THE NASHUA REGIONAL OPEN SPACE STRATEGY

DECEMBER 2005

Prepared by the

NASHUA REGIONAL PLANNING COMMISSION

Title Page NRPC Photographs:
Top Left: Hollis Farm
Top Right: Milford Trail
Bottom: Nashua Mine Falls Park

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I. INTRODUCTION

The development of the Nashua Region Open Space Strategy is part of the New Hampshire Regional Environmental Planning Program (REPP). REPP is funded by the Department of Environmental Services as a means to develop an inventory of New Hampshire's most significant unprotected water, land, forest, historic, cultural, ecological, geological and public resources. In 1998 the Land and Community Heritage Commission (LCHC), which was created with the passage of SB 493, recommended that funding be made available annually to communities, non-profit organizations and state agencies for the voluntary conservation and preservation of targeted resources. REPP was established, in part, to respond to SB 493.

Since 1997, the REPP program has provided an opportunity for planning boards, conservation commissions, historic district commissions, watershed associations, charitable and philanthropic organizations and other stakeholders to inventory and assess the resource priorities in the Nashua Region. The first several years of the REPP program were spent identifying local and regional resource priorities and gathering a comprehensive set of data about those resources based on the following criteria: resource type, significance of the property, imminence of threat, leverage; local support, partnerships; public access, stewardship, and method of preservation. This report includes this inventory and showcases several of the priorities region-wide.

Now in its eighth year, the REPP program in the Nashua Region has progressed from developing an inventory and prioritizing important resources to creating a more defined strategy to permanently protect these resources. In order to do this, the Nashua Regional Planning Commission (NRPC) researched models which could be used to develop a regional open space strategy that fits the needs of the communities in the Nashua Region.

In order to ensure that the development of this strategy was consistent with the needs of the communities in the Nashua Region, NRPC created a committee to review various strategies that can be used to protect open space. The Regional Resource Conservation Committee (or R2C2), met monthly to share what are or are not working in their communities as well as any new strategies that can be implemented locally and regionally.

The Nashua Region Open Space Strategy is the result of NRPC's research and the work of the R2C2 and includes the following: 1) a brief narrative of the environmental and development history of the Nashua Region; 2) an analysis of current strategies to protect open space and the land that is both protected and unprotected; 3) an overview of the current resource protection priorities in each community and region-wide; and 4) the tools necessary to begin protecting these parcels.

This report is to be used as a tool for resource protection in the Nashua Region. It does not represent regional or municipal government policies or programmatic actions.

II. DEVELOPMENT OF THE NASHUA REGION

A. History of Development in the Nashua Region

For the past 50 years the NRPC region has been among the fastest growing regions in New Hampshire (Table II-1). Improved access from the automobile opened up the outer fringes of the region, which have been increasingly developed as rural "bedroom" suburbs. During this time, the region's population increased by 276%, compared to the State's increase of 132% and the annual increase in population has been 6% in the region compared to 3% for the State. By 2000, the region's population was 195,788, a 42% increase over 1980. The region's population has been increasing by about 4,500 persons per year since 1990.

Table II-1: Population, 1950-2000

Community	1950	1960	1970	1980	1990	2000
Amherst	1,461	2,051	4,605	8,243	9,068	10,769
Brookline	671	795	1,167	1,766	2,410	4,181
Hollis	1,196	1,720	2,616	4,679	5,705	7,015
Hudson	4,183	5,876	10,638	14,022	19,530	22,928
Litchfield	427	721	1,420	4,150	5,516	7,360
Lyndeborough	552	594	789	1,070	1,294	1,585
Merrimack	1,908	2,989	8,595	15,406	22,156	25,119
Milford	3,269	4,159	6,622	8,685	11,795	13,535
Mont Vernon	405	585	906	1,444	1,812	2,034
Nashua	34,669	39,096	55,820	67,865	79,662	86,605
Pelham	1,317	2,605	5,408	8,090	9,408	10,914
Wilton	1,952	2,025	2,276	2,669	3,122	3,743
NRPC Region	52,010	63,216	100,862	138,089	171,478	195,788
State of NH	533,542	606,921	737,681	920,610	1,109,117	1,235,786

Source: U.S. Census, 1950 – 2000.

New Housing in Litchfield

Although the rate of population growth slowed in the 1990's, housing unit growth was considerable and increased 53% from 47,944 units in 1980 to 73,341 units in 2000. The larger communities of the NRPC region, Nashua, Hudson and Merrimack, experienced the greatest whole number gains in residential building permits. Proportional growth in building permit activity can be an indicator of the degree to which the community has experienced change or stress associated with growth. Within the region, Brookline has experienced disproportionate growth during the 1990s. Its rate of increase (61%) in residential permits was more than four times higher than the regional (13.5%) and state (8.8%) growth, as indicated in Table II-2. Other communities with disproportionate growth in housing units, particularly Litchfield (33.3%) and Hollis (26.9%) were historically among the regions smallest in population. The increased demands on municipal services and threats to community character have been consistent issues for these communities throughout the decade.

Table II-2: Housing Units, 1990-2000

Rank/ Community	Housing Units 1990	Housing Units 2000	Percent Change 1990-2000
1. Brookline	881	1,419	61.0%
2. Litchfield	1,845	2,460	33.3%
3. Hollis	2,006	2,547	26.9%
4. Lyndeborough	488	604	23.7%
5. Pelham	3,118	3,852	23.5%
6. Mont Vernon	614	752	22.5%
7. Amherst	3,179	3,825	20.3%
8. Hudson	6,902	8,213	19.0%
9. Wilton	1,251	1,473	17.8%
10. Merrimack	7,915	9,158	15.7%
11. Milford	4,793	5,422	13.1%
12. Nashua	33,383	35,582	6.6%
NRPC Region	66,375	75,307	13.5%
State of NH	502,247	546,525	8.8%

Source: Office of State Planning, 2000.

The sharp increase in housing units, especially those on "greenfield sites" is one of the main reasons that several communities in the region will be approaching build-out in the near future. New housing and commercial development brought upon by population growth has affected the character of the region, which varies widely from the urban core of the City of Nashua to the forests of Lyndeborough. The larger Towns located near the City of Nashua, such as Hudson, Merrimack and Pelham, have evolved from rural to primarily suburban areas with patches of open space. Towns further out from the City, such as Brookline and Litchfield, are rapidly suburbanizing because of good transportation links and the attraction of large tracts of open spaces.

As communities around Nashua face build-out and people continue to escape "the big cities" for a more rural lifestyle, growth is forced into the smaller towns in the region and beyond that are furthest from Nashua, such as Mont Vernon, Lyndeborough and Wilton. Small towns like these face the threat of declining open space due to the attraction of the country setting and the increased quality of life due to the amount of open space that is remaining.

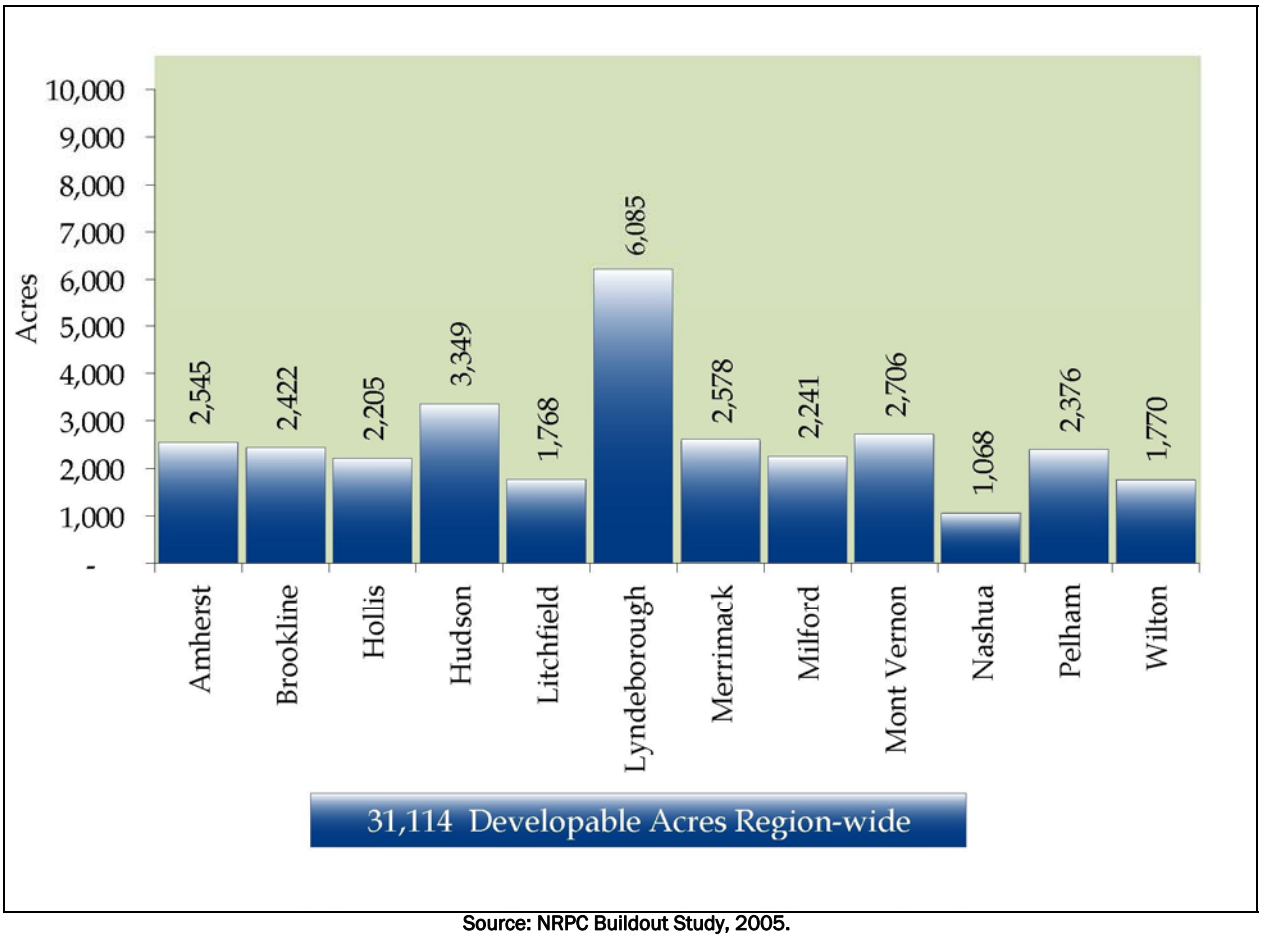
B. Buildout in the Nashua Region

With recent technological improvements in Geographic Information Systems (GIS), NRPC GIS has been able to estimate the possible future of development in the Nashua Region. The study is called a "Buildout" which estimates the maximum number of residential and non-residential development that can occur based on current zoning regulations. "Buildout" is a theoretical condition and exists when all available land suitable for construction has been developed. The study examines the impacts of buildout on population, housing, employment, students, traffic, water demand, solid waste and emergency services. With this information, planners can attempt to determine which areas of the region could potentially see the most development, and the impacts that could be resultant thereof. More importantly, a Buildout allows for examination of the effects that current regulations have for growth and possible alternative futures for the Nashua Region.

From the results of the Buildout, NRPC was able to determine the total number of developable acres within the Region by taking the total current acres minus non-eligible parcels and constraint areas. Again, the non-eligible parcels and constraint areas were created based upon existing regulations and constraints detailed in the Buildout process. The total number of acres (202,854) minus the non-eligible parcels and constraint areas leaves approximately 31,114 developable acres for the Nashua Region for

Buildout. Lyndeborough has the highest number of developable acres (6,085). The lowest number of developable acres resides in Nashua (1,068) with the other Towns ranging between 1,770 (Wilton) to 3,349 (Hudson) as indicated in Chart II-1.

Chart II-1: Developable Acres by Town



Source: NRPC Buildout Study, 2005.

The Housing analysis portion of the Buildout showed an overall 34% increase in Housing and a 36% increase in Population Region-wide at Buildout. These percentages stem from primarily single-family development. Also important to note are a 69% increase in non-residential development at buildout. These findings showed a significant impact on resources.

III. PROTECTING OPEN SPACE IN THE NASHUA REGION

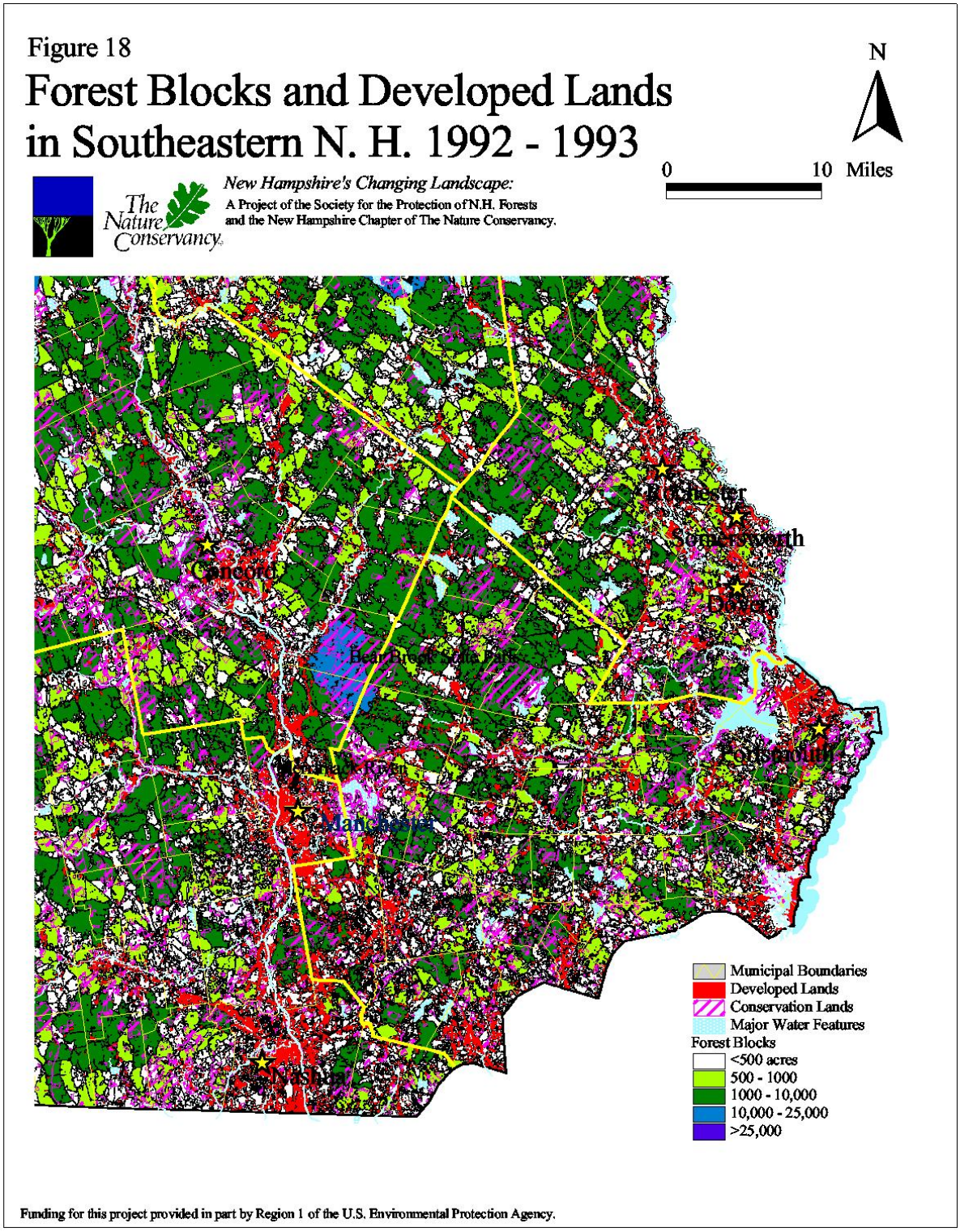
In knowing how much open space we need to protect in this region, it important to know how much we currently have. For all intensive purposes, there are two main sources of open space in this region: forested lands and agricultural lands. Forested lands include properties that have wetlands and waterbodies and also areas with steep slopes and viewsheds. The agricultural lands category includes all lands that are or were recently in agricultural use and are considered important to the community and/or region because of that use.

A. Forested Lands

Forests contribute significantly to the natural beauty and character of the region. They serve as buffers between various land uses, provide open space for passive recreation, serve as an important source of building materials, firewood and sap and provide critical habitat for a diversity of wildlife. Many species require large, contiguous forest blocks to successfully reproduce and maintain their populations. The percentage of land in forest cover statewide decreased from 87% to 84% between 1983 and 1997, with development contributing to most of the loss.[1] This is a loss in forestland of over 163,400 acres in just a 14 year period[2]. The percentage of forest cover is expected to decline to 79.1% by 2025[2]. 67.9% of the NRPC region was forested in 1992 -1993. Lyndeborough had the highest percentage of forested land (87.4%), followed by Mont Vernon (84.2%) and Brookline (83.3%). While Nashua has the lowest percentage (34.2%), its proportion of forested land was surprisingly high for the State's second largest city[3].

Forest blocks of 500 acres and greater are more capable of supporting profitable forest management, wildlife habitat, outdoor recreation and water supply protection than smaller blocks. Forest blocks below this size are considered to be "fragmented" or broken up by roads and developed areas. Numerous ecological studies have shown that forest fragmentation adversely affects many forest-adapted wildlife species, particularly large mammals and birds. As of 1992-1993, there was a total of 68 forest blocks of greater than 500 acres in the region. Every community had at least one forest block of this size, with Nashua (1), Litchfield (2) and Hudson (3) with the lowest total number. These blocks covered 33.4% of the region and totaled 67,737 acres. This regional proportion is less than half the State's proportion of land area within forest blocks of this size (67.6%). The average size of forest blocks within the region was 219.8 acres, with a median of 81.3 acres. For the State the average size was 1,063 acres and the median was 104.8 acres.[3] Map III-2 illustrates the large forest blocks in Southern New Hampshire during 1992-1993.

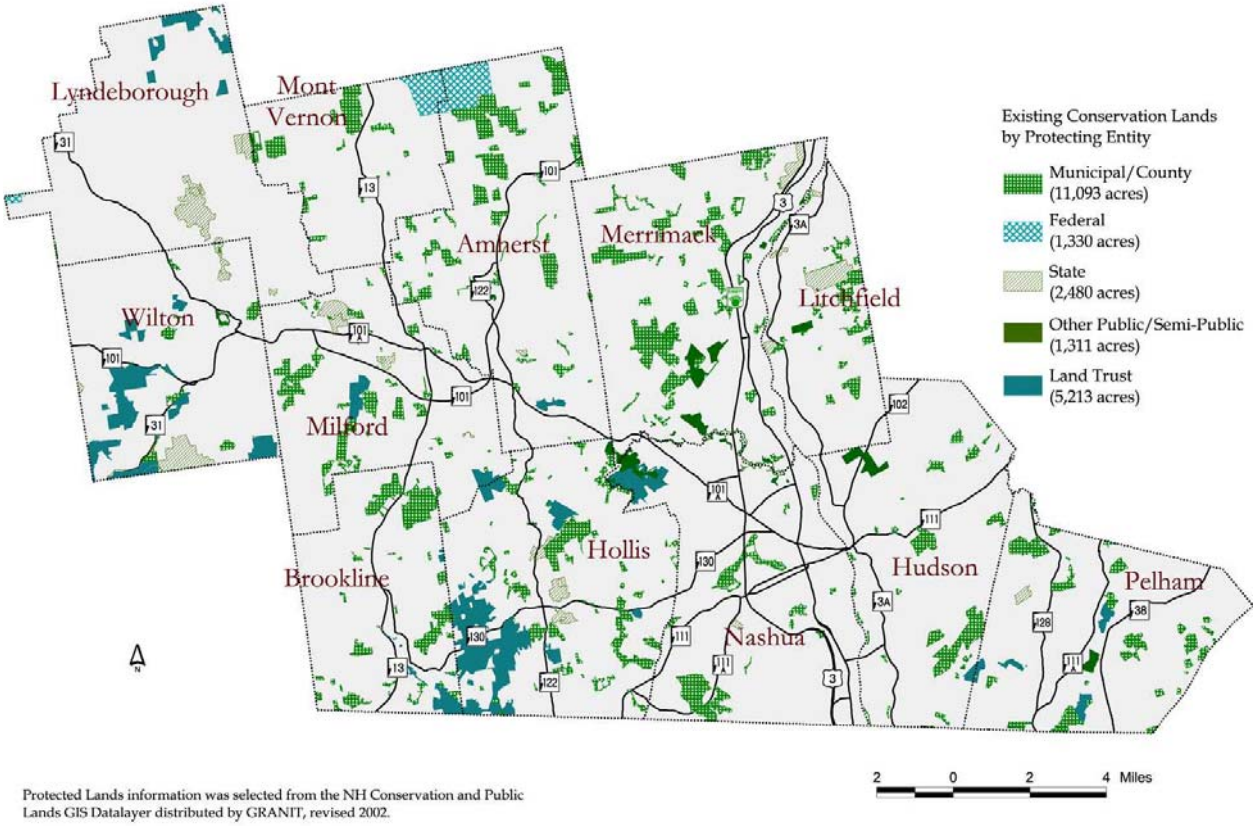
[1] The Society for the Protection of NH Forests, *New Hampshire's Vanishing Forests*, 2001, pg. 13.
[2] The Society for the Protection of NH Forests, *New Hampshire's Changing Landscape*, 2005.
[3] The Society for the Protection of NH Forests, *New Hampshire's Changing Landscape*, Appendix A, pg. 10, 1999. Derived by NRPC. For detailed tables, see: NRPC, *Fifty Years of Growth*, 2001, pg. 24.



A model for estimating losses in the amount of forested land by the year 2020 was developed for the region. It is estimated that the region will lose about 18,000 acres of forested land during this period, a rate five times greater than the State (15.1% vs. 3.1%). The greatest whole number losses are expected in Hollis (-2,472 acres), Hudson (-2,198 acres) and Pelham (-1,886 acres), while the greatest proportional loss is expected in Litchfield (-38.1%) and Nashua (-35.6%).

The predicted decline in forest area and increasing forest fragmentation in the NRPC Region is expected to adversely affect the habitat of many species of wildlife, especially migratory songbirds. Population declines of many species have been noted in recent decades.[4] In general, large forest tracts help to protect biodiversity and maintain healthy wildlife populations. Decreasing forest area may also adversely impact groundwater recharge, drinking water supplies and the economic viability of forest-based industries such as logging and outdoor recreation.

MAP III-1: Forest Blocks Greater than 500 Acres



B. Agricultural Lands

By 1850, at the height of agricultural development in New Hampshire, 80% of the land in Hillsborough County was cleared for livestock grazing and crops for livestock and human consumption.[5] In the last 30 years the decline of agriculture has lead to open fields reverting back to forest. However, the forests are declining again. Instead of converting one kind of open space to another this time, the conversion of the remaining farmland and new forests is to residential and commercial development. Open fields,

[4] New Hampshire Fish and Game Department, Nongame and Endangered Wildlife Program, *Identifying and Protecting New Hampshire's Significant Wildlife Habitat: A Guide for Town and Conservation Groups*, 2001.

[5] Society for the Protection of New Hampshire Forests, *New Hampshire's Changing Landscape*, 1999.

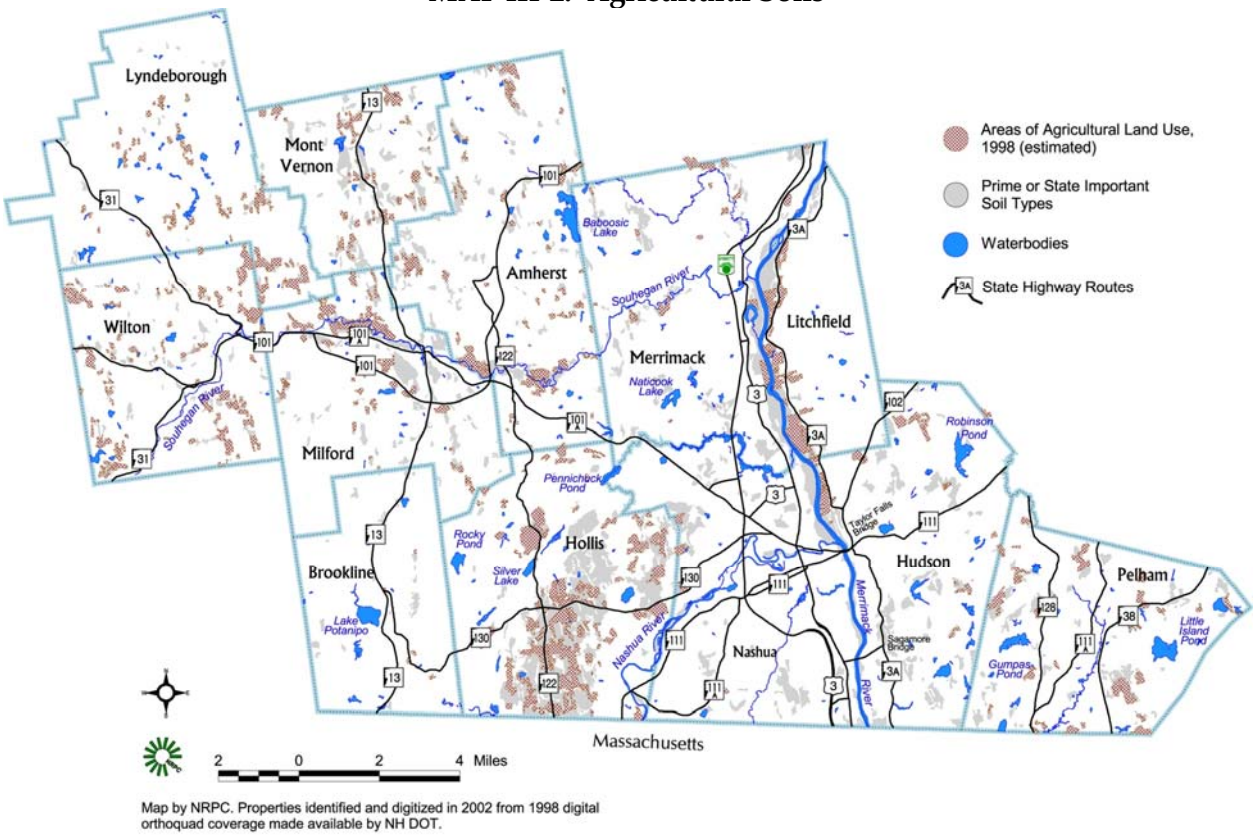
hedgerows and locally grown produce and livestock are disappearing as farmland is converted to low density residential, commercial and industrial development.

Land in agricultural use, such as cropland, orchards, hayfields or pastureland, contributes to the NRPC Region's overall character and quality of life. Prime Agricultural Soils are a valuable but limited resource in the region. Prime soils are defined by the Natural Resources Conservation Service as suitable for producing sustained high yields of crops economically when treated and managed according to modern farming methods. They can be farmed continuously without degrading the environment and usually require little investment and energy for maintaining their productivity. State Important Soils are also capable of producing high yield crops economically. The major difference between Prime Agricultural and State Important soils is generally the ability to hold moisture and erodibility. The distribution of these soils is illustrated on Map III-2.

Currently, land in active agricultural use is concentrated in the Towns of Litchfield and Hollis. Approximately 1,124 acres or 11.2% of total land area are used for active agriculture in Litchfield.[6] The majority of this land is located along the Merrimack River/Route 3A corridor and defines the Town's rural character. Litchfield contains the largest organic farm in New Hampshire. Approximately 2,441 acres or 12% of total land area are used for active agriculture in Hollis. The majority of this farmland is located in central and south-central Hollis and includes large areas of apple orchards. However, a portion of Woodmont Orchards was sold in 2002 despite active conservation efforts. Agriculture is an important component of Hollis' and Litchfield's local economy and defines much of the communities' character. Outside of Litchfield and Hollis, active farmland in the Nashua region is widely scattered. The last farm in Hudson was sold in 2002.

[6] NRPC, *Litchfield Buildout Study*, 1997.

MAP III-2: Agricultural Soils



Map by NRPC. Properties identified and digitized in 2002 from 1998 digital orthoquad coverage made available by NH DOT.

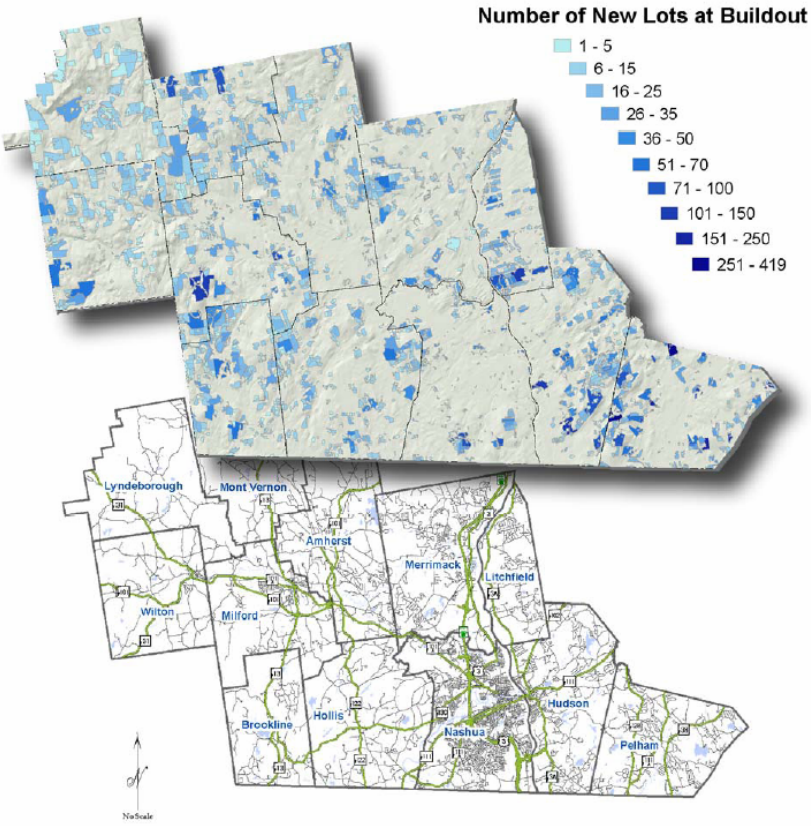
Some of the agricultural land in the region is protected by conservation or agricultural easements. Historically, the average cost of conservation easements on rural farmland in New Hampshire far exceeds the national average. Under the 2001 Farmland Protection Program, the average cost of conservation easements in New Hampshire was $4,318 per acre.[7]

In the NRPC Region, the agricultural properties are the first to be developed because of their level topography, limited site preparation requirements and soil compatibility for septic systems. In response to this development, communities like the Town of Litchfield are conducting inventories of large tracts of remaining agricultural land and researching options for conservation. Similarly, the Town of Hollis is pursuing the most appropriate method of preserving some of its remaining historic apple orchards. As agricultural lands have become more scarce, lands with development constraints such as high ledge, poor soils and/or steep slopes are now under development threat, primarily for low density residential development. For example, much of the remaining undeveloped land in the Town of Pelham is in the steep, higher elevations in the western and eastern reaches of Town. The development pressure on these lands is due to rising land values, continued demand for suburban housing and zoning that encourages low density residential development. Almost all of the remaining undeveloped land in the NRPC Region is zoned for low density residential development. This means that under current zoning, future development will continue to consume large areas of land per capita.[8] Map III-3 shows the number of new housing lots per community at buildout based on current land use, zoning regulations and environmental constraints.

[7] Natural Resources Conservation Service, *Farmland Protection Program*, 2001.

[8] It is estimated that in the 1950's, the average single family home lot in the United States covered 1.05 acres but by 1997 the average had risen to 1.82 acres. Peterson, Tom, USEPA, "*What is Happening to the Land*," *Fragmentation 2000 Conference*, Annapolis, MD, September 17-20, 2000.

Map III-3: Number of New Housing Lots at Buildout



Source: NRPC Buildout Analysis – October 2005

C. Organizations

There are a number of organizations in the region, which focus their efforts toward land conservation and resource protection. Local Advisory Committees provide a great example of these efforts. The Lower Merrimack River Local Advisory Committee (LMRLAC) for example, was created in 1990 as a result of the designation of the Lower Merrimack River as a protected river by the Rivers Management and Protection Act. As a designated river, the Lower Merrimack fall under the protection of RSA 483, administered by the New Hampshire Department of Environmental Service (NH DES).

The communities in the Lower Merrimack River Corridor include Nashua, Hudson, Litchfield and Merrimack. The LMRLAC is comprised of representatives from the business, recreation, agriculture and conservation community as well as riparian landowners and local government.

The Lower Merrimack River is classified as a Community River under the Rivers Management and Protection Act. Management of community rivers shall maintain and enhance the natural, scenic, recreation and community values of the river while also considering, protecting and ensuring the rights of riparian owners' of the river for agricultural, residential, municipal, commercial or other types of uses which are compatible with the Instream public uses of the river.

According to State statute, one of the main tasks charged to the Local Advisory Committee is "to develop or assist in the development and adoption of local river corridor management plans under 483:10…" This plan is explained further in the Local and Regional Conservation Priorities section. Noted below are a few of the LMRLAC's recent activities:

- Site Specific Permit application reviews and comment for subdivisions in the Towns of Litchfield and Hudson.
- Dredge and Fill application reviews and comment for developments in the Towns of Merrimack and Litchfield
- Press release about the LMRLAC to local newspapers.

Similar in purpose to the LMRLAC is the Souhegan River's LAC (SoRLAC). The Souhegan River is also protected by the Rivers Management and Protection Act and therefore falls under the protection of RSA 483. SoRLAC serves as the steward and watchdog over any activities in the Souhegan River Corridor. Regular activities of SoRLAC include: reviewing development applications along the Corridor, involvement in the Souhegan River Water Quality Program every summer, and as of May 2003, developing a Souhegan River Watershed Management Plan. The current efforts and purpose behind this plan are also discussed further in the Local and Regional Priorities section.

The Nashua River Watershed Association, Founded in 1969, the focuses its efforts in promoting a healthy ecosystem with clean water and open spaces for human and wildlife communities, where people work together to sustain mutual economic and environmental well-being in the Nashua River watershed.

The three main goals of the NRWA are to:

1. Restore and protect water quality for people, fish, and wildlife

1. Conserve open spaces for water quality, wildlife habitat, farms, forests, and recreation

2. Encourage careful land use with well-planned development

The NRWA has currently created a 2020 Vision Plan for the watershed with the assistance of many groups in the region ranging from local planning boards to conservation commissions to interested citizens. Goals and priorities of this plan focus on restoring and protecting water quality; conserving open space; and encouraging careful land use with well planned development.[9] More information on the 2020 Plan can be found on their website at http://www.nashuariverwatershed.org.

The Pennichuck Watershed Council is a volunteer organization, dedicated to the protection, the preservation, and the enhancement of the waters and the eco-system of the Pennichuck Brook Watershed. The Pennichuck Brook Watershed is small - less than 30 square miles - and it and the water it provides are under significant threats. Although the watershed provides enough water for the Nashua region at present, there may not be enough water for the growing population in the near future. Continuing development in the watershed reduces water-retaining soils, wetlands and water body buffers, while increasing sources of pollution.

The Pennichuck Watershed Council's goal is to establish and support the implementation of a watershed management plan that will both protect the watershed and provide a sustainable water supply. Council membership is broadly representative of those individuals and groups having an interest in the health and sustainability of the watershed.

The Regional Open Space Team (ROST) is another group which is active with the various Conservation Commissions. Representatives on the team come from Milford, Wilton, Lyndeborough, Mason, Brookline and sometimes Amherst, Hollis and Mount Vernon. The team is focused on assisting the Conservation Commissions with various projects ranging from educating the public about the importance and recreational uses of open spaces to supporting member towns in their various conservation efforts (use of bonds, etc). The Team is currently working to create a comprehensive trails website. Once completed, the site will contain trails maps for each member towns. Directions, photographs & trail summaries will also be included. The Team also holds a current interest in the creation of one map which identifies all protected parcels within the member towns. The focus behind the project is to further educate the public regarding the importance of protecting greenspace from one

[9] Nashua River Watershed Association Website, http://www.nashuariverwatershed.org.

municipality to the other. The ROST holds a roundtable forum where Conservation Commission Representatives can discuss and share current issues, ideas & successes within their towns.

D. How does Open Space fit into the Nashua Region today?

Master plans provide an excellent summary of the local history and development patterns that have occurred. With quick research of the most recent Master Plans available, one can discern what the common goals are for local resources in our region. These goals also provide a holistic view of what are the major concerns from our towns for natural resource protection and open space acquisition.

The following local goals have been identified through a review of community Master Plans:

- Identify and preserve the most significant local natural resources and wildlife habitat.
- Protect the quality of local water surface and groundwater resources.
- Encourage the preservation of remaining agricultural lands, Prime agricultural soils and forestlands.
- Guide development away from environmentally sensitive areas such as aquifers, surface waters, shorelines, floodplains, wetlands, public water supply protection areas, steep slopes and higher elevations.
- Increase public access to natural resource areas where appropriate.
- Determine which planning tools (zoning, open space development, land acquisition, conservation easements, etc.) may be appropriate at the local level to safeguard the community's most sensitive environmental areas.
- Update local land-use regulations such as shoreline and wetlands protection regulations.
- Preserve rural character and heritage by retaining fields, forests, tree-lined country roads, commercial and family farms, and orchards.
- Relate land uses to the capability of the land to support development, and prevent intensive land uses from locating on soils and slopes unsuitable for such uses.

E. Studies/Plans

3A Agricultural Preservation Project[10]

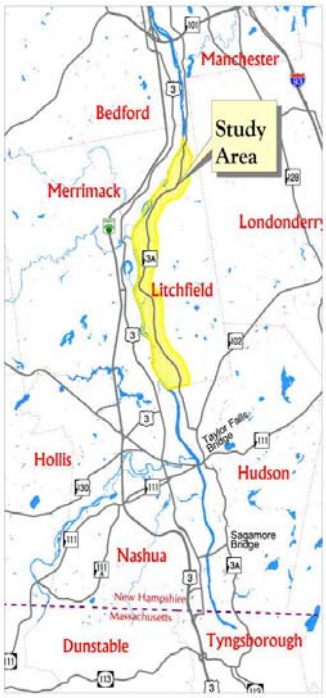
The Route 3A Corridor, also known as the Charles Bancroft Highway, is the area between the Merrimack River and 1,500 feet east of the Corridor. It is the main north-south route through Litchfield, providing access to Manchester and Hudson. The agricultural land along this route is among the most fertile in New Hampshire, and defines Litchfield's landscape.

The Town of Litchfield is one of the fastest growing communities in the state. As a result, the Corridor is continually being threatened by development. The proposed Circumferential Highway would provide another bridge across the Merrimack River near the Litchfield/Hudson town line, therefore accelerating development pressure in the Corridor.

In response to this, the New Hampshire Department of Transportation (NHDOT) provided funding for the 3A analysis. The purpose was to assist the Town of Litchfield with the prioritization of properties or portions thereof to establish a sound conservation strategy. Given the increasing cost of real estate in the region, the analysis evaluated the feasibility of preserving smaller portions of existing agricultural parcels and determines if development on less significant portions of parcels is compatible

[10] NRPC, *Town of Litchfield Agricultural Preservation Project*, 2004.

Map III-3: Study Area



Source: NRPC GIS, 2003.

Table III-1: Acres of Generalized Land Use

Land Use	Acres	Percent of Total
Agriculture	938.9	26.4%
Commercial	17.6	0.5%
Industrial	9.7	0.3%
Municipal	85.3	2.4%
Open Space/Protected	134.4	3.8%
Private Recreation	118.6	3.3%
Roads	122.7	3.4%
Single Family Residential	653.2	18.4%
Multi-Family Residential	46.0	1.3%
Water	464.1	13.0%
Vacant	926.6	26.0%
Circ. Hwy. ROW	40.1	1.1%
Total	**3,557.2**	**100.0%**

Source: NRPC GIS, 2003.

with the preservation of agricultural uses. In addition, the strategies for the long-term preservation and stewardship of the land's agricultural uses including options related to the purchase of development rights, identification of potential future users, and regulatory options are evaluated.

The Town of Litchfield has taken great strides in preserving the unique agricultural landscape found along Route 3A. A key master-planning goal for the community has been the creation of Albuquerque Avenue, which was conceived prior to the extensive growth experienced by the Town over the past several decades. The roadway parallels Route 3A to the east and opens the interior of the Town. The road has had the effect of shifting development pressure away from the agricultural land found along Route 3A. However, as the Albuquerque Avenue Corridor experiences buildout, development pressure on the undeveloped agricultural lands will likely increase.

The Route 3A Corridor in Litchfield consists primarily of agricultural land, single-family residences and recreational land. Of the 3,163 acres of land within the Corridor, 938.9 acres (26.4%) are part of a parcel that is in whole or partly used for agriculture. A total of 653.2 acres (18.4%) contain a single-family house lot. A total of 926.6 acres (26%) are currently vacant. Map 9 and Table 4 show generalized land uses within the Route 3A Corridor in Litchfield.

A Buildout Analysis was conducted for the 3A study in order to determine the development potential within the various zoning districts which line the Corridor. The results estimated the amount of development likely to occur under current zoning. Throughout the Corridor, a total of 780 lots could be created, of which 341 would be in the residential zone. All lots, including those in active agriculture, were included in the analysis.

Three main conclusions were made that were taken under consideration for their recommendations:

1. In order to preserve the agricultural landscape of the Route 3A Corridor, a variety of alternatives need to be explored. Given the continued development of the Town, the limited resources available for acquisition, the possibility that the Circumferential Highway will not be constructed, and many other factors, the Town must rethink some of its development regulations as much of the land could be preserved through the application of basic zoning techniques. However, the political feasibility of regulatory options also needs to be considered.

2. The landscape surrounding Litchfield's agricultural heritage is of statewide importance. It is very rare to find such an extent of active agricultural land within a relatively suburban community that is adjacent to the State's largest city (Manchester). The landscape itself should be considered to be an endangered historic resource.

3. When purchasing property or property rights for agricultural land, it is important to account for the long term viability of the agricultural use. An agricultural landscape requires active farming.

Information provided from the analysis of the study allowed the NRPC and Town of Litchfield to present some recommended strategies for conservation. These recommendations utilize many tools for conservation planning ranging from regulatory (such as conservation easements) to non-regulatory (outright acquisition of properties).

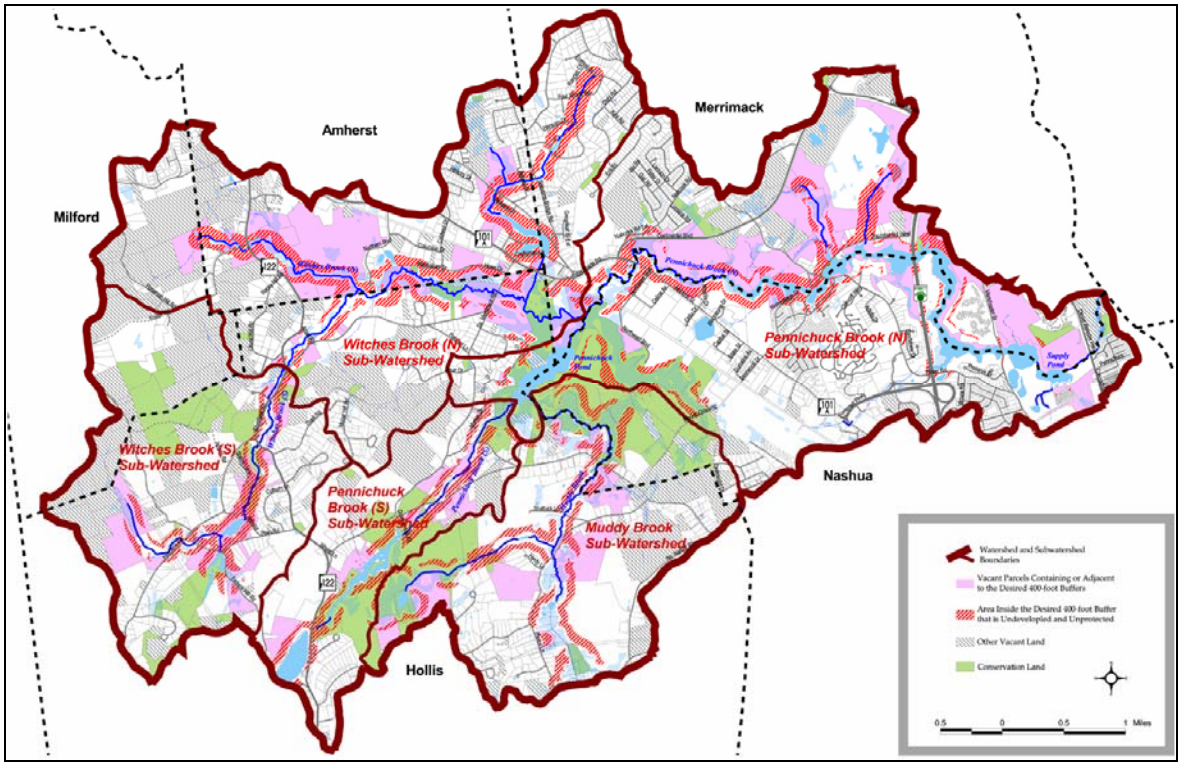
Pennichuck Brook Watershed Buildout Analysis

The Pennichuck Brook watershed includes approximately 17,700 acres within the communities of Amherst, Hollis, Merrimack, Milford and Nashua and is the primary drinking water supply for the City of Nashua and several of other communities. In 2003, the Nashua Regional Planning Commission obtained grant funds under the Regional Environmental Planning Program to assist in developing a better understanding of the current health of the watershed and work with the surrounding communities to develop a comprehensive approach toward watershed protection.

The information presented in the buildout analysis was generated through Geographic Information System (GIS) technology. The figures and maps presented in the 2003 report are based on an analysis of statistical data, local zoning ordinances and private covenants. The data sources were then used to develop an estimate of the potential area of impervious surface that could be developed within the Pennichuck Brook watershed. It is important to note, however, that the buildout analysis did not take into consideration the EPA Phase II Stormwater Regulations and their impact on the future amount of impervious surface predicted for the watershed. While important, that level of analysis was beyond the scope of the project.

The goal of the analysis was to determine the potential future imperviousness of the Pennichuck Brook Watershed based on existing land use regulations. The results can be used by municipalities to evaluate the impacts of local zoning as it currently exists, review proposed development, suggest transportation improvements, and to cooperatively develop a more comprehensive, regional approach towards watershed protection. The analysis can also be used as a local and regional guide to gauge the general health of the subwatersheds within each community and mitigate development impacts to protect the Pennichuck Brook watershed.

Map III-4: Vacant Land Adjacent to the Suggested 400-Foot Riparian Buffer



Source: NRPC GIS, 2003

The analysis included four tasks, as follows:

Task 1. Existing Conditions Analysis

Features in the watershed were mapped including community and watershed boundaries, parcels, roads and waterbodies. Existing GIS data for the watershed was collected to develop a base map.

Task 2. Riparian Buffer Analysis

Existing and proposed riparian buffers were identified in the watershed to understand the existing level of protection as well as what is potentially available for future protection in the watershed. Riparian buffers are strips of vegetation along the banks of rivers and streams that filter polluted runoff and provide a transition zone between water and human land use. They are an effective and cost-efficient best management practice that can be used to maintain or enhance water quality, prevent flooding, and provide wildlife habitat.

Once the suggested 400-foot buffer was mapped, the watershed was analyzed to determine if there were areas that could be further protected through acquisition of land. All of the undeveloped and unprotected parcels in the watershed were identified. Any of these parcels that are adjacent to the suggested 400-foot buffer (shown on Map III-5) were labeled as potentially available for acquisition.

Task 3. Impervious Surface Analysis

The amount of impervious surface was calculated in the watershed according to land use by municipality and subwatershed. Impervious surfaces such as roofs, roads, parking lots and driveways increase the rate by which pollutants accumulate and run off into water bodies during storm events. This runoff can potentially degrade water quality. A study by the Center for Watershed Protection (CWP) suggests that a

watershed may be considered "impacted" when there is 11-25% impervious cover. According to CWP's study, at this percentage, streams may show signs of degradation due to watershed urbanization.[11]

The results of the analysis were summarized by subwatershed and municipality. According to the results, approximately 2,512 acres, or 14%, of the watershed, is currently impervious. Maps included in the document indicate that the more impervious surfaces are concentrated along the NH Route 101A corridor and the City of Nashua in general.

Task 4. Buildout Analysis

A statistical assessment was conducted of the quantity of new development that could be constructed based on each community's existing land use regulations and physical development constraints. The results of a build-out analysis can be used to estimate the future area of impervious surface in a watershed.

The results of the build-out analysis, indicate that an additional 3,337 acres of impervious surface could be developed in the watershed. This will increase the impervious surface coverage in the watershed from 14% to 32% which, according to the Center for Watershed Protection impervious cover model, is well within the non-supporting category.

The 2003 Buildout Analysis provided a detailed land use study of the watershed. Land uses and the current levels of increase in impervious surfaces have been able to show the communities of the watershed the potential impacts to water quality of the Pennichuck Brook. The Buildout section of the study also calculated future development potential within the watershed. Vacant parcels within the proposed 400 foot riparian buffer were identified with the analysis, as indicated in Map III-4. The analysis can be used as a local and regional guide to gauge the health of the subwatersheds within each community and mitigate development impacts to protect the health and ecological integrity of the Pennichuck Brook Watershed.

IV. LOCAL AND REGIONAL CONSERVATION PRIORITIES

Conservation can be defined as the protection, improvement, and stewardship of natural resources. The challenge in the Nashua region is to conserve resources through the acquisition of property, land use planning, the purchase or donation of easements, and improved resource protection measures. The conversion and fragmentation of forests, meadows, and farmland has put pressure on wildlife habitat, increased agricultural land prices, and will further intensify use of remaining lands as they become more valuable for housing and development. The removal of field border strips, hedgerows, woodlots, and riparian buffers has occurred throughout the region. The elimination of these habitat areas leads to increased sedimentation, erosion, and nonpoint source pollution, which are the main causes of the degradation of our waterways. This section will detail various local conservation priorities taken from the Regional Environmental Planning Program (REPP) Final Report in January 2000 and updated in 2005. The REPP was funded by the Department of Environmental Services as a means to develop an inventory of New Hampshire's most significant unprotected water, land, forest, historic, cultural, ecological, geological and public resources. The report categorized "Regional Priorities" which were identified by more than one town.[12] NRPC would like to note that not all Local and Regional Conservation Priorities have been noted. It is of the intent for the Commission to pursue funding in the future to create an update of the 2000 REPP Report providing specifically the updates of Local and Regional Priority Parcels. The information provided in this document does help to provide the reader with a holistic view of interests as well as some of the current projects of the Conservation Commissions within the Nashua Region.

[11] Note: The definitions of these watershed indicators are based on CWP estimates and are not indicative of water quality monitoring results in the Pennichuck Brook watershed.

[12] NRPC Regional Environmental Planning Program Report January, 2000

A. Priorities for Locally Significant Parcels

Brookline[13]

Brookline contains two parcels which are part of 590 acres of undeveloped land. This land spans a large portion of the Lake Potanipo watershed as well as a highly productive aquifer. The Town hopes to purchase an easement on the rest of the land in the future. The 590 acre parcel connects with another large tract of undeveloped land. This would potentially link the Lake Potanipo area with another proposed corridor in Mason to provide east/west movement of wildlife.

Hudson[14]

As far as the Musquash conservation district goes, the recent plans to develop the lands adjacent to the North and East (Hawkview Ridge) will severely curtail any hope of expanding the Musquash reserve. The Hudson Open Space Subcommittee is in the process of revising the list of priority parcels, based on recent and pending developments. This will be presented to the Board of Selectmen for approval prior to issue.

Merrimack[15]

The Merrimack Conservation Commission (MCC) continues to work under the guidelines established in the Merrimack Master Plan. The MCC has recently completed the expansion of the Greater Woods Town Forest lands into a 300± acre holding.

- Ten-year efforts of the MCC to purchase an abutting parcel, although not successful in obtaining the entire acreage, did result in the donation of a 70± acre potion. The site includes a heron rookery and completes ownership of an extensive wetland area home to beaver, wood ducks, otter, deer and many other species. Additionally the upland woods offer the opportunity for expansion of existing trails within the entire forest area. MCC has marked the boundaries and will be doing trail work in the spring of 2006.
- Another abutting parcel recently became the site of a middle school and as a mitigating action for filling wetlands the non developed portion of the site, 35± acres, was protected as open space. The MCC accepted management of the parcel as it abuts the Town Forest. The school staff and MCC anticipate taking advantage of the opportunity to use the site for educational activities. A trail system will be developed connecting to the existing forestland. Boundary marking, improved access and trail construction will follow.
- The MCC forester will update our Grater Woods Forest Master Plan to include the two new additions and their resources.
- Further acquisition efforts in the immediate area are ongoing.

MCC members continue to participate in the planning activities for the 560-acre Horse Hill Nature Preserve. They are members of a volunteer group that is attempting to determine the best use and management organization for this important and unique wildlife habitat. The MCC is also participating in the dam removal study for the Merrimack Village Dam on the Souhegan River. Potentially the removal would open up 14-miles of excellent fish breading habitat that has been blocked for over 100 years. The MCC is interested in the effects removal would have on the river and the abutting lands.

[13] NRPC Regional Environmental Planning Program Report January, 2000
[14] Hudson Conservation Commission, 2005
[15] Merrimack Conservation Commission, 2005

Milford[16]

View from Mile Slip
Photo Courtesy of Milford CC

The Milford Conservation Commission had a great success on March 8, 2005 when the citizens of Milford voted to approve the purchase of a 452 acre parcel called the "Mile Slip". This area has many natural resource features in addition to being a great place to recreate. Wildlife heavily uses this part of town. It connects to protected and undeveloped lands in Brookline, Mason and Wilton.

There was a meeting between the Milford Conservation Commission, the NH ATV Club and interested citizens on Oct. 3, 2005 which went very well. There was no one at the meeting expressing any opposition. The commission showed a large map of the existing conditions in the area. A USGS map of Milford was also available to help folks understand the location of the property relative to downtown. Rick Lacourse introduced members of NHATV and they each in turn explained their duties and gave an overview of the club, its history and activities. Rick then told the audience that the NH ATV Club would agree to 'adopt' the Mile Slip trails, plan and coordinate trail work and also apply for grants for any material needed [i.e. culverts, gravel, lumber for wetland crossings, information kiosk] only if there is sufficient support from the town in the form of volunteers. There was enough support at the meeting for the club to agree to proceed. More volunteers are needed not only for trail construction and repair but also to be trained for trail patrol.

The Commission has signed the permission form to allow the NH ATV Club to maintain and use specific trails. Once the state has processed the paper work and the town is covered for liability a few members of the club will go onto the property with a member of the commission and GPS units to locate and map the trails where ATVs will be allowed. The club will install signage, determine work needed and apply for grant money to do repairs next year. As soon as the signs are up, the trails will be open to the public. Riders need not belong to any club although it is desirable. Once the work has been identified and money received from the state, work days will be scheduled and volunteers notified. Some work may happen this year, in particular brush clearing and garbage clean up. Interested citizens may do one of 2 things, join the NH ATV Club and specifically mention Mile Slip, Milford or give your name and contact information to the Conservation Commission at 672-1070 or email the Commission's Office

Some of the information used to support the purchase of this 452 acres included a trail map used on the first public hike held on Nov. 14, 2004, property location map, cost comparison graph and photos.

Wilton[17]

The most recent projects of the Wilton Conservation Commission are:

- Acquisition of "The Frog Pond" parcel of land. Voted on at Town Meeting in March 2005 and acquisition completed this year. Includes upgrade to dam on the pond (ongoing), baseline

[16] Milford Conservation Commission Website, 2005
[17] Wilton Conservation Commission, 2005

documentation, gates, signs, etc. Work to be done includes trails and other passive recreation. Citizen input on the baseline documentation was very helpful.

- Natural Resources Inventory. We are working on a comprehensive NRI with a 2-year timeframe, to be completed for use in the next Master Plan update. This project also includes a lot of citizen work and input which is quite helpful.
- In March 2005 the Town voted a $1.5 million bond for purchasing conservation land. The Commission has been working with a developer on a parcel which would include a possible cluster type development and a large portion of the parcel would go into conservation. We are also looking at a couple of other parcels for possible acquisition.
- We are continuing to acquire trail rights by easement. We have been working with private citizens as well as the Wilton-Lyndeborough Winter Wanderers Snowmobile Club who are most helpful in assisting us with the trails.

B. River Corridors

Souhegan River Corridor[18]

The Souhegan River is the pathway that connects communities, provides year round recreation to swim, fish, paddle, walk and enjoy scenic views. The river adds to the quality of life to both residents and visitors. Anglers, paddlers, and others enjoying recreational opportunities along the shores of the Souhegan and its tributaries contribute to the economy each year. The river flows through several town centers and provides scenic vistas, recreation, a sense of history, and access opportunities.

The watershed that surrounds the Souhegan River covers 140,621 acres and includes all or a portion of the land in seventeen communities in New Hampshire and two in Massachusetts. A watershed is defined as the geographic area in which all water running the land drains to a given stream, lake, wetland, or other waterbody. For planning purposes the primary Souhegan Watershed communities are considered those with 50 percent or more land area within the boundaries of the watershed. These towns are Amherst, Bedford, Greenville, Lyndeborough, Merrimack, Milford, Mont Vernon, New Ipswich, Temple, and Wilton.

Managing water resources at a watershed scale has been identified as ecologically sound and practical. Monitoring and modeling studies indicate that pollutant loads are directly or indirectly related to land use and watershed imperviousness. For these reasons, managing activities in a watershed is critical to its future well-being. A watershed plan is a holistic framework which enables the application of management tools so that the water resources goals for the entire watershed are met.

The Souhegan River is seen as a community asset in all of the towns through which it flows. These Corridor Towns, New Ipswich, Greenville, Wilton, Milford, Amherst, and Merrimack take great pride in the River and all the opportunities it provides. The Souhegan Watershed Association has been actively involved in water quality monitoring, education, and outreach and recreation events. The Souhegan River Local Advisory Committee (SoRLAC), made up of representatives from each of the Corridor communities is involved in providing comments and recommendations to the New Hampshire Department of Environmental Services (NHDES) regarding permit requests for activities within the quarter mile corridor to the Souhegan River. The Souhegan River is covered by the NHDES Rivers Management and Protection Act and the NHDES Comprehensive Shoreland Protection Act. There is no doubt that the Souhegan River is viewed as both a significant community and state asset that deserves a high priority for protection by both the local communities and NHDES.

[18] Souhegan River Corridor Management Plan Executive Summary, NRPC 2005

Merrimack River Corridor[19]

The Merrimack River is the most significant surface water resource in the NRPC region. The shoreline of the river is remarkably undeveloped for an urban area, however development pressures are increasing. This growth may be attributed to development within the corridors of Routes 3 and 3A. Improved water quality has increased the river's desirability for development. There is public access to the river in all four communities. Merrimack seeks to increase its ownership of shorefront properties to provide additional public access, and a linked network of trails along the River. Hudson plans to increase public access to the river, by conducting a shoreline survey to identify existing and potential walking trails along the river, and boat access points. Litchfield's priority is to preserve the active agricultural lands along the river and to preserve the Town's character. Nashua would like to extend Greeley Park along the river and add additional athletic fields, picnic areas, and trails.

All four communities have experienced significant growth since the 1950s, and that trend is expected to continue into the future. Particularly threatened is the agricultural land and winter eagle roosting areas in mature trees along the river in Litchfield. The majority of the land on the undeveloped river frontage in Litchfield and Hudson is zoned industrial. This segment of the river was designated as a Community River under the New Hampshire Rivers Management and Protection Act on June 26, 1990.

There are a number of reasons as to why these properties are significant for protection. Many of these parcels augment existing conservation lands and/or are links in a planned greenway. There is also potential for active and passive recreational development. Parcel M-8 is important because it is the last large undeveloped tract in south Hudson with substantial environmental and recreational potential.

Threat from development is most imminent for the parcels in Litchfield and Hudson. Completion of the Circumferential Highway will provide direct access to the Everett Turnpike for both of these communities, potentially accelerating development pressure. In addition, much of the agricultural land in Litchfield is zoned for commercial/industrial use. The parcel in south Hudson, which is adjacent to an industrial park, is also zoned for industrial use. The parcel in Nashua is currently a hazardous waste remediation site. The Nashua site will take several more years to complete groundwater cleanup, but will be an attractive site for redevelopment in the future.

C. Multi-Community Open Space

Musquash Area[20]

This multi-community property was originally selected as a top local priority for Hudson because of the significance of the Musquash Brook watershed in terms of water resource and wildlife habitat protection. The area that has been designated for protection is relatively free of development and remains in a near natural condition. The watershed contains a vast network of beaver ponds and wetlands that provide significant and diverse wildlife habitat.

The New England Forestry Foundation owns protected property in both towns that abuts the property proposed for protection. The goal is to connect these existing conservation lands into a large, regional greenway, maintaining this relatively unfragmented wildlife habitat in its current undeveloped state. Another goal is to extend the protected area laterally, adding width to the long, narrow area that is currently protected. Extension of this protection to Hudson's second priority, the

[19] NRPC Regional Environmental Planning Program Report January, 2000
[20] NRPC Regional Environmental Planning Program Report January, 2000

Second Brook watershed (which also has some protection) would increase the value of this habitat even further.

With its proximity to Nashua and the Massachusetts border, this property in the southern part of Hudson faces increasing pressures for development. Large portions of Hudson's open space have been developed over the past decade. Much of the area within the Musquash Brook Watershed has escaped this development due to the existence of wetlands, steep slopes and ledge; however, increases in housing prices over the past few years have made development of these "marginal" properties more feasible.

The main focus of protection for the property is by acquisition in fee simple. Acquisition of these parcels would provide a permanent connection between the Nash-Hamblett property, the New England Forestry Foundation land, and other protected parcels in Pelham. Acquisition of conservation easements or development rights would be an acceptable means of protecting additional land within the watershed, since many of these properties do contain residences.

Recent plans to develop the lands adjacent to the North and East (Hawkview Ridge) of the Musquash area will severely curtail any hope of expanding the Musquash reserve. The Hudson Open Space Subcommittee is in the process of revising the list of priority parcels, based on recent and pending developments. This will be presented to the Board of Selectmen for approval prior to issue.[21]

Frog Pond[22]

Frog Pond: Photo Courtesy of Wilton CC

The Wilton Conservation Commission is actively partnering with the Milford Conservation Commission to acquire the land around Frog Pond. The property is located at the north-eastern section of Wilton and the north-western section of Milford. Wilton's portion of the property was recently purchased this year. The protected land around Frog Pond in Milford is being donated by way of an open space subdivision at no cost to the Commission.

The developer was required to leave 30% of the buildable land in open space. The conservation commission helped design the open space and asked for the land to be transferred to the town. Another option would have been a home owners association. Milford will own the half of the pond along with much of the fields and slopes to the south and land to the north connecting to the adjacent property. The Commission will consider this connection when designing the open space, should the adjacent property come with a subdivision plan.

As noted previously, the Wilton Commission intends to upgrade the dam on the pond (ongoing), gather baseline documentation, install gates and create signs. Work to be done includes trails and other passive recreation. The Commission noted that citizen input on the baseline documentation was very helpful.

The WCC and the MCC have walked the land and talked about management plans together. Although the property is not jointly owned it is a cooperative adventure. For example, the property entrance and dam are in Wilton. A new gate has been installed on their property and required safety work will also be conducted on the dam. The two groups would like to see the water level of the pond increased so as to improve the temperature of the water. This will be part of our joint plan. The two Conservation Commissions have met with the farmer who is mowing the field. WCC will have the same posted policies etc. Wilton has received a Fish & Game grant to create a softer edge to the field. This is designed to improve wildlife habit as well as remove bushes that are encroaching on the field.

[21] Hudson Conservation Commission, December 2005
[22] Wilton Conservation Commission, December 2005

V. AN OPEN SPACE STRATEGY FOR THE NASHUA REGION

A. Needs to be Addressed

The following statements were provided by representatives from the Conservation Commissions. They were asked to discuss the needs of their Commissions, whether it stems from improving relations with adjoining towns or more public participation. The statements represent neither the opinion of every Conservation Commission member nor the opinion of NRPC, but provide some of the more common concerns in the region regarding land protection.

Brookline CC:[23]

"As far as needs… we could always use additional funding sources. It would be helpful to have someone who could help us with public relations and creating a trails committee. We have attempted to get people to sign up to help out, but only get one or two. Also, it would be nice if all departments/boards/committees could understand why conservation is important."

Merrimack CC:[24]
"The Merrimack Conservation Commission would like to locate a land trust organization to assist in funding and to hold conservation easements within our town. Having a partner to work with would broaden our ability, our knowledge base and add a layer of long-term protection not currently available. In addition, past meetings of the town representatives have opened the doors for a regional understanding and strategy that we need to develop and activate. The educational opportunities, mutual understanding and information exchange meetings should be continued so that everyone involved can work together to preserve open spaces in the region."

Wilton CC:[25]
"More funding sources; technical help with conservation easements; help, training assistance (something along that line) in approaching landowners regarding conservation of land, potential sale to town, easements, etc.; reaching out to the public; blasting and mining are a problem in our town and some technical assistance in understanding the issues would be helpful."

Lyndeborough CC:[26]
"The biggest challenge for our Conservation Commission continues to be finding members who have enough time to meaningfully contribute. More specifically though, we need resources and guidelines for dealing with multi-town properties of interest and suggestions for alternatives to bond articles in towns that have no commercial tax base. It would be very interesting if NRPC found the resources to do a study of conservation measures within its' subject towns – things like wetland buffers, zoning related restrictions, land and feature protection measures, etc. A study of this nature can help bolster efforts in some cases though Lyndeborough continues to be relatively unique among the NRPC towns. Lastly, and perhaps most relevant, is that we need to be able to look beyond the limits of the NRPC in that we must address the towns bordering Lyndeborough as we plan.

The Lyndeborough Conservation Commission (LCC) has been working on several projects involving protection of areas adjacent to existing conservation lands when possible. Our primary focus has been on providing support and limited funding for expenses involved in protecting parcels. We

[23] Brookline Conservation Commission, 2005
[24] Merrimack Conservation Commission, 2005
[25] Wilton Conservation Commission, 2005
[26] Lyndeborough Conservation Commission, 2005

continue to discuss and focus on key groups of properties but do not promulgate this information in order to prevent bidding wars and the like. One of our larger challenges has been to coordinate protection activities with neighboring towns, which is made all the more challenging by the border town syndrome of the regional planning commissions.

The LCC has also supported the work of an Antioch intern this summer in doing a limited Natural Resource Inventory on a key land protection area. In addition, the LCC continues heavy involvement in support of DES in permitting and enforcement issues on a number of sites."

B. Planning Tools for Open Space Protection

There are a number of planning tools (regulatory and non-regulatory) available to municipalities, Conservation Commissions and other environmental organizations. A few of the tools listed in the ROSS may seem generalized, but they have been inserted due to their popularity and feasibility with New England towns. It is important for the reader to keep in mind that the following list is not a complete in any sense as the number of open space planning tools continues to grow in the United States and more importantly, New England. Conservation Commissions, local officials and other parties of interest should explore all of the alternatives as possibilities once other important factors are taken into consideration such as feasibility and public interest (or lack of therein).

Strategy: Continued Encouragement of Concentrated Public Infrastructure Investment in Developed Areas

One of the principle mechanisms that lead to sprawl and the untimely loss of open space is the public investment in facilities that are located away from existing urban centers. Examples of this are the development of new highway interchanges in rural areas, the premature and linear extension of sewer and water facilities along commercial highways, and the placement of public buildings such as schools, post offices and courthouses away from downtown areas. Such practices not only tend to encourage dependence on the automobile, but also attract additional development to "leapfrog" away from already developed areas. All levels of government have been "guilty" of such an action in the past.

Implementation

The NRPC will continue to make sure updated Master/Comprehensive Plans and Zoning & Subdivision Regulations focus on the concentration of municipal infrastructure. In 2000, Governor Shaheen's Executive Order 99-2 called a Council On Resources Development (CORD) to perform an inventory of State Agency actions which promote the "retention of our traditional communities and landscapes" as well as agency programs, regulations and granting programs which might be improved for this purpose.

Municipalities should strive to follow this example by reviewing zoning and subdivision regulations for language which may allow for costly development away from existing road and utility infrastructure.

Strategy: Local Open Space and Recreation Plan Implementation

Communities within the Nashua Region should all have current open space and recreation plans. These plans will allow communities to plan for their own open space.

Implementation

Educational materials and presentations regarding the importance of open space planning should be created and utilize when and where possible. The communities need to be encouraged to utilize all tools available to them.

Strategy: Encouragement of Private Sector Open Space Donations and Planning Assistance

Open space acquisition has occurred in New England with the help of private-public partnerships. There needs to be a continued interest in land donations from the private sector. Public-private partnerships should continue to be encouraged. In regards to continued donations, landowners should be notified of the benefits that come with land donations (i.e. reductions in a variety of federal, state and local taxes). The five most common methods of donation are fee simple, less than fee simple, donation with a reserved real estate, donation of an undivided interest in the land and donation by bequest.

Implementation

The Conservation Commissions and NRPC should continue to work with non-profit organizations and private sector groups to encourage land donations or conservation easements. The Society for the Protection of New Hampshire Forests provides details to options available for land owners (www.spnhf.org). Gifts of properties given to the Society are placed in permanent ownership and managed for multiple conservation benefits. Conservation easements are a popular method of land protection which gives the property owner the right to live on the land and manage it, sell it or pass it on to heirs. The easement would remain in effect forever. Rights to exercise more intensive uses such as residential, commercial development or mining are given up when the easement takes effect. The land owners should become aware of the options available to them through groups such as the Society and the Conservation Commissions and NRPC should work with these groups to provide assistance where possible with raising the awareness of these options.

Strategy: Creation of a Regional Open Space District

Open space could be preserved through a cooperative Regional Open Space District (ROSD) incorporated with various efforts of towns, counties and voters. Joint funding should be explored for towns which share multi-municipal open space as well as for the ROSD in general.

Implementation

NRPC could work with the Conservation Commissions and municipalities to develop the Regional Open Space District. NRPC could also work with the Conservation Commissions in attempting to solicit funds from state sources where available. Land grants and gifts should also be accepted in these Districts if possible. The Districts may employ the services of land conservation trusts in order to acquire open space. The Trust for Public Lands (TRL) recently presented alternative funding methods for open space acquisition at a Brookline Conservation Commission meeting. The NRPC and Conservation Commissions should further explore these alternatives and the possibility of their use in the Open Space District.

Strategy: Continued encouragement of inter-municipal cooperation in land protection

With a number of current River Corridor, watershed and regional studies being conducted, many towns are continuing to work outside of their municipal boundaries. It is vital that those municipalities with interests in land protection work together to accomplish those goals.

Implementation

As noted in the 2000 REPP Report and the LRPP update of the ROSS, multi-community parcels should be identified for acquisition and provide a focus for new inter-community relationships along with a regional sense of ownership. In formulating plans for future land protection efforts, municipalities should contact their neighboring towns, the NRPC as well as local Conservation Commissions.

Strategy: Promote Public Awareness of Land Protection

In order to garner local and regional support for protection efforts, citizens must realize the benefits of land protection. Public education is a key factor in the sound management and protection of natural resource acquisition and protection plans. Promoting public awareness about local and regional natural and historic resources, current efforts of the Conservation Commissions as well as the importance of sound resource management are very important for communities to actively participate.

Implementation

The NRPC and Conservation Commissions should work together to continue educational public meetings regarding the benefits of land protection and open space in our region. Related documents such as the ROSS should be made readily available to all residents of the region. Identify and develop strategic partnerships with the following: recreational, educational, health and environmental organizations as well as major landowners. It would be the intent with these relationships to encourage the efficient use of open space and educate the values they represent to our communities. NRPC could possibly work with the Conservation Commission Chairs to develop an Open Space section of the NRPC website which would provide continual updates of acquired parcels and major projects related to land protection.

VI. CONCLUSION

The Regional Open Space Strategy is a document which allows for the Conservation Commissions, Municipal Officials and other interested parties to assess not only what tools are currently being utilized for open space acquisition and protection in their town, but more importantly to assess new tools or strategies for approaching this important avenue of natural resources planning.

As noted previously in the introduction, the Nashua Region Open Space Strategy includes the following:

- A brief narrative of the environmental and development history of the Nashua Region.
- An analysis of current strategies to protect open space and the land that is both protected and unprotected.
- An overview of the current resource protection priorities in various communities and at a region-wide scale.
- Tools and strategies necessary to begin or continue protection of the parcels.

Research efforts from NRPC with assistance from members of the R2C2 and other Conservation Commissions have given a detailed image of how development pressures have, and will continue to place natural resources planning and more importantly, open space protection at the forefront of many different agendas. It has become apparent throughout the research process that there is a great interest from the Conservation Commissions to continue to acquire and protect specific parcels of regional and local importance utilizing whatever tools are available, albeit alternative sources of funding, education programs, etc. Many of the members have opportunities to discuss potential local priority parcels with local officials and the public at their regular Conservation Commission meetings. Not only do these public meetings allow the members to assess potential environmental issues with proposed developments, but give the opportunity to network with local officials and developers regarding open space protection interests and potential funding sources.

The NRPC realizes this is but one step of many needed in order to ensure that this document not only reaches its intended audience, but does not become a static document. Future updates of Local Resource Priorities Parcels as well as any new tools should be provided to the member communities on a regular basis. The Nashua Regional Planning Commission intends to utilize this document as a first step towards discussing existing experiences albeit positive or negative with acquisition strategies or tools as well as the possibility of incorporating new strategies or tools for acquisition or continued protection. Updates on the NRPC website of new land acquisitions, important Conservation Commission events, maps and tools should provide a starting point for continuing the efforts of public, private and municipal education and strategy implementation. Continued correspondence with interested parties of the ROSS and any comments received regarding the Strategies or the document as a whole will be noted for any future revisions.

The creation of the Regional Open Space Strategy has given the Nashua Regional Planning Commission an opportunity to not only evaluate the current status of natural resources, but more importantly to assess the possibilities of new tools and strategies for the Region. It is apparent that the regional and local natural resources provide a wealth economic and health benefits to our member communities and visitors. It is the hope of NRPC that this document can not only generate new ideas for possible strategies but lead to new partnerships between the Conservation Commissions, private interest groups, developers and municipal officials alike. A diverse group of dedicated individuals are needed in order to effectively utilize these tools and to continually address the wide spectrum of open space acquisition issues facing our region and towns today.

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VIII. APPENDICES

A. Planning Resources and Contact List

1. Agencies	Phone Numbers
New Hampshire Office of Energy and Planning (NH OEP)	271-2155
Nashua Regional Planning Commission (NRPC)	883-0366
NH Department of Environmental Services	271-3503
NH Fish and Game Department	271-3421
NH Department of Resources and Economic Development	271-2411
Natural Heritage Inventory	271-3623
Division of Forests and Lands	271-2214
Division of Parks and Recreation	271-3255
US Department of Environmental Protection:	
Region 1 New England Office	888-372-7341
US Department of Agriculture:	
Natural Resource Conservation Service	868-7581
US Department of the Interior:	
Bureau of Land Management	202-452-5125

2. Land Trusts	
American Farmlands Trust	202-331-7300
American Land Conservancy	415-912-3660
Ducks Unlimited	901-758-3825
Land Trust Alliance	202-638-4725
The Nature Conservancy	703-841-5300
Open Space Institute	212-629-3981
New England Forestry Foundation	978-952-6856
Amherst Land Trust	672-7043
Nichols-Smith Conservation Land Trust	465-6144
Souhegan Valley Land Trust	672-6016
Society for the Protection of New Hampshire Forests	224-9945

3. Websites

Sponsor	Website	Contents
Trust for Public Lands (TPL)	http://www.tpl.org/	Great resource for local conservation tools and success stories of land acquisition
Open Space Council	http://maps.openspacecouncil.org/Orgs/	Extensive contact list of land trusts, non-profit organizations and more.
Natural Resources Defense Council (NRDC)	www.nrdc.org/	Excellent site for articles and papers on national conservation issues.
Openlands Project	http://www.openlands.org	Information on planning for open space in your neighborhood.