

Introduction

Smart Growth Assessment

Smart Growth Assessment Matrix

Wildlife Habitat and Natural Resource
Assessment

Spatial Analysis

Summary of Recommendations

Resources for Communities

Coordinated Review of Land Use Planning Documents with respect to Wildlife Habitat, Natural Resources, and Smart Growth Principles: Alton, NH

Introduction

History

“Smart Growth” is a set of planning principles that guide communities toward mixed uses, greater development density in village centers, walkable, involved communities, and a working rural landscape with a healthy environment. The concept of Smart Growth has been around for many years, and in many ways is exemplified by the traditional New England village. In 2003 New Hampshire officially adopted eight Smart Growth Principles. Since 2006 the Lakes Region Planning Commission (LRPC) has been working with local planning boards throughout the region to conduct assessments of their planning documents with respect to these adopted Smart Growth Principles. From 2006 - 2008 these efforts by LRPC were funded through the NH Department of Environmental Resources, Resource and Environmental Protection Program (NH DES REPP).

Historically, New Hampshire has depended on natural resources to support its economy – from forest products to agriculture to tourism. These resources also provide important ecological services and contribute to our quality of life. Aquifers, productive soils, flood storage areas, productive forest lands, and high quality wildlife habitat are not distributed evenly across the landscape. As development affects increasing areas of New Hampshire land, it becomes increasingly important to identify and protect the natural resource values on which our economy and quality of life depend.

The N.H. Fish & Game Department completed the State’s first Wildlife Action Plan in 2005, with goals of restoring declining species and keeping common species common. Engaging municipalities in this effort is a critical component of the plan, since the vast majority of land use decisions are made at the local level. To that end, the Department contracted with the Audubon Society of New Hampshire (ASNH) and The Jordan Institute in 2007 to develop tools that would aid municipalities in efforts to protect important wildlife habitat and other natural resources. The process for reviewing land use planning documents with respect to wildlife habitat and natural resources is one of the products of that contract. The Jordan Institute has since focused their work on energy efficiency, and ASNH has continued to adapt and apply the review process for communities across the State.

LRPC and ASNH worked collaboratively with the town of Bristol in 2008, and the cities of Franklin and Laconia in 2009 to produce a “Coordinated Review of Land Use Planning Documents with respect to Wildlife Habitat, Natural Resources, and Smart Growth Principles,” with funding from NH DES REPP and the Samuel P. Pardoe Foundation. The Samuel P. Pardoe Foundation funded the entirety of reviews for the towns of Gilmanton in 2010-11, Sandwich in 2011-2012, and Ashland in 2012-2013, and is the sole funder for this Smart Growth, Natural Resources, and Wildlife Habitat review for the Town of Alton.

We believe that the smart growth and natural resource reviews complement each other and provide an efficient and effective road map for improving the municipal planning process. The two tables that immediately follow this introduction illustrate the relationships between

the smart growth principles and the habitat and natural resource topics addressed in this document.

Summary of Findings

Most of the statements and recommendations put forth in Alton's Master Plan are consistent with the Smart Growth Principles. The Zoning Ordinance permits a fairly wide variety of options for housing and home businesses; this is to be encouraged. It is recommended that the Planning Board develop a well-crafted Conservation Subdivision Ordinance which effectively clusters residences, protects open space, and offers incentives to developers to include features that enhance land protection, are cost-effective for the developer and the town, and can make housing more affordable for Alton residents. Addressing septage problems could reduce some environmental challenges and some of the limitations on development, especially in Alton Bay. We also encourage connections between Alton Village and Alton Bay both through zoning and infrastructure such as sidewalk connectivity.

Alton has implemented a number of policies to protect the Town's natural resources, including Aquifer Protection, Floodplain Protection, and Shoreland Protection overlay districts. Several recommendations from the Wildlife Habitat and Natural Resources review echo those from the Smart Growth Review, such as development of a Conservation Subdivision Ordinance, with such subdivisions permitted by right. We also recommend considering actions to protect agricultural lands and productive soils, either by easement or overlay district; addressing energy efficiency through design standards or ordinance; updating and strengthening provisions of the Aquifer Protection Overlay District; revising the outdoor lighting ordinance to address dark sky provisions; and adoption of ordinances addressing stormwater management and protection of steep slopes.

Document Description

This report is divided into several sections: the first two sections address Smart Growth in Alton, the next two sections address Wildlife Habitat and Natural Resources; Section 6 synthesizes recommendations from the two assessments, and the final section provides voluntary practices to protect wildlife habitat features and a supplementary list of resources. This section on the CD provides several additional resources, including "Firewise Construction: Design and Materials," "Firewise Landscaping in North Carolina," and sample conservation subdivision ordinances from Concord and Wolfeboro.

How to use this document

The intended use of this document is two-fold. Firstly, it should serve as reference for community leaders as they review and revise municipal planning documents with such questions as, "Are we working towards Smart Growth and doing the best we can to protect our natural resources?" and "Are our land use planning documents consistent with one another?" This should also be a "living document" - as policies are adopted and documents revised, changes should be noted in this binder.

This document is intended to be a resource, and contains references to additional resources and model ordinances. In particular, we refer frequently to *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*. This reference, published in 2008 by the NH Department of Environmental Services, NH Association of Regional Planning

Commissions, NH Office of Energy and Planning, and NH Municipal Association, is a critical reference for New Hampshire planning boards. We also strongly recommend use of *Integrated Landscaping: Following Nature's Lead* to advise developers on landscaping strategies.

We also provide links to pertinent information available on the worldwide web.

In the end, however, there is no substitute for direct assistance and advice. Alton is fortunate to have a large number of active Planning Board members with a range of experiences and talents. The town can also draw upon the Lakes Region Planning Commission for assistance in drafting changes to ordinances and regulations.

Habitat/Natural Resource Topic	Smart Growth Principle
Agriculture and Productive Soils	4. Working landscape
Energy Efficiency	1. Compact settlement patterns 5. Transportation choices and safety
Floodplains	6. Environmental quality
Forests and Forestry	4. Working landscape 6. Environmental quality
Green Infrastructure	4. Working landscape 6. Environmental quality
Groundwater	6. Environmental quality 8. Work with neighboring towns
Growth Management and Sprawl	1. Compact settlement patterns 2. Human scale of development 5. Transportation choices and safety
Impervious Surfaces	6. Environmental quality
Landscaping and Natural Vegetation	6. Environmental quality
Light Pollution	6. Environmental quality
Natural Hazards	6. Environmental quality 8. Work with neighboring towns
Shorelands, Surface Waters, and Wetlands	6. Environmental quality
Steep Slopes and Ridgelines	6. Environmental quality 8. Work with neighboring towns
Stormwater Management and Erosion Control	6. Environmental quality
Terrain Alteration	6. Environmental quality
Village District	1. Compact settlement patterns 2. Human scale of development 3. Mix of uses
Watersheds	6. Environmental quality 8. Work with neighboring towns
Wildlife Habitat	6. Environmental quality

Smart Growth Principle	Habitat/Natural Resource Topic
1. Compact settlement patterns	Energy Efficiency Growth Management and Sprawl Village District
2. Human scale of development	Growth Management and Sprawl Village District
3. Mix of uses	Village District
4. Working landscape	Agriculture and Productive Soils Forests and Forestry Green Infrastructure
5. Transportation choices and safety	Energy Efficiency Growth Management and Sprawl
6. Environmental quality	Stormwater Management and Erosion Control Floodplains Forests and Forestry Green Infrastructure Groundwater Impervious Surfaces Landscaping and Natural Vegetation Light Pollution Natural Hazards Shorelands, Surface Waters, and Wetlands Steep Slopes and Ridgelines Terrain Alteration Watersheds Wildlife Habitat
7. Community involvement	All
8. Work with neighboring towns	Groundwater Natural Hazards Steep Slopes and Ridgelines Watersheds

Smart Growth Assessment: Alton, NH

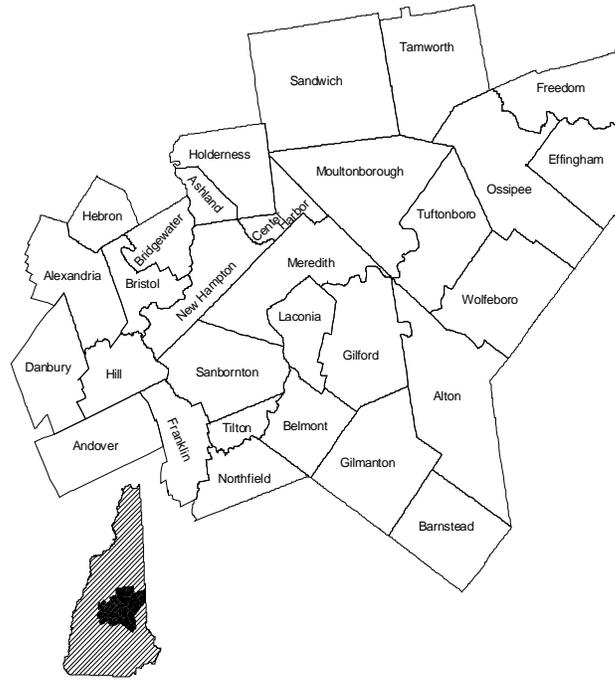


Alton Bandstand – Alton Bay, NH

February 2014

Prepared by the Lakes Region Planning Commission in consultation with the Alton Planning Board. Support for the project was provided by the Samuel P. Pardoe Foundation.

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I. What is Sprawl?

Since the 1980s, New Hampshire has had the fastest growing population rate of all the New England states¹. While this rate has decreased during the past decade to 6.5%, it still represents an additional 8,000 residents per year². Economically, this growth is often perceived as good for New Hampshire; it brings new jobs, new people, and new ideas. At the same time, however, it also brings new challenges.

Unmanaged, growth can become sprawl, which threatens to destroy the very qualities that make New Hampshire a great place to live.

“Sprawl is a pattern of development that results when:

- we use more and more land for various human activities;
- the places where we conduct activities are farther apart, and tend to be in homogeneous rather than mixed-use groupings; and
- we rely on automobiles to connect us to those places.

Development or change in land use contributes to sprawl when:



- it increases the need or demand for motor vehicle trip miles per housing unit in the community;
- it increases the per-person or per-unit amount of land space devoted to cars; and
- it otherwise increases the per-person or per-unit consumption or fractionalization of land areas that would otherwise be open space.”³

<http://www.mercola.com/ImageServer/Public/2005/september/9.16sprawl.jpg>

“Sprawling growth moves away from our town centers, leaving downtowns struggling. It spreads residential development across the rural landscape on large lots, eliminating the farms and woodlots of the working landscape - the pieces that are the very essence of rural character. The resulting pattern of development leaves islands of single uses widely spread apart from each other. In many areas the automobile becomes the only logical way of reaching these far-flung districts. Instead of the traditional mixed use patterns of development, where at least some residential development was directly accessible to downtowns that provided a variety of commercial, industrial, and institutional activities, we have residential subdivisions and office parks far outside of downtown. Instead of small-scale retail centers, we have stores and retail complexes hundreds of thousands of square feet in size, surrounded by acres of parking. In doing so, we are losing any traditional, distinctive New Hampshire character.”⁴

The NH Department of Environmental Services has studied the pattern of land use in New Hampshire and has this to say about its impact on the state’s environment, “Sprawl” describes a pattern of development

¹ NH Office of Energy and Planning webpage, <http://nh.gov/oep/programs/DataCenter/Population/PopulationEstimates.htm> (visited 11/12/10).

² US Census, <http://2010.census.gov/2010census/data/index.php> (visited 1/25/11).

³ NH Office of State Planning, *Annual Report to the General Court and the Governor on Growth Management*, December 2001 p.2.

⁴ NH Office of State Planning, *Report to Governor Shaheen on Sprawl*, December 1999. p. 1.

characterized by increasing amounts of developed land per person, scattered, low-density development, and the fragmentation and loss of open space. Sprawl and other poor development practices impose significant negative impacts on air and water quality, reduces the quantity and quality of wildlife habitat, and limit recreational opportunities for area residents.”⁵

Sprawl is expensive because it increases the cost of municipal services and thus taxes; it destroys the traditional land uses of forestry and agriculture; it makes us more dependent on the automobile, thus increasing traffic, congestion and air pollution; it increases water pollution through increased pavement; and it destroys the small town, rural character that is so important to many of New Hampshire’s communities.

This type of development occurs not because of the ill will of developers or the ineffectiveness of government. Developers respond to market forces within the rules established by state and municipal governments. At times, however, the rules are not coherent, consistent, or logically linked to the goals they are intended to realize. Sometimes rules designed for one desirable purpose have unintended, undesirable consequences. For example:

- Two acre zoning intended to preserve a rural setting results in the fragmentation of wildlife habitat;
- Land use regulations regulating odors intended to protect health in a residential area results in limits on farming that hastens the loss of large tracts of working open space.

Open space land is one of New Hampshire’s most valuable assets and important to the health, welfare, and economy of its citizen. Thoughtful, well-planned development that does not sprawl across the landscape can be good for the economy. It is for that reason that the New Hampshire Legislature adopted RSA 9-B defining smart growth and its outcomes and directing state agencies to encourage smart growth.

The term ‘smart growth’ is sometimes substituted for policies and techniques that prevent or counteract sprawl. The central focus of a Smart Growth Assessment is to provide a useful link between the Principles of Smart Growth and their application in municipal land use practice. This report is a step in providing that link for the town of Alton, NH. It is intended to be a guide as the town updates its ordinances and master plan.

⁵ Smart Growth webpage, NH Department of Environmental Services, <http://www.des.state.nh.us/wmb/was/smartgrowth.htm> (visited November 12, 2010).

II. Patterns in Alton

A. Population and Demographics

Alton is a gateway to the Lakes Region; it has a long history of both agriculture and tourism. Today it also serves as a home to many commuters as well as a crossroads for those travelling to other parts of the state. The geometry and landscape of the town have resulted in seven identifiable villages or areas of town. Its population has grown by more than fifty percent over the past two decades. Like most Lakes Region communities, Alton serves a sizable seasonal population, most noticeably in the summer.

In the 1990s the population of New Hampshire increased by 11% with an additional 7% increase in the 2000s. The Lakes Region population grew at 16% in the 1990s and 6% during the 2000s. During the 1990s Alton's rate of growth (37%) was more than twice and high as the region and three times the state's rate of growth (Table 1).⁶ Census 2010 records indicate that the rates of population growth in New Hampshire slowed in the next decade; with the state and region growing at 7% and 6% respectively. In 2010 Alton's population stood at 5,250 yielding a growth rate of 17% since the 2000 Census, again far higher than the state and region. Projections are that the town's population will continue to grow but at smaller and smaller rates of growth.

Table 1: Population Growth in Alton, NH

	Population				Projected Population		
	1980	1990	2000	2010	2020	2030	2040
Alton	2,440	3,286	4,502	5,250	5,943	6,244	6,378
Change	---	35%	37%	17%	13%	5%	2%

As a group Alton's residents are older than the rest of New Hampshire, having a higher median age (46.2 vs. 41.1) and a larger percentage of residents over 65 years old (17% vs. 13%) and a smaller proportion of residents under 25 years of age (27% vs. 31%). The median age in the Lakes Region is 45.1.

B. Housing

In the 1980s the number of housing units in Alton increased by 27% from 2,570 to 3,267. By 2000 Alton had 3,522 housing units, an increase of just less than 8% for the decade. In 2010 there were 4,281 housing units in Alton, an increase of more than 21%. The housing boom of the 1980s had a similar impact around the region and throughout the state with growth rates of 29% and 30%, respectively. In the 1990s the rate of growth in housing units in the Lakes Region and the state had also slowed to 6% and 8.6%, respectively.

Table 2: Housing Units in Alton, NH

	Housing Units			
	1980	1990	2000	2010
Alton	2,570	3,267	3,522	4,281
Change	---	27%	8%	21%

A large proportion of Alton's housing stock has always been seasonal but that has gradually been dropping (from 61% in 1980 to 46% in 2000) but remained above the Lakes Region average of 30% and more than

⁶ US Census Bureau, 2011 and Population Projections, NH Office of Energy and Planning 2013..

four times higher than the state average of 10%. In 2010 there was virtually the same number of vacant housing units (2,136) as there were occupied housing units (2,145).

In 2000 Alton’s housing was 89% single-family residential, higher than the Lakes Region average of 78%. Records of residential housing permits granted since 2000 indicate a similar style of development. Between 2000 and 2011 there were 684 single-family housing permits granted, with annual numbers ranging from 7 to 106. During the same time period 17 multi-family housing permits were granted and 16 manufactured housing permits. Note: The Planning Board indicated that about 185 of these approved plans have not yet been built.⁷

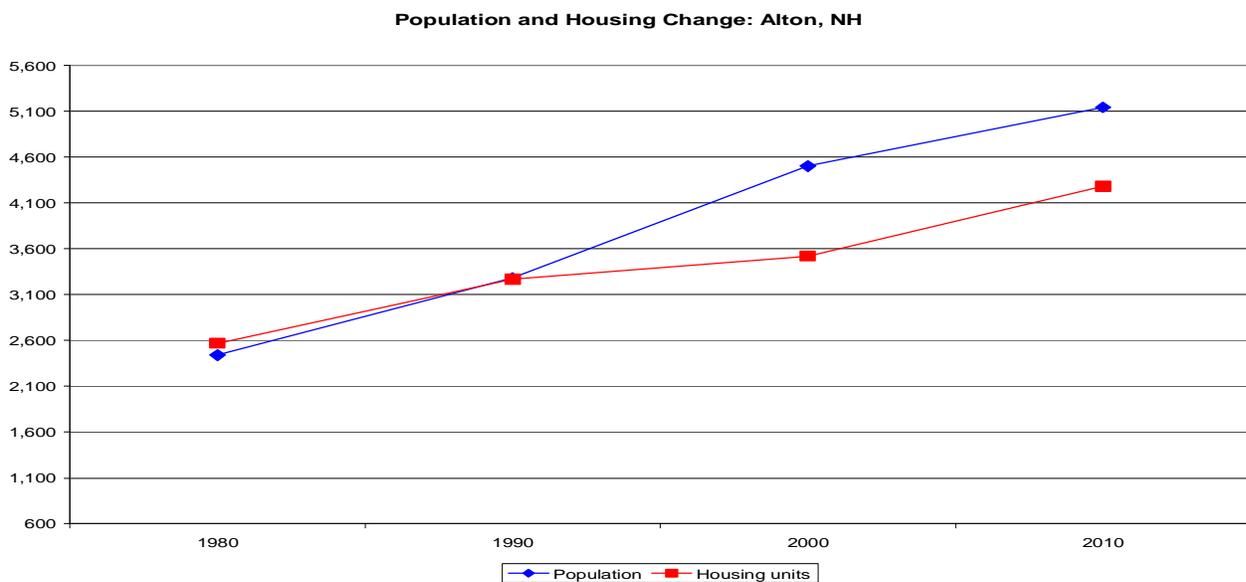
C. Summary

Over the past thirty years, the town of Alton has experienced growth in both population and housing but not necessarily at the same rate. Since 1980 Alton’s population has increased by 115% and the number of housing units has increased 67% over that same time period. In 1980 there were more housing units than there were residents in Alton, during the 1990s the population grew at a faster rate than housing, and since 2000 the two rates of growth have been similar.

The high number of housing units compared to residents reflects the seasonal nature of much of Alton’s housing. The lower rate growth in housing growth in the 1990s (compared with the rate of population growth) is likely attributable to a significant number of conversions of seasonal homes to year-round homes.

Table 3: Population Growth and Housing Growth in Alton, NH

Rate of Growth	1980-1990	1990-2000	2000-2010
Population	35%	37%	17%
All Housing Units	27%	8%	21%



⁷ *Development Activities in the Lakes Region: 2013 Annual Report*, Lakes Region Planning Commission.

III. What is Smart Growth?⁸

Change is occurring in New Hampshire - more people, more traffic, changing jobs, higher taxes, and various stresses on the environment. Given these pressures, it is understandable that taxpayers and communities often respond with a loud “STOP!” Growth management, tax caps, and budget cuts are all natural responses to situations that appear overwhelming.

Smart Growth says, “First, decide on your vision. Then explore the possible ways to achieve it.” In practical terms, Smart Growth consists of evaluating and shaping all new development and re-development initiatives according to the following eight principles:

1. Maintain traditional **compact settlement** patterns to efficiently use land, resources and infrastructure investments;
2. Foster the traditional character of New Hampshire downtowns, villages, and neighborhoods by encouraging a **human scale** of development that is comfortable for pedestrians and conducive to community life;
3. Incorporate a **mix of uses** to provide a variety of housing, employment, shopping, services and social opportunities for all members of the community;
4. Preserve New Hampshire’s **working landscape** by sustaining farm and forest land and other rural resource lands to maintain contiguous tracts of open land and to minimize land use conflicts;
5. Provide **choices and safety in transportation** to create livable, walkable communities that increase accessibility for people of all ages, whether on foot, bicycle, or in motor vehicles;
6. Protect **environmental quality** by minimizing impacts from human activities and planning for and maintaining natural areas that contribute to the health and quality of life of communities and people in New Hampshire;
7. **Involve the community** in planning and implementation to ensure that development [supports] and enhances the sense of place, traditions, goals, and values of the local community; and
8. Manage growth locally in the New Hampshire tradition, but **work with neighboring towns** to achieve common goals and address common problems more effectively.

IV. What is a Smart Growth Assessment?

A Smart Growth Assessment evaluates where the community stands regarding the Smart Growth Principles. To accomplish this, several steps must be taken:

- Trends in the municipality’s population and development are compiled along with projections for these patterns.
- The community reviews the eight NH Smart Growth Principles and identifies which of these they support.

⁸ Text in Sections I and II is adapted from *GrowSmart NH Tool-Kit Project*, 2002, NH Office of Energy and Planning and Planning Decisions, Inc.

- The most recent Master Plan goals and objectives are reviewed for statements that support the Smart Growth Principles,
- The current local land use ordinances and regulations are reviewed for consistency with each of the town-supported Smart Growth Principles.
- Patterns and practices in town are assessed as they pertain to Smart Growth.
- Suggestions are made regarding what steps the community might take to better implement the identified Smart Growth Principles.

V. Smart Growth in Alton

A. Alton's Smart Growth Principles

The Alton Planning Board reviewed the eight Principles of Smart Growth outlined by the NH Office of Energy and Planning that apply to New Hampshire communities and agreed that all of the principles apply to Alton.

B. Smart Growth Checklist and Alton's Planning Documents

The intent of this Smart Growth Assessment is to provide the town of Alton and especially the Alton Planning Board with tools for understanding how the town stands in its efforts to embrace and implement Smart Growth, identifying any impediments to implementation that might exist.

After discussion with the Alton Town Planner regarding the funding available for this work and the fact that the Planning Board will be working on revisions to the town's Zoning Ordinance in 2014, it was decided that this work should focus on the *Alton Master Plan (2007)* and the *Alton Zoning Ordinance (2013)*.

After reviewing the town's planning documents, a Smart Growth Matrix (Section 3) was developed and statements from the various documents were placed in appropriate sections. Statements in the Master Plan and Zoning Ordinance which support the principles of Smart Growth are in black text. Those statements which contradict the Principle are in red text. There are a number of statements in the Alton Master Plan that point to areas where changes could be made to get closer to the stated goals (which often support one or more Smart Growth principles); these statements are in blue text.

The section which immediately follows this text builds upon the information in the Smart Growth Matrix analyzing how closely the guiding documents of the town are aligned with each Principle. Where appropriate, the analysis addresses some of the impediments to implementing Smart Growth and makes suggestions for improvement. Such recommendations are referenced to the Master Plan (MP), Zoning Ordinance (ZO), or Actions and Policies (A&P).

Efforts were made to link each reference's individual goal, objective, or ordinance with one Principle; however, some repetition was necessary. Due to the interrelated nature of the Smart Growth statements, there are some statements that play an important role in shaping the town's ability to implement multiple Principles.

Our work with Alton has been unique; the master plan sets out a vision that is both bold and common sense, most of which support these Smart Growth Principles. In many instances, the master plan points to a current circumstance which runs contrary to the Smart Growth Principles and proposes a method for the community to change the circumstances. In these situations, we have used blue text to signify these statements.

General Topic Observations:

The Zoning Ordinance has a number of references to the "NHDES Water Supply and Pollution Control Division", especially regarding septic systems. Since these sections were written, NH DES has been restructured and these references should be updated.

Although not specifically reviewed, it was noted that the Subdivision and Site Plan Review Regulations do have the option for a Conceptual Consultation. It is recommended that this option be retained and promoted.

Smart Growth Principle 1:

Maintain traditional compact settlement patterns

Maintain traditional compact settlement patterns to efficiently use land, resources and infrastructure investments.

Description:

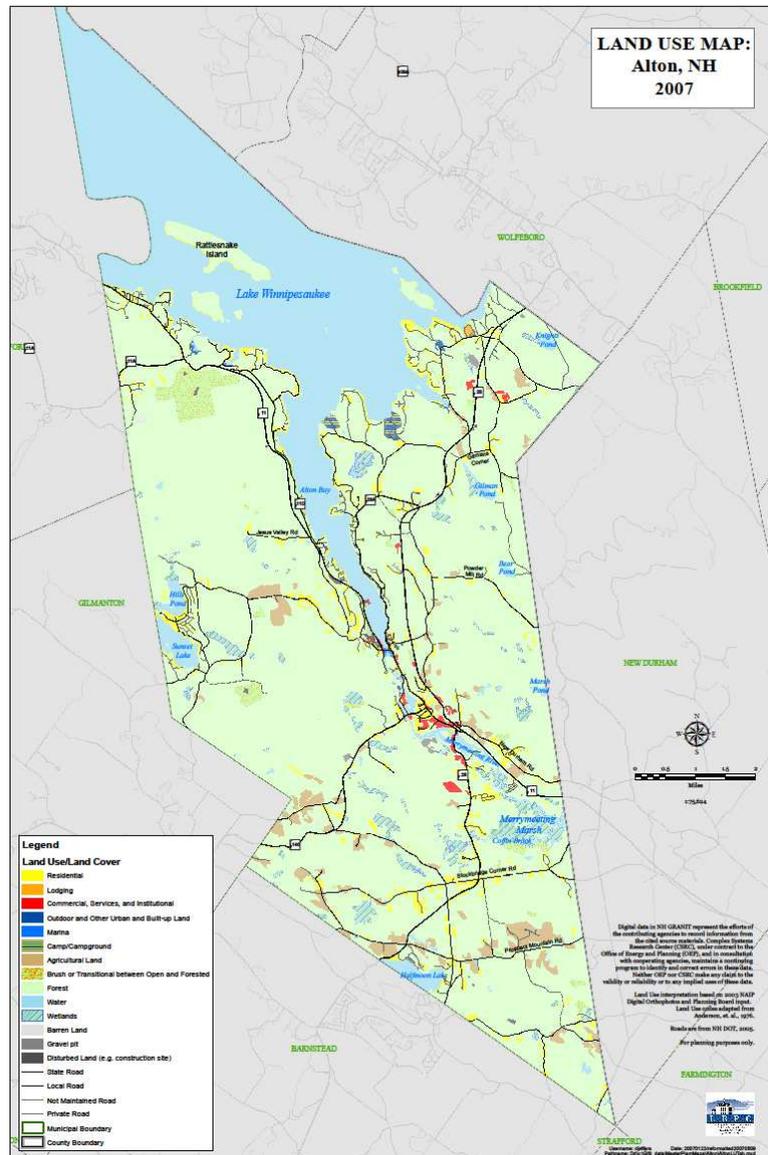
The town of Alton has two primary villages (Alton Village and Alton Bay) and five additional “village areas” (East Alton, West Alton, South Alton, Alton Shores, and the Lake Winnepesaukee Islands. Most of the municipal buildings and many commercial services are located in Alton Village. It is served by a small municipal water system. There are a number of residences along Main Street (NH Route 11) and the network of side streets. NH Route 28 and Merrymeeting River marsh limit the expansion of Alton Village.

Alton Bay is the focus of the tourist commercial services along with many seasonal homes. Due to the long history of this area a tourism area, many of the existing lots are substandard. As noted in the Alton Master Plan, “development constraints include Lake Winnepesaukee, the Merrymeeting River, steep slopes, and the lack of municipal sewer”.

With more than sixty square miles of land area, Alton is one of the largest communities in the Lakes Region. The northern third of the town is bisected by Lake Winnepesaukee. Alton sits at the crossroads of several major regional roadways, converging at or near Alton Village or Alton Bay. NH Route 11 runs up from the south and continues along the west side of town to Gilford and Laconia, NH Route 28 is a major east-west route connecting Wolfeboro, Ossipee, and NH Route 16 to the capital region in Concord. NH Route 140 runs east to Belmont, Tilton, and I-93.

As noted above, there is much residential development in Alton Village along with clusters of residences in the historic villages. There is also a great deal of lakefront residential development along with residential development scattered throughout town.

Town facilities include Police, Fire, and Highway Departments, the Elementary



School, the Transfer Station, the Library, and Town Offices. As Prospect Mountain High School is the public school for both Alton and Barnstead and is located along NH Route 28 near the shared town line. All are located in either Alton Village or Alton Bay. (there are secondary fire stations in East Alton and West Alton). The town does have a small community water system serving Alton Village; all other areas are on wells. All properties throughout Alton must utilize a septic system.

Analysis:

The Master Plan asserts that, “Alton desires to grow within the capabilities of the town’s resources in a manner that is in harmony with its natural environment and provision of municipal services” from the Vision Statement speaks very directly to this principle.

The Introduction to the Land Use section succinctly states the objective of planning, “With an effective land use planning program in place, Alton can take advantage of this growth by steering development to areas appropriate for the landscape and infrastructure.”

The Master Plan states that while the town has made good progress in improving public recreational opportunities for children, it does also identify some areas where further improvements could be made.

One of the goals of the Vision Statement is to, “determine whether current facilities and infrastructure are able to effectively serve the citizens”. Also, “The town should improve upon the existing technology infrastructure.”

In several locations in the Master Plan it is noted that there are significant physical constraints on development to Alton Village and Alton Bay, including Merrymeeting River and the surrounding hills.

The Master Plan also notes that historic development on substandard lots in Alton Bay has resulted in a relatively high density of development and poses challenges for waste disposal.

The Master Plan makes several calls for Conservation Design.

From Land Use section, “Alton Shores is located near the Alton-Gilmanton border, and refers to a 600-lot subdivision. The area consists entirely of single-family residences, most of which are vacation homes situated on or near Hills Pond and Sunset Lake. Many of the lots in the area are a quarter of an acre or less in size. These small lot sizes make development difficult due to septic requirements.”

From the Future Land Use section, “While many of the New England villages created prior to zoning have small setbacks, they also exhibit a higher population and building density in these centers, with very low density in the surrounding countryside. This is a common planning theme to be encouraged in Alton: greater development near the village centers and less dense development elsewhere. Such a development pattern preserves open space, slows “suburban sprawl”, and decreases the cost of delivering services such as highway maintenance, municipal water, and police and fire protection.”

From Future Land Use, “Alton Bay is heavily developed with residential uses, and some commercial uses. Yet, without a municipal sewer system, further development potential is severely limited. The town should investigate options for providing a more efficient means of accommodating sewage disposal.”

While population growth slowed during the past decade from the very high rates of the 1980s and 90s and is projected to grow at even slower rates in the future, the Planning Board is prudent to plan for modest population growth over the next twenty years. It is the Board's responsibility to plan how best to incorporate such growth into the town.

More and more small businesses, including many home-based businesses are depending upon reliable Internet access. Low density, scattered development leads to limited opportunities for high-speed internet connections.

The Master Plan indicates that effective use of land is important to the character of Alton, which strikes a balance between a recreational tourism-based economy and a rural character with a number of small villages.

There are a few statements in the Zoning Ordinance that directly address infrastructure limitations, such as, "Construction shall not exceed four units per building for all multifamily structures built after 2004. The Alton Planning Board's power to approve specifically includes the power to minimize impact on the town services by requiring phasing in appropriate circumstances (RSA 674:36)."

Create areas where medium density residential is encouraged, "This area is located within the potential range of municipal water, and is thus able to handle a higher density. Minimum lot sizes should be dictated by the ability of the land to sustain individual on-site septic systems. This area should also allow community septic systems and centralized development."

Recommendations:

Consider developing a Conservation Subdivision ordinance after consulting with similar communities and local developers. Some of the reasons that a community should consider adopting Conservation Design Subdivision are environmental (Principle 6) but many of them are financial. From the developer's perspective there are fewer road lengths to clear, build, and possibly maintain and shorter distances for utilities to run. From the town's perspective, there are less road miles to service, police, and potentially maintain. For the homeowners, property values tend to remain higher in these types of developments. It is recommended that Conservation Subdivision become the default practice on subdivisions of ten or more acres, with the option of a Conditional Use permit for conventional subdivision. It should include density bonuses as incentives to encourage additional open space or public use protections. (ZO)

Consider pressing for a reasonable, long-term solution to its septage problems (Alton Bay and Alton Shores), whether this involves finding a way to link in to the Winnepesaukee River Basin Project regional treatment facility, developing a local treatment facility (perhaps in conjunction with one or two neighboring communities), or some other solution to handle the current waste and potentially allow for some modest upgrades in Alton Bay. Allowing the integrity of the water quality of the lakes to be compromised is not in the long-term economic interests of Alton. (A&P)

The Future Land Use section of the Master Plan sets forth a vision of zoning that takes into account the town's historical land use and then guides future development based on local geography, resources, and effective infrastructure investments. Consider creating zones with varying density, especially around village area. (ZO)

Smart Growth Principle 2:

Foster a human scale of development

Foster the traditional character of New Hampshire downtowns, villages, and neighborhoods by encouraging a human scale of development that is comfortable for pedestrians and conducive to community life.

Description:

In addition to the primary two villages of Alton Village and Alton Bay, in the town acknowledges five other village areas, some are historic and some less of a specific character. Many of the commercial buildings are housed in former homes. From Master Plan, “The town is home to many working families who enjoy the diversity of its landscape, its rural character, and value the advantages of raising a family in a safe and friendly community.”

“The Village contains a variety of land uses, including retail shops, restaurants, single and multifamily dwellings, as well as some professional offices. Most of the businesses in the village are located on Main Street, and operate out of converted old colonial and cape houses. Residences located on Main Street and the side streets, are primarily populated with year-round residents. It is this “rural” mix of businesses and old homes that makes Alton Village a quaint neighborhood, and one on which to model other villages in the town.”

“The village of Gilman’s Corner is an excellent example of the “village concept” that will be discussed in the Future Land Use section of this chapter.”

Analysis:

From the Master Plan Vision Statement, “The town desires to plan for reasonable growth and yet preserve its ‘small town rural New England atmosphere’.”

Also from the Vision, “By having several zones that gradually grade from least rural (most fragmented lands) to most rural (unfragmented lands), the town can retain a gradation of uses that taper from most developed to least developed.”

Master Plan Land Use Goal, “To encourage new development to be physically and visually attractive.”

Master Plan Land Use Goal, “To properly plan for commercial development along State and Town roads in the village centers and outlying Village Districts.”

Master Plan “Currently, the Rural Zones are so permissive that there is no adequate way to achieve the goal of maintaining “the rural atmosphere” or “small town” feeling because almost everything is permitted in the Rural Zone.”

At several points the Master Plan encourage the development and use of design standards. Much of the focus is on maintaining a rural feel. Those elements of a design review that encourage a “human scale” of development are recommended.

Much is said in the Master Plan regarding the desire to have green spaces connecting various parts of town, especially Alton Village and Alton Bay.

“Community art and gathering places are keys to creating livable environments and a healthy economy. Alton should provide for the development of such features as community art, sidewalks, benches, bicycle paths, street tree plantings, stonewalls, and similar features that add to the community experience. In addition, the town of Alton should take the lead on this issue, and make the above mentioned features part of all new publicly funded projects.”

“Perhaps one of the most rural areas of Alton is East Alton, and in particular, Gilman’s Corner....These small setbacks can also be seen in Alton Village, where many of the buildings front right on the street. One of the features that make these places so attractive is their human scale. The pedestrian feels as though the building, sidewalk, road and trees are all part of the experience. The road itself does not dominate the surroundings. In the village areas of Alton, reducing the minimum setback requirement will reinforce the village feel....The Planning Board should consider establishing setback requirements that are tailored to the desired type of development for each area.”

By not having excessive setbacks (front setbacks 25’ in most cases), smaller scale projects near the front edge of the lot are possible throughout Alton. This can help the community retain a village atmosphere.

Recommendations:

At several points the Master Plan encourages the development and use of design standards. Much of the focus is on maintaining a rural feel. Those elements of a design review that encourage a “human scale” of development are recommended. There are multiple ways to accomplish this, whether through zoning, subdivision, or site plan review. Some elements are already incorporated into the Zoning Ordinance, such as the prohibition on franchise architecture. The zoning ordinance does require an Appearance Review Standards as part of the Subdivision and Site Plan Review process. (ZO, SUB, SPR)

Smart Growth Principle 3:

Incorporate a mix of uses

Incorporate a mix of uses to provide a variety of housing, employment, shopping, services and social opportunities for all members of the community.

Description:

Natural resources tourism plays a significant role in Alton's economy. It is a destination point for many. The Residential and Residential-Commercial Zones are concentrated in the Alton Village and Alton Bay areas and allow for a number of commercial services. Many of the residents' daily need could be met in the community; however, because of the scattered nature of residential development, a car is necessary to get to these services.

Analysis:

The Master Plan has numerous statements about modifying zoning to enhance business opportunities and concentrate some types of development at or near village areas.

The Master Plan calls for interconnection of Alton Village and Alton Bay.

The Master Plan urges the town to plan for home occupations and their possible expansion. Home Businesses are defined in the Zoning Ordinance and permitted by right if they meet certain criteria; this allows for some diversity in housing and employment.

While much of the housing in Alton is single family residential, multi-family housing is permitted in two of the zones. The Zoning Ordinance defines and permits accessory apartments. Continuing care retirement facilities and elderly housing developments along with various support facilities are defined and permitted in most zones. All of these create the possibility of some diversity in housing options.

Recommendations:

Consider enhancing the connectivity between the tourist-oriented Alton Bay and Alton Village, which tends to be the focus of local commercial activity and services either through expansion of sidewalks or bike paths. (A&P)

Consider establishing mixed use zones in East Alton, West Alton, and South Alton village areas. (ZO)

Consider amending zoning to encourage the siting of elderly housing and continuing care facilities near the village areas. (ZO)

Smart Growth Principle 4:

Preserve New Hampshire's working landscape

Preserve New Hampshire's working landscape by sustaining farm and forest land and other rural resource lands to maintain contiguous tracts of open land and to minimize land use conflicts.

Description:

Alton Master Plan Land Use Goal #1. "To maintain and enhance Alton's rural character in all future land use decisions."

Alton wishes to retain and encourage agricultural, forestry, and its rural landscape. A large portion of the town's landscape is either in conservation or Current Use (more than 50%). The number of residents who earn their living by farming is not large. The Planning Board noted that the town is home to one of the largest blueberry operations in the state. Alton does not have a Farmer's Markets; however, there are markets in several surrounding communities. The town does not have an Agricultural Commission.

Analysis:

The term "rural character" is used throughout the Alton Master Plan. Kudos to the Planning Board for recognizing that this term can have different meanings for different people and identifying some common themes associated with streets, setbacks, density & diversity of buildings, and commercial development.

One Master Plan objective is, "To preserve specified open land, which includes agriculture lands, forestry lands, scenic vistas, wetlands and other important open space areas."

The Master Plan recommends, "Eliminate most of the commercial uses from the new rural zones allowing for only traditional rural uses, such as single family dwellings, duplexes (two-family), agriculture (crops and livestock), forestry, and other similar uses."

The Zoning Ordinance does define and permit Agritourism.

Recommendations:

Consider establishing an Agricultural Commission under RSA 673-4b to recognize promote, and encourage agriculture in Alton. (A&P)

Consider establishing a local Farmer's Market in Alton. (A&P)

If current farmers are considering getting out of the business, consider working with these farmers and the US Department of Agriculture and Natural Resources Conservation Service to purchase development rights for these parcels to ensure that the land can remain part of a working farmstead. (A&P)

Smart Growth Principle 5:

Provide choices and safety in transportation

Provide safety and choices in transportation to create livable, walkable communities that increase accessibility for people of all ages, whether on foot, bicycle, or in motor vehicles.

Description:

State routes dominate Alton's landscape, with the intersection of NH Routes 11 and 28 meeting at the Alton Traffic Circle and running up along either side of Alton Bay. NH Route 11 runs south to Rochester and northwest to Gilford and Laconia. NH Route 28 connects to Barnstead and Concord to the southwest and Wolfeboro to the northeast. NH Route 140 runs west from Alton Village through Gilmanton and Belmont to I-93. NH Route 28A runs along the east side of Alton Bay. Most town facilities are located along these roadways, including the high school shared with Barnstead is located on NH Route 28. Outside of Alton Village most local roads do intersect (few dead ends) but have long distances between intersections. Many would be considered 'country roads'; due to the relatively low volume of traffic they are walkable but realistically, one must have a vehicle to get around most areas of Alton. There are sidewalks in parts of Alton Village and some of Alton Bay.

Analysis:

Goals in the Master Plan Vision:

"Maintain a high quality transportation system, which retains efficiency and rural character."

"Design roads to maintain the rural character of the town."

"Alton should develop road standards that are based on intended speed and usage in order to promote and maintain the rural character."

Master Plan Statements:

"Future green space corridor expansion specifically to promote less pedestrian and bicycle traffic on the highways should be considered to connect other schools and new recreation areas to the town centers."

"Smaller building setbacks (e.g. 25') from roads also contribute to lower traveling speeds and should be promoted in Alton Village and other village nodes."

"View the entire area on NH Route 11 from the Alton Circle north to the Bay along Main Street as well as side streets as the principal area for future business expansion in Alton ...encourages revitalization (pedestrian friendly design and municipal parking); ...and takes parking requirements out of zoning (and into Site Plan Regulations)." This also incorporates many of the ideas from Principle #3.

"New developments, both residential and commercial, should create side streets that focus access points to specific locations. Preferably, these access points should be on side, collector streets and not arterial roadways."

"The town should develop revised street standards that allow the type and size of streets for each subdivision to match the development needs and to reinforce the rural character of Alton."

“The business uses also extend onto the side streets and are mixed with residential development, often in the same building. This type of development allows a person to park in one place, and shop for several different goods at different stores, without getting back into his car and driving to a different store. As such, it is more efficient, and safer.”

In summarizing the Main Street Design Charrette, “The participants produced a Main Street Improvements document that provided design guidelines for future development as well as “do-able” projects. They listed forty-two ideas that they condensed to the eleven Design Criteria listed below...”, most of which support either Principle #3 or #5.

Recommendations:

The recently revised Site Plan Regulations and the Highway Policies should address the various concerns expressed in the Master Plan regarding variable street sizes. These should also include parking standards to ensure that streets and sidewalks are walkable. (SPR, A&P)

In concert with adopting more flexible road standards (Principle #5) to allow smaller roadways in situations where a more rural character is to be encouraged, also consider revising the Master Plan statement, “Building roads in a grid patterns is to be discouraged. While typical of urban environments a grid is not in keeping with Alton’s rural character.” In village areas, a gridded road system can be an effective means of keeping infrastructure costs down.

To enhance the development of village areas, the Planning Board should consider developing a road policy which permits the development of cross streets within village areas. This would enable modest development within and around the villages, reduce the need for more sprawling development along unbroken linear roadways and enhance walking and bicycling opportunities around the villages. (A&P)

Consider developing a long-range plan for sidewalks including identification and prioritization in gaps in linkages. Include this in the CIP and seek opportunities for additional funding, such as the NH DOT “Safe Routes to Schools” or Technical Enhancement programs. (A&P)

Smart Growth Principle 6:

Protect Environmental Quality

Protect environmental quality by minimizing impacts from human activities and planning for and maintaining natural areas that contribute to the health and quality of life of communities and people in New Hampshire.

Description:

Alton has a variety of natural resources; rolling hills and wide marshlands, hidden upland lakes, Alton Bay and the steep hillsides that form it. The town is rich in natural resources and scenic beauty. More than half of the land in Alton is under Current Use. Efforts are underway to conserve additional land in the Belknap Range as private landowners work with the Society for the Protection of New Hampshire's Forests.



Analysis:

Master Plan Vision:

“The residents of Alton value the lakes and the mountains as tremendous assets to its recreational and economic base as well as to the scenic beauty of the area.”

“Alton’s vision is to preserve open spaces, natural vistas and rural images.”

“Protect Alton’s natural resources, watersheds, wetlands, and viewsheds.”

MP Statements

“Create zoning incentives for developers to preserve or install rural features, such as stonewall lined fields, tree lined roadways, open space, and other similar features.”

“Respondents to the community survey ranked protection of water resources high on the list of priorities.”

“A step toward protecting these resources should involve adopting wetland buffers based on the size and functional value of the wetlands.”

“Surface water, including streams, should be afforded the same protection.”

“Careful planning and zoning should direct environmentally friendly uses in the aquifer areas. Additional overlay districts should be utilized to ensure the long-term viability of the resource.”

“Along with water resources, the townspeople felt that long-term protection of the Belknap Mountains, including Mount Major, should be a priority.”

“The town should amend the current zoning ordinance to restrict commercial excavation of gravel and other material over designated aquifer districts. Such intense use of land over the aquifer, and excavation into the aquifer can reduce the quality of water yielded from the resource, where sand and substrate that filters pollutants from recharge surface water have been reduced.”

“In areas with known aquifers, the town should restrict other potentially harmful uses including, but not limited to, car washes, boat storage, gas stations, automotive repair facilities, dry marinas and other industrial

uses, unless the applicant for the restricted use can prove that the said use has no adverse affect upon the aquifer.”

“Implementation of Conservation Design such as the concept developed by Randall Arendt (a type of cluster zoning) would marry the two concepts of responsible development and conservation of lands. Ideally, conserved lands from one subdivision to another would be stitched together to form potential green belts or wildlife habitat.”

“While Alton does have an Aquifer Overlay District, limiting certain activities ovetop of this sensitive resource, there are some other potentially hazardous activities that it does permit within the overlay. “

From the Zoning Ordinance

There are numerous statements regarding septic systems and the need for them to have “no adverse impacts”.

There is a limit of 10% impervious surfaces on common access shorefront lots.

Wetland buffer of 25’ was adopted in 2006.

Recommendations:

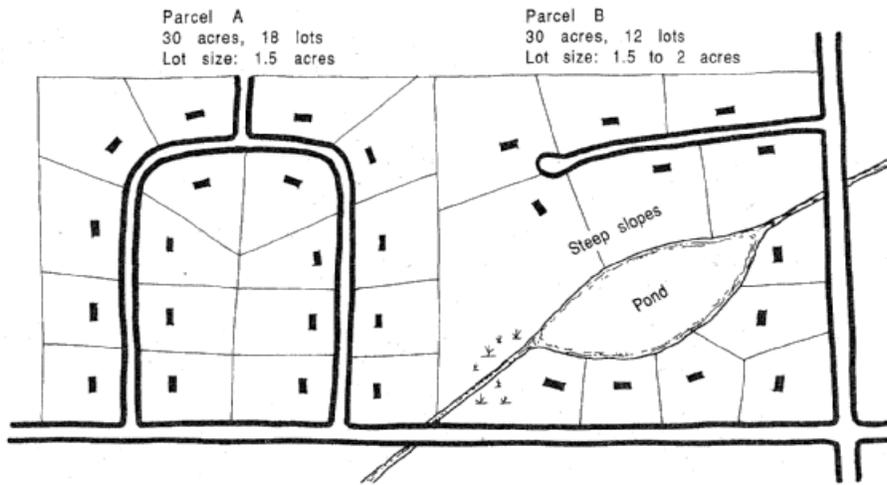
Consider designating some high quality wetlands as “prime wetlands” under RSA 482-A:15, providing additional protection to these important resources. (A&P)

Eliminate the portion of Section 444-B dealing with RSA 483-B. This Section reads “Within the Residential-Commercial Zone the Board of Adjustment may grant a special exception from Section 327 and setback requirements under RSA 483-B waiving a setback for any parcel so long as all conditions set forth under section 520 are met. (Amended 12 March 2013)”. While the Zoning Board may grant Special Exceptions to local ordinances, it cannot grant a Special Exception to State law. (ZO)

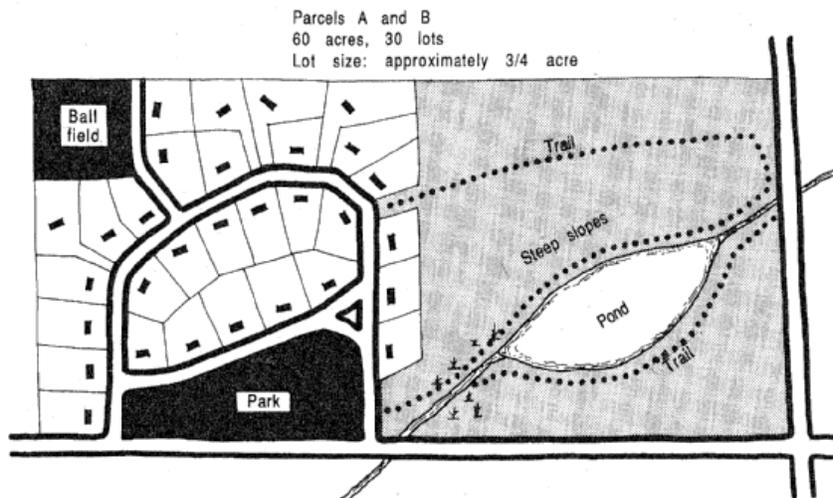
Consider updating and strengthening the Aquifer Protection Overlay District. See *Innovative Land Use Techniques* (2008), also Belmont, Effingham]. (ZO)

Consider requiring that lighting not only be limited to the premises but also be downward facing. (ZO)

The Planning Board should consider developing a Conservation Subdivision Ordinance and making it mandatory on parcels of a certain size (10 or 20 acres). With a Conservation Subdivision Ordinance fifty percent of the developable land would remain as open space and there would be incentives awarded to the developer for features such as contiguity with other open lands, larger percentages of open land, footpaths into the open land, and public access to footpaths. The *Innovative Land Use Guide* (2008) provides model language for this. Multi-unit dwellings should be permitted in this type of development. If an applicant wishes to utilize ‘conventional subdivision’, then a Conditional Use Permit would be needed. (ZO)



Example of Conventional Subdivision



Same area as a Conservation Subdivision

Smart Growth Principle 7:

Involve the community

Involve the community in planning and implementation to ensure that development retains and enhances the sense of place, traditions, goals, and values of the local community.

Description:

The Alton Planning Board meetings are open to the public; their schedule and minutes are available at the town's website. Since the development of Alton's first Master Plan in 1965, the plan has been updated half a dozen times with public input through surveys, community forums, and a charrette.

Analysis:

MP Vision Principle: Alton needs to develop new ways to support citizens or organizations within the town that undertake the preservation of their historic buildings, structures, and Alton's cultural interests.

Recommendations:

Consider posting the Planning Board agenda on the town website. (A&P)

Consider forming a Heritage Commission under RSA 673:4-a in order to carry out cultural and historical inventories and advise the planning board on such issues. (A&P)

Work with the Historic District Commission or Heritage Commission, if one is formed to explore and promote the resources available for restoration and other activities through the New Hampshire Division of Historical Resources. (A&P)

Smart Growth Principle 8:

Manage growth locally

Manage growth locally in the New Hampshire tradition, but work with neighboring towns to achieve common goals and address common problems more effectively.

Description:

Many of Alton's departments work with neighboring municipalities in an effort to offer services at the best available rate. Examples include police and fire mutual aid as well as the arrangements with Barnstead on Prospect Mountain School and Wolfeboro and Tuftonboro on the Lakes Region Household Hazardous Product Facility.

Analysis:

None.

Recommendations:

It is vital to maintain communication and involvement with neighboring communities on environmental issues and development proposals. It also benefits the town to work with neighboring communities on other issues that could have mutual benefits. (A&P)

The Planning Board and Conservation Commission should consider coordinating their land preservation and planning efforts with adjacent communities to ensure that such efforts are done effectively. (A&P)

Alton should continue to collaborate with surrounding towns on projects such as road construction and infrastructure needs. (A&P)

Should there be a development of regional impact proposed in the future, the Planning Board should notify surrounding communities as per RSA 36: 54-57. This notification will allow neighboring communities and the regional planning commission to engage in discussion of the proposal as abutters and will give them a voice in the development process. Consider adding this to the Subdivision and Site Plan Review Checklists. (A&P)

Smart Growth Assessment Matrix: Alton, NH

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Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
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Principle 1: Maintain traditional compact settlement patterns to efficiently use land, resources and infrastructure investments.

1	Vision: A. Vision Statement	Alton desires to grow within the capabilities of the town's resources in a manner that is in harmony with its natural environment and provision of municipal services.	Vision: A. Vision Statement	[Geography] The hills and the Merrymeeting River that confine the area between Alton Bay and Alton Village severely restrict the area to be developed and force development to be located along the existing roads.	320 B. 5.	The replacement of a nonconforming structure voluntarily removed shall be relocated, to the extent feasible, to reduce the nonconforming aspect of the structure.
1	Vision: B. Implementation Goal 1 Principle	We should consider new regulations that encourage open space subdivisions such as Conservation Design Subdivisions for residential neighborhoods; a type of cluster zoning that could be incorporated as an overlay district for these refined rural zones.	Vision: B. Goal 3 Principle	determine whether current facilities and infrastructure are able to effectively serve the citizens.	329. B	Construction shall not exceed four units per building for all multifamily structures built after 2004. The Alton Planning Board's power to approve specifically includes the power to minimize impact on the town services by requiring phasing in appropriate circumstances (RSA 674:36).
1	Vision: B. Goal 4	As the community grows, issues of septic and sewage need to be addressed carefully in the Village and Bay area with periodic review.	Vision: B. Goal 3 Principle	The town should improve upon the existing technology infrastructure		
1	Vision: B. Goal 5	Alton should continue to expand its recreational facilities and programs in a cost efficient manner	Vision: B. Goal 5 Principle	The town of Alton has made significant improvements to its public recreational areas to increase recreational opportunities for children.		
1			Vision: B. Goal 5 Principle	Although several upgrades have been made over the last 15 years, there is a need for additional outdoor recreational space. ...The town needs to increase its athletic field space to support current youth and adult athletic programs and anticipated growth.		
1			Vision: B. Goal 5 Principle	A committee for this purpose has been formed and is actively seeking lakefront property with adequate parking space.		
1			Vision: B. Goal 10 Principle	Building roads in a grid patterns is to be discouraged. While typical of urban environments a grid is not in keeping with Alton's rural character.		
1	Land Use: Intro	With an effective land use planning program in place, Alton can take advantage of this growth by steering development to areas appropriate for the landscape and infrastructure.	Land Use: Obj. 3.1	To consider specific areas that could be zoned to accommodate commercial and light industrial development.		
1			Land Use: Obj. 5.2	To promote designs for commercial developments that are in keeping with the rural character of the town.		
1			Land Use: B. Rec. Action 2b	Creation of provisions for innovative land use tools such as Conservation Design by Randall Arendt (a type of cluster zoning) and phasing for one or more of the above new zones. The Alton Zoning Ordinance should encourage well-designed and planned development where natural features, such as soils and topography are conducive to such development. Such developments should provide for open space, recreation, as well as visual buffers and buffers for preservation of valuable wetlands. [Could also be Principle 6.]		
1			Land Use: B. Rec. Action 10	A form of cluster design that promotes the protection of the best qualities of land proposed for subdivision.		

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Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
1			Land Use: Sup. Doc. A. Patterns	Development is centered around the village area of the town, with more dispersed growth in the rural outlying areas.		
1			Land Use: Sup. Doc. A. Patterns Alton Bay	The development pattern of the Bay is very dense considering that no municipal sewer is available. This pattern emerged from the combined influence of the waterfront, limited areas where slopes are acceptable for structures, and the dominance of the railroad in the Bay in the late nineteenth century. Many of the existing homes and structures located in the bay, though seasonal in nature, are constructed on substandard lots.		
1			Land Use: Sup. Doc. A. Patterns West Alton	The renovation of these homes generally located on or in close proximity to Lake Winnepesaukee, has led to community concern about the ability to adequately accommodate the increase in septage.		
1			Land Use: Sup. Doc. A. Patterns Alton Shores	Alton Shores is located near the Alton-Gilmanton border, and refers to a 600-lot subdivision. The area consists entirely of single-family residences, most of which are vacation homes situated on or near Hills Pond and Sunset Lake. Many of the lots in the area are a quarter of an acre or less in size. These small lot sizes make development difficult due to septic requirements. Narrow, substandard dirt roadways serve the vast majority of parcels in the Alton Shores area. Many of these roads have less than 50' rights of way, making improvements to meet Town Road Standards difficult.		
1			Land Use: Sup. Doc. B. Land Use in Alton, Residential	Most residential development is within close proximity to the main routes of town, including: NH Routes 11 and 11-D, NH Routes 28 and 28-A, NH Route 140, Alton Mountain Road, Chestnut Cove Road, and Robert's		
1			Land Use: B. LandFuture Land Use B. Rural Develop. , Density & Diversity	While many of the New England villages created prior to zoning have small setbacks, they also exhibit a higher population and building density in these centers, with very low density in the surrounding countryside. This is a common planning theme to be encouraged in Alton: greater development near the village centers and less dense development elsewhere. Such a development pattern preserves open space, slows "suburban sprawl", and decreases the cost of delivering services such as highway maintenance, municipal water, and police and fire protection.		
1			Land Use: Future Land Use C. FLU Districts, Resort Commercial	Alton Bay is heavily developed with residential uses, and some commercial uses. Yet, without a municipal sewer system, further development potential is severely limited. The town should investigate options for providing a more efficient means of accommodating sewage disposal.		
1			Land Use: Future Land Use C. FLU Districts, Residential Med. Density	This area is located within the potential range of municipal water, and is thus able to handle a higher density. Minimum lot sizes should be dictated by the ability of the land to sustain individual on-site septic systems. This area should also allow community septic systems and centralized development.		
1						

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Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
Principle 2: Foster the traditional character of New Hampshire downtowns, villages, and neighborhoods by encouraging a human scale of development that is comfortable for pedestrians and conducive to community life.						
2	Vision: A. Vision Statement	The town desires to plan for reasonable growth and yet preserve its “small town rural New England atmosphere.”	Vision: B. Goal 1	Currently, the Rural Zones are so permissive that there is no adequate way to achieve the goal of maintaining “the rural atmosphere” or “small town” feeling because almost everything is permitted in the Rural Zone.	319 B. 10.	Either the primary dwelling unit or the accessory apartment must be the residence of the owner of the property.
2	Vision: A. Vision Statement	The town is home to many working families who enjoy the diversity of its landscape, its rural character, and value the advantages of raising a family in a safe and friendly community.	Vision: B. Goal 5 Principle	The results of the 2005 community survey emphasized the need for additional green space for outdoor recreational activities.		
2	Vision: B. Goal 1	By having several zones that gradually grade from least rural (most fragmented lands) to most rural (unfragmented lands), the town can retain a gradation of uses that taper from most developed to least developed.	Vision: B. Goal 5 Principle	It is recommended that the town acquire lands contiguous to our existing parks for further expansion of the town’s “green space corridor.”	320 A. 7.	Expansion of Structures for Nonconforming uses beyond existing building dimensions. A structure which is part of a nonconforming use may not be expanded upwards, or above the existing roofline or downwards, or below the existing sill, without first obtaining a special exception from the Zoning Board of Adjustment.
2	Vision: B. Goal 1	It also envisions keeping construction/subdivision development set back, out of sight on characteristically rural roads. Typical roadside strip development will be avoided, while a more rural character of development will be encouraged.			328	HEIGHT RESTRICTIONS
2	Vision: B. Goal 1	Rural areas with more developed road access, should be designated as new zones with permitted uses that are more compatible in/or near village districts	Vision: B. Goal 7 Principle	Alton desires to promote the wise and adaptive reuse of historic buildings with well- maintained exterior appearances, in keeping with the Community Design Section of the Master Plan	335	A. Purpose: The Town finds it desirable to protect, enhance, and perpetuate areas of historical, cultural, architectural, artistic or geographic significance located within the Town of Alton; to protect and enhance the Town’s economic base by attracting tourists, visitors and residents; to stabilize and improve property values; to foster civic pride by protecting the Town’s unique cultural heritage by prohibiting the unnecessary destruction and defacement of its cultural assets; to preserve historic architectural design and integrity; to protect significant viewsheds and vistas, and to ensure the harmonious, orderly and efficient growth and development of the Town. B. Review Process: As part of its site review and subdivision process, the Planning Board shall review each proposal for conformance with the intent of this ordinance and the Master Plan. The Board shall take into account the location within the community, surrounding properties and proposed use of any proposed development in making its decision. C. Provisions: Franchise Architecture is considered excessive signage and is, therefore, not allowed.
2	Vision: B. Goal 1	We should consider new regulations that encourage open space subdivisions such as Conservation Design Subdivisions for residential neighborhoods;	Vision: B. Goal 10 Principle	Alton also encourages the creation of village greens as a typical rural feature.	340 Sign Regulations	It is the objective of this section to provide for the regulation and restriction of signs, which are confusing, distracting or impair visibility and to protect scenic views, residential and rural areas. It shall apply to all districts unless the requirements of a district are specifically stated.
2	Land Use: Goal 2	To encourage new development to be physically and visually attractive.	Vision: B. Goal 10 Principle	It is also noted that smaller, narrow roads encourage recreation, such as walking, cycling, ball playing (all types) and horseback riding.	350 c 6	A developed recreation area of no less than 1000 square feet per manufactured housing unit shall be set aside and maintained for the joint use of all occupants of the park.
2	Land Use: Goal 5	To properly plan for commercial development along State and Town roads in the village centers and outlying Village Districts.	Vision: B. Goal 12 Principle	Alton should develop design standards to guide commercial, residential, and non-profit endeavors in order to maintain the rural character.	603 G	[Very thorough Performance Design Standards for cell towers, including Historic Buildings and Scenic Landscapes.]

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Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
2			Land Use: Obj. 2.1	To strengthen the town's Subdivision and Site Plan Review Regulations for the purpose of encouraging attractive developments.		
2			Land Use: Obj. 2.2	To establish design review guidelines.		
2			Land Use: B. Rec. Action 2	The existing rural zone encompasses the largest amount of land area in the community, but allows for only homogeneous lot sizes and general uses, ranging from single family dwellings to light industrial development and commercial excavations.		
2			Land Use: B. Rec. Action 2a	Consider the combination of current rural and rural residential zones and then separate into multiple new zones to facilitate the creation of various use and density zones. Lot sizes would range from smaller sizes closer to Alton Village to larger sizes on the outskirts of the community.		
2			Land Use: B. Rec. Action 7	Community art and gathering places are keys to creating livable environments and a healthy economy. Alton should provide for the development of such features as community art, sidewalks, benches, bicycle paths, street tree plantings, stonewalls, and similar features that add to the community experience. In addition, the town of Alton should take the lead on this issue, and make the above mentioned features part of all new publicly funded projects.		
2			Land Use: B. Rec. Action 8	The Planning Board should promote the development of a Community Design chapter for the Master Plan. ... The new Community Design chapter should create a set of guidelines to inform residential and commercial developers, what features the Planning Board promotes in new subdivisions and site plans. These rural design guidelines should identify what features the community considers rural. These could include provisions for stonewall lined roadways, installation of fences, provisions for tree lined meadows/fields, traditional architecture (pitch roofs, shingle/clapboard siding, sill skirts, etc.) and other features.		
2			Land Use: Sup. Doc. Patterns, Alton Vill.	The Village contains a variety of land uses, including retail shops, restaurants, single and multifamily dwellings, as well as some professional offices. Most of the businesses in the village are located on Main Street, and operate out of converted old colonial and cape houses. Residences located on Main Street and the side streets, are primarily populated with year-round residents. It is this "rural" mix of businesses and old homes that makes Alton Village a quaint neighborhood, and one on which to model other villages in the town.		
2			Land Use: Sup. Doc. Patterns, E. Alton	The village of Gilman's Corner is an excellent example of the "village concept" that will be discussed in the Future Land Use section of this chapter.		

Smart Growth Assessment Matrix: Alton, NH

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2			Land Use: Future Land Use B. Rural Development, Setbacks	Perhaps one of the most rural areas of Alton is East Alton, and in particular, Gilman's Corner....These small setbacks can also be seen in Alton Village, where many of the buildings front right on the street. One of the features that make these places so attractive is their human scale. The pedestrian feels as though the building, sidewalk, road and trees are all part of the experience. The road itself does not dominate the surroundings. In the village areas of Alton, reducing the minimum setback requirement will reinforce the village feel....The Planning Board should consider establishing setback requirements that are tailored to the desired type of development for each area.		
2			Land Use: Future Land Use B. Rural Development, Comm. Develop.	"Strip development" is characterized by commercial establishments strung out in a linear fashion along major roads with several access points. To avoid the typical "strip development" woes, commercial designs should follow guidelines set forth in Appendix A [Should do a better job of stating WHY strip development is not desirable.]		
2			Land Use: Future Land Use C. FLU Districts, Alton Village	In addition, the town should consider implementation of the "Main Street" program's findings of "Streetscape Improvements Main Street "(October 2000) to encourage redevelopment of the area. The area will continue to face pressure from the Alton Traffic Circle, and must identify a niche for itself.		
2			Land Use: Future Land Use C. FLU Districts, Commercial	In the village areas, limitations should be placed on gross floor area of commercial endeavors so that they do not overwhelm the character of the Central Village and Alton Bay.		
2			Land Use: Future Land Use C. FLU Districts, Res. High Density	High density, which for purposes of this chapter is defined as large multi-family residential buildings on small lots to maximize the number of people per square mile, is not compatible with the concept of the rural ideas and character of Alton, nor is it supported by the town's current resource inventory, and is therefore discouraged.		
2						

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Principle 3: Incorporate a mix of uses to provide variety of housing, employment, shopping, services and social opportunities for all members of the community.

3	Vision: B. Goal 2	Encourage the development of tourism related facilities in areas which are best suited for such development.	Vision: B. Goal 2 Principle	Alton should include zoning standards that encourage development of tourist-related businesses, such as restaurants, small shops, recreational sporting goods rentals, and lodging establishments.	200 Definitions	Accessory Apartment – A separate, independent, accessory and subordinate dwelling unit either located on the same property as the primary single family dwelling or within the primary single family dwelling itself. Examples include an apartment over a garage, a basement apartment or an extension to the existing house.
3			Vision: B. Goal 2 Principle	the exclusionary lakeshore residential zoning that is now in place which only allows single-family homes to be built along the lakeshore.	200 Definitions	Airport – Means any area of land or water, whether constructed or not, which is a site for the landing and taking-off of aircraft or utilized or to be utilized publicly or privately as a point of arrival or departure by air.
3			Vision: B. Goal 2 Principle	The present zoning ordinances should be modified to allow for moderate expansion of these “grandfathered” establishments to help alleviate the present shortage of rooms in Alton.	200 Definitions	Continuing Care Retirement Communities (CCRC) – A single retirement community site or campus containing two or more of the following components: 1) Independent Living CCRC facilities, 2) Assisted Living CCRC facilities, 3) Skilled Nursing CCRC facilities, and 4) CCRC Support facilities.
3			Vision: B. Goal 5 Principle	Resort facilities could provide four-season recreational activities such as hiking, cross-country skiing and snowmobiling on the town’s existing trail network. They could also provide excellent views of the lake and surrounding mountains.	200 Definitions	Elderly Housing - Any elderly housing development under this section must be established and maintained in compliance with the Fair Housing Act, as amended, 42 U.S.C. Sec 3601 et seq. The Planning Board may require assurance of compliance with the Act by deed restriction or other instrument as condition of approval. “Such assurance may consist of a written plan submitted by the developer, which shall set forth: (1) the regulations under the Fair Housing Act where by a project may lawfully discriminate in favor of elderly residents, and (2) how the developer proposes to comply with such requirements, including covenants and other deed restrictions and other to-be-recorded agreements”. At least one resident of the household must be 62 years old or older.
3			Vision: B. Goal 2 Principle	Further, the permitted zoning uses of “Public Recreation” need to be changed to allow parks, ball fields and a town beach in Lakeshore Residential and Rural Residential Zones.	200 Definitions	Home Business – A Home Business is an accessory use of a dwelling unit for a high impact business use which results in a product or service. It is a business which is carried on by a resident or residents who shall have their residence in the dwelling unit, which is clearly subordinate to the residential use of the dwelling unit, and which complies with all of the criteria outlined in SECTION 333. Criteria for a Home Business. If the Home Business does not have an on-premise sign, does not have any non-resident employees, does not have any customer, client or employee traffic, does not have any outside operations, storage, or display of materials or products, then it is allowed by right with no minor site plan review required. Only Home Businesses exceeding these thresholds need a minor site plan review.

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3			Vision: B. Goal 6 Principle	Alton should draft zoning changes to allow businesses that promote indoor recreational activities.	319 A.	Purpose: The purpose and intent of allowing accessory apartments is to provide the opportunity and encouragement for the development of small rental housing units. These units will help improve Alton's inventory of affordable housing, without significantly altering the rural one-family residential character of the community. Furthermore, it is the purpose and intent of this provision to allow more efficient use of the Town's existing housing stock and to provide economic support for present resident families of limited income.
3	Land Use: Intro	A changing population, increased development, the desire for more diversified housing, and variations in the regional and local economy has had a direct impact on Alton's landscape.	Land Use: Obj. 3.3	To assess and plan for home occupations and their possible expansion.	319 A.	An accessory apartment shall have: a. no more than 1,500 sq. ft. of gross total floor area. [Generous amount of space]
3			Land Use: Obj. 4.1	To encourage economic activity in Alton Village and Alton Bay and to plan for the interconnection of the Village and the Bay.	329. A	Condominium Conversions of existing structures and uses as regulated under RSA 356-B:5, as amended, is permitted in any district and requires subdivision approval by the Planning Board.
3			Land Use: B Rec. Action 3	Consider the creation of a new zone with a mix of residential and commercial uses for the "outlying villages" of East Alton, West Alton and South Alton. These are envisioned as relatively small zones with commercial uses meant to serve neighborhoods such as: auto service stations; convenience stores; barber/beauty shops; laundry/dry cleaning; pharmacy; restaurant; etc.	330 A.	The purpose is to provide design standards to ensure development of Elderly Housing Facilities which protect: 1. General health and welfare 2. Alton's rural character 3. Character of existing neighborhoods As amended through March 12, 2013 23 4. Provide housing alternatives for the elderly [Also Principle #2]
3			Land Use: B Rec. Action 4	View the entire area on NH Route 11 from the Alton Circle north to the Bay along Main Street as well as side streets as the principal area for future business expansion in Alton while maintaining a mix of residential and commercial uses. Create a central business district that encourages mixed use development, encourages revitalization (pedestrian friendly design and municipal parking); encourages development of services/shops to serve seasonal and year round residents ...[See #5.]	330. C.	The following uses shall be permitted with elderly housing developments. 1. Elderly Housing Dwelling Units 2. Elderly Housing support facilities
3			Land Use: B Rec. Action 5	Alton should adopt land use practices that encourage visitors to enjoy the waterfront. The Resort Commercial area should allow for uses such as restaurants, marinas and associated activities.	331 A	The purpose is to provide design standards to ensure development of Continuing Care Retirement Community housing facilities, which protect: 1. General health and welfare 2. Alton's rural character 3. Character of existing neighborhoods 4. Provide housing alternatives for the seniors 5. Provide supported care and security for seniors or disabled persons [Also Principle #2]

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			Land Use: B. Land Use in Alton, Comm. & Indust. Uses	Commercial activity in Alton is limited, serving little more than the minimum needs of residents and visitors. Most commercial enterprises in Alton are located in the Village, at the traffic circle, or in the seasonal hub of Alton Bay.	330 E	Allowed support facilities shall also be permitted in elderly housing developments: a. Chapels b. General Store (servicing staff, residents, and their guests) c. Recreational facilities (i.e. card rooms, swimming pools, meeting rooms, video/media rooms, etc.) d. Central dining facilities (servicing staff, residents, and their guests only) e. Postal sub-station f. Libraries g. Medical sub-stations -i.e. pharmacies, circuit health care, circuit dental care, first aid, etc. (servicing residents only) h. Circuit veterinary care.
3			Land Use: B. Land Use in Alton, Comm. & Indust. Uses	Alton Village has a diverse mix of the more traditional downtown merchants and professionals, including law offices, medical offices, real estate offices, and banks. Other commercial examples include restaurants, grocery markets, and three hardware stores. Also included are municipal, state and federal buildings and services: Town Hall, the library, police department, fire station, state highway department facility, elementary school, and post office.	331 D	Continuing Care Retirement Communities shall be permitted uses in the Residential, Residential-Commercial, Residential Rural, and Rural Zones.
3			Land Use: Future Land Use C. FLU Districts Outlying Vil. Dist.	Village District areas are characterized as areas that might serve the purpose of a village or meeting place for sections of Alton, i.e., East Alton, West Alton, South Alton, and Alton Shores. These areas would be a mix of residential and limited commercial uses. The commercial uses would be limited to professional, retail, and services normally associated with meeting local needs.	331 E	Other services may include: a. Transportation to medical care, shopping b. Housekeeping and linen services c. Social and recreational activities 9. Allowed support facilities shall also be permitted in Continuing Care Retirement Community developments: [a. - h.]
3			Land Use: Future Land Use C. FLU Districts, Commercial	Assisted living facilities have been identified as appropriate large commercial uses in Alton.	333	[Home Business defined and permitted]
3					334	[Commercial Function Facility review criteria defined and permitted]
3					350	[Do permit manufactured housing that meet criteria.]
3					443 A	4. Multifamily Uses: 2 units for every 30,000 square feet of lot size with municipal water, or 2 units per acre of lot size without municipal water.
3						

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Principle 4: Preserve New Hampshire's working landscape by sustaining farm and forest land and other rural resource lands to maintain contiguous tracts of open land and to minimize land use conflicts.

4	Land Use: Goal 1	To maintain and enhance Alton's rural character in all future land use decisions.	Land Use Obj. 1.1	To preserve specified open land, which includes agriculture lands, forestry lands, scenic vistas, wetlands and other important open space areas.	200 Defintion	Agritourism – As defined by RSA 21:34-a VI, means attracting visitors to a working farm for the purpose of eating a meal, making overnight stays, enjoyment of the farm environment, education on farm operations, or active involvement in the activity of the farm which is ancillary to the farm operation.
4			Land Use Obj. 1.2	To establish measurable criteria that defines Alton's rural character.	200 Defintion	Energy Facility – A facility, which produces energy to include the following only: solar power, methane or hydropower as a small scale (under 100KW).
4			Land Use Obj. 1.3	To identify and encourage the use of appropriate regulatory and land use techniques designed to enhance the Town's rural character.	331 D	Continuing Care Retirement Communities shall be permitted uses in the Residential, Residential-Commercial, Residential Rural, and Rural Zones.
4			Land Use: B. Rec. Action 2c	Eliminate most of the commercial uses from the new rural zones allowing for only traditional rural uses, such as single family dwellings, duplexes (two-family), agriculture (crops and livestock), forestry, and other similar uses.		
4			Land Use: Future Land Use C. FLU Districts, Open Rural	The rural designation should apply to land that is fairly remote and unfragmented. At present, the Rural Zone comprises most of the land area in Alton and permits uses that are not compatible with the designation of "remote." Many commercial uses should be removed from the allowed uses.		

Principle 5: Provide choices and safety in transportation to create livable, walkable communities that increase accessibility for people of all ages, whether on foot, bicycle, or in motor vehicles.

5	Vision: B. Goal 9	Maintain a high quality transportation system, which retains efficiency and rural character.	Vision: B. Goal 5 Principle	Future green space corridor expansion specifically to promote less pedestrian and bicycle traffic on the highways should be considered to connect other schools and new recreation areas to the town centers. The need for revising the zoning permitted uses under "outdoor recreation" to include other types of outdoor recreation uses to meet this vision is reiterated here.	334 C & D	[Commercial Function Fac. criteria includes...]C. Development of an acceptable and safe plan for traffic access, traffic circulation and off-street parking. D. Development of an acceptable and safe plan for pedestrian access and circulation from the parking lot to the function facility.
5	Vision: B. Goal 10	Design roads to maintain the rural character of the town.	Vision: B. Goal 9 Principle	NH Route 140 provides an example of an arterial road where the characteristic look of a northern New England country road has been maintained.	355 G	All roads within a recreational campground or camping park shall be well-drained, graveled or paved, and maintained in good condition by the park owner or manager. One way roads shall be a minimum of 12 feet in width. All other roads shall have a minimum travel surface of 18 feet. Parking shall be prohibited on both sides of all roads within the park.
5	Vision: B. Goal 10 [supplement]	Alton should develop road standards that are based on intended speed and usage in order to promote and maintain the rural character.	Vision: B. Goal 9 Principle	Care must be taken to preserve the rural character of these roads [rural collectors] while accommodating the likely increases in volume.		
5			Vision: B. Goal 9 Principle	The town should look for opportunities to improve the quality of these roads [country lanes and streets] while preserving their rural characteristics.		
5			Vision: B. Goal 10 Principle	#1 Design Factor to be considered for new road construction is the desired speed for residential neighborhoods and parking lot access roads. Alton seeks to maintain lower speeds in these areas. It is recognized that roadway width influences speed more than any other factor. [Standards stated]		

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5			Vision: B. Goal 10 Principle	Smaller building setbacks (e.g. 25') from roads also contribute to lower traveling speeds and should be promoted in Alton Village and other village nodes.		
5			Vision: B. Goal 10 Principle	It is recognized that an overhanging tree canopy is a defining characteristic of a rural road. Therefore, Alton intends to have new roads, including large parking lot access roads, constructed in a manner that will preserve and/or promote the establishment of an overhanging tree canopy.		
5			Vision: B. Goal 10 Principle	Roadway construction which requires large-scale blasting and rock removal is found to be inconsistent with the intention of preserving and/or creating an overhanging tree canopy on roadways, and is discouraged unless mitigating measures are taken to replace the lost vegetation.		
5			Vision: B. Goal 10 Principle	The design of gentle, meandering roadways is to be encouraged for aesthetics, as well as a deterrent to excessive speeds.		
5	Land Use: Intro	Working from the goals, objectives, and recommendations of the Master Plan, the Planning Board and town will act by planning for the efficient movement of traffic..., while understanding and adjusting for changing populations and economic trends.	Land Use: Obj. 5.1	To manage traffic congestion on arterial roadways.		
5			Land Use: Rec. B. Action 4	View the entire area on NH Route 11 from the Alton Circle north to the Bay along Main Street as well as side streets as the principal area for future business expansion in Alton ...encourages revitalization (pedestrian friendly design and municipal parking); ...and takes parking requirements out of zoning (and into Site Plan Regulations). [See also #3.]		
5			Land Use: Rec. B. Action 9	New developments, both residential and commercial, should create side streets that focus access points to specific locations. Preferably, these access points should be on side, collector streets and not arterial roadways.		
5			Land Use: Future Land Use B. Rural Development, Streets	The town should develop revised street standards that allow the type and size of streets for each subdivision to match the development needs and to reinforce the rural character of Alton.		
5			Land Use: B. LandFuture Land Use B. Rural Develop., Comm. Develop.	The business uses also extend onto the side streets and are mixed with residential development, often in the same building. This type of development allows a person to park in one place, and shop for several different goods at different stores, without getting back into his car and driving to a different store. As such, it is more efficient, and safer.		

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5			Land Use: Future Land Use C. FLU Districts, Alton Village	<p>The participants produced a Main Street Improvements document that provided design guidelines for future development as well as “do-able” projects. They listed forty-two (42) ideas that they condensed to the eleven Design Criteria listed below.</p> <ul style="list-style-type: none"> • Provide a village entrance • Work with commercial property owners to set controls at driveway entrances • Setback parking, alter obstructions at side street intersections for improved site distance • Establish a uniform street cross section with parking where space permits • Establish a uniform street cross section without parking where space is limited • Accentuate crosswalks with patterned materials to be coordinated/compatible with sidewalks • Standardize street furnishings • Grind and set roadway cross sections to 2% • Work with utilities to remove/relocate overhead wires along Main Street in the downtown • Address underground utilities/drainage during the design process • Upgrade/provide handicap access, as necessary 		
5			Land Use: Future Land Use C. FLU Districts, Residential Med. Density	Alton Shores is located near the Alton-Gilmanon border, and refers to a 600-lot subdivision. The area consists entirely of single-family residences, most of which are vacation homes situated on or near Hills Pond and Sunset Lake. ... Narrow, substandard dirt roadways serve the vast majority of parcels in the Alton Shores area. Many of these roads have less than 50’ rights of way, making improvements to meet Town Road Standards difficult.		
5			Land Use: Future Land Use C. FLU Districts, Commercial	New development should create side streets that focus access points to specific locations.		

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Principle 6: Protect environmental quality by minimizing impacts from human activities and planning for and maintaining natural areas that contribute to the health and quality of life of communities and people in New Hampshire.

6	Vision: Vision Statement	The residents of Alton value the lakes and the mountains as tremendous assets to its recreational and economic base as well as to the scenic beauty of the area.	Land Use: B Rec. Action 2d	Create zoning incentives for developers to preserve or install rural features, such as stonewall lined fields, tree lined roadways, open space, and other similar features.	200 Definitions	Agriculture – As defined by NH RSA 21:34-a, with the exception of septage, as amended.
6	Vision: B. Goal 1	Alton's vision is to preserve open spaces, natural vistas and rural images.			319 B.9.	Pursuant to RSA 485-A:38, prior to converting to or occupying an accessory apartment that would increase the load on a sewage disposal system, the owner of the property shall submit an application for approval of the sewage disposal system to the NH Department of Environmental Services ... the application shall include either evidence that the existing system meets the state and local minimum standards for handling and treating the wastewater flows generated by the uses on the property, including the accessory apartment, or the design and construction of a new sewage disposal system that meets these standards.
6	Vision: B. Goal 1	The rural designation should apply to land that is unfragmented (has little or no improved road access) and has little access.	Vision: B. Goal 1	At present the Rural Zone comprises most of the landmass in Alton and permits uses that are incompatible with the existing area. In these rural areas, many types of commercial uses are inappropriate.	320 A. 7.	The Zoning Board of Adjustment shall not grant such a special exception unless it finds that the proposed expansion will not have an adverse impact on abutters or other property owners, and that any expansion of the use (such as number of bedrooms) will be accommodated by a water supply and sewage disposal system approved by the NHDES Water Supply and Pollution Control Division.
6	Vision: B. Goal 8	Protect Alton's natural resources, watersheds, wetlands, and viewsheds.	Vision: B. Goal 5 Principle	It is recommended that the town acquire lands contiguous to our existing parks for further expansion of the town's "green space corridor."	320 B. 2.	Expansion of nonconforming structure. a. Alteration. No nonconforming structure may be enlarged or altered in a way which increases nonconformity, except as provided for by this Ordinance.
6			Vision: B. Goal 8 Principle	Public planning forums held during the spring of 2005 found many residents concerned with water quality.	320 B 2c.	The ZBA shall not grant such a special exception unless it finds that the proposed expansion will not have an adverse impact on abutters or other property owners who are located within 500 feet of the subject property, and that any expansion of the use (such as number of bedrooms) will be accommodated by a water supply and sewage disposal system approved by the NHDES Water Supply and Pollution Control Division.

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6			Vision: B. Goal 8 Principle	Respondents to the community survey ranked protection of water resources high on the list of priorities.	326 B. 5.	Shorefront lots/parcels, which are intended for common access by the non-shoreland property owners within the development or subdivision which owns or has control over the common land, shall: A. Contain a minimum of one acre. B. Have a minimum shoreland frontage of 150 feet for the first ten residential units and an additional 10 feet for each additional unit. C. Have no structures other than toilet facilities, picnic shelters and/or recreational facilities. D. Swimming areas shall be separated from boating areas by ropes and appropriate marks, subject to the approval of the Safety Services Division of the NH Department of Safety. E. Off street parking shall be provided on the basis of 300 square feet for each residential unit 1/4 mile or more from the common area which has use of the area. G. Impervious cover for roof area, parking lots, access roads, sidewalks and any other similar cover over or on the parcel or lot shall not exceed 10% of the area of the parcel or lot.
6			Vision: B. Goal 8 Principle	A step toward protecting these resources should involve adopting wetland buffers based on the size and functional value of the wetlands.	327 A. 1.	Building and structures, excluding septic systems and fences shall be setback a minimum of: 1. 50' feet (30' on lots created before March 14, 1995), from the shore of any river, perennial stream, lake, pond, impoundment, excluding boathouses and wharves. Reference RSA 483:B
6			Vision: B. Goal 8 Principle	Surface water, including streams, should be afforded the same protection.	327 B. 1	For lots created after March 14, 2006, buildings, driveways and structures, excluding septic systems shall conform to the following Wetland Buffer Requirements: 1. A 25' foot natural vegetative buffer shall be maintained from all wetlands, >10,000 sq. ft. in size.
6			Vision: B. Goal 8 Principle	Careful planning and zoning should direct environmentally friendly uses in the aquifer areas. Additional overlay districts should be utilized to ensure the long-term viability of the resource.	327 B. 2	Relief from the 25' natural vegetative buffer may be granted by the planning board when the following circumstances exist: a. The natural vegetative buffer has been removed previously.
6			Vision: B. Goal 8 Principle	Along with water resources, the townspeople felt that long-term protection of the Belknap Mountains, including Mount Major, should be a priority.		
6			Vision: B. Goal 8 Principle	It is important that the town work to secure long-term easements and protection for this area [Belknap Range] , as it is a matching gem to Lake Winnepesaukee.	340 C.	[Consider a statement that limits the amount of light that shines upward.] Dark Skies
6			Vision: B. Goal 8 Principle	Every effort should be made to preserve the natural scenic beauty of Alton viewsheds.	350. C. 9	The mobile home Park shall have facilities for sewage disposal meeting all provisions of the State of New Hampshire Division of Public Health Services and of the New Hampshire Water Supply and Pollution Control Division and the Town of Alton Health Regulations.
6			Vision: B. Goal 8 Principle	Alton desires to protect its valuable wetlands and water resources by adopting zoning regulations that establish wetland buffers. Alton should develop zoning standards that buffer and protect our natural resources	355 F	A recreational campground or camping park shall have facilities for sewage disposal meeting all provisions of the applicable State Laws and the Town of Alton Health Regulations.

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6			Vision: B. Goal 10 Principle	#2 Design Factor to be considered is the environmental impact posed by roadway maintenance and runoff. To decrease potential negative environmental impacts, Alton seeks to have larger roads located away from surface waters including large brooks.		
6	Land Use: Intro	Working from the goals, objectives, and recommendations of the Master Plan, the Planning Board and town will act by planning for...of critical natural features, while understanding and adjusting for changing populations and economic trends.	Land Use: B. Rec. Action 6	The town should amend the current zoning ordinance to restrict commercial excavation of gravel and other material over designated aquifer districts. Such intense use of land over the aquifer, and excavation into the aquifer can reduce the quality of water yielded from the resource, where sand and substrate that filters pollutants from recharge surface water have been reduced.	412 F, 433 G, 443 D, 452 D, 463 E	All lots created after March 2007 must have a minimum buildable area made up of contiguous upland and slopes (not greater than 25% grade), of no less than 75% of the minimum lot requirement for the zone. [Consider 15%.]
6			Land Use: B. Rec. Action 6	In areas with known aquifers, the town should restrict other potentially harmful uses including, but not limited to, car washes, boat storage, gas stations, automotive repair facilities, dry marinas and other industrial uses, unless the applicant for the restricted use can prove that the said use has no adverse affect upon the aquifer.	444	[Section seems out of place here.]
6			Land Use: Sup. Doc. Patterns, East Alton	East Alton has extensive shore frontage on Lake Winnepesaukee. In recent years, several of the youth summer camps along the shore have been subdivided into exclusive residential developments. ...East Alton has very limited public access to the Lake; future conversion of youth camps to residences will likely compound this problem.	444 B	Structure setbacks. Within the Residential-Commercial Zone the Board of Adjustment may grant a special exception from Section 327 and setback requirements under RSA 483-B waiving a setback for any parcel so long as all conditions set forth under section 520 are met. (Amended 12 March 2013) [Local boards cannot grant Special Exception to State law.]
6			Land Use: Sup. Doc. Patterns, East Alton	Natural constraints in East Alton do not pose a significant barrier to development. Of greatest concern are the number of small brooks and wetlands that extend throughout the area.	601	[Reference SWQPA for Shoreland Protection District.]
6			Land Use: Sup. Doc. B. Land Use in Alton	Because of the numerous large tracts of land in the rural areas of the community, Current Use has been a driving factor in determining land use patterns in Alton. Of Alton's 41,123 acres of land (excluding lakes, ponds, and rivers) 23,911 acres, or 58.15% of the entire land area of Alton, is presently protected by Current Use assessment.	602	[Do have an Aquifer Protection Overlay District.]
6			Land Use: Future Land Use C. FLU Districts, Conservation	The town of Alton should work with the state of New Hampshire to acquire easements for access and protection to the Mt. Major and Straightback Mountain areas.	602	[Consider updating and strengthening the Aquifer Protection Overlay District. See Model Ordinance, Belmont, Effingham]
6			Land Use: Future Land Use C. FLU Districts, Conservation	Streams, aquifers, wetlands, and floodplains should be considered for conservation land in addition to the already identified conservation areas. These features, and their immediate surroundings, need protection from indiscriminate development.		
6			Land Use: Future Land Use C. FLU Districts, Conservation	Implementation of Conservation Design such as the concept developed by Randall Arendt (a type of cluster zoning) would marry the two concepts of responsible development and conservation of lands.		

Smart Growth Assessment Matrix: Alton, NH

Black font - Supports Smart Growth Principle Red - Contrary to the Principle Blue - Noted in document as something in need of change Green - Some support, Some contrary.

Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
6			Land Use: Future Land Use C. FLU Districts, Conservation	Ideally, conserved lands from one subdivision to another would be stitched together to form potential green belts or wildlife habitat.		
6			Land Use: Future Land Use C. FLU Districts, Conservation	In 1995, the town adopted an Aquifer Protection Overlay District to help ensure a safe drinking water supply. Development over the aquifers is allowed, but special care should be taken to prevent contamination. Waste discharge must be strictly controlled.		
6						

Principle 7: Involve the community in planning and implementation to ensure that development retains and enhances the sense of place, traditions, goals, and values of the local community.

7	Vision: Introduction	Alton's original Master Plan was developed in 1965 by the planning board, town officials, selectmen and an outside consulting firm. The report was an accumulation of monthly studies obtained through the cooperation of department heads and residents from each of the five village district areas in the town of Alton: Alton Village, Alton Bay, West Alton, East Alton and the islands. Since then, the town has held a charette, community forums, and distributed surveys in 1985, 1989, 1990, 1997, and again in 2005 in an effort to update the master plan.	Vision: B. Goal 5 Principle	The results of the 2005 community survey reiterated the community's desire for a new town beach.		
7	Vision: Purpose of the Plan	. This Master Plan is the cumulative expression of a series of citizens' surveys and community planning sessions.	Vision: B. Goal 6 Principle	Alton desires to attract businesses that promote indoor recreational activities. The survey comments suggest...		
7	Vision: Vision Statement	The purpose of this Vision Chapter is to foster practices that will promote the wishes of the citizens of Alton and to prepare the town for future growth.	Vision: B. Goal 7 Principle	In the 2005 survey the residents of Alton placed a high priority on promoting the restoration and protection of historic structures.		
7	Vision: B. Goal 7 Principle	Alton should support community and individual efforts to preserve its cultural and historic structures and features.	Vision: B. Goal 7 Principle	A healthy, successful community values its past as well as its future.		
7			Vision: B. Goal 7 Principle	Alton needs to develop new ways to support citizens or organizations within the town that undertake the preservation of their historic buildings, structures, and Alton's cultural interests.		
7	Land Use: Intro	The Future Land Use section of this chapter identifies what residents think Alton should become as we grow.	Land Use: Future Land Use B. Rural Development	Basically, what the people of Alton are describing is a community in which they know their neighbors, or at least who they are, and live in an area where there may be homes nearby, but there are also large expanses of pasture and forest. They are also describing property owner's ability to use their property as they wish within the guidelines of zoning, provided they don't interfere with their neighbors.		
7			Land Use: Future Land Use C. FLU Districts, Alton Village	The October 2000, "Streetscape Improvements, Main Street," findings grew out of a two day Design Charrette, which involved residents, consultants, and participants.		
7						

Smart Growth Assessment Matrix: Alton, NH

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Principle Number	Reference in Master Plan	Master Plan Goals and Objectives	Reference in Master Plan	Master Plan: Statements	Reference in Zoning Ordinance	Zoning Ordinances
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Principle 8: Manage growth locally in the New Hampshire tradition, but work with neighboring towns to achieve common goals and more effectively address common problems

8			Vision: Vision Statement	[Geography] Alton is limited by topography and geography; Lake Winnepesaukee not only separates East Alton from West Alton, but also separates the Town from communities to the north.		
8						

OTHER

Other			Land Use: B. Rec. Action 1	Draft Comprehensive Amendments to the Alton Zoning Ordinance that Implement Provisions of the Master Plan. The current zoning ordinance does not implement the goals of this Master Plan, nor the 1999 and 1990 Master Plans. In fact, some of the provisions are contrary to the Plan. A comprehensive re-write of the Zoning Ordinance will return consistency to the document, and provide for clearer guidance to applicants, the Planning Board, and the Zoning Board of Adjustment.	319 B. 11.	Abandonment occurs when the nonconforming use is replaced by another use, or when the nonconforming use has been discontinued for a period of eighteen months (18 months) with no proven intent on the part of the owner to continue its operation.
Other			Land Use: Future Land Use B. Rural Development	Although it is understood that there is no one definition of "rural", there are some common themes that Alton can promote in order to help maintain the "ruralness". When implemented through spending policies (Capital Improvements Program) and subdivision regulations and zoning ordinance, these themes will yield different results for individual parts of the community. [Implementation]	320 A. 5	Nothing herein shall prevent the restoration, reconstruction and/or replacement by the landowner within 3 years of a building containing a Legal Nonconforming Use...[generous timeframe]
Other						Update references to "NHDES Water Supply and Pollution Control Division.", this division has not existed since the 1990s.
Other					325	Are there minimums or maximums for Off-Street Parking?
Other					329. B.	Duplicate - Already defined in definitions.
Other					330.D	Duplicate - in Table of Uses
Other					413	Check references to Section 420.
Other					420	Any restrictions?
Other					602	Consider moving C. 1. to occur before the phrase, "The following uses are prohibited"
Other						

Review of Land Use Planning Documents with respect to Wildlife Habitat and Natural Resources: Alton, NH



Image provided by Gene Young



Image provided by Russell Wilder

February 2014

Prepared by the
Audubon Society of New Hampshire Conservation Department
In consultation with
the Alton Planning Board and the Alton Conservation Commission
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Samuel P. Pardoe Foundation

Analysis by Topic

The intent of this review is to assess the current level of protection for wildlife habitat and natural resources provided by the Town of Alton’s Master Plan and Zoning Ordinance and identify additional opportunities for regulatory protection. The review included the following:

- Master Plan (2007);
- Hazard Mitigation Plan (October 2010);
- Zoning Ordinance (as amended though March 9, 2010);
- Natural Resource Inventory (May 2002).

This chapter provides a comprehensive analysis of current provisions for protecting important natural resources and wildlife habitat in the Town’s Master Plan and Zoning Ordinance. Some topics are interrelated and provide alternate strategies for protecting a given resource or addressing a particular problem, such as sprawl. Each section includes a brief description of the topic and how it affects human quality of life and wildlife survival, a brief summary of pertinent provisions in current documents and recommendations for revisions if stronger protections are desired by the Town. Legal review of proposed revisions is always advisable.

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Agriculture and Productive Soils

Agriculture is an important component of New Hampshire's economy and environment, and makes vital contributions to the State's food supply. New Hampshire's glacial history has left the state with limited areas of productive soils suitable for agriculture. These soils are critical to the future of food production in New Hampshire. Prime agricultural soils and soils of statewide importance are included in the NH Natural Services Network. Agricultural lands are important to native wildlife by providing breeding habitat for grassland birds, migration stopover habitat for waterfowl, and wintering habitat for wild turkeys.

The New Hampshire Natural Services Network identifies 1,698 acres of productive soils in Alton. As of the 2002 Natural Resources Inventory, there were four remaining active farms in Alton, comprising 704 acres. As a relatively small component of Alton's landscape, agricultural land makes a unique contribution to the Town's rural character. Since the land area is so small, working with individual landowners to secure conservation easements may be a more appropriate strategy for long-term protection of agricultural lands than adopting an overlay district.

Current Provisions

Master Plan's Goal 1 is to "maintain and enhance Alton's rural character in all future land use decisions;" Objective 1.1 is to "preserve specified open land, which includes agriculture lands, forestry lands, scenic vistas, wetlands, and other important open space areas;" Objective 1.3 is the "identify and encourage the use of appropriate regulatory and land use techniques designed to enhance the Town's rural character." Zoning Ordinance allows farming in Rural and Residential Rural districts.

Recommendations

Master Plan:

- Consider addressing agriculture and productive soils in a Natural Resources Chapter. Include acreage of Prime Farmland Soils, acres of Farmland Soils of Statewide Importance, and acres of farmland soil of local importance.
- Consider recommending incentives for maintaining active agriculture.
- Consider recommending protection of agricultural lands and productive soils.

Zoning Ordinance:

- Consider amending the Purpose language to include protection of natural resources, including agricultural lands and productive soils.
- Consider adopting an agricultural overlay district ordinance to protect the Town's productive soils and active agricultural lands. "Agricultural Incentive Zoning" (Chapter 1.7) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for an Agricultural Conservation District Ordinance and examples of agricultural zoning in New Hampshire municipalities.

Energy Efficiency

Energy efficient design of neighborhoods and buildings has long-term economic benefits for residents and taxpayers as well as environmental benefits of resource conservation and reduced pollution. Energy efficiency benefits wildlife by decreasing the habitat loss and degradation associated with producing electricity and the global impacts of burning fossil fuels.

Current Provisions

Master Plan Goal 9 is to “maintain a high quality transportation system, which retains efficiency and rural character;” Goal 12 is to “develop community design standards used to evaluate proposed development;” Action 9 recommends that new developments create side streets and linking roadways rather than strip designs; Objective 3.2 is to “consider the use of electric wind generation facilities consistent with the protection of mountain viewsheds;” Action 10 recommends providing a cluster subdivision option.

Recommendations

Master Plan:

- Consider adding language to the Vision that specifically addresses energy efficiency, such as recommending that energy-efficiency considerations be a component of all decision-making processes and recommending investment in improvements to the energy efficiency of municipal buildings.
- Consider including an action to encourage landscaping designs that reduce heating and cooling costs.
- Consider including an Energy Chapter.
- Consider addressing energy efficiency in any future master plan chapters that address municipal facilities, transportation, and/or housing.

Zoning Ordinance:

- Consider adopting an article that specifically addresses energy efficient development. (“Energy Efficient Development” (Chapter 3.5) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for a zoning ordinance article addressing energy efficiency.

Other:

- Consider addressing energy efficiency in community design standards.

Floodplains

Floodplains are low-lying lands where water spreads out after overflowing the banks of streams and rivers during periods of snowmelt or heavy precipitation. In addition to providing critical storage areas for floodwaters, they provide the surface over which a river's meanders can shift over time. Development in floodplains may result in damage to private property and public investments such as roads and utilities, risks to public health and safety, and increased flooding downstream. Floodplains are included in the NH Natural Services Network as Flood Storage Areas. Floodplains provide important habitat for furbearing mammals, a number of amphibians, several species of turtles, and numerous breeding and migrating birds.

The New Hampshire Natural Services Network identifies 160,180 acres of flood storage area in Alton. The Town of Alton Natural Resource Inventory discusses wetlands within the Town but does not specifically address floodplains.

Current Provisions

Hazard Mitigation Plan ranks flooding as a moderate risk. Zoning Ordinance includes Floodplain Development Overlay Districts.

Recommendations

Master Plan:

- Consider addressing flood storage areas in a Natural Resources Chapter. Include acreage of 100-year floodplain within the Town.
- Consider encouraging conservation ownership or easements on floodplain areas.

Zoning Ordinance:

- Consider amending the Purpose language to include protection of natural resources, including floodplains.
- Consider revising Special Flood Hazard Areas (I.2.) to require certification that new construction and substantial improvements within the 100 year flood elevation do not reduce the flood-storage capacity of the floodplain.

Forests and Forestry

Forests provide the natural vegetation for most of New Hampshire's landscape. They play important roles in providing clean air and water, and opportunities for recreation; moderating climate; protecting watersheds; and contributing to aesthetic values and rural character. Forestry is a significant component of New Hampshire's economy, providing fuel, fiber, and solid wood products to state, regional, national, and international markets. Forests provide essential habitat for the majority of New Hampshire's wildlife species. Harvesting patterns contribute to the diversity of forest age classes, species compositions, and structures on the New Hampshire landscape, providing diverse habitats for native wildlife.

Approximately 71% of the land acres in Alton are forested. Alton has two Town Forests, which total 242 acres.

Current Provisions

Master Plan's Goal 1 is to "maintain and enhance Alton's rural character in all future land use decisions;" Objective 1.1 is to "preserve specified open land, which includes agriculture lands, forestry lands, scenic vistas, wetlands, and other important open space areas;" Objective 1.3 is the "identify and encourage the use of appropriate regulatory and land use techniques designed to enhance the Town's rural character." Hazard Mitigation Plan ranks wildfire as a moderate risk and provides some information from the Firewise website. Zoning Ordinance allows forestry all districts except the Recreation Service Zone.

Recommendations

Master Plan:

- Consider revising Master Plan Goal 1 to tie more directly to Vision Goal 8, such as "To maintain and enhance Alton's natural resources and rural character in all future land use decisions."
- Consider addressing forest resources in a Natural Resources chapter.
- Consider recommending acquisition of additional town forest land with Land Use Change Tax funds to enhance income stream from sustainable harvesting and local recreational opportunities.

Hazard Mitigation Plan:

- Consider including additional information about firewise landscaping, practices, and building materials in materials distributed to promote fire protection. "Firewise Landscaping in North Carolina" (http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf) ranks the flammability of many plant species that also occur in New Hampshire. "Firewise Construction: Design and Materials" (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) discusses design elements and building materials that improve a structure's fire resistance. Both of the above documents are included on the accompanying CD in the "Resources for Communities" section.
- Consider adopting an alternative subdivision ordinance as recommended in the Master Plan. See City of Concord, NH Cluster Development ordinance (provided in "Resources for

Analysis by Topic

Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.

Zoning Ordinance:

- Consider amending the Purpose language to include protection of natural resources, including large blocks of unfragmented forest.
- Consider establishing a Forest Conservation District, with a larger (e.g., 20- to 50- acre) minimum lot size, in areas of large unfragmented blocks. See the Lyme, NH Mountain and Forest Conservation District (www.lymenh.gov/Public_Documents/LymeNH_Regs/regs/ZoneOrd.doc) for ideas.
- Consider adopting *maximum* setback from the edge of any public right of way for buildings in the Residential Rural Zone to minimize forest fragmentation effects.
- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance and Town of Wolfeboro Zoning Ordinance Chapter 175 Part 1 Article XXIV Conservation Subdivision (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider permitting conservation subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit.

Groundwater

Groundwater includes water stored in stratified drift (i.e., sand and gravel) aquifers and in bedrock (i.e., deep or artesian) aquifers, and is the most common source of drinking water in New Hampshire. Potable groundwater is a critical resource for New Hampshire communities. High-yield aquifers are included in the NH Natural Services Network as Water Supply Lands. Groundwater is important to wildlife as the source of springs and seeps which provide water in upland areas and feed surface waters and wetlands.

The NH Natural Services Network identifies approximately 1,190 acres of water supply lands in Alton; the Town of Alton Natural Resource Inventory references one high-yield aquifer of 4,608 acres and eight medium-yield aquifers, ranging in size from 37 to 375 acres and totaling 1,954 acres.

Current Provisions

Master Plan Action 6 recommends amending current zoning ordinance to restrict commercial excavation and other potentially harmful uses. Zoning Ordinance includes Aquifer Protection Overlay District.

Recommendations

Master Plan:

- Consider addressing groundwater resources in a Natural Resources Chapter.
- Consider including a recommendation to work with adjacent towns to protect shared aquifers.

Zoning Ordinance:

- Consider amending the Purpose language (Article 1.1) to include protection of natural resources, including stratified drift aquifers.
- Consider reorganizing Article 602 Section C. RESTRICTIONS so that item 1 regarding adequate pervious surfaces is not included as a prohibition.
- Consider updating the Aquifer Protection Overlay District to: restrict commercial excavation and other potentially harmful uses as recommended in Action 6 of the Master Plan; add other strengthening provisions (see Belmont, NH Zoning Ordinance Article 7 Aquifer and Groundwater Protection District <http://www.belmontnh.org/docs/ords&apps/AGWPO.pdf>) for ideas; and incorporate the 2006 revisions to the NH Department of Environmental Services and Office of Energy and Planning Model Groundwater Protection Ordinance, available online at: des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-06-41.pdf and “Protection of Groundwater and Surface Water for Drinking Water Supply” (Chapter 2.5 of *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*.)

Growth Management and Sprawl

Growth management includes a variety of techniques and strategies to encourage orderly growth and development in areas appropriate for development, protect important natural resources, and discourage sprawl. Growth management helps to prevent deterioration of human quality of life and property values and loss and degradation of wildlife habitat that result from uncontrolled growth. Sprawl refers to dispersed, automobile-dependent development that segregates residential, commercial, industrial, and business uses. Sprawl contributes to air pollution and inefficient use of time and resources, which have negative impacts on human health, economic well-being, and quality of life. The inefficient use of land associated with sprawl results in excessive loss and degradation of wildlife habitat.

Current Provisions

Master Plan Action 1 recommends comprehensive re-write of Zoning Ordinance to implement Master Plan Goals; Action 2 recommends revising rural zoning districts; Actions 3 and 4 recommend creating mixed use districts in Alton Village, East Alton, West Alton, and South Alton; Action 9 recommends limiting access on arterial and collector roadways and avoiding strip development; Action 10 recommends providing for alternative subdivision development.

Recommendations

Master Plan:

None

Zoning Ordinance:

- Consider implementing Master Plan recommendations in actions 1, 2, 3, 4, 9, and 10. See “Urban Growth Boundary and Urban Service District” (Chapter 1.8) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider developing Land and Space Requirements to encourage infill development in village zones. See “Infill Development” (Chapter 1.6) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance and Town of Wolfeboro Zoning Ordinance Chapter 175 Part 1 Article XXIV Conservation Subdivision (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider permitting alternative subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit.

Impervious Surfaces

Impervious surfaces include buildings, exposed rock, concrete, and other materials through which water cannot move. Impervious surfaces increase run-off of precipitation, potentially leading to erosion, sedimentation, flooding, and reduced groundwater supplies which are detrimental to both humans and wildlife. Impervious surfaces also contribute to heat island effects and reduce air quality.

Current Provisions

Master Plan Action 10 recommends providing for alternative subdivision development. Zoning Ordinance Section 330 requires 30% open space on lots used for Elderly Housing; Aquifer Protection Overlay District requires adequate open areas and pervious surfaces to accommodate maximum feasible groundwater infiltration.

Recommendations

Master Plan:

- Consider recommending use of pervious pavement where appropriate.
- Consider recommending limits on impervious lot coverage.
- Consider recommending review and revision of local policies and regulations to minimize impervious surfaces.

Zoning Ordinance:

- Consider adopting an ordinance to address impervious surfaces. “Permanent (Post-construction) Stormwater Management” (Chapter 2.1) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for a zoning ordinance article that addresses impervious surfaces.
- Consider prohibiting impervious driveways and parking lots in the Lakeshore Residential and Recreation Service zones.
- Consider adopting maximum impervious lot coverage for each zoning district.

Landscaping and Natural Vegetation

Landscaping refers to visible, human-modified features of a plot of land, including vegetation, water features, shape of terrain, fences and other material objects. Landscaping contributes to the aesthetics of neighborhoods and communities, enhances property values, improves urban air quality, and can reduce heating and cooling costs. Natural vegetation includes the native trees, shrubs, wildflowers, grasses, ferns, and mosses that grow on a land parcel before it is cleared for development. Maintaining as much natural vegetation on a development site as practical prevents erosion, mediates microclimate, contributes to human quality of life and property values, and saves the time, cost, and risks of installing new plantings. Landscaping benefits wildlife by providing backyard habitat. Natural vegetation provides higher wildlife habitat value than new plantings.

Current Provisions

Master Plan Guiding Principles include intent for new road construction to preserve and/or promote establishment of overhanging tree canopy; Action 2 recommends incentives for developers to preserve or install tree-lined roadways. Hazard Mitigation Plan notes the value of providing fire safety information to year-round and seasonal residents and suggests requiring special considerations for landscaping in areas at high risk for wildfires, particularly forested areas with steep slopes and limited vehicular access; includes description of Firewise zones, which recommend landscaping with fire resistant species.

Recommendations

Master Plan:

- Consider recommending review and revision of local policies and regulations to minimize destruction of natural vegetation during construction activities.
- Consider recommending review and revision of local policies and regulations to encourage the use of native species in landscaping.
- Consider recommending review and revision of local policies and regulations to discourage the use of plants that require significant inputs of water and nutrients in landscaping.
- Consider recommending review and revision of local policies and regulations to encourage landscaping designs that reduce heating and cooling costs.

Zoning Ordinance:

- Consider adopting landscaping standards for current Lakeshore Residential, Recreation Service, Residential, and Residential Commercial zones, or for any new village districts.
- Consider adopting landscaping standards for areas vulnerable to wildland fire.

Light Pollution

Light pollution includes any adverse effects of artificial light, including sky glow, glare, light trespass, decreased night visibility and energy waste. Controlling light pollution conserves energy and resources, saves money, prevents public health and safety hazards and nuisances, and contributes to rural character. Controlling light pollution can avoid negative impacts of artificial light on wildlife, particularly on migratory birds.

Current Provisions

Zoning Ordinance requires shielding of illuminated signs.

Recommendations

Master Plan:

- Consider adopting a goal pertaining to dark sky preservation.

Zoning Ordinance:

- Consider adopting lighting performance standards for all zoning districts. See “Preserving Dark Skies” (Chapter 3.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* and the New England Light Pollution Advisory Group (NELPAG) website (www.icq.eps.harvard.edu/nelpag/nelpag.html) for ideas.

Natural Hazards

Natural hazards are dangers to people and property associated with natural phenomena such as geological and ecological processes and weather. New Hampshire's most common natural hazard is flooding. Forest fires are infrequent in the State, and are usually controlled before spreading very far. Landslides are most likely in mountainous areas, but can occur locally anywhere slopes exist.

Land use practices can mitigate or exacerbate the risks of natural hazards. Development that reduces infiltration and storage of precipitation can exacerbate downstream flooding. Scattered residential development in extensive forests both increases the risk of forest fires and makes fighting them more difficult and dangerous. On steep slopes, increased water in soils from precipitation or leach fields, soil vibration from construction or traffic, undercutting at the foot of slope, and increased weight from new buildings) above all can trigger slope failure.

Climate change may alter the frequency of these hazards if precipitation events become more sporadic and intense. Natural hazards can threaten human health and safety, damage public and private property, and degrade or destroy wildlife habitat.

Current Provisions

Hazard Mitigation Plan assesses overall risks of flooding and wildfire as moderate; notes the value of providing fire safety information to year-round and seasonal residents and suggests requiring special considerations for landscaping in areas at high risk for wildfires, particularly forested areas with steep slopes and limited vehicular access; includes description of Firewise zones, which recommend landscaping with fire resistant species. Zoning Ordinance includes a Floodplain Development Ordinance.

Recommendations

Hazard Mitigation Plan:

- Consider including areas most vulnerable to wildfire on a map of natural hazards in the Hazard Mitigation Plan. "Firewise Construction: Design and Materials" (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) provides guidelines for identifying high risk areas for wildland fire based on topographic position. (Included on CD.)
- Consider including land use regulations, including *maximum* setbacks and driveway lengths, as a mitigation strategy for wildland fires.
- Consider providing residents and developers with educational materials regarding firewise landscaping, practices, and building materials as a mitigation strategy for wildland fires. "Firewise Landscaping in North Carolina (http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf) ranks the flammability of many plant species that also occur in New Hampshire (provided on separate list). "Firewise Construction: Design and Materials" (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) discusses design elements and building materials that improve a structure's fire resistance. (Included on CD).

Analysis by Topic

- Consider including natural resource protection strategies, including sediment and erosion control, watershed management, and wetland protection as mitigation strategies for flooding.

Zoning Ordinance:

- Consider adopting an overlay district to address wildland fire hazard areas.
- Consider adopting *maximum* setback from the edge of any public right of way for buildings in the Rural Residential Zone (Articles 2.3a, c) to minimize forest fragmentation effects and reduce risks from wildland fires.

New Hampshire Trees and Shrubs with a Low Flammability Rating

Tall trees (>30 feet tall)

Red maple	<i>Acer rubrum</i>
Sugar maple	<i>Acer saccharum</i>
Sweet (Black) birch	<i>Betula lenta</i>
Pignut hickory	<i>Carya glabra</i>
Shagbark hickory	<i>Carya ovata</i>
White ash	<i>Fraxinus americana</i>
Red (Green) ash	<i>Fraxinus pennsylvanica</i>
Black cherry	<i>Prunus serotina</i>
White oak	<i>Quercus alba</i>
Scarlet oak	<i>Quercus coccinea</i>
Northern red oak	<i>Quercus rubra</i>
Black oak	<i>Quercus velutina</i>
Black locust	<i>Robinia pseudoacacia</i>
Black willow	<i>Salix nigra</i>
Sassafras	<i>Sassafras albidum</i>
Basswood	<i>Tilia americana</i>
American elm	<i>Ulmus americana</i>

Source: *Firewise Landscaping in North Carolina* NC State University.
(http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf)

New Hampshire Trees and Shrubs with a Low Flammability Rating

Small trees and shrubs (10-30 feet tall)

(Smooth) alder	<i>Alnus serrulata</i>
(Speckled alder)	<i>Alnus rugosa</i>
Juneberry (Canada shadbush)	<i>Amelanchier canadensis</i>
Allegheny serviceberry (Early shadbush)	<i>Amelanchier laevis</i>
Ironwood (American hornbeam)	<i>Carpinus caroliniana</i>
Flowering dogwood	<i>Cornus florida</i>
Hawthorn	<i>Crataegus spp.</i>
Witch hazel	<i>Hamamelis virginiana</i>
Winterberry	<i>Ilex verticillata</i>
Hop hornbeam (Ironwood)	<i>Ostrya virginiana</i>
Wild plum	<i>Prunus americana</i>
Fire cherry	<i>Prunus pensylvanica</i>
Winged sumac	<i>Rhus copallina</i>
Smooth sumac	<i>Rhus glabra</i>
Elderberry	<i>Sambucus canadensis</i>
Mountain ash	<i>Sorbus americana</i>

Source: *Firewise Landscaping in North Carolina* NC State University.
(http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf)

Analysis by Topic

New Hampshire Trees and Shrubs with a Low Flammability Rating

Small shrubs (<10 feet tall)

New Jersey tea	<i>Ceanothus americanus</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Hazelnut	<i>Corylus americana</i>
Blue huckleberry	<i>Gaylussacia frondosa</i>
Spicebush	<i>Lindera benzoin</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Lowbush blueberry	<i>Vaccinium pallidum</i>
Mapleleaf viburnum	<i>Viburnum acerifolium</i>
Arrowwood	<i>Viburnum dentatum</i>

Source: *Firewise Landscaping in North Carolina* NC State University.
(http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf)

Shorelands, Surface Waters, and Wetlands

Shorelands, surface waters, and wetlands comprise the visible parts of the land's hydrological network. These resources govern the quality and availability of water for human and livestock consumption, recreational activities, industrial uses, and wildlife habitat. Shorelands, also called riparian areas, are frequently used as travel corridors for wildlife moving across the landscape.

Alton encompasses approximately 12,650 acres of open water. Lakes and ponds include approximately 12,000 acres of Lake Winnepesaukee; Halfmoon and Sunset lakes; and Hills, Gilman, Knights, and Bear ponds. Named streams within Alton include the Merrimeeting River and Beaver, Coffin, Frohock, Halfmoon, Hurd, Minge, Watson, and West Alton brooks. A comprehensive wetland survey in 1984 identified more than 200 discrete wetlands within the Town, and subsequent evaluation rated 35 of them as worthy of prime wetland designation.

Current Provisions

Master Plan Vision Goal 4 states that septic and sewage need to be addressed carefully in Village and Bay areas as community grows; Vision Goal 8 includes protection of Alton's natural resources, watersheds, and wetlands, and cites a desire to establish wetland buffers; Zoning Ordinance includes requirements for commonly used water front parcels or lots; 50-ft. setback requirement for rivers, perennial streams, lakes, ponds, and impoundments; 25-ft. vegetative buffer from wetlands >10,000 sq. ft.; excludes wetlands from minimum land requirements.

Recommendations

Master Plan:

- Consider recommending collaboration in regional efforts to protect the Winnepesaukee watershed.
- Consider recommending adoption of an ordinance to address stormwater management
- Consider recommending development and adoption of a stormwater management manual.
- Consider recommending use of pervious pavement where appropriate.
- Consider recommending limits on impervious lot coverage.
- Consider recommending protection for wetlands and headwater streams to maintain downstream water quality.
- Consider recommending adoption of a steep slopes ordinance to reduce risks of erosion and siltation.

Zoning Ordinance:

- Consider amending the Purpose language to include protection of natural resources, including shorelands, wetlands, and surface waters.
- Consider including wetlands in 50-ft. setback requirement.
- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance and Town of Wolfeboro Zoning Ordinance Chapter 175 Part 1 Article XXIV Conservation Subdivision (provided in "Resources for Communities" section

Analysis by Topic

on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.

- Consider permitting conservation subdivisions by right in and Lakeshore Residential zone, and conventional, frontage-based subdivisions by Conditional Use Permit.

Summary of changes to Comprehensive Shoreland Protection Act of 1991

effective July 2011

- Comprehensive Shoreland Protection Act renamed Shoreland Water Quality Protection Act.
- Stumps and rocks can now be removed from within the waterfront buffer and replaced with pervious surfaces, new trees, or other woody vegetation.
- Points are now awarded for shrubs and natural ground cover in compensating for tree removal.
- The new tree and sapling scoring methodology is as follows:

Tree Diameter

1 to 3 inches	1 point
>3 to 6 inches	5 points
>6 to 12 inches	10 points
>12 to 24 inches	15 points
>24 inches	25 points

Shrubs and Ground Cover

4 sq ft of shrub area	1 point
50 sq ft of ground cover	1 point

- Using the new scoring methodology when trees are removed, 50 points must remain within each grid segment.
- “Unaltered state” now means vegetation allowed to grow without cutting, limbing, trimming, pruning, mowing, or other similar activities except as needed for plant health, normal maintenance, and renewal. The vegetation no longer needs to be native, and there is greater freedom to modify existing “unaltered areas.”
- Regardless of lot area, 25% of the area between 50 ft and 150 ft of the reference line must remain in an unaltered state.
- Examples of impervious surfaces now include roofs and, unless designed to effectively absorb and infiltrate water, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways.

Analysis by Topic

- There is no longer a limit on impervious area, as long as there is a stormwater management system in place designed and certified by a professional engineer and each grid segment meets at least the minimum required tree, sapling, shrub, and groundcover score.
- Providing additional plantings within deficient grid segments is now required only when landowners and developers exceed 30% impervious area. Projects that propose greater than 20% impervious area still must incorporate stormwater management systems.
- With a permit, is now permissible to convert existing decks into permanent living space on non-conforming structures.
- The former provision that allowed construction of a 12-ft deck on non-conforming structures was repealed. Thus, no new decks can be constructed and existing decks cannot be expanded within the waterfront buffer of non-conforming structures.
- There is a new Permit By Notification process (PBN) for projects that propose no more than 1,500 sq ft of total impact, of which no more than 900 sq ft is new impervious area.

A presentation illustrating these changes as well as the basic provisions of the Shoreland Water Quality Protection Act is available at:

<http://des.nh.gov/organization/divisions/water/wetlands/cspa/documents/changes-swqa.pdf>

Steep Slopes and Ridgelines

Steep slopes are often defined as grades equal to or exceeding 15%, i.e., areas where the elevation increases 15 feet in 100 feet of horizontal distance. Slopes with such high gradients are vulnerable to failure, when the pull of gravity on slope materials exceeds the forces of friction and cohesion that hold them in place. Protecting steep slopes prevents damage to public and private property resulting from slope failure; environmental damage such as erosion, sedimentation, and drainage problems; excessive cuts and fills; and unsightly slope scars. Ridgelines form the boundary between watersheds, and land uses in these sensitive areas can have negative impacts for great distances downstream. Ridgeline development is also visible over large areas and affects community aesthetics and rural character. Many ridgelines have shallow soils that support mast-bearing trees, such as oaks, hickories, and beech, which provide important food sources for wildlife. Ridgeline protection benefits wildlife by protecting these food sources and important travel routes for large mammals. Protection of steep slopes benefits wildlife by preventing habitat degradation of uplands, wetlands, and surface waters.

Current Provisions

Master Plan Goal 8 includes protection of viewsheds; Guiding Principles address protection of Belknap Mountains. Hazard Mitigation Plan notes that approximately 25% of Alton's land area is slopes exceeding 15%; notes that extensive areas of steep slopes contribute to localized flooding risk and wildfire hazards. Zoning Ordinance excludes steep slopes from minimum land required for developments.

Recommendations

Master Plan:

- Consider recommending adoption of a steep slopes ordinance to reduce risks of erosion, siltation, and wildland fire.

Zoning Ordinance:

- Consider adopting a Steep Slopes ordinance or overlay district. See Lakes Region Planning Commission. 2005. *Regulating Development on Steep Slopes, Hillsides, and Ridgelines*; "Steep Slope and Ridgeline Protection" [Chapter 2.2] in *Innovative Land Use Planning Techniques*; and the "Ridgeline and Hillside Viewshed Protection Area Overlay Zone" of Lafayette Township, NJ [http://www.lafayettewp.org/ordinances/2010/2010_03.pdf] for ideas.

Stormwater Management and Erosion Control

Stormwater runoff refers to precipitation that cannot soak into the ground and subsequently ponds or flows over the earth's surface. Management of this runoff is important for preventing soil erosion, water pollution, and flooding, and for ensuring adequate recharge of groundwater. Erosion control prevents damage to private property and public investments such as roadways, conserves productivity of upland soils, and prevents degradation of wetlands and surface waters. Stormwater management and erosion control benefit wildlife by preventing degradation of upland and aquatic habitats.

Current Provisions

Recommendations

Master Plan:

- Consider adding statement in Master Plan Vision Statement such as: “Alton’s open spaces protect important natural resources, provide essential ecological services, and provide habitat for native wildlife populations.”
- Consider recommending that the Town review and revise local policies and regulations to minimize stormwater runoff and erosion potential.
- Consider recommending that the Town evaluate the current system for handling municipal stormwater to evaluate its capacity and environmental impacts on receiving waters.
- Consider recommending adoption of regulations to minimize the extent of terrain alteration associated with development in order to maintain natural hydrologic patterns, maintain rural character, and protect property and public safety.

Zoning Ordinance:

- Consider adopting a stormwater ordinance. See “Permanent (Post-construction) Stormwater Management” (Chapter 2.1) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider adopting a Steep Slopes ordinance or overlay district. See Lakes Region Planning Commission. 2005. *Regulating Development on Steep Slopes, Hillsides, and Ridgelines*; “Steep Slope and Ridgeline Protection” [Chapter 2.2] in *Innovative Land Use Planning Techniques*; and the “Ridgeline and Hillside Viewshed Protection Area Overlay Zone” of Lafayette Township, NJ [http://www.lafayettetwp.org/ordinances/2010/2010_03.pdf] for ideas.

Terrain Alteration

Terrain alteration refers to earth-moving operations, including cut and fill, which reshape the topography of the land. State law requires a permit from the Department of Environmental Services for activities that disturb more than 100,000 square feet of terrain (50,000 square feet within protected shorelands), but municipalities may adopt more stringent regulations. Terrain alteration can result in soil erosion and increased stormwater runoff, leading to water pollution and damage to public and private property. Terrain alteration results in direct and indirect loss of wildlife habitat.

Current Provisions

Master Plan Action 6 recommends restricting commercial excavation over designated aquifer districts.

Recommendations

Master Plan:

- Consider addressing terrain alteration in a surface geology section of a Natural Resources chapter.
- Consider recommending adoption of policies to minimize the extent of terrain alteration associated with development in order to maintain natural hydrologic patterns, maintain rural character, and protect property and public safety.
- Consider recommending adoption of Excavation Regulations to comply with RSA 155-E.

Zoning Ordinance:

None.

Village District

A village district is a defined zoning area that accommodates mixed development, including the residential, commercial, and office uses that evolved in traditional New England villages. Village districts can be designed to encompass or expand existing village centers or to enable the development of new villages at desired locations, such as at crossroads or other nodes of activity. This planning tool provides economic benefits by concentrating services and infrastructure needs and helps to prevent sprawl. Village districts benefit wildlife by concentrating development on the landscape, resulting in larger contiguous areas of undeveloped land.

Current Provisions

Master Plan Actions 3 and 4 recommend considering creation of village zoning districts in Alton village, East Alton, West Alton, and South Alton.

Recommendations

Master Plan:

None.

Zoning Ordinance:

- Consider creating mixed use village zones as recommended in the Master Plan. See “Urban Growth Boundary and Urban Service District” (Chapter 1.8) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Develop Land and Space Requirements to encourage infill development in village zones. See “Infill Development” (Chapter 1.6) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.

Watersheds

A watershed is the area of land that drains into a particular water body. The cumulative effects of land uses within a watershed can lead to problems with water quality and flooding, and their associated negative impacts on humans and wildlife. Stream health deteriorates when impervious surfaces cover more than 10% of the watershed area; streams may become incapable of supporting beneficial uses when impervious coverage exceeds 25%.¹ Alton lies primarily within the Winnepesaukee River watershed and includes portions of the Merrimack River and Salmon Falls/Piscataqua Rivers watersheds (approximately 43,445%, 9,430% and 355% of the Town, respectively).

Current Provisions

Master Plan Vision Goal 4 states that septic and sewage need to be addressed carefully in Village and Bay areas as community grows; Vision Goal 8 includes protection of Alton's natural resources, watersheds, and wetlands, and cites a desire to establish wetland buffers. Hazard Mitigation Plan notes that approximately 25% of Alton's land area is slopes exceeding 15%; notes that extensive areas of steep slopes contribute to localized flooding risk and wildfire hazards. Zoning Ordinance excludes steep slopes from minimum land required for developments; includes requirements for commonly used water front parcels or lots; 50-ft. setback requirement for rivers, perennial streams, lakes, ponds, and impoundments; 25-ft. vegetative buffer from wetlands >10,000 sq. ft.; excludes wetlands from minimum land requirements.

Recommendations

Master Plan:

- Consider addressing watersheds in a Natural Resources Chapter.
- Consider including a recommendation to adopt land use policies that manage cumulative impacts of land use within a watershed.
- Consider including a recommendation to collaborate in regional efforts to protect the Winnepesaukee watershed.
- Consider recommending that the Town review and revise local policies and regulations to minimize stormwater runoff and erosion potential.
- Consider recommending that the Town evaluate the current system for handling municipal stormwater to evaluate its capacity and environmental impacts on receiving waters.
- Consider recommending adoption of regulations to minimize the extent of terrain alteration associated with development in order to maintain natural hydrologic patterns, maintain rural character, and protect property and public safety.
- Consider recommending adoption of an ordinance to address impervious surfaces or design standards and guidelines that include limitations on impervious surfaces in all zoning districts.
- Consider recommending use of pervious pavement where appropriate.
- Consider recommending limits on impervious lot coverage.
- Consider recommending review and revision of local policies and regulations to minimize impervious surfaces.

Analysis by Topic

Zoning Ordinance:

- Consider including wetlands in 50-ft. setback requirement (Section 327.A.1).
- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance and Town of Wolfeboro Zoning Ordinance Chapter 175 Part 1 Article XXIV Conservation Subdivision (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider permitting conservation subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit.
- Consider adopting watershed-based zoning. The U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) website provides guidelines for watershed-based zoning. (cfpub.epa.gov/npdesstormwater/menuofbmps)

¹ Schueler, T. 2000. Basic Concepts of Watershed Planning. Pp. 145-161 in T. Schueler and H. Holland, eds., *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City, MD.

Wildlife Habitat

Wildlife habitat includes the resources that native species need to survive: food, water, and shelter, including safe places to produce young, and safe travel routes between areas of critical resources. Highly ranked wildlife habitat identified in the NH Fish & Game Department's Wildlife Action Plan is included in the NH Natural Services Network. The NH Wildlife Connectivity Model identifies potential travel corridors between large areas of protected land. Wildlife habitat contributes to human amenities such as clean water, clean air, recreation opportunities, aesthetic values, and rural character.

The New Hampshire Wildlife Action Plan identifies seven habitat types occurring within Alton. Hemlock-hardwood-pine forest covers most of the Town, with northern hardwood-conifer and Appalachian oak-pine forests occurring at higher elevations. Small areas of grassland, peatland, wet meadow/shrub wetland, and floodplain forest occur at scattered locations. Portions of these habitats are the highest ranked by ecological condition in the State or biological region (Sebago-Ossipee Hills and Plains).

Current Provisions

Alton's Vision includes preservation of open spaces; Goal 8 includes protecting Alton's natural resources, watersheds, and wetlands; Master Plan Objective 1.1 calls for preserving specified open land, including forestry lands, wetlands, and other important open space areas

Recommendations

Master Plan:

- Consider adding statement in Master Plan Vision Statement such as: "Alton's open spaces protect important natural resources, provide essential ecological services, and provide habitat for native wildlife populations."
- Consider addressing wildlife habitat in a Natural Resources Chapter. The New Hampshire Wildlife Action Plan includes town habitat maps and descriptions of the various habitat types (http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm).
- Consider identifying local priorities for open space protection that include core areas of wildlife habitat.
- Consider recommending strategies to maintain wildlife connectivity zones within the Town.

Zoning Ordinance:

- Consider amending the Purpose language to include protection of natural resources, including wildlife habitat.
- Consider adopting *maximum* setback from the edge of any public right of way for buildings in the Residential Rural Zone to minimize forest fragmentation effects.
- Consider establishing a Forest Conservation District, with a larger (e.g., 20- to 50- acre) minimum lot size, in areas of large unfragmented blocks. See the Lyme, NH Mountain and Forest Conservation District (www.lymenh.gov/Public_Documents/LymeNH_Regs/regs/ZoneOrd.doc) for ideas.

Analysis by Topic

- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance and Town of Wolfeboro Zoning Ordinance Chapter 175 Part 1 Article XXIV Conservation Subdivision (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas.
- Consider permitting conservation subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit.

Spatial Analysis of Important Natural Resources in Alton with respect to Current Zoning

Introduction

Maps provide useful tools for understanding the distribution of important natural resources on the landscape and how current zoning supports or hinders their protection. Several tools have been developed to help municipalities assess the spatial distribution of natural resources within their boundaries. The New Hampshire Natural Services Network (NSN) is a GIS-based tool created by a collaborative of planning and natural resource professionals. The NSN identifies lands throughout the State that provide important ecological services on which human life and economic opportunity depend, and which are difficult and expensive to replicate.

Natural Services Network base maps (Figure 1) include four components:

- **Water supply lands** include highly transmissive aquifers identified by the US Geological Survey and favorable gravel well sites identified by the NH Department of Environmental Services.
- **Flood storage lands** include 100-year floodplains identified by FEMA and lacustrine (associated with lakes), riverine (associated with rivers), and palustrine (other non-tidal) wetlands identified by the USFWS National Wetlands Inventory.
- **Productive soils** include prime farmland and farmland of statewide importance identified by the Natural Resource Conservation Service.
- **Highly ranked wildlife habitat** includes areas of highest ranked habitat by ecological condition in the State and within each of the State's nine ecoregions, as identified by the NH Fish & Game Department Wildlife Action Plan. A detailed explanation of the ranking process is provided at http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm.

The NH Wildlife Connectivity Model was developed in 2008 by NH Audubon and NH Fish & Game biologists. It is a basic GIS-based landscape permeability model that predicts potential broad-scale wildlife connectivity zones across the State. The model includes a set of raster data layers consisting of cost surfaces for 16 native wildlife species, chosen to represent a range of variation in their dispersal behavior. Each raster surface was created by assigning a "cost" value for each species on each 30 meter square of land. The cost value reflects the ease or difficulty of moving across the landscape for the species in question. Cost is based on land cover, distance to road (weighted for traffic volume), distance to riparian area, and slope. The 16 cost surfaces can be used individually or in combination to identify wildlife connectivity zones by determining least cost movement corridors between selected polygons. The mean cost surface (Figure 2), which averages cost values for the 16 species, is useful for general planning purposes. It is strongly encouraged that users incorporate best available local data sources wherever possible and ground-truth results of corridor analyses, which is essential for identifying critical connectivity zones.

Alton currently has six zoning districts (Figure 3). The Rural District is the largest (31,165 acres) and includes about 76% of the Town. The Lakeshore Residential District (4,632 acres) includes the mainland shores of Lake Winnepesaukee as well as the entireties of Barndoor, Little Barndoor, Littlemark, Moose, Rattlesnake, Redhead, Ship, Sleepers, and several other small islands, accounting for about 11% of the

Town. The Residential Rural District (4,055 acres in total) includes two separate areas, one east and one west of the village. The Residential Commercial (365 acres), Residential (307 acres), and Recreation Service (87 acres) districts comprise the villages of Alton and Alton Bay and together cover about 2% of the town’s area. Open water occupies an additional 546 acres within the town boundaries.

Data Sources

Data sources for this analysis include the following:

<u>Data layer</u>	<u>Source</u>
Alton Zoning 2004	Lakes Regional Planning Commission
NH Natural Services Network	GRANIT
NH Wildlife Connectivity Model mean cost surface	NH Fish & Game Department
NH Conservation/Public Lands	GRANIT

Methods

Using ArcView software, we overlaid the Alton zoning districts on each component of the New Hampshire Natural Services Network and calculated resource areas within each zoning district. We used the mean cost surface from the Wildlife Connectivity Model to evaluate connectivity zones at the regional and local scales. For the regional assessment, we used contiguous conservation land polygons associated with Belknap Mountain (Gilmanton/Belmont/Alton); the Middletown Town Forest/Moose Mountains Reservation/Ellis R. Hatch Jr. Wildlife Management Area (Middleton/New Durham/Brookfield); and the Blue Hills conservation lands (Strafford/Barnstead) as endpoints for the analysis. For the local assessment, we used parcel polygons associated with 11 conservation areas in Alton with at least 50 contiguous protected acres. Appendix A lists the various parcels associated with each of the endpoint polygons used in these analyses.

Results and Discussion

Water supply lands

Alton encompasses approximately 1,190 acres of water supply lands (highly transmissive aquifers), 70% of which is in the Rural District (Table 1, Figure 4). Approximately 31% of this acreage is currently protected by conservation ownership or easement. Total aquifer area (including areas of intermediate transmissivity) within Alton is approximately 4,608 acres.

Table 1. Distribution of Water Supply Lands across Alton Zoning Districts

Zoning District	Acres of water supply lands
Rural District	834
Residential Rural District	36
Residential Commercial District	129
Residential District	158
Lakeshore Residential District	30
Recreation Service District	0

Flood storage areas

Alton encompasses approximately 16,080 acres of flood storage areas, including Lake Winnepesaukee (Table 2, Figure 5). Aside from the Lake, most of Alton’s flood storage is associated with Merrymeeting River and its associated wetlands and floodplains. Scattered wetlands provide additional flood storage throughout the Town. The majority of flood storage acreage in Alton falls within the Rural District, but some occurs in each of the zoning districts.

Less than 6% of the total flood storage acreage is protected by conservation ownership or easement. Given changing precipitation patterns with more intense storms, monitoring actual flooding conditions will be important to keeping spatial information up to date. Identifying the watershed of any road segments subject to flooding and considering development constraints upstream of these locations could help to prevent worsening of these problems.

Table 2. Distribution of Flood Storage Areas across Alton Zoning Districts

Zoning District	Acres of flood storage areas
Rural District	2,815
Residential Rural District	246
Residential Commercial District	27
Residential District	23
Lakeshore Residential District	343
Recreation Service District	33
Lake Winnepesaukee	12,054
Other open water	539

Productive soils

Alton encompasses approximately 1,690 acres of productive soils, located primarily in the Rural District (Table 3, Figure 7). Approximately 11% of this acreage is currently protected by conservation ownership or easement. Given the scattered distribution of productive soils in Alton, agricultural easements would be an effective strategy for safeguarding the future of this important resource.

Table 3. Distribution of Productive Soils across Alton Zoning Districts

Zoning District	Acres of productive soils
Rural District	1,278
Residential Rural District	208
Residential Commercial District	47
Residential District	21
Lakeshore Residential District	135
Recreation Service District	1

Highly ranked wildlife habitat

Alton encompasses approximately 21,924 acres of highly ranked wildlife habitat, approximately half of which is Lake Winnepesaukee (Table 4, Figure 8). Approximately 21% of highly ranked wildlife habitat in Alton, excluding Lake Winnepesaukee, is currently protected by conservation ownership or easement.

Table 4. Distribution of Highly Ranked Wildlife Habitat across Alton Zoning Districts

Zoning District	Acres of Highly Ranked Wildlife Habitat
Rural District	7,478
Residential Rural District	412
Residential Commercial District	124
Residential District	139
Lakeshore Residential District	1342
Recreation Service District	38
Lake Winnepesaukee	11911
Other open water	480

Wildlife connectivity zones

Numerous acres of potential wildlife connectivity zones exist in Alton. Local connectivity zones criss-cross the central part of the Town, connecting Alton’s scattered areas of protected land (Figure 9, Table 5). Keeping these connectivity zones in mind, particularly at their intersections with routes 11 and 28, will ensure that wildlife can continue to move safely through Alton as the Town continues to grow. A major regional connectivity zone crosses northeast-southwest across the southeastern part of the Town, connecting large tracts of protected land in the Belknap Mountains and the Blue Hills conservation lands (Figure 10).

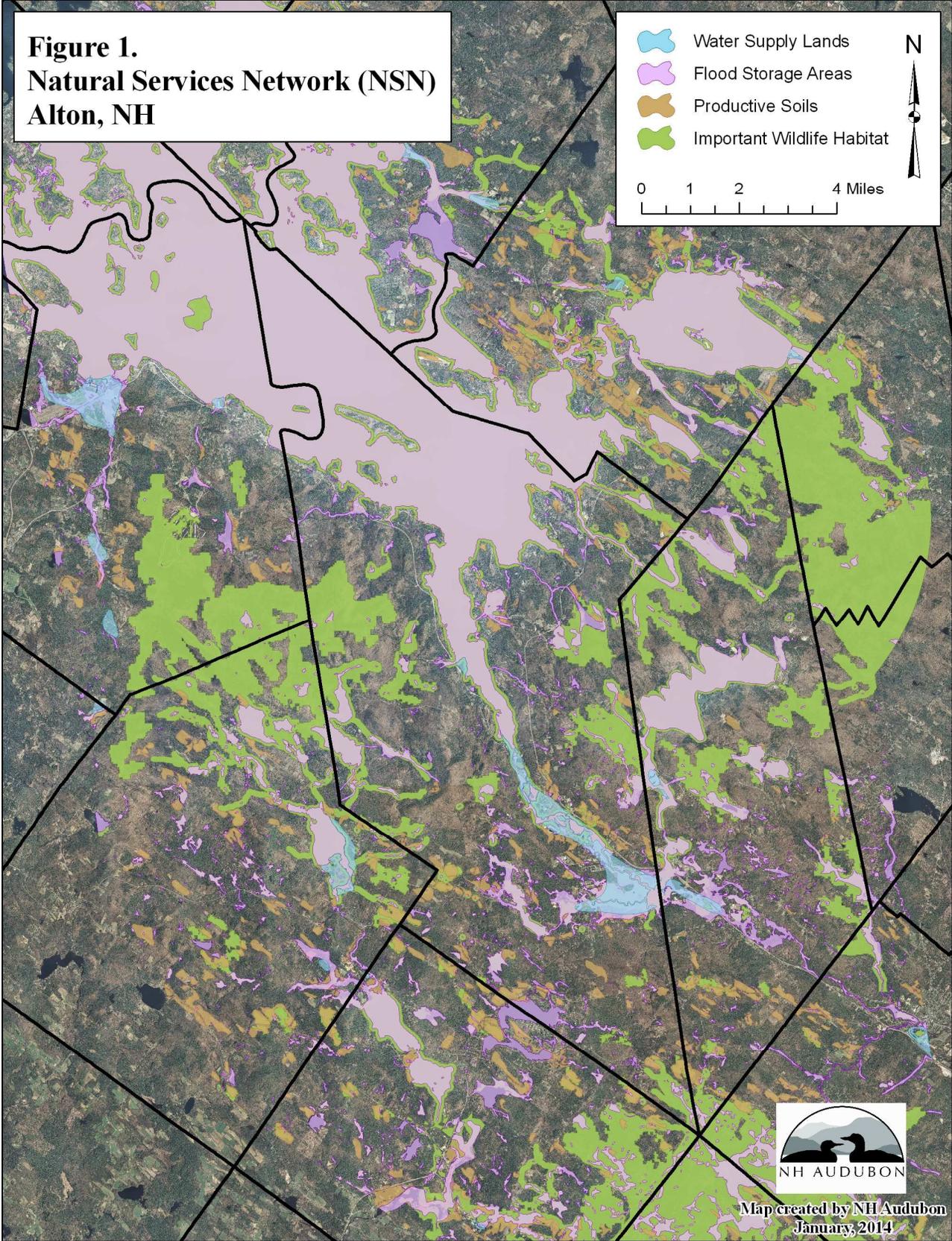
Considerations

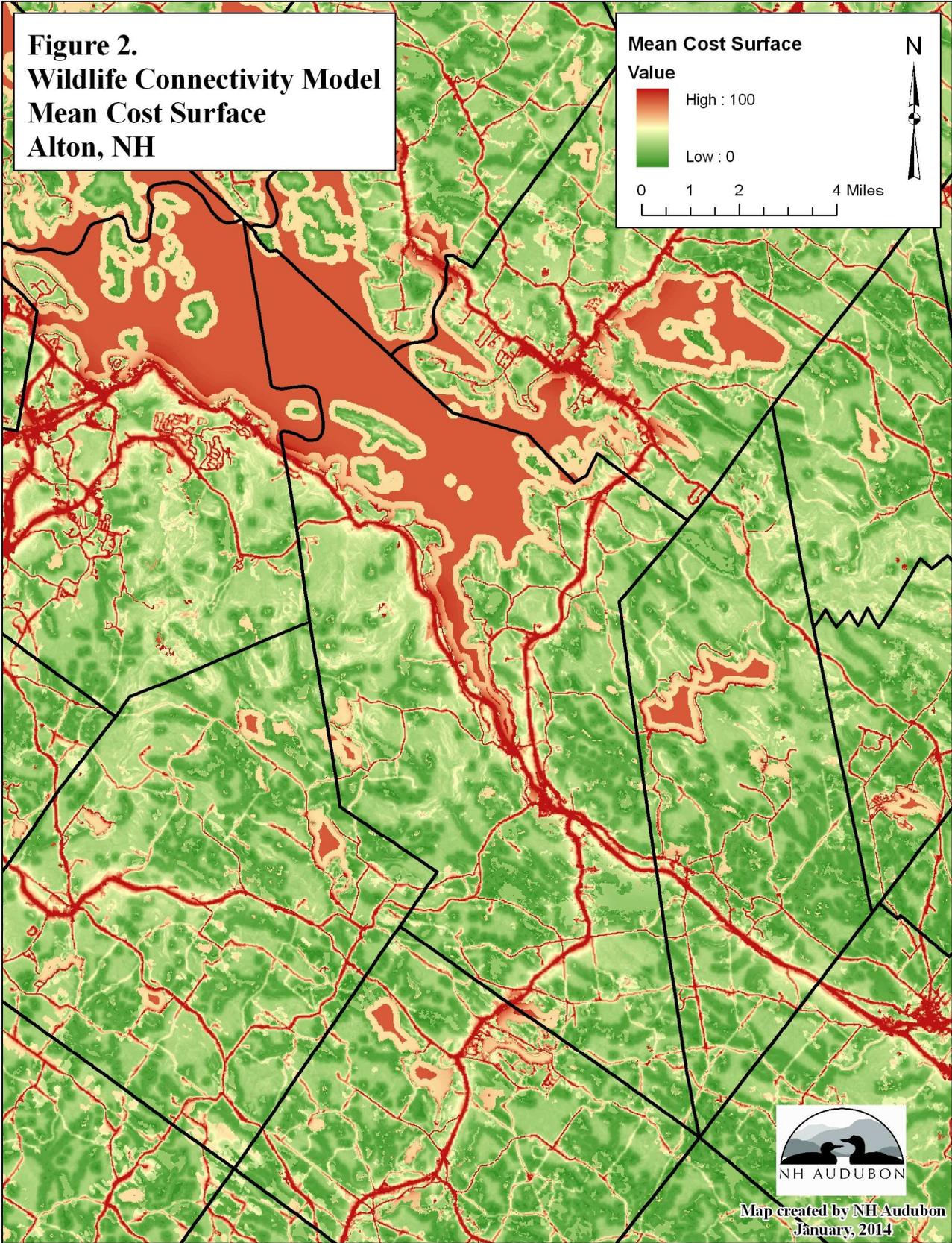
Zoning districts for relatively intense land uses, including Residential, Residential Commercial, and Recreation Service, overlay portions of Alton’s major aquifer, and the Natural Resources Inventory indicates a number of potential contamination sites within this area. The Town may want to consider strategies for increasing aquifer protection to protect this important resource.

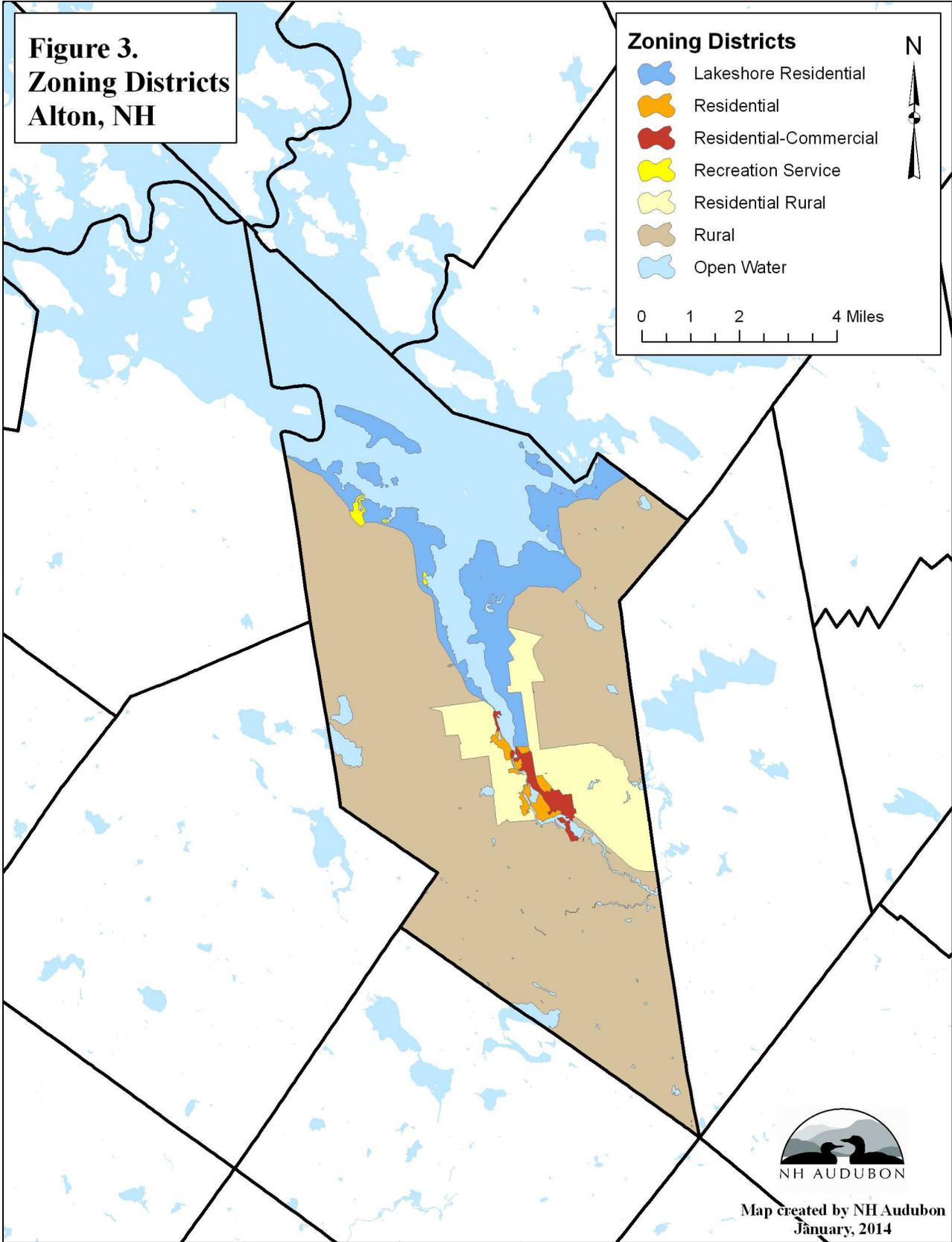
Productive soils are not abundant in Alton, but occur in both clustered and scattered patches. Action now, such as acquisition of easements or adoption of an agricultural overlay zone, can ensure protection of these resources for future generations.

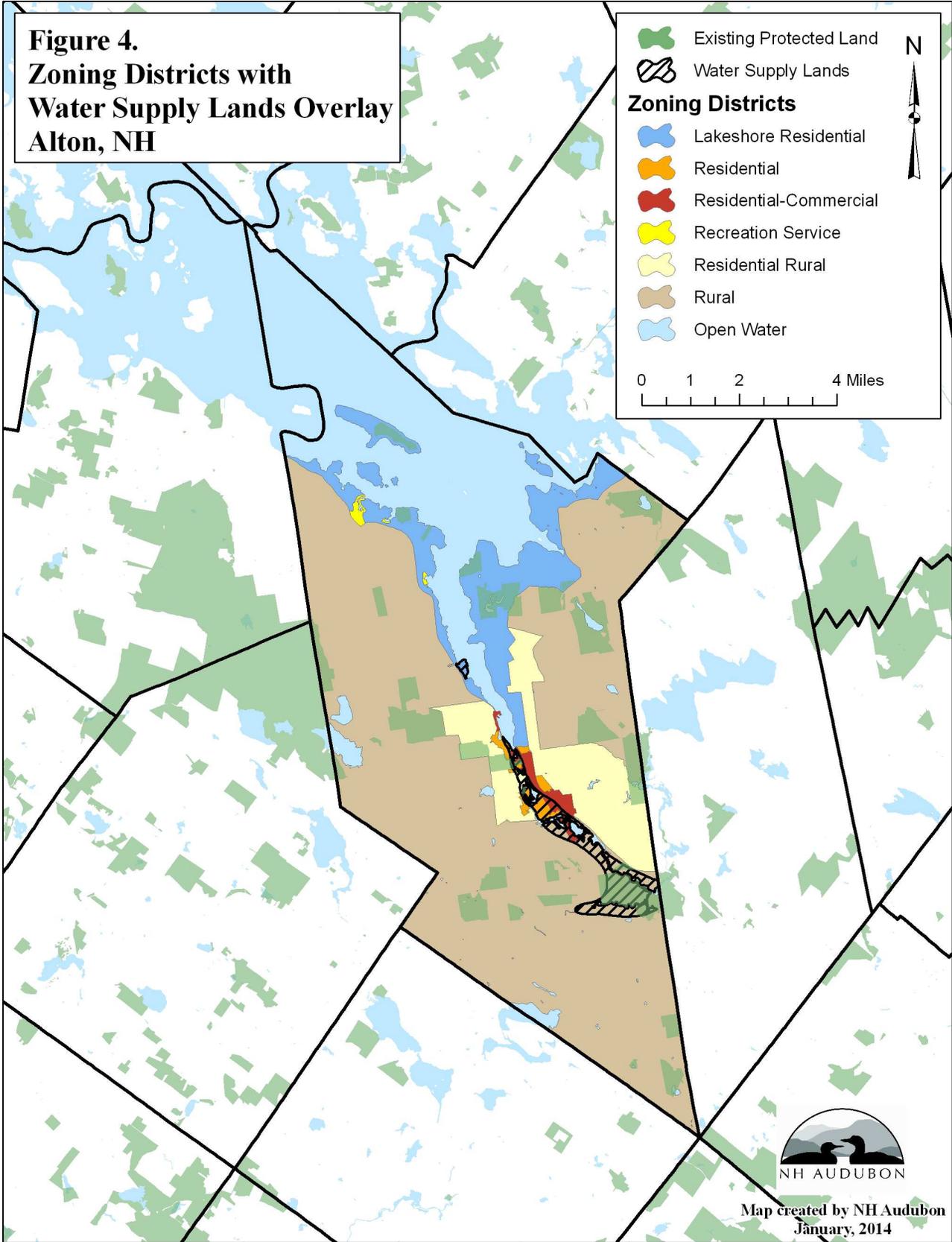
Opportunities exist to in several areas of the Town to protect productive soils, flood storage areas, highly ranked wildlife habitat, and wildlife connectivity zones by connecting existing conservation lands with additional acquisitions or easements. A land protection strategy that addresses multiple objectives with each acquisition will maximize the value of protected lands for present and future townspeople.

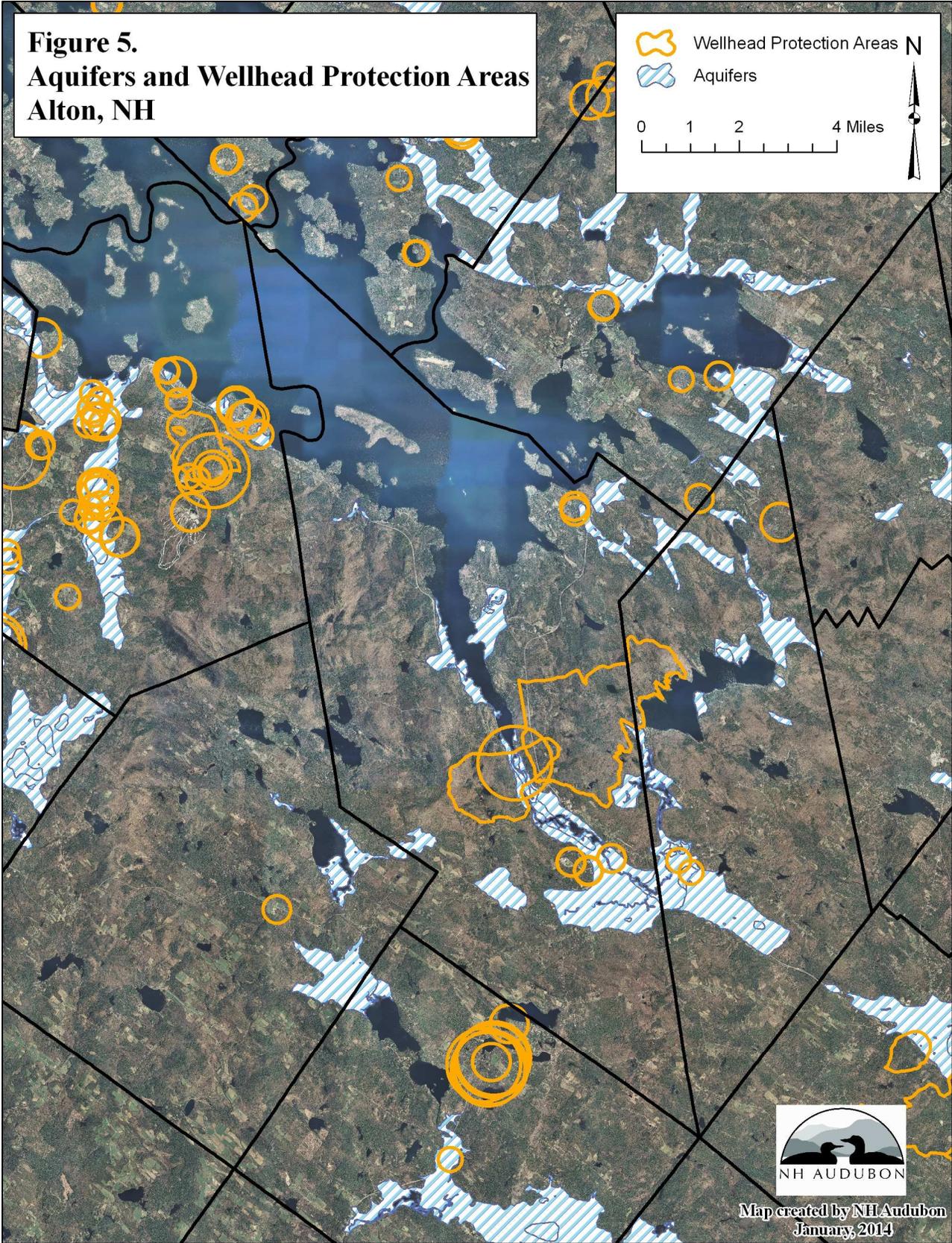
A number of regulatory tools exist that could strengthen natural resource protection in Alton. The functions of some tools overlap with those of others, so careful consideration will be needed to select the best combination of tools and resources to effectively meet the Town’s needs.

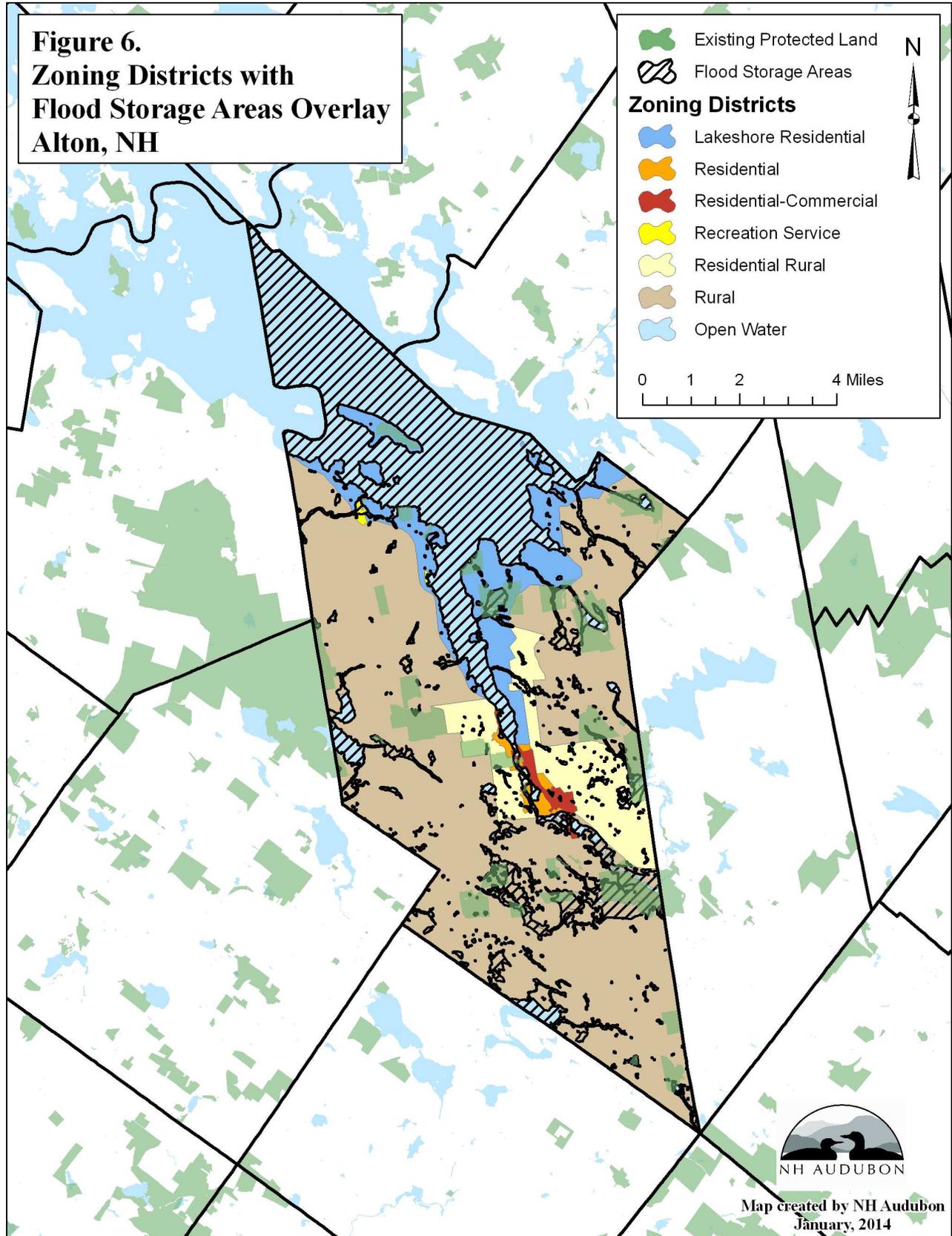


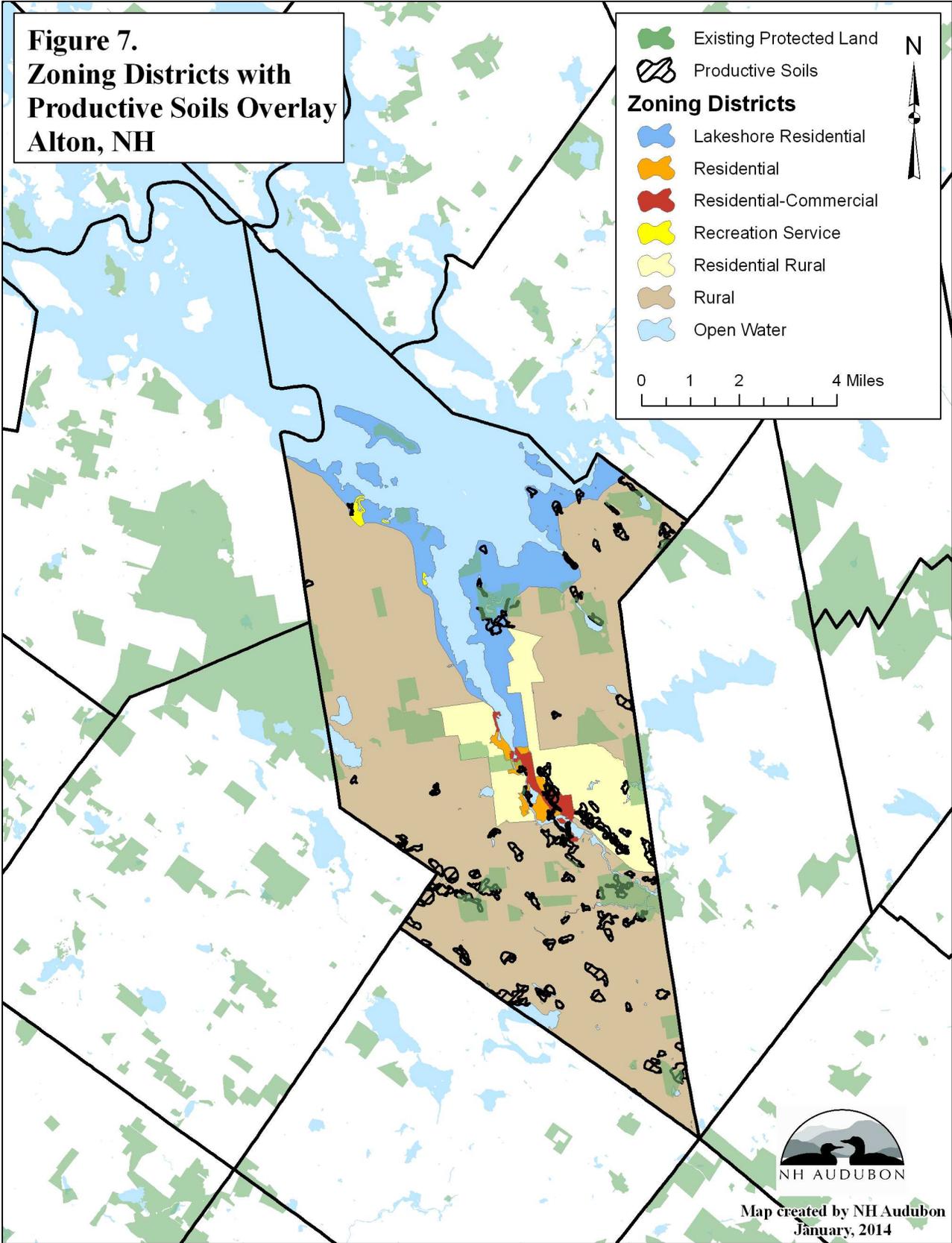


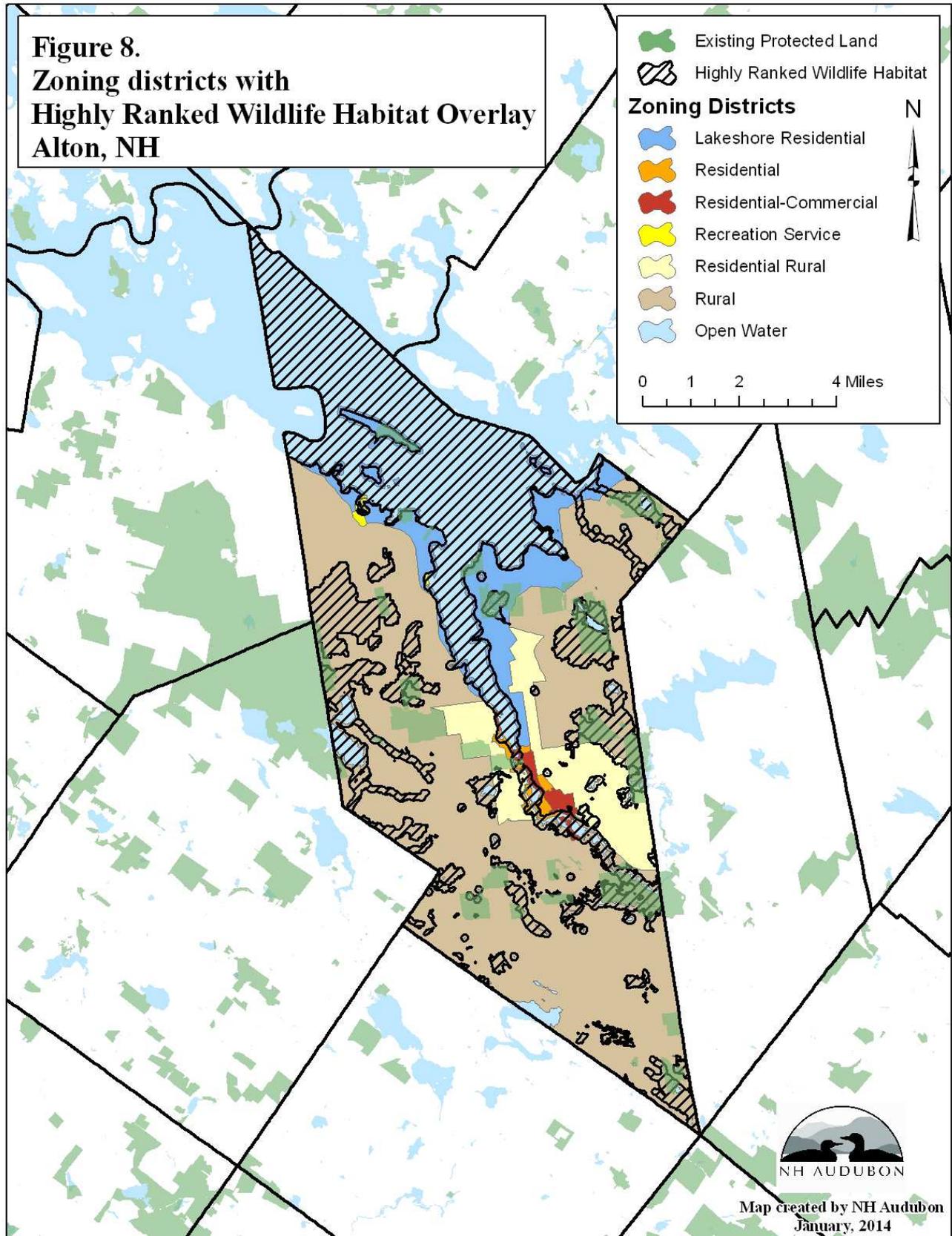


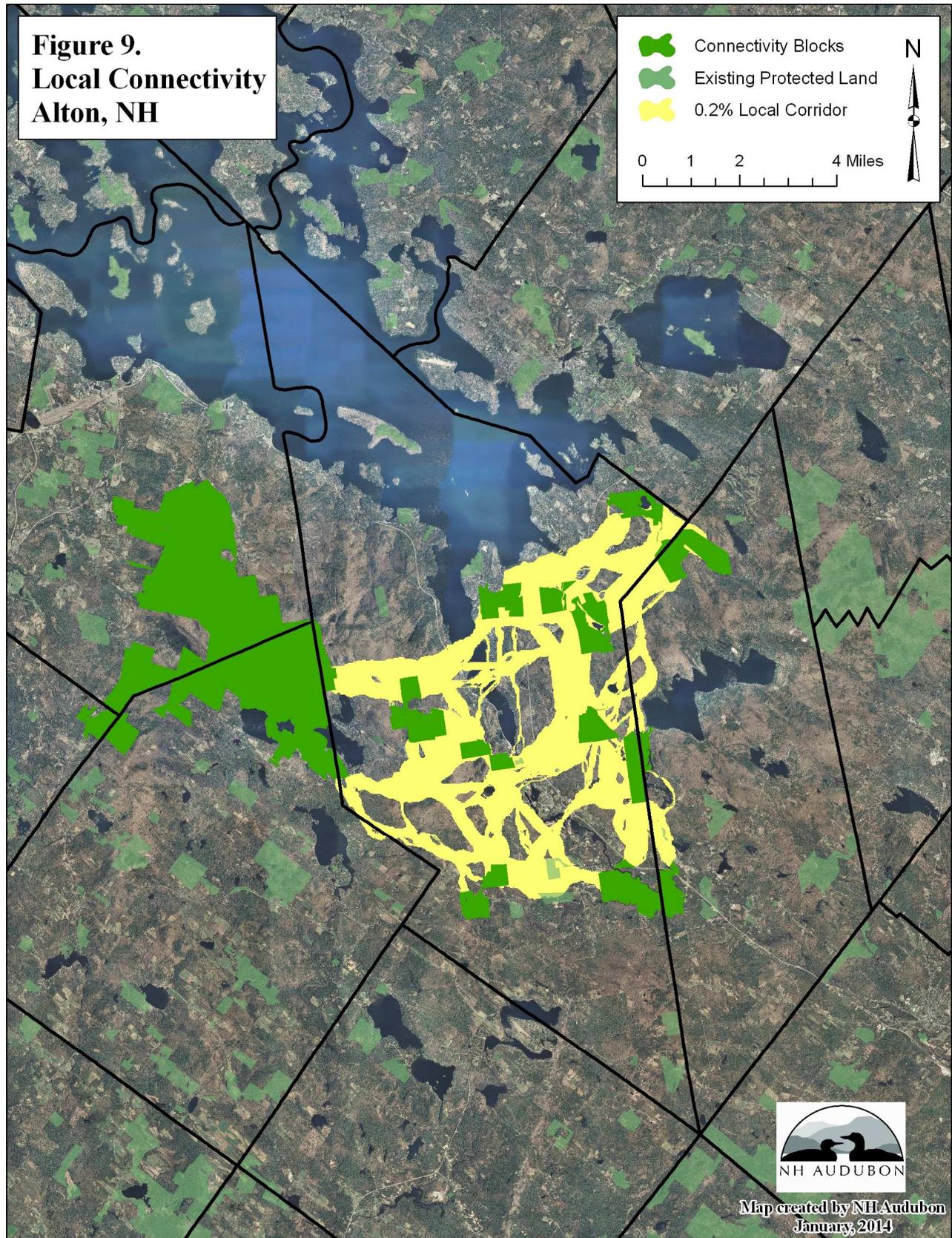


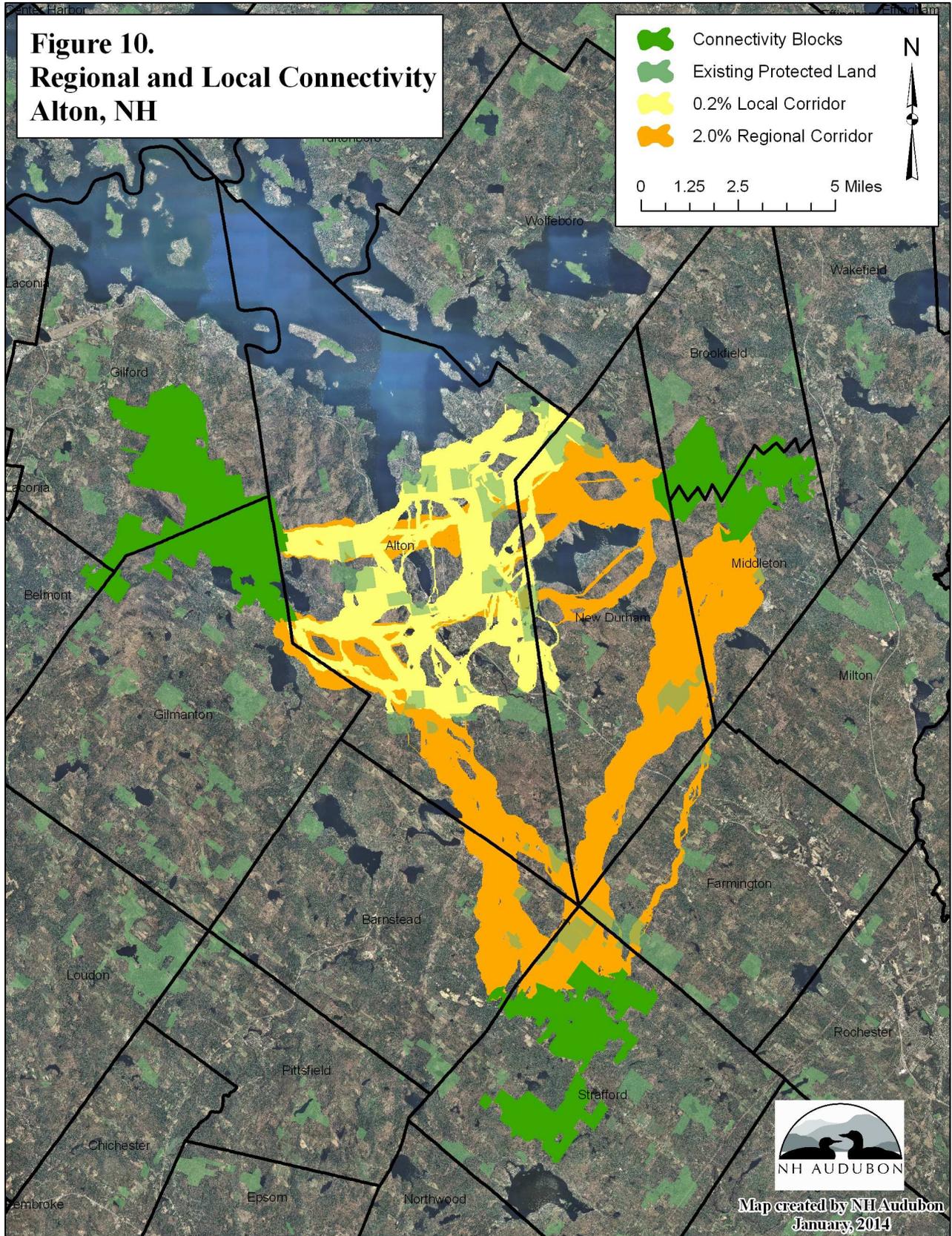












Appendix A. GRANIT parcels included in endpoint polygons for connectivity analysis

Analysis Polygon	Parcels in Polygon	Acres (Number of parcels)
Alton		
Cotton-Hurd/Seavey	Cotton-Hurd Preserve	156 (2)
	Seavey	21 (2)
Seavey/Eley/Hoopes	Eley	182 (2)
	Hoopes	15 (1)
	Seavey	231 (2)
Clough Town Forest	Clough Town Forest	156 (3)
	Fort Point Woods-Trask Swamp	170 (1)
Alton Bay State Forest	Alton Bay State Forest	214 (1)
Mutzbauer et al.	Mutzbauer et al.	321 (4)
Beaver Brook WMA	Beaver Brook WMA	573 (2)
Knight's Pond Conservation Area	Knight's Pond Conservation Area	299 (6)
	Piper/Gaskell/Graves	10 (1)
Powder Mill	Marks Memorial Forest	241 (1)
	Marsh Pond Access	2 (1)
	Merrymeeting Lake Dam	2 (1)
	Merrymeeting Marsh WMA	288 (2)
	Powdermill Fish Hatchery	100 (2)
Morse Preserve	Alton Town Forest	86 (1)
	Evelyn H. & Albert D. Morse, Sr. Preserve	432 (2)
Alton/New Durham		
Merrymeeting Marsh	Merrymeeting Marsh WMA	522 (4)
	New Durham Ballfield	20 (1)
	New Durham Town Forest	137 (2)
Gilmanton/Alton/Belmont		
Belknap Mountain	Andrew Sanborn Farm	171 (1)
	Belknap County Recreation Area	1,707 (1)
	Belknap Mountain State Forest	1,651(2)
	Etta and Leon Tilton Memorial Forest	211(1)
	Frank L. Allen Forest	125 (1)
	Hidden Valley	3,024 (1)
	Mitchell lands	666 (3)
	Peeverly Lot	137 (1)
	Piper Mountain	89 (1)
	Piper/Whiteface	144 (1)
	Pop's Woods	46 (1)
	Powell Associates	404 (1)
	Rendall Easement	124 (2)
	Weeks lands	188 (2)
Westergren	22 (1)	
Wilson-Weeks Town Forest	218 (1)	

Spatial Analysis of Important Natural Resources in Alton with respect to Current Zoning

Strafford/Barnstead

Blue Hills	Blue Hills Foundation Lands	2,870 (25)
	Colwell Easement	151 (1)
	Evans Mountain	968 (3)
	Lovejoy Easement	308 (1)
	Mack Mountain	111 (1)
	Merrill's Lot	104 (1)
	Strafford Town Forest	715 (5)
	Strafford Town Land	14 (1)

Middleton/New Durham/Brookfield

Moose Mtn	Ellis R. Hatch WMA	1,517 (1)
	Middleton Town Forest	91 (9)
	Moose Mountains Reservation	2,322 (3)

Summary of Recommendations

This section of the report consolidates recommendations from both the Smart Growth Assessment and the Wildlife Habitat and Natural Resources review. The first group of recommendations pertains to potential revisions of land use planning documents, and is organized by document. The second group of recommendations pertains to actions and policies that could be undertaken by Town government, including the Select Board, Planning Board, Conservation Commission, and Department of Public Works. Before implementing any of the following recommendations, it is critically important to refer back to the previous sections, which provide detailed information and justifications. (References to pertinent smart growth principles and natural resource topics are provided at the end of each recommendation.)

Category	Page
Document Revisions	
Master Plan	2
Hazard Mitigation Plan	4
Zoning Ordinance	5
Actions and Policies	8

Document Revisions

Master Plan

Introduction, Vision

- Consider adding language to the Vision that specifically addresses energy efficiency, such as recommending that energy-efficiency considerations be a component of all decision-making processes and recommending investment in improvements to the energy efficiency of municipal buildings. (*Energy Efficiency*)
- Consider adding statement in Master Plan Vision Statement such as: “Alton’s open spaces protect important natural resources, provide essential ecological services, and provide habitat for native wildlife populations.” (*Stormwater Management and Erosion Control; Wildlife Habitat*)

Recommended Actions

- Consider adopting a goal pertaining to dark sky preservation. (*Light Pollution*)

Land Use

- Consider recommending maintenance and protection of agricultural lands and productive soils. (*Agriculture and Productive Soils*)
- Consider revising Master Plan Goal 1 to tie more directly to Vision Goal 8, such as “To maintain and enhance Alton’s natural resources and rural character in all future land use decisions”. (*Forests and Forestry*)
- Consider recommending incentives for maintaining active agriculture. (*Agriculture and Productive Soils*)
- Consider encouraging conservation ownership or easements on floodplain areas. (*Floodplains*)
- Consider recommending acquisition of additional town forest land with Land Use Change Tax funds to enhance income stream from sustainable harvesting and local recreational opportunities. (*Forests and Forestry*)
- Consider including a recommendation to work with adjacent towns to protect shared aquifers. (*Groundwater*)
- Consider recommending review and revision of local policies and regulations to minimize destruction of natural vegetation during construction activities. (*Landscaping and Natural Vegetation*)
- Consider recommending review and revision of local policies and regulations to encourage the use of native species in landscaping. (*Landscaping and Natural Vegetation*)
- Consider recommending review and revision of local policies and regulations to discourage the use of plants that require significant inputs of water and nutrients in landscaping. (*Landscaping and Natural Vegetation*)
- Consider recommending review and revision of local policies and regulations to encourage landscaping designs that reduce heating and cooling costs. (*Landscaping and Natural Vegetation, Energy Efficiency*)
- Consider recommending collaboration in regional efforts to protect the Winnepesaukee watershed. (*Shorelands, Surface Waters, and Wetlands; Watersheds*)
- Consider recommending adoption of an ordinance to address stormwater management. (*Shorelands, Surface Waters, and Wetlands*)

Summary of Recommendations

- Consider recommending use of pervious pavement where appropriate. (*Shorelands, Surface Waters, and Wetlands; Impervious Surfaces; Watersheds*)
- Consider recommending limits on impervious lot coverage. (*Shorelands, Surface Waters, and Wetlands; Impervious Surfaces; Watersheds*)
- Consider including a recommendation to adopt land use policies that manage cumulative impacts of land use within a watershed. (*Watersheds*)
- Consider recommending adoption of an ordinance to address impervious surfaces or design standards and guidelines that include limitations on impervious surfaces in all zoning districts. (*Watersheds*)
- Consider recommending review and revision of local policies and regulations to minimize impervious surfaces. (*Watersheds; Impervious Surfaces*)
- Consider recommending protection for wetlands and headwater streams to maintain downstream water quality. (*Shorelands, Surface Waters, and Wetlands*)
- Consider recommending adoption of a steep slopes ordinance to reduce risks of erosion, siltation, and wildland fire. (*Steep Slopes and Ridgelines; Shorelands, Surface Waters, and Wetlands*)
- Consider recommending that the Town review and revise local policies and regulations to minimize stormwater runoff and erosion potential. (*Stormwater Management and Erosion Control; Watersheds*)
- Consider recommending that the Town evaluate the current system for handling municipal stormwater to evaluate its capacity and environmental impacts on receiving waters. (*Stormwater Management and Erosion Control; Watersheds*)
- Consider recommending development and adoption of a stormwater management manual. (*Shorelands, Surface Waters, and Wetlands*)
- Consider recommending adoption of regulations to minimize the extent of terrain alteration associated with development in order to maintain natural hydrologic patterns, maintain rural character, and protect property and public safety. (*Stormwater Management and Erosion Control; Terrain Alteration; Watersheds*)
- Consider recommending adoption of Excavation Regulations to comply with RSA 155-E. (*Terrain Alteration*)
- Consider identifying local priorities for open space protection that include core areas of wildlife habitat. (*Wildlife Habitat*)
- Consider recommending strategies to maintain wildlife connectivity zones within the Town. (*Wildlife Habitat*)

Potential New Sections

- Consider addressing energy efficiency in any future master plan chapters that address municipal facilities, transportation, and/or housing. (*Energy Efficiency*)
- Consider including an Energy Chapter. (*Energy Efficiency*)
- Consider including a Natural Resources Chapter addressing agriculture and productive soils, groundwater resources, forest resources, flood storage areas, terrain alteration in surface geology, watersheds, and wildlife habitat. (*Agriculture and Productive Soils; Groundwater; Forests and Forestry; Floodplains; Terrain Alteration; Watersheds; Wildlife Habitat*)

Hazard Mitigation Plan

Recommendations

- Consider including land use regulations, including *maximum* setbacks and driveway lengths, as a mitigation strategy for wildland fires. (*Natural Hazards*)
- Consider including natural resource protection strategies, including sediment and erosion control, watershed management, and wetland protection as mitigation strategies for flooding. (*Natural Hazards*)
- Consider including additional information about firewise landscaping, practices, and building materials in materials distributed to promote fire protection. “Firewise Landscaping in North Carolina” (http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf) ranks the flammability of many plant species that also occur in New Hampshire. “Firewise Construction: Design and Materials” (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) discusses design elements and building materials that improve a structure’s fire resistance. Both of the above documents are included on the accompanying CD in the “Resources for Communities” section. (*Forests and Forestry*)
- Consider including areas most vulnerable to wildfire on a map of natural hazards in the Hazard Mitigation Plan. “Firewise Construction: Design and Materials” (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) provides guidelines for identifying high risk areas for wildland fire based on topographic position. (Included on CD.) (*Natural Hazards*)
- Consider providing residents and developers with educational materials regarding firewise landscaping, practices, and building materials as a mitigation strategy for wildland fires. “Firewise Landscaping in North Carolina” (http://www.ces.ncsu.edu/forestry/pdf/ag/firewise_landscaping.pdf) ranks the flammability of many plant species that also occur in New Hampshire (provided on separate list). “Firewise Construction: Design and Materials” (http://csfs.colostate.edu/pdfs/construction_booklet.pdf) discusses design elements and building materials that improve a structure’s fire resistance. (Included on CD). (*Natural Hazards*)
- Consider adopting an alternative subdivision ordinance as recommended in the Master Plan. See City of Concord, NH Cluster Development ordinance (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Forests and Forestry*)

Zoning Ordinance

Article One, Section One: Purpose and Authority

- Consider amending the Purpose language to include protection of natural resources. (*Agriculture and Productive Soils; Forests and Forestry; Groundwater; Floodplains; Shorelands, Surface Waters, and Wetlands; Wildlife Habitat*)

Article Three: General Provisions

- Consider adopting lighting performance standards for all zoning districts. See “Preserving Dark Skies” (Chapter 3.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* and the New England Light Pollution Advisory Group (NELPAG) website (www.icq.eps.harvard.edu/nelpag/nelpag.html) for ideas. (*Light Pollution*)
- Consider requiring that lighting not only be limited to the premises but also be downward facing. (*Principle 6*)

Article Four: Zoning Districts Regulations

- Consider establishing mixed use zones in East Alton, West Alton, and South Alton village areas. (*Principle 3*)
- Consider amending zoning to encourage the siting of elderly housing and continuing care facilities near the village areas. (*Principle 3*)
- Consider creating areas where medium density residential is encouraged. (*Principle 1*)
- Consider maintaining a rural feel by focusing on design review elements that encourage a “human scale” of development. (*Principle 2*)
- Eliminate the portion of Section 444-B dealing with RSA 483-B. This Section reads “Within the Residential-Commercial Zone the Board of Adjustment may grant a special exception from Section 327 and setback requirements under RSA 483-B waiving a setback for any parcel so long as all conditions set forth under section 520 are met. (Amended 12 March 2013)”. While the Zoning Board may grant Special Exceptions to local ordinances, it cannot grant a Special Exception to State law. (*Principle 6*)
- Consider adopting *maximum* setback from the edge of any public right of way for buildings in the Residential Rural Zone to minimize forest fragmentation effects and reduce risks from wildland fires. (*Forests and Forestry; Natural Hazards; Wildlife Habitat*)
- Consider prohibiting impervious driveways and parking lots in the Lakeshore Residential and Recreation Service zones. (*Impervious Surfaces*)
- Consider establishing a Forest Conservation District, with a larger (e.g., 20- to 50-acre) minimum lot size, in areas of large unfragmented blocks. See the Lyme, NH Mountain and Forest Conservation District (www.lymenh.gov/Public_Documents/LymeNH_Regs/regs/ZoneOrd.doc) for ideas. (*Forests and Forestry; Wildlife Habitat*)
- Develop Land and Space Requirements to encourage infill development in village zones. See “Infill Development” (Chapter 1.6) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Growth Management and Sprawl*)

Summary of Recommendations

- Consider including wetlands in 50-ft. setback requirement (Section 327.A.1). (*Shorelands, Surface Waters, and Wetlands; Watersheds*)

Article Six: Overlay Districts

- Consider updating the Aquifer Protection Overlay District to: restrict commercial excavation and other potentially harmful uses as recommended in Action 6 of the Master Plan; add other strengthening provisions (see Belmont, NH Zoning Ordinance Article 7 Aquifer and Groundwater Protection District <http://www.belmontnh.org/docs/ords&apps/AGWPO.pdf>) for ideas; and incorporate the 2006 revisions to the NH Department of Environmental Services and Office of Energy and Planning Model Groundwater Protection Ordinance, available online at: des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-06-41.pdf and “Protection of Groundwater and Surface Water for Drinking Water Supply” (Chapter 2.5 of *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development.*) (*Groundwater, Principle 6*)
- Consider reorganizing Article 602 Section C. RESTRICTIONS so that item 1 regarding adequate pervious surfaces is not included as a prohibition. (*Groundwater*)

Potential New Articles

- Consider addressing energy efficiency in community design standards. (*Energy Efficiency*)
- Consider adopting an agricultural overlay district ordinance to protect the Town’s productive soils and active agricultural lands. “Agricultural Incentive Zoning” (Chapter 1.7) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for an Agricultural Conservation District Ordinance and examples of agricultural zoning in New Hampshire municipalities. (*Agriculture and Productive Soils*)
- Consider adopting an overlay district to address wildland fire hazard areas. (*Natural Hazards*)
- Consider implementing Master Plan recommendations in actions 1, 2, 3, 4, 9, and 10. See “Urban Growth Boundary and Urban Service District” (Chapter 1.8) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Growth Management and Sprawl*)
- Consider adopting maximum impervious lot coverage for each zoning district. (*Impervious Surfaces*)
- Consider adopting an ordinance to address impervious surfaces. “Permanent (Post-construction) Stormwater Management” (Chapter 2.1) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for a zoning ordinance article that addresses impervious surfaces. (*Impervious Surfaces*)
- Consider adopting landscaping standards for current Lakeshore Residential, Recreation Service, Residential, and Residential Commercial zones, or for any new village districts. (*Landscaping and Natural Vegetation*)
- Consider adopting landscaping standards for areas vulnerable to wildland fire. (*Landscaping and Natural Vegetation*)

Summary of Recommendations

- Consider adopting a Steep Slopes ordinance or overlay district. See Lakes Region Planning Commission. 2005. *Regulating Development on Steep Slopes, Hillsides, and Ridgelines*; “Steep Slope and Ridgeline Protection” [Chapter 2.2] in *Innovative Land Use Planning Techniques*; and the “Ridgeline and Hillside Viewshed Protection Area Overlay Zone” of Lafayette Township, NJ [http://www.lafayettetwp.org/ordinances/2010/2010_03.pdf] for ideas. (*Steep Slopes and Ridgelines; Stormwater Management and Erosion Control*)
- Consider adopting a stormwater ordinance. See “Permanent (Post-construction) Stormwater Management” (Chapter 2.1) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Stormwater Management and Erosion Control*)
- Consider adopting a conservation subdivision ordinance to provide for alternative subdivision development as recommended in the Master Plan (Action 10). See City of Concord, NH Cluster Development ordinance (provided in “Resources for Communities” section on provided CD) and “Conservation Subdivision” (Chapter 1.4) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Forests and Forestry; Growth Management and Sprawl; Shorelands, Surface Waters and Wetlands; Watersheds, Wildlife Habitat, Principles 1 and 6*)
- Consider permitting conservation subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit. (*Forests and Forestry; Shorelands, Surface Waters, and Wetlands; Watersheds; Wildlife Habitat*)
- Consider adopting watershed-based zoning. The U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) website provides guidelines for watershed-based zoning. (cfpub.epa.gov/npdesstormwater/menuofbmps) (*Watersheds*)
- Consider creating mixed use village zones as recommended in the Master Plan. See “Urban Growth Boundary and Urban Service District” (Chapter 1.8) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Village District*)
- Develop Land and Space Requirements to encourage infill development in village zones. See “Infill Development” (Chapter 1.6) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* for ideas. (*Village District*)
- Consider adopting an article that specifically addresses energy efficient development. (“Energy Efficient Development” (Chapter 3.5) in *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* provides model language for a zoning ordinance article addressing energy efficiency. (*Energy Efficiency*)
- Consider revising Special Flood Hazard Areas (I.2.) to require certification that new construction and substantial improvements within the 100 year flood elevation do not reduce the flood-storage capacity of the floodplain. (*Floodplains*)
- Consider permitting alternative subdivisions by right in Rural, Residential Rural, and Lakeshore Residential zones, and conventional, frontage-based subdivisions by Conditional Use Permit. (*Growth Management and Sprawl*)

Actions and Policies

- Consider developing a reasonable, long-term solution for septic problems, such as finding a link in the Winnepesaukee River Basin Project regional treatment facility, developing a local treatment facility, or some other solution to handle the current waste and allow for some modest upgrades in Alton Bay. *(Principle 1)*
- Consider enhancing the connectivity between the tourist-oriented Alton Bay and Alton Village, which tends to be the focus of local commercial activity and services either through expansion of sidewalks or bike paths. *(Principle 3)*
- Consider establishing an Agricultural Commission under RSA 673:4b to recognize, promote, and encourage agriculture in Alton. *(Principle 4)*
- Consider establishing a local Farmer’s Market in Alton. *(Principle 4)*
- If current farmers are considering getting out of the business, consider working with these farmers and the US Department of Agriculture and Natural Resources Conservation Service to purchase development rights for these parcels to ensure that the land can remain part of a working farmstead. *(Principle 4)*
- To enhance the development of village areas, the Planning Board should consider developing a road policy which permits the development of cross streets within village areas. This would enable modest development within and around the villages, reduce the need for more sprawling development along unbroken linear roadways and enhance walking and bicycling opportunities around the villages. *(Principle 5)*
- Consider developing a long-range plan for sidewalks including identification and prioritization in gaps in linkages. Include this in the CIP and seek opportunities for additional funding, such as the NH DOT “Safe Routes to Schools” or Technical Enhancement programs. *(Principle 5)*
- The recently revised Site Plan Regulations and the Highway Policies should address the various concerns expressed in the Master Plan regarding variable street sizes. These should also include parking standards to ensure that streets and sidewalks are walkable. *(Principle 5)*
- Consider designating some high quality wetlands as “prime wetlands” under RSA 482-A:15, providing additional protection to these important resources. *(Principle 6)*
- Consider posting the Planning Board agenda on the town website. *(Principle 7)*
- Consider forming a Heritage Commission under RSA 673:4-a in order to carry out cultural and historical inventories and advise the planning board on such issues. *(Principle 7)*
- Work with the Historic District Commission or Heritage Commission, if one is formed, to explore and promote the resources available for restoration and other activities through the New Hampshire Division of Historical Resources. *(Principle 7)*
- It is vital to maintain communication and involvement with neighboring communities on environmental issues and development proposals. It also benefits the town to work with neighboring communities on other issues that could have mutual benefits. *(Principle 8)*
- The Planning Board and Conservation Commission should consider coordinating their land preservation and planning efforts with adjacent communities to ensure that such efforts are done effectively. *(Principle 8)*

Summary of Recommendations

- Alton should continue to collaborate with surrounding towns on projects such as road construction and infrastructure needs. *(Principle 8)*
- Should a development of regional impact be proposed in the future, the Planning Board should notify surrounding communities as per RSA 36: 54-57. This notification will enable neighboring communities and the regional planning commission to engage in discussion of the proposal as abutters and will give them a voice in the development process. Consider adding this to the Subdivision and Site Plan Review Checklists. *(Principle 8)*

**Balancing Development and Rural Character:
Voluntary Practices to Protect Important Wildlife Habitat Features
During Development and Other Land Use Changes**

Prepared by

**New Hampshire Audubon
and
The Jordan Institute**

**for the
New Hampshire Fish & Game Department
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Expanded June 2009**

Voluntary Practices to Protect Important Wildlife Habitat Features

Introduction

Voluntary practices provide opportunities for communities to encourage protection of habitat and other natural resources during development in the absence of regulations. Voluntary practices are particularly useful tools for protecting habitat features that are scattered on the landscape, such as deer wintering areas or vernal pools. Such features benefit from flexible approaches to protection that can be designed through discussions between planners and developers, rather than by “one-size-fits-all” regulations. Voluntary practices also can be incorporated into incentive approaches, such as density bonuses, to protect natural resources in communities with minimal land use regulations.

Successful application of voluntary practices depends on pre-application conferences between planners and developers. These meetings provide an opportunity for developers to share ideas about prospective use of a land parcel before investing in surveys and engineering studies, and for municipal planners to share concerns about natural resources associated with the parcel that are important to the community. The parties can then develop consensus on an approach to development that protects the important resources, and the points of agreement become special conditions of the subdivision or site plan permit.

This document includes voluntary practices designed to protect the following habitats:

- Deer wintering areas
- Important mast stands
- Headwater streams
- Natural vegetation
- Raptor nest trees
- Shorelands and riparian areas
- Vernal pools

For each topic, we provide a brief issue statement, objectives for the voluntary practices, a justification and benefits section, a list of implementation strategies, and technical references.

We welcome comments and suggestions from municipalities on the usefulness of these practices, ways in which they might be improved, and additional topics for which voluntary practices might be helpful.

Deer Wintering Areas

Issue: Human activity in deer wintering areas can have negative impacts on both people and deer.

Objectives

- Avoid destruction of deer wintering habitat.
- Minimize disturbance of wintering deer from human activity and domestic dogs.
- Minimize negative interactions between deer and people, including
 - Wildlife/vehicle collisions
 - Human exposure to wildlife-borne diseases
 - Property damage from foraging deer.

Justification/Benefits

The white-tailed deer is both ecologically and economically important in New Hampshire. Deer hunting has a significant economic impact in the state, with estimated annual expenditures of \$47,344,000 associated with big game hunting in New Hampshire, based on data from 2001 (U.S. Dept. of the Interior and U.S. Dept. of Commerce 1993). Deer are also popular subjects for wildlife observation and photography. Such “non-consumptive use” of wildlife (not specifically deer) in New Hampshire generated an estimated \$325,658,000 in 2001, more than half of which was spent by non-residents.

Local deer densities in New Hampshire range from less than 6 per sq. mi. in the White Mountains to 16-19 per sq. mi. in the southern part of the state, and average about 10 per square mile statewide (Gustafson 2004).

New Hampshire is near the northern limit of the white-tailed deer’s range, which extends to the north shore of the Saint Lawrence River in Quebec (Halls 1984). In northern areas with severe winters, deer maintain distinctly different ranges during the winter and during the milder part of the year.

Nutritional stress during severe winters may result in more than 30% mortality of adults, as well as high mortality of fawns born the following spring (Lavigne 1999).

Studies in the northeast indicate that deer begin to move from summer/fall range to wintering areas when snow depths reach approximately 15 inches (Tierson et al. 1985). They commonly move 4-5 miles between summer and winter ranges, and may move more than 25 miles (Lavigne 1999).

Roads do not pose barriers to deer movement, as they do with many other species of wildlife. Deer commonly cross highways and other busy roads. In fact, collisions with vehicles on New Hampshire highways have killed more than 1000 deer annually since 1989 (Gustafson 2004). Based on recent population estimates of approximately 82,000 deer statewide, about 12% of the deer herd is lost to road mortality each year. With increasing numbers of vehicles, there is increasing mortality due to collisions. Deer killed by cars has increased from 662 in 1987

(accounting for 80% of all deer mortality) to 1292 in 2003 (91 % of total mortality (Gustafsen 2004). From 1995 to 2003, there were seven years in which collisions accounted for 93% or more of deer mortality, and three years in which vehicle collisions caused 96% of all deer mortality.

Deer wintering areas occur in softwood stands of various types, often in riparian areas. In northern New Hampshire, deer wintering areas are typically located in low elevation stands of red spruce, balsam fir, and northern white cedar. These areas may cover areas of more than 1000 acres and support hundreds of deer. In the southern part of the state, wintering areas are typically scattered patches of hemlock as small as a half acre. Such small wintering areas accommodate 20 or 30 deer during bouts of severe weather and 15 inches or more of snow, but deer in southern New Hampshire do not typically spend long periods of time in these “yards.” In mild winters, deer may not “yard up” at all in southern New Hampshire (Gustafson, pers. commun.).

Deer wintering areas consist of core areas with dense coniferous trees that reduce snow accumulation and provide shelter from wind, adjacent to mixed hardwood and coniferous trees that provide an accessible food supply. Softwood canopy height of at least 35 feet and average canopy cover of 65-70% are required to provide functional shelter (Reay et al.1990).

Deer are hosts of the black-legged tick (or “deer tick”), which is a vector in the transmission of Lyme disease. Black-legged ticks occur throughout most of southern and central New Hampshire. Many factors influence the occurrence of black-legged ticks and incidence of Lyme disease among humans, but in general, areas of high deer densities are more likely to exhibit greater black-legged tick abundance and higher Lyme disease incidence rates in humans (Gustafsen 2004).

Deer and human populations have increased since the early 1980’s, especially in the southern part of the state, resulting in greater potential for human-deer conflicts. Calls to Wildlife Services for assistance with deer damage rose sharply from 1988 through 1993, but have remained fairly consistent since then. From 1993 to 2002, requests that were agriculturally related accounted for about half of all calls, varying from 39-62% for that time period (Gustafsen 2004).

Implementation Strategies

- Identify deer wintering areas on site map, including core shelter area, surrounding hardwood buffer extending at least 200 feet from perimeter of core, and corridors connecting wintering areas to surrounding habitats.
- Avoid any clearing or other construction activity within identified deer wintering areas.
- Locate houses to discourage winter intrusion of humans and domestic dogs into identified wintering areas.

Balancing Development and Rural Character: Voluntary Practices to Protect Wildlife Habitat

- Locate roads to avoid fragmenting of deer use areas, and plan for low traveling speeds to minimize the potential for vehicle-deer collisions.
- Install fences around residential properties adjacent to buffer habitat to discourage intrusions of humans and dogs.
 - Avoid landscaping techniques that attract deer into the interior of the neighborhood.
 - Discourage intentional feeding of deer, and encourage fencing of gardens to reduce attraction of deer to residential properties.

References

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Floodplain Forests

Issue: Clearing floodplain forests increases bank erosion and downstream flood damage and destroys important wildlife habitat.

Objectives:

- Protect floodplain forest vegetation to mitigate flood damage and maintain biodiversity.
- Minimize recreational activity in floodplain forests to prevent soil compaction and wildlife disturbance.

Justification/Benefits

A floodplain is a valley floor where water spreads out after overtopping the banks of a stream (Gordon et al. 1992, Riley 1998).

Annual shallow river flooding is common in the northern United States during spring snowmelt (Daniels and Daniels 2003).

The timing, duration, and depth of flooding are important influences on floodplain vegetation (Mitsch and Gosselink 1986, McKevlin et al. 1997).

In New Hampshire, floodplain forests occur primarily along third and higher order rivers (Sperduto 2005).

Floodplain plants are specially adapted to tolerate inundation for part of the year (Mitsch and Gosselink 1986, Verry et al. 2000).

Small elevation changes within a floodplain result in large changes in the depth and duration of flooding, and in the resulting plant communities (Mitsch and Gosselink 1986).

Long histories of stream meanders, erosion, and deposition create variable topography within floodplains, resulting in complex vegetation patterns. Floodplain systems often include sloughs, oxbows, shrub swamps, wet meadows, and vernal pools, as well as floodplain forests.

Two major types of floodplain forests occur in northern New Hampshire and the White Mountains. These forests develop along rivers with floods of high intensity and short duration that result from mountain runoff. One type consists primarily of sugar maple, red oak, ironwood, white ash, black cherry, and white pine; the other of balsam fir, red maple, white pine, and speckled alder (Sperduto 2005).

Silver maple floodplain forests occur along the Connecticut and Merrimack rivers and the lower reaches of their major tributaries. White ash, American elm, hackberry, and Eastern cottonwood also may grow in these forests (Sperduto 2005).

Red maple dominates the floodplain forests along smaller rivers in central and southern New Hampshire. These forests also may include black ash, black cherry, and ironwood (Sperduto 2005).

During floods, floodplain forests slow water movement, capture sediment and nutrients, and shelter aquatic organisms from strong currents (Gordon et al. 1992).

Floodplain forests provide buffers between developed areas and waterways (Daniels and Daniels 2003).

Floodplain forests facilitate the recharge of aquifers during periods of inundation (Verry et al. 2000, Gordon et al. 1992).

Floodplain forests facilitate the transfer of nutrients from aquatic to terrestrial ecosystems by capturing organic matter and sediments from floodwaters during periods of inundation (Gordon et al. 1992).

Floodplain forests provide a natural filtering system for stormwater runoff (Daniels and Daniels 2003).

New Hampshire's floodplain forests provide important habitat for native wildlife, including wood turtle, northern leopard frog, American woodcock, northern oriole, blue-gray gnatcatcher, yellow-throated vireo, otter, eastern red bat, and silver-haired bat (NHFG 2005).

Implementation Strategies

- Avoid or minimize clearing and other construction activity within floodplain forests.
- Locate houses to discourage intrusion of pets into floodplain forests.
- Design recreational facilities to minimize impacts on floodplain forests.

References

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Headwater streams

Issue: Alteration of headwater streams can degrade important aquatic habitat and affect flow regimes and water quality downstream in the watershed.

Objective

- Avoid destruction and degradation of headwater streams and adjacent riparian habitats from development and other human activities.

Justification & Benefits

Streams are categorized based on their size and relationship to the rest of the stream network. Ephemeral streams flow only during snowmelt or heavy rains; intermittent streams flow for several, but not all months of the year; and perennial streams flow year-round. First-order perennial streams are the smallest distinct channels, and originate from springs and seeps, where groundwater comes to the surface. Second-order streams are formed when two first-order streams join. Third-order streams are formed from two second-order streams, and so on up to fifth-order streams, which are large rivers.

A river's headwaters include the small streams and wetlands in the higher elevations of a watershed. Headwater streams are typically only a few feet wide and a few inches to a few feet deep. They include ephemeral, intermittent, and first- and second-order perennial streams. Headwaters also include small wetlands that are hydrologically connected to stream channels by groundwater.

Headwater streams are numerous and widespread, comprising at least 80% of the stream network in the United States (Meyer et al. 2007a).

Several comprehensive watershed surveys suggest that USGS maps show less than 20% of the actual stream network in humid regions of the country, such as the northeast (Meyer et al. 2007a).

Headwater streams and wetlands are critically important to the health and functions of the rivers they feed, and their destruction or degradation can severely impair downstream reaches. Headwaters play key roles in maintaining water quality and quantity, stream and river channel integrity, and aquatic biodiversity (Lowe and Likens 2005).

Because they are small, headwater streams are highly vulnerable to impacts from terrain alteration and other human activities.

The winding channels, streambed rocks and gravel, debris dams of logs and leaf litter, and streamside vegetation of headwater streams slow surface runoff and enable water to seep into and recharge underlying groundwater.

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In the northeastern U.S., first-order streams contribute approximately 70% of the mean annual water volume in second order streams and approximately 55% of that in fourth and higher order rivers (Alexander et al. 2007).

Terrain alteration and impervious surfaces that increase the rate of flow in headwater streams can increase erosion and sedimentation along downstream reaches.

A study in northern New Hampshire documented declines of spring salamander populations in streams degraded by sedimentation (Lowe and Bolger 2002).

Heavy sediment loads retard the growth of submerged aquatic plants, clog fish and larval amphibian gills, smother fish eggs, disrupt fish behavior, and eliminate habitat for fish eggs and fry (Bjornn and Reiser 1991, Waters 1995).

Streams receive nutrients in the form of leaf litter and other debris, which supports a variety of aquatic invertebrates. Many invertebrates, their eggs and larvae are prey for small fish, salamanders, and mammals such as the water shrew.

Headwater streams remove or transform nutrients more effectively than larger streams through physical, chemical, and biological processes.

Recent research on a sampling of watersheds across North America suggests that half the nitrate removal within a river basin occurs in headwater streams (Meyers et al. 2007).

A study of eight northeastern watersheds suggests that wetlands associated with first order streams are responsible for 90% of wetland phosphorus removal (Meyers et al. 2007a).

A mathematical model based on field data from 14 headwater streams across North America suggests that 64% of inorganic nitrogen entering a small stream is retained or transformed within 1,000 yards (Meyers et al. 2007a).

Some headwater streams process organic material eight times more efficiently than fourth-order reaches downstream (Meyers et al. 2007a).

Processed organic matter forms the basis of food web for the entire river. Nutrients in the form of dissolved organic carbon, particles of fungus and leaf litter, dead plants, insects, fish and other animals, all flow downstream to support populations of other species. In Alaska, a study of fishless headwater streams concluded that enough insects and other invertebrates drifted downstream to support half of the fish population of downstream river reaches (Meyers et al. 2007a).

Headwater streams include a broad array of habitats, from cold, fast-moving brooks with alternating pools and riffles to shallow, muddy seeps, outflows of beaver ponds, and cool, clear springs. Elevation, slope, substrate, channel shape, water chemistry, and surrounding uplands all influence the aquatic life of headwater streams. Studies of three unmapped headwater streams in North Carolina documented more than 290 species of bacteria, fungi, plants, snails,

insects, crayfish, fish, and amphibians, some of which were unique to these environments (Meyer et al. 2007b).

Some fish species, including brook trout, use headwater streams for reproduction, seasonal feeding areas, and refuge during flood conditions.

Headwater wetlands also support important biological diversity. Studies have documented 274 at-risk plant and animal species in isolated wetlands, more than one-third of which are restricted to these habitats (Meyer et al. 2007).

Implementation strategies

- Conduct field survey of parcel to identify headwater streams and wetlands, including springs and seeps.
- Avoid disturbance to headwater streams and wetlands.
- Avoid terrain alteration and impervious surfaces that will increase flow rates in headwater streams.
- Avoid or minimize road crossings of headwater streams.
- Avoid construction activity within 100 ft. of ephemeral, intermittent, first and second order streams, and headwater wetlands.

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Mast stands

Issue: Development may destroy or eliminate wildlife access to stands of nut-producing trees, especially oak, beech, and hickory, which provide high value food sources important to winter survival of some wildlife species, especially black bears.

Objectives

- Ensure access to adequate fall food supply for mast-dependent wildlife.
- Minimize negative interactions between mast-dependent wildlife and people, including
 - Wildlife/vehicle collisions
 - Human exposure to wildlife-borne diseases
 - Property damage from deer and bears.

Justification/Benefits

Wild nuts, known as hard mast, are especially important food sources for native wildlife. New Hampshire's wild nut crops become available during the time of year when wildlife are preparing for winter by storing food or increasing their fat reserves.

American beech and red, white, and black oaks are the most widespread and abundant mast-producing tree species in New Hampshire. Scarlet, chestnut, and swamp white oaks; bitternut, mockernut, pignut, and shagbark hickories; beaked and American hazelnuts; and butternut also occur in New Hampshire, but are less abundant and have limited distribution in the state.

The American chestnut, formerly one of the most important mast-bearing trees in eastern North America, has nearly disappeared since accidental introduction of an Asian virus from Asia in the early 1900's. The resulting blight essentially eliminated the chestnut from New Hampshire's forests by about 1920 (Silver 1957). This loss increases the importance of the remaining mast-producing species.

Another New Hampshire mast-bearing tree, the butternut, is falling victim throughout its range in eastern North America to a rapidly spreading fungus disease (Schlarbaum et al. 1997).

American beech is also being severely impacted by a disease (an insect and fungus complex), which was introduced to Nova Scotia in the mid-1800's (Houston 2004) and reached New Hampshire by 1949 (Gavin and Peart 1993). Studies have shown that diseased beech forests have reduced foliage and mast compared to healthy stands (Storer et al. 2004).

Single ounces of acorns, beechnuts, hazelnuts, and hickory nuts contain 109, 163, 177, and 186 calories, respectively (compared to 15 calories in one ounce of apple) (Nutrition Data 2005).

Production of heavy wild nut crops is typically cyclical. Intervals between heavy crops are typically 2-8 years for American beech, 1-3 years for shagbark hickory, 4-10 years for white oak, 2-5 years for red oak, 2-3 years for black oak, and 4-5 years for chestnut oak (Burns and Honkala 1990). Maintaining a diversity of nut-bearing species within a local area increases the likelihood of at least one good mast crop in a given year.

New Hampshire's native nut-bearing trees typically begin to produce large numbers of nuts at 40-60 years of age (Burns and Honkala 1990).

A typical white oak tree growing in a forest probably produces about 10,000 acorns in a good year (Rogers 1990).

Wildlife species that rely heavily on nuts (hard mast) include black bear; white-tailed deer; red, gray, and northern and southern flying squirrels, eastern chipmunk, white-footed mouse, fisher, pine marten, wood duck, ruffed grouse, wild turkey, and blue jay (Martin et al. 1961).

Black bears are especially dependent on beech nuts in order to accumulate fat reserves for winter, and may concentrate on finding beech nuts above other foods during the fall. Bears may travel up to 100 linear miles outside of their normal range during the fall in order to take advantage of localized sources of nuts, as well as berries, other fruits, and agricultural crops (Miller 1975, Elowe 1987, Kolenosky and Strathearn 1987, Pelton 2003 in Timmins 2004).

Food abundance influences the age at which bears first reproduce, the size and frequency of litters, seasonal movements, and mortality rates (Pelton 1980).

Research in Maine indicates that nearly four times as many female black bears may reproduce in years of high beechnut production as do so in years of poor production (Jakubas et al. 2004).

When female bears lack sufficient fat reserves, fertilized eggs may not implant, fetuses may be absorbed, or cubs may die at birth from malnutrition (Timmins 2004).

Bears are more likely to damage field corn and raid dumpsters, bird feeders, and beehives in years of poor acorn and beechnut crops (Timmins 2004).

Bears prefer birdseed to most available natural foods (Hammond 2002).

Bears that overcome their natural wariness of humans to approach backyard bird feeders are at increased risk of being killed as nuisance bears or by collisions with vehicles (Hammond 2002).

Adult black bears followed by radio telemetry in the vicinity of the Stratton Mountain Ski Resort in Vermont stayed an average of 200-400 m from year-round houses, with avoidance distances varying by sex and season (Hammond 2002).

Implementation Strategies

- Consult with New Hampshire Fish & Game Department biologists to identify locations of
 - black bear habitat blocks
 - important mast standsin your area of interest.

Within or adjacent to black bear habitat blocks

- Avoid construction of houses within 300 m of important mast stands.
- Avoid construction of paved roads within 200 m of important mast stands.
- Maintain travel opportunities between important mast stands and large blocks of protected or undeveloped habitat.

In other areas

- Avoid locating house lots within important mast stands.
- Avoid locating roads between important mast stands and large blocks of protected or undeveloped habitat.

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Natural vegetation

Issue: Some development approaches remove excessive natural vegetation from the site and replace it with generic landscaping after road and building construction have been completed.

Objectives

- Minimize loss of natural vegetation resulting from construction activities.
- Capture asset value of existing vegetation by retaining special vegetative features of the site (e.g., large diameter shade trees, clumps of native flowering shrubs, patches of native vegetation).

Justification/Benefits

Most of New Hampshire's natural vegetation consists of forests, which currently cover about 84% of the state's area. Retaining natural vegetation on developed sites reduces air pollution, soil erosion, stormwater runoff, heating and cooling costs, and glare and reflection from street traffic. Natural vegetation also provides privacy and visual screening, absorbs sound, and contributes to the aesthetic quality and uniqueness of a property, neighborhood, and community.

Generic landscaping materials often are poorly adapted for site conditions, require water and fertilizer, have a high mortality rate, and require numerous growing seasons to mature enough to provide full benefits. Natural vegetation maintains rural character by enabling new developments to blend into the New Hampshire landscape.

An acre of trees uses about 2.6 tons of carbon dioxide each year (American Forestry Association).

Large (diameter >30 inches) trees in Chicago removed approximately 70 times more pollution from the air in 1991 than small (diameter < 3 inches) trees (Nowak 1994).

The surfaces of leaves and twigs trap particulate pollution that contributes to asthma and other respiratory problems. One study found that a street with no trees had 4-100 times more dust particles in the air than a nearby street with trees (Nelson 1975).

Thirty-seven medium-sized trees on approximately 6 acres can slow stormwater runoff by 37% during heavy rain (Maine Forest Service 2000).

Pavement and roofs retain 5-30% of the rainfall from a 5- to 10-year storm; an average lawn (2-7% slope) retains 75-82%, and a forested area retains 80-95% (Anderson 2000).

Red and sugar maple, basswood, and northern red oak trees in full foliage block more than 80% of the sun's visible radiation (Moffat et al. 1994).

Air pressure from winter winds affects the air in a building by pushing out air that is already warmed and pushing in cold air that has to be heated. A building's heat loss due to wind is

proportional to wind speed squared - as wind speed doubles, heat loss quadruples (Moffat et al. 1994).

A study in central Pennsylvania found that wind speeds 2 meters above the ground were 60% lower in winter and 67% lower in summer in a residential neighborhood with 67% tree cover compared to a neighborhood with no trees (Heisler 1990).

A typical mature deciduous tree evaporates 100 gallons of water per day during sunny summer weather, using about 660,000 BTUs of energy and cooling the air as effectively as five average (10,000 BTU) air conditioners (Moffat et al. 1994).

Approximately 3-8% of current electric demand for cooling is used to compensate for urban heat islands. A city's resulting demand for electricity increases by 1.5-2% for each temperature increase of one degree Fahrenheit (Akbari et al. 1990 in McPherson 1994).

Computer simulations suggest that increasing vegetation is a more cost-effective strategy for mitigating heat island effects than reducing fuel use with energy-efficient vehicles and appliances (Akbari et al. 1988 in McPherson 1994).

Vegetation scatters transmitted sound (Aylor 1972); wind moving through foliage and birds singing from trees and shrubs can mask offensive noise (Robinette 1972).

Mature vegetation can add 6-15% to the value of developed land and 20-30% to that of undeveloped land (Minnesota Society of Arboriculture 1996).

Twenty years of extensive research suggests that 15% tree cover in urban districts, 25% in urban residential and light commercial districts, and 50% in suburban residential districts are appropriate landscaping goals (Smith 1999).

Tree replacement (including purchase, delivery, and planting) costs \$214-\$455 for a one-inch diameter sapling and \$1360-\$2890 for a 5-inch diameter tree, depending on delivery distance (information from a central New Hampshire nursery).

Implementation Strategies

- On large lots, minimize the disturbed footprint of the development.
- Identify existing trees and vegetation patches to retain for landscaping.
- Design site plan to incorporate existing trees and vegetation patches into permanent site landscaping. Large shade trees, such as oaks and maples, and native flowering shrubs, such as dogwoods and shadberries, make attractive choices for retention in lawn areas.
- Avoid locating driveways, high pedestrian-use areas, and excavation and fill sites within the root protection zones of trees and vegetation patches designated for retention .
- Protect designated trees and vegetation patches during construction activities.

Definitions

Root Protection Zone: the area extending from a tree's trunk to the dripline of its longest branches.

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Shorelands and Riparian Areas

Issue: Development near wetlands and surface waters may result in removal of natural vegetation along banks and shorelines. Naturally vegetated streambanks and shorelines protect water quality and provide important wildlife habitat. Removal of riparian vegetation can result in serious damage to water quality and overall health of aquatic habitats within a watershed.

Objectives

- Maintain functional riparian and shoreland buffers to protect water quality.
- Maintain functional riparian habitat.

Justification/Benefits:

Riparian areas are upland habitats adjacent to wetlands and water bodies.

Soils in riparian areas are highly productive. Runoff from surrounding uplands and occasional flooding concentrate nutrients, sediments, and organic debris in riparian areas and high water tables provide abundant moisture to support plant growth.

Riparian areas support lush, diverse vegetation. Many plant species growing in riparian areas are adapted to tolerate flooding.

Natural vegetation in riparian areas slows surface runoff during storm events and snowmelt, enabling water to infiltrate the soil and sediments, nutrients, and debris to settle out before reaching the wetland or water body.

During flood events, riparian vegetation stabilizes stream banks and shorelines and traps debris and sediments, thus reducing erosion and sedimentation which can degrade water quality.

Riparian vegetation physically slows floodwaters and uses large volumes of water and nutrients that would otherwise enter wetlands and water bodies.

Loss of riparian vegetation along small intermittent streams can mobilize large amounts of sediment and cause significant water level fluctuations in wetlands and waterbodies downstream (Chase et al. 1995).

Riparian habitats typically support higher biological diversity than adjacent upland and aquatic habitats (Porter 1981).

Natural vegetation along streams and rivers helps maintain suitable conditions for aquatic wildlife by shading the water, minimizing sedimentation and nutrient input, and providing large woody debris which is essential to many aquatic species.

Loss of shade increases water temperatures and temperature fluctuations, reducing dissolved oxygen available to aquatic animals and can increasing stress from toxic compounds.

Some aquatic animals, such as brook trout, require clear, cool, well-oxygenated water.

Heavy sediment loads in water inhibit the growth of algae and other aquatic plants that form the basis of the food web in these ecosystems, reduces visibility for aquatic animals, and clog gills of fish and larval amphibians.

Riparian vegetation is an important source of organic debris in aquatic habitats. This debris provides nutrients, shelter, and substrates for attachment of eggs and non-mobile invertebrates.

Reduced riparian buffers are associated with decreased in aquatic biodiversity in streams (Vannote et al. 1980).

The lush vegetation of riparian areas provides an important wildlife food source in the spring. Snow melts earlier in valleys than surrounding uplands, and large mammals seek the green vegetation of riparian areas after emerging from hibernation (bears) or leaving their wintering areas (deer and moose).

Insects and feed on lush riparian vegetation and flying species with aquatic larvae provide important food sources for breeding and migrating birds. Riparian forests tend to support higher bird density and species richness than adjacent upland forests of similar vegetative structure and composition (Stauffer and Best 1980).

Riparian vegetation provides nest sites for waterfowl, which nest in tree cavities (wood duck, common goldeneye, common and hooded mergansers) or on the ground (American black duck, mallard, ring-necked duck,) up to several hundred meters away from the water (DeGraaf and Rudis 1986).

At least 15 of New Hampshire's breeding bird species require both wetlands or water bodies for foraging and nearby upland areas for nesting (DeGraaf and Rudis 1986).

Riparian areas provide relatively safe corridors for wildlife to travel through developed areas between important habitats.

Turtles spend much of their lives in aquatic habitats but nest in upland habitats, and may travel long distances to find suitable nest sites in loose dry soil.

Wood, spotted, and Blanding's turtles travel overland for many miles during spring and summer to forage and find mates as well as to nest, and depend on dense vegetation to protect them from predators.

Star-nosed moles, water shrews, northern ribbon snakes spend their lives in riparian areas.

Implementation Strategies

- Identify and map wetlands and water bodies, including streams and wetlands not shown on USGS topographic maps, and associated buffers on or adjacent to the property.
- Delineate boundaries of buffer areas on all lots with permanent markers (e.g., metal markers attached to trees).
- Avoid removal of natural vegetation within designated buffers.
- Avoid road crossings of streams and wetlands.
- Avoid construction of roads or houses within 100 ft. of wetlands and water bodies.
- Maintain connectivity among wetland and water bodies.

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Vernal pools

Issue: Development can destroy the temporary wetlands and adjacent upland areas that populations of vernal pool-breeding amphibians require for survival.

Objectives

- Maintain adequate upland and wetland habitat to support populations of vernal pool-breeding amphibians.
- Minimize degradation of pools and surrounding habitats by development and human activity.

Justification/Benefits

Vernal pools are small, seasonally flooded wetlands that are isolated from permanent waterbodies. Because they are isolated and typically shallow, most pools dry up during summer months, and thus do not support fish populations.

Some amphibians and invertebrates are specifically adapted to breed in temporary, fishless ponds. In New Hampshire, these species include Wood Frogs, Marbled, Blue-spotted, Jefferson, and Spotted salamanders, and fairy shrimp. Wood frog egg masses lack toxic compounds characteristic of the eggs of amphibians that breed in permanent water that have fish (Henrikson 1990, Crossland 1998 *in* Calhoun and deMaynadier 2004), and the larvae of wood frogs and pool-breeding salamanders have insufficient defensive adaptations to survive fish predation (Kats et al. 1988 *in* Calhoun and deMaynadier 2004).

Additional species of amphibians and invertebrates use vernal pools for feeding, breeding, or safe resting areas but do not require them. These include clam shrimp, fingernail clams, caddisflies, four-toed salamanders, eastern newts, spring peepers, American toads, grey treefrogs, and green frogs.

Vernal pools provide important foraging habitat for many animal species, including Spotted and Blanding's turtles. Vernal pools are critically important to these turtles in the early spring, when they emerge from hibernation with low energy reserves. Vernal pools, with concentrated invertebrate and amphibian eggs and larvae, provide rich food sources and relative safety from predators.

The total weight of amphibians breeding in a vernal pool in Massachusetts was greater than the total weight of breeding birds and small mammals in 50 acres of surrounding forest (Windmiller 1990).

Among the vernal pool amphibians, spotted and blue-spotted salamanders and wood frogs are relatively common and widespread, while others are rare. Marbled Salamanders are endangered in New Hampshire; Blanding's and Spotted turtles and Jefferson's salamanders are species of conservation concern.

Although vernal pool specialists sometimes breed in permanent waters that support fish populations, their breeding success is extremely limited in such sites, resulting in low

recruitment of juveniles and thus, low long-term survival (Petranka 1998 in Calhoun and deMaynadier 2004).

Individuals typically return to breed in the same vernal pool they grew up in (Duellman and Trueb 1986, Berven and Grudzin 1990, Sinsch 1990).

Vernal pool amphibians typically remain in a pool for about two weeks to breed and spend the rest of the year in the surrounding landscape, leaving their eggs in the pool to develop and hatch.

Researchers have found that salamanders travel at least 500 ft (152 m) from their breeding pools, and juvenile wood frogs disperse as far as $\frac{3}{4}$ mile (1200 m) from the pools in which they hatch (Calhoun and deMaynadier 2004).

More than 700 species of multi-cellular animals, including 22 vertebrates, have been reported from vernal pools in the glaciated Northeast. (Colburn 2004).

The diversity of species in a particular pool depends on many factors, including size, depth, hydrology, water chemistry, and surrounding upland habitat. Pools in close proximity often support very different species of wildlife (especially invertebrates), so each pool contributes significantly to the biodiversity of the surrounding landscape (Colburn 2004).

Vernal pools produce a substantial amount of invertebrate and vertebrate prey for other wildlife in the forest ecosystem, and are important linkages, or “stepping stones” for wildlife traveling among wetlands.

Adult vernal pool amphibians play an important role in the ecology of the surrounding forest up to 0.25 mi from a breeding pool, consuming insects on the forest floor and providing prey for other wildlife species (Semlitsch et al. 1996, Skelly et al. 1999, Wilbur 1980, Pough 1983, Ernst and Barbour 1989).

Vernal pool amphibians may play an important role in forest nutrient cycling by regulating soil invertebrates that break down organic materials (Burton and Likens 1975, Wyman 1998 in Calhoun and deMaynadier 2004).

Frogs and salamanders are vulnerable to drying out, due to their thin skin, and therefore require upland habitats that are damp and relatively cool. They survive best in areas with deep, uncompacted leaf litter, downed woody debris, and patches of canopy shade (deMaynadier and Hunter 1995, DiMaura and Hunter 2002 *in* Calhoun and deMaynadier 2004).

Wood frog numbers declined by 40% and spotted salamander numbers by 53% within four years after construction began at a development that affected approximately 25% of the forested upland within 1000 ft. of a breeding pool in Massachusetts (Windmiller *in* Calhoun and Klemens 2002).

Vernal pools are commonly destroyed or degraded simply because they are not recognized as important habitats.

Alteration of the uplands surrounding a vernal pool can seriously degrade its habitat value.

Existing federal and state wetlands regulations do not adequately protect vernal pools, primarily because of their small size and isolation from permanent waterbodies.

Implementation Strategies

- Identify shallow, isolated wetlands that could be seasonal pools on National Wetland Inventory (NWI) Maps and on aerial photos. Conduct field surveys to verify whether identified wetlands are seasonal pools. Document locations of vernal pools on the site plan.
- Avoid any disturbance to a pool basin and associated vegetation.
- Avoid actions that will degrade the water quality in a vernal pool.
- Avoid actions that will cause a loss of tree canopy, compaction of soil and leaf litter, creation of deep ruts, erosion, sedimentation, or alteration of vegetation and coarse woody debris within 100 feet of a pool.
- Avoid permanent construction and minimize vegetation removal and terrain alteration within 400 feet of a pool.
- Minimize roads, developments, and other fragmenting features between pools, and between pools and other wetlands.

Definitions

Mole salamander: Any salamander of the genus *Ambystoma*, all of which spend most of their time in underground burrows.

Vernal pool: A seasonal water body that is deepest in spring or fall, lacks a permanent surface water connection with other wetlands or water bodies, and lacks an established fish population (Calhoun and Klemens 2002).

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Woodland Raptor Nests

Issue: Suitable trees for raptor nests are limited in number and elimination of nest trees can lead to population declines.

Objectives

- Avoid disturbance of nesting raptors
- Avoid removal of or damage to active and potential nest trees
- Minimize disturbance to areas surrounding known and potential nest trees
- Avoid removal or degradation of critical nesting, foraging, and wintering habitat

Justification/Benefits

Raptors, or birds of prey, capture other vertebrate animals for food. Prey for various raptor species may include birds, mammals, reptiles, amphibians, fish, and large insects.

Hawks and owls are important predators in New Hampshire's forests, helping to regulate populations of prey species, particularly rodents.

Eleven species of forest-dwelling raptors breed in New Hampshire, including seven species of hawks and four species of owls.

Raptors need large home ranges compared to other forest birds in order to find enough food to survive and raise young. Saw-whet owls, New Hampshire's smallest raptors, have home ranges of about 350 acres (Simpson 1972). Larger species of hawks and owls may use areas ranging from 0.3 sq mi to more than 2 square miles (DeGraaf and Rudis 1987).

Forest-dwelling hawks build large stick nests supported by strong branches. Such nests are typically placed against the trunk of a white pine on a whorl of branches or in a three-pronged fork of a large deciduous tree.

Large trees are necessary to support hawk nests. Northern Goshawk nest trees typically have diameters of at least 12" (Speiser and Bosakowski 1987) and those of Red-shouldered Hawks, at least 17" (Nelson and Titus 1988).

Unlike songbird nests, which seldom survive a New England winter, the large stick nests of hawks persist for multiple years and may be used by the same pair or by a succession of species over the course of many breeding seasons.

Owls do not build their own nests, but use tree cavities and old nests of hawks or great blue herons.

Saw-whet Owls and Eastern Screech-Owls nest in cavities of trees at least 12" in diameter; Barred Owl cavity nests are in trees with diameters of at least 20" (Thomas et al. 1979).

Many of New Hampshire's forest raptors are relatively tolerant of human activity, and may nest within sight of houses if there is adequate habitat for hunting nearby.

Implementation Strategies

- Inspect large trees for the presence of cavities and large stick nests.
- Maintain undeveloped open space for approximately 165 ft (50 m) around trees with large stick nests.
- Retain large cavity trees when clearing for development.

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Wetlands

Issue: Development sometimes results in degradation of wetland habitat through alteration of adjacent uplands, dredging or filling of the wetland itself, or increased human activity.

Objectives

- Avoid loss and degradation of wetland habitats.
- Maintain ecological functions of wetlands.

Justification/Benefits

Wetlands occur in sites where the water table is at or near the surface of the ground. They may be transitional areas between open water and upland ecosystems, or they may be isolated from open water habitats. Wetlands occur in freshwater, saltwater, and estuarine environments.

All wetlands share three characteristics:

- very poorly drained (hydric) soils;
- flooding during all or part of the year; and
- presence of plants that are adapted to survive in flooded or saturated soils.

In New Hampshire, common wetland types include floodplain forests, swamps, marshes, peatlands, seasonal pools (see separate topic), seeps, and springs (see definitions below).

Wetlands and their associated riparian areas are ecologically important, supporting a high diversity of plant and animal life.

Wetlands play important roles in protecting water quality, storing floodwaters, and replenishing groundwater.

Wetlands protect and improve water quality by acting as filters that trap or transform excess nutrients, heavy metals, and other harmful pollutants.

Wetlands act as sponges during storm events or snow melt, absorbing large volumes of water and releasing water gradually into groundwater and downstream flow.

Research suggests that wetland draining and levee construction reduced the storage capacity of Mississippi River floodplains from the equivalent of 60 days worth of river discharge before European settlement to about 12 days of discharge in the late twentieth century, resulting in more frequent and more severe floods (Mitsch and Gosselink 1986).

Coastal wetlands are extremely important for reducing damage from hurricanes and other severe storms. Salt marshes and estuaries absorb much of the energy of storm surges and buffer coastal uplands from the full force of the water.

Wetlands increase the volume of water able to replenish groundwater by holding precipitation and runoff for long periods of time.

Nearly one third of New Hampshire's wildlife species depend on wetlands for all or part of their life cycle.

Aquatic species of invertebrates, fish, amphibians, reptiles, birds, and mammals inhabit permanent wetlands. Terrestrial animals often forage on the abundant food sources in wetlands, including plants, insects, and other prey.

Wetlands provide "stepping stones" across the landscape for small animals that require water and dense cover while seeking food, mates, or nest sites, or when dispersing.

Riverine wetlands that extend along watercourses provide travel corridors for many wildlife species, including wide-ranging animals such as moose, deer, black bear, and bobcat.

Seeps provide important water sources and foraging areas for black bears in spring and early summer (Elowe 1984), and for early spring migrants such as robins and woodcocks.

Seeps and springs provide cool water to nearby streams during hot summer months when water temperature and dissolved oxygen may limit survival of some fish and other aquatic species.

Implementation Strategies

- Avoid dredging and filling of wetlands.
- Use cluster subdivision design to minimize impacts on wetlands.
- Avoid fragmenting wetland clusters with roads and buildings.
- Avoid use of heavy equipment within 50 ft. of a spring or seep.
- Avoid constructing roads or buildings downstream of seeps where they would intercept water flow.
- Maximize undeveloped open space adjacent to wetlands.
- Minimize disturbance of uplands that drain directly into wetland basins.
- Minimize human activities near wetlands that negatively impact water quality, wildlife populations, or wildlife habitat.
- See also implementation strategies for Shorelands and Riparian Areas.
- Maintain safe access for wildlife between wetlands and areas of undeveloped upland habitat.

Definitions

Floodplain forest: forest on low terraces along river banks that are inundated by overflow during periods of high water. Silver maple dominates floodplain forests along New Hampshire's major rivers; floodplain forests along smaller rivers are more diverse, with red maple, black ash, black cherry, and ironwood as major components and hackberry, American elm, eastern cottonwood, boxelder, sycamore, swamp white oak, and river birch sometimes present.

Marsh: wetland dominated by herbaceous (non-woody) vegetation such as cat-tails, grasses, sedges, and rushes.

Peatland: wetland where dead vegetation accumulates in a thick mat because highly acidic conditions inhibit decomposition. Sphagnum moss is characteristic of peatlands; typical vegetation also includes leatherleaf, labrador tea, bog rosemary, pitcher plant, sundew, wild cranberries, and several species of orchids.

Seep: small area where groundwater comes to the surface, saturating the soil for much or all of the growing season. Sensitive fern, skunk cabbage, and jewelweed often grow in seeps.

Spring: location where water flows out of the ground, originating a stream or feeding an existing water body.

Swamp: wetland dominated by woody vegetation. Shrub swamps and red maple swamps are common in New Hampshire.

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