Sterling there are extensive areas that are valued by the State as Core and Supporting habitats for rare plants, rare animals, and natural communities. These areas are mapped on the recently completed State of Massachusetts Biomap. The BioMap identifies those areas most in need of protection to conserve biodiversity for the future. This project, conducted by the Natural Heritage and Endangered Species Program, identified the areas most crucial to protecting the State's Biodiversity, through an evaluation of their extensive records of rare plants, animals, and natural communities. The Biomap also includes the supporting natural landscape areas that safeguard the Core Habitat. The information on the BioMap is made available for conservation planning efforts through the MassGIS.

Sterling is prominently featured on the BioMap as part of the Southern New England Coastal Plains and Hills geographic region. The Town is notable for having extensive areas of the Core and Supporting Habitats already in permanent protection. Core Habitat areas include the lands surrounding the Heywood Reservoir, the lands off of Flanagan Road and Albright Road, and uplands of the Stillwater River from the confluence of Bailey Brook and Rocky Pond Brook to the Wachusett Reservoir. Supporting habitat areas include the Southwest corner of Sterling west of Route 140, the northern tier of Sterling encompassing all of the water resource lands and the headwaters of Wekepeke Brook, and the hillsides northwest of I-190.

4. Private Recreation Lands

Davis's Farmland on Redstone Hill Road is a seven generation, family farm operating as a farming oriented recreation center aimed at children aged one to eight. They also run a large field maze, named the Mega Maze, in a field of sorghum. Visitors can encounter many species of farm animals, participate in interactive playscapes, ride ponies, take hayrides, collect eggs, milk the cows, and feed baby animals. They recently added a water sprayground featuring ground bubblers, misters, a pretend car wash, and a water tower geyser. Programming at the farm runs from April through October.

Eight Point Sportsman's Club, on Beaman Road, encompasses 66 acres in the Chapter 61B program dedicated to the use of hunting and fishing enthusiasts. The site features a shooting range for skeet and trap, a pond used for fishing derbies, and archery hunting for deer.

B. PUBLIC AND NONPROFIT PARCELS

1. Public, Conservation, and Recreation Resources

The inventory of protected open space in Sterling totals 5,966 acres (See ***Open Space Map***). Protected open space is only that land which is owned by the Conservation Commission, Water Department, a state conservation agency, or a nonprofit land trust; is purchased by the town with state or federal funds; or has a deed restriction in perpetuity or DEP Wetland Conservancy conservation restriction.

The publicly owned, permanently protected parcels in Sterling are those held by the Metropolitan District Commission, the Massachusetts Division of Fisheries and Wildlife, the Sterling Conservation Commission, and the Sterling Land Trust. The privately held, permanently protected parcels have an Agricultural Preservation Restriction attached to their deeds that are held by the U.S. Department of Agriculture.

Although Sterling landowners have generally not taken advantage of this program to date, one popular way to ensure that farmland remains in its current use is to enroll the parcel in the Agricultural Restriction Program (APR). Adopted by state legislature in 1977, the APR program ensures the permanent protection of large blocks of farmland by making it economically feasible for farmers to keep farming. Administered by the Massachusetts Department of Agriculture, this program offers farmers the difference between the "fair market value" and "agricultural value" of their land. In exchange, a permanent deed restriction precluding uses that may harm the agricultural viability of the land is placed on the property. The farmer continues to own the land and can sell it, but only for agricultural uses.

a). State

The extensive land holdings of the Metropolitan District Commission in Sterling total 4,624 acres. An additional 324 acres are controlled by the MDC through conservation restrictions. These lands were acquired to protect the upland watershed of the Stillwater River, the Quag, and West Lake Waushacum, as well as the Wachusett Reservoir. Some portions of the MDC properties are open to the public for passive recreation such as fishing, hiking, or bird-watching, however the MDC restricts some activities to protect against pollution of the

Stillwater River and Wachusett Reservoir watersheds. Public access policies are described in the MDC's Public Access Plan and are outlined below in Table 5-2.[42]. Table 5-3 lists the MDC holdings as of April of 2002.

Public access to and recreational use of drinking water supply lands and surface water supplies can serve as potential routes for the introduction of disease causing agents, so purveyors of drinking water must exercise caution when considering policies for recreation on water supply lands. Sterling is affected by three policy boundaries: the Intake Zone, the Reservoir and Tributary Shorelines and West Waushacum Ponds Zone, and the Tributary Headwaters Zone. The Intake Protection Zone affects the Southeastern corner of the Town, where the MDC has a no-access policy. The boundary extends roughly from the Wachusett Reservoir, northward along South Meadow Brook to Fitch Pond near Chace Hill Road. The boundary between the Tributary Headwaters Zone and the Reservoir & Tributary Shorelines and West Waushacum Ponds runs roughly from the intersection of I-190 and Route 140, up Route 140 to Princeton Road, then east along Princeton Road to I-190, then northeast to the edge of the watershed.

Table 5-2 Wachusett Reservoir Watershed Access Rules Affecting Sterling

Management Zones	Authorized Activities
Intake Protection Zone	4-Mile No-Access Zone at North & South Dikes
Reservoir & Tributary Shorelines, West Wauschacum Ponds	Walking/Hiking , Seasonal Shore Fishing , Boat Fishing** , Non-Motorized Boating** , XC- Skiing , Organized Tours*, Field Sports*
Tributary Headwaters Zone	Walking/Hiking , Seasonal Shore Fishing , Year-Round Fishing , Fishing with Waders , Canoeing , Bicycling* , Hunting* , XC-Skiing

*MDC "Special Use" Permit required, **Allowed at West Waushacum Ponds Only

The town recently digitized the assessors data base, and in the process assigned a new numbering system to the parcel list. The Table 5-3 lists the MDC holdings by the new numbering system and includes a column for the old identification system. Two parcels were identified in the past as having MDC conservation restrictions, but these lack current parcel identifiers. One is a 157.7 acre parcel off Johnson Road, the other is a 95 acre parcel on Upper North Row Rd.

Table 5-3: MDC Parcels, Sterling, MA

Map	Lot	CR	Street #	Location	Old ID	Total
3	1		38	Lucas Road	X29-4-	43.0
	6		43	Lucas Road	X29-6-1	7.6
14	7		3	Lucas Road	30-14-B	1.9
18	19		121	Justice Hill Road	31-22-	25.5
19	1		0	Roper Road/Justice Hill Road	32-10-	315.5
34	10	*	0	Justice Hill Road	39-13-	30.0
35	1		0	Justice Hill Road	32-8-	794.0
39	1		406	Redemption Rock Trail	41-1-	31.3
59	30		3	North Oakdale Cutoff	43D-10-1	5.6
61	5		0	South Nelson Road	--	45.0
	11		86	South Nelson Road	45-12-	1.2
63	6		112	Rowley Hill Road	37-1-	9.0
76	1		56	Wilder Road	45-3-	53.4
	18		0	Beaman Road	44-23-1	29.7

[42] http:// www.state.ma.us/mdc/pacc.htm

Table 5-3: MDC Parcels, Sterling, MA (Continued)

Map	Lot	CR	Street #	Location	Old ID	Total
93	48.1		0	Princeton Road	--	1.0
94	17		91	Princeton Road	48-30-	4.0
95	7		0	Princeton Road	49-3-1	111.0
97	7		273	Redemption Rock Trail	51-14-1	5.8
98	3		340	Princeton Road	51-2-37352	73.0
	8		0	Burpee Road	51-19B-9	4.1
101	2		16	Reed Road	50-20-	4.0
	4		208	Greenland Road	50-22-	32.0
	6	*	276	Princeton Road	50-24-	1.0
				Redemption Rock Trail and Fox Run	55-2	8
	7		213	Redemption Rock Trail	55-14-	75.0
	12		228	Redemption Rock Trail	54-1-	35.8
	29		262	Princeton Road	50-26-	3.0
	31		253	Princeton Road	50-3-	291.0
105	31		201	Worcester Road	13G-3-	0.8
116	2		0	Greenland Road	--	0.0
117	7		144	Greenland Road	56-6-	18.0
120	16		27	Pikes Hill Road	53E-19-	0.9
123	1		0	Redemption Rock Trail	55-33-	161.0
	9		10	Fox Run Road	55Y-5-	1.0
	12		9	Fox Run Road	55Z-50-	8.3
126	1		0	N/A	15-4-	3.6
	4		-113	Off Worcester Road	14-38-	169.0
127	1		76	Newell Hill Road	15-20-	161.0
	5		77	Newell Hill Road	15-8-	14.8
135	17		0	Newell Hill Road	22C-2-	0.7
137	2		6	Gates Road	23-9-	10.8
138	4	*	64	Boutelle Road	57-15-	116.0
139	68		3	Bean Road	57-19-	3.0
145	5		68	John Dee Road	58-16-	99.0
	6		65	John Dee Road	58-17-	14.9
	8		63	Dana Hill Road	58-13A-	3.9
146	6		0	Worcester Road	23F-7-	4.3
147	24		0	Campground Road	23-17-	54.0
	25		29	Worcester Road	23Q-5-	54.0
148	11		194	Newell Hill Road	22M-1-	0.9
	23		139	Newell Hill Road	22-1-	92.6
152	3		0		20-37391-A	3.6
153	3		0	Route 110	20-10-	78.9
154	27		22	Chace Hill Road	21N-11-	4.6
155	2		2	Campground Road	22-7-A	24.9
	3		44	Campground Road	22-7-	55.0
156	12		0	Campground Road	23W-6-	0.9
	14		10	Campground Road	23W-8-	2.8
157	7		50	Bean Road	23-2-	12.4
	18	*	6	Mortimer Road	23-1-	23.0
158	6		121	John Dee Road	63-10-	40.0
159	6		0	Redemption Rock Trail	--	0.4

Table 5-3: MDC Parcels, Sterling, MA (Continued)

Map	Lot	CR	Street #	Location	Old ID	Total
	7		0	Redemption Rock Trail	--	1.4
	14		0	Legg Road	63-3-A	522.0
162	4		0	Redemption Rock Trail	63-1-	0.1
164	2		0	Palmer Lane	26-3-	2.0
165	1		0	Worcester/Campground Roads	26-9-	59.0
	4		0	Fairbanks Street	26-12-	0.3
	5		4	Palmer Lane	26-1-	0.5
166	14		0	Campground Road	27-2-	267.0
167	1		0	Campground Road	28-4-	473.0
168	1		0	Metropolitan Road	20-16-	27.0
Total						**4,632.4**

b). Municipal

Sterling Conservation Commission owns approximately three hundred (300) acres. Two notable parcels are the Heywood parcels abutting Hardscrabble Road and Upper North Row Road, over which a memorial trail dedicated in memory of Milford MaGaw was recently completed. This trail leads south from Upper North Row Road, through sloping woodlands to powerlines, then east a short distance to a second parcel that abuts the Fitch Basin. Conservation Commission properties are listed in Table 5-4 and identified by name and street address.

Table 5-4: Sterling Conservation Commission Properties Under Permanent Protection

Site	St #	Location	Map	Lot	Acres
Munoz	124	Beaman Rd	76	16	20.0
Blanchflower	0	Chocksett Road	66	12	10.2
Parker	10	Hall Ave	134	19	0.3
Estabrook		Off Hardscrabble (Fitch Basin)	33	13	19.9
Heywood		Off Hardscrabble Road*	38	24	5
	0	Heywood Road (Fitch basin)	33	2	19.9
Town Forest	0	Princeton Road	98	6	5.0
Doe	210	Justice Hill Road	14	27	2.1
	35	Leominster Road	85	54	5.8
	57	Leominster Road	85	53	6.0
Percival	0	Tuttle Road/Evergreen Circle	45	4	56.0
Vaghini	0	Osgood Road	62	3	33.2
San Martino	209	Pratts Junction Road	70	17	3.1
Bryant	0	Princeton Road	98	5	4.0
West Sterling Athletic Field	300	Princeton Road	98	1	7.9
	0	Redstone Place	91	32	8.4
Noon		Redstone Place* (Old Map and Lot Number)	11	17	7.42
	7	Redstone Place	107	3	1.0
Simpson	0	Riverview Road	117	10	17.2
Wass	0	Hardscrabble Road	34	12	24.3
Heywood	0	Rowley Hill Road	42	14	5.0
B Hall	27	Swett Hill Road	134	17	13.4
Tucker	22	Taft Road	73	5	4.7
	42	Tanglewood Road	76	25	1.2
Petrie	0	Upper North Row Road/Hardscrabble Road	19	3	17.0
Total					**300**

2. Nonprofit Lands

a). Local Land Trusts

The Sterling Land Trust owns two adjacent properties along the Lynde Brook, off Heywood Road, adjacent to the Clinton Waterworks property surrounding Lynde Basin. Abutting lands are temporarily protected under Chapter 61A. The Trust owns another parcel along the Wekepeke Brook, off Pratts Junction Road. Recent improvements at this property include a small wooden bridge that crosses the brook and a large laser-carved stone demarking the land , which was a gift the Pratt family. A path runs through the woods, westward along the banks of the brook, to the Boston and Maine railroad.

Table 5-5: Lands Held by Local Conservation Land Trusts

St #	Location	Owner	Map	Lot	Acres
47	Heywood Road	Sterling Land Trust	43	7	1
	Pratts Junction Road	Sterling Land Trust	46	38	
43	Heywood Road	Sterling Land Trust	43	8	18
	Total				**19**

C. OPEN SPACE WITH LIMITED PROTECTION

Parcels with limited protection from development are classified into two categories. There are parcels that are protected due to their current use. Two examples are parcels used to protect water supplies and lands used for railroad purposes. The second type includes those parcels that are owned by a Town department, other than the Conservation Commission. Any change in use of these lands would require either a vote at Town Meeting or, a decision by the Select Board.

Table 5-6: Municipally Owned Properties with Limited Protection

Owner	Site	St #	Location	Map	Lot	Acres
Board of Selectmen		1	Griffin Road	138	2	1.0
		3	Griffin Road	138	1	1.0
		5	Griffin Road	145	4	1.0
		0	Leominster Road	51	7	24.0
		129	Leominster Road	66	9	10.5
	Town Hall Bldg	31	Main Street	93	1	0.2
	Fitch lot/outbldg	3	Maple Street	92	72	0.1
	Vacant	290	Princeton Road	101	16	0.2
		0	School Street	93	27	0.1
	Simpson	17	Tanglewood Road	75	26	0.6
		2	Williams Street	9	38	0.3
	RR ROW	0	Newell Hill Road	92	86	3.1
Board of Selectmen Total						**42.1**
Cemetery	Cookshire	13	Boutelle Road	146	10	0.6
	Fairbanks	112	Chace Hill Road	133	15	0.3
	Chocksett	7	Clinton Road (Route 62)	92	11	1.5
	Oak Hill	20	Clinton Road (Route 62)	85	55	10.0
	Hillside	25	Clinton Road (Route 62)	85	57	14.5
	Legg	43	Redemption Rock Trail	159	2	2.0
Cemetery Total						**28.8**

Owner	Site	St #	Location	Map	Lot	Acres
DPW		0	Beaman Rd Corner	95	33	0.1
		2	Kendall Hill Rd	106	48	0.1
	Town Beach	2	North Cove Road	134	35	0.9
		0	Redemption Rock Trail	58	7	0.4
	RR	0	Worcester Rd	126	2	2.3
	Closed landfill	177	Worcester Rd	114	61	0.3
DPW Total						**4.1**
DPW HWY	Clinton Trust	5	Cross Street	93	31	0.0
	HWY Allen	1	Bridge St	92	112	0.3
	HWY	137	Leominster Road	66	8	10.0
	HWY Griffin	44	Muddy Pond Rd	138	3	8.0
	W W & Davis	6	School St	105	51	0.0
	HWY Wheeler	171	Worcester Road	114	62	3.6
	Buck	18	School St	93	29	0.4
	Estabrook	20	School St	93	18	0.1
DPW HWY Total						**22.4**
DPW Park	Memorial Area	4	Cross Street	93	16	0.6
	Town Beach	1	Hall Ave	134	34	0.3
	Memorial Area Mitchell	3	Waushacum Ave	93	11	0.1
	Memorial Area	5	Waushacum Ave	93	17	1.1
	Wheeler	163	Worcester Road	114	63	0.3
	Town Beach	0	Swett Hill (outbuilding)	129	24	11.5
DPW Park Total						**13.9**
DPW RR	Penn RR	0	Maple & Clinton Rd	92	7	1.2
	Penn RR	0	Maple & Waushacum	92	62	1.5
DPW RR Total						**2.7**
Owner	**Site**	**St #**	**Location**	**Map**	**Lot**	**Acres**
DPW Water	Water Dept	0	Kendall Hill Rd	113	6	0.5
	Water Dept	9	Osgood Road	82	42	0.9
	Pumping Station	0	Redemption Rock Trail	80	2	26.0
	Pumping Station		Redemption Rock Trail		3	2.3
	Water Dept	0	Worcester Rd	126	3	4.2
DPW Water Total						**34.0**
Fire Dept		7	Cross Street	93	30	0.0
		5	Main Street	93	15	0.3
Fire Dept Total						**0.3**
Historical Society		7	Pine Street	92	69	1.5
Housing Authority		7	Bird Street	92	44	7.1
Municipal Light		50	Main Street	92	78	0.9
		27	Pratts Junction Rd	29	19	1.0
Municipal Light Total						**1.9**
Other		0	Chace Hill Road	132	2	2.4
		0	Chocksett Road	67	1	0.9
		0	Legate Hill Road	25	2	0.0
		0	Old Meetinghouse Hill Rd	84	2	0.4
		7	Sunset Drive	157	51	1.0
		38	Swett Hill Road	134	5	14.0
		40	Swett Hill Road	134	6	1.0
		0	Tuttle Road	73	31.1	2.3
Other Total						**22.0**

Owner	Site	St #	Location	Map	Lot	Acres
School Dept		1	Park Street	92	74	13.7
		288	Princeton Rd	101	15	0.6
		135	Rowley Hill Rd	54	29	0.2
	Houghton School	20	Boutelle Rd	137	11	57.0
School Dept Total						**71.5**
Town Forest	Howe Lumber	0	Holden Rd	98	7	14.5
	Newhall		Holden Rd	100	27	10.0
		0	Holden Road	100	28	46.4
		0	Tuttle Road	31	3	10.0
			Tuttle Road		4	8.4
			Tuttle Road		5	32.0
Town Forest Total						**121.3**
Town Hall		0	Redemption Rock Trail	80	1	1.5
Public Library		2	Meetinghouse Hill Road	93	61	0.1
Grand Total						**340.7**

D. OPEN SPACE WITH TEMPORARY PROTECTION

The parcels with temporary protection from development are all privately owned and participate in one of the Chapter 61 tax abatement programs: Chapter 61, Chapter 61A, or Chapter 61B. Under these programs, if a landowner intends to sell the classified land or convert it to another use, Town officials must be notified by certified mail. The Town is granted the right of first refusal and a penalty in the form of either a conveyance tax or a roll back tax is assessed. Sterling has thirteen (13) lots totaling two hundred forty-one (241) acres in Chapter 61, one hundred sixty-nine (169) lots totaling three thousand ninety-seven (3,097) acres in Chapter 61A and eleven (11) lots totaling four hundred twenty-two (422) acres in 61B. Currently undeveloped, these lands are of interest for both conservation and recreation purposes. Chapter 61 parcels constitute a significant amount of open space and, if permanently protected, they can help link existing conservation and recreation lands to form a greenway network. Tables 5-7, 5-8, and 5-9 list parcels of temporarily protected land by type and include their location, ownership, Assessors' map and lot, and the acreage. (see the ***Open Space Map***).

Table 5-7: Chapter 61 Forestry Inventory

St #	Location	Owner	Map	Lot	Acres
0	Chamberlain Road	Chase Valerie V.	112	1	15.3
0	Drive/Campground Road	Sterling Camp Meet Assoc	156	21.005	25.0
19	Fitch Farm Lane	Griffin R. Gary Trustee	131	19	74.9
0	Ford Road	Gaw C Vernon & Victoria P	26	1	4.4
0	Hastings Road	Pellecchia Settimo A & Augustina L Trust	4	10	11.8
43	Heywood Road	Sterling Land Trust, Inc	43	8	18.0
0	Holden Road	Harper James S III	119	40	2.1
98	Justice Hill Road Cutoff	Baker Janeen T	16	2	14.0
129	Kendall Hill Road	Gauld William J & Julia F	133	23	39.0
0	Redemption Rock Trail	Rossi Gale T & Remo J	58	8.1	32.7
415		Rossi Gale T & Remo J	58	11	1.6
417		Rossi Gale T & Remo J	58	10	1.6
419		Rossi Gale T & Remo J	58	9	1.3
	Grand Total				241.4

Table 5-8: Chapter 61B Recreation Lands

St #	Street Name	Owner	Map	Lot	Acres
143-163	Beaman Road	Eight Point Sportsmen's Club	77	19	66.5
121	Greenland Road	H. Ciborowski	117	4	164.0
58	Campground Rd	Woodhaven (Camp Hargrove)	166	1,3,4,6	6.0
	Albright Rd	Lanster Corp/Sterling CC	67	31, 32	166
0	Heywood Road	Bird William W Sr & Anne M	10	10	5.1
		Bird William W Sr & Anne M	10	11	1.0
		Bird William W Sr & Anne M	10	12	1.4
		Bird William W Sr & Anne M	10	13	1.5
0		Bird William W Sr & Anne M	10	14	0.7
132		Bird William W Sr & Anne M	10	15	2.5
159	Upper North Row Rd	Padula Michael L Trustee	10	21	7.4
	Grand Total				**422.1**

Table 5-9: Chapter 61 Agriculture Inventory

St #	Location	Owner	Map	Lot	Acres
74	Albright Road	Decker Robert	49	2	19.0
0	Beaman Road	Hulick Marion	60	11	6.0
				13	20.0
0	Boutelle Road	Parker Teresa	137	13	2.0
				13.1	2.0
8	Burpee Road	Thompson Ronald S	98	15	1.1
0	Chace Hill Road	Harvey Flora M & Rota David H	132	1	20.0
123		Rota David H	133	2	49.4
0	Chace Hill Road	Chandler David & Katherine	131	8	21.5
		Chandler David & Katherine R	131	6	32.2
1		Chandler David & Katherine R	110	5	14.5
83		Bedrosian Doris E	150	21	18.5
178		Chandler David & Katherine R	131	1	21.0
204		Chandler David & Katherine A	110	1	39.3
206		Chandler David & Katherine R	130	19	5.0
223		Deershorn Developers, Inc	110	15	0.7
58	Chocksett Road	Cusanello Victor A	67	4	7.2
95	Clinton Road	Senter James B	70	25	10.0
97		Senter James B	70	24	3.5
0	Clinton Road	Davis Dairy	88	10	21.0
			89	9	1.1
126		Lowe Chas Kevin	70	7.1	6.7
58	Dana Hill Road	Kristoff George W Jr	144	21	3.8
0	Fairbanks Street	Giobellina Theresa	165	3	2.5
0	Flanagan Hill Road	Davis Farms	28	7	17.8
32		Ford Karen	28	4	22.0
58		Heinrich Mary E & James T Trst	47	1	55.6
0	Ford Road	Ford Karen	27	1	10.7
2		Ford Karen	28	6	16.5
28		Gaw C Vernon & Victoria P	27	2	5.8
32		Gaw C Vernon & Victoria P	27	4	53.0

St #	Location	Owner	Map	Lot	Acres
32	Greeland Road	Parker Teresa	126	38	2.0
19	Greenland Road	Mcnamara William F	126	43	1.0
27		Mcnamara William F	126	42	8.0
0	Greenland Road	Kristoff John C	116	1	50.0
			125	10	24.8
		Parker Teresa	126	38.2	2.6
57		Kristoff John C	125	7	19.0
95		Kristoff John C	125	6	10.3
1	Hardscrabble Road	Morris Leonard E	42	16	6.9
0	Hardscrabble Road	Gaylord Jonathan	33	1	5.0
15		Gaylord Jonathan	42	15	5.0
0	Hawkins Lane	Broderick Henry T	109	2	1.0
			110	9	37.5
				10	16.0
				11	5.0
			111	1	22.1
17		Broderick Henry T	109	5	7.1
23		Broderick Henry T	109	3	22.0
13 6	Heywood Road	Possick Paula Et Al	10	17	5.4
0		Allen John & Sara Miller Nancy	31	2	4.0
		Pillsbury Roger S	43	1	16.5
6		Pillsbury Roger S	43	11	13.6
		Pillsbury Roger S	43	12	2.5
1		Pillsbury Roger S	43	17	34.5
0	Hill Road	Davis Dairy Inc	89	17	42.8
0	Holden Road	Thompson Ronald S	120	22	16.0
0	Holden Road	Listowich Alice Henry&Anthonyt	122	14	40.0
36		French Arthur W & Dorothy A	119	3	35.0
0	Jewett Road	Mcnamara William F	115	1	1.1
34		Mcnamara William F	126	45	5.0
35		Mcnamara William F	126	49	0.7
0	John Dee Road	Cutler Robert F Jr	(blank)	(blank)	8.7
20		Densmore Linda A	139	41	9.6
28		Hendrickson Elisabeth M Trustee	139	44	9.6
0	Johnson Road	French Arthur W & Dorothy A	118	14	12.0
22		French Arthur W & Dorothy A	101	8	5.5
24		French Arthur W & Dorothy A	118	5	1.0
32		Listowich Henry Alice&Anthonyt	118	7	4.0
10 2	Justice Hill Road Cutoff	Williams Ernest R	15	4	4.5
18 2		Morin Roland	14	3	2.1
6	Justice Hill Road	Nickerson Robert L Jr	42	6	1.9
28		Lanciani Thomas	41	3	18.6
11 4		Williams Ernest R	15	1	2.6
14 2		Justice Hill Inc	18	16	48.5
18		Blanchard John V	14	2	4.9

8					
193		Blanchard John V	14	21	2.0
0	Kendall Hill Road	Philbin Philip A	107	27	7.5
69		Rittenhouse Harvey L	129	31	38.5
101		Rittenhouse Harvey & Virginia	129	30	7.5
2	Kilburn Road	Murray Ann E	63	37	5.9
St #	**Location**	**Owner**	**Map**	**Lot**	**Acres**
20		Murray Bruce & Ann	64	2	18.5
15	Lucas Road	Nelson Herbert A & Priscilla R	4	5	23.7
0	Maple Street	Greene Joel Trustee & Sawyers	107	21	19.4
		Melone Anthony R & Diane	107	25	12.5
				28	9.3
0	Merrill Road	Meola Gladys	161	1	8.0
0	Merrill Road	Sterling Downs Trust	143	3	14.0
8		Cote Christine Trustee	144	2	8.1
12		Cote Christine Trustee	143	2	2.1
0	Nelson Road	Hulick Marion	60	12	12.0
0	North Row Road	Drenova Georgia & Generalis B	31	1	13.1
		Lynn Marian Trustee	44	6	96.0
42		Lynn Marian Trustee	30	9	71.0
52		Drenova Georgia & Generalis B	23	1	34.7
70		Orr Brian Harrington &Deborah	23	2	50.8
91		Orr Brian Harrington &Deborah	22	18	36.0
146		Padula Michael L Trustee	10	1	20.5
155		Padula Michael L. Trustee	10	20	90.8
0	Off Clinton Road	Senter Howard & James	66	14	2.4
58	Osgood Road	Vaghini John R	63	29	10.9
67		Vaghini John R	75	41	46.3
69		Vaghini John R	63	27	28.4
272	Princeton Road	Thompson Ronald S	98	18	6.5
282		Wronski Edwin E	101	13	1.5
319		Thompson Ronald S	98	16	5.5
49	Princeton Road	Gargulinski Edward	104	7	11.9
54		Gargulinski Edward	104	6	5.0
107		Burzenski William J	94	13	15.3
186		Bigelow Nurseries Inc	96	1	74.5
319		Simpson James E	98	11	10.5
0	Redemption Rock Trail	Listowich Alice Henry&Anthony	122	15	40.0
55		Kristoff George W Jr	144	20	8.8
67		Kristoff George W Jr	144	17	1.4
142		Janowicz Walter A	123	4	55.0

399		Ciborowski Henry J	58	12	21.0
0	Redstone Hill Road	Davis Dairy	71	19	11.6
		Davis Dairy, Inc	90	8	9.6
		Davis Farms Trust	90	5	15.1
		Nourse Ralph B	90	11	53.3
		Nourse Ralph B & Mary E	91	13	28.8
54		Green Heron Co	86	40	10.0
92		Davis Farms Trust	90	2	13.6
100		Davis Farm Trust	90	3	0.3
		Davis Farms	90	4	11.3
112		Davis Dairy Inc	90	6	1.0
121		Davis Dairy Trust	90	9	7.5
145		Davis Dairy	89	18	12.8
160		Davis Dairy	89	2	16.1
161		Davis Dairy	89	12	12.5
168		Perry Russell C & Elizabeth	89	3	11.0
169		Davis Dairy	89	10	32.0
St #	**Location**	**Owner**	**Map**	**Lot**	**Acres**
170		Perry Russell C & Elizabeth	89	5	7.3
0	Kilburn Road	Alty Joyce	64	4	14.5
0	Roper Road	Campobasso Colleen Trustee	18	18	95.0
0	Route 110	Brodmerkle Mary Et Ali	151	1	21.0
			152	2	11.0
0	Rowley Hill Road	Starbard Eric & Ann	54	31	21.4
74	Rowley Hill Road	Murray Bruce & Ann	63	1	28.5
75		Murray Bruce & Ann	64	17	27.6
0	Rugg Road	Greene Joel Trustee & Sawyers	108	7	27.6
40		Hagberg Nancy M & David J	108	6	6.9
42		Hagberg Nancy M & David J	108	5	6.1
44		Nourse Ralph B & Mary	90	13	16.5
0	South Nelson Road	Cranson Kenneth G & Katherine B	55	10	1.0
				11	1.1
				12	1.5
				13	1.8
		Hulick Marion	57	1	43.8
			61	1	10.0
18		Nourse Mary E Trustee	55	7	48.9
76		Janowicz Walter A	61	10	50.0
87		Hulick Henry F & Marion J	76	20	9.0
133		Hulick Marion	77	23	1.0
135		Hulick Marion	77	21	2.5

				22	1.0
173	Tuttle Road	Starbard Eric & Ann	43	14	27.0
0	Tuttle Road	Allen John & Sara Miller Nancy	53	29	27.0
		Davis Farms	44	5	17.0
		Roseberry Armand	64	10	52.1
31		Hopfmann Ralph M&Ruth M Truste	53	30	75.0
43		Hopfmann Ralph M & Ruth M	64	12	3.7
44		Hopfmann Ralph M&Ruth M Truste	64	6	7.0
45		Hopfmann Ralph M & Ruth M	64	11	3.5
109		Allen John & Sara Miller Nancy	44	4	61.9
116		Allen John & Sara Miller Nancy	44	2	26.0
231	Upper North Row Road	Murray Elmer J & Neverlie S	20	11	12.9
0	Wiles Road	Konola Veikko J & Ritva S	88	21	2.0
12		Davis Dairy	88	20	12.5
21		Konola Jukka T & Julie M	88	22	16.9
	Grand Total				**3,097.2**

Source: Sterling Assessors Records 2002

E. OPEN SPACE OF UNKNOWN OWNERSHIP

There are a few parcels that may be of conservation interest for which ownership was undetermined at the time of this printing. Some of these are substantial in size and they abut other parcels of conservation interest that are already protected. Parcel 43-4 is adjacent to the Clinton Waterworks property at Fitch Basin. Parcel 45-15 is adjacent to Conservation Commission land off Tuttle Road. Parcel 46-33 is adjacent to I-190 between two bridge structures. Parcel 66-1 is adjacent to I-190, off Laurelwood Road. Parcel 74-1 is adjacent to an MDC parcel off Taft Road. Parcel 104-5.1 sits adjacent to I-190, near the gravel mine. Connelly Brook runs across this property. Parcels 49-49 and 113-9 are subdivision roads. Parcels 147-3, 154-10, and 154-25 are railroad rights of way.

Table 5-10: Parcels of Unknown Ownership

Map & Lot #	Acres
43-4	13.3
45-15	55.9
46-33	5.1
49-49	6.5
66-1	5.2
74-1	18.2
104-5.1	18.1
113-9	7.0
147-3	4.8
154-10	7.4
154-25	10.7
Total	**152.3**

SECTION 6 - COMMUNITY GOALS

A. DESCRIPTION OF PROCESS

In 1999, the Conservation Commission formed an Open Space and Recreation Plan committee to update the 1990 draft of the Open Space and Recreation Plan. The committee canvassed regional committees and town committees to incorporate ideas from different view points. A public opinion survey, derived primarily from an earlier town survey dating back to 1990 and surveys from Gardner and Templeton, was printed in local newspapers and distributed at public gatherings. Public notifications were placed in the Worcester Telegram and Gazette and The Landmark to give everyone a fair opportunity to respond. Response to the 1999 survey was quite limited, with only 31 respondents.

Asked to rate the importance of several categories of natural and cultural resources for preservation, respondents indicated that all categories were considered highly important in varying degrees as follows:

- Preservation of wetlands and water resources - 87%,
- Rural character and wildlife - 80%,
- Undeveloped scenic views and vistas – 70%
- Open Space for recreation – 63%
- Sites with historic value – 51%

The five most frequent responses for the top ten open space and recreation interests were:

- Walking space – preserve space/wilderness – 93%
- Open Space corridors (Greenways) – 80%
- Conservation areas – 74%
- Hiking/Cross-country ski trails – 64%
- Bike Trails – 54%

Development of neighborhood park areas and improved public access to MDC properties were also highly favored.

The Kristoff properties, once the site of a proposed racetrack, were the favorite sites considered worthy of protection or acquisition for conservation or recreation. Other sites mentioned included the area near Sholan Park, Justice Hill, Hycrest Farm, and Davis Farm.

Respondents predominantly supported town purchases of land as the preferred protection technique. Very few indicated that they would support protection options that might cost them individually.

After compiling the 1999 survey results and incorporating them into the 1990 draft, planning efforts were suspended until 2001, when the committee engaged the services of the Montachusett Regional Planning Commission and the Nashua River Watershed Association to complete the effort. These two agencies worked with the committee to develop another survey, conduct a public forum, update quantitative information in the draft, develop maps for the plan, determine community compliance with the Americans with Disabilities Act, and outline an Action Plan for the next five years.

Another public opinion survey was printed in the total market coverage issue of The Landmark in April 2002, to ensure delivery to every Sterling household (roughly 3,000 surveys). Another 450 surveys were distributed through Chocksett Middle School, 400 were distributed through the soccer league and softball league, and 500 more were made available at the Butterick Municipal Building. In all a total of 4,350 surveys were distributed. Press releases were published in both The Landmark and the Sterling Meetinghouse News in advance of distribution, encouraging people to participate in the survey. A total of 150 survey responses were received. Once compiled survey responses were given to The Landmark for an article describing the outcome.

In June of 2002, the committee sponsored a public forum to release the results, to conduct an interactive demonstration of the power of geographic information systems to illustrate key concepts, and to solicit further public comment in the planning process. (See ***Appendix C*** for analysis of the Survey Results, See ***Appendix B, Minutes of June 20th Meeting*** for a summary of the Public Forum)

To complete the assessment of compliance with the Americans with Disabilities Act, selected conservation and recreation properties owned by the Conservation Commission or under the jurisdiction of the Board of Selectmen were surveyed to assess what was needed to bring them into compliance. This assessment forms the basis for development of a transition plan recommended in the Action Plan.

B. STATEMENT OF OPEN SPACE AND RECREATION GOALS

Open Space is not a luxury or an added attraction to the quaint rural atmosphere of farming towns. It is the main component of any effort to protect the environment, conserve water resources, manage storm water flow, and protect wildlife. Sterling residents want to protect their environment and maintain the rural character of the Town by continuing its long tradition of open space conservation. .

Goals for conserving open space include continuing vigilance in regulating land uses so that they are proper for their setting, taking all measures necessary to protect the town's water supply, acquiring parcels of land that fit into the Conservation Commission's recreation land holdings program, and protecting the scenic waterways, hillsides and open lands where possible. The Town will continue to expand its recreational land holdings, developing paths and trails where appropriate and preserving land for future use by the town, such as organized sports fields and future school locations for the expanding population. Increased access for handicapped individuals will be developed and maintained. Smaller neighborhood parks and playgrounds will be encouraged in new developments and in the downtown area. New outdoor recreational and conservation education programs will be sought, particularly with the MDC, whose holdings in town continue to increase.

Identify and seek to preserve significant open space, cultural, and recreational resources that will sustain the quality of life and the rural character of the town.

Protecting water quality is the most important goal of this Open Space and Recreation Plan. Environmentally sensitive areas such as streams, rivers, ponds, lakes, wetlands, aquifers, floodplains and steep slopes should be preserved as much as possible. Low density land uses such as farming, forestry, conservation and passive recreation can offer some protection. Zoning and permitting regulations should be amended to improve their capacity to protect these areas. Strategies for monitoring water quality and preventing and mitigating pollution should be developed.

Water is also a powerful draw for tourist attraction. People everywhere seek opportunities to be near water for recreation. Public access to Sterling's water bodies should be enhanced to improve recreational opportunities in the community.

Prioritizing areas for protection efforts is of paramount importance in an age of scarce financial resources. Sterling needs to develop a matrix of its criteria for protection. To this end, it is vitally important that the Town conduct a survey of the flora and fauna in town to document the occurrences of unique environments and rare species.

Broaden local community and regional awareness of the value and importance of open space, and natural and cultural resource areas.

Open Space Committee members, survey respondents, and Public Forum attendees all expressed a need for broadening community awareness of the value of open space and natural and cultural resources. They perceive a gap in understanding that leads to lost opportunities for preservation. It is also seen as important to create a broad based regional understanding of the potential for greenway linkages across community borders, the need

for preservation of scarce water resources that will eventually face increasing demand pressures independent of political boundaries, and the synergies that can be created through interregional cooperation.

Improve communication, planning, and coordination with related entities regarding open space and recreation needs and issues.

This goal is aimed at identifying priority areas and developing a means for acquiring them at the moment they become available. It is also aimed at developing a strong partnership between the key agencies, community boards, and property owners that targets community needs and attempts to balance them. For example, the town has need of a recreation site, and there may be potential to accommodate such a site through a partnership that targets both the recreational need and the environmental protection need.

Enhance the number, variety, access, and maintenance of recreation areas and facilities. Existing recreational facilities should be improved to meet safety standards.

Increasing demand for participation in organized sports has placed significant pressure on the existing recreational resources for soccer and other organized sports. To accommodate the demand for playing and practice time that fits everyone's schedule, the Town has deemed it important to identify a fifteen acre site to accommodate a number of important recreational opportunities. In the process, needs for maintenance and improvements to existing resources such as ball fields and tennis courts, were also identified. Finally community efforts have focused upon development of rail trails and hiking trails within the town that afford opportunities for linkages with similar trails in West Boylston, Clinton, Lancaster, Leominster, and Princeton.

Ensure implementation of the Open Space and Recreation 5-Year Action Plan, which is written to coordinate with the needs of Executive Order 418 and development of a Master Plan.

The committee deemed it important to establish a permanent committee to oversee implementation of its Action Plan, and to coordinate its efforts to support participation in the creation of a comprehensive Community Development Plan through Executive Order 418. These plans are seen as important foundations for the development of a Master Plan to guide future decisions.

SECTION 7 - ANALYSIS OF NEEDS

A. SUMMARY OF RESOURCE PROTECTION NEEDS

Sterling is blessed with thousands of acres of farmland and forestland, which not only represent a big part of its economy and a major component of the town's appealing rural character, but which also serve as important open land for wildlife, storm water management and fresh air. Changing economic circumstances and aging of farm families has resulted in a need in many cases to sell off land. Over the past two decades, Sterling has lost considerable forest and farm acreage to creation of one and two acre residential lots. These changes threaten the natural resources of the town.

Thousands of acres of land area temporarily protected from development through the Chapter 61 tax abatement programs, while only two farms in Sterling have entered the Agricultural Preservation Restriction Program. Landowners have a reasonable expectation to be compensated for their property at its true market value. Many landowners value their land for its pristine beauty and may be unaware of the options they have for preserving the land while realizing its economic value. Farmland preservation efforts have occurred on a case by case basis through wetland regulations and site plan review considerations. Townspeople would benefit from an education program that alerts them to their options.

The maintenance of the rural character of the town is important to the citizens of Sterling. Threats to open space also include the Chapter 40b legislation that permits a builder to design subdivisions that do not conform to local zoning and subdivision controls if they include provisions for affordable housing that meet the Guidelines of the Department of Housing and Community Development. While affordable housing is a laudable goal, these developments can occur in locations where they are wholly inappropriate and could unduly stress natural resources.

Preservation efforts should include a focus upon the historic and archeological resources of the town. Sterling residents have also expressed a desire for more hiking and horseback riding trails. Such trails linking the historic and watershed sites will help develop appreciation for the rural character of the community. Old town roads that lie on Chapter 61A lands can be converted into passive recreation pathways.

The protection of important water resources is also of high interest to Sterling residents. The most important resource is the Wekepeke Watershed in the northern section of town. Former farmland leaving the Chapter 61A tax abatement protection can be acquired through the Conservation Commission to develop greenway corridors that will help protect the Wekepeke Brook and the aquifer by removing the threat of urban pollution. These open space areas can serve as an important link for public passive recreation opportunities.

East Lake Waushacum is also an important resource in need of protection. The lake is valuable as a primary site for recreation in Sterling, but it is threatened by the potential for pollution. Fears of increased development coupled with water quality problems prompt Sterling residents to express concern for the lake. Efforts to preserve the remaining open lands around the lake should be coupled with efforts to mitigate the sources of pollution that cause the algae blooms each summer.

B. SUMMARY OF COMMUNITY'S NEEDS

1. Recreation Needs

Town surveys indicate that public access to MDC land for recreation purposes is a continuing priority. The Stillwater River is valuable not only for the MDC's water supply but also for the town's recreational use of the river and for its scenic presence.

Development of a new fifteen acre Soccer Field complex will provide the sports organizations in Sterling with a much needed facility that relieve the pressure on existing fields, permit renovation of some, improved maintenance of others, and allow for the creation of new recreational opportunities in demand, such as deck and ice hockey, additional tennis courts, and a skateboard park.

Development of a Sterling Rail Trail that will follow the course of the old Fitchburg and Worcester Rail Line is seen as a key linkage in a regional network of hiking and biking trails. It is hoped that the trail will at a minimum provide a linkage to the Mass Central Rail Trail from the center of Sterling. Potential also exists to continue the linkage northward to a proposed trail connecting Leominster and Fitchburg along another abandoned rail bed.

Horsemen in town who responded to the survey indicated a need for preserving the trail systems they use for horseback riding. As development pressures increase and protected lands are restricted for animals, these residents have found their trail riding opportunities diminishing.

2. Conservation Needs

The quality of the environment at the Waushacum Lakes is of great importance. Similarly the quality of the water resources in the Wekepeke Watershed is highly valued and deemed to need protection.

3. Affordable Housing and Chapter 40B

The Comprehensive Permit Law (Chapter 40b) enacted in 1969, is an attempt to address the shortage of affordable housing by reducing some of the barriers created by local zoning, approval processes, and other restrictions. The law enables the Zoning Board of Appeals to approve affordable housing developments under flexible rules if at least 25% of the units have long-term affordability. Should the ZBA reject the project, the developer (nonprofit organizations or limited dividend companies) has the right to appeal the decision to the State Housing Appeals Committee (HAC) which can overrule the local decision in communities where less than 10% of the year-round housing meets the statute's definition of low and moderate income housing. To qualify under the State's affordable housing criteria, housing units must meet four tests;

1. They must be part of a "subsidized" development built or operated by a public agency, non-profit or limited-dividend organization.
2. At least 25% of the units in the development must be income restricted to families with incomes of less than 80% of the median and have rents or sale prices restricted to affordable levels 9running for at least 15 years for new construction.
3. The development must be subject to a regulatory agreement and monitored by a public agency or non-profit organization.
4. Owners must meet affirmative marketing requirements.

As of April 24, 2002, the Department of Housing and Community Development lists just 40 units in Sterling that meet the low/moderate income housing definition. A Census 2000 count of year round housing units indicated that Sterling had 2,611 housing units. Based on these figures, the DHCD estimates that the Town has an affordable housing base of just 1.53%, making Sterling an attractive target for Chapter 40b housing development projects. Two such projects proposed in Sterling in the past few years met with concern and opposition from the community.

Sterling will need to address its affordable housing issues if the town wants to avoid future Chapter 40b subdivision plans. In cooperation with the Massachusetts Department of Housing and Community Development, Massachusetts Housing Partnership (MHP) announced a new program in fall 1999 that combines assistance from MHP's staff with up to $10,000 in third-party technical assistance to help cities and towns review applications for comprehensive permits pursuant to MGL Chapter 40B.

Executive Order 418, which was signed into law in 2001, offers communities a funded opportunity to plan for its housing needs while balancing the creation of housing against other environmental and economic con-

straints. The program is designed to provide up to $30,000 worth of planning services and technical assistance to each community in the Commonwealth. Services and technical assistance provided under EO 418 will assist communities towards completion of a Community Development Plan, the next logical planning sequence to the recent buildout map and analysis by EOEA and MRPC. The Community Development Plan will address four core elements: housing, economic development, open space and resource protection, and transportation.

EO 418 is comprised of two components: Community Development Planning and Housing Certification. Together these two initiatives establish a comprehensive new approach to identifying suitable locations for new housing opportunities in Massachusetts, providing communities with needed resources and incentives for housing production, while considering the existing infrastructure and regional economy and preserving the unique character and valuable open spaces of our towns and cities. Participation in the EO 418 Community Development Plan process is strongly encouraged.

4. Public perception

The survey results clearly indicate the community's need to conserve open space, including farmlands, wetlands and water supply land. The need for this kind of conservation is so great because of the encroaching development on most former farm acreage in Sterling. The public meetings held for writing this plan produced indications of two recreation needs: smaller neighborhood playgrounds and increased trail systems in the lands already under protection. The survey results indicated satisfaction with the Town Beach at Sholan Park, but great concern for the prevention of pollution in the lake from expanding development and failing septic facilities. (The Waushacum Lake Committee).

5. Americans with Disabilities

The Massachusetts Office on Disability conducted a Municipal Access Survey statewide in 2000. At that point in time, Sterling indicated that it had work to do to meet the requirements of the Americans with Disabilities Act.

- The town does not have a Commission or Committee On Disability. (When the town establishes one it should comply with the provisions of MGL Chapter 40 Section 8J.)
- The Town had not completed a self-evaluation survey required under the Americans with Disabilities Act, nor had it completed a Transition Plan.
- The Town's Grievance Procedures did not comply with those required under the Americans with Disabilities Act
- The Town does not provide Notice to the Public and employees
- The Town lacks an accessible playground
- Butterick Municipal Building and the schools lack a TTY communications device for the deaf.
- The Town does not have a bylaw/ordinance authorizing the police to ticket/tow cars that are illegally parked in spaces designed for the disabled, nor is there a volunteer disabled parking patrol program.

To its credit, Sterling has designated the ADA Coordinator, Stuart Johnson. He also serves the town as Assistant Building Inspector. The Butterick Municipal Building is fully accessible. The Police Station, Fire Station, and Conant Public Library are fully accessible. Both the Police and Fire Stations provide a TTY communications device for the deaf. Sterling is part of the Wachusett Regional School system, Chocksett School and Houghton Middle School are fully accessible, the High School is located in the Town of Holden. The Houghton School serves as the polling place. All public meetings are held in accessible locations, either the Butterick Municipal Building or the Houghton Middle School. While the Town has no public, fixed route transportation, Paratransit service as provided through Montachusett Regional Transit Authority to serve people with disabilities. This service links with fixed route services in Fitchburg, Leominster, and Worcester, which are handicap accessible.

At the time of the survey potential funding sources for barrier removal had not been identified. The respondent did not know whether the Town would be willing to provide a Sign Language Interpreter or documents printed

in Braille, or Large Print, or on Audio Tape or Computer Disks. Nor was it known whether the town would make available an Assistive Listening Device or a Computer Aided Real-Time Reporter.

The Open Space and Recreation Committee conducted a 504 Self-evaluation survey of seven properties that are representative of the recreational experiences in Sterling. These sites are under the jurisdiction of either the Conservation Commission, the Board of Selectmen, or the Department of Public Works. At each site, the survey identified a number of key improvements that could be done to bring the sites into compliance with the Americans with Disabilities Act.

Sholan Park

- Supply a number of picnic tables with unobstructed knee holes at one end.
- Grade the former asphalt path from the changing houses to the beach and provide a handrail.
- Install HP signs in the parking lot area, nearest the head of the aforementioned path
- Ensure any drainage issues at dirt lot will not adversely impact a person disembarking a wheelchair van.
- Address the narrow geometry at the boat ramp
- Widen bathroom doors, by removing the existing wooden door jams and rebuilding to ADA specification.
- Install levered handles on the doors
- Pour a concrete apron outside the doors to level the access and provide a smooth transition from the lawn. Shave the raised threshold for smoother transition.
- Replace faucet handles with lever handles
- Install doors and door locks that meet ADA specifications to stalls.
- Replace the broken drinking fountain with an ADA compliant fountain. Install it on a concrete apron accessible to wheelchairs.
- Payphone is at wheelchair level but the coin insert is out of reach, switch it out and replace with a different design.

Butterick Nature Trail

- Concrete stairs are in need of reconstruction.
- Install hand rails during reconstruction
- Stripe the far parking lot and provide HP signage for handicapped parking near the trail head of the gradual slope on the east perimeter of the Butterick property.
- Grade a path along the eastern perimeter up the gradual slope and lay down ADA compliant materials to accommodate wheel chair access up this trail behind the location of the old tennis courts.
- Create a level platform or trail side area for a picnic spot, somewhere along the trail.
- Creating handicap access for the trail path can vary in length. The whole trail would not have to be developed, and may prove difficult to do because of slope and tree roots and other obstacles.

Rocky Brook Conservation Area

- Provide HP signage and parking at the head of the main trail
- Widen a path from the road toward the mill foundation
- Develop a couple of viewing platforms/picnic spots above the mill foundation
- Redesign gated access to allow passage of a wheelchair
- Regrade the dirt road to permit wheelchair passage
- Relocate stone boulders at the end of the path from the parking area on the side road to the bridge to permit wheelchair passage.

Griffin Road Athletic Complex

- Regrade the heavily traveled area near the restroom structures
- Develop a path along Griffin Road to the lower fields to ADA specification
- Raise the HP signage to ADA specified height
- Install concrete aprons to entrances of structures to permit smooth transition from ground through the doors to address a 3" barrier at the men's room threshold, a 5" barrier at the women's room threshold
- Redevelop the concrete platform at the hotdog window to eliminate the 5" barrier at the refreshment stand.

- Relocate the soda machines or redevelop the concrete slab the sit on to accommodate wheelchair access. The slope approaching the slab is too steep and there is a barrier to access once you are there.
- Remove the stalls in the men's room and refit to ADA specification
- Install a urinal
- Replace the broken drinking fountain with an ADA compliant fountain

West Sterling Athletic Facility

- Ensure that the path paving material is compliant with ADA specifications
- Pour a concrete apron to the threshold of the restrooms in compliance with ADA specifications
- Address erosion from foot traffic at the entrance to tennis courts
- Install latch style hardware to door of restrooms
- Install ADA compliant drinking fountains near the baseball diamonds and the tennis courts

Muddy Pond Road Athletic Facility

- Post HP signage at appropriate locations near entrances to fields
- Improve entrance to fields
- Provide Handicap accessible portable restroom facilities as needed, or
- Provide wheelchair accessible path to the Griffin Road restroom facilities

6. Management Needs, Potential change of use

The continued good relationship between the Finance Committee and the Conservation Commission has been vital to the town's open land acquisitions. The Conservation Commission also enjoys continued cooperation with the Department of Public Works. All Section 504 requirements for handicapped access will continue to be enforced.

SECTION 8 - GOALS & OBJECTIVES

GOAL A: Identify and seek to preserve significant open space, cultural, and recreational resources that will sustain the quality of life within the town.

Objective 1: Establish a permanent Open Space and Recreation Committee that interfaces with other town boards and commissions

Action:

1. Establish a permanent Open Space and Recreation Committee that interfaces with other town boards and commissions
2. Coordinate implementation of the Open Space Plan recommendations with town boards and local groups.
3. Institute a formal sign-off procedure between all town boards and committees in decisions regarding land acquisitions, Chapter 61 options, etc. to allow all town boards (the Planning Board, the Conservation Commission, the Sports Committee, the Recreation Committee, the site Selection Committee, and the Selectboard) to assess the suitability of the land utilizing the recommendations of the Open Space and Recreation Plan within the allotted time frame.
4. Support and encourage the Planning Board in its development of a Comprehensive Master Plan.
5. Support the Conservation Commission's proposal to the Town for a Conservation General Bylaw as it supports this plan.
6. Encourage the Planning Board to use innovative growth management strategies to accomplish desired goals (implementing changes to the Zoning Bylaw and subdivision regulations allowing for Open Space Residential Design, pork chop lots, linkage trade-offs) by holding several awareness raising sessions.

Objective 2: Identify and prioritize lands/properties of significant natural and cultural value (especially parcels that create "greenway linkages" and/or "wildlife corridors" to already protected properties, as well as parcels that represent significant agricultural resources).

Action:

1. Identify sources of funding for land acquisition.
2. Develop a ranking matrix and prioritize parcels of undeveloped land for possible acquisition or land use protection.
3. Concentrate on lands potentially available through release from Chapter 61 programs by maintaining an up to date list of Chapter 61, 61A and 61B land including potential uses for these parcels such as development. Research what it means to be prepared to exercise municipal Right of First Refusal on appropriate parcels and lay the groundwork for such.
4. Identify the appropriate sites in town to locate affordable housing to meet the State threshold and lessen the potential for Chapter 40b subdivision development.
5. Hold several awareness raising sessions to encourage the Planning Board to use innovative growth management strategies to accomplish desired goals (implementing changes to the Zoning Bylaw and subdivision regulations allowing for Open Space Residential Design, pork chop lots, linkage trade-offs).
6. Meet with owners of large contiguous blocks of land (over 25 acres) to discuss how they plan to use their land in the future (and if those plans include development with an emphasis on ways they can develop it with the least impact on open space). If they are interested in preserving it for conservation purposes, assist them in doing this.
7. Encourage future developers to set aside land and/or provide easements for conservation. (Changes to subdivision regulations, Open Space Residential Design Bylaw)
8. Identify and protect parcels of land around East Lake Waushacum that are critical to the water quality (and support the East Lake Waushacum Association in their similar efforts).
9. Contract local naturalists to conduct a comprehensive survey of plant and animal life to set priorities for conservation protection. Include surveys of the potential and the known vernal pools, the area near the Heywood Reservoir, and known salamander crossings for possible sightings of Blue Spotted Salamanders and other obligate species.

10. Consider expanding aquifer protection zoning districts to address existing and potential water supplies. (May require further delineations of Zone II districts around new well sites. Will require a zoning change.) (Wekepeke Aquifer may need further protection due to water quality conditions and a CDM identified Medium Level of Stress.)
11. Work to conserve and/or preserve historically significant areas and buildings, and to provide public access to them.
12. Adopt regulations to require all gravel operations in Sterling's aquifers to leave a buffer filtration layer of at least eight feet of gravel above the water table to prevent groundwater pollution from subsequent land uses.

Objective 3: Identify parcels of land suitable for recreational purposes to maintain balanced recreational opportunities.
Action:
1. Complete a capacity and utilization assessment of all sports fields.
2. Identify the best location for siting a new soccer field.
3. Identify sources of funding for land acquisition.
4. Develop a ranking matrix and prioritize parcels of undeveloped land for possible acquisition or permission to use.
5. Concentrate on lands potentially available through release from Chapter 61 programs by maintaining an up to date list of Chapter 61, 61A and 61B land including potential uses for these parcels such as development. Research what it means to be prepared to exercise municipal Right of First Refusal on appropriate parcels and lay the groundwork for such.
6. Meet with owners of large contiguous blocks of land (over 25 acres) to discuss how they plan to use their land in the future (and if those plans include development, with an emphasis on ways they can develop it to include recreational uses). If they are interested in preserving it for recreation purposes, assist them in doing this.
7. Investigate the use of power line easements for creation of trails. Hold discussions with the Utility, and with the private landowners to formally obtain permissions for access.
8. Coordinate with appropriate agencies to improve and enhance public access to Stillwater River and other waterbodies important to Wachusett Reservoir and Nashua River Watershed.
9. Encourage future developers to set aside land and/or provide easements for recreation. (Changes to subdivision regulations, Open Space Residential Design Bylaw)
10. Encourage the creation of neighborhood playgrounds throughout the town

GOAL B: Broaden local community and regional awareness of the value and importance of open space, and natural and cultural resource areas.
Objective 1: Develop programs that foster a sense of community.
Action:
1. Promote awareness of conservation issues such as the threats to open space and the impacts of current development trends and land use policies to town officials.
2. Produce newspaper articles and Cable TV broadcasts for town residents aimed at improving local understanding of the flow of information through the town government and provide periodic media updates focusing on town board responsibilities and operations.
3. Facilitate development of and maintenance of a trail system that will connect protected parcels of land and existing trails including the Mass Central Rail Trail, the Stillwater River Trail linking the Mass Central Rail Trail, and a Wachusett Mountain Trail Link through the Leominster State Forest
4. Facilitate development of maps of hiking trails and bicycle trails.
5. Develop a guide book to Sterling recreational resources, including hiking, biking, and skiing trails, fishing, hunting, etc.
6. Facilitate development of attractive signage for appropriate conservation and other town owned parcels.
7. Develop a venue on the Town website showing current recreation, conservation and historic resources and opportunities.
8. Publish all town board agendas and meeting minutes on the Town website.
9. Develop a program of public information forums or workshops focusing on town board responsibilities and operations.
10. Use the sign on the common to deliver Open Space and Recreation messages.

Objective 2: Develop educational programs that promote the value of conservation/environmental/cultural issues.
Action:
1. Conduct several local schools programs aimed at developing student understanding of the role of open spaces to biodiversity
2. Identify and co-sponsor with other educators learning opportunities for citizens of all ages that promote the outdoor and the environment.
3. Aggressively publicize an informational meeting prior to the town meeting, for the purpose of educating voters on specific Open Space and Recreation related Warrants,. (Go beyond the two postings in the Telegram & Gazette 14 and 7 days prior to the meeting.)
4. Develop a bi-annual public program on the impacts of current development trends and land use policies.
5. Conduct a volunteer monitoring program of private wells to detect the extent of arsenic in well water. Use this information as a baseline for determining the potential impact on water system needs if EPA regulations are tightened.

Objective 3: Promote the importance of the role of agriculture.
Action:
1. Support working farms through OS&R promotion of farmer's markets, harvest fairs, town fair, and inclusion of the importance of the role of agriculture in any OS&R sponsored educational school programs.
2. In a cooperative effort with town boards and local groups, maintain up-to-date information on funding sources and conservation restriction options available to farmers to promote the continued agricultural use of the land.
3. Discuss with and assist interested farmers to promote the continued agricultural use of the land through the state's Department of Food and Ag (DFA) Agricultural Protection Restriction (APR) program and/or any other similar funding sources.

GOAL C: Improve communication, planning, and coordination with related entities regarding open space and recreation needs and issues.

Objective 1: Share the Open Space and Recreation Plan goals with land trusts, adjoining towns, historic groups, regional and state agencies (such as watershed associations, lake associations, planning commissions, etc), and other conservation organizations.

Action*:*
1. Invite representatives from aforementioned to address open space and recreation related concerns as they arise.
2. Work in a reciprocal manner with neighboring cities and towns to obtain and protect open space and wildlife corridors of multi-community concern.
3. Institute an annual meeting where regional organizations (NRWA, MRPC, Wachusett Greenways, etc.) meet with town boards and interested public to discuss and promote regional partnership.

Objective 2: Explore Alternatives for Water Quality Management and Mitigation at important water resources.
1. Conduct a study of the opportunity costs of certain types of development along the Wekepeke Aquifer
2. Partner with neighboring communities to protect water resources of the Wekepeke Aquifer and wildlife habitat of the Wekepeke Brook
3. Investigate funding opportunities for infrastructure improvements for critical areas such as East Lake Waushacum, such as the Community Development Block Grant Program, or the Lakes and Ponds Grant Program.
4. Develop a Wastewater Management Plan to update the Anderson Nichols study and reevaluate the need for sewer connections in selected areas of Sterling.

GOAL D: Enhance the number, variety, access, and maintenance of recreation areas and facilities.

Objective 1: Work with MDC to promote appropriate recreational activities on MDC lands
Action:
1. Review the MDC Public Access Plan where it addresses lands in Sterling.
2. Publicize the public access opportunities available on MDC lands.
3. Determine what the desired uses are that currently are not permitted, incorporating the recommendations of the Open Space and Recreation Plan.
4. Identify and meet with MDC representatives
5. Coordinate outdoor educational activities on Wachusett watershed lands with the MDC.
6. Negotiate for appropriate changes in the MDC public access policy.

Objective 2: Develop an ADA Transition Plan for currently inaccessible Open Space and Recreation resources in the town. Such a plan would be eligible under the Community Development Block Grant Program.
Action:
1. Establish a Commission on Disability
2. Develop a Transition Plan to implement recommendations for ADA improvements at selected sites
3. Develop wheelchair accessible pathways at Sholan Park and Butterick Nature Trail
4. Build a wheelchair accessible fishing pier on the Stillwater River and/or at East and West Lake Waushacum
5. Upgrade restroom facilities to ADA requirements at Sholan Park and Griffin Athletic Complex
6. Create an accessible nature and interpretive trail loop at Rocky Pond Conservation area
7. Add designated HP parking spaces and signage at all facilities
8. Create HP access to swimming beach at Lake Waushacum/ Sholan Park
9. Add HP accessible picnic tables to Sholan Park, Griffin Athletic Complex and West Sterling Athletic facility

Objective 3: Establish a capital improvements plan to maintain and improve current recreational facilities and work toward creating new ones.
Action:
1. Determine the needs for improving the tennis courts
2. Determine the needs for installing lighting at the athletic fields
3. Incorporate ADA Compliance measures into the improvements plan.
4. Add low cost winter sports facilities such as ice skating, sledding, and cross country skiing to the annual program.
5. Apply for state and federal funds to further develop and maintain recreational facilities.
6. Implement the capital improvements plan

GOAL E: Ensure implementation of the Open Space and Recreation 5-Year Action Plan, which is written to coordinate with the needs of Executive Order 418 and development of a Master Plan.

Objective 1: Ensure the formation of an Open Space and Recreation Action Plan Implementation Committee.

Action:
1. Meet with pertinent town officials to effect above.
2. Publicize and otherwise encourage townspeople to participate in various aspects of this committee's work.

Objective 2: Provide for funding needs for open space and recreation purchases.
Action:
1. Organize a sub-committee focused on educating the town about the benefits of adopting the Community Preservation Act.
2. If acceptance level is heightened and cost/benefit advantages are clear, encourage the townspeople to support a warrant at Town Meeting for adoption of the Community Preservation Act.
3. Annually add to the Conservation Fund for future land acquisition through a conservation support plan.

4. Develop a Conservation Master Plan
5. Publicize the existence of the Conservation Fund and annually add to it for future land acquisition.
6. Develop a fundraising strategy that supports previously identified needs for purchases and acquisitions.
7. Develop a vehicle for fund raising to purchase identified parcels when they become available.
8. Establish a capital improvement plan to maintain current recreational facilities and work toward creating new ones.

Objective 3: Examine the feasibility of hiring a professional land use planner for the town.

Objective 4: Develop a Master Plan
Action:
1. Participate in the E.O. 418 Community Development Planning Process as a foundation for the Master Plan
2. Use the Open Space and Recreation Plan as an equivalent of the tasks required to waive the open space requirement in the Community Development Plan under Executive Order 418.
3. Procure funding for a Master Plan at Town Meeting, or identify and secure other funding resources.
4. Incorporate the DCS approved Open Space and Recreation Plan into the Natural Resources Chapter of the Master Plan.
5. Incorporate the E.O. 418 Community Development Plan into the Master Plan
6. Complete the Master Plan

SECTION 9 - 5-YEAR ACTION STRATEGY

The Action Plan has a number of important Focus Areas, reflecting the views of the Open Space and Recreation Committee and the residents who participated in the survey and the public forum. These focus areas concentrate on protecting water resources and wildlife habitat, historically significant properties, agricultural resources, and recreational opportunities. The focus areas are categorized to target the activities associated with them. In Conservation areas, the focus would be to acquire properties that represent significant natural heritage resources. In Riparian Buffer areas the focus would be to protect the river or stream through creation of a buffer zone upland of the river banks for wildlife habitat. Recreation access focus areas are aimed at the creation of a local and regional trails network for passive recreation opportunities. (See ***Action Plan Map***).

Agricultural/Forestry Management and Water Resource Protection
Water resource protection is the most important goal of the Open Space and Recreation Plan. To this end, there are a number of actions that should be taken to preserve and improve on important water resources. Efforts should be made to consider the opportunity costs of certain types of development along the Wekepeke Aquifer. Cooperative efforts to protect water resources with neighboring towns such as Leominster and Clinton may be critical to protecting the Wekepeke Aquifer as well as trout and other wildlife habitat of the Wekepeke Brook. Arsenic has been a concern for residents of Sterling who have private wells for their water supplies. It would be well worthwhile to investigate the extent of the arsenic that may be present in private wells. This could be accomplished by developing a volunteer monitoring program coordinated by the Open Space and Recreation Committee or the Department of Public Works. The outcome of such a study may have implications for the Town's water distribution system, particularly if the EPA tightens its regulations on water quality with respect to arsenic content.

Within the watershed of the Wekepeke Brook are a number of important resources that should be protected. These include the Clinton Water supply properties and the Town's Forest. Numerous agricultural properties, many of historic significance are also located in this watershed, these should also be preserved or protected. Forestry management practices in this region should implement Best Management Practices to safeguard the water resources from erosion.

East Lake Waushacum Watershed and Historic/Cultural Preservation and Recreation Access
East Lake Waushacum is a primary focus for water quality concerns. Prior studies have attributed the annual algae blooms in August to excess nutrients from septic system leachate. Although a voluntary pumping program offering a discounted price for septic system pumping has been implemented, it may prove necessary to take more stringent steps to reduce the amount of leachate reaching the waters. The Conservation Commission is interested in protecting the upland areas surrounding the lake that have still not been developed. The Community Development Block Grant Program of the Department of Housing and Community Development provides for infrastructure improvements for areas that benefit low to moderate income populations. The DHCD has specific criteria for qualifications to the program. The East Lake Waushacum area and the Camp Meeting Association area should be evaluated to determine whether they meet these criteria.

Alternatively, the Executive Office of Environmental Affairs has a Lakes and Ponds Grants program which may be a potential source of funding for infrastructure improvements. In addition, The Department of Environmental Protection offers the 319 Program which funds implementation projects to address nonpoint source pollution. The DEP Division of Municipal Services offers the Clean Water State Revolving Loan Fund. This program assists cities, towns, and wastewater districts in the financing of water pollution abatement projects, including nonpoint source projects. The financial assistance takes the form of subsidized loans at a 2% interest rate to borrowers.

Finally, Sterling has grown considerably since the 1970's Anderson-Nichols study assessing the potential to connect to the Clinton sewer system. If the town wants to accommodate further growth or to support industrial development, it may prove to be necessary to connect to the Clinton system, or the recently constructed West Boylston system in selected regions of Sterling. This possibility should be investigated and the original Anderson-Nichols study should be updated. The Town may want to consider developing a Wastewater Plan.

Mary Sawyer Historic/Cultural Chapter 61A
These focus areas aim to capitalize on the legacy of Mary Sawyer and her Little Lamb, immortalized in the poem by John Roulstone. The Mary Sawyer area consists of the original farmlands, her childhood home, and the location of the old schoolhouse on Redstone Hill. The area is characterized by sweeping landscapes across rolling fields with views eastward across the Nashua River Valley, toward Clinton and Lancaster. These landscapes represent an extensive agricultural area encompassing several farms and orchards that illustrate beautifully the rural character of Sterling.

Undeveloped Biomap Core
This focus area represents a unique opportunity to protect a valuable resource as identified on the State's recently completed BioMap. The area is distinguished as a core habitat for rare plant and animal species. It is noted for its wetland characteristics and it is a tributary of the Wekepeke Brook.

Key Action Plan items include the creation of a permanent Open Space and Recreation Committee which will have responsibility for implementing the recommendations of the Open Space and Recreation Plan. Another important item is establishing a formal sign-off procedure for notifying all of the interested boards and conservation stakeholders when properties are released from Chapter 61 tax abatement programs, to afford the Town the opportunity to exercise its right of first refusal or transfer the right to appropriate entities within a reasonable time period for review. This is seen as a means of developing a proactive stance and moving away from a reactive crisis approach to land acquisition.

Another important item in the plan is the development of a priority ranking matrix to aid the Town in identifying the areas most important for preservation of open space, protection of water resources and wildlife habitat, and development of key active recreational resources.

Many elements of the action plan are aimed at educating the community residents and other stakeholders of the value of open space resources and preservation efforts. They are also aimed at publicizing the existing resources to inform people of their existence. Some of these elements are targeted at developing and enhancing the relationships between the community and the state agencies and other regional stakeholders to achieve mutually beneficial objectives for the use of the protected lands.

The plan includes a set of strategies for improving access to existing recreational and open space resources for individuals with disabilities. These improvements will bring the Town into compliance with the Americans with Disabilities Act for the recreational and conservation resources in the Town.

Table 9-1: Sterling Open Space and Recreation Action Plan 2002

GOAL A: Identify and seek to preserve significant open space, cultural, and recreational resources that will sustain the quality of life and rural character of the town.	**Responsibility of**	**Deadline By**
Objective 1: Establish a permanent Open Space and Recreation Committee that interfaces with other town boards and commissions		
Action:		
1. Establish a permanent Open Space and Recreation Committee that interfaces with other town boards and commissions	Board of Selectmen Conservation Comm	Immediate
2. Coordinate implementation of the Open Space Plan recommendations with town boards and local groups.	OSRP Committee	Medium/Long
3. Institute a formal sign-off procedure between all town boards and committees in decisions regarding land acquisitions, Chapter 61 options, etc. to allow all town boards (the Planning Board, the Conservation Commission, the Sports Committee, the Recreation Committee, the site Selection Committee, and the Selectboard) to assess the suitability of the land utilizing the recommendations of the Open Space and Recreation Plan within the allotted time frame.	OSRP Committee Board of Selectmen	Short
4. Support and encourage the Planning Board in its development of a Comprehensive Master Plan.	OSRP Committee	Short
5. Support the Conservation Commission's proposal to the Town for a Conservation General Bylaw as it supports this plan.	OSRP Committee	Short
Objective 2: Identify and prioritize lands/properties of significant natural and cultural value (especially parcels that create "greenway linkages" and/or "wildlife corridors" to already protected properties, as well as parcels that represent significant agricultural resources).		
Action:		
1. Identify sources of funding for land acquisition.	OSRP Committee	Short/Ongoing
2. Develop a ranking matrix and prioritize parcels of undeveloped land for possible acquisition or land use protection.	OSRP Committee/ Consultant	Short
3. Concentrate on lands potentially available through release from Chapter 61 programs by maintaining an up to date list of Chapter 61, 61A and 61B land including potential uses for these parcels such as development. Research what it means to be prepared to exercise municipal Right of First Refusal on appropriate parcels and lay the groundwork for such.	All town Boards OSRP Committee	Short/Medium
4. Identify the appropriate sites in town to locate affordable housing to meet the State threshold and lessen the potential for Chapter 40b subdivision development.	OSRP Committee	
5. Hold several awareness raising sessions to encourage the Planning Board to use innovative growth management strategies to accomplish desired goals (implementing changes to the Zoning Bylaw and subdivision regulations allowing for Open Space Residential Design, pork chop lots, linkage trade-offs).	OSRP Committee Consultant	Short/Long
6. Meet with owners of large contiguous blocks of land (over 25 acres) to discuss how they plan to use their land in the future (and if those plans include development with an emphasis on ways they can develop it with the least impact on open space). If they are interested in preserving it for conservation purposes, assist them in doing this.	Open Space Committee	Ongoing
7. Encourage future developers to set aside land and/or provide easements for conservation. (Changes to subdivision regulations, Open Space Residential Design Bylaw)	Planning Board/ Con Comm	Ongoing
8. Identify and protect parcels of land around East Lake Waushacum that are critical to the water quality (and support the East Lake Waushacum Association in their similar efforts).	Open Space Comm/Con Comm	Ongoing

GOAL A: (Continued)		
Objective 2: (Continued)		
Action:		
9. Contract local naturalists to conduct a comprehensive survey of plant and animal life to set priorities for conservation protection. Include surveys of the potential and the known vernal pools, the area near the Heywood Reservoir, and known salamander crossings for possible sightings of Blue Spotted Salamanders and other obligate species.	Conservation Comm Schools/Volunteers	
10. Consider expanding aquifer protection zoning districts to address existing and potential water supplies. (May require further delineations of Zone II districts around new well sites. Will require a zoning change.) (Wekepeke Aquifer may need further protection due to water quality conditions and a CDM identified Medium Level of Stress.)	Planning Board Town Meeting	Long
11. Work to conserve and/or preserve historically significant areas and buildings, and to provide public access to them.	Historical Commission	Long
12. Adopt regulations to require all gravel operations in Sterling's aquifers to leave a buffer filtration layer of at least eight feet of gravel above the water table to prevent groundwater pollution from subsequent land uses.	Planning Board ZBA	Short
Objective 3: Identify parcels of land suitable for recreational purposes to maintain balanced recreational opportunities.		
Action:		
1. Complete a capacity and utilization assessment of all sports fields.	Recreation Comm	Short
2. Identify the best location for siting of a new soccer field.	OSRP Committee Recreation Comm	
3. Identify sources of funding for land acquisition.	OSRP Committee	Short/ Ongoing
4. Develop a ranking matrix and prioritize parcels of undeveloped land for possible acquisition or permission to use.	OSRP Committee Consultant	Short
5. Concentrate on lands potentially available through release from Chapter 61 programs by maintaining an up to date list of Chapter 61, 61A and 61B land including potential uses for these parcels such as development. Research what it means to be prepared to exercise municipal Right of First Refusal on appropriate parcels and lay the groundwork for such.	All town Boards Open Space Committee	Short/ Medium
6. Meet with owners of large contiguous blocks of land (over 25 acres) to discuss how they plan to use their land in the future (and, if those plans include development, with an emphasis on ways they can develop it to include recreational uses). If they are interested in preserving it for recreation purposes, assist them in doing this.	OSRP Committee	Ongoing
7. Investigate the use of power line easements for creation of trails. Hold discussions with the Utility, and with the private landowners to formally obtain permissions for access.	OSRP Committee Board of Selectmen	Medium/ Long
8. Coordinate with appropriate agencies to enhance and improve public access to Stillwater River and other waterbodies important to Wachusett Reservoir and Nashua River Watershed.	OSRP Committee Board of Selectmen,	Continuous
9. Encourage future developers to set aside land and/or provide easements for recreation. (For example: make changes to subdivision regulations that provide incentives, or institute and Open Space Residential Design Bylaw)	Planning Board Board of Selectmen	Short/Long
10. Encourage the creation of neighborhood playgrounds throughout the town.	OSRP Committee	Medium

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GOAL B: Broaden local community and regional awareness of the value and importance of open space, and natural and cultural resource areas.	**Responsibility of**	**Deadline By**
Objective 1: Develop programs that foster a sense of community.		
Action:		
1. Promote awareness of conservation issues to town officials, such as the threats to open space and the impacts of current development trends and land use policies.	OSRP Committee	Short/ Long
2. Produce newspaper articles and Cable TV broadcasts aimed at improving local understanding of the flow of information through the town government and provide periodic media updates focusing on town board responsibilities and operations.	OSRP Committee News Media	Short
3. Facilitate development of and maintenance of a trail system to connect protected parcels and existing trails including the Mass Central Rail Trail, the Stillwater River Trail, The Sterling Rail Spur, and Wachusett Mountain Trail Link through the Leominster State Forest	OSRP Committee Trails Advocates	Medium
4. Facilitate development of maps of hiking trails and bicycle trails.	OSRP Committee Consultant	Medium
5. Develop a guide book to Sterling recreational resources, including hiking, biking, and skiing trails, fishing, hunting, etc.	OSRP Committee Consultant	Medium
6. Facilitate development of attractive signage for appropriate conservation and other town owned parcels.	OSRP Committee Consultant	Medium
7. Develop a venue on the Town website showing current recreation, conservation and historic resources and opportunities.	Web Administrator	Short
8. Publish all town board agendas and meeting minutes on the Town website.	Web Administrator	Short
9. Develop a program of public information forums or workshops focusing on town board responsibilities and operations.	OSRP Committee Consultants	Short/ Medium
10. Use the sign on the common to deliver Open Space and Recreation messages.	OSRP Committee	Short
Objective 2: Develop educational programs that promote the value of conservation/environmental/cultural issues.		
Action:		
1. Conduct several local schools programs aimed at developing student understanding of the role of open spaces to biodiversity	OSRP Committee Regional Schools	Short/ Long
2. Identify and co-sponsor with other educators learning opportunities for citizens of all ages that promote the outdoor and the environment.	OSRP, NRWA, Mass Audubon	Short/ Ongoing
3. Aggressively publicize an informational meeting prior to the town meeting, for the purpose of educating voters on specific Open Space and Recreation related Warrants,. (Go beyond the two postings in the Telegram & Gazette 14 and 7 days prior to the meeting.)	OSRP Committee	Relevant Town Meetings
4. Develop a bi-annual public program on the impacts of current development trends and land use policies.	OSRP Committee	Medium

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GOAL B: Continued	**Responsibility of**	**Deadline By**
Objective 2: continued		
5. Conduct a volunteer monitoring program of private wells to detect the extent of arsenic in well water. Use this information as a baseline for determining the potential impact on water system needs if EPA regulations are tightened.	OSRP Committee	Medium
Objective 3: Promote the importance of the role of agriculture.		
Action:		
1. Support working farms through OS&R promotion of farmer's markets, harvest fairs, town fair, and inclusion of the importance of the role of agriculture in any OS&R sponsored educational school programs.	OSRP Committee	Short
2. In a cooperative effort with town boards and local groups, maintain up-to-date information on funding sources and conservation restriction options available to farmers to promote the continued agricultural use of the land.	OSRP Committee	Medium
3. Discuss with and assist interested farmers the state's Department of Food and Agriculture (DFA) Agricultural Protection Restriction (APR) program and/or any other similar funding sources to promote the continued agricultural use of the land through.	OSRP Committee	Ongoing

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GOAL C: Improve communication, planning, and coordination with related organizations and authorities regarding open space and recreation needs and issues.	**Responsibility of**	**Deadline by**
Objective 1: Share the Open Space and Recreation Plan goals with land trusts, adjoining towns, historic groups, regional and state agencies (such as watershed associations, lake associations, planning commissions, etc), and other conservation organizations.		
***Action**:*		
1. Invite representatives from aforementioned to address open space and recreation related concerns as they arise.	OSRP Committee	Short/Ongoing
2. Work in a reciprocal manner with neighboring cities and towns to obtain and protect open space and wildlife corridors of multi-community concern.	OSRP Committee	Short/Ongoing
3. Institute an annual meeting where regional organizations (NRWA, MRPC, Wachusett Greenways, etc.) meet with town boards and interested public to discuss and promote regional partnership.	OSRP Committee	Medium
Objective 2: Explore Alternatives for Water Quality Management and Mitigation at important water resources.		
1. Conduct a study of the opportunity costs of certain types of development along the Wekepeke Aquifer	OSRP Committee Consultant	Short
2. Partner with neighboring communities to protect water resources of the Wekepeke Aquifer and wildlife habitat of the Wekepeke Brook	OSRP Committee Consultant	Short
3. Investigate funding opportunities for infrastructure improvements for critical areas such as East Lake Waushacum, such as the Community Development Block Grant Program, or the Lakes and Ponds Grant Program	OSRP Committee Consultant	Short
4. Develop a Wastewater Management Plan to update the Anderson Nichols study and reevaluate the need for sewer connections in selected areas of Sterling.	OSRP Committee Consultant	Short/Medium

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GOAL D: Enhance the number, variety, access, and maintenance of recreation areas and facilities.	**Responsibility of**	**Deadline by**
Objective 1: Work with MDC to enhance access to MDC lands for recreational activities.		
Action:		
1. Review the MDC Public Access Plan where it addresses lands in Sterling.	OSRP Committee	Short
2. Publicize the public access opportunities available on MDC lands.	OSRP Committee	
3. Determine what the desired uses are that currently are not permitted, incorporating the recommendations of the Open Space and Recreation Plan.	OSRP Committee/MDC	Short
4. Identify and meet with MDC representatives.	OSRP Committee	Medium
5. Coordinate outdoor educational activities on Wachusett watershed lands with the MDC.	OSRP Committee/MDC	
6. Negotiate for appropriate changes in the MDC public access policy.	OSRP Committee/MDC	Medium
Objective 2: Develop an ADA Transition Plan for currently inaccessible Open Space and Recreation resources in the town. Such a plan would be eligible under the Community Development Block Grant Program.		
Action:		
1. Establish a Commission on Disability	Board of Selectmen	Immediate
2. Develop a Transition Plan to implement recommendations for ADA improvements at selected sites	DPW/ Commission on Disability	Short
3. Develop wheelchair accessible pathways at Sholan Park and Butterick Nature Trail	DPW/ Commission on Disability	TBD
4. Build a wheelchair accessible fishing pier on the Stillwater River and/or at East and West Lake Waushacum	Commission on Disability/ MDC	TBD
5. Upgrade restroom facilities to ADA requirements at Sholan Park and Griffin Athletic Complex	DPW/ Commission on Disability	TBD
6. Create an accessible nature and interpretive trail loop at Rocky Pond Conservation area	Commission on Disability/ MDC/Conservation Com-mission	TBD
7. Add designated HP parking spaces and signage at all facilities	DPW/ Commission on Disability	TBD
8. Create HP access to swimming beach at Lake Waushacum/ Sholan Park	DPW/ Commission on Disability	TBD
9. Add HP accessible picnic tables to Sholan Park, Griffin Athletic Complex and West Sterling Athletic facility	DPW/ Commission on Disability	TBD

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GOAL D: Continued	**Responsibility of**	**Deadline by**
Objective 3: Establish a capital improvements plan to maintain and improve current recreational facilities and work toward creating new ones.		
Action:		
1. Determine the needs for improving the tennis courts	OSRP Committee/DPW	Short
2. Determine the needs for installing lighting at the athletic fields	OSRP Committee/DPW	Short
3. Incorporate ADA Compliance measures into the improvements plan.	OSRP Committee/DPW	Short
4. Add low cost winter sports facilities such as ice skating, sledding, and cross country skiing to the annual program.	OSRP Committee/DPW	Short
5. Apply for state and federal funds to further develop and maintain recreational facilities.	OSRP Committee	Medium
6. Implement the capital improvements plan	Finance Committee/DPW	Medium

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GOAL E: Ensure implementation of the Open Space and Recreation 5-Year Action Plan, which is written to coordinate with the needs of Executive Order 418 and development of a Master Plan.	**Responsibility of**	**Deadline by**
Objective 1: Ensure the formation of an Open Space and Recreation Action Plan Implementation Committee.		
Action:		
1. Meet with pertinent town officials to effect above.	OSRP Committee/ Board of Selectmen	Immediate
2. Publicize and otherwise encourage townspeople to participate in various aspects of this committee's work.	OSRP Committee	Immediate
Objective 2: Support efforts to create funding sources for open space, recreation, and historic resources acquisitions or access..		
Action:		
1. Organize a sub-committee focused on educating the town about the benefits of adopting the Community Preservation Act.	OSRP Committee	Short
2. If acceptance level is heightened and cost/benefit advantages are clear, encourage the townspeople to support a warrant at Town Meeting for adoption of the Community Preservation Act.	OSRP Committee	Medium
3. Develop a conservation master plan.	Conservation Comm	Medium
4. Publicize the existence of the Conservation Fund and annually add to it for future land acquisition.	Conservation Comm	Medium
5. Develop a fundraising strategy that supports previously identified needs for purchases and acquisitions.	OSRP Committee	Short
6. Develop a vehicle for fund raising to purchase identified parcels when they become available.	OSRP Committee	Medium
7. Establish a capital improvement plan to maintain current recreational facilities and work toward creating new ones.	Finance Committee/DPW	Short
Objective 3: Examine the feasibility of hiring a professional land use planner for the town.	Finance Committee	Medium
Objective 4: Develop a Master Plan		
Action:		
1. Participate in the E.O. 418 Community Development Planning Process as a foundation for the Master Plan	Board of Selectmen	Short
2. Use the Open Space and Recreation Plan as an equivalent of the tasks required to waive the open space requirement in the Community Development Plan under Executive Order 418.	OSRP Committee/ MRPC	Short
3. Procure funding for a Master Plan at Town Meeting, or identify and secure other funding resources.	OSRP Committee Planning Board	Medium
4. Incorporate the Division of Conservation Services approved Open Space and Recreation Plan into the Natural Resources Chapter of the Master Plan.	Master Plan Committee	Medium
5. Incorporate the E.O. 418 Community Development Plan into the Master Plan	Master Plan Committee	Medium
6. Complete the Master Plan	Master Plan Committee	medium

SECTION 10 - PUBLIC COMMENTS

SECTION 11 - REFERENCES

1990 Sterling Townwide Planning Survey

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SECTION 12 - Appendixes

A. MAPS

- Zoning map
- Land Use 1999
- Soils Suitability Map
- Special Landscape Features Map
- Water Resources Map
- Historic Features Map
- Open Space Map
- Action Plan Map

B. PUBLIC PARTICIPATION

Included in this appendix are the meeting agendas, minutes, attendance sheets, press releases, and the public forum flyer for the Open Space and Recreation Plan Committee.

C. SURVEY FINDINGS

Results of the Sterling Open Space and Recreation Plan Public Opinion Survey

In April of 2002, The Montachusett Regional Planning Commission and the Sterling Open Space and Recreation Plan Committee conducted Public Opinion Survey of Sterling Residents. Its purpose was to determine the significant priorities Sterling residents hold for protection and preservation of Open Space, and their perceptions of community need for recreational facilities. These priorities will be used to develop a five-year action plan for the Town.

In general, respondents support the concept of preserving the rural character of the town. They expressed frustration with the rapid growth of residential and industrial development in the town. They recommended selected improvements to recreational facilities, such as installing lights on athletic fields and improving or building new tennis courts. There is interest in a skateboard park and a nine-hole golf course, as well. Finally, many pointed out the need to publicize the existing conservation lands and hiking and biking trails, as well as the need for parking at public access points to these facilities. A number of individual comments accompany the tabulations presented here.

The survey was distributed through The Landmark, a local newspaper serving the Towns of Holden, Paxton, Princeton, Rutland, and Sterling, the five communities in the Wachusett Public School District. The April 4th issue of The Landmark was a Total Market Coverage issue. It was distributed to every household in the Town . Over 3,500 households in Sterling received a copy of the newspaper.

Another 450 copies were distributed to families through the Chocksett Middle School. The Recreation Committee distributed 400 surveys through opening days at Softball and Little League. Another 500 surveys were available at three central locations downtown, the library, the Butterick Municipal Building, and the Department of Public works. Surveys were also distributed through the Boy Scouts and the Lake Association, and at the DPW recycling center. Over 5,000 surveys were distributed to the Town residents. Despite the extensive coverage of the town, the committee received just 143 responses, a response rate of 2.9 percent of the population. Ninety-seven percent of the town did not respond.

Though the response rate is limited, the survey offered valuable insights to the community that will prove to be useful guidance in the development of the action plan.

Question 1: Is it important to preserve or protect: (yes, no)

	Yes	No	No Answer
a. Buildings of historical/architectural interest	128	10	5
b. Open Space and Farmlands for scenic views and vistas	126	8	9
c. Open space for active recreation purposes	98	28	17
d. Open space for passive recreation purposes	118	9	16
e. Wetlands and uplands for conservation of natural habitat and water resources	129	4	10

Most people agree that they support all of the open space goals listed above, although there is less support for open space for active recreational purposes.

Six respondents gave suggestions:

- land or landmarks of historical significance
- open land for deer hunting
- Town beach, lake. Historic buildings are not as important as the others.

- waterways
- vernal pools.
- protect the town from over building. Keep building to a minimum.
- ski paths, sports/soccer area for walking with animals.

Question 2. To preserve open space, would you: (answer each, yes or no)

	Yes	No	Blank
a. No action is necessary	10	75	56
b. Serve on a town committee	50	54	39
c. Support town efforts to purchase land	115	11	17
d. Sell land to town at bargain price	23	61	59
e. Sell land to town at fair market value	47	41	55
f. Support State purchase of land or development rights	103	16	16
g. Join/participate in a group to raise funds for property	62	44	37
h. Rewrite your deed to limit future use of the land	33	51	59
j. Donate land or money to buy land to the town for conservation	75	35	33
i. Vote for a limited tax rate increase to buy land	54	43	46

People answered this question selectively according to the items they felt most strongly about. In many cases, they left items blank. Presumably, they did not have an opinion about the item one way or another. It is clear that most respondents felt strongly that they would support state or town purchases of land or development rights.

Four respondents offered the following comments.

- Does the 2-acre minimum spread the town out too much?
- I would help on projects to raise money
- I contribute to land trust fund already
- I would donate if I had land or money

Question 3: Of the following open space related problems, which do you believe are the most critical for Sterling?
0=No Answer, 1=Most Important, 2=More Important, 3=Average, 4=Less Important, 5=Least Important, 6=Extremely Unimportant

	0	1	2	3	4	5	6	Total
3a Maintaining Sterling's Character	17	71	17	15	11	12		143
3b Disappearing Wildlife habitat	21	49	25	24	12	10	2	143
3c Disappearing farms	18	48	27	22	14	14		143
3d Pollution of Lakes, Ponds & Wetlands	17	70	19	13	17	6	1	143
3e Loss of Open Space	22	53	25	20	12	10	1	143
3f Lack of Adequate Recreational Facilities	29	18	19	27	5	38	7	143

This question takes the sentiments expressed in question one a step further and begins to assess the priority of open space issues for the residents. The tally of responses showed that Maintaining Sterling's Character and Pollution of Lakes, Ponds & Wetlands were the most important open space related problems. Lack of adequate recreational facilities was the least important open space related problem.

Six respondents offered these observations:

- keep residential building down
- litter
- loss of non-mdc open space
- need a plan to guide town in land purchase decisions and recreation priorities
- you need farmers for farms
- town should regulate developers to prevent any more eyesores like Heritage Builders on Route 62

Question 4. What actions should Sterling take regarding protection of East Lake Waushacum and other water-bodies? (yes or no)

	Yes	No	No Answer	Total
a. Continue present land use policies	36	47	60	143
b. Restrict the land uses permitted within the watershed	100	11	32	143
c. Pass a bylaw to establish a watershed protection district	91	17	35	143
d. Purchase watershed lands to protect them from development	101	19	23	143
e. Install town sewerage or small onsite sewage treatment plants	53	40	50	143
f. Increase the minimum lot size requirement for creation of new lots	79	27	37	143
g. Adopt performance standards to regulate development to limit contaminant flow	100	11	32	143

a. 41.9% did not answer, 33% felt a change in land use polices was needed.
b. Nearly 70% want to restrict the land uses permitted.
c. 63% Want to pass a bylaw to establish a watershed protection district.
d. 70% want to purchase the watershed lands to protect them from development, 13% were opposed.
e. 35% did not answer. Of those who answered, people were split on installing town sewerage or small sewerage systems. 38% said yes there should be installation of sewerage systems, 28% were opposed.
f. 55% Support increasing the minimize lot size requirement for creation of new lots, 19% were against this.
g. 70% support performance standards for new development to limit contaminant flow.

In addition, several people offered the following comments to this question.

- don't know enough about current town policies to answer accurately
- increase lot size in subdivisions
- lake shore owners should take responsibility
- not totally aware of what is going on but would like to protect lake at all costs
- reduce development
- require lakefront properties to update septic systems or face fines. Perhaps state or town to share cost.
- restrict motorized water craft and monitor septic systems
- use land for non-threatening use
- regulate watercraft type on East Lake Waushacum

Question 5. What is your opinion of the amount of conservation land in Sterling?

Not Enough	Enough	Too much	Don't Know	No Opinion	No Answer
84	20	4	13	6	16
59%	14%	2.8%	9%	4.2%	11%

Most respondents felt that there is not enough conservation land in the town.

Recreational Interest	Frequency of Response
Walking	85
Swimming	69
Hiking	63
Biking	52
Bird watching/Tracking	39
Non-motorized boating	38
Fishing	37
Picnicing	32
Organized Sports	28
Ice Skating	28
Golf	26
Mountain Biking	21
Running	21
Camping	16
Motor Boating	15
Rollerblading	14
Horseback Riding	10
Hunting	9
Snowmobiling	8
Track and Field	6
Dirt bikes/ATV's	3

Question 6. Please check your top five Recreational Interests. Most respondents (63) listed their top five interests. Some listed less than five, presumably indicating that they only engage in less than five. Twelve respondents did not answer the question. Eleven respondents listed more than five activities.

No Activities	12
One Activity	2
Two Activities	7
Three Activities	12
Four Activities	35
Five activities	63
Six Activities	7
Seven Activities	2
Eight Activities	1
Fourteen Activites	1

The most frequent response was walking. Eighty-five people gave this response, representing 59 percent of the respondents. The top five recreational activities are walking, swimming, hiking, biking, and Bird watching and tracking. The most popular recreational activities are those that seem to have minimal impacts on the land uses that support them.

A total of 28 respondents listed multiple organized sports in their answers. A few respondents listed recreational interests that were not included in the list, including tennis and cross-country skiing. Some would like to see the tennis courts either returned or improved.

baseball	2
baseball, basketball	3
baseball, football	1
baseball, lacross	1
cross country skiing	6
ice hockey	1
soccer	3
soccer, baseball	5
soccer, basketball	1
tennis	1
soccer, football, softball, tennis	1
soccer, baseball, football, track & field, softball, lacross	1
soccer, baseball, basketball	2

Question 7. How often do you use Sterling's recreational resources? (answer all that apply) The most frequently used resources in Sterling are the roads (for walking), the beaches, and the hiking trails. The seemingly low use of the skating rink points to the newness of the facility. The blank answer indicates that some respondents did not use that facility.

	Often	Sometimes	Never	Blank
Walking on Road	83	37	10	13
Beaches	28	70	24	11
Hiking Trails	27	69	28	19
Organized Events	20	68	33	22
Conservation Lands	27	59	31	26
Playing Fields	40	30	58	15
Playgrounds	21	39	60	23
Fishing Access Points	14	41	66	22
Bike Path	9	45	59	30
Skating Rink	2	39	76	26

Some respondents indicated that the town lacks playgrounds, pointing to a need. The following nine comments also pointed out a need for publicizing the recreational offerings of the town. MDC lands, open fields, tennis courts, and trails were not were not listed in the question.

- Didn't know we had a bike path
- I am shocked these services are available. I am a new resident -(2 years) you need publicity
- mdc reservoir lands
- open fields orchards for cross country skiing, bird watching, snowshoeing
- Tennis Courts
- Tennis courts/often
- the trail from the Cider mill works to The Quag and the track near Houghton School.
- would like to use bike paths. Where are they?
- There aren't any playgrounds. Where are the hiking trails?
- Where are the bike paths?
- track often. Running on roads often. would use playgrounds often if we had one downtown. What bike path?

Question 8. Rate your satisfaction (from 1 to 5) with each of the recreational facilities listed: Five respondents listed the following observations. In twenty-three cases, respondents skipped the entire question. In many cases, respondents answered that didn't know what their satisfaction rate would be, because they hadn't used the facility, or they skipped over the facility because they don't use it. On average, people left an option blank 28% of the time. In general, people who responded are split between feeing that the recreational facilities are generally adequate, where they exist, or in need of improvement.

In addition to their satisfaction rating, a few people offered comments to the question, as follows:

- airport needs improvement
- I say snowmobile trails are excellent because I don't think there should be any.
- poison ivy needs to be contained on rail trail and at fishing areas.
- the track has lots of rocks on it.
- town should have a preschool/playground accessible 7 days week during daytime hours.

See Table on following page.

Rate your satisfaction Number of responses	No Answer	Excellent	Adequate	Needs Improvement	Non-Existent	Need New	Don't Know
Conservation Areas	35	13	37	36	1	8	13
Playgrounds	31	12	37	31	8	10	14
Fairgrounds	31	25	54	19	5	2	7
Tennis courts	37	2	18	38	8	5	35
Beach Facilities	31	14	48	36	3	1	10
Hiking/Walking Trails	33	11	40	31	4	5	19
Boating Access Points	41	7	41	13	1	3	37
Hunting areas	44	5	16	5	1	3	69
Playing Fields	36	19	30	28	2	9	19
Skateboard Park	45	4	7	9	21	9	48
Golf Courses	45	11	25	5	10	4	43
Ice Skating Facilities	41	9	44	15	4	2	28
Cross-country Skiing	41	4	25	22	8	6	37
Biking/Mountain Biking Trails	47	5	21	19	11	5	35
Camping Areas	46	5	15	11	15	3	48
Parks/Gardens	38	6	32	31	7	8	21
Family Picnic Areas	45	4	30	31	4	7	22
Inline skating facilities	46	2	9	5	23	8	50
Fishing Access Points	46	8	36	14		2	37
Snowmobile trails	47	6	20	6	7	4	53

Question 9. How long have you lived in Sterling? (Optional) For those who have lived in Sterling for 20 years or less, the response rate was fairly evenly distributed. Those who have lived in Sterling over 20 years outnumbered each of the other categories by a third.

Less than 5 years	27
5 to 10 years	30
10 to 20 years	32
More than 20 years	51

Question 10. Which of the following actions should Sterling pursue regarding recreation opportunities? (Check all that apply) The individual priorities were summed and ranked by frequency of response.

Improve recreational access to public lands*	79
Improve maintenance of and enhance existing recreational facilities.	57
Provide more recreational facilities	47
Install lights at soccer and baseball fields to increase access	41
Improve parking	37
More programs at East Lake Waushacum	35
Improve sidewalks	34
More publicity for recreation programs/ opportunities	30
Provide more recreational programs	29
No Action, programs adequate	27
Improve handicapped accessibility.	20

Actions to pursue are ranked in order of the frequency of yes responses. The plan should identify where parking for recreation activities needs improvement, where people like to run, where sidewalks (as relates to recreation) need improvement, and what kinds of safety improvements could be made in both the short run and the long run.

Fourteen respondents gave the following opinions:

- don't know
- Improve or replace tennis courts
- leave conservation land alone
- MAKE BETTER USE OF existing facilities
- need maps or other info on town lands. Work with MDC to allow for other recreation
- paved bike/rollerblade trail
- provide more open space and take actions to limit development in inappropriate areas
- publish what is available. People may not know
- recreational/youth center
- Offer a sailing program for kids
- tennis courts
- what sidewalks!!!! (in response to the option improve sidewalks)
- widen roads for running/cycling currently many are dangerous
- With current budget restrictions, recreation is not a priority spending concern. These are all optional needs. There are enough events in surrounding areas to provide recreation of all types.

Question 11. Which of the following events would you like to see more of in Sterling? (Check all that apply)

Nature Events	74	52%
Concerts	70	49%
Youth Programs/activities	39	27%
Holiday events	33	23%
Drama Productions	31	22%
Road races	31	22%
Trips/Tours	22	15%
Dances	15	10%
No new events/programs	13	9%

Nature events and concerts are in the greatest demand among the respondents.

Three respondents offered comments:

- community events - things that would draw members of community out
- golf program
- public use of rock wall at school

Question 12 - Which of the following best describes your current living situation? (Check one)

Family w/preschool children	10
Family w/ young children	29
Family w/older children	24
Single adult	8
Adult couple/no children	35

2. General Comments

1. I think it is sad that this town will not support 100% playground for Pre-K children, and like other things for recreation it is turned into a political nightmare. It seems like it is more important to spend money on cars, trucks, snow removal equipment, etc. than it is to provide some place for children to enjoy in their own town. Someplace that will far outlast all the machines. I guess recreation is not considered a "service". To me it is a disservice and a disgrace especially with all the new families in town that could benefit from this type of "service". Why does it always have to be a rat race?

2. Being able to access land for hunting w/o parking in someone's yard is important. It is difficult getting to many tracks of land. Widen roads and provide better shoulders on roads so that they don't break down so rapidly, for running and cycling.

3. We were not able to fairly rate items list in #8. We are not aware of their existence other than that we know of 1 boating access point and beach facilities

4. We are in favor of preserving people's right to do with their property as they choose, based on laws issued by federal and state legislatures, not modified by a select few individuals in town.

5. The planning board is a joke. Need new faces and intelligence.

6. This is a town with a country look-fast disappearing. What's with this "Mulligans"? To keep our property values -keep Sterling rural.

7. Survey after survey asks to retain rural character of the town. Town government has not done so. Many of our problems are due to too rapid growth

8. It would be nice if the town had a nine-hole golf course for its residents.

9. The real problem with growth in Sterling is that town government has facilitated developers and development and has not done planning (i.e. Master Plan) that would have helped preserve more open space, farms, and rural character.

10. I live on Meetinghouse Hill Rd near the center of town and have two young children, one of whom is learning to ride a bike. To do so, we have to drive him to the Houghton/Chocksett school parking lot or use the former tennis courts behind the Old Butterick School. I spent a lot of time on those courts as a youth (not to mention the swings, merry-go-round and monkey bars) and it is very disappointing that my children have nothing like that. I can't believe a playground was converted to parking and nothing has been done to replace the lost facilities- In the center of the town no less. Talk about poor planning!

11. Please fix tennis courts!

12. I think there are enough recreational facilities for children. Spend townspeople's money on preservation of open space to keep the original farm town character that is Sterling. I hate to see the town turning into another Auburn or Marlborough; look at the traffic in West Boylston!! We can't be apple town when houses replace the apples.

13. We don't need more recreational land, we need better use of land available. We need to preserve open land and farms.

14. Sterling must be involved in the purchase of Clinton land-especially in the Heywood Reservoir area-to compliment Leominster's efforts in land preservation. We cannot afford to loose this land to Clinton's interests. We do not need a municipal (Clinton) golf course in this sensitive area. We must also compliment the MDC's land purchases. Before we can identify uses for land we need to have the land.

15. I would like to see the town of Sterling build a larger tax base to include more business and industrial tenants. We have a great location and lots of land, to attract more companies to Sterling.

16. Puppet shows, movies for children, community playground-centrally located near downtown, skate park, hiking map of location of conservation areas and public lands, rail-trail crushed stone. The ice skating rink was great. Possibly certain hours could be set aside for hockey.

17. Sprawl has blighted Sterling. It must stop!

18. Let's limit use of open space to low impact types of activities, and prevent destruction of land by over-use from dirt bikes, ATV's or mountain bikes. Non-motorized are probably ok in some areas, but some restrictions are needed. From I-190 along the power line, you can see trails that are getting worse and worse-not to mention the noise that would result from "open" use of public land by motorized vehicles. Maybe designate separate space or something.

19. I can't fathom why the town is even considering spending money on "recreation". This is optional-non-essential? There are enough state parks and places in surrounding towns to accommodate most people's "recreational needs". Plus, how many ball fields does a town need anyway, especially when we can't even afford to mow them this year because of budget cuts. I want to spend our dollars buying land and leaving it natural for conservation to offset the surge of development in town.

20. Please don't forget horseback riders. They have been a large part of Sterling for decades. Open spaces and trails are being built up with houses at a terrifying rate. We need to act quickly to preserve what little remains. We may be able to do little about the Artic Wildlife Refuge but we ought to be able to do something in our own town. The Heywood Basin Reservoir would be an excellent place to start.

21. We are new to Sterling by one year. I just wanted to tell you we love living in such a great community. The children are happy with their schools. And we love the quiet quaintness that Sterling has to offer. The only concern is the fast pace of all the new residential construction.

22. To preserve open space, require builders who want to create subdivisions to make house lots smaller and have each subdivision contain several acres of open space. Builders and acre-size ++ lots are a problem. Each subdivision should have a proportionate number of acres of open space. Smaller house lots. Builders are responsible for misuse of land! LAWNS ARE TOXIC!! We need to all wake up on this matter. No Chemicals or pesticides. Two excellent State parks are nearby – Leominster and West Boylston Rail Trail. Use them! Avoid new costs! Plenty is already available FREE!! More publicity is needed. Expand school site resources for redundant, continuous use. This will save money and get school kids better facilities.

23. I am shocked that many of Sterling's recreational resources are available! I am a new resident (2 years). You need publicity!

24. Really need a preschool playground (nothing for this age)! Thank goodness for the library. Need a brochure to tell about what is available in town and how to get to it. Teens need a place to go. Pool room/pizza place. Coffee shop. Cheese-shop.

25. More concerts in the park, program/shows for pre-school age.

26. As an elder retired couple in town, we do not have answers to many questions that are of greater interest to those with families.

27. Sterling needs a skate board facility for our young people

28. I would like to suggest that the bike race start and finish out of Sterling Center. It totally jams the cen-

ter on a Saturday when taxpayers would like to go to the bank, the recycle center, and the library. Every year people get angrier about it.

29. Please continue the ice rink in center of town-great asset. Could a map be printed in the paper showing different "public" ownership of land in the town? Is bandstand big enough for a band concert?

30. Keep Sterling green. Enforce existing regulations. Encourage planning board to think preservation.

31. This survey was incomplete because I don't have baseline information on open space. You need a public information/education effort. I would have liked to see a map of Sterling that listed what already exists. I didn't know we had camping, ice-skating.

32. I would do a lot to maintain open space in Sterling. However, it should be open space so we can breathe, drink clean h2o, maintain life. Put the words “provide recreation” in ANY portion of the info and I will totally refuse to do anything to help-there is no need to provide Recreation for the people of today and I will DEDUCT any portion of my taxes that would go to this end.

33. I believe that the controversy about lack of athletic fields in unfounded-it is more an issue of scheduling. All the organizations want the field at the same time. Plan schedules to use them when they are empty.

34. I feel it would be a tremendous loss if Sterling lost its open space. While I recognize the revenue opportunity to develop the land I'm confident we (as a community) could find creative ways to secure the opportunities and preserve the land. I would be willing to help

35. We like Sterling very much. It would be good to keep the small town atmosphere & scenic New England quality of Sterling.

36. I have been involved with recreational programs for many years. The real problem with recreational needs (despite those who want the moon) is that scheduling of fields and activities is very poorly organized. Fields are either empty or everyone waits to use them at the same time. The planning board in this town is a joke. It facilitates development and planders to developers. The sites committee is totally unrealistic.

37. SLOW DOWN GROWTH

38. Slow traffic down, speed signs, speed bumps, law enforcement

39. I’m a life long sailor. I might be interested in exploringa sailing program for kids. Its something I’ve given some thought to in the past and have ideas about.

40. Sterling needs to slow down on development of building houses and development. We are building too many “McMansions” and fragmenting our natural, open spaces, which are important for wildlife habitat.

41. Town needs guidance on land purchases. The MDC restricts many uses of their property in ways which don't make sense. Dogs not allowed? Give me a break, there are other uses which have more potential for water quality concerns. Their signs need to be clear on what is or is not allowed and be friendlier. I would like to know more about town conservation lands-where are they, are there maps are there any restrictions on use I.e. hunting is that allowed on those lands. What are the land use policies on sterling land trust property?

42. You should check out the town of Wenham and their sidewalks-they are wonderful! Wish Sterling had a similar sidewalk and bike trail program.

43. We think each building lot should be larger to help preserve Sterling. Sterling is a quaint little town. The downtown area could use some updating, maybe something to add to Sterling's charm. Maybe publicize Mary Sawer and little lamb more.

D. STERLING'S SECTION 504 SELF- EVALUATION

1. Part I- Administrative Requirements

1. Designation of an ADA Coordinator - Attached is the official designation of the ADA Coordinator responsible for the Town of Sterling: Stuart Johnson

2. Grievance Procedures - Attached is the Grievance Policy for the general public to follow in the event that they are not provided equal access to facilities and activities provided by the Town. (copy SAMPLE grievance policy from Appendix H: ADA access self eval)

3. Public Notification Requirements - Attached are copies the Public Notification posters providing citizens information regarding the towns ADA policy.

4. Participation of Individuals with Disabilities in Organizations representing the Disabled Community. Russell Fitch participated as a member of the Open Space and Recreation Committee. He provided assistance with the ADA 504 Self-Evaluation Inventory.

   Council on Aging?
   Commission on Disability?
   Recreation Committee?

2. Part II-Program Accessibility

The Program Accessibility includes an inventory and transition plan that includes any buildings, recreation facilities and equipment, programs and services under the jurisdiction of the conservation commission or recreation department. This also includes lessees or concessionaires.

a). A. Facility Inventory

Seven sites under the jurisdiction of the Conservation Commission or the Selectmen (in lieu of the Recreation Department) were evaluated for compliance with the Americans with Disabilities Act requirements. Combined, the seven sites were determined to include all of the passive and active recreational activities provided by the Town. The Inventory included the following sites:

1. Sholan Park
2. Butterick Trail
3. Muddy Pond Ball fields
4. West Sterling Athletic facility
5. Rocky Pond Conservation Area
6. Griffin Road Athletic Complex
7. Chocksett School play ground

PERSONNEL BY-LAW
TOWN OF STERLING

PREAMBLE

EQUAL EMPLOYMENT OPPORTUNITY POLICY

The policy of the town of Sterling is to provide equal employment opportunity to all candidates for employment or appointment and administer working conditions, benefits, privileges of employment, training, advancement, upgrading, promotion, transfers and termination's of employment for all employees without regard to race, color, religion, national origin, sex or age, physical and/or mental handicap or sexual preference.

SECTION 1. AUTHORIZATION/AMENDMENT

Pursuant to the authority contained in Sections 108A and 108C of Chapter 41 of the General Laws, the town of Sterling establishes plans which may be amended from time to time by vote of the town at a Town Meeting:

a. authorizing a Classification Plan classifying positions in the service of the Town other than those filled by popular election, those under the jurisdiction of the School Committee, those covered by collective bargaining agreements with the Town, those within the Municipal Light Department, and those in which the incumbent tenders contractual services which are not provided during regularly established working hours, into groups and classes doing substantially similar work or having substantially equal responsibilities;

b. authorizing a Compensation Plan for positions in the Classification Plan;

c. providing for the administration of said Classification and Compensation Plans; and

d. establishing certain working conditions and fringe benefits for employees occupying positions in the Classification Plan.

The Classification Plan and/or Compensation Plan and/or other provisions of this By-Law may be amended by vote of the Town at either an Annual or Special Town Meeting. No amendment shall be considered or voted on by Town Meting unless the proposed amendment has first been considered by the Personnel Board and the Finance Committee.

The Personnel Board, of its own motion, may propose an amendment to the plans or other.

The Personnel Board shall report its recommendations on any proposed amendment to the Finance Committee and the Board of Selectmen. The Personnel Board shall make its recommendations with regard to any amendment at the Town Meeting at which such amendment is considered.

FACILITY INVENTORY
NAME Sholan Park LOCATION: Lake Washacum
FACILITY INVENTORY

ACTIVITY	**EQUIPMENT**	**NOTES**
Swimming	Sand beach	Not ADA accessible
Picnicking	Enclosed swimming area	Not ADA accessible
Fishing	½ basketball court	Not ADA accessible
Basketball	sand volleyball court	Not ADA accessible
Volleyball	public bathrooms-building	Not ADA accessible
Boating	public changing facility-building	Not ADA accessible
	site signage w/ rules	Large lettering
	picnic tables	Not ADA accessible
	life guard stations	
	grills	Not ADA accessible-no paths
	trash receptacles	
	public pay phone	ADA accessible
	lawn area	
	stone dust paths	Not ADA accessible
	Parking > 50 spaces	Stone dust and turf parking lot w/ guard rails. No designated HP parking

FACILITY INVENTORY
NAME : Butterick Trail LOCATION: Park Street

ACTIVITY	**EQUIPMENT**	**NOTES**
Walking	Stone steps	Not ADA accessible
Hiking	Site sign	Large lettering
Mountain biking	Unimproved trail	Not ADA accessible
	Parking >50 ps	4 designated HP parking spaces in adjacent Town Hall parking lot
		ADA accessible restrooms available in adjacent Town Hall building

FACILITY INVENTORY
NAME: Muddy Pond Ball fields LOCATION: Muddy Pond Road

ACTIVITY	**EQUIPMENT**	**NOTES**
Little League baseball	Little league field, associated equipment and bleachers	Not ADA accessible
Softball		
"T" ball	Soft ball field w/ skinned infield, associated equipment and bleachers	Not ADA accessible
soccer		
	Temporary "port –o-potty" restrooms	Not ADA accessible
	Trash receptacles	
	Gravel parking area and on street parking	No designated HP parking spaces
	Site sign	

VIEW OF LITTLE LEAGUE FIELDS AT MUDDY POND ROAD

FACILITY INVENTORY
NAME: West Sterling Athletic Facility LOCATION: Princeton Road / Holden Road

ACTIVITY	**EQUIPMENT**	**NOTES**
Baseball	Two Babe Ruth baseball fields, associated equipment and bleachers	ADA accessible access to bleachers
Batting Cage		
Basketball	Announcers building and concession	Not ADA accessible
Tennis	Lighted basketball and tennis courts	No ADA accessible basketball standards
	Trash receptacles	
	Stone dust parking area >50 ps	ADA accessible No designated HP parking spaces
	Site sign	

VIEW OF BABE RUTH FIELD AT WEST STERLING ATHLETIC FACILITY

VIEW OF PARKING LOT, BATTING CAGE, BASKETBALL AND TENNIS COURTS AT WEST STERLING ATHLETIC FACILITY

FACILITY INVENTORY
NAME: Rocky Pond Conservation Area LOCATION: Beaman Road

ACTIVITY	**EQUIPMENT**	**NOTES**
Historic site/ Interpretive trail Walking Hiking Scenic water and woodland views,	Site sign Old stone culvert and waterfall Historic mill pond Old stone foundation Stream and waterfall (previous mill dam) On street dirt pull off parking < 3 ps	Not ADA accessible

VIEW OF HISTORIC STONE CULVERT AND MILL POND

VIEW OF SITE SIGN

VIEW OF WATERFALL AND STREAM

FACILITY INVENTORY
NAME: Griffin Road Athletic Complex LOCATION: Griffin Road

ACTIVITY	**EQUIPMENT**	**NOTES**
Baseball Softball	Babe Ruth field, associated equipment and bleachers	Not ADA accessible
Football Soccer	Two Soft ball fields w/ skinned infield, associated equipment and bleachers	Not ADA accessible
Jogging	Football field and goal posts	Not ADA accessible
Concession	Soccer played between fields	Not ADA accessible
Picnicking	Picnic Tables	Not ADA accessible
	Trash receptacles	
	Stone dust running track around football field	ADA accessible
	Bubbler	Not ADA accessible
	Stone dust parking lot >50 ps	2 designated HP parking spaces
	Concession building w/ Restrooms	Not ADA accessible
	Equipment storage building	Not ADA accessible
	Site sign	

VIEW OF BASEBALL FIELD AT GRIFFIN ROAD ATHLETIC COMPLEX

VIEW OF FOOTBALL FIELD AND TRACK

VIEW OF FIELDS, HP PARKING SIGNS AT GRIFFIN ROAD ATHLETIC COMPLEX

FACILITY INVENTORY
NAME: Chocksett School Play Ground LOCATION: Boutelle Road

ACTIVITY	**EQUIPMENT**	**NOTES**
Play equipment	5-12 age appropriate play structure w/ fibar safety surface	ADA accessible
Basketball		
Hop scotch	benches	ADA accessible
Field sports	adjustable basketball stan-dards	ADA accessible
	hopscotch on pavement	
	turf fields and paved walks	

VIEW OF PLAY EQUIPMENT AT CHOCKSETT SCHOOL PLAY GROUND

VIEW OF ACCESSIBLE BASKETBALL STANDARD
AT CHOCKSETT SCHOOL PLAY GROUND

E. FUNDING, LAND CONSERVATION, AND PRESERVATION RESOURCES

1. Funding Opportunities

a). Grant Opportunities from State Agencies For Environmental Projects

Executive Office of Environmental Affairs (EOEA)

Watershed Initiative: Volunteer Monitoring Grants

Contact:	John Clarkeson: (617) 626-1175, Christian Krahforst (CZM): (617) 727-9530 x415
Type:	Funds for the design and implementation of monitoring projects within the watersheds of Massachusetts. These funds may be used in the purchase of field and sampling supplies, laboratory testing, lab equipment, and supplies, administrative costs, outreach, and for specialized training needs of volunteers. The grant may not be used solely for salaries, administration, outreach or fund raising.
Eligibility:	Watershed Associations, citizen water quality monitoring groups for have conducted monitoring in marine or estuarine and fresh waters of Massachusetts.
Match:	No match requirement
$ Range:	Maximum of $5,000 – total amount available is $60,000
Examples:	Purchase of supplies; training of volunteers in sampling techniques
Schedule:	Two grant rounds completed. RFR usually available in early fall.

Planning for Growth Grants

Contact:	Kurt Gaertner: (617) 626-1154
Type:	Comprehensive growth planning for cities and town and development of regional policy plans.
Eligibility:	Municipalities and regional planning agencies.
Match:	25% can be cash or in-kind.
$ Range:	Up to $100,000.
Examples:	$80,000 to the towns of Buckland and Shelburne for the completion of an inter-municipal comprehensive plan. $50,000 to the Berkshire Regional Planning Commission and the Towns of Lee and Lenox for development of a sub-regional growth policy plan.
Schedule:	The RFR for the 1999 grant round is scheduled for release in late 1998 or early 1999. Projects will commence after 7/1/99.

Division of Conservation Services (DCS)

Self-Help Program

Contact:	Jennifer Soper: (617) 727-1552 x292
Type:	Funds for acquiring land for conservation.
Eligibility:	Municipalities: level of funding dependent upon the per capita income of a municipality's residents. (A town must have a state approved Open Space Plan to be eligible.)
Match:	52-70% grant of total project cost
$ Range:	Maximum Grant is $500,000
Examples:	Award to Falmouth to purchase coastal pond property adjacent to larger conservation area.
Schedule:	The application process begins in the spring with an application deadline of 6/1.

Urban Self-Help Program

Contact:	Joan Robes: (617) 727-1552 x544
Type:	Funds for acquiring land, renovation or development of park and recreation land facilities.
Eligibility:	Municipalities: level of funding dependent upon the per capita income of a municipality's residents. (Town must have a state approved Open Space Plan to be eligible.)
Match:	52-70% grant of total project cost.
$ Range:	Maximum Grant is $500,000
Examples:	Funds to the City of Cambridge to convert Danehy Park from a 50-acre dump to playing fields and open space.
Schedule:	The application process begins in the spring with an application deadline June 1st.

Massachusetts Environmental Trust

Environmental Grants

Contact:	Robbin Peach: (617) 727-0249
Type:	The Trust funds projects that: (1) encourage cooperative efforts to raise environmental awareness, and (2) support innovative approaches that can protect and preserve our natural resources, with a special focus on water and related land resources of the Commonwealth.
Eligibility:	Non-profit, community associations, civic groups, schools and institutions for higher education, municipalities, and state agencies.
Match:	See individual program guidelines.
$ Range:	See individual program guidelines.
Examples:	Recipients have included the Coalition for Buzzards Bay, Springfield Science of Cape Cod, and many others.
Schedule:	The Trust's list of funding availability for FY03 is now available. All program guidelines are available on the Trust's web site: http://www.agmconnect.org/maenvtr7.html

Funding Programs:

General Grants Program - $200,000 available. This program is designed to support general environmental projects statewide with a focus on water and related resources.

Biodiversity Program - $100,000 available. This program is designed to promote biodiversity conservation within the Commonwealth with a special priority placed on efforts to ensure the survival and recovery of threatened and endangered species.

Environmental Education Program - $100,000 available. This program seeks to further place-based environmental education in communities across the state by encouraging collaborative efforts at the regional level.

Environmental Monitoring Program - $100,000 available. This program offers support for environmental monitoring efforts throughout the Commonwealth that have direct and demonstrable management implications for water-related resources or habitats.

New Horizons Program - $100,000 available. This program seeks to address previously unexamined environmental issues related to water resources.

Youth in Environmental Philanthropy Program - $50,000 available. This new initiative seeks to encourage youth involvement and leadership in environmental grantmaking throughout the Commonwealth.

PROPOSALS for the following programs are accepted on a revolving basis and are due on AUGUST 9, 2002; DECEMBER 9, 2002; and APRIL 9, 2003.

Community Foundation Endowment Program. The goal of this program is to help Community Foundations build environmental grantmaking capacity by offering match challenge grants. Available only to Community Foundations as designated under the IRS tax code.

Directed Grants Program. The Trust strongly recommends that applicants submit proposals through one of the defined grant programs. The Trust, however, realizes that needs occasionally arise outside the guidelines of the formal programs. As a result, the Trust reserves the right to invite and/or review letters of intent that do not fit specifically into the other initiatives.

Philanthropic Partnership Initiative. Modeled after the Trust's successful Community Foundation Partnership Initiative, this program seeks to encourage philanthropic commitment to the environment among small philanthropic institutions. Check the program guidelines for eligibility requirements.

Office of Coastal Zone Management (CZM)

Coastal Pollutant Remediation (CPR) Program

Contact: Robin Lacey, CPR Coordinator, at (617) 626-1220 or e-mail robin.lacey@state.ma.us.

Type: Provides competitive grants to cities and towns to clean existing stormwater discharges from municipal roadways and to install boat pumpouts. The goals of the program are to identify and treat urban runoff from municipal roadways, improve coastal resources such as shellfish beds and fish habitat, demonstrate traditional and innovative systems for treating runoff, and educate the public about stormwater runoff problems.

Eligibility: Cities and towns located within the following coastal watersheds: Boston Harbor (Mystic, Neponset, and Weymouth & Weir), Buzzards Bay, Cape Cod (Bay and Nantucket Sound), Charles, Concord, Ipswich, Islands, Merrimack, Mount Hope (Lower Mt. Hope), Narragansett (Upper Mt. Hope), Nashua, North Coastal, Parker, Shawsheen, South Coastal, Taunton, and the Ten Mile are eligible. This includes Sterling.

Match: 25% local match, cash or in-kind services

$ Range: No restrictions; past grants have ranged between $3,000 and $140,000.

Examples: Design and construction of a Best Management Practice structure to filter Roadway runoff flowing through a storm drain; boat pump-outs.

Schedule: RFR released in late spring with deadline in summer.

Department of Environmental Management (DEM)

Lake and Pond Grant Program

Contact: Steve Asen: (617) 727-3267, x 524

Type: Lake and Pond protection, preservation, enhancement, and public access.

Eligibility: Municipalities; Co-applications are encouraged from Lake and Pond Associations or Districts, and Watershed Associations.

Match: 50% cash match.

$ Range: Up to $100,000 for up to 3 years (for a total of $300,000, maximum)

Examples: Controlling non-point pollution; eradicating non-native aquatic plant species, developing lake and watershed management plans. Details are outlined at their website: http://www.state.ma.us/dem/programs/lakepond/lpigrant.doc

Schedule: Applications are mailed in October and the deadline is December 31. Call for more information.

Recreational Trails Program

Contact: Gary Brier: (617) 626-1454
Type: An element of the "Transportation Equity Act for the 21st Century" (TEA-21), provides funding support for a variety of trail development and trail maintenance projects.
Eligibility: Municipalities, nonprofit groups, and regional and state agencies.
Match: 20% minimum, in-kind permitted.
$ Range: $2,000-$20,000
Examples: Trail building materials; support of volunteer trail maintenance activities.
Schedule: Details available at their website: http://www.state.ma.us/dem/programs/trails/grants.htm

Greenways and Trails Demonstration Grants

Contact: Jennifer Howard: (413) 586-8706, x18; email jennifer.howard@state.ma.us

Type: Innovative projects which advance the creation and promotion of greenways and trail networks throughout Massachusetts.
Eligibility: Municipalities, RPA's, and nonprofit organizations.
Match: None required, although encouraged including in-kind contributions.
$ Range: $1,000-$5,000; up to $10,000 available for multi-town projects.
Examples: Improving access to rivers and trails, producing greenway and trail brochures, maps, signs, and curricula, and involving community members in greenway and trail planning and implementation.
Schedule: Applications are due in fall/winter each year – call for more information.
http://www.state.ma.us/dem/programs/greenway/grants.htm

Coastal Access Grants Program

Contact: Geordie Vining: (617) 727-3160, x 528
Type: Local and regional projects that improve and enhance the general public's recreational access to the coast.
Eligibility: Municipalities, RPA's, and nonprofit organizations.
Match: None required, although encouraged.
$ Range: Currently up to $5,000 per grant.
Examples: Develop a local public access plan, or a management plan for coastal property; develop a new coastal trail; enhance existing coastal access points; develop coastal access educational initiative.
Schedule: The application deadline is at the end of the calendar year, with awards announces 1-2 months later; projects and final reports must be completed by autumn. Call for exact dates and more information.

The Massachusetts Historic Landscape Preservation Grant Program

Contact:
Type:
Eligibility: Only Massachusetts municipalities may apply for funds, and preference will be given to the funding of projects that involve a partnership with a friends group or citizens advisory committee. Properties must be open to the public. Applications addressing landscapes that are not owned by a municipality will be considered if sufficient evidence is provided that the proposed project is in the public benefit, and that unrestricted public access will be guaranteed. The property must be listed, or eligible for listing, on the State or National Register of Historic Places. For construction projects the property must actually be listed on the State or National Register. If the property is not already listed, only planning and inventory projects will be funded.

Match: Reimbursement program requiring a municipal cash match of between 30% and 48% of the total project cost.
$ Range: up to $50,000 per year per project for Planning and Inventory and Education and Stewardship projects, and up to $100,000 per year for Construction and Preservation Maintenance projects. Municipalities with projects requiring greater funding are eligible to apply for a multi-year Schedule: Application Deadline is midspring.
http://www.state.ma.us/dem/programs/histland/overview.htm

Urban Forest Planning and Education Grants
Contact: Edith Makra, Eric Seaborn: (617) 727-3180, x 657
Type: Funds to build support for the protection and management of community trees and forest ecosystems.
Eligibility: Municipalities and nonprofit groups.
Match: 100%, in-kind allowed.
$ Range: Up to $10,000
Examples: Tree inventories that involve residents in data collection; hands-on training to students to observe, plant and care for trees; workshops and public awareness campaigns; urban environmental analysis (GIS).
Schedule: Applications are due in mid-April.

Heritage Tree Care
Contact: Edith Makra: (617) 727-3180, x 657
Type: Funds for pruning and maintenance of large or historic public trees.
Match:
$ Range:
Eligibility: Municipalities and non-profit groups.
Schedule: Call for more information

Mass ReLeaf Program
Contact: Edith Makra: (617) 727-3180, x 579
Type: Funds the purchase of trees for community planning projects by developing partnerships between business, government, and nonprofit groups.
Match: 50%, usually in-kind services to plant and maintain trees.
$ Range: up to $5000
Examples: Tree planting to reduce energy use, curb the urban heat island effect, and offset urban pollution; educational and promotional events to expand volunteer networks and corporate partners.
Schedule: Grants in early spring and fall when available. Call for details

Forest Stewardship Program
Contact: Steve Anderson: (413) 256-1201, Fax (413) 253-5542
Type: Grants to private forest landowners to protect forest ecosystems. Landowners, with assistance of DEM foresters, develop a forest stewardship plan for their property, which makes them eligible for Federal cost sharing funds to help carry out the plan.
Eligibility: Any forest landowner in Massachusetts, who meets the following criteria: ownership must be private, non-industrial, and non-profit; and size of forest land must be less than 1,000 acres in total in the State.
Match:
$ Range:
Examples: Forest stewardship plans and implementation can include any project which meets one of the 9 main goals, such as wildlife habitat management, erosion reduction, protection of endangered species, trails creation/maintenance, and timber quality improvement.
Schedule: Applications were due in March 1997.

Department of Environmental Protection (DEP)

Section 319 Nonpoint Sources Pollution Grants

Contact: Beth McCann: (617) 292-5901
Type: To control nonpoint sources of water pollution, particularly from agricultural lands, paved surfaces, and other areas where rainwater collects pollutants as it runs over the land.
Eligibility: Any interested public or private organization.
Match: 40% non-federal match of total project cost.
$ Range: $20,000 to $200,000
Examples: Bioengineering technique used to repair eroded streambank; development of outreach materials to educate about nonpoint pollution, innovative stormwater management techniques.
Schedule: An RFR is issued annually, around March 1, with proposals due to DEP around May 1. There is considerable lag time between applying for and receiving s319 funds. The RFR for Federal Fiscal Year 2004 will be available in March 2003 for projects that will be funded in 2004.

Section 604b Water Quality Management Planning Grants

Contact: Gary Gonyea: (617) 556-1152
Type: Water quality assessment and management planning.
Eligibility: Regional public comprehensive planning organizations such as: regional planning agencies, councils of government, conservation districts, counties, and cities and towns.
Match: Match not required but proposals are enhanced by demonstration of local support.
$ Range: $30,000 to $60,000
Examples: Provide technical assistance to communities for water supply protection and assist local officials in compressive water resources planning.
Schedule: Request for Response are typically issued by DEP each October for competitive projects with proposals due approximately six weeks later. Proposals are evaluated and funding is announced within two months of the proposal submission deadline. Generally, projects are expected to begin approximately eight months after the date of their selection by the Department.

Watershed Project Financing and Construction

Contact: Northeast Regional Contact: Alan Slater (617) 292 5749 or Thomas Mahin (781) 932-7660
Southeast Regional Contact: Robert Cady (617) 292-5713 or Richard Keith (508) 946-2784
Central Regional Contact: Paul Anderson (508) 792-7692 x. 2802
Western Regional Contact: Deirdre Doherty (413) 784-1100 x 348
Type: State Revolving Loan Program.
Eligibility: Massachusetts municipalities and wastewater districts.
Match: Loans are subsidized, currently at 50% grant equivalency. (Approximately a no interest loan.)
$ Range: In recent years the program has operated at an annual capacity of $150 to $200 million per year, representing the financing of 40-50 project annually.
Example:
1. Project/ Design/ Construction of municipal water pollution abatement activities, including wastewater collection and transmission facilities, nonpoint source projects (including Title 5), and infiltration/inflow removal.
2. Design and construction of projects to protect or improve public drinking water systems, including filtration, disinfestations, and distribution.

Schedule: Calendar Year Basis; applications due October 15.

Community Septic Management Program

Contact: Northeast Regional Office: Dave Ferris (978) 661-7600
Central Regional Office: Joanne /Kasper-Dunn (508) 792-7653x3763
Southeast Regional Office: Pamela Truesdale (508) 946-2881

Western Regional Office: Jane Pierce (413) 784-1100x353

Type: Loans for septic system planning and improvements.

Eligibility: Municipalities

Match: None

$ Range: This program has already undergone two rounds of funding. Every community was given a chance to participate during the years 1996-1998. Currently available option: Possible grant (up to $15,000) to develop a regional or watershed based septic system management plan. Upon completion of the plan the municipality would received a minimum $200,000 loan for upgrades. If the community is already participating in the program, and can demonstrate a need for additional funds, then the Regional Coordinator must be contacted through an "Expression of Interest".

Schedule: For new applicants: A two page "Expression of Interest" is required. Call the Regional coordinator for the 1999 schedule.

Municipal Recycling Grant Program

Contact: Brooke Nash: (617) 292-5984 / Peggy Harlow (617) 292-5861

Type: Recycling equipment, educational materials, and technical assistance grants

Eligibility: Municipalities and regional groups – must provide recycling data sheet and have municipal Buy Recycled policy.

Match: Recycling trucks ($20,000 or trade in of old truck requested)
Replacement curbside set-out containers (50% match required)

$ Range: No restrictions: FY 99 grants range from $7 - $112,654

Examples: Recycling grant items included public education information, set out containers, roll-off containers, recycling trucks, transfer trailers, hazardous household products equipment, recycled products, and technical assistance. New FY99 grant opportunities include storage sheds for collecting mercury-containing products, grants to pay for the recycling of electronics and mercury-containing products, technical assistance to increase participation in recycling programs, and re-refined motor oil.

Schedule: In FY 99, the application process began in July and the deadline was in September. Grant awards were announced in late October.

Municipal Recycling Incentive Program (MRIP)

Contact: Brooke Nash: (617) 292-5984 / Joseph Lambert (617) 574-6875

Type: Performance based grant that awards a per ton payment for primary recyclables collected through municipal programs.

Eligibility: Municipalities and regional groups – must meet minimum recycling criteria and elective criteria every 6 moths (criteria are cumulative and increase every 6 months).

Match: None

$ Range: FY 98 payments ranged from $76-$124,649 (Based upon $4/ton for drop-off programs and $8/ton for curbside programs).

Examples: FY 99 minimum criteria include: establish a municipal Buy Recycled Policy and tracking system; establish equal or "parallel" access to both solid waste and recycling collection services; expand recycling access to unserved residents. FY 98 elective criteria include: Multiple choices in the areas of recycling access, recycling participation, and recycled product procurement.

Schedule: For FY99, the first phase eligibility deadline is December 1, 1998 and the second phase eligibility deadline is May 15, 1999.

Department of Fisheries, Wildlife, and Environmental Law Enforcement (DFWELE)

Riverways Small Grants

Contact:	Small Grants Manager at 617-626-1546. email john.clarkeson@state.ma.us.
Type:	For projects which substantively advance some aspect of river, stream and/or adjacent land protection and/or restoration.
Eligibility:	Municipal governments (e.g., conservation commissions, planning boards) and non-profit organizations (e.g., watershed or community groups, land trusts). Note that preference is given to new applicants and new ideas; grants will not be awarded to the same organization three years in a row, or for the same project two years in a row.
Match:	No match requirement.
$ Range:	$1,000 - $10,000
Examples:	First year grants.
Schedule:	Call for dates. http://www.state.ma.us/dfwele/river/rivsmallgrnts.htm

Clean Vessel Act Grant

Contact:	Buell Hollister (617) 727-3193, x 334
Type:	Funds boat pump-out facilities and dump stations for the proper disposal of sewage from recreational boats.
Eligibility:	Municipalities, and private marinas with the support of municipalities.
Match:	
$ Range:	
Examples:	A fixed station attached to a dock where boats can be serviced or a boat equipped with a pump-out which services boats while attached to a mooring.
Schedule:	Funding for the next federal fiscal year is anticipated. Please call to inquire about the program.

Department of Food and Agriculture (DFA)
Contact: Massachusetts Department of Food & Agriculture, 251 Causeway Street, Suite 500, Boston, MA 02114, Phone (617) 626-1700, Fax (617) 626-1850

Agriculture Preservation Restriction (APR) Program

Contact:	Richard Hubbard, Program Director, Carol Szocik Legal Assistant: (508) 792-7712
Type:	Through the APR Program, the state offers to pay farmers the difference between the "fair market value" and the "agricultural value" of their farmland in exchange for a permanent deed restriction which precludes any use of the property that will have a negative impact on its agricultural viability.
Eligibility:	Farmers owning farms 5 acres or larger.
Match:	
$ Range:	
Examples:	From 1980 to 2000, deed restrictions have been placed on 468 farms totaling approximately 42,000 acres in 130 towns.
Schedule:	The program is a rolling application process. If a farmer is interested, the APR Program should be contacted.

Farm Viability Program

Type:	This program's purpose is to improve the economic bottom lines and environmental integrity of participating farms through the development and implementation of Farm Viability Plans. Financial agreements are made with participating farms upon the completion of such as plan which may include either the purchase of an agricultural covenant by the state for a term of 5 to 10 years, or payment for the implementation of the developed Farm Viability Plan.
Eligibility:	Farms of 5 acres or larger.
Schedule:	Applications will be accepted in the spring. Call for more information.

Agro Environmental Technology Grant Program

Contact:	Craig Richov, Farm Liability Food Coordinator: (508) 792-7711
Type:	Applied research, demonstration projects, and feasibility analysis which involve new or alternative production, processing, distribution or market access technologies, practices or organizational arrangements.
Eligibility:	Public or private agencies or organizations, business and industry, educational institutions and local governments.
Match:	Minimum 1 : 1
$ Range:	Up to $50,000
Examples:	Use of bio-controls for plant pests as an alternative to pesticide use, organizing a marketing cooperative, developing manuals and how to guides for the production of new agricultural or aquacultural crops.
Schedule:	Annual RFR released in September, proposals due to by December 1st each year.

Massachusetts Highway Department (MassHwy)

TEA21 – Transportation Enhancement Funds

Contact:	Linda Walsh: (617) 973-8052
Type:	Funds for environmental remediation of transportation impacts; transportation improvements including pedestrian and bicycle pathways.
Eligibility:	Municipalities apply through regional planning agencies.
Match:	
$ Range:	
Examples:	Barnstable Walkway to the Sea (land acquisition for harbor access); stormwater remediation in Mashpee.
Schedule:	Call for more information.

Department of Housing and Community Development (DHCD)

Municipal Incentive Grant Program

Contract:	Don Martin, Program Coordinator: (617) 727-7001, x 404
Type:	The municipal Incentive Grant Program (MIG's) is designated to assist local government officials in the planning, management and operation of cities and towns, and in the training of local officials. The program provides grants to pay for consultant assistance and, in some cases, hardware and software. MIG's funds enable communities, individually or working together, to address particular issues, define solutions and implement improvements in ser5vice delivery.
Eligibility:	Must be a municipality, country government, or Regional Planning Agency. Maximum grants are $35,000 for local and $60,000 for regional projects.
Match:	
$ Range:	
Example:	Growth management strategies, design of regional arrangements for service delivery, creation or enhancement of fiscal management practices, development of Geographic Information Systems (GIS).
Schedule:	The FY00 program will be announced in April, 1999. Information meetings will be held across the Commonwealth in May, 1999.

Community Development Action Grant (CDAG) Program

Contact:	Deirdre Walsh, Program Manger: (617) 727-7001, x456
Type:	Primarily Infrastructure support for projects promoting economic development. Project must demonstrate public benefit. CDAG funding limited to 50% of the total project cost; applicant must demonstrate financing commitments of public and private sources. CDAG funds "mini-

mum amount necessary to make the project feasible." All matching funds must be in place before CDAG funds can be expended.

Match: $.50 local; $1.00 CDAG; $2.50 private.

$ Range: $100,000 to $1,000,000.

Examples: Extension of water and/or sewer service to an industrial park. Road construction/improvement in industrial/commercial area.

Eligibility: Municipalities only. These funds are to be utilized on public infrastructure projects and are intended to address substandard or blighted conditions. Land to be improve must be publicly owned. Pre-application process, followed by full application.

Schedule: Rolling admissions program.

Community Development Block Grant Program

Contact: Robert Shumeyko, Community Development Specialist: (617) 727-7001, x435
Robert Shumeyko, Program Manager, (617) 727-7001, x435

Type: Support of community and economic development projects which benefit low and moderate income persons. Funding source: U.S. Department of Housing and Urban Development. DHCD administers competitive grant program for state's non-entitlement communities (e.g., under 50,000 population)

Eligibility: Municipalities under 50,000 population, either individually or in regional arrangements. Contact DHCD for application.

Match:

$ Range:

Examples: Housing rehabilitation (includes septic systems repairs), water and sewer Improvements, public facilities construction and improvements, e.g., parks and playgrounds, planning, economic development, neighborhood revitalization. List of eligible projects is extensive. Call for details.

Schedule: Application for Community Development Fund I and II were due on or before August 1, 1997. (Community Development Fund usually has one competitive round year.)

Grant Program for the Demolition of Abandoned Buildings

Contact: Robert Foley, Program Coordinator: (617) 727-7001, x438

Type: Grants to demolish abandoned buildings, which are posing severe health and safety risks.

Eligibility: Municipalities. Must demonstrate health and safety risk factors caused by abandoned structures. Maximum grant award of $250,000.

Match:

$ Range:

Example: Removal of abandoned residential and commercial properties primarily in densely settled areas.

Schedule: Rolling admission. Call for details.

2. Land Protection Options

Although acquisition by Fee Simple is costly, there are state and federal programs that can be of substantial assistance in the purchase of a segment of the greenway:

The State Self Help Program (Chap. 132-A)

A program administered by the Department of Natural Resources, Div. of Conservation Services. This program reimburses eligible communities (those that have an open space and recreation plan) though their conservation commission for amounts up to 50 percent of the total costs. The Conservation Commission is responsible for the maintenance of the acquisition, which must be open to the general public

Areas acquired with state assistance must be preserved in a natural condition, to the extent possible although certain recreational facilities are permissible. To qualify for reimbursement, the communities must first have appropriated funds for the total cost of the project; and the project must be completed in accordance with plans submitted to the state. Town Meeting approval is necessary for appropriations and for purchase when state and federal financial assistance is involved. For more detail on the Self-Help Program, consult Appendix A.

The Land and Water Conservation Fund Act of 1965

A program administered by the Federal Bureau of Outdoor Recreation. This Act provides for grants to the state, and through the state to local governments. Local acquisition and development projects that are in accord with the state recreation plan are eligible for matching grants up to 50 percent of the cost of the project; and the state will pay up to 50 percent of the non-federal portion. A combination of state and federal programs could bring in Sterling 75 percent reimbursement for any eligible acquisition.

Gifts of Land:

Source: Stewardship, Open Space Institute, New York, 1965.

The most direct expression of a Sterling resident's concern for his property, its future use, and the related effects on neighbors and the community, is donation of the property to a government agency or private organization for public open space use. Rather than selling unwanted or tax-burdening land and donating the sales receipts to a favorite university or charitable trust, the philanthropist should consider using the land as a direct philanthropist gift. New organizations, laws, and techniques have provided important tools in estate planning flexibility and advantages to the land donor.

There are compelling arguments why certain landowners should consider the donation of their property for public interest open space. It should come as no surprise that almost all of the compelling arguments revolve around one thing: taxes.

The increased market value of suburban land, together with tougher assessment policies on the part of taxing authorities, who somehow must find the money to provide for education and other community services, have produced erroneous property tax levels for many landowners. Even the capital gains tax can take a hurtful bite when land value has increased many fold since the purchase date. To these newer considerations can be added the traditional concern with income, estate, and gift taxes that occupy the thoughts of those with a relatively high economic status.

There are instances where the giving away of land nets the owner's estate greater solvency. Even without this possibility, however, there are so many variations in land philanthropy - such as flexibility in mode - that the owner might well ask his legal counselor to study very closely the tangible rewards of a gift of land.

The owner of a large suburban estate can sever a part of his property, and by giving it to a municipality or conservation organization convert it into a nature sanctuary. He escapes property taxes which are based on development potential rather than existing use. No capital gains tax is assessed against appreciated property when it

is given to a tax exempt body, but the value at the time of the giving can be deducted from taxable income up to the limit for donations. This deduction can be spread over a period of years by donating an undivided interest serially. With the new tax regulations allowing for spreading deductions over a five year period, once, but the regulations do not prohibit partial donations at five year intervals so that the gift could be spread over ten, fifteen or even twenty years. To guard against premature death frustrating the donor's intentions, he can will his remaining interest to the exempt organization.

For the owner with a large philanthropic capability, an endowment should be considered. With an endowment, a much wider variety of recipients is available among private organizations and the donor has a greater opportunity to dictate the conditions under which the gift is accepted. The endowment can be in the form of a gift or bequest of cash or securities. A less common means of creating an endowment is the sale or lease of the house and its immediate grounds by the recipient organization. This is a good arrangement when the house is at the edge of the property; less so when it is buried in the middle of the estate.

Endowment principal may be managed by the recipient organization or by a trustee. A trust company can manage investments and remit income under instructions as well as, in some instances, supervise the management of the property. Indeed, the use of trusts makes possible the widest range of solutions to estate problems.

The catalogue of devices for land philanthropy continues to grow as landowners, with the help of their legal advisors, discover new means by which they can best serve the interest of their overall estate, as well as act on their inclinations toward the land. For one thing, there are too many cases where the giving away of land with a high accrued book value might (had it been considered) have eliminated the sad and frustrating experience of heirs and trustees forced to sell the family acreage to the wrong people at the wrong price in order to pay taxes due. When this is not a factor, many owners are becoming convinced that their land – especially if it lies within a metropolitan area – has such intrinsic worth that it should be considered as a separate criteria, and not lumped along with securities or other assets whose disposition is so often purely a matter of mathematics. Land is proving so flexible as a direct philanthropic device that its simple conversion into cash can destroy not only the landscape itself, but lose the owner a unique opportunity in estate planning.

Complete Land Transfers:

Outright donations or gifts of property usually result in the greatest tax advantage to the landowner. All future taxes and sales taxes are avoided with further savings incurred on federal and state income taxes and capital gains tax. These savings may be distributed over one or more years. Income and capital gains tax savings are available only in the case of contributions to government bodies, publicly supported charities and privately operated foundations.

The property owner receives additional benefits through the opportunity to observe the future uses of his donation and to participate in the donation transactions and administration thereafter.

Federal Income Tax Deduction:

Land donation provides for a deduction from gross income, the present fair market value of the land given to the Town. Landowners may be able to deduct up to thirty percent of their adjusted gross income for donations. Any excess value over the thirty percent limitation can be carried over and deducted in the next succeeding five years. Through staggered gift donations, a property owner could eventually donate large parcels of land without the loss of a large tax break, which would occur when the entire parcel is donated at one time. Small donations also allow an assessment of the administration of the donation, which will assist in making future decisions of donation.

Capital Gains Tax:

In addition to the savings on income taxes, the property owner will realize a savings through avoiding capital gains tax. No gains tax needs to be paid regardless of the appreciated worth of the property. Landowners who sell their land are required to pay a federal capital gains tax and a state capital gains tax on the appreciated value

of the property. Further, combinations on capital gains tax and federal income tax deductions allow differing rates of return and gains. These should be developed by a tax expert.

Real Estate Taxes:

Parks and nature preserves held by the Town are exempt from real estate taxes in Massachusetts.

Sale of Properties at Reduced Value:

If the landowner fails to receive some cash amount when disposing of his property, sale of the property at a reduced value should be considered. This allows the landowner to regain his initial investment or some portion of the present assessed valuation, while still contributing to land and open space conservation. The difference between the fair market value and the actual selling price may be claimed as a deduction on federal income taxes. This process should be carefully monitored and recorded through a professional appraisal and declaration of the charitable intention in the sale contract.

Capital gains taxes are tallied both by the donation cost and the original price. The capital gains tax of the donation cost may be deducted from the capital gains tax to be paid on the original cost price. This further reduces the costs of donation to the property owner.

Disposition by Will:

The simplest and best known method of avoiding estate taxes is through willing land to a non-profit organization. This land will not be subject to estate or inheritance taxes, and its value may be deducted from the tax to be paid on other assets.

Conservation Restrictions:

Many owners of large acreage did not purchase their land in order to sell it or give it away, but to live on it and, if their luck holds, pass it on intact for the next generation.

There is no doubt that the desire to keep land intact for its own sake, as well as for use and enjoyment by the owner and his children, is one of the highest forms of land stewardship. Were it not for such owners, the open land in the metropolitan countryside would certainly bear more of the marks of the speculator and the premature land developer than it does.

To continue to hold land open, as a private undertaking, is getting to be a tougher stewardship assignment in the face of rising property taxes; the money so desperately needed by a growing community with children to educate. But it is not a matter of soaking the rich and the properties; and though the assessor may have various attitudes of his own, his range of choice in assessment is basically quite narrow. In the case of estate acreage, the country place or the farm, the assessor is taxing more than the land itself; he is taxing its development potential.

Whether he likes it or not, the assessor operates under the structure of a constitutional or statutory equal tax provision; and if a landowner, no matter what his intentions, can get a subdivision price for his land, he is probably paying a subdivision tax.

Much of the landowner's property tax problems is created by premature land speculation and development in the metropolitan countryside. The loss of open space is the result of the same process. Both the landowner's tax problem and the community's open space problem may be abated by the use of a conservation or open space restriction, which in effect, strips away the aspect of ownership of land which makes the taxes go up in the first place: its potential for development.

What is produced by a conservation restriction, which is basically a negative right in land, is a trading situation – "quid pro quo;" if such land is clearly not taxed at its fair market value. This is why the restriction must be binding.

Many landowners would love to have it both ways; that is have the restriction apply and save them from higher taxes, but always with an easy loophole in case they change their minds. A conservation restriction must be a deed in perpetuity; and rather then soft-pedal this fact, it should not only be made clear to landowners but used as a selling point. The perpetuity feature is to their advantage; without it they have not real tax protection.

This is a clear statement of how the quid pro quo works as there is. But before the landowner can decide whether the conveyance of a conservation restriction is a suitable device for his particular case, he must first examine both sides of the question in a little more detail.

What is so new and so hopeful about the idea of conservation restrictions is that everyone is beginning to agree that open space does not have to be public to serve a public purpose. In the municipal context this means that conservation restrictions could be used to protect a water supply, or protect wetland areas from residential encroachment, which could reduce their value for flood control.

Restrictions could preserve a wildlife habitat area, or they could be used simply to preserve the open space of a community for purely aesthetic reasons. Any or all of these are public purposes that can be served by a conservation restriction. None of them require public access; though there is nothing to prohibit public access under an easement arrangement. A bridle path might better be protected by a conservation restriction with a public access easement than by any other device. But the granting of positive rights is more apt to be a philanthropic gesture than the quid pro quo arrangement not to develop the land. Conveyance of positive (public access) conservation restrictions should be considered a variation on the philanthropic gift in fee title. A community is apt to be more receptive to this sort of arrangement than if no public access for passive recreational purposes were allowed.

In offering a conservation restriction to a municipality, the landowner should be prepared to illustrate the public purpose the restriction will provide. Information in this Plan will help identify most of the more valuable open space land. Certainly local government is under no compulsion to accept every conservation restriction offer. Also, it might be prudent of the landowner to feel out the local assessor on his attitudes concerning the value of the restriction. The courts are always there to adjudicate a difference of opinion of the question of assessment, but this is the hard way and not always necessary.

Most importantly, the provisions of the conservation restriction should be the result of careful legal architecture; listing in detail what is being given up and what is retained. There is no point in asking a court to guess what the original intentions were if the conservation restriction is challenged by a subsequent owner.

While there is no question that a conservation restriction provided to a municipality can be sufficiently binding, sufficiently in perpetuity to rate a re-elevation of the land under restriction by the assessor, there is no telling where the new assessment figure will land. Merely to say that the value of the land is reduced by the value of the development right surrender is no help at all. It is difficult enough for the landowner and the assessor to agree in any case; and the process of deciding what fraction of the value of the land is due to development pressure in the area does not make agreement any easier.

To the assessor, value just does not disappear; so it is well to remember that some of the tax loss liability might be assigned to adjoining real estate. It becomes more valuable by bordering on protected open space for much the same reasons that real estate bordering on golf courses generally receives a higher assessment, even though the owners may not be members of the club.

Another part of the tax liability has to be assigned to the municipality as a whole. The entire community benefits from protected open space. Indeed, it can be proven that the alternative, housing development on the same land, would increase taxes for the community by an amount a good deal larger than the amount removed from the tax rolls because of the restriction.

One further consideration that might eventually help to establish a value on the rights surrendered is the amount of income tax deduction the grantor of the restriction decides to take. While many may strike up a conservation restriction deal for their own benefit, and hardly feel philanthropic about it, it is nevertheless true that as donors of a right in land to a public body, they have undertaken a charitable act. What the IRS decides to accept as a reasonable figure for a tax deduction can have a good deal of weight with the assessor when determining restriction valuation.

Although an effort to grant a conservation restriction to a local government may sound like a ground-breaking experience, the landowner will not be without friends. Planners, conservationists, recreationists and others with an interest device as the most exciting concept in a long time; a concept that can go a long way in contributing to a solution to open space problems.

Deed Restriction:

Most landowners who are inclined toward the donation of their land for open space use would like to insure that the recipients do not treat the gift as a negotiable asset. There isn't much inducement for land philanthropy if the giver cannot be assured that the general intentions of his gift have a reasonable chance of being carried out.

A suspicion of bad faith has usually been held in respect to gifts of land; not so much that it would be sold, but that it would be converted to a use inconsistent with the objectives of the philanthropist. The actual incidence of bad faith is a good deal less than what is implied by the vocal critics of municipal government. And there are ways of minimizing the risk of inconsistent uses.

On the most elementary level, the deed itself can record the intention of the transfer, and certain restrictions as to the use of the property can be covered between the grantor and the grantee. An agreement might be made, for example, that the land is to be used for nature study and that no development will be undertaken that is inconsistent with this use.

Some covenants can be quite specific, spelling out in detail agreements about land clearing, fencing, the management of any surface water and the like. The more specific a covenant is, the greater the chance the intentions will be upheld, unless implementation would be so complicated, costly or unfeasible that the grantee would have to make a case for vacating all of them. Certainly, a landowner's attorney should be given the responsibility of interpreting his client's intentions through an instrument that would be defensible over the long pull. Such agreements as these can turn out to be mere formalities unless there is some provision for their enforcement. One way to accomplish this is to establish an interim owner who would have the capability of enforcing deed restrictions from an administrative standpoint, as well as legally.

For example, if a property were first given to an organization such as the Nature Conservancy, they could in turn transfer the land to a municipality, at the same closing session, and withhold a "right to reverter." This would provide that if the conditions or restrictions set forth in the deed were not honored, the property would automatically revert to its previous owner. It is important that the previous owner not be the landowner himself, but income tax deductions. When it is a non-profit group such as the Conservancy, the donor not only establishes a clear-cut deduction, but has set up a watchdog with legal teeth: the power to enforce the intentions of his gift.

A less formal variation on this idea is simply to insert a clause which, in effect, assigns the right to revertor to a third party, without the revertee first establishing actual ownership. Such a clause would state that if restricted conditions were not carried out, the title would automatically be vested in the designated third party.

The Nature Conservancy is written into many deeds in this fashion, and some deeds show a long list of organizations designated serially so that little is left to chance in providing for permanent care of the property as an irreplaceable natural heritage.

Whether the watchdog is established directly through interim ownership or takes on this function by a special provision in the deed, a reverter clause is not always acceptable to a potential recipient. Some private organizations understandably resist the inclusion of a reverter clause. They want the freedom to sell the property in the unhappy event that they might not be able to care for it properly, or if it no longer suits their purpose. Others are less concerned about this. In any case, policies are usually bendable if the recipient wants the land badly enough.

Likewise, some units of government will not take anything except an unrestricted title, stating that their public purpose is sufficiently clear, e.g., the Recreation Committee, to obviate the need for a revertor. But just as often, public officials may be pleased to have restrictive clauses with revertors in the deed, for it binds the hands of their successors, forcing them into the public glare of condemnation proceedings if they want to change the use.

No official is particularly anxious for a successor to casually undo what he has accomplished. And many nonprofit groups welcome a revertor as a protection of their own interests. The Trustees of Connecticut College were pleased to be able to point out to a firm which had offered an extravagant price for its natural area that the land would revert to the Nature Conservancy the moment it was diverted to another purpose.

It should not be assumed, though, that provision for a revertor should always be insisted upon by the donor. For one thing, it can severely limit the range of potential recipients. Moreover, many have argued that revertors might in some cases frustrate the essential purposes of a charitable donation. For example, a town owned sanctuary might someday have its value as a wildlife area severely limited by nearby incursions of industrial or commercial land use or highways. In such a case, the original owner might well have agreed that the town should sell it for a high commercial price and buy more suitable land elsewhere. If there were a revertor clause and if the deed otherwise made no provision for such situation, the community could be forced into a dilemma not intended by the philanthropist.

While there should be no hesitation on the part of the landowner in exploring the subject of a revertor to enforce specific conditions or restriction, this is not the only means by which he can protect his philanthropic purpose. By spelling out his purpose in the deed, by insisting on public dedication of the land, by making it clear that the new owners hold the land in trust or, in short, by any method his legal counselor advises to clarify his intentions for all time, then he is on solid ground. He has made an effort to see that his donation is going to remain as open space, if not for perpetuity, for a good long time

F. ARTICLES