

TOWN OF NORTH ANDOVER



**DRAFT 2006 OPEN SPACE &
RECREATION PLAN**



prepared by:

NORTH ANDOVER OPEN SPACE COMMITTEE

A sub-committee of the Conservation Commission

&

NORTH ANDOVER CONSERVATION DEPARTMENT

Community Development and Services

400 Osgood Street, North Andover, MA 01845

April 2006

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The Open Space Committee was created in 1996 as a result of the 1995 Open Space and Recreation Plan. Members of the Open Space Committee and Conservation Department include:

Scott Masse
Al Manzi, Jr.
Deb Feltovic
Joe Lynch
Jack Mabon
Sean McDonough
Lou Napoli
Alison McKay, Conservation Administrator
Pamela Merrill, Conservation Associate

T A B L E O F C O N T E N T S

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

		Page
Section 1:	PLAN SUMMARY.	4
Section 2:	INTRODUCTION.	6
2.1	Statement of Purpose	
2.2	Planning Process and Public Participation	
Section 3:	COMMUNITY SETTING	8
3.1	Regional Context	
3.2	Community History	
3.3	Population Characteristics	
3.4	Growth and Development Patterns	
Section 4:	NATURAL RESOURCE INVENTORY AND ANALYSIS.	19
4.1	Geology Surficial Geology, Bedrock Geology, Soils	
4.2	Landscape Character Hilltops, Farmland	
4.3	Water Resources Surface Waters, Wetlands, Flood Hazard Areas	
4.4	Vegetation Non-Forested Resources, Forested Resources	
4.5	Fisheries and Wildlife Fisheries, Wildlife, Rare, North American Beavers, Threatened and Endangered Species	
4.6	Scenic Resources and Unique Environments Historic Landscapes, Prehistoric Resources, Historic Resources	
4.7	Environmental Problems Hazardous Waste, Air Quality, Development Impact	
Section 5:	INVENTORY OF CONSERVATION AND RECREATION LAND.	36
5.1	Protected Open Space Public Protected Open Space, Private Protected Open Space, Conservation Restrictions,	
5.2	Planned Residential Development (PRDs)	
5.3	Unprotected Land of Conservation Interest	
5.4	Public Recreation Areas Parks and Playgrounds, Stewardship Program, Hiking Trails	
5.5	Private Recreation Areas	
5.6	Chapter 61, 61A, 61B	
5.7	Agricultural Preservation Restriction Program (APR)	
Section 6:	COMMUNITY GOALS	56
6.1	Description of Process	

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

6.2	Statement of Open Space and Recreation Goals		
Section 7:	NEEDS ASSESSMENT		58
7.1	Resource Protection Needs Lake Cochichewick Watershed Protection, Protection of Open Space and Rural Character, Limiting Growth		
7.2	Community Needs		
7.3	Management Needs		
Section 8:	GOALS AND OBJECTIVES		63
Section 9:	FIVE-YEAR ACTION PLAN		70
Section 10:	Public Comment		77
Section 11:	REFERENCES.		79

LIST OF APPENDICIES

Appendix A:	BIRDS OF MAZURENKO FARM CONSERVATION AREA.		84
Appendix B:	SOIL ASSOCIATION.		86
Appendix C:	BEDROCK GEOLOGY.		87
Appendix D:	MAPS.		87
	Zoning Map		
	Current Land Use Map		
	Action Plan Map		
	Open Space Map		
	Estimated Habitat For Endangered Species		
	Soils Map		
	Historical Maps (1884)		

1.0 PLAN SUMMARY

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The 2006 North Andover Open Space and Recreation Plan is an essential update of the comprehensive 2000 Plan, which assembled comprehensive input from the 1998 Master Plan efforts. In addition, the 2006 Plan provides updated inventories of North Andover's Community Setting, Environmental features, and Lands of Conservation and Recreation interest. The Plan culminates in a series of sixteen (16) updated recommendations from the 2000 Plan, supporting:

- ◆ Sustained Watershed Protection;
- ◆ Preservation of the Town's Open and Rural character;
- ◆ And increasing Recreational opportunities and quality of life in North Andover.

The full set of recommendations appearing in Section 9 are set forth in an updated Five Year Action Plan in Section 9, according to their importance within the Community and their impact on resource conservation.

2.0 INTRODUCTION

2.1 STATEMENT OF PURPOSE

The purpose of this 2006 North Andover Open Space and Recreation Plan is to show where we were, where we are, and where we wish to go in regard to open space and recreation in the Town of North Andover, Massachusetts. A look at the open space map for the Town of North Andover indicates the great work that has been accomplished by a Town that truly cares about its open space and image. Critical parcels of land have been acquired for preservation throughout the Town, and in a significant act of Open Space support, North Andover was one of the first communities in Massachusetts to adopt the Community Preservation Act at the maximum funding level. Much has been accomplished in the short tenure of the Community Preservation Committee in the form of Open Space acquisitions and Watershed protection. It is no overstatement to assert that Community Preservation Act funding has been the single most significant contributor to the achievement of the 2000 Open Space and Recreation Plan goals. The Town has made significant progress in Town-owned facilities by constructing a new High School in 2004, and a new Youth Center in 2001. Since the inception of the original Open Space and Recreation Plan in 1970, the community has developed a number of similar planning documents, which have also articulated the need to protect open space and provide recreational opportunities for this growing community. These documents include:

❖ The North Andover Comprehensive Plan	1972
❖ The Open Space and Recreation Plan	1980, 1987, 1995, 2000
❖ The Phased Development Bylaw	1986
❖ The Balanced Growth Plan	1987
❖ The Lake Cochichewick Watershed Plan	1987
❖ The ENSR Report on Lake Cochichewick	1987
❖ The Growth Management Bylaw	1996
❖ The Three Interim Master Plan Reports	1997, 1998, 1999
❖ The North Andover Wetlands Protection Bylaw and Regulations	1998 REV 9-10-03
❖ The Lake Cochichewick Watershed Plan	1999
❖ The ENSR Report on Lake Cochichewick	1999
❖ The Open Space and Recreation Plan	2000
❖ Essex County Open Space Reconnaissance Project	2005
❖ The North Andover Zoning Bylaw	1972 REV 5-2005

The North Andover Open Space Committee has changed structure and appearance significantly since the

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

2000 Open Space and Recreation Plan, with adoption of the Community Preservation Act in 2001. North Andover was one of the first communities in Massachusetts to institute this Preservation Act. The funds come from a 3% property surcharge and have been matched 100% by the Commonwealth every year. The Open Space Committee and Conservation Department have continued its progress with developing more accurate and comprehensive open space mapping, and has used Community Preservation funds, in cooperation with the Community Preservation Committee to achieve the goals of primary importance in the areas of open space acquisition, watershed protection, historic preservation and recreation.

The acquisition of significant open space parcels by the Community Preservation Committee since 2000 has further heightened the need for continued progress in the improvement of information, mapping resources and records of the new and existing Town-owned properties. Needs identified in 2000 as:

- ◆ Accurate Open Space maps
- ◆ Additional trail maps
- ◆ Acquisition of targeted Open Space sites
- ◆ Creation of Open Space interconnections
- ◆ Community paths and village ways

have become a larger task with the advent of additional Open Space purchases. Consequently, the need for well designed Management Plans and execution of those plans by the Town Departments and volunteer organizations is the logical next step to the land acquisition process. As steward of the Town-owned Open Spaces, the Conservation Department and Commission have taken the lead in developing a revised concept of Open Space Management, and related organizational and resource needs. The Community Preservation Committee is once again a key partnership in cooperative achievement of the Town's Open Space Management goals.

2.2 PLANNING PROCESS AND PUBLIC PARTICIPATION

As open space and preservation issues fall under the jurisdiction of the Conservation Department, the Conservation Commission has reviewed the 2000 Open Space and Recreation Plan and completed minor updates, keeping in place the primary emphasis of the 2000 plan. The updated draft plan was reviewed with all land use boards and other related organizations in town, as an opportunity to provide comments, input and contributions to the revised plan.

As overseer of the Town-owned open spaces, the Conservation Commission has adopted the task of updating the 2000 Open Space & Recreation Plan. As there were no significant efforts to re-define town goals and preferences, such as the 1998 Master Plan, the Community Development Director and the Conservation Department agreed on the approach of updating the comprehensive 2000 Open Space & Recreation plan in July 2005, focusing on updating the focus of the goals, in light of the past five years progress. In October 2005, the Conservation Department met with the Community Preservation Committee to present the concept of updating and creating Open Space Management Plans for Town-owned land managed by the Conservation Commission. A request for funds will be forthcoming to support Open Space Management in alignment with the management concept and this plan.

3.0 COMMUNITY SETTING

This section discusses how North Andover evolved. The history of the Town's settlement, growth and development will be presented. While each community is unique, growth and development occurs as a result of interactions with other communities. The regional factors that have had an effect on the community's development are also presented. These factors may determine the future challenges that North Andover will face.

3.1 REGIONAL CONTEXT

The Town of North Andover lies along the banks of the Merrimack River in the Merrimack Valley in the northeast corner of Massachusetts. The historical map, found on the next page shows the Merrimack River as the community's most prominent natural feature. The river has undoubtedly driven the growth and development of most of the communities in the Merrimack Valley. In the late 18th century and throughout the 19th century, mills sprouted up along the river and its countless tributaries. The smaller tributaries were less prone to devastating floods and were very valuable mill sites. Two of those tributaries, the Shawsheen River and Cochichewick Brook were located within the original Andover settlement. These waterways saw intense mill development, particularly in the 19th century, which transformed the community from an agricultural village to a more diverse one of mills and farmland.

North Andover is a highland on the outer edge of the Merrimack Valley. The prominent hills drain into numerous wetlands. These wetlands are the headwaters of three separate rivers: the Ipswich River, the Parker River and Cochichewick Brook. The Ipswich River flows twenty miles to the sea through Boxford, Middleton, Topsfield, Hamilton, and Ipswich. One emergency well and one weekend well are located along the Ipswich River in Ipswich. The Parker River flows through Boxford, Georgetown, and Newbury twenty miles to the sea. Along the way, this river supplies water to underground aquifers, which sustain four public wells in Georgetown. Countless private wells are also served by underground aquifers in the Parker and Ipswich River watersheds. The Town of North Andover has recognized the importance of the Ipswich River relative to the water supplies by requiring the same minimum lot size in much of the Ipswich River watershed as in the Lake Cochichewick Watershed District.

Cochichewick Brook flows from Lake Cochichewick, which is the sole source of public drinking water for the people of North Andover. Lake Cochichewick watershed is approximately 2,732 acres in size, 378 acres (14%) of which lies within the Town of Boxford. This part of Boxford is zoned residential and is sparsely developed.

The Town of North Andover must continue to keep a watchful eye on the future development of this portion of the watershed since the Town has little control over it. Experience has shown that controlling growth has been very difficult in the portion of the watershed that lies *within* North Andover; controlling growth in another community will present even more challenges.

Today, regional transportation routes have a major impact on North Andover's character. Secondary highways such as Routes 114, 125 and 133 have been important in providing local and regional transportation routes. Route 114 brought goods to and from the bustling port of Salem. Route 125 was the direct route to the prosperous mill town of Haverhill, while Route 133 was the major route to the mill centers of Andover and Lowell. When they were first laid out, these early roads were the only dependable routes to the regional

centers of commerce. Such roadways made it possible to transport raw materials to, and finished goods from the local mills.

These roads are now secondary highways that funnel traffic to the two major interstate highways, Routes 93 and 495. These highways have had perhaps the greatest impact on the community's growth and development in the latter half of this century. Route 93 makes North Andover accessible for those who work in Metropolitan Boston, while Route 495 provides quick access to the job markets, which have filled the void left by the failure of the mills throughout the Merrimack Valley.

3.2 COMMUNITY HISTORY

The original settlement of Andover was located in the area bounded by Andover, Osgood and Court Streets and Academy Road. It was based on the jointly held field system of the part of England most of the founders came from. The small cluster of house lots was surrounded by land used for planting, woods and swamps. By the end of the 17th century, the common field system had devolved into individual holdings. Settlement had spread into the southern part of town that would eventually become the "South Parish" and even later, in 1855, become "Andover", taking the name of the original settlement.

In the early 1690s, Andover was caught up in the witchcraft hysteria of Essex County when dozens of residents were imprisoned and three hanged. Andover men were involved in the several French and Indian Wars, taking part in raids up into Canada. Andover was active in the Revolutionary War, sending minutemen to Concord and publishing the full text of the Declaration of Independence in the Town Meeting report.

In the early 19th century, the North Parish was still primarily agricultural, although a thriving, but short-lived shoe industry grew up around the crossroads village in what is now the old center. A carding mill was built in 1802 on the Cochichewick near the Merrimack and still exists today. Other mills were built along the brook, which at one time supported 4 major mills connected with textile manufacture. The outlet of Cochichewick Brook to the Lake Cochichewick was dammed to regulate the flow of waterpower to the mills, which in turn, would increase the size of the lake several times. The original millponds still exists, hidden behind mill and business buildings, and residential condominiums. This offers a possible scenic pathway connecting the Merrimack River with Lake Cochichewick.

The founding of the City of Lawrence was the catalyst, which led to the division of the Town into three (3) segments before the Civil War. In the North Parish, now North Andover, the mills along Cochichewick Brook grew, and a new commercial center developed closer to the Merrimack River and to Lawrence. "Machine Shop Village" is a National Register District in the downtown area that contains examples of the former textile industry buildings, as well as factory-built workers housing, stores, a church and an owner's residence.

The old center village escaped pressure for development and largely retains its 19th century appearance today. Several of the structures around the Common are owned or protected by the North Andover Historical Society. The Common itself, created in the 19th century by the North Andover Improvement Society was turned over to the Town in the 1950s after the last house had been removed. It serves as a location for Town celebrations and for a variety of passive recreation uses. It is also the focus of the Town's

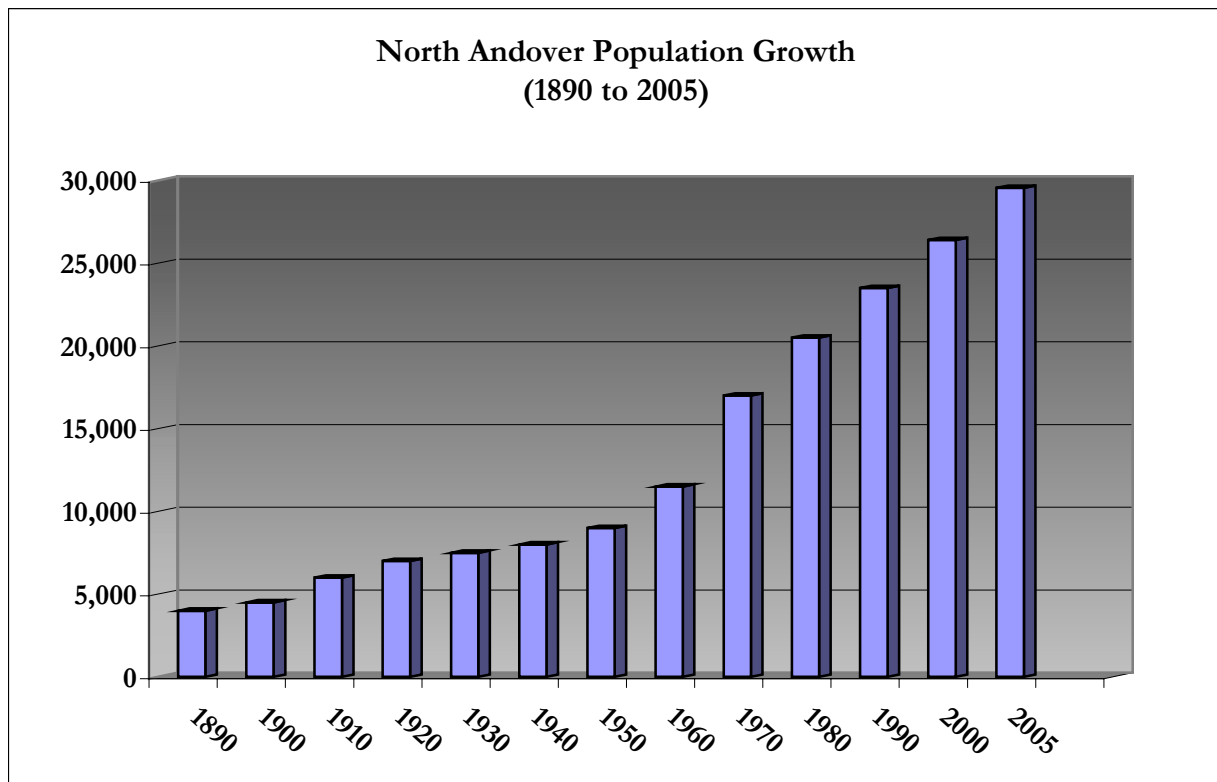
only local historic district. North Andover residents appreciate the historic character of their community, which still retains many examples of buildings and landscapes from former days.

Population continued to rise during the 20th Century, although the shift of textile manufacturing to the South after WWII meant the loss of factory jobs. Some of these jobs were replaced with new industry such as the large Western Electric (now Lucent Technologies) plant. Until the 1960s, however the eastern and southern sections of town were still largely undeveloped open space.

3.3 POPULATION CHARACTERISTICS

The population of North Andover has grown steadily throughout the 20th century. Table 3.31 demonstrates this growth over the past 100 years.

Table 3.3.1



As immigrants came to work in the woolen mills, they tended to settle within walking distance of those mills. This led to a concentration of factory housing, modest homes and a few owners' mansions in a relatively dense settlement in the northwest part of Town along Cochichewick Brook. Many of the Town's recreational areas are located in these older neighborhoods, and are heavily used.

Up until the last quarter of the century, the rest of the Town was mainly undeveloped, with a number of farms and few large country estates bordering Lake Cochichewick, built by wealthy mill owners. From 1950 to 1970, the population almost doubled. During this period, Routes 93 and 495 were completed,

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

putting North Andover within driving distance of employment in the Metropolitan Boston region; therefore, making the Town attractive as a residence for commuters. Rapid growth has continued throughout the 21st century.

North Andover’s population has grown to 29,549 as estimated by the Town Clerk’s office in November 2005. This population increase has led to a corresponding decrease in open space, even though the perception of North Andover as a town with a great deal of open space is one of the reasons given for moving here. Past surveys indicate that many residents thought that these open spaces were somehow protected and would remain open.

In conjunction with the overall population growth has come a growth in the senior and teenage populations with their separate recreational needs. The Senior Center that flanks to Town Hall was built in 1984 and expanded in 1997. Construction of a new Youth Center in the Old Town Center was completed in the summer of 2000, and a new High School complex was recently completed in 2004 - 05.

Changes in employment trends in Massachusetts can be seen in Table 3.32.

Table 3.32 Employment Trends

<u>Area of Employment</u>	Percent in the Workforce in 1989	Percent in the Workforce in 1998	Percent in the Workforce in 2000
Manufacturing	54.0	42.0	17.2
Services	15.5	29.0	10.3
Trade	11.0	13.0	9.9
Government	4.2	4.7	11.5
Transportation, Communications, Public Utilities	7.0	4.2	2.9
Construction	2.7	3.0	3.9
Finance, Insurance, Real Estate	3.6	2.6	10.0
Agriculture, Fisheries, Forestry	0.08	1.3	0.7
Professional, Scientific, Administrative, Management	-	-	66.3

(Source: Commonwealth of Massachusetts, Division of Employment and Training (ES-202 Series))

*Professional, Scientific, Administrative, Management was not previously included.

As with many towns in the state of Massachusetts, North Andover has seen a shift away from manufacturing jobs and toward high tech, service employment. Much of the recent population growth has changed North Andover from a blue collar to a white-collar community. This may increase interest in open space protection and conservation issues. There has been an increased demand for recreational facilities, particularly playing fields for rapidly growing sports programs, such as soccer and baseball. In previous Open Space Plans, it was clear that the Town was not meeting the community’s recreational needs. However, within the last five (5) years several recreational fields have been constructed to fulfill this necessity, including the Carter Farm Soccer Fields (3), Foster Farm Soccer Fields (2), and an entire new track and field, as well as soccer, football, baseball and softball fields at the new high school.

3.4 GROWTH AND DEVELOPMENT PATTERNS

North Andover first adopted local zoning in 1943. The current zoning map is included on the following page. The North Andover Zoning Bylaw has been revised and updated on numerous occasions, most recently in May 2004. It includes Planned Residential Development (PRDs) (a.k.a., Cluster Zoning), Watershed Protection District, Floodplain District, Phased Development Bylaw and Site Plan Review. There are seven (7) residential zones including R6 and Village Residential. The R6 zone allows six (6) lots per acre and Village Residential zone allows four (4) homes per acre (with sewer). This Village Residential zone has recently been changed back to one (1) home per acre, but there is a significant development grandfathered under the four (4) homes per acre allowance. To date, there is no remaining land available for development in the R6 zone.

North Andover's Wetlands Protection Bylaw and its Regulations, as well the Board of Health's septic system regulations are more restrictive than the MA Wetlands Protection Act (M.G.L. c.131 .40) and Title V, State Sanitary Code, (310 CMR 11.00). The Conservation Commission has also specified eight (8) rivers protected under the MA River's Protection Act and in the local Wetlands Protection Bylaw. These rivers include the Merrimack River, Cochichewick Brook, the Shawsheen River, Mosquito Brook, Boston Brook, Fish Brook, Cedar Brook and Rocky Brook. These local regulations have been necessary because of the large amount of wetlands in town. An increase in conservation applications coupled with the increased need for sewer connections are indicators of poor land. Smaller developers are unable to capitalize developments with high on and off site costs. The trend to larger development firms is related to the greater infrastructure and wetland issues. The Route 114 sewer extension was completed in 2005 to service a 40B development consisting of 270-townhouses and condominiums on the North Andover / Middleton town line. Further down on Route 114, another area will soon undergo a sewer extension project to service a recently approved condominium and single-family house development paid by the developers. The development community will need to build homes in order to recoup infrastructure costs. The larger firms will be able to weather market fluctuations better than smaller builders. The only tools that will temper this growth are two (2) growth bylaws.

In 2002, a Growth Development Bylaw was introduced in section 8.7 of the North Andover Zoning Bylaw in an effort to reduce the rapid growth in town. Ironically, town residents voted to remove this provision during the Town Meeting in 2004. The North Andover Zoning Bylaw also implemented a Phased Growth Bylaw (section 4.2), which has proven to be more successful to ensure that growth occurs in an orderly and planned manner, while avoiding large year-to-year variations in the development rate. Forest View Estates, a 92-lot subdivision located off Route 114 was phased over a three (3) year period. A remaining problem is the number of grandfathered lots that predate the Phased Growth Bylaw, and therefore are considered exempt. Another issues the town has been facing is over the last ten (10) years is a rapid growth in population. As a result, the North Andover has faced numerous challenges to match community services. This bylaw and other regulations attempt to provide the Planning Board, Conservation Commission, Board of Health and Zoning Board of Appeals with the tools to control growth. The Master Plan Committee has recommended that the Zoning Bylaw be revised and reorganized on a regular basis to adequately guide the future growth and development of the community.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The town has taken steps to promote development by amending several zoning provisions over the last few years. Those changes were approved during previous Town Meetings and include:

- ❖ The rezoning of a parcel of land from Residential 4 to General Business Route 114 across from the Eagle Tribune. The Eaglewood Shops was recently completed in the fall 2005 and consists of two (2) restaurants, several clothing shops, a bank, office supply store, and sporting goods store.
- ❖ The rezoning of a parcel of land from Business 4 to General Business, located on the corner of Peters Street and Route 114. A 24-hour CVS was constructed in 2004.
- ❖ The rezoning of a parcel of land from Residential 1 to Business 2 located on Osgood Street.
- ❖ The rezoning of a parcel of land from Industrial 3 to Industrial 1, located on Sharpner's Pond Road near the Cyr Recycling Center and Recreational Fields.

The Planning Board has submitted two (2) articles at this year's 2006 Town Meeting relative to changing the current zoning designation of certain parcels to Corridor Development District 1 (CDD1) or Corridor Development District 2 (CDD2). These new zoning districts would control the design of commercial and residential development along the primary corridors for vehicular travel on Route 114, Route 133, and Route 125 in such a manner that encourages sound site planning, appropriate land use, the preservation of aesthetic and visual character and promote economic development and diversity in the community tax base for the town.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

INSERT ZONING MAP HERE

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

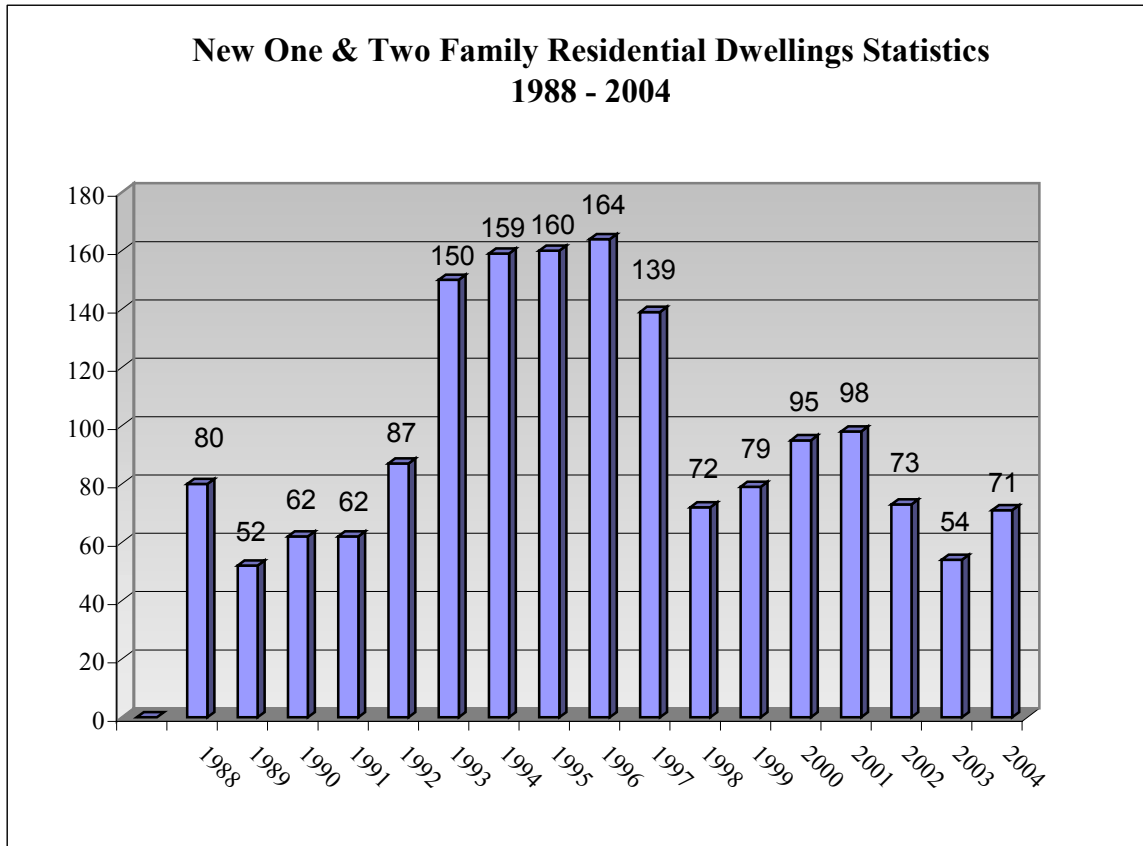
North Andover's zoning has always heavily favored residential development over commercial or industrial growth. Eighty-five percent (85%) of the Town is zoned residential. The Master Plan stresses the need for greater commercial and industrial growth to offset costs of providing services to the residents. The "out country" area has seen significant development over the last ten (10) years, necessitating the building of a new elementary school, the rebuilding and enlargement of two (2) existing elementary school, and expansion of the Middle School. Town growth has also exceeded the capacity of the High School facility, which was redeveloped for up to 1400 students in 2004. This growth pressure also prompted unsuccessful override proposals for a third fire station, and a new Public Safety Center. Using Community Preservation funding, the Town was able to renovate the historic Town Hall building downtown to ease the growth of much needed office space. Also under stress from the accelerated growth are the Town's playing fields. During the 1998 Town Meeting, the residents voted to acquire the Foster Farm property. This 92-acre parcel was divided into two (3) parcels; parcel A is designated as the new site for an elementary school and related recreational uses, managed and controlled by the School Committee. Parcels B & C, which includes Bruin Hill are designated as open space to preserve the existing agricultural fields and historic features, and controlled and managed by the Conservation Commission.

As in many other Massachusetts towns, much of the new residential building has resulted in large and expensive homes. Even some homes originally marketed as empty-nester homes have become very desirable with prices reflecting that, and have become havens for families with children. North Andover's traditional diversity of home styles and prices has become less diverse in the past decade.

Both the Open Space and Master Plan Committees understand the importance of preserving open space, farmland and historic scenic vistas as a brake on the inevitable expansion of residential development, and more importantly as a cost-containment move. In attempting to pay for the needed public buildings and services, a corridor study of Rte. 114 was planned to find appropriate space for small industrial parks and commerce without adversely affecting adjacent residential areas or traditional rural and farmland vistas. Studies by the American Farmland Trust "suggest that residential land uses cost more in services than they generate in revenues, and that a mix of other land uses offsets this imbalance." (American Farmland Trust, 1992)

This residential housing growth can be seen in Table 3.41 for the years 1988 to 2004.

Table 3.41



While North Andover is fortunate to host part of Harold Parker State Forest, land owned by the Essex County Greenbelt Association and The Trustees of Reservations, only 30% of land in the Lake Cochichewick Watershed District is protected. Acquiring and protecting land within the Lake Cochichewick watershed is the Open Space Committee's highest priority. With the partnership of the Community Preservation Committee, the town has purchased over 100 acres within the watershed district since 2001: Carter Hill, Half Mile Hill and Summit parcels. In February 2006, the town purchased the 12-acre Cullen property at 605 Osgood Street with Community Preservation funds and with assistance from the Trust for Public Land (TPL). This property is flanked by Osgood Hill, Half Mile Hill and Summit, and Weir Hill. With acquisition of these key properties, the focus has shifted towards effective care and management of all watershed properties both public and private for the long-term preservation of a high quality watershed. There are still significant parcels of land abutting the lake, which have no protection and are vulnerable to development. These include North Andover Country Club, Rolling Ridge Conference Center, Brooks School and other fairly large private parcels.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

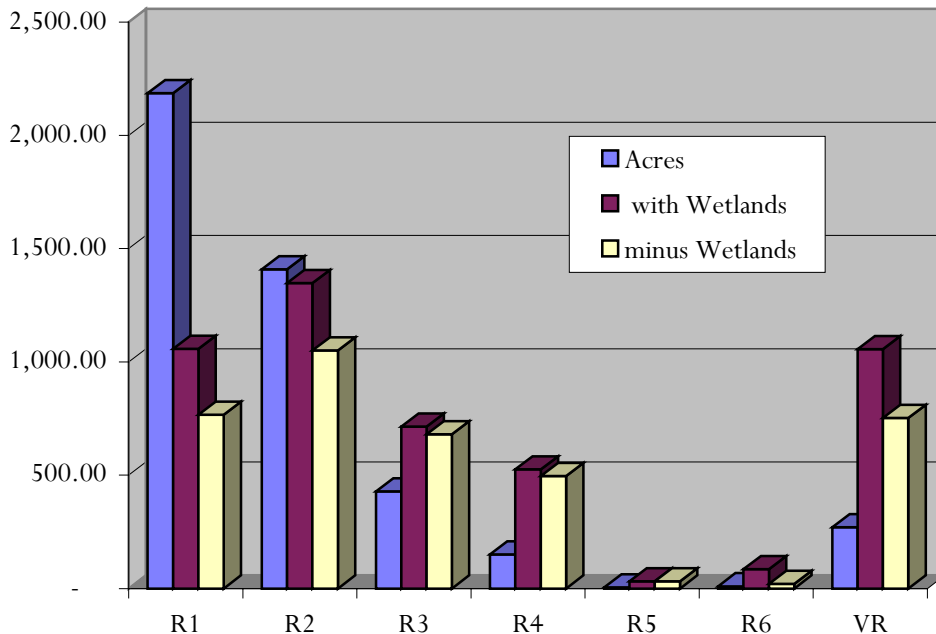
Forested land has decreased because of many new developments, and the new Title V regulations have had the unintended consequences of clear-cutting whole parcels for septic systems for the new developments. The recent displacement of farms and forests is reflected in the names of recent developments, such as Forest View Estates, Peachtree Farm, Maplewood Reserve / Oakridge Village, Rocky Brook Estates, Carter Farm Reservation, Woodland Estates, Brookview Estates, and Meetinghouse Commons. The Open Space Committee values the remaining forestlands for the reasons of ecological diversity, wildlife habitat protection and scenic and historic preservation.

To date, there are a limited number of active farms. Many farmers have sold portions of, or all of their farmland off to developers, or have been acquired by the Town of North Andover through the state's 'First Right of Refusal' under M.G.L. Chapter 61A. However, there are successful producing farms in North Andover, which are supported by the townspeople. The Open Space Committee is strongly in favor of preserving open scenic vistas and historic ways of life. The Master Plan reflects this same desire. We encourage the use of Chapter 61, 61A and 61B tax classifications, as well as Agricultural Preservation Restrictions (APRs) and Conservation Restrictions as methods to preserve these farms.

Another concern of the Open Space Committee, also reflected in the Master Plan, is the use and amount of open space in Planned Residential Developments (PRDs). Incursions into the open space by homeowners and the use of severe slopes as open space have violated the spirit of the PRD Bylaw. The Open Space Committee holds the opinion that the percentage of open space required be increased and that it be more visibly marked, more usable and accessible.

The next chart, a build out study from the 1997 Interim Master Plan Report shows in two ways how many acres and / or lots could be built in each of the seven residential zones or six regions of town.

Buildout Zoning District Comparison



T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

The startling number that jumps out is 3,800 lots with no wetlands present were available for development. Another way to interpret this is that wetlands reduce the number of buildable lots by 1,020, from 4,820 to 3,800. If all of these lots were built on this would result in 30,400 more traffic trips and 1,900 more children. The Conservation Commission’s enhanced ability to manage growth through its Wetland Protection Bylaw is key to preserving these valuable lands.

Table 3.42

Zone	Acres	# of Lots With Wetlands	# of Lots Without Wetlands	Wetland Differences	Traffic Trips per Lot	School Children per 0.5 lot
R1	2186.75	1057	767	290	6136	383.5
R2	1408.1	1348	1051	297	8408	525.5
R3	428.68	715	681	34	548	340.5
R4	150.06	526	496	30	3968	248
R5	4.75	32	32	-----	256	16
R6	9.9	86	21	65	168	10.5
VR	269.67	1056	752	304	6016	376
TOTALS	4457.91	4820	3800	1020	25500	1900

Within the last five (5) years, developers have taken advantage of the State’s Chapter 40B: Affordable Housing statute, a Comprehensive Permit Law that allows the developer to bypass local zoning laws, as long as 25% of the development is considered “affordable”, and if less than one-tenth of the homes in the community are affordable. The term ‘affordable’ is the rent or sale price for low to moderate-income families who make less than 80% of the median income for the town. A city or town is required to have at a minimum of 10% affordable housing rate in the community. The average value of a single-family home in North Andover is \$437,771 and the median family income is \$79,154, according to On Board LLC, a real estate information company (Eric J. Hudson). North Andover has five (5) 40B developments; Kittredge Crossing, Meetinghouse Commons, The Residences at Champion Hall, Oakridge Village / Maplewood Reservation, and Waverly Oaks. To date, North Andover has 5.8% of affordable units, falling short of the 10% minimum requirement.

4.0 NATURAL RESOURCE INVENTORY AND ANALYSIS

4.1 GEOLOGY

Surficial Geology

The North Andover landscape shows the unmistakable influence of continental glaciations. This is most notable in the presence of a number of oval-shaped hills, as well as many irregularly shaped swamps and bogs resulting from the disrupted drainage patterns. "These hills are known as drumlins. They are oval shaped hills made of a jumbled combination of clay, sand and boulders called till. The till can be recognized by the mixed distribution of boulders, pebbles, and clay. Till is very hard and generally gray in color. The soil at the top of the till where it has been weathered is typically a brownish color. Till is sediment deposited directly by the glacier" (Roberts, 1977).

There are a dozen large hills in North Andover. Roberts identifies two (2) drumlins, but one, Claypit Hill, may be a kame.). A kame is the remnant of deposits of a glacial stream that formed on the valley wall while the glacier filled the valley. Claypit Hill shows deposits of "fine sand to gravel to rocks of several inches in diameter. One fresh cut in the hillside showed well defined layering of gravel" (Doucette, 1990). Perhaps this is an ancient kame reshaped by a later glacier into a drumlin.

Much of the southern and southeastern portion of town is made up of ground moraine, "bedrock covered by a thin sheet of till" (Roberts, 1977). The combination of poorly drained clay-rich till and the disruption of drainage patterns mentioned above has resulted in the many swamps, marshes and bogs found throughout Town, particularly in the southern and southeastern portion. These poorly drained soils and broad wetlands present serious limitations for development (particularly with the lack of public sewer), but do provide opportunities for protecting open spaces.

Bedrock Geology

Two major bedrock zones underlie North Andover; the Merrimack Belt traverse along the extreme northern portion of Town, and the Nashoba Zone underlies the remainder (Zen et al, 1983). The Merrimack Belt is mostly composed of metamorphosed sandstone and siltstone. The Nashoba Zone is primarily dominated by Andover granite and Sharpners Pond Diorite.

These two major bedrock zones are split by the Clinton-Newbury fault that runs southwest to northeast just north of Lake Cochichewick. This major structural feature runs through southern New England and was most active over 250 million years ago (Skehan and Murray, 1980). There have been minor earthquakes associated with this fault including a quake measuring 2.5 on the Richter scale that was felt in Littleton, MA in 1990 (Cook, 1990). A second fault, the Assabet river fault, may run through Town in a north / south direction along the eastern edge of the main mass of Andover granite (Goldsmith, 1991).

Soils

The soils found in North Andover can be classified into four major associations (United States Soil Conservation Service, 1981). For definitions, please refer to Appendix C.

- ❖ Paxton-Woodbridge-Montauk Association
- ❖ Canton-Charlton-Sutton Association
- ❖ Charlton-Rock Outcrop-Medisaprists
- ❖ Hinkley-Windsor-Merrimac

These general soil associations are intended for broad planning purposes only and include a wide variety of soil types. Determination of actual soil types, their extent and suitable uses is made on a site-specific basis through field identification. Such detailed investigations of soil characteristics and boundary determinations are made as part of individual land use decisions.

4.2 LANDSCAPE CHARACTER

Hilltops

North Andover's landscape is noted for its drumlins. These hills have had an impact on the community's development patterns. Until recently, the development constraints and lack of infrastructure left the hillsides untouched, but the inflated property values of recent years has promoted extensive hillside development. Some of these hilltops offer expansive views of the Merrimack Valley, Nashoba Valley, Mount Mondandnock, and even Boston. Erosion and sedimentation during hillside construction has proven to be very problematic. The Planning Board revised their Subdivision Rules and Regulations in 2002. One of the revisions requires any natural slope exceeding 25% over a horizontal distance of 10-feet as measured perpendicular to the contour are protected and shall remain in its natural state. Additionally, the Planning Board also requires a soil erosion and sedimentation control plan to accompany a subdivision application.

These large, gently sloped hills were referred to as "Major Heights" in the only Town-wide natural resource inventory as discussed in the Town's first Open Space Plan of 1970. "These hills provide an outlook over the whole town as well as great parts of the Merrimack Valley. They also form the skyline of the town when seen from the valleys. Such natural landscape tends to give the town an open appearance much desired by suburban dwellers and highly valued by North Andover resident." The 1970 Open Space Plan recommended the "Protection of the skyline which gives the town an open appearance..." (North Andover Conservation Commission, 1970).

The 1972 Comprehensive Plan also recommended the protection of eight (8) prominent hills from intense development to "retain the rural character of natural hills" (Brown, 1972). Of these eight (8) hills, Town Farm Hill and Claypit Hill have since been covered by large subdivisions. Planned Residential Developments (PRD) have been approved for Barker Hill, Boston Hill (3 lots in 1998) and a portion of Woodchuck Hill (17 lots in 1995), which preserved some open space. Weir Hill is protected by the Trustees of Reservations, and the Town of North Andover now owns Osgood Hill and Carter Hill. The 1987 Balanced Growth also recommended the protection of the Town's hills. North Andover needs to be more proactive in protecting

these hilltops before landowners produce development proposals, which can only promote a reactive response.

Farmland

Farmland has defined the Town's character since the first settlers arrived. As previously discussed, most of North Andover's farmland has been replaced by residential development since the 1950s. As a response to this, the 1972 Comprehensive Plan's first long-range goal was to "Retain the natural character of woodlands, fields, and farms throughout the Town so that they can be used for recreation, conservation and enjoyment of open space to the extent possible" (Brown, 1972).

Some landowners file their property under certain taxation classifications such as Chapter 61, Forestry; Chapter 61A, Agricultural and Horticultural Lands; and Chapter 61B, Open Space / Nature Area / Recreation. Presently fifteen (15) landowners protect 1094.81 acres through the Chapter 61A. This is a 13% decrease since the 2000 Open Space & Recreation Plan. Additionally, there are four (4) landowners that have filed under Chapter 61 and protect approximately 59.62 acres of forested areas, and three (3) landowners are classified under Chapter 61B, preserving 62.17 acres open space. When the landowner decides to sell the chapter land or convert to a different use, the Town can exercise its first right of refusal to purchase the land. The former Mazurenko Farm was purchased using this option in 1988 for the purpose of watershed protection and the preservation of farmland. Acquiring this parcel kept the crop and hay fields active, and eliminated the development of a residential subdivision with potentially harmful impacts on the community's water supply. This acquisition also triggered the Conservation Commission to create a farming program (agricultural use license) that allows local farmers to rent usable hay or crop fields. Not only does this program keep the old agricultural fields active, but it also provides the farmer with additional income and crop. To date, the Conservation Commission rents two (2) fields at Mazurenko Farm, Foster Farm, and Half Mile Hill. The most recent first right of refusal purchases was the Foster Farm (Chapter 61A) and the Cullen property (Chapter 61). Overall, little has been done proactively to preserve the remaining open fields and farmland that has helped to define the community character; although the Planned Residential Development (PRDs) concept has been used successfully to preserve hundreds of acres of open fields, wetlands, and forested upland areas.

One reason why many people accept the loss of more natural landscapes is the common misconception that there is a financial gain to the community from the conversion of these land uses to residential or commercial development. A better understanding of the positive financial impact of land preservation would hopefully improve the attitude of not only landowners, but also municipal policy-makers toward land preservation. Various studies, such as the American Farmland Trust (AFT) study previously cited, have shown that residential growth is more of a strain on local services than preserving open land, forests and farmland. Over the last five (5) years, Massachusetts' prime farmland has seen a 66% lost as a result of development.

One common claim made to Massachusetts' towns is that residential development increases the local tax base, thereby lowering property taxes. Others are that resource conservation is too expensive at the local level, and that farmland does not make a significant contribution to the tax base, so it is best converted to its "highest and best use," which is generally assumed to be development. The AFT found although residential development increases the local tax base, it does not pay for itself. These towns paid more on residential services than they received from residential services. (American Farmland Trust, 1992)

Table 4.21

Ratio of Dollars Generated to Services Required by Different Land Uses

<u>Residential</u>	<u>Commercial/Industrial</u>	<u>Farm & Open Land</u>
\$1:1.12	\$1:0.41	\$1:0.33

(Source: American Farmland Trust, 1992)

The American Farmland Trust has conducted a number of studies to determine the fiscal impacts of different land uses. In all six (6) studies conducted, residential development of open space lost money for the community while commercial / industrial and farm / open land uses generated more in revenue than they required in services. Thus, a dependence on residential growth to fund municipal budgets is a losing battle. More diversified land uses must be promoted to ensure economic stability. Hopefully, a better understanding of this issue will generate a more positive economic view of farmland and open space.

4.3 WATER RESOURCES

The term 'water resources' is a broad one, which encompasses standing and moving water bodies, and vegetated wetlands such as swamps and marshes, floodplains and groundwater. These water resources are described in this section. There is no comprehensive mapping ever completed of all these resources. However, the MA Executive Office of Environmental Affairs (EOEA) designed a software program called Massachusetts Geographic Information System (MassGIS), the Commonwealth's Office of Geographic and Environmental Information database. Through this free program, the Commonwealth has created a comprehensive, statewide database of spatial information for environmental planning and management. Recent legislation has established MassGIS as the official state agency assigned to the collection, storage and dissemination of geographic data. While this program has a plethora of useful information and is updated frequently, it may not always be accurate and should be used for informational purposes.

Surface Waters

In a regional context, much of North Andover is a highland at the junction of three watersheds: the Merrimack River and the headwaters of two rivers: the Ipswich River (via Boston Brook and Mosquito Brook) and the Parker River. Much of the southern and southeastern portion of town flows into the Ipswich River. The northern and western portion of town drains into the Merrimack River. Two (2) Merrimack River sub-drainage areas of note are the Shawsheen River and Cochichewick Brook. As we have seen, water resources have driven the town's origin and development, hydropower in particular. Early in the town's history there was "hardly a stream or brook of any size that was not put in requisition by the settlers as waterpower for grinding or sawing" (Bailey, 1880).

Today, Lake Cochichewick is the sole source of public drinking water. An understanding of the vulnerability of water resources has been learned the hard way - through the degradation of our public water supply. Pollutants from a number of sources including: house construction, septic systems and urban stormwater degraded water quality until 1986 when giardia was discovered in the Lake. A 'boil water order' followed. A filtration plant

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

was constructed, a three-year building moratorium was instituted throughout the watershed, and a comprehensive watershed study was commissioned. A portion of this study's Diagnostic Conclusions provides a picture of the threats to the water supply from increased growth and development:

- ❖ Water quality of the inlet streams is degraded compared to water quality in-lake. Given the present degraded quality of inflows, there is potential for in-lake water quality to deteriorate in the future even without a corresponding degradation of inflows.
- ❖ The watershed to the lake has residential and agricultural uses, which contribute to these periodic water quality problems. Erosion of soils in areas of new construction and agricultural areas, and urban storm water runoff appear to be the primary sources of elevated suspended solids, nutrients and bacteria concentrations.
- ❖ Over half of the watershed to the lake is presently forested, and is a prime site for future residential development. Further development in the watershed will lead to increases in nutrient loading and urban stormwater runoff. Lake development is experiencing low growth and is expected to continue in that fashion.

(IEP, 1987)

As a result of the Lake Cochichewick Watershed Plan (in conjunction with the Balanced Growth Plan), a number of steps were taken to protect the water supply. These included major revisions to the Zoning Bylaw, Board of Health Rules and Regulations, Wetlands Regulations, land acquisition, increased street sweeping, and an extension of sewer system. The level of success in protecting the water supply, particularly in promulgating comprehensive recommendations has been greater than in many communities.

Watershed protection measures should manage all threats to the water supply. Updates to the Zoning Bylaw aid this. In February 1999 the Zoning Bylaw implemented four (4) "No Disturbance" requirements to assist in preserving the purity of groundwater, Lake Cochichewick, and its tributaries; to maintain the groundwater table; and to maintain the filtration and purification functions of the land while preserving the natural environment and protecting the public safety health and welfare. The Watershed District is divided into the following zones:

General Zone: All land located beyond 400-feet horizontally from the annual mean high water mark of Lake Cochichewick and all wetland resources, (as defined in M.G.L. c131, s.40, and the North Andover Wetlands Bylaw) located within the watershed.

Non-Discharge Buffer Zone: All land areas located between 250-feet and 400-feet horizontally from annual mean high water mark of Lake Cochichewick and between 150-feet and 400-feet horizontally from the edge of all wetland resources (as defined in M.G.L. c131, s.40, and the North Andover Wetlands Bylaw) located within the watershed.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Non-Disturbance Buffer Zone: All areas located within 150-feet and 250-feet horizontally from the annual high water mark of Lake Cochichewick, and between 75-feet and 150-feet horizontally from the edge of all wetland resources (as defined in M.G.L. c131, s.40, and the North Andover Wetlands Bylaw) located within the watershed.

Conservation Zone: All land areas located within 150-feet horizontally from the annual mean high water mark of Lake Cochichewick, and within 75-feet horizontally from the edge of all wetland resources (as defined in M.G.L. c131, s.40, and the North Andover Wetlands Bylaw) located within the watershed.

Approximately 30% of land in the watershed is protected open space. These parcels includes Osgood Hill, Half-Mile Hill and Summit, Mazurenko and Rea's Pond Conservation Areas, Carter Hill, and a large portion of the Town Farm; all of these properties are owned by the Town of North Andover. The Trustees of Reservations owns the Weir Hill Reservation and has a Conservation Restriction on the Edgewood Farm property. In addition, a portion of Smolak Farm is protected under an Agricultural Preservation Restriction and the Essex County Greenbelt Association owns several properties within the watershed including Cater Fields Reservation. The remaining land in the watershed is not protected and will likely be developed at some point. Most reservoirs are surrounded by much more protected land. Much more must be done to protect land in the watershed, whether through conservation restrictions or acquisition.

Land in the watershed is sought after for residential development since the open spaces, lake views and larger lots increase the desirability and value this land. Even when the real estate market was at its most depressed state in 1989-91, land in the watershed continued to be developed at a higher rate than non-watershed land. Therefore, the community must not only be vigilant in its protection of these resources, but also be open to new protection measures such as improved regulations and acquisition.

Wetlands

North Andover was one of the first communities in the Commonwealth to organize a Conservation Commission in 1961 when it adopted Chapter 40, §8C of the Massachusetts General Laws. The Commission quickly went to work on the very general task of protecting the Town's natural resources. Since the passage of the Wetlands Protection Act (M.G.L. Chapter 131, §40) in 1972, the Commission has rigorously enforced the provisions of this Act. The Commission not only enforces the state Wetlands Protection Act, but also a local Wetlands Protection Bylaw and Regulations. This Bylaw (and its subsequent revisions) has been in effect since 1979. Comprehensive Wetlands Protection Regulations were adopted early in 1991. These regulations provide detail and performance standards to support the local Bylaw. The Town of North Andover's Wetlands Protection Bylaw and Regulations was revised in 1998 and most recently in September 2003. The Conservation Commission takes great effort to better protect wetland resource areas and wildlife habitat. As such the Wetlands Protection Regulations implements the following setbacks:

25-foot No Disturbance Zone: No activity is permitted within 25-feet of the edge of the wetland resource areas identified in section 1.3 of the North Andover Wetlands Protection Regulations.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

- 50-foot No Build Zone: Construction of any kind is prohibited within 50-feet of the edge of the wetland resource areas identified in section 1.3 of the North Andover Wetlands Protection Regulations.
- 50-foot No Disturbance Zone: No activity shall be permitted within 50-feet of the delineated edge of a vernal (ephemeral) pool or vernal (ephemeral) pool habitat (whichever is greater and / or more restrictive).
- 75-foot No Build Zone: No structures shall be permitted within 75-feet of the delineated edge of a vernal (ephemeral) pool or vernal (ephemeral) pool habitat (whichever is greater and / or more restrictive).
- 100-foot Septic System Setback: No septic system leaching field shall be permitted within 100-feet of the delineated edge of a vernal (ephemeral) pool or vernal (ephemeral) pool habitat (whichever is greater and / or more restrictive). Any permitted work shall not obstruct the migratory pathways of the ephemeral pool breeders.

The Commission meets twice a month to review development projects and issue permits for work near wetlands. In addition, the Conservation Commission manages several parcels of open space land for agricultural and recreational uses.

In an effort to better protect wetlands, a town-wide wetlands mapping project was completed in 1998 by IEP Inc. Vegetated wetlands were delineated using aerial photography. Additional data was gathered on vegetation types, hydrologic data and soils through field checking. This data, though now somewhat outdated, has been a great help to planning staff and landowners alike in obtaining concise information about development constraints and understanding wetlands and surface waters.

Flood Hazard Areas

North Andover lies in the floodplain of the Merrimack and Shawsheen Rivers to the north and west and various tributaries of the Ipswich River in the south and east. In an effort to protect the community from lost flood storage, floodplain zoning was adopted in 1979, which restricts building in the flood plain.

During major storm events such as the 100-year event, flooding generally occurs in the same areas. Such floodplains are associated with all river perennial streams in North Andover. Some lands in the Shawsheen and Merrimack River floodplains have been taken in lieu of taxes. These land holdings are not only valuable for flood control purposes, but also for open space and recreation. Potential for trails and wildlife habitat improvement projects are now being considered for these floodplains. Such tax takings, or other acquisitions, should be encouraged since these floodplains help preserve flood control, water quality, wildlife habitat and potential sites for both active and passive recreation.

4.4 VEGETATION

The specific open space and recreation values we all cherish are dependent on a particular setting. These various settings are defined, to a great extent, by the vegetation, which grows there. The plant community not only provides for the visual setting for human enjoyment, but also provides important food, shelter and breeding areas, and species and structural diversity to sustain countless wildlife species. It's difficult to think of an open space recreational pursuit that does not rely on a particular setting defined by its vegetation:

- ❖ Wooded trails and hilltop vistas for the hiker, photographer, mountain biker or cross-country skier.
- ❖ Old fields or farmland that attract pheasant, turkey, grouse and deer for the hunter.
- ❖ Dense, unbroken forest for uncommon wildlife such as raptors, neo-tropical migrant birds and larger mammals such as fisher, coyote and moose.
- ❖ Thick shoreline cover along streams and ponds providing cover for fish, mammals and waterfowl.
- ❖ A quiet meadow in which to picnic.

Non-Forested Resources

Most people think of forests when protecting open space, but the picture is much more complex than that. As we can see from the settings described above, two of the five - the old fields and quiet meadows are defined by the absence of trees. Some species of wildlife, and various recreational pursuits require non-forested areas. This diversity must be taken into consideration when protecting and managing open spaces. Areas of diverse vegetation, such as old fields and wet meadows can be protected through acquisition or created / maintained on existing conservation land.

The introduction of non-native plant species can seriously compromise native diversity. "In 1990, the Massachusetts Natural Heritage and Endangered Species Program developed a list of 209 invasive alien plants in Massachusetts, fifty-one of which are aggressive nonnative species that are considered to be the most problematic" (Anderson, 1993). Many invasive species, including purple loosestrife (*Lythrum salicaria*), glossy buckthorn (*Rhamnus frangula*), Common reed (*Phragmites arundinacea.*), Japanese knotweed (*Polygonum cuspidatum*), and Multiflora rose (*Rosa multiflora*) have begun to dominate vegetated wetlands, as well as the upland and forested areas in North Andover. The control of invasive exotics should be considered when managing conservation land.

Forest Resources

North Andover's percent of forested land apparently has not changed much in the last 40 years. Table 3.42 indicated that in 1951, 53% of North Andover was forested while 48% was forested in 1985. This statistic is misleading since many residential subdivisions in a forested landscape will be classified as forest in aerial photograph interpretation. When one reviews aerial photos and road maps, a better understanding of North Andover's forests can be gained. There are relatively few areas of unbroken forest remaining. These remaining forests include lands that are unbuildable such as swamps and protected open space.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

North Andover's forests are typical for the southern New England region. The younger forests, those taking root after clearing, are characterized by the presence of gray birch (*Betula populifolia*), poplars (*Populus sp.*) and (particularly in the wet areas) red maple (*Acer rubrum*). Post-agricultural forest may include black cherry (*Prunus serotina*), white ash (*Fraxinus alba*), locust (*Robinia pseudo-acacia*), red maple (*Acer rubrum*) and apple (*Pyrus spp.*). The more mature upland forests are dominated by red oak (*Quercus rubra*), hickories (*Carya sp.*), white pine (*Pinus strobus*), and a wide variety of hardwoods. Red maple dominates the majority of forested wetlands. A large Atlantic White Cedar Swamp encompasses Cedar Pond in the southeastern part of North Andover and southwestern portion of Boxford State Forest. This is ideal habitat for the Hessel's Hairstreak butterfly (*Callophrys hesseli*), species of special concern. These may be the remnants of the cedar swamps that were an important resource for the earliest settlers. "Sawing wood for shingles was a profitable business, and there was such a demand for them in the town that the inhabitants were forbidden to sell them out of town without special permission" (Bailey, 1880). Only a few cedar swamps exist in Massachusetts, most being logged for shipbuilding and shingles many years ago.

No stands of old growth forests exist in North Andover. Approximately 0.05% of Massachusetts has been identified as old growth. This is a result of extensive agricultural land use over the last 200 years. There are some individual specimens that are quite old, particularly 'boundary oaks' and street trees, such as white oak, various red oaks, sugar maples, beech, white pine and others. Such specimens should be sought out and preserved to remind us of what the primeval forest held when the land was first settled.

The Massachusetts Natural Heritage & Endangered Species Program (NHESP) has identified six (6) state-listed plant species in North Andover. Only one plant, the purple needlegrass (*Aristida purpurascens*) a threaten species was recently observed in 2000. Other species identified by the NHESP include reed bentgrass (*Calamagrostis pickeringii*) an endangered species, cat-tail sedge *Carex typhina* a threatened species, broom crowberry (*Corema conradii*) of special concern, andrews' bottle gentian (*Gentiana andrewsii*) an endangered species, and New England blazing star (*Liastris scarisoea var. novae-angliae*) of special concern. This, and possibly other, rare / threatened / endangered species will be sought out and protected whenever possible.

Only four (4) landowners protect 59.52 acres of forested land through Chapter 61, the Massachusetts Forest Tax Law tax. Approximately 18 more acres have been protected under Chapter 61 since the 2000 Open Space & Recreation Plan. This method of temporary land preservation has been successful at least in the short term since no land classified as forestland has been developed since the 1995 Open Space Plan. While more landowners are now considering this tax classification, the participation is very low. This limited acreage is a reflection of either a lack of public knowledge of this program and /or the limitations of this tax classification as a method of protection. The primary limitation of these programs is a requirement that the land remain in that land use for ten years. From previous discussions with the Assessor's Office, landowners are wary of such restrictions. Information regarding this tax classification program should be made more available to landowners.

Today, the forests of North Andover (and New England) are faced with a myriad of stresses. Air pollution weakens numerous species, particularly white pines and other evergreens. The gypsy moth threatens many species. The once-dominant American chestnut (*Castanea dentata*) and stately American elm (*Ulm americana*) were decimated years ago by introduced pests. Some of our dominant forest trees such as maple, ash, and oak

are threatened by a variety of pests and other stresses (Houston, 1981). The wildlife that depends on the forest is being threatened by the loss of native tree species and forest fragmentation. The issue of fragmentation is a difficult one for an individual community to deal with due to the limitations of working in a single community where the preservation of large tracts of forest is simply not practical. When protecting and managing forestland, biodiversity and the preservation of native species must be considered.

4.5 FISHERIES AND WILDLIFE

Fisheries

The protection of an important local fishery was stated as a condition of the incorporation of the Town of Andover in 1646. All rights to the land were sold to the settlers "provided that the Indian called Roger and his company may have liberty to take alewives in Cochichewick River, for their own eating" (Bailey, 1880). As the early mills industries grew, this fishery was of such importance to cause what may have been the first environmental regulation. In 1695, the town granted permission for a saw mill on Cochichewick Brook "on condition that this do not stop the passage of the fish called alewives" (Bailey, 1880). Later, as the larger mills sprung up along the Merrimack and Cochichewick, the herring disappeared. Bailey mentions the presence of perch, bass and speckled trout in the 17th century (Bailey, 1880).

Today, our streams, ponds and lakes hold a variety of species including rainbow trout (*Salmo gairdnerii*), brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), largemouth bass (*Micropterus salmoides*), northern chain pickerel (*Esox niger*), yellow perch (*Perca flavescens*) and various panfish. The Massachusetts Division of Fisheries and Wildlife stock the Shawsheen River, Fish Brook and Boston Brook just outside the Town boundaries with various species of trout. These trout travel throughout the river system and are an important recreational fishery. Lake Cochichewick is not stocked since this would attract recreational use, which has been considered a threat to water quality. The lake does hold panfish, pickerel, perch and largemouth bass.

The Merrimack River has recovered greatly from the affects of the mills. Shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*), the endangered short nose sturgeon (*Acipenser brevirostrum*) and Atlantic salmon (*Salmo salar*) have returned to the Merrimack while small mouth bass (*Micropterus dolomieu*) have been successfully introduced. The success of the Merrimack River fishery is an example of the great potential for success in reclaiming resources that were lost or seriously degraded.

Wildlife

In rapidly suburbanizing communities such as ours, wildlife are displaced or threatened far sooner, and to a greater extent, than is commonly understood. A greater understanding of the interactions between species, between species and their surroundings, and between humans and wildlife can result in the preservation of a greater diversity of wildlife. In an effort to gain this understanding, various studies have been made at the Mazurenko Farm Conservation Area by local volunteer groups. These studies have shown a far greater diversity of plants and animals than was previously known. The diversity of wildlife is likely due to the presence of a large wetland and a diversity of habitats present.

Table 4.51

Mammals of the Mazurenko Farm Conservation Area

Bat (*Eptesicus fuscus*)
American beaver (*Castor Canadensis*)
Chipmunk (*Tamias striatus*)
Cottontail Rabbit (*Sylvilagus floridanus*)
Coyote (*Canis latrans*)
Great horned owl (*Bubo virginianus*)
Grey Squirrel (*Sciurus carolinensis*)
Long-tail weasel (*Mustela frenata*)
Mice, shrews (*Soricidae spp.*) and voles (*Microtus spp.*)
Mink (*Mustela vison*)
Mole (*Talpidae spp.*)
Raccoon (*Procyon lotor*)
Red Fox (*Vulpes vulpes*)
Red-tailed hawk (*Buteo jamaicensis*)
Red squirrel (*Tamiasciurus hudsonicus*)
River Otter (*Lutra canadensis*)
Whitetail deer (*Odocoileus virginianus*)
Woodchuck (*Marmota monax*)

(Source: Doucette, 1991)

These findings were the result of a winter tracking census. It was surprising to discover uncommon species such as mink, weasel and otter still inhabiting the open spaces and waterways of North Andover. Other uncommon species have been seen recently in North Andover. These include fisher (*Marte pennanti*), eastern coyote (*Canis latrans*) and the bald eagle (*Haliaeetus leucocephalus*). Beaver (*Castor canadensis*) and the great blue heron (*Ardea herodias*) have been long term resident at the Mazurenko Farm Conservation Area and on the Shawsheen River. Wild turkey (*Meleagris gallopavo*) has been sighted at a number of locations. These are likely turkeys or descendants from 33 individuals introduced to a sanctuary within the Boxford State Forest in 1988. The habitat requirements of these species should be considered when protecting and managing open spaces.

The diversity of bird species in North Andover can be seen from the variety found in one 120-acre parcel. This one area boasts well over 50 species. A number of species have been observed at Rea's Pond and Mazurenko Farm Conservation Areas in 1990 and 1991. These include raptors such as barred owl (*Strix varia*), great horned owl (*Bubo virginianus*) broad-winged hawk (*Buteo platypterus*), northern harrier (*Circus cyaneus*), northern shrike (*Lanius excubitor*), red-shouldered hawk (*Buteo lineatus*) and red-tailed hawk (*Buteo jamaicensis*); songbirds such as bobolink (*Dolichonyx oryzivorus*), eastern bluebird (*sialia sialis*), northern oriole (*Icterus galbula*) and pileated woodpecker (*Drycopus pileatus*); and game birds such as ruffed grouse (*Bonasa umbellus*), wild turkey (*Meleagris gallopavo*) and wood duck (*Aix sponsa*). A bird census was conducted at the Mazurenko Farm Conservation Area and is included in Appendix F. A bird census later conducted by the Merrimack Valley Bird Club identified 53 species in this general area (O'Grady, 1993).

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Sub-urbanization can either benefit or harm wildlife. Certain species have adapted to humans and now thrive. These include mammals such as the gray squirrel (*Sciurus carolinensis*), skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), racoon (*Procyon lotor*), opossum (*Didelphis virginiana*), as well as birds such as the starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), rock dove (*Columba livia*) and American crow (*Corvus brachyrhynchos*). These successful species are characterized by two features: all are very adaptable to the human landscape and most are scavengers.

Open spaces can provide a haven for native species in a growing community such as North Andover, including the great blue heron, which are protected by the Federal Migratory Bird Treaty Act of 1918. It's illegal to capture, possess, or cause harm to a great blue heron or its nest or eggs. North Andover is the home to the largest great blue heron rookery in Essex County and is protected by the Essex County Greenbelt Association. One unfortunate result of the success of some species (particularly non-native ones such as the starling and house sparrow) is the displacement of native species. This displacement sometimes takes unique forms. In the case of the cowbird (*Molothrus ater*), it lays its own egg in the nest of another (likely native) bird. The unknowing foster parent raises the intruder as its own. This example of nest parasitism is related to fragmentation. The habitat needs of native species must be considered when managing open spaces.

North American Beavers

“The North American beaver (*Castor canadensis*) is an important ‘keystone’ species because the wetland it creates by damming small order streams support a myriad of species.” (Michael Callahan, 2005). Early settlers harvested beaver to almost extinction for their waterproof pelts. In 1996, Massachusetts’s voters passed a bill (M.G.L. c. 131 §80A) prohibiting / restricting the use of lethal traps, including, but not limited to steel-jaw leg hold traps, padded jaw traps, Conibear (body-gripping) traps, snares, and deadfalls on furbearing mammals. Massachusetts licensed trappers are allowed to use live catch box or cage traps, such as Hancock or Bailey traps. During this time the North American beaver population increased drastically. In July 2000, the State Legislature revised this bill to implement reasonable exception to the restrictions of trapping; therefore making trapping permits easier to obtain, while still retaining the spirit of the original bill.

During the 2004 Town Meeting, North Andover residents voted to adopt Chapter 73, Beaver Bylaw: Efficient Protection From Damage Due To Beaver Dams and Blockages, in strict compliance with M.G.L. c. 131 §80A, as amended, and all other applicable Federal and State laws, rules and regulations. This Bylaw is designed to effectively and efficiently resolve emergency problems caused by beavers or other animal-related dams and blockages that pose imminent human health and safety threats. The Board of Health and Conservation Commission actively assist and provide guidance to residents and property owners in an effort to remedy and properly manage the problem through long term management plans. Citizens who wish to live with the beavers, as nature intended, prefer to install a flow device rather than to simply trap and kill the beavers. Flow devices (a.k.a. beaver deceivers) are long-term and also cost-effective solutions to beaver related flooding. In some instances trapping is the logical short-term solution with the implementation of a flow device to follow as part of the long-term management.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Rare, Threatened, and Endangered Species

The Natural Heritage & Endangered Species Program has identified the following Species of Endangered, Threaten, and of Special Concern in North Andover:

Table 4.52 Massachusetts List of Endangered, Threatened and Special Concern

Taxonomic Group	Scientific Name	Common Name	State Rank	Most Recent Observed
Fish	<i>Notropis bifrenatus</i>	Bridle Shiner	SC	1962
Amphibian	<i>Ambystoma laterale</i>	Blue-Spotted Salamander	SC	1995
Amphibian	<i>Hemidactylium scatum</i>	Four-toed Salamander	SC	2002
Reptile	<i>Clemmys guttata</i>	Spotted Turtle	SC	2000
Reptile	<i>Terrapen carolina</i>	Eastern Box Turtle	SC	2004
Reptile	<i>Emydoidea blandingii</i>	Blanding's Turtle	T	2004
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	E	2005
Crustacean	<i>Cranonyx aberrans</i>	Mystic Valley Amphipod	SC	1991
Dragonfly / Damselfly	<i>Somatochlora kennedyi</i>	Kennedy's Emerald	E	1973
Dragonfly / Damselfly	<i>Somatochlora linearis</i>	Mocha Emerald	SC	1973
Butterfly / Moth	<i>Callophrys hesseli</i>	Hessel's Hairstreak	SC	1989
Butterfly / Moth	<i>Callophrys irus</i>	Frosted Elfin	SC	2004
Butterfly / Moth	<i>Euchlaena madusaria</i>	Sandplain Euchlaena	SC	2004
Vascular Plant	<i>Aristida purpurascens</i>	Purple Needlegrass	T	2004

Note:

"Endangered" (E) species are native species which are in danger of extinction throughout all or part of their range, or which are in danger of extirpation from Massachusetts, as documented by biological research and inventory.

"Threatened" (T) species are native species, which are likely to become endangered in the foreseeable future, or which are declining or rare as determined by biological research and inventory.

"Special concern" (SC) species are native species which have been documented by biological research or inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or which occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become threatened within Massachusetts.

Within the past five (5) years there have been confirmed sightings of the Spotted turtles (*Clemmys guttata*) (SC) and Blanding's turtles (*Emydoidea blandingii*) (T). The locations of these species are sensitive due to the tenuous nature of their existence. For this reason, their locations will not be made public, but will be considered when evaluating lands for protection. There are likely other state-listed species in North Andover, which have not yet been identified by the Natural Heritage Program.

Blue-Spotted salamanders (*Ambystoma laterale*)(SC) and the Four-toed salamander (*Hemidactylium scaturum*)(SC) are just a few of the state-listed species that need vernal pools (also known as ephemeral pools) to survive. A vernal pool is a confined basin that fills with water in the autumn or winter due to rising ground water and rainfall. These pools will hold water throughout the spring and into the early summer (typically March – May / June) before drying up. The frequent drying of these pools prevents fish from populating.

During the spring of 1999, a former Conservation Administrator and a few committed volunteers had undertaken a huge project by identifying and certifying vernal pools throughout town. Today, North Andover has approximately sixty- four (64) certified vernal pools and many more are suspected. As well as containing certified vernal pools North Andover has five (5) habitat sites that have been deemed rare and unique. Every effort to protect these areas from disturbance must be made as such habitats may house endangered species of plant and animal (Site reference numbers WH 4012, WH 7, WH 474, WH 3089- Natural Heritage and Endangered Species Map, updated July 1, 2003). North Andover Wetlands Protection Bylaw Regulations requires additional protection of these pools by implementing a 50-foot No Disturbance Zone, a 75-foot No Build Zone, and a 100-foot Septic System setback from the delineated edge of a vernal pool or its habitat (whichever is greater or more restrictive). These setbacks have proven to be successful in preserving the vernal pools and the species' habitat. Nine (9) of these vernal pools in Harold Parker State Forest have been certified to contain state-listed species and many more are likely to exist. Further efforts must be made to identify and protect these ephemeral resources using a certification process through the Division of Fisheries and Wildlife.

In 2004 the Natural Heritage & Endangered Species Program developed the BioMap and Living Waters, which identifies critical areas, or 'core habitats' of native biodiversities that need the most protection. Specifically, this map recognizes state-listed rare species, wetlands and uplands, rivers, streams, lakes and ponds. The intent of this program is to further protect land that is critical for terrestrial and wetland plants, animal species and their habitats, as well as the natural community.

4.6 SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

Historic Landscapes

The Massachusetts Department of Environmental Management (DEM) completed an inventory of scenic landscapes in 1982, and has not been updated since. This project sought to identify "large, contiguous areas of outstanding scenic quality" (Green, 1993). Surprisingly, the vast majority of the inland scenic landscapes contained open areas and farmland. The openings in the dense forest promote the scenic quality of New England's rolling topography. This program identified a scenic landscape of approximately 7 acres in the "outstanding area of rolling farmland" north of, and surrounding, Lake Cochichewick. While DEM's designation carries with it no protection, it does highlight North Andover's unique scenic value that is worthy of protection.

Prehistoric Resources

Prior to European settlement, inland sites such as North Andover were used as seasonal hunting grounds in the spring and fall and perhaps to till small gardens. Although no large-scale or town-wide archaeological survey has been undertaken, certain inferences can be made from the available data. The Massachusetts Historical Commission reports that a few archaeological sites have been unearthed along the present shoreline of Lake Cochichewick. (Other sites likely exist on the original shoreline, which has since been flooded.) According to information compiled by Ripley Bulen in "Excavations in Northeastern Massachusetts" (1949), over one hundred prehistoric sites have been discovered in the Shawsheen and upper Ipswich River drainages. All of these sites are along streams or ponds. Native people frequented water bodies since many of the fish, plants and animals they sought could be found there. Rivers also provided transportation routes.

Considering the high percentage of prehistoric sites along water bodies, a site's archaeological potential should be investigated when any waterfront site is considered for acquisition. Prehistoric sites are prone to disturbance, vandalism and illegal excavation. Due to the sensitive nature of these sites, if any are discovered the exact location should not be made public.

Historic Resources

North Andover includes a number of well preserved buildings and landscapes from the date of original settlement in the 17th Century through the 20th Century. The Historic Commission has identified over 400 structures of historic interest (see also Stephen Roper, A Good In-Land Town: Buildings and landscapes in North Andover, Massachusetts, from 1640 to 1940, published by the North Andover Historical Society in 2001). There are three (3) National Register Districts in town; the Old Center, with a surprising number of existing structures from the early 19th century commercial center of the North Parish; Machine Shop Village, an unusually intact surviving example of a mid 19th century factory village from the early years of the industrial revolution; and Tavern Acres, an early 20th Century residential development surrounding an Olmstead-designed Memorial Park. Only one of these districts, the Old Center, is designated as a local historic district, which offers some protection against altering its significant character. A listing on the National and State Historic Register recognizes the value of the area and carries some protection from projects involving public funds, but its value is chiefly educational.

In 1995, the town purchased Osgood Hill, an 1886 estate listed on the National Register with 159 acres of land on Lake Cochichewick. Although there are several structures in town with historic preservation restrictions held by the Historical Society, Historic New England and the Massachusetts Historical Commission, most of the Town's inventory of historic properties is relatively unprotected by law or regulation.

4.7 ENVIRONMENTAL PROBLEMS

This section discusses certain environmental problems that do not fall into other larger categories. These include hazardous waste sites, abandoned landfills and air quality issues. Such issues can have an impact on a communities' open space and recreational needs.

Hazardous Waste

The North Andover Fire Chief is the Town's Hazardous Waste Coordinator. In this capacity, he investigates all reported, uncontrolled releases or improper storage of chemicals. After an initial investigation, the Fire Department notifies all authorities that may have an interest, such as the Health Department, Conservation Department, Department of Public Works, Police, the Massachusetts Department of Environmental Protection Emergency Response Team and the property owner.

In 1987 under SARA TITLE III, the Town of North Andover established the Local Emergency Planning Committee (LEPC). The LEPC has now expanded to a regional LEPC, which includes the communities of Andover, Haverhill, Lawrence, Methuen, Middleton and North Andover. Under the provisions of SARA TITLE III, all facilities and responsible parties that are responsible for spills or releases of hazardous materials, oils or chemicals must report the incident at the local level.

From the 1940s to the 1980s, the Town of North Andover operated its municipal landfill at a site on Holt Road near the Merrimack River. In 1981 and 1982, the Commonwealth of Massachusetts purchased this site with an agreement that the landfill would be properly capped. Though long overdue, the landfill has recently been capped and the Department of Environmental Protection is entering a final stage to bring closure to the project. The capping of the landfill safeguards the public health, particularly due to its proximity to the Merrimack River, which could quickly transport pollutants off site.

Air Quality

An active incinerator is located in North Andover, and another is located only two miles away in Haverhill. The presence of these waste facilities in the Merrimack Valley is a considerable burden to the air quality of the region. One is located adjacent to the former landfill on Holt Road that is managed by the Northeast Solid Waste Consortium (NESWC) as a trash-to-energy plant. This facility took the place of the landfill that closed in the 1980s. In July of 1999, The Massachusetts Department of Public Health announced fish consumption advisory for both Lake Cochichewick and Stevens Pond. The study performed by the Department of Environmental Protection on fish toxins showed the amount of mercury found to be below the Food and Drug Administration Action Level, but within a level that may pose health concerns for pregnant or nursing women and children under 12. A recommendation was made to the general public on limiting the consumption of largemouth bass caught in Lake Cochichewick or Stevens Pond to two meals per month (North Andover Board of Health release dated July 21, 1999).

The second incinerator is managed by the Greater Lawrence Sanitary District (GLSD), which used to burn solid waste produced by the regional wastewater treatment plant. However this incinerator was closed in 1988 due to the release of high levels of air pollutants. In 2002, the GLSD retrofitted the incinerator with new technology that produces a product that pelletizes the sludge to usable fertilizer called biosolid handling. A capped ash landfill is currently on site and has been tested within required environmental parameters. Due to the possible health affects of incineration, sludge can no long be burned.

Development Impacts

There are both short-term (during construction) and long-term (after construction) environmental impacts due to land development. These impacts are particularly negative with regard to wetlands and water bodies, especially when these wetlands and water bodies may be tributaries to a public water supply such as Lake Cochichewick. The Lake Cochichewick Watershed Plan (IEP, 1987) identified erosion in areas of new construction as one of the "primary sources of elevated suspended solids, nutrient and bacteria concentrations".

Erosion during the construction process and siltation of water bodies can have a variety of impacts, depending on the soil characteristics. "There are three general soil types - fine muck, clay, and sand - all of which must be kept from eroding into the water. Fine muck, if introduced into a stream, will cloud the water and create what is known as biological oxygen demand. This depletes the waters of dissolved oxygen (DO), causing a reduction in fish and other aquatic organisms that depend on the DO for respiration. Clays will create a milky cloud that can clog the gills of fish living in the streams' waters. Fine muck and clays impact waters on a short-term basis. Sand, however, may be the most harmful of all eroding soils because of its long-term implications. The sand fills in gravel beds, which is used by fish as spawning beds." (Maynard, 1992)

5.0 INVENTORY OF CONSERVATION AND RECREATION LAND

There is an abundance of undeveloped land in North Andover. This open land is an important part of the community character and is one of the primary reasons why people choose to locate here and raise a family. Actually, much of this undeveloped land is **not** protected open space. Undeveloped land in North Andover includes: wetlands, which are strictly regulated; private land that is not yet developed; protected open space and public land that has varying degrees of protection. This section will provide a detailed review of these various levels of protection.

5.1 PROTECTED OPEN SPACE

The main source for identifying protected open space land in North Andover is the Merrimack Valley Planning Commission (MVPC) “Open Space Map”. This map has been created with input from the North Andover Open Space Committee and the Conservation Department. The original map sources included the maps entitled "Protected Open Space of Essex County 1983 (1989 Revision)" by the Essex County Greenbelt Association and the MassGIS Open Space Map. The map presented in this document is a close approximation of the final Open Space and Recreation Map and is for reference purposes only.

Public-Protected Open Space

North Andover has benefited from the efforts of public and private organizations to preserve open spaces. The Commonwealth of Massachusetts, through the Department of Conservation & Recreation (formerly the Department of Environmental Management (DEM)) manages all state forests and parks. Portions of Harold Parker State Forest and Boxford State Forest are located in North Andover (**Table 5A**). These parcels have been part of the state forest system for decades and include large tracts of forests, wetlands and water bodies. These forests contain some ecologically significant areas. Harold Parker State Forest is known to contain numerous vernal pools, a few are certified through the Division of Fisheries & Wildlife, while Boxford State Forest includes portions of a large Atlantic White Cedar Swamp.

TABLE 5.1.1
Massachusetts Forest and Park Service

PROPERTY	ACRES	PRIMARY USES
Harold Parker State Forest (60% in North Andover)	3000	Recreation
Boxford State Forest (40% in North Andover)	828	Recreation

The Town of North Andover also owns open land with various levels of protection. Municipal lands are generally protected for conservation, recreation and watershed protection reasons. For the purposes of this section, 'conservation' shall refer to land used for wildlife habitat, resource management activities such as forestry, and resource-based recreation such as hiking. On the following page **Table 5.1.2** identifies town-owned open space.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

TABLE 5.1.2
Town-owned Open Space

PROPERTY	ACRES	PRIMARY USES
Cyr's Recycling Center & Recreational Fields	88	Conservation, Recreation, Recycling
Sterling Lane (Map 106; Lots 38, 127)	23.8	Conservation
Memorial Park	3	Historic Preservation, Recreation
Town Common	8	Historic Preservation, Recreation
Cedar Swamp	6	Conservation
Turnpike Street (Map 108C; Lots 10, 11; Map 108A; Lot 10)	46.06	Conservation
Berry Street (Map 108C; Lot 11)	10.7	Conservation
Ingalls Street (Map 106B; Lot 20)	4.2	Conservation
Settler's Ridge Road Open Space (Map 61; Lots 13 & 115)	5	Conservation; Watershed
Winter Street (Map 104B; Lots 83, 116, 117)	3	Conservation
B & M Railroad (Map 75, Lot 2; Map 77, Lot 9 & 10; Map 106C, Lot 25)	23.01	Conservation
Great Pond Road (Map 64; Lot 9)	39.7	Conservation; Watershed
Great Pond Road (Map 37A; Lot 2)	4.42	Conservation; Watershed
Great Pond Road (Map 35; Lots 21, 22)	2	Conservation, Watershed, Recreation
Great Pond Road (Map 35; Lot 44)	1.05	Conservation, Watershed
Sugarcane Lane Open Space (Map 106A; Lot 206)	18.06	Conservation
Forestview Estates Open Space (Map 108C; Lots A, 140, C, D)	37.23	Conservation, Recreation
TOTAL ACREAGE	323.23	

An Access Survey was completed prior to the revisions made in the 2000 Plan to determine the accessibility of these open spaces for persons with disabilities. Town-owned open spaces have very limited facilities. What few facilities there are were not designed for persons with disabilities. Findings from the Access Survey will be used to ensure the accessibility of a representative sample of the Town's open spaces and recreational facilities.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The *Cyr Recycling and Recreation Center* is located in the extreme southern end of town and has been used by the DPW as a storage and leaf composting facility. Two soccer fields and 2 baseball fields are located on this property. Portions of the Bay Circuit Trail traverse through this property, which connects the Boxford and Harold Parker State Forests in North Andover. The Bay Circuit is a greenbelt through 50 communities containing a series of trails, totaling approximately 200 miles, which runs from Ipswich to Duxbury.

The *Town Common* was created between 1880 and 1956 as various parcels were acquired and existing structures were removed. The site is a popular picnic spot and is the setting for various special events and recreational programs.

Memorial Park is located directly across from the Stevens Library. This park is dedicated to the men and women of North Andover who, during the two hundred and seventy-five years of existence, have rendered the State or Nation patriotic service of either a civic or military nature. This property was a gift to the Town from the Stevens family. Restoration, which followed the original Olmsted Park design, was begun in 1996 from donations received from many local sources.

Forest View Estates Open Space is located within the Forest View Estates off Turnpike Street / Route 114. As part of the conditional approval by the Conservation Commission and the Planning Board, trails were constructed throughout the open space parcels and are a direct link to the Harold Parker trails.

While most of these lands serve some conservation purpose, few were acquired and are protected in perpetuity as open space. **Table 5.1.3** on the following two (2) pages details the specific properties that are managed under the care and custody of the Conservation Commission. This has been done as a condition of state grants received for their acquisition or has been deeded over to the Town by a developer.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

TABLE 5.1.3
Town of North Andover Open Space Parcels Managed by the Conservation Commission

PROPERTY	ACRES	PRIMARY USES
Town Farm / Forest, off Dale Street, South Bradford and Carriage Chase Road (Map 64; Lots 18, 20, 64)	158.93	Conservation, Recreation
Osgood Hill, off Osgood Street and Chickering Road, Rt. 125 (Map 35; Lot 23)	153	Conservation, Recreation, Watershed Protection
Half Mile Hill & Summit, off Osgood Street (Map 36; Lots 1, 20; 21; Map 35; Lot 35, 25, 33, 34)	67	Agricultural Preservation, Conservation, Recreation, Watershed Protection
Mazurenko Farm Conservation Area, Bradford Street (Map 62, Lot 8)	104.5	Agricultural Preservation, Conservation, Recreation, Watershed Protection
Rea's Pond, Great Pond Road, Rt. 133 (Map 62; Lot 22)	15	Conservation, Recreation, Watershed Protection
Carter Hill, Bradford Street (Map 62; Lot 5)	27.3	Agricultural Preservation, Conservation, Recreation, Watershed Protection
Foster Farm & Bruin Hill, Foster Street (Map 104B; Lots 42, 37, 38; Map 104D; Lot 43)	66	Agricultural Preservation, Conservation, Recreation
Foster Street (Map 104B; Lot 173)	15.47	Conservation, Recreation
James Swamp (Map 38; Lot 98)	47	Conservation, Recreation
Stevens Street, corner of Stevens Street & Great Pond Road (Map 96; Lot 5)	1.05	Conservation
357 Rea Street - Rear (Map 38; Lot 324)	1.35	Conservation
North Andover Estates- Rosemont Drive Open Space (Map 98B; Lot 65)	8.74	Conservation
North Andover Estates- Holly Ridge Road Open Space (Map 98B; Lot 1, 69)	12.96	Conservation
North Andover Estates- Ridge Way Open Space (Map 98B; Lot 6)	10.83	Conservation
Huckleberry Lane at Pinewood Subdivision Open Space (Map 65; Lot 24)	9.62	Conservation, Recreation

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

Foxwood Suidivision Open Space (Map 65; Lot 39; Lot 20)	35.5	Conservation, Recreation, Watershed Protection
Brookview Estates Open Space (Map 105A; Lot 4)	25.37	Conservation, Watershed Protection
Riverview Street (Map 72; Lot 5)	0.94	Conservation
Duncan Drive (Map 104B; Lot 23)	1.38	Conservation
Lost Pond Lane Open Space (Map 104B; Lot 15)	6	Conservation, Recreation
TOTAL ACREAGE	767.94	

The *Town Farm/Forest* is the largest parcel of municipal open space. The original 126 acres were purchased from Mr. Samuel Jenkins in 1856. The community's poor farm operated on this property for approximately 100 years. Pine plantations are also located on this property, which may have been the work of the Civilian Conservation Corps in the 1930s. Additional acquisitions were made as late as 1985 (Leland parcel). Although not purchased for watershed protection purposes, 120 acres of the Town Farm now serves this vital purpose. A management plan for Town Farm / Town Forest (prepared by Seekamp Environmental Consulting) was completed in 2000. The town constructed a baseball and soccer field in the late 1990s known as Gallagher Fields. Additionally, The North Andover Youth Services (NAYS) Ropes Course is also located within the Town Forest. The low and high challenge course is utilized by over 1,000 youths per year and is proven to be a real treasure.

The *Mazurenko Farm Conservation Area* was purchased from the Mazurenko Family in December 1988. This parcel was classified under Chapter 61A as agricultural farmland. When the landowner attempted to develop the parcel, the Town exercised its option to purchase with the assistance of a \$1million dollar grant from the Commonwealth of Massachusetts. The Mazurenko farmhouse previously occupied the location of the existing parking lot until a fire destroyed it in 1986. The primary purpose of this acquisition was water supply protection, as the entire 104-acre site lies entirely within the Lake Cochichewick Watershed. At that time the water supply was under extreme stress from development in the watershed; therefore this was the driving force behind its purchase. Other pertinent reasons for this acquisition included the preservation of agricultural lands and wetlands, wildlife habitat, and natural and recreational resources. The Mazurenko Farm Conservation Area The North Andover Conservation Commission manages the property under a comprehensive management plan, which was completed in March of 1991. *Rea's Pond* is located off Great Pond Road / Route 133 and is adjacent to Mazurenko Farm. This was the first piece of conservation land purchased by the Town in 1975. The 15-acre site includes a pond that provides prime habitat and solitude for the great blue heron and is also a popular fishing spot.

James Swamp is 57 acres in size and has 3 soccer fields and a basketball court. This property also includes heavily wooded land that contains hiking trails (established 1998). The Reynolds Cider Mill and two outbuildings are also located on this parcel; these buildings were leased to an adjacent property owner prior to the donation of the land to the town in 1971.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Portions of the *Shawsheen River* floodplain have been taken in lieu of taxes and serve a valuable flood control function and protect important wildlife habitat. Additional donations of land have been received as part of a subdivision approval. Plans for a trail system along the river are presently in progress.

The town also owns two small parcels along the Merrimack River. One acre on *Riverview St.* is the site of a proposed boat ramp. Plans for the construction of the boat ramp have now been put aside due to lack of public support. A public well is located on an eight-acre parcel next to the river but has never been used since the water quality would require treatment. This well may be used in the future if needed.

Osgood Hill was purchased in October 1995 through a special Town Meeting. The citizens of North Andover purchased the land and the Stevens Mansion in 1994 for permanent preservation and the protection of the town's water supply. The entire parcel is in the watershed to Lake Cochichewick, our water supply. The Osgood Hill Property sits on 165 acres of land on which the 1886 home of Moses T. Stevens (1825 – 1907) still stands. The Stevens Estate Mansion and related buildings are operated by the Trustees of Osgood Hill for conferences and functions in a manner similar to that done formerly by Boston University. Articles 15 and 16 of the May 1997 Town Meeting authorized an annual Osgood Hill operating budget and established a 7 member governing board. Article 5 of the October 1994 special town meeting contains language that requires that disposition of land or buildings require approval by vote at a town meeting.

Foster Farm (which includes Bruin Hill) was purchased in 1998 through an action of Town Meeting. The 92.72 acres of vacant farmland and woods was purchased from the estate of Earl L. Foster. This land acquisition was under the provisions of Chapter 61A. For the purposes of management by the Town, the property is comprised of 3 parcels designated as the following:

- ◆ Parcel A- under the control of the School Committee was set aside to be the site for a future elementary school.
- ◆ Parcel B & C are managed by the Conservation Commission for agricultural preservation and recreation.

For more history on Foster Farm and the Barker Farm reference *Founding Farms, Portraits of 5 Massachusetts Family Farms* by Stan Sherer and Michael E. C. Gery.

Half-Mile Hill and Summit, located off Osgood Street behind Edgewood Farm, between Osgood Hill and Weir Hill. Combined, the parcels consist of approximately 67 acres and 880-feet of frontage along Lake Cochichewick. The acquisition of Half-Mile Hill was funded in 2002 with the assistance of The Trust for Public Lands, a \$250,000 State Self-Help Open Space Grant, and the Community Preservation Committee. In 2004, the Town purchased the Half-Mile Hill Summit from Michael L. Kettenbach. Similar to the acquisition of Half-Mile Hill, The Trust for Public Land and Community Preservation Committee assisted the Town with this process. These parcels were retained for watershed, agricultural and conservation preservation, and its proximity to other open space parcels for trail connection. In addition to being under the care and custody of the Conservation Commission, a Conservation Restriction to The Trustees of Reservations was implemented for the Half-Mile Hill parcel (approximately 36 acres) to assure that the premises will be retained in perpetuity in its natural, scenic and open condition.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The 27-acre *Carter Hill* was purchased in 2001 with the assistance of The Trust for Public Lands and a \$250,000 State Self-Help Open Space Grant. Carter Hill is located off Bradford Street and is bounded by Barkers Farm, Mazurenko Farm Conservation Area, and PRDs Open Space associated with Hickory Hill and Settler's Ridge Subdivisions. The primary purposes for acquire this land was to preserve one of the last undeveloped drumlin / farmland vista in North Andover. Other reasons include watershed protection, proximity to other open space parcels for trail connection, unique aesthetics / historical value, and highly valued wetland /wildlife habitat.

Planned Residential Developments (PRD) such as **Brookview Estates, Lost Pond Lane, North Andover Estates, Pinewood Subdivision, Foxwood Subdivision, and Duncan Drive** all have open space that are managed and controlled by the Conservation Commission.

Public land that was acquired for conservation, recreation, agriculture or other specified public uses is considered a public resource under Article 97 of the State Constitution. Therefore, any change in land use proposed by a local government requires a 2/3 vote of both Town Meeting and the State legislature. This applies to all public land in Massachusetts, whether local or state government purchased it. This provision of state law does protect such public resources.

The issue of control / jurisdiction is not an academic one. With the real potential for conflicting public interests, the 1995 Open Space and Recreation Plan recommended that each parcel of town-owned land should be placed under the management of a specific board or department. As of the 2005 rewrite of this plan, this has yet to be done with the exception of those listed in **Table 5.1.3**. As a general rule, a public board or commission should hold this control with expertise in the appropriate area. This could include the Conservation Commission, Open Space Committee, Recreation Council and possibly others. In this way, the public interests served by these lands will be managed properly.

Private-Protected Open Space

Two private land trusts also manage land in North Andover. *The Trustees of Reservations*, the oldest land trust in the nation, manages three properties in North Andover (**Table 5.1.4**). Weir Hill Reservation is located on the shore of Lake Cochichewick. It has approximately 1 mile of frontage on the lake and is the largest piece of protected open space in the watershed of our public water supply. Stevens-Coolidge Place is 91 acres in size and includes an historic house/museum with 5 acres of formal landscape, 30 acres of hayfields and 6 acres of meadow. The property has considerable street frontage that adds to the rural character of the old center historic district. Ward Reservation includes a variety of natural landscapes and includes Holt Hill, the highest point in Essex County, with fine views of the distant Boston skyline.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

TABLE 5.1.4
Trustees of Reservations

PROPERTY	ACRES	PRIMARY USES
Weir Hill	194	Watershed, Recreation, Conservation
Stevens-Coolidge Place	91	Historic Preservation, Conservation
Edgewood Farm (Conservation Restriction)	29.5	Historic Preservation, Conservation
* Ward Reservation	350	Recreation, Conservation
TOTAL	664.5	

* Ward Reservation is approximately 700 acres in size. The property is located within Andover and North Andover.

The Essex County Greenbelt Association is a private land trust that holds title to 357.7 acres of land in North Andover (Table 5.1.6) and controls conservation restrictions on one other parcel. These include the Farnsworth Reservation, which abuts the Town Farm and Smolak Farm, Potters Field on the shores of Lake Cochichewick, and a number of parcels abutting the Boxford State Forest. In 2004, Tom Zahoruiko, a local developer generously donated Carter Fields Reservation to the Essex County Greenbelt Association as part of a Planned Residential Development stipulation. The site is comprised of 85-acres of forested uplands, and an extensive beaver-created wetland that houses the largest Great Blue Heron rookery in Essex County.

TABLE 5.1.5
Essex County Green Belt Association

PROPERTY	ACRES	PRIMARY USES
Fish Cedar Swamp	6	Conservation
Farnsworth Reservation	50	Conservation, Recreation
Chaplin Cedar Swamp	61.5	Conservation
Wilmot Lot	11	Conservation
Chaplin Nike Site	43.8	Conservation, Recreation
Purgatory Swamp	91	Conservation, Recreation
Christmas Tree Estate	9.1	Conservation
*Cater Fields Reservation	85	Conservation, Watershed, Recreation
TOTAL ACREAGE	357.4	

Excluding Potters Field (3.0 acres)

* Donated by Tara Leigh Development in 2004

Conservation Restrictions (CRs)

Other ways to preserve land is through a Conservation Restriction. Under the provisions of M.G.L. Chapter 184, §31 –33, Conservation Restrictions (CRs) are intended to limit the use of land in order to protection specific conservation values including natural, scenic or open condition of the land through a legally binding agreement between a landowner (grantor) and a holder (grantee). The table below outlines the properties in North Andover that have a Conservation Restriction.

Table 5.1.6
Conservation Restrictions

PROPERTY OWNER	LOCATION
Half Mile Hill	Trustees of Reservations
Cater Hill	Trustees of Reservations
Edgewood Farm	Trustees of Reservations
Osgood Hill	Trustees of Reservations
Essex County Greenbelt Association	Towne Pond, North Andover / Boxford
North Andover Conservation Commission	316 Great Pond Road
North Andover Conservation Commission	235, 243 & 245 Great Pond Road
North Andover Conservation Commission	Peachtree Farm

5.2 PLANNED RESIDENTIAL DEVELOPMENTS

Planned Residential Developments (PRD's) are communities or clusters of homes that create a traditional New England Style landscape surrounded by usable open space. The number of homes allowed in a PRD subdivision is the same as allowed by a conventional subdivision on a given parcel of land. However, the lot sizing is smaller, allowing a reduction to the developed portion of the parcel. The undeveloped portion of the parcel is then reserved as open space. This space excludes parking areas, but includes required setbacks and walkways. The usable open space shall be open and unobstructed to the sky; however trees, planting, arbors, flagpoles, sculptures, fountains, swimming pools, atriums, outdoor recreational facilities and similar objects shall not be considered obstructions. The developer owns PRD open space parcels until the street is accepted at a Town Meeting. The ownership is then transferred to the Town, Homeowners Association, or Private Land Trust. Some of the main reasons for PRD's are listed below.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

- ❖ To promote the more efficient use of land in harmony with its natural features;
- ❖ To encourage the preservation of open space;
- ❖ To protect water bodies and supplies, wetlands, flood plains, hillsides, agricultural lands, wild life, and other natural resources;
- ❖ To permit greater flexibility and more attractive, efficient and economical design of residential developments.
- ❖ To facilitate economical and efficient provision of utilities;
- ❖ And to meet the Town's needs by promoting a diversity of housing types.

For subdivision PRD's the minimum usable open space requirements shall be 35% of the total parcel area; and no more than 25% of the total amount of required usable open space shall be wetlands. For site planned PRD's the minimum usable open space requirements shall be 50% of the total parcel area; and no more than 25% of the total amount of required usable open space shall be wetlands. For all PRD's the usable open space shall be owned in common by and readily accessible to owners of all units in the PRD or by any of the following groups:

- ❖ A non-profit organization or trust whose members are all the owners and occupants of the units.
- ❖ Private organizations including, but not limited to, The Trustees OF Reservations or Essex County Greenbelt Association, whose primary function is preservation of open space.
- ❖ The Town of North Andover.
- ❖ Any group as indicated by the Planning board, which exists or is created for the purpose of preserving open space for the owners of the units located in the PRD Project.

Furthermore, restrictions shall provide that the usable open space shall be retained in perpetuity for one or more of the following uses: conservation, agriculture, or recreation (M.G.L. Chapter 184, Section 31). An example of this is Carter Fields, developed by Tom Zahoruiko. During the 2000 Town Meeting, Mr. Zahoruiko petitioned the General Court to change the boundary line between the Towns of Boxford and North Andover along Bradford Street. The boundary change allowed Mr. Zahoruiko to permit his 17-lot subdivision in North Andover and not Boxford. Regardless of what town the subdivision was constructed in, North Andover would ultimately experience the greatest development impacts. The entire development was proposed within the watershed district of Lake Cochichewick and the subdivision entrance was proposed off Bradford Street, North Andover. Additionally, sewer and water lines were readily available on Bradford Street, and the PRD provisions would require the developer to reserve a percentage of the parcel as open space. Boxford has neither of these items. The State Legislature subsequently approved the petition under Chapter 413 of Acts of 2002.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Table 5.2.1 on the following page lists the PRD's located within The Town of North Andover.

TABLE 5.2.1

North Andover Accepted PRD's

T.O. = Town Owned

H.O. = Homeowners

ECGA = Essex County Greenbelt Assoc.

PROPERTY	LOCATION	LOTS	OPEN SPACE	ACCEPTED	FINAL OWNER
Brookview Estates	Boxford Street	15	25.9 acres	YES	T.O - NACC Managed
Carter Fields	Bradford Street	17	112 acres	YES	ECGA-85acres / T.O.
Christmas Tree Estates	South Bradford Street	4	9.1 acres	YES	ECGA
Cobblestone Crossing	Copley Circle	17	3.6 acres	YES	H.A.
Cobblestone Crossing II	Copley Circle	5	1.8 acres	YES	H.A.
Forest View Estates	Turnpike Street	94	71.5 acres	YES	T.O.
Foxwood	Foxwood Drive & Weyland Circle	49	18.1 acres	YES	T.O.
Hickory Hill I & II	Hickory Hill Road	40	55.2 acres	YES	Conservation Restriction
Jared Place III	Sunset Rock Road	8	5.2 acres	NO	T.O.
Jared Place IV	Sherwood Drive	19	64 acres	NO	T.O.
Lost Pond	Lost Pond Lane	13	6.17 acres	YES	T.O.
Meadowood	Meadowood Drive	26	8 acres	YES	Conservation Restriction
Molly Towne	Summer Street	16	21.96 acres	NO	TBD
North Andover Estates	Holly Ridge Road & Rosemont Drive	42	21.7 acres	YES	T.O - NACC Managed
North Andover Heights	Ridge Way	19	10.83 acres	YES	T.O. - NACC Managed
Peachtree Farms	Chestnut & Rea Street	29 SFH; 5 Town-houses	30 acres	NO	T.O.
Phillips Common	Phillips Common	TBD	6.94 acres	YES	T.O.
Pinewood	Huckleberry Road	17	9.62 acres	YES	T.O. - NACC Managed
Salem Forest V	Raleigh Tavern Lane	6	26.9 acres	NO	T.O.
Settler's Ridge	Bradford Street	11	12.5 acres	YES	T.O.- NACC Managed
Seven Oaks	Sugarcane Lane	6	18.1 acres	YES	T.O.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

White Birch I	White Birch Lane	6	3.32 acres	YES	H.A.
White Birch II	Cherise Circle	10	4.02 acres	YES	H.A.
Woodland Estates	Turnpike Street & Old Cart Way	29	22 acres	NO	T.O.
Woodlea Village	Chestnut Street	11	26.9 acres	NO	H.A.
TOTAL ACREAGE OF OPEN SPACE:			595.36		

5.3 UNPROTECTED LAND OF CONSERVATION INTEREST

A comprehensive review of all land in North Andover was completed using the Assessor's records and the Lawrence Registry of Deeds website (www.lawrencedeeds.com). This effort investigated such factors as ownership, current use, condition of land, presence of wetlands and degree of protection as required by the Open Space Planners Workbook. The Open Space Advisory Committee's 1995 recommendations of appropriate criteria, with modifications, are still valid in 2005. It is the recommendation of the Open Space Committee that the following still be used for evaluating land of conservation interest.

- ◆ Land adjacent to a Lake Cochichewick Tributary.
- ◆ Land within the boundaries of the Lake Cochichewick Watershed District.
- ◆ Land abutting existing / protected open space.
- ◆ Land with development risks (i.e. private ownership chapter 61, 61A, and 61B, or Agricultural Preservation (APR) status, town property)
- ◆ Unique aesthetics / historic value / community character.
- ◆ Feasibility of a trail network & adjacent network(s).
- ◆ Unique Wildlife-wetlands / river corridors / riparian habitat values as depicted on the North Andover BioMap and Living Waters Map produced by the Natural Heritage and Endangered Species Program (NHESP).

5.4 PUBLIC RECREATION AREAS

Parks and Playgrounds

North Andover has 17 public recreation facilities. This includes a combination of ball fields, recreation areas and playgrounds. **Table 5.4.1** on the following page provides an overview of these facilities.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

Table 5.4.1
Town of North Andover Recreational Areas

Properties	Acres	Soccer	Baseball	Softball	Football	Basketball	Skate-boarding	Playground	Tennis	Volleyball	Ropes Course	Track	Swimming
Aplin Playground	1.8	-	1	-	-	1	1	1	-	-	-	-	-
Atkinson / Middle Schools	38.3	5	1	-	1	2	-	1	-	-	-	1	-
Carl Thomas Playground	5.24	-	3	-	-	1	-	1	-	-	-	-	-
*Carter Farm Soccer Fields	5	3	-	-	-	-	-	-	-	-	-	-	-
Chadwick Fields	3	-	-	3	-	1	-	1	-	-	-	-	-
Cyr Recreation Center	88	2	2	-	-	-	-	-	-	-	-	-	-
Drummond Playground	5	-	1	1	-	1	-	1	-	-	-	-	-
*Foster Farm Soccer Fields	10	2	-	-	-	-	-	-	-	-	-	-	-
Franklin School	8.8	-	2	-	-	-	-	2	-	-	-	-	-
Gallagher Field	3	1	1	-	-	-	-	-	-	-	-	-	-
Grogan's Field	4.7	-	1	-	-	1	-	-	-	-	-	-	-
*Joseph N. Herman Youth Center	3	-	-	-	-	1	1	-	-	-	1	-	-
Kittredge School	6.5	-	-	1	-	1	-	1	-	-	-	-	-
*North Andover High School	44.5	2	1	1	1	1	-	-	6	1	-	1	-
Reynolds Fields	6	3	-	-	-	1	-	1	-	-	-	-	-
Stevens Pond Beach	1.4	-	-	-	-	-	-	1	-	-	-	-	1
Thomson School	3	-	-	-	-	-	-	1	-	-	-	-	-
TOTAL	237.34	18	13	6	2	11	2	11	6	1	1	2	1

Stewardship Program

The Town of North Andover has been extremely successful in aggressively protecting and preserving strategic parcels for critical town interest, such as scenic hilltops, pastoral landscapes, forested wildlife corridors, and watershed protection; particularly over the last five (5) years where we've acquired over 100 acres. In total, the Conservation Commission manages over 765 acres of open space throughout town. Consequently, the growth in acquisition of open space has outpaced the Conservation Commission and the Conservation Department's abilities to adequately manage these areas. As such, this has proven to be extremely challenging due to the limited funds and staffing. In an effort to successfully manage these lands, the Conservation Department, in concert with the Open Space Committee designed a stewardship program appropriately called 'The North Andover Open Space Stewardship Program'. The goal is to prepare comprehensive management plans for each individual open space parcel that is under the care and custody of the Conservation Commission. These plans will contain a sustainable regimen of maintenance and enhancement activities that will be designed site-specifically in order to conform to natural features, and logical and established uses by citizens. The idea is to create a natural synergy between the residents of North Andover and the valued resources to generate active interests and volunteerism. Public interest is the key ingredient to drive maintenance efforts for open space efforts in exchange for rejuvenating the enjoyment of the North Andover's valuable recreational resources.

The long-term vision for our open space parcels is to perpetuate effective management practices through a 'Board of Directors' (volunteer organization) coupled with consistent fundraising efforts. The Board of Directors will be comprised of a President, Vice President, Secretary / Treasurer, Publicity & Fundraising Director, Trails Director, Hunting / Fishing Director, Wildlife Management Director, Vegetation Management Director and several warden who will be appointed to a particular parcel(s). The benefits of this program will establish the necessary structure for the managing organization, as well as direction for effective and ongoing maintenance and preservation.

The stewardship program is a multi-phased approach to ongoing open space management. The initial phase will be funded by the Community Preservation Committee, which will consist primarily of tangible and visible improvements to trail systems and citizen's access. Specifically, enhancing existing trail systems and creating new trail linkages to abutting open space parcel; installing trailhead and trail markers where applicable; fabricating and installing informative kiosks at trailheads; constructing and enhancing existing parking areas; enhancing public access, particularly for people with handicapped disabilities; and beaver management where applicable. The goal of the initial phase is to increase citizen's awareness, support and appreciation of North Andover's protected open space, and provide an infrastructure for attracting and coordinating the volunteers to address open space management needs for years to come.

Subsequent phases will involve conducting extensive civil and environmental surveys by professional land surveyors, land use planners and wetland scientists at each parcel in order to specifically define the nature and scope of the associated management needs for the assembly of a management plan. The major components of the civil survey are to define the property boundaries, significant topography and geology at each site. Property lines that directly abut residential properties will be survey-located in an effort to prevent and ensure future inadvertent encroachment by residents. The civil plots will serve as a background for further refinement that will incorporate information from MassGIS and other important features, such

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

as wildlife habitats, vegetation, trails, etc., based on data gathered by Global Positioning Systems ('GPS').

The environmental survey will define the natural features including unique wildlife features, vernal pools, rare species habitats, significant forested / wetland areas, etc., using a GPS. The discoveries of this survey will drive refinements of the civil plots with description and location of the natural features contained in each open space parcel. In addition, the consultant will identify existing trailheads and parking areas, in order to establish future trail network systems and additional parking where needed. The collected data will provide essential information for the creation of trail maps for public use. Each map will be easily interpreted by the average person, and will provide informative orienteering, as well as identifying natural features to facilitate an enjoyable touring experience. These maps will be incorporated in the creation of a trail guide entitled, 'North Andover Open Space Trail Guide'. This guide will be a bounded document intended for sale to the general public to raise funds for open space maintenance and promote passive recreational activities.

Hiking Trails

North Andover has many miles of scenic hiking trails located on numerous public and private properties. These trails are available year round for hiking, picnicking, nature walks, bird watching, and in the winter, cross-country skiing and snowshoeing. In the past, the trails on town-owned properties were developed and maintained by the North Andover Trails Committee (NATC), but have resorted to a less formal public volunteer network in the past three (3) years.

Table 5.4.2 identifies all public trail systems within the Town of North Andover. **Table 5.4.3** identifies the trail systems that are presently being developed. The North Andover Trails Committee had published trail maps of the larger properties listed in Table 5.3.1 in March 2000.

TABLE 5.4.2
Developed Public Recreational Trails

PROPERTY	OWNERSHIP	NUMBER OF TRAILS
Bay Circuit Trail	Private, Town, and State Owned	1
Boxford State Forest	Mass. Forest & Park Service	10+
*Bruin Hill	North Andover	1
*Carter Hill	North Andover	2
Farnsworth Reservation	Essex County Greenbelt Association	1
Foster Farm	North Andover	1
*Foxwood Subdivision Open Space	North Andover	2
*Half Mile Hill & Summit	North Andover	2
Harold Parker	Department of Conservation & Recreation	10+

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

James Swamp	North Andover	1
Mazurenko Farm	North Andover	7
Osgood Hill	North Andover	3
Rea's Pond	North Andover	2
Shawsheen River	North Andover	1
Town Farm	North Andover	1
Town Forest	North Andover	1
Ward Reservation	Trustees Of Reservations	5+
Weir Hill	Trustees Of Reservations	8+

* Trails to be developed

TABLE 5.4.3
Planned Public Recreational Trails

PROPERTY	OWNERSHIP
Half Mile Hill and Summit	North Andover
Carter Hill	North Andover
Essex County Railroad	North Andover
Foster Farm (Parcel C)	North Andover
Merrimack River to Haverhill	North Andover

The most recent long range trail planning was prepared by the North Andover Trails Committee with the goal of linking all North Andover neighborhoods, open spaces, neighborhood paths, recreation areas via an extensive trails network. A crucial part of this plan was the Essex Railroad Rail Trail, as a primary link with a multitude of open spaces, neighborhoods, and recreation areas.

As previously discussed, the 27-acre **Carter Hill Conservation Area**, off South Bradford Street was purchased through Community Preservation Funds, assistance with The Trust for Public Land, and a Self-Help grant. This site was ranked #1 by the Open Space Committee for its watershed protection, proximity to other protected open space, development risks, agricultural preservations, spectacular views, historical significance, and highly valued wetland / wildlife habitat. Mazurenko Farm Conservation Area and Rea's Pond immediately abut Carter Hill and is ideal for trail networking. Currently there is not a defined trail system that links Mazurenko Farm to Carter Hill. However, the 2006 Open Space & Recreation Plan identifies plans to create a trail linkage of these three (3) parcels, offering over 150 acres and 2-acres of recreational use and wildlife viewing.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

In 2002 and 2004 the Town acquired **Half Mile Hill and Summit**, approximately 67 acres of prime watershed property, consisting of agricultural fields, upland forest and lakeshore frontage. This acquisition was funded by the Community Preservation Act and assistance through a Self-Help grant. The property is flanked by Osgood Hill and Weir Hill, and is North Andover's largest contiguous open space corridor, creating a wildlife haven of unequalled quality. The wooded hillsides within the Osgood Hill and Sunnyridge parcels are the oldest, most mature areas in town, and the vista from Half Mile Hill Summit is nothing short of spectacular. The parcel contains a significant shoreline protection along Lake Cochickewick, providing nearly all necessary elements for upland habitat mammal species. The large open hay field on the hillside overlooking the lake is also a rich nesting habitat for small grassland birds throughout the year. Currently there is a trail system that meanders through the Osgood Hill property and could be linked with Half Mile Hill and Summit and Weir Hill. The vista at the top of Half Mile Hill Summit provides a panoramic view of the glacial drumlins and a foreground of Lake Cochickewick.

The **Essex Railroad** was completed in 1848 connecting Salem, Peabody, Danvers, Middleton and North Andover. Sections of the 7-mile route through North Andover were abandoned between 1926 and 1981. Many parties, including the Town, various utilities, and private landowners currently own the former right of way. Hikers, equestrians and bicyclists currently use much of the route, while other sections are overgrown or have been privately developed. One section of the route is used by the Bay Circuit Trail. Plans for the proposed Essex Railroad Rail Trail involve development of the currently accessible sections and determining alternatives for those sections privately developed. The ultimate goal is to develop a paved path to allow for the most diverse use of the route. Efforts to establish the envisioned Rail Trail were coordinated through the Office of Community Development and Services, but were met with significant opposition from resident groups in the eastern portions of town. Although it remains a prominent recreational goal in North Andover, the Rail Trail project has not been adopted to date.

An Access Survey was completed in previous years to determine the accessibility of these recreational facilities for persons with disabilities. North Andover's recreational facilities are aging and therefore were not designed for persons with disabilities. Findings from the Access Survey will be used to ensure the accessibility of a representative sample of the Towns open spaces and recreational facilities. There are improvements and repairs that are needed at each of the recreational properties listed in Table 5.4. These repairs were listed in the 1995 Open Space and Recreation Report.

5.5 PRIVATE RECREATION AREAS

North Andover has a number of private recreational facilities. These private facilities are listed in **Table 5.5.1**.

TABLE 5.5.1
Private Recreational Facilities

Andover/North Andover YMCA, Andover
Brooks School
Merrimack College
North Andover Country Club
North Andover Riding Academy
Willows Racquet and Fitness Club
Windrush Farms Riding Academy

5.6 CHAPTER 61, 61A, & 61B

Massachusetts General Laws, Chapter 61, 61A, and 61B has been designed to give favorable tax rate to landowners who meet the minimum forestry, agricultural and horticultural, and open space and recreation requirements. These special tax provisions were implemented to encourage the long-term management of the Commonwealth’s forest for wood production, more agricultural and horticultural uses, and the preservation of open land in its natural state or approved recreational uses. This program is intended to encourage landowners to continue to use and preserve their properties from development.

Chapter 61: The Forest Land Tax Law is a tax treatment given to a landowner who has a minimum of ten (10) contiguous acres of undeveloped forestland to be managed for wood production. Currently there are three (3) landowners that utilize Chapter 61-tax classification (Table 5.6.1).

Table 5.6.1
Chapter 61, Forestry

PROPERTY OWNER	ACREAGE
George & Barabra Adams	15.37
George Barker	0.95
Albert and Maeve Cullen	10.6
North Andover / Boxford Realty Trust	30.5
TOTAL	57.42

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

Massachusetts General Laws, Chapter 61A: The Farm Land Tax Law encourages the conservation and preservation of the Commonwealth’s valuable farmland, and promote active agricultural and horticultural land use. Similar to the above, this allows landowners engage in agricultural or horticultural practices to pay lower property taxes to encourage the continued use of the property for farming and horticulture. However, a landowner must have a minimum of five (5) contiguous acres that is actively devoted to agricultural or horticultural purposes. There are fifteen (15) landowners that utilize Chapter 61A-tax classification, as (Table 5.6.2).

TABLE 5.6.2
Chapter 61A, Agricultural and Horticultural

PROPERTY OWNER	ACREAGE
Barker Farm	118.15
Calzetta Farm	7.75
Farnum Farm	483.89
Kittredge Farm	31.17
Rea Farm	10.2
Roche Farm	27.02
Smolak Farm	139.9
Tighe / Whipporwill Farm	19.94
Elaine Finbury	5.25
Mary Hart	16.81
Marjorie Kittredge (c /o Windrush Farm)	148.6
Patricia Lambert	15.67
Al Manzi, Jr.	19.69
North Andover / Boxford Realty Trust	30.75
Steve Young	20.02
TOTAL	1,094.81

Lastly, the Recreational Land Tax Law under Massachusetts General Laws Chapter 61B is designed to encourage the preservation of valuable open space and promote recreational land uses. This offers a significant local tax benefit to property owners willing to commit to preserving land in an undeveloped condition or for use outdoors activities. Currently there are three (3) landowners that utilize the Chapter 61B-tax classification (Table 5.6.3). The above-mentioned classifications are intended for parcels of 5 or more acres that are retained in a natural state and used for forestry, recreational, and agricultural purposes.

TABLE 5.6.3
Chapter 61B, Open Space, Nature Areas, Recreation Areas

PROPERTY OWNER	ACREAGE
Bailey Family Realty Trust	38.16
Orit Goldstein	16
Frank Rullo	8.01
TOTAL	62.17

The potential for new recreation land and additions to the Chapter 61B classification was investigated. Few new parcels were determined to be of recreational interest. From a review of the survey results, there is little support for acquisition of land for recreation areas, but strong interest in more / better maintained facilities at existing recreation areas / playgrounds. Approximately 152.27 acres of the Smolak Farm is under an Agricultural Preservation Restriction (APR).

If a landowner intends to sell the classified property or convert it to a residential, commercial, or industrial use, the municipality has 120 days to exercise its first right of refusal option to meet the bona fide purchase and sales agreement or at fair market value. Most recently, the Town of North Andover exercised its right of refusal to purchase the 10.6-acre Cullen property at 605 Osgood Street, which was filed under Chapter 61 since the early 80's, and was harvested for its hardwood production. This property was acquired with the assistance of the Community Preservation Act and the Trust for Public Land, and will link the existing 420 acres of protected open space owned by the Town and Trustees of Reservations.

5.7 AGRICULTURAL PRESERVATION RESTRICTION PROGRAM (APR)

The Agricultural Preservation Restriction Program (APR) is a voluntary program that is intended to offer a non-development alternative to farmers and other owners or "prime" and "state important" agricultural land that are faced with a decision regarding future use and disposition of their farms. The program 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. By protecting farmland, the APR Program works to secure a continued high quality of life for Massachusetts's residents. Farmland not only contributes to the scenic beauty of the state, but it provides for clean air and water, wildlife habitat, and recreational opportunities. Only portions of Smolak Farms are filed under this program.

6.0 COMMUNITY GOALS

In the five years since the 2000 Open Space and Recreation Plan, North Andover has experienced significant population growth, development of open space, and acquisition of open space by the town. Accordingly, this plan draws from the 2000 Open Space & Recreation Plan and considers the recent growth related issues as well. The North Andover Master Plan Committee uncovered community opinions and attitudes used in crafting the community goals for this section. However, this has not been formally updated since 2000. Much of the community opinion related to drinking water quality, preservation of community character, and the value of open space and its recreational uses.

6.1 DESCRIPTION OF PROCESS

The North Andover Master Plan Committee gathered input for community goals in 1996 with a series of neighborhood meetings, organized to speak with a cross section of North Andover citizens in focus groups. Issues and opinions expressed in these meetings were prioritized by the Master Plan Committee and used as a basis in constructing questions for the phone survey. Each neighborhood meeting lasted approximately one and one half-hours with an average attendance of six to eight people. Overall, nineteen (19) meetings were held with an estimated 120 people attending.

A summary of the surveys and broad based Community Goals were presented and approved at the North Andover Annual Town Meetings in May of 1997, '98 and '99. This community profile was an important consideration in drafting of the 2000 Open Space and Recreation Plan, which was presented for approval to the North Andover Conservation Commission, Planning Board and Board of Selectmen at public meetings in the spring of 2000. The primary focus of this plan is to update progress on the 2000 Open Space & Recreation Plan goals and refine the direction of the goals and objectives in light of significant developments since 2000.

6.2 STATEMENT OF OPEN SPACE AND RECREATION GOALS

Interaction with the citizens of North Andover reinforces the historical perception that the town is fortunate to have a great diversity of natural, cultural and recreational resources. Protection of the Lake Cochichewick Watershed remains the most highly valued natural resource, followed by maintaining the community's "rural, small town feel". Preservation of open space, pastoral landscapes, wetlands, forested uplands, enhance wildlife and river corridors, manage passive recreation in the community naturally emerge as necessary actions to meet these goals.

Conservation of wetlands inside and outside the watershed is essential to preserving a high quality watershed for the drinking water supply at Lake Cochichewick. Additionally, preservation of diverse New England forest, open space and river corridors provide enhanced wildlife habitats to help maintain the effective wetlands needed for watershed protection. The town's rural character is also preserved, as these conservation measures often protect scenic landscapes, such as hilltops, fields and farmland. Protection of these diverse resources has advanced significantly with adoption of the Community Preservation Act in 2001, serving as the primary vehicle in accomplishing a multitude of open space and historic preservation goals. Further progress can only be accomplished through a multi-faceted approach including public awareness, education, planning, management and regulation in a proactive approach to engage the public more consistently and successfully.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

North Andover is also a community with a high level of participation in recreational programs. Youth athletic programs and hiking are among the most important and popular local activities. Athletic needs must be met with proper maintenance of facilities, adequate playgrounds and field space. Recreational hiking activities can be enhanced with improved Trail systems and linkages between open space parcels. Similarly, access to regional facilities such as the Merrimack River is also important to the community's overall recreational program.

7.0 NEEDS ASSESSMENT

This section reviews some important features of the previous sections to identify specific community needs. Citizens survey results are presented to define community priorities, and analyses from the community Setting, environmental inventory, and inventory of lands sections refine these priorities into specific needs for North Andover.

Citizens Survey Results

The Master Plan Phone Survey of 1997 provided the most objective and detailed picture of citizen's opinions regarding North Andover. A summary of results shows that:

- ❖ North Andover is a desirable place to live (75%);
- ❖ The town's education system (28%) and its open and rural character (25%) had most influence in the positive opinion;
- ❖ Quality schools (32%) and rural character (20%) were the largest components of residents vision for the future of North Andover;
- ❖ Excessive development (39%) and traffic (17%) were identified as the most prominent negative trends;
- ❖ And the largest percentage (20%) of respondents stated that limiting population growth was the best way to reverse the negative trend.

On non-education issues, citizen's opinions overwhelmingly favored the following open space and recreation issues.

- ❖ Protection of the Lake Cochichewick Watershed
- ❖ Conservation of open space and rural character and
- ❖ Limiting population growth

7.1 RESOURCE PROTECTION

Lake Cochichewick Watershed Protection

The protection of the primary public water supply source will always remain one of the primary goals of this community. Since adoption of the Community Preservation Act in 2001, the town has acquired several important open space parcels within the watershed in pursuit of this goal. The town has also enacted legal protection measures and regulations designed to promote the common good. Areas of special importance include:

- ❖ Any planned development of open space within the watershed should be closely considered for water quality implications.

- ❖ Town boards need to pay particular attention to development and disturbance in and around tributaries feeding into the Lake Cochichewick, including its buffer zones.
- ❖ Continued elimination of septic systems within the watershed district.
- ❖ Close scrutiny of road maintenance practices (i.e. salting and sanding) within the watershed district.

Acquisition of these watershed parcels in the past (five) 5 years elevates the need for effective open space management practices and programs within the watershed. For town-owned properties, effective management practices by volunteers and community resources have become a more important part of watershed protection. The town also needs to continue to take advantage of state environmental programs along with local programs to help preserve Lake Cochichewick water quality. The Massachusetts Department of Environmental Protection provides useful methods in watershed protection and updating of the 1987 Watershed Plan.

North Andover also needs to maintain a special relationship with a small number of substantial landowners within the Lake Cochichewick Watershed to continue its opportunistic approach to meeting the watershed protection goals. Using its example of effective open space management practices, the town can be proactive with the owners of the North Andover Country Club, Brooks School, and the Rolling Ridge Conference Center. A cooperative and friendly relationship with these key organizations can be an effective approach to maintaining the conditions for good water quality.

Finally, the town needs to increase awareness of private citizens on the subject of water quality protection, especially the residents within the Watershed. Use of lawn fertilizer and proper maintenance practices of septic systems are two important factors which the individual homeowner has significant control.

Protection of Open Space and Rural Character

Protection of the town's rural character has been a common theme in historical citizen surveys as well as the most recent 1997 Phone Survey. The citizens clearly wish to preserve the natural resources in town for high quality open spaces and recreation. Along with effective management of currently protected open space, the town needs to link existing open space parcels and create valuable wildlife and river corridors. These corridors function to create enhanced habitats for vegetation and wildlife, and thereby provide more effective Buffer Zones and higher quality wetlands.

Several key linkages have been identified to achieve this goal of enhanced open spaces and higher quality wetlands. These open space linkages are:

- ❖ Acquire and protect the natural areas within the Lake Cochichewick Watershed District.
- ❖ Protect the natural areas west of Foster Street (40 to 50 acres), which links Foster Farm and Bruin Hill (93 acres) with the Farnsworth Reservation (50 acres) Town Farm and Town Forest (159 acres). Combined with approximately 50 acres of open space at Smolak Farm, this potential open space parcel could be larger than 400 acres. This linkage has the added feature of Mosquito Brook, thereby providing an enhanced habitat to a broad diversity of wildlife and vegetation.

- ❖ Protect the natural area, known as Salem Forest IV (approximately 75 acres), which links the Harold Parker State Forest along Raleigh Tavern Lane (approximately 130 acres) and Campbell Road (approximately 90 acres). This potential 300-acre open space contains a substantial section of Boston Brook, which could also provide a high quality habitat to a broad diversity of life forms. The value of this potential open space is furthered by its location adjacent to Farnum Farm, consisting of approximately 550 acres of working farmland. Although under no perpetual covenant, the addition of the Farnum Farm area creates a contiguous open space corridor well over 700 acres.

- ❖ Protecting areas listed as critical habitat areas, known as ‘core habitats’ for rare and endangered species for biodiversity conservation.

Limiting Population Growth

In 1996, the Town of North Andover adopted a Growth Management Bylaw aimed at slowing the rate of residential development to a reasonable level. This was in response to fears that population growth could easily outpace the Town’s planning and budgeting processes in place. However, this was removed from the Zoning Bylaw in 2004. Currently, the town regulates growth by the Phased Growth Bylaw, which requires development to be conducted in an orderly and planned manner. The town needs to continue administration of this bylaw until potential development conditions slow to a more manageable pace.

7.2 COMMUNITY NEEDS

Meeting the community's needs in the 2006 Open Space and Recreation Plan sets the stage for citizens to interact first hand with the town's natural features, via recreation, and develop an increased appreciation of them. This first hand awareness is a source of support for the preservation and enhancement of the town's natural resources, recreational facilities, and open spaces.

Previous surveys indicate that the highest level of recreational involvement in North Andover is in the youth recreational sports programs, such as soccer, baseball, softball, football, and lacrosse. Members of the youth and recreational sports organizations have combined resources with the town to make great strides over the past five years in upgrading recreational facilities. Evidence of this is:

- ❖ Rehabilitation of Cyr’s Recreational soccer and baseball fields, off Sharpner’s Pond Road.
- ❖ Restored Grogan’s playground.
- ❖ Rehabilitation of Drummond baseball field.
- ❖ A new playground at Aplin playground.
- ❖ Two (2) new soccer fields were constructed at Foster Farm.
- ❖ A local developer constructed three (3) soccer fields for public use at Carter Fields Subdivision.
- ❖ Constructed a new Youth Center with a basketball court (indoor and outdoor), skate park, game room to name a few.
- ❖ A new high school was completed in 2005 with state of the art athletic fields (baseball, softball, lacrosse, football, field hockey, soccer) and a complete track and field area.

These upgraded facilities must continue to be maintained properly to retain their peak condition. To date, informal agreements between the Department of Public Works, and different recreational groups and volunteers have combined resources for adequate maintenance. These agreements and maintenance plans need to be formalized to insure that the upgraded facilities will retain their high quality. In a similar way, the town must continue to work with the recreational groups to promote further improvement of the recreational facilities. This includes school and neighborhood groups for the continued improvement and upgrading of playground facilities in North Andover.

The next level of recreational involvement is for adult recreation activities, such as jogging, biking, hiking, ice-skating, skiing, skateboarding and roller lading. These forms of activities are traditionally supported by trail systems in town. The North Andover Open Space Committee has established natural hiking and biking trails in multiple locations. Although this constitutes a good start, further work is needed to meet the hiking and similar needs of the citizens. Currently the Open Space Committee is working on developing 'The North Andover Open Space Stewardship Program' designed to increase citizens' awareness and appreciation of the town's open space, which will lead to more public support and volunteerism for effective management. In pervious years, the volunteer group was working on establishing a North Andover Rails Trail, comprised of an old rail bed running the length of North Andover. This project could link existing trails, and provide a significant improvement in the biking and rollerblading options. Another invision is to reestablishing a walking trail along Cochichewick Brook, spanning the route of the historic Textile Industry between Mill Pond and the Merrimack River. This trail begins along Walker Road and proceeds along the brook, passes by several Mill Ponds and Mill Buildings and contains several cultural and historic vistas along the way.

Along with establishing of new trails and enhancing existing trails, the Open Space Committee wants to improve the publicity of recreational and conservation activities the town offers. Trailhead signs and informational kiosks are badly needed on most of the established trails. As a result most of the existing trails remain unknown to most citizens. Identifying special areas where evidence of a total ecosystem is thriving and present to further promote conservation awareness. Additionally, the Open Space Committee will create individual trail maps to be published in a trail book entitled, "North Andover Open Space Trail Guide" would further promote passive recreation activities both inside the community as well as in neighboring towns. This guide will be a bounded document intended for sale to the general public to raise funds for open space maintenance. Finally, well-publicized conservation and clean up activities can improve general awareness of the trail systems and improve their quality as well. These activities, usually coordinated with Earth Day can also provide education of the general public on proper recreational use and conservation practices.

7.3 MANAGEMENT NEEDS

The community's growth must be controlled through diligent enforcement of the existing methods and through the formulation of new regulations as needed. Survey respondents overwhelmingly favored a growth policy, which "regulated growth in existing developed areas". Other responses, and much experience, have shown that there is a general lack of understanding of the growth control process. Citizens should be better informed of the growth control process and its limitations. Each interaction between staff or board members (from the Community Development Division) and the public must be treated as an educational opportunity.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

The process now in place to control the community's growth and protect natural resources must be constantly evaluated and improved. Efforts must be made to attract motivated residents to become engaged in the planning and decision-making processes and to provide them with the tools and training to perform this vital function. While boards and commissions operate under both the General Law and the Town Charter with a certain level of autonomy, they should keep in close contact with the appointing authority to work in harmony toward shared goals.

Town officials should work with other agencies and organizations, such as the Department of Conservation and Recreation, Department of Conservation Services, Department of Environmental Protection, Natural Heritage and Endangered Species Program, the Division of Fisheries and Wildlife (MassWildlife), The Trustees Of Reservations, and the Essex County Greenbelt Association to protect natural resources and provide recreational opportunity for area residents.

8.0 GOALS AND OBJECTIVES / RECOMMENDATIONS

The following recommendations were based on results from an inventory and recreation survey taken from the 2000 Plan, as well as previous discussions and meetings with the Open Space Committee, and a review of the community's previous major planning efforts. The results of the planning efforts produced the following community goals in brevity:

- ❖ Protect the Lake Cochichewick Watershed District
- ❖ Preserve the rural atmosphere and uniqueness of North Andover
- ❖ Expand North Andover's recreational programs

The goals, the success / failure of past efforts, the findings the inventory, interviews, and many Open Space Committee meetings are the foundation for the following recommendations with which to attain these goals. These goals can be attained through a combination of general methods including:

- ❖ Public Awareness
- ❖ Education and Outreach Programs
- ❖ State and Local Planning Initiatives
- ❖ Natural Resource Management
- ❖ Regulations

The next sixteen (16) recommendations discuss the general methods in greater detail and offer techniques of how the identified goals can be addressed and accomplished.

1. Protect Valuable Water Resources

The foremost concern of North Andover is protecting the water supply. The following is a preliminary list of ideas that may help further protect the water supply. Approximately thirty percent (30%) of the land in the Lake Cochichewick Watershed is protected. This figure needs to be increased in order to protect the future of our water supply.

Steps to increase protected watershed lands include:

- ❖ Designate the Lake Cochichewick Watershed as an Area of Critical Environmental Concern (ACEC) through the Massachusetts Department of Conservation and Recreation. An overview of ACEC can be found at: <http://www.mass.gov/dcr/stewardship/acec/acecProgram.htm>
- ❖ Keep updating the Watershed Plan every 10 years.
- ❖ Reconvene the Lake Cochichewick Watershed Council and identify tasks to be accomplished.
- ❖ The Zoning Board of Appeals should be an active part of the watershed protection effort and should severely restrict the granting of any waivers in the watershed.

- ❖ A meeting of all citizens interested in watershed and water resource issues should be held annually at a site along the shores of Lake Cochichewick. This gathering will provide landowners and concerned citizens with an opportunity to educate themselves on various resource protection issues.
- ❖ Researches new zoning techniques and revisit successful techniques used in the past. For example:

Slope and Elevation Protection Bylaws seeks to protect fragile hillsides and high elevations from new development. These bylaws can also help protect areas of scenic and natural beauty. The Planning Board has implemented this technique.

Downzoning: a process where the current zoning is change to a less intense use. This can be combined with open space/cluster zoning. In 1987, the town rezoned the minimum lot area in the residential 1 district from 1 acre to 2 acres. This should be explored in other residential districts throughout the Town.

Overlay Zoning: a separate zoning district that is overlaid over the current zoning district. Overlay zones seek to protect a particularly type of resource that is only within the overlay area. The town currently utilizes the Watershed Protection District as an overlay.

2. Encourage Open Space Management

Protected land should be managed to maximize the value of these public resources. Management plans should be completed for each parcel of municipal conservation land. Access for persons with disabilities should be included in any management plan. An ongoing funding mechanism should be developed for the management of municipal conservation land. Almost all the labor for conservation land management has been completed on a volunteer basis but funds are needed for equipment and supplies. Funds should be appropriated at Town Meeting to be placed in the existing conservation fund for this purpose.

3. Evaluate and Implement the Open Space Plan

Under the MA Wetlands Protection Act and its Regulations, the Conservation Commission is responsible for the protection of natural resources, water resources and wetlands. However, the Commission spends a majority of its time and resources on wetlands permitting and enforcement. The proactive functions, such as open space preservation and long range planning are often subordinated by the reactive tasks. To fill this void, the Open Space Committee was formed as a subcommittee within the Conservation Commission with responsibility for open space planning and natural resource protection. This group is charged with implementation and evaluation of this Open Space Plan, and individual plans for protected open space management.

4. Link Open Space and Trails

Linkages should be developed between protected open spaces and recreation areas. This could include:

- ❖ Perform trail linkage analysis between open space properties, isolated comminutes and any future PRD.
- ❖ Prioritize and develop trail linkages at Carter Hill, Mazurenko Farm, and Rea's Pond; create trails at the Foxwood Open Space parcel to Harold Parker State Forest; create trails at Half Mile Hill & Summit and connect to Osgood Hill, Edgewood Farm and Weir Hill;

- ❖ Improve and implement handicapped access to open space parcels.
- ❖ Acquiring land contiguous to existing open space parcels, such as those mentioned in Section 7.1.
- ❖ Developing a biking and walking path along portions of the railroad and power-line right-of way;
- ❖ Working with the DPW to develop bikeways along roadways when the roads are re-paved; and
- ❖ Pursuing major trail projects such as the Bay Circuit and the Merrimack River Trail;

5. Expand Existing Conservation Efforts

Existing conservation land should be protected from encroachment and expanded whenever possible. The most successful ways to conserve natural resources are:

- ❖ Land acquisition by the Town or a special interest conservation group;
- ❖ Conservation easements
- ❖ Conservation Restrictions,
- ❖ Agricultural Preservation Restrictions, and
- ❖ Chapter 61, 61A, and 61B.

While acquisition is more expensive initially, its benefits are much greater in the long term. (This can be expanded on, *see Trust for Public Land: Parks and Open Space, 1999*)

The Town must involve special interest groups and state agencies. These include the Department of Conservation and Recreation, who manage the state conservation lands, the Department of Environmental Protection, the Essex County Greenbelt Association, the MA Division of Fisheries and Wildlife, the Trustees of Reservations, the Massachusetts Audubon Society, and The Trust for Public Lands. All of these organizations protect through acquisition or other methods natural resources throughout the Commonwealth. These organizations have resources and financial assistance that could greatly benefit the Town of North Andover.

6. Fund Open Space Acquisition

The State Legislation provides communities with the option to create a local community preservation fund, when supported by a local ballot vote. The Community Preservation Act also enables several communities to join together to create watershed-wide and regional community preservation programs, if they choose. Funds shall be distributed by a locally defined Community Preservation Committee (CPC) in accordance with a Community Preservation Plan written by the CPC with full public input. At the 2001 Town Meeting, the Community Preservation Act (CPA) was adopted with the maximum funding level at 3% property surcharge. Since the conception of the CPA, the Commonwealth of Massachusetts has matched the town's funds 100%.

A minimum of 10% of the fund's revenues shall support each of the following uses:

- ❖ Acquisition and preservation of open space;
- ❖ Creation and support of recreational activities;

- ❖ Acquisition and preservation of historic buildings and landscapes;
- ❖ Creation and support of affordable housing opportunities.

The remaining 70% can be allocated for any combination of these uses, in response to the most pressing needs of the community. If needed, up to 5% of the funds may be used for developing the Plan and a maximum of 10% (20% for communities where management needs exceed acquisition needs, as described in the Plan) may be used for management or restoration of open space, historic sites, or community housing.

7. Protect Scenic Hilltops, Landscapes and Farmland

A better effort must be made to protect and provide access to the town's major hilltops. Most of the hilltops are already protected, such as Osgood Hill, Weir Hill, Town Farm Hill, Bruin Hill, Woodchuck Hill (portions), Barker Hill, and Barker Hill (portions). This could include acquisition or protection of more of Woodchuck Hill, Claypit Hill, and other hills that have unique views. The use of Planned Residential Development (PRD) should be revised to become a more effective tool for protecting hilltops. The use of new zoning tools, bylaws (See Section 8.1), or better use of PRD's would help to protect these valuable assets. In addition to the protection of hilltops, accessibility should be enhanced to benefit the entire community.

The inventory of "Land of Conservation Interest" identifies the primary land in need of conservation in this community. The protection of these lands, and those designated by the DEM Scenic Landscape Inventory, should be improved. For example:

- ❖ Efforts should be made to increase the amount of land in Chapter 61, 61A and 61B tax classifications and contact with the landowners who qualify.
- ❖ The community should make a concerted effort to pursue Agricultural Preservation Restrictions on important landscapes.
- ❖ Planned Residential Developments should continue to be pursued when development of scenic landscapes is proposed.
- ❖ Scenic Road Bylaws are an effective method of maintaining the rural character of scenic roads. A Scenic Road designation would provide limited protection from actions resulting from the repair, maintenance, reconstruction or paving of the road that would involve the cutting of trees or the destruction of stonewalls within the public right-of-way. On a scenic road, such actions, usually proposed by the DPW, would be subject to a public hearing and planning Board approval as well as Board of Selectmen approval before they could proceed (see definition in proposed Subdivision Regulations, Planning, Town of North Andover). Only significant roads need to be designated.

8. Preserve Historic Landscapes and Other Historic Resources

This rural character can be enhanced and protected for future generations by a comprehensive and proactive program of land protection through a variety of methods, including:

- ❖ Deed restrictions;
- ❖ Purchasing of development rights;
- ❖ Outright acquisition;
- ❖ Regulation of new development;
- ❖ Donations of land; and
- ❖ The involvement of local land trusts.

9. Protect Habitats for the Diversity of Plant and Animal Species

The town should further efforts to protect habitats for the diversity of plant and animal species to assure the protection of unique and irreplaceable ecosystems. The Natural Heritage Endangered Species Program (NHESP) identified 'core habitats' for rare and endangered species and their habitats. This will play a part when reviewing proposed developments in these areas. Creating a permanent source of water will certainly create greater diversity. Another option is to link smaller 'islands' together through corridors. The corridors must be sensitive and practical in accord to the need of the species that will use them. Ideally, corridors should connect tracts of any size to defray the effects of fragmentation. NHESP also put out data, which identifies potential vernal pools. This information can be analyzed to assist with researching and certifying vernal pools. There are still options for increasing diversity and recreational value in a fragmented landscape. One such way is to vary the ages of the trees in an appropriate sized tract. The variation of age, species and vertical strata, will allow for richer diversity. This will also allow for greater recreation such as bird watching and hiking. Other ideas include planting berry and fruity vegetation, and installing bird, bat, and wood duck boxes in prominent locations to attract and promote wildlife diversity.

10. Maintain Existing Recreational Facilities and Create New Recreational Opportunities

The Recreation Department and the Department of Public Works should continue to pursue the repair of existing playgrounds and recreational facilities. Consider the establishment of local neighborhood groups to monitor existing facilities and make minor repairs. These groups could seek donations of funds and supplies. The success of the Drummond Playground Committee has shown that there is support for such efforts. In general, recreational needs of the community can be improved by:

- ❖ Properly maintaining existing playgrounds and facilities;
- ❖ Providing adequate playgrounds and field space; and
- ❖ Improving linkages between open space parcels and access to regional facilities such, as the Merrimack River.

More specifically,

- ❖ The 1995 Open Space Plan identified a need for new field space.
- ❖ Any new playgrounds or other facilities should provide some access for persons with disabilities. A representative sample of all existing recreational facilities should be made accessible to persons with disabilities.

- ❖ New biking / walking trails should be developed, perhaps utilizing existing/proposed roadways. These multi-purpose trails could be used to increase recreational opportunity, improve recreational mobility and link together open spaces and recreation areas.
- ❖ A major planning effort is needed to improve Stevens Pond as a recreational area. For example: Stevens Pond could become a four-season recreational area by managing it as a safe skating area in the winter. A snow blower could be a valuable asset to the Recreation Department for this effort.
- ❖ The Recreation Department should continue in its efforts to make the Stevens Pond swimming program self-sustaining.
- ❖ Rehabilitate the existing building at Stevens Pond to improve public necessities, and to bring the building into compliance with local / state building and health regulations.
- ❖ There are also two hills (Half Mile Hill and Carter Hill) nearby which could be used for sledding with supervision.
- ❖ The Commonwealth of Massachusetts is considering opening a new swimming area in the Harold Parker State Forest. The town should support this program while ensuring the success of its own program.
- ❖ Explore possible location for community gardens.

11. Enhance Access to Recreational Opportunities in the Lake Cochichewick Watershed

Maintaining existing access points to Lake Cochichewick will deter people from creating new access points for fishing and boating, thereby decreasing the threat to our drinking water supply. Maintaining existing areas will also encourage the public to gain a better appreciation of the wildlife and natural beauty. Expanding existing walking trails around the lake will also increase this recreational value.

12. Promote River Access and Awareness

North Andover was settled and prospered because of three important rivers; the Merrimack River, Shawsheen River and Cochichewick Brook. Yet few people enjoy these resources. Access to the Merrimack River via the Merrimack River trail and the boat ramp will make the Merrimack River accessible. Awareness of Cochichewick Brook and the Shawsheen River can be improved through increased donation of land, development of a trail along each river, and cleanups of those areas in need.

13. Investigate Former Municipal Landfill

The Holt Road Landfill completed a project, which involved capping off the landfill. Its recreation potential should be explored in the future. However, the town should take the initiative to investigate other potential site that could cause public health risks.

14. Educate Regulatory Boards - Conservation, Planning, Health, Zoning Board of Appeals

Membership on a local board is a position that requires a high level of commitment. All board members must educate themselves as to the issues and regulations they are charged with administering. To ensure that board members are fully knowledgeable of these issues, they should be required to attend a specific number of hours of training/workshops as a condition of retaining membership. During the interview and appointment process,

these board members should develop goals and objectives with the input of both the appointing authority and the board to which they are applying. The board members should meet with their appointing authority on an annual basis (by appointment) to review the level of attainment of these goals and objectives.

More board members should be involved in the implementation of permits not just in the review of a proposed project. This field experience is very important to improving the level of compliance with local permits. Each board should develop a policy to attend other boards' meetings on a regular basis working in harmony to achieve shared goals. The appointing authority should attend a sample of all board meetings.

15. Research New and Innovative Regulatory Changes

A number of regulatory changes are proposed. (See also Section 8.1)

- ❖ The Planned Residential District (PRD) should be reviewed and updated. Attempts should be made to better preserve open spaces during the development process.
- ❖ The Subdivision Rules and Regulations are currently being revised. Roadway widths and related issues should be presented clearly and the basis for waivers to any section should be detailed.
- ❖ Slope restrictions should be considered for areas of steep slopes to decrease the impacts of erosion that have been observed during, and after, development.
- ❖ Eighty-five percent (85%) of North Andover is zoned for residential development. Thought must be given to reducing the amount of residentially zoned land and increasing the amount of commercial/industrial land. (See The Trust for Public Land Hand Booklets) This would reduce the burden on the municipal budget, increase tax revenues, and will help to slow residential growth.
- ❖ Board of Health regulations should be refined to provide more oversight of the maintenance of septic systems, particularly in the Lake Cochichewick Watershed. All Board of Health regulations must be printed and made available to the public.

16. Facilitate Environmental Education Opportunities and Public Outreach

Interactive education lesson plans in North Andover schools about local environmental issues, such as watershed management, would help educate the younger population about the Town's natural resources. Field trips with guided walks would offer hands-on environmental laboratories illustrating aspects of resource management, fisheries and wildlife, and conservation issues.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

9.0 FIVE YEAR ACTION PLAN

Key

- A: Highest Priority
B: Moderate Priority
C: Lower Priority

Acronyms of the departments responsible for each goal:

Open Space Committee:	OSC
Community Preservation Committee:	CPC
Conservation Commission:	NACC
Conservation Department:	NACD
Planning Board:	PB
Planning Department:	PD
Board of Health:	BOH
Health Department:	HD
Department of Public Works:	DPW
School Department:	SD
N.A. Youth Service:	NAYS
Historic Commission:	NAHC
Town of North Andover:	NA
Watershed Council:	WC
NA Fire Department:	NAFD
Recreation Department:	RD

GOALS & PRIORITY ID	DEPT	IMPLEMENTATION YEAR
---------------------	------	---------------------

1. Protect Valuable Water Resources (A)

◆ Reconvene the Lake Cochichewick Watershed Council.	NA	Spring 2006
◆ Initiate the process of designating the Lake Cochichewick Watershed District as an Area of Critical Concern (ACEC).	NACC NACD PD WC	Fall 2006
◆ Hold annual meeting for citizens concerned with the Watershed District.	WC	Fall 2006
◆ Revise the Watershed Plan every 10 years.	PB PD	Fall 2006

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

- ◆ Create hiking trails on Cater Hill to link it to Mazurenko Farm and Rea’s Pond. OSC
NACC
NACD Summer 2006
through
Summer 2007

- ◆ Create hiking trails in the Foxwood Subdivision Open Space to link with Harold Parker State Forest. OSC
NACC
NACD Spring 2008
through
Fall 2009

- ◆ Create hiking trails on Half Mile Hill and Summit to connect with Osgood Hill, Edgewood Farm, and Weir Hill. OSC
NACC
NACD Spring 2007
through
Fall 2008

- ◆ Link the Cullen Property to Osgood Hill, Half Mile Hill, Edgewood Farm, and Weir Hill. OSC
NACC
NACD Spring 2009
through
Fall 2010

- ◆ Improve / implement handicapped access OSC
NACC Summer 2006

- ◆ Research all abandon roads and paper streets for potential linkage with open space parcels and neighborhood paths. OSC
NACC
NACD Winter 2007

- ◆ Coordinate with nearby regional communities for expanding potential linkages. OSC
NACD Winter 2008

- 5. Expand Existing Conservation Efforts (A)**
- ◆ Acquire more open space through assistance of special interests groups and state agencies. NA
CPC Spring 2006

- ◆ Increase awareness of conservation alternatives by sending landowners, who own more than 5 acres or more and whose land is not already protected alternative information for development. OSC
NACC
NACD Winter 2006

- ◆ Updating the list of ‘key’ unprotected open space parcels and subsequently develop a plan to protect these parcels. NACD
OSC Spring 2006

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

- ◆ Prepare maps showing key unprotected open space. NACD OSC Fall 2006
 - ◆ Implement Conservation Restrictions and Agricultural Preservation Restrictions (APR) on designated parcels. NACD Fall 2006
 - ◆ Continue to lease agricultural fields on open space parcels to local farmers. NACD NACC Spring 2006
 - ◆ Prepare management plans for all open space parcels managed by the NACC. NACC NACD OSC Spring 2006
 - ◆ Implement action items outlined in the management plan. OSC NACC NACD Spring 2007
- 6. Fund Open Space Acquisition (A)**
- ◆ Find new financing tools for open space acquisition:
 Community Preservation Act NACC
 Real Estate Transfer Tax NACD
 Impact Fees
 Bond General Obligations
 Mitigation
 - ◆ Notify the community early in the development approval process so that open space can be protected. NACC NACD OSC PD Fall 2006 through Fall 2010
 - ◆ Identify and map properties that are file under Ch.61, 61A & 61B. NACD PD OSC Summer 2006
- 7. Protect Scenic Hilltops, Landscapes and Farmland (A)**
- ◆ Increase amount of land in Ch. 61, 61A, & 61B by outreach, including annual informational mailings to key property owners NACD Fall 2006 through Fall 2010

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

- ◆ Pursue PRDs when development of scenic landscapes is proposed. PB PD Fall 2006 through Fall 2010
- ◆ Implement a Scenic Road Bylaw as an effective method of maintaining the rural character of North Andover roads. PB PD NA Spring 2008
- ◆ Acquire more scenic hills / drumlins throughout North Andover CPC NACC NA Summer 2006 through Fall 2010

8. Preserve Historic Landscapes and Other Historic Resources (A)

- ◆ Develop a program that will research and implement deed restrictions. HS PB Fall 2008
- ◆ Investigate the process of purchasing of development rights. HS PB Fall 2007
- ◆ Seek private donates of land. OSC Spring 2006 through Fall 2010

9. Protect Habitats for Diversity of Plant & Animal Species (B)

- ◆ Retain Beaver Solutions, Inc. to prepare comprehensive management plans for critical beaver sites. NACC NACD BH DPW Summer 2007 through Fall 2010
- ◆ Use information created by the Natural Heritage Endangered Species Program to identify potential vernal pools and subsequently certify them. NACD OSC NACD OSC Spring 2007 Spring 2008 Spring 2009 Spring 2010
- ◆ Utilize the Natural Heritage Endangered Species Program BioMap information to identify critical habitats for rare and endangered animal and plant species, water resource areas. NACD OSC Spring 2006 through Fall 2010
- ◆ Encourage planting of berry and fruit tree and shrubs to provide wildlife food and shelter through education. NACC Spring 2006 through Fall 2010

T O W N O F N O R T H A N D O V E R
 O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
 D A F T

13. Investigate Potentially Contaminated Sites (C)

- ◆ Investigate the Holt Road Landfill for any threats to public health. HD Winter 2008
- ◆ Determine if other contamination sites in North Andover that need to be investigated. HD FD Winter 2008

14. Educate Regulatory Boards (C)

- ◆ Require members to attend a designated number of hours of training and workshops as a condition of maintaining membership. BOH NACC PB Spring 2006 through Fall 2010

15. Research New & Innovative Regulatory Changes (C)

- ◆ Increase the amount of commercial or industrial-zoned areas and reduce the residential-zoned land. PD PB ZBA Underway

16. Facilitate Environmental Education and Public Outreach (C)

- ◆ Continue to create interactive education lesson plans in the North Andover Schools. SD Spring 2006 through Winter 2010
- ◆ Hold field trips and guided walking tours throughout open space areas. SD Spring 2009
- ◆ Conduct special events on existing open space sites throughout North Andover so so residents can see firsthand what the benefits are from acquiring open space. OSC NACC NACD Spring 2009
- ◆ Continue to update the Town's website to provide residents with the current rules and regulations, plans and upcoming events. NACD HD PD Underway
- ◆ Establish a compost program at Cyr Recycling Center that will allow free compost North Andover residents. DPW Spring 2006 through 2010
- ◆ Promote Cyr Recycling Center as a FREE area to dispose yard waste and debris. DPW Summer 2006

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

10.0 PUBLIC COMMENTS (ATTACHED)

10.1 DISTRIBUTION LIST

**Open Space Committee
North Andover Conservation Commission
North Andover Planning Board
North Andover Planning Department
North Andover Board of Selectmen
North Andover Board of Health
North Andover Health Department
North Andover Board of Appeals
Bill McEvoy, Recreation Director
Community Preservation Committee
Merrimack Valley Planning Commission
Master Plan Committee
North Andover Town Manager
North Andover Town Clerk
Stevens Library (2)**

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

11.0 REFERENCES

1. American Farmland Trust, Does Farmland Protection Pay?, 1992.
2. Anderson, Jeanne, "Invasion of the Sanctuaries", Sanctuary, January/February 1993.
3. Bailey, Sarah Loring, Historical Sketches of Andover, 1880.
4. Beaver Solutions [online]. Available: <http://www.beaversolutions.com/>
5. Bolen, Eric and Robinson, William, Wildlife Ecology and Management-3rd Edition, 1995.
6. Brown, John, Associates, North Andover Comprehensive Plan, 1972.
7. Bulen, Rippen, "Papers of the Robert S. Peabody Foundation for Archaeology", Excavations in Northeastern Massachusetts, 1949.
8. Bushnell, Davis, "House Sales Slowly Rise, but Future is Uncertain", Boston Globe, 11/22/92.
9. Callahan, Michael "Beaver Management Study", April 2003.
10. Commonwealth of Massachusetts, Division of Employment and Training (ES-202 Series).
11. Connery Associates, Balanced Growth Plan, 1987.
12. Cook, P., Lowell Sun, January 23, 1990.
13. Doucette, Richard, The Geomorphology of Andover and North Andover Massachusetts, Geomorphology, Antioch New England Graduate School, 1990 unpublished.
14. Doucette, Richard, Mammal Track Census, Mazurenko Farm Conservation Area, Natural Resource Inventory, Antioch New England Graduate School, 1991 unpublished.
15. Doucette, Richard and Cunningham, Rita, Status Report: Implementation of the 1987 Lake Cochichewick Watershed Plan, 1992.
16. Doucette, Richard and Kasprzyk, Anne, "Bird Sightings at Mazurenko Farm Conservation Area", 1990-91, unpublished.
17. Essex County Greenbelt Association, "Greenbelt Acquires Largest Heron Rookery in Essex County", Spring 2005.
18. Essex County Greenbelt Association, "Protected Open Space of Essex County 1983 (1989 Revision)", Map, 1989.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

19. Fish Consumption Advisory for Lake Cochichewick and Stevens Pond, North Andover Board of Health, 1999.
20. The General Laws of Massachusetts, Chapter 131. *Inland fisheries and Game and Other Natural Resources Chapter 131: Section 80A. Leghold traps and certain other devices restricted; punishment.* [online]. Available: <http://www.mass.gov/legis/laws/mgl/131-80a.htm>
21. Goldsmith, R., "Structural and Metamorphic History of Eastern Massachusetts", Bedrock Geology of Massachusetts, 1991.
22. Goldsmith, R., "Stratigraphy of the Nashoba Zone, Eastern Massachusetts: An Enigmatic Terrane", The Bedrock Geology of Massachusetts, 1991.
23. Gottman, Jean, Megalopolis, 1961.
24. Graham, John, as quoted by Gaither, Bill in "Housing is town's biggest business", Lawrence Eagle Tribune, 1980.
25. Green, Chris, Planner with the Massachusetts Department of Environmental Management, personal communication, January 20, 1993.
26. Houston, David, US Forest Service, Stress Triggered Tree Diseases, The Diebacks and Declines, 1981
27. Hudson, Eric J., "Plan Aims to Hit High on Housing", The Boston Globe, January 15, 2006 [online]. Available: http://www.boston.com/news/local/articles/2006/01/15/plan_aims_to_hit_goal_on_housing/
28. Hunter, Malcolm L., Jr., Wildlife, Forests and Forestry: Principles of Managing Forests for Biological Diversity, 1990.
29. IEP, Lake Cochichewick Watershed Plan, 1987, 1999.
30. Jacobs, Mark, soil scientist, personal communication, February 12, 1993.
31. Machado, Carol, Director of the North Andover Historical Society, personal communication, September 1, 1992.
32. Massachusetts Department of Agricultural Resources [online] Available. <http://www.mass.gov/agr/landuse/APR/>
33. Massachusetts Department of Environmental Management, Massachusetts Landscape Inventory, A Survey of The Commonwealth's Scenic Areas, 1982.
34. Massachusetts Department of Environmental Management, Massachusetts Outdoors, For Our Common Good, 1988.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

35. Massachusetts Department of Revenue, Division of Local Services Property Tax Bureau.
36. Massachusetts Division of Fisheries and Wildlife, Natural Heritage & Endangered Species Program letter dated November 19, 1992.
37. Massachusetts Executive Office of Environmental Affairs, Open Space Planners Workbook, 1990.
38. Massachusetts Geographical Information, What is MassGIS? [online]. Available: <http://www.mass.gov/mgis/whatis.htm>
39. MassWildlife 2005 – 2006 Trapping and Furbearing Management Regulations.
40. MassWildlife, Beavers in Massachusetts [online]. Available: http://www.mass.gov/dfwele/dfw/dfw_bever_law.htm
41. Maynard, David, "Minimizing Ecological Impacts of Pipeline Construction on Wetlands and Streams" Land and Water, November / December 1992.
42. MSPCA, "Human-Beaver Conflicts in Massachusetts: Assessing the Debate Over Question One", September 2005.
43. Merrimack Valley Planning Commission, North Andover Open Space and Recreation Plan, 1980.
44. Merrimack Valley Planning Commission, "Residential Authorized Units by Building Permits", 1970-1979.
45. Merrimack Valley Planning Commission, "Total Number of Dwelling Units Permitted", 1992.
46. Merrimack Valley Planning Commission [online]. Available: <http://www.mvpc.org/>
47. Natural Heritage and Endangered Species, "BioMap and Living Waters: Guiding Land Conservation for Biodiversity in Massachusetts", 2004.
48. National Heritage and Endangered Species Map, July 2003.
49. Natural Heritage and Endangered Species Program, January 15, 2002, Certified *Vernal Pools* [online]. Available: <http://www.mass.gov/dfwele/dfw/nhosp/nhcvtal.htm>
50. Natural Heritage and Endangered Species Program, January 12, 2005, *Official State Rare Species List* [online]. Available: <http://www.mass.gov/dfwele/dfw/nhosp/nhrarelinks.htm>
51. Natural Heritage and Endangered Species Program, January 12, 2005, *Rare Species Fact Sheets* [online]. Available: <http://www.mass.gov/dfwele/dfw/nhosp/nhfact.htm>
52. North Andover Assessor's Office Database.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

53. North Andover Beaver Bylaw: Protection From Damage Due to Beaver Dams and Blockages, May 2004.
54. North Andover Census, 1986, 1992, 2005.
55. North Andover Community Preservation Committee, *Open Space Protection* [online]. Available: <http://www.townofnorthandover.com/home.htm>
56. North Andover Conservation Commission, North Andover Open Space Plan, 1970, 2000.
57. North Andover Historical Society, "North Andover's Historic District, A Walking Tour", Brochure.
58. North Andover Master Plan Interim Report, 1997, 1998, 1999.
59. North Andover Open Space Advisory Committee, Open Space and Recreation Plan, 1987.
60. North Andover Planning Board Rules and Regulations Governing the Subdivision of Land, November 2000, as amended in December 2002.
61. North Andover Reconnaissance Report: Essex County Landscape Inventory, May 2005.
62. North Andover Wetlands Protection Bylaw and Regulations, October 20, 1998, as amended on September 10, 2003.
63. North Andover Zoning Bylaw 1972, as amended in May 2005.
64. O'Grady, Glen, Merrimack Valley Bird Club, correspondence dated January 19, 1993.
65. Open Space and Recreation Plan Requirements, 1990, 2001.
66. Open Space and Trails Plan, 1999.
67. Roberts, John, The Glacial Geologic History of North Andover and the Surrounding Area, 1977.
68. Robinson, P. and Goldsmith, R., "Stratigraphy of the Merrimack Belt, Central Massachusetts", The Bedrock Geology of Massachusetts, 1991.
69. Roper, Steve, A Good In-Land Town: Buildings and landscapes in North Andover, Massachusetts, from 1640 to 1940, North Andover Historical Society, 2001
70. Scalet, Charles, Flake, Lester and Willis, David, Introduction to Wildlife and Fisheries: An Integrated Approach, 1996.
71. Sherer, Stan and Michael E.C. Gery, Founding Farms, Portraits of Five Massachusetts Family Farms.

T O W N O F N O R T H A N D O V E R
O P E N S P A C E A N D R E C R E A T I O N P L A N 2 0 0 6
D A F T

72. Skekan, S.J., J.W. and Murray, D.P., "Geologic Profile Across Southeastern New England", Tectonophysics, 1980.
73. Town of North Andover, Annual Report, 1985, 2000, 2001, 2002, 2003, 2004, 2005.
74. Town of North Andover Minimum Requirements for the Subsurface Disposal of Sanitary Disposal.
75. The Trust for Public Land Hand Booklet, 1999.
76. The Trust for Public Lands, Increasing Public Investment in Parks and Open Space, 1999.
77. United States Census, 1890-1990, 2000.
78. United States Soil Conservation Service, Soil Survey of Essex County, Massachusetts, Northern Part, 1981.
79. U.S. Census Population Estimates, Merrimack Valley Planning Commission, 1999.
80. Wones, D.R. and Goldsmith, R., "Intrusive Rocks of Eastern Massachusetts", The Bedrock Geology of Massachusetts, 1991.
81. Zen, E., Goldsmith, R., Ratcliffe, N.M., Robinson, P., and Stanley, R.S., "Bedrock Geology Map of Massachusetts, 1983.

A P P E N D I X A

BIRDS OF THE MAZURENKO FARM CONSERVATION AREA

1. American crow *Corvus brachyrhynchos*
2. American goldfinch *Carduelis tristis*
3. American kestrel *Falco sparverius*
4. American robin *Turdus migratorius*
5. American tree sparrow *Spizella arborea*
6. Barred owl *Strix varia*
7. Belted kingfisher *Megaceryle alcyon*
8. Black-capped chickadee *Parus atricapillus*
9. Black and white warbler *Mniotilta varia*
10. Blue jay *Cyanocitta cristata*
11. Bobolink *Dolichonyx oryzivorus*
12. Broad-winged hawk *Buteo platypterus*
13. Brown-headed cowbird *Molothrus ater*
14. Canada goose *Branta canadensis*
15. Cardinal *Cardinalis cardinalis*
16. Cedar waxwing *Bombycilla cedrorum*
17. Chipping sparrow *Spizella passerina*
18. Common grackle *Quiscalus quiscula*
19. Common flicker *Colaptes auratus*
20. Common yellowthroat *Geothlypis trichas*
21. Eastern bluebird *Sialia sialis*
22. Field sparrow *Spizella pusilla*
23. Gray catbird *Dumetella carolinensis*
24. Great blue heron *Ardea herodias*
25. Killdeer *Charadrius vociferus*
26. Mallard *Anas platyrhynchos*
27. Mourning dove *Zenaidura macroura*
28. Northern harrier *Circus cyaneus*
29. Northern mockingbird *Nimus polyglottos*
30. Northern oriole *Icterus galbula*
31. Northern shrike *Lanius excubitor*
32. Olive-sided flycatcher *Nuttallornis borealis*
33. Pileated woodpecker *Drycopus pileatus*
34. Red-breasted nuthatch *Sitta Canadensis*
35. Red-shouldered hawk *Buteo lineatus*
36. Red-tailed hawk *Buteo jamaicensis*
37. Red-winged blackbird *Agelaius phoeniceus*
38. Ring-necked pheasant *Phasianus colchicus*
39. Ruffed grouse *Bonasa umbellus*

40. Song sparrow	<i>Melospiza melodia</i>
41. Starling	<i>Sturnus vulgaris</i>
42. Tree swallow	<i>Iridoprocne bicolor</i>
43. Tufted titmouse	<i>Parus bicolor</i>
44. Veery	<i>Catharus fuscescens</i>
45. White-breasted nuthatch	<i>Sitta carolinensis</i>
46. Wild turkey	<i>Meleagris gallopavo</i>
47. Wood duck	<i>Aix sponsa</i>
48. Wood thrush	<i>Hylocichla mustelina</i>
49. Yellow warbler	<i>Dendroica petechia</i>

(Source: Doucette and Kasprzyk, 1990-1991)

A P P E N D I X B

SOIL ASSOCIATIONS

(U.S. Soil Conservation Service, 1981 and Jacobs, Mark, 1993)

Paxton-Woodbridge-Montauk Association:

Soils of this association are found on hills and sloping uplands. Well-drained paxton and montauk soils are on the sides of drumlins. Moderately well drained woodbridge soils are on hilltops, concave toe slopes, and gently sloping areas. Such areas can be found from the Merrimack River to the highlands along Lake Cochichewick and the watershed divide between the Ipswich and Shawsheen Rivers. These soils are suitable for some agricultural and residential uses, with some limitations such as restrictive hardpans that promote perched water tables and hillside seeps.

Canton-Charlton-Sutton Association:

Further south and west, the well-drained Canton and Charlton soils are on the tops and sides of low hills. Moderately well drained sutton soils are found on the toe slopes of hills and in slight depressions. These soils are suitable for agricultural use and residential development except for slopes and the presence of stones in the canton and charlton soils, the seasonal high water table of the sutton soils, and some poorly drained wetland soils.

Charlton-Rock Outcrop-Medisaprists:

In the extreme southern portion of North Andover, this association can be found in areas of low, irregular hills, ridges, and plains as well as bedrock outcrops and depressions of very poorly drained organic soils. Well-drained, loamy charlton soils are found on the tops and sides of low hills and ridges. Many areas have stones on the surface and rock outcrops are also present. Medisaprists are organic soils associated with wetlands, which have a very high water table and are found between the hills and ridges. The charlton soils are suitable for residential development but stones and rock outcrops do present limitations.

Hinkley-Windsor-Merrimac:

Many of the soils in this association are excessively drained. Such soils are found on plains, stream terraces and kames generally at lower elevations. Such areas are found along the Shawsheen and Merrimack rivers as well as along Mosquito Brook. These areas are generally suited for farming and residential development. Some poorly and very poorly drained soils are also found in this association.

A P P E N D I X C

BEDROCK GEOLOGY

Merrimack Belt:

The Berwick Formation (Sb) is generally considered to be Silurian in age. This formation consists primarily of thin to thick beds of metamorphosed calcareous sandstone and siltstone. Some layers contain quartz, biotite and actinolite while others contain diopside, hornblende, and plagioclase. The Eliot Formation (Se) is also considered to be Silurian in age, but is older than the Berwick Formation. The Eliot Formation consists of thinly bedded slate and phyllite, commonly dolomitic, and metasiltstone. (Robinson and Goldsmith, 1991)

Nashoba Zone

The Sharpners Pond Diorite (Ssqd) consists of non-foliated, medium-grained equigranular biotite-hornblende tonalite and diorite. It intrudes the Nashoba Formation (OZn) and the older gneissic phase of the Andover Granite. The Andover Granite (SOagr) is a foliated, medium to coarse-grained gneissic granite that intrudes the Nashoba Formation (Wones and Goldsmith, 1991).

The Nashoba Formation (OZn) consists of interlayered schist and gneiss with minor amounts of quartzite and marble. Amphibolite is abundant in the Boxford Member (OZnb) of this formation. The Fish Brook Gneiss (OZf) is a fine to medium-grained foliated gneiss containing biotite, quartz and plagioclase and is intruded by the Andover Granite (Goldsmith, 1991a). The Fish Brook Gneiss is probably the oldest rock type found in Town (Zen et al, 1983).

A P P E N D I X D

TOWN OF NORTH ANDOVER
OPEN SPACE AND RECREATION PLAN 2006
