

Chapter VI  
CONSERVATION, PRESERVATION, AND OPEN SPACE

*“Progress must be balanced with a priority on conserving and preserving Boscawen's natural resources. The clean water, soil, and air of Boscawen are essential to its people and its future.”*

*- Conservation, Preservation, and Open Space Subcommittee*

INTRODUCTION

The last Master Plan, written in 1989, did not have a Conservation Chapter. Over the past twelve years, the sentiment of conservation and preservation of natural resources has changed dramatically and now is an essential characteristic of Boscawen.

Boscawen still considers itself a rural community, but development is moving in at a steadily increasing rate. Boscawen's proximity to Concord, seacoast, and mountains, along with its rural character, make it a much sought-after place to live and work. Large tracts of land that have been in single-family ownership for decades are becoming harder and harder to retain due to ever-increasing land values. Often, a developer is the only one who can afford these large parcels due to the quick economic return of development. In addition, the economic pressures facing agriculture have made it lucrative for farms to be sold for residential development. On a positive note, the residents of Boscawen have voiced their opinion about the future of their Town. They have overwhelmingly stated that they wish to see Boscawen remain quaint and rural, and to retain its agricultural character. The residents of Boscawen have expressed a great deal of respect for the land and an interest in conserving the rural character of the community.

The Community Survey taken in January 2001 and Community Visioning Session held in April 2001 yielded many ideas and identified critical resources that are incorporated into this Chapter. Although some of the properties that give Boscawen its rural character have already been conserved through various means, a great deal more needs to be protected, either through fee simple purchase, conservation easements, or outright donations. The data presented in this Chapter was collected from a number of sources including local, county, regional, state and federal agencies, local residents, existing reports, and maps.

The Merrimack River is a critical resource deserving protection and recognition for its contribution to the Town. The Town Forest and its adjacent parcels, including the Hirst Wildlife Management Area, is one example of an important economic and ecological resource. These two and many other resources are worthy of conservation. This Chapter will allow Boscawen to explore the opportunities available for their protection.

OBJECTIVES OF THE CHAPTER AND RECOMMENDATIONS

- To preserve the traditional, rural, and visual character of the Town of Boscawen by protecting its natural, historic, scenic, agricultural, forestry, and water resources.
  - ? Create and implement incentives for landowners to keep their land in active agriculture and forestry management.
  - ? Encourage cooperation of all Town Boards to take into consideration preservation of scenic views as detailed on the *Viewsheds Map*.
  - ? Implement ordinances to protect buffers along third order and lower streams and wetlands following guidelines of the Comprehensive Shoreland Protection Act.
  - ? Secure buffers, consistent with RSA 483, through acquisition of land or easements within a quarter-mile of the river corridor.
  - ? Secure through acquisition or easement wetlands on the northwestern boundary of the Town Forest.
  - ? Re-zone the Industrial section on the lower interval to an appropriate use such as A/R (Agricultural/Residential) and convert remaining R-1 (low-density Residential) sections along the Merrimack River to A/R.
  - ? Encourage the preservation of existing stone walls by producing an ordinance that protects walls along Town-owned roads.
- To promote the conservation, protection, and sound management of the Town's natural resources.
  - ? Conduct studies and inventories and participate in public outreach efforts with the results of the documents.
  - ? Implement actions and recommendations in the Upper Merrimack River Local Advisory Committee's *Management and Implementation Plan* [February 22, 1993].
  - ? Encourage citizens and Town officials to report sightings of threatened or endangered plants, animals, or natural communities to the NH Natural Heritage Inventory.
  - ? Acquire conservation easements on lands currently in public or utility ownership such as the Boscawen Town Forest and those of the Penacook-Boscawen Water Precinct.
  - ? Organize a Walker Pond group to participate in water quality monitoring and other conservation activities.
  - ? Obtain easements with willing landowners on land supporting significant natural resources.

- To develop tools to be used with sound planning principles to conserve Boscawen's natural, historic, scenic, agricultural, forestry, and water resources.
  - ? Conduct a thorough natural resource inventory of plants, animals, and other natural features.
  - ? Undertake a study to measure the costs of community services for Boscawen utilizing the UNH Cooperative Extension methodology.
  - ? Conduct a build-out analysis to create land use and development models.
  - ? Create overlay maps to identify significant natural resources and likely development areas.
  - ? Encourage implementation of Best Management Practices for agriculture, forestry, and residential land to reduce nonpoint source pollution, erosion, and runoff.
  - ? Create a Watershed Management Plan to address the needs and concerns surrounding one or more of the three watersheds in Boscawen.
  - ? Recommend that the Planning Board adopt a requirement for vegetated buffers along wetlands and streams in its Subdivision and Site Plan Review Regulations.
  - ? Mitigate the loss of land and water resources when new subdivisions are approved by requiring developers to set aside permanently conserved land.
  - ? Revise the Cluster Development Ordinance to standards that reflect current-day methodologies as described in the **EXISTING AND FUTURE LAND USE CHAPTER**.
  - ? Establish an annual limit on building permits to promote conservation and the preservation of natural resources.
  
- To raise the awareness of the citizens and officials in Boscawen of the importance of protecting the town's natural resources.
  - ? Organize semi-annual meetings of Town boards to facilitate collaboration and cooperation in managing the Boscawen's natural resources.
  - ? Establish a Town website with conservation and natural resource pages with links to grant programs, inventories, organizations, and other information.
  - ? Continue publishing the " Conservation Corner" column in the *Boscawen Newsvine*.
  - ? Produce brochures and newsletters and host events which inform citizens about local and state regulations regarding water, soil, agriculture, forestry, and Boscawen's other natural resources.

- ? Organize activities that focus around celebrating Earth Day each year.
- ? Encourage Boscawen schools to adopt curricula such as Interactive Lake Ecology, Project WET, Project Learning Tree, Protect WILD, and Food, Land & People.
- ? Encourage highway staff and relevant municipal officials to attend Best Management Practices workshops such as the Roads Scholar Program.
- To provide opportunities for recreational enjoyment of the Town's natural resources by Boscawen citizens.
  - ? Explore securing easements on greenways and connections among other conservation lands within and outside of Boscawen.
  - ? Conduct and host events to introduce citizens and area residents to natural resources and recreational opportunities.
  - ? Continue to expand multi-use trails in the Boscawen Town Forest.
  - ? Provide car-top and trail access to the Merrimack River and Walker Pond for wildlife viewing, hiking, biking, canoeing, kayaking, picnicking, and fishing.
  - ? Develop a non-paved, non-motorized/wheeled multi-use trail on the abandoned railway corridor.

**COMMUNITY SURVEY RESULTS**

The January 2001 Community Survey yielded favorable results supporting the preservation of natural resources. Eighty-four percent (84%) of respondents felt that preserving open space was a “very important” or “important” objective. Sixty-seven percent (67%) supported the acquisition of lands to meet this purpose.

Table VI-1

Please indicate how important the preservation of open space in Boscawen is to you:

Preserving open space	Total	Percent
Very Important	189	52%
Important	113	31%
Somewhat Important	42	12%
No Opinion	12	3%
Not Important	7	2%
Grand Total	363	100%

Table VI-2

Do you support acquisition of lands for conservation purposes?

Support acquiring conservation lands	Total	Percent
Yes	243	67%
Unsure	61	17%
No	41	11%
No Opinion	17	5%
Grand Total	362	100%

Table VI-3

Should wetlands protection be an important land management objective in Boscawen?

Importance of wetlands protection	Total	Percent
Yes	253	70%
Unsure	49	14%
No	43	12%
No Opinion	15	4%
Grand Total	360	100%

Table VI-4

Should Boscawen enact ordinances to maintain vegetated buffer areas along wetlands and streams?

Buffer ordinances enacted for wetlands and stream	Total	Percent
Yes	217	61%
Unsure	71	20%
No	49	14%
No Opinion	21	6%
Grand Total	358	100%

In addition, the protection of water resources such as wetlands and streams was positively measured. When asked what should be the most important land conservation objective, respondents replied almost equally as depicted in Table VI-5. Since respondents used a 1-10 rating system for the listed objectives, all percentages are proportionately displayed. Those scoring highest, at 12%, were forests and rivers and streams. The lowest scores, at 7% and 8% respectively, were non-game conservation and aquifers.

Table VI-5  
 What are the most important land conservation objectives to you?  
 Please number in order of importance with 1 being the most important:

Important land conservation objectives	1	2	3	4	5	6	7	8	9	10	Total	Percent
Rivers/Streams	87	80	56	37	21	7	6	5			299	12%
Forests	65	47	46	46	39	23	13	3	1		283	12%
Fish/Wildlife management	69	39	31	29	24	26	17	19	14	6	274	11%
Agriculture/Fields	78	30	24	19	33	20	33	13	8	4	262	11%
Ponds	37	26	56	47	31	31	22	11	3	3	267	11%
Recreation	33	19	26	23	12	33	36	23	26	13	244	10%
Wetlands	28	25	20	27	29	25	21	23	13	5	216	9%
Scenic Views	23	12	20	12	38	18	23	35	35	12	228	9%
Aquifers	45	18	12	17	9	17	18	28	31	10	205	8%
Non-game	10	1	4	3	9	5	5	20	34	71	162	7%
Grand Total Responses											2,440	100%

NOTE:  
 1 - Most important  
 10 - Least important

Table VI-6  
 What one special place in Boscawen  
 is most important to permanently conserve?

Places for Permanent Conservation	Total	Percent
Merrimack River Area	55	29%
Town Forest	23	12%
Patenaude's Pond	20	11%
Walker Pond	20	11%
Between Corn Hill & Queen St	11	6%
All forests	9	5%
Farms	10	5%
Parks	9	5%
Area 3	3	2%
Church at 3/4 split	3	2%
Creaser land	4	2%
Hannah Dustin Island	4	2%
Historical Sites	3	2%
Wetlands	4	2%
All of Boscawen	2	1%
Crete Farm Land	2	1%
Jamie Welch Memorial Field	2	1%
King St	2	1%
Silver farm	2	1%
Weirs farm	2	1%
Other suggestions (one vote each)	35	18%
Grand Total Responses	190	

When asked what the single most important resource is to preserve in Boscawen, almost 1/3 of replies, which were all write-ins, indicated that the Merrimack River and its immediate area were the priority. From Table VI-6, other places scoring highly include the Town Forest, Walker Pond, and Patenaude’s Pond. In general, residents felt that the percentage of acres permanently protected from development should range from 5% to 20%, which averages significantly higher than the current rate of 4.6%. Preferred methods of funding the conservation of land were grants and private fundraising (Table VI-8). Residents enjoy hiking, wildlife observation, fishing, and canoe/kayaking within Boscawen (Table VI-9).

Table VI-7

There are 15,690 acres of land in Boscawen, 566 of which are permanently protected from development (3.6%). What do you feel is the ideal goal for permanent conservation land in Boscawen?

Goals for permanent conservation lands	Total	Percent
10.0%	91	30%
5.0%	63	21%
20.0%	59	19%
3.6%	35	11%
30.0%	23	8%
50.0%	22	7%
40.0%	12	4%
other	4	
Grand Total Responses	380	

Table VI-9

In what ways do you enjoy Boscawen’s recreational opportunities? Please check all that apply:

Recreational opportunity enjoyment	Total	Percent
Wildlife observation	179	12.7%
Hiking	170	12.0%
Fishing	166	11.7%
Canoe/kayak	141	10.0%
Bird watching	126	8.9%
Boating	118	8.3%
Hunting	100	7.1%
Snowmobiling	88	6.2%
Snowshoeing	80	5.7%
Cross-country skiing	69	4.9%
Mountain biking	61	4.3%
ATV or four-wheel driving	47	3.3%
Skiing	24	1.7%
Horseback riding	20	1.4%
Trapping	11	0.8%
Other	15	1.1%
Grand Total Responses	1415	100%

Table VI-8

Which of the following methods would you support to fund land conservation purchase in Boscawen? (Please check all that apply).

Funding methods for land conservation purchase	Total	Percent
Government grants	290	43%
Private fundraising	220	32%
Warrant article at town meeting	106	16%
Town budget line item	62	9%
Grand Total Responses	678	100%

## INVENTORY OF NATURAL RESOURCES

In order to establish the need for preservation, it is necessary to inventory the resources which define Boscawen's character. The majority of this information was taken from the 1999 *CNHRPC Natural, Cultural, and Historical Resources Inventory* and from mapped sources. A series of maps was developed which depict these resources of the Town.

### **Water Resources**

The *Water Resources Map* details the water resources as noted here in this section.

#### Water Supplies

Currently, the Penacook-Boscawen Water Precinct is looking for additional wells that are free from iron and that match the quality of the Precinct's present #1 well. A Study was completed in June of 2000 to help evaluate the quality and quantity of water available for a future public water supply. Please see the **COMMUNITY AND RECREATIONAL FACILITIES AND UTILITIES CHAPTER** for further detail on public water supplies.

Between 1984 and 2000, New Hampshire Department of Environmental Services (NHDES) issued 98 private well permits to residents of Boscawen. The majority of them occur on Queen Street (20) and Corn Hill Road (10), outside of the Precinct boundaries. These new well locations have been mapped by NHDES.

#### Ponds

Patenaude's Pond is approximately 70 acres and is located on a parcel of roughly 1000 acres. The average depth of the pond is 15 feet. Privately owned, there is no public access.

Until recently, Walker Pond served as the only source of the Penacook-Boscawen Water Precinct's water supply. Walker Pond, approximately 190 acres in size with an average depth of 18 feet, has a motorcraft restriction of six or fewer horsepower. Walker Pond is shared with Webster, with approximately half of the water acreage in each Town. The Water Precinct owns about 88 acres of land bordering Walker Pond and practices good forest management on its parcels.

Flanders Pond is approximately 15 acres in size, with an average depth of four feet. Flanders Pond is an impoundment of Tannery Brook.

County Farm Pond at the Merrimack County Farm is formed by an impoundment of Glines Brook which crosses Route 3 and flows into the Merrimack River.

The pond on the present owner's property was formerly known as Moore's. It is a manmade pond supplied by Choate's Brook and is approximately one acre in size.

Couch Pond, also known as Little Pond, is situated along Beaverdam Brook north of Walker Pond on the Webster border. The pond is 5.8 acres in size, although a minority of its area (1.4 acres) lies within Boscawen.

The pond on Morse Hill (also known as Moss Hill) Road was created by the Olsens and is about 15 acres in size. It is supplied by Tannery Brook.

### Rivers

The Merrimack River, formed upstream by the confluence of the Pemigewasset and Winnepesaukee Rivers in Franklin, flows for 10.4 miles in Boscawen. Forming the boundary between Boscawen and Canterbury, the River is defined by diverse and abundant aquatic life along with physical characteristics that are unique in the Merrimack River watershed. The Merrimack River corridor in Boscawen remains relatively unspoiled and supports a wide variety of wildlife including bald eagles, osprey, herons, deer and mink as well as a healthy fish population comprised of smallmouth bass, rainbow trout and Atlantic salmon. The highest frequency of meanders on the Merrimack River also occurs in Boscawen and these intervals provide the foundation for some of the Town's most productive agricultural acreage and impressive viewsheds.

The Contoocook River flows for only 0.9 miles through Boscawen before joining the Merrimack on the southeastern border of Town. This small segment of the Contoocook River flows over a well-developed riffle area that holds abundant aquatic species and attracts a wide variety of wildlife. The river then flattens out, passes a boat launch, and the flow splits to form Hannah Dustin Island before the Contoocook reaches the Merrimack.

### Brooks

Tannery Brook has the largest drainage area in Boscawen and it flows for 5.81 miles before entering the Merrimack River just north of the Routes 3 & 4 junction. Tannery Brook is a perennial stream that supports a coldwater fishery including brook trout.

Cold Brook is a major tributary of Tannery Brook and it receives a large volume of runoff from Knowlton Hill as it flows 3.2 miles northeast to its confluence with Tannery Brook.

So-called Moores Brook originates from the east side of High Street as an outlet from a pond at Burkes Orchard. The brook flows 0.97 miles before joining with the main branch of Tannery Brook.

Glines Brook begins east of High Street in steep ravines and flows east into an impoundment on Merrimack County land, under Route 3 into more steep ravines, and eventually meets the Merrimack River. The total length of Glines Brook is 2.38 miles.

Beaverdam Brook originates in Salisbury and flows south through Couch Pond, reforming as a stream to flow into Walker Pond. Beaverdam Brook outlets Walker Pond and flows through a series of marshlands before leaving Boscawen and entering Pillsbury Lake in Webster. Eventually the brook discharges into the Contoocook River. For much of its 6.98 mile length, Beaverdam Brook forms the majority of the Boscawen/Webster political boundary.

The main branch of Stirrup Iron Brook flows 1.18 miles through Boscawen before meeting the Merrimack River. Stirrup Iron Brook flows under Route 3 and the railroad corridor through an impressive stone arch bridge. The brook supports both warmwater and coldwater fish species including margined madtoms and eastern brook trout.

The South Branch of Stirrup Iron Brook flows on private land, through County and State land, and joins Stirrup Iron Brook. Near the line between private and county land, it flows through the ruins of an old nail mill and is joined by a small, seasonal brook flowing from the south. There it forms an impressive double cascade before it winds toward its main branch.

Cabot Brook originates east of High Street and flows east toward County land. Near the border between private and County land, the brook flows through the ruins of an old mill complex. The brook then flows through steep, bedrock lined ravines where an impressive cascade is formed as it picks up a seasonal tributary before flowing east under Route 3 and completing the 3.89 mile journey to the Merrimack River.

#### Hydric Soils

Out of the total acreage of Boscawen (16,256), 9.4% is comprised of hydric soils:

Table VI-10  
Hydric Soils

Hydric Soils	Acreag	Percentage
Poorly Drained	844	5.2%
Very Poorly Drained – organic base	460	2.8%
Very Poorly Drained – mineral base	190	1.3%
Marsh	17	0.1%
Totals	1,520	9.4%

*Source: Inventory of Soil Erosion and Agricultural Waste in Merrimack County with Wet Soils Delineations, Town of Boscawen, 1979 by Soil Conservation Service*

#### Watersheds

The Town lies approximately 2/3 within the Upper Merrimack River watershed and 1/3 within the Blackwater watershed. Most of the eastern part of Town is located in the Upper Merrimack River watershed, while the western part of Town is located in the Blackwater River watershed. A very small area of Boscawen, southeast of the Merrimack River, is located in the Contoocook River watershed.

#### Stratified Drift Aquifer

A small portion of an aquifer underlies the southern portion of Town, near the Concord boundary line and the Contoocook River. A larger aquifer portion is located at the boundary of Boscawen and Webster along the Beaverdam Brook from Franklin to Beaverdam Brook headwaters. The Penacook-Boscawen Water Precinct wells tap into these water sources at various locations.

### Wetlands

Wetlands inventoried, field-checked, and mapped by the US Fish and Wildlife Service between 1986 and 1990 dot the entire Town. Large areas of mapped wetlands which do not co-occur with ponds are found along Tannery Brook, off of Corn Hill Road, within the 1000-acre parcel containing Patenaude's Pond, and off of Queen Street.

### Dams

The NHDES keeps an inventory of dams within the State. Boscawen has four known dams:

Flanders Pond  
County Farm Pond  
Walker Pond  
Contoocook River

### Protection from Nonpoint Source Pollution

The greatest threat to Boscawen's waterways is perhaps nonpoint source (NPS) pollution, also known as polluted runoff. Nonpoint source pollution is pollution that cannot be traced back to any specific source; it is the accumulated pollution resulting from everyday activities. Its effects are magnified by impervious surfaces, such as building roofs and paved surfaces. Water cannot infiltrate these surfaces, causing more water to run off over the land. As water washes over the land, it picks up oil, pesticides, nutrients, sediment, and other pollutants that have been placed into the environment by everyday activities. The runoff water flows into storm drains and sewer systems or directly into water bodies, carrying the pollutants that have been deposited. Sewers and storm drains are not the answer to this problem; they are direct lines to waterways, meaning that polluted runoff is being poured right into surface waters. As little as 10% impervious surface on a lot can begin to negatively impact a waterway. Thus, the more intensively used a piece of land is, the more nearby waterways are negatively affected by polluted runoff.

### **Land and Forestry Resources**

The *Conservation and Public Lands Map* depicts the conservation lands noted here in this section.

### Conservation Lands

In this context, tracts of land under conservation can be permanently protected from future development under the parcel's deed or they can be under temporary conservation where no such permanent restrictions are placed upon the future use of the land. In Table VI-11, those parcels which have been permanently protected from development have been identified.

Though sources differ, the generally accepted land acreage for Boscawen is 15,916, while water acreage is approximately 340. The total land and water acreage in Boscawen is 16,256. The total number of acres under both conservation categories amounts to approximately 19% of the entire Town. However, only 748.2 acres are permanently protected from development (4.6%). The following table breaks down the components:

Table VI-11  
Conservation Lands and Permanently Protected Lands

Conservation Land	Held by	Acres	Permanently Protected?	Public or Private Ownership
Merrimack County Farm	County	600	no	public
Cabot Forest	SPNHF	56.9	yes	private
Elliot (Cabot/Taylor) Forest Easement	SPNHF	66.7	yes	private
Woodman Forest	SPNHF	115	yes	private
Hirst Wildlife Management Area	State/NH F&G	155	no	public
Merrimack River State Forest	State/NH DRED	57	no	public
Sanborn Farm/Forestlands, N. Water St.	State/NH DA	160.5	yes	private
Sanborn Intervale, King St.	State/NH DA	160.3	yes	private
State Forest Nursery	State/NH DRED	887	no	public
Boscawen Elementary School Land	MV School District	90	no	public
Boscawen Town Forest	Town of Boscawen	440	no	public
Hannah Dustin Memorial	State / NH DRED	1	no	public
Cabot Easement	Town of Boscawen	14.3	yes	private
Emery Easement (Jones)	Town/LCIP Easement	32.8	yes	private
Fisher Parcel (Beaverdam Brook)	Town	6	no	public
Prince Pasture Easement	Town	1	yes	private
Water Precinct Parcels	Water Precinct	88	no	public
Sahlin Easement (Cummings)	Town/LCIP Easement	140.7	yes	private
Total Conserved Acres / Percent		3072.2	19%	
Total Permanently Conserved Acres / Percent		748.2	4.6%	

Source: SPNHF Records, 2001; Subcommittee Input

### Current Use

Property owners can file for reduced property taxes through the Current Use Taxation program. The current use value is the assessed valuation per acre of open space land based upon the income-producing capability of the land in its current use— not its real estate market value. This valuation shall be determined by the Town's assessor in accordance with the range of current use values established by the Current Use Board (CUB) and in accordance with the class, type, grade, and location of land. Owners of parcels of land which are not anticipated to be used for a different type of use in the future can apply at the Town Office for the following categories:

- ✍ "Farm land" means any cleared land devoted to or capable of agricultural or horticultural use as determined and classified by criteria developed by the Commissioner of Agriculture, Markets, and Food and adopted by the CUB.
- ✍ "Forest land" means any land growing trees as determined and classified by criteria developed by the State Forester and adopted by the CUB. For the purposes of this paragraph, the CUB shall recognize the cost of responsible land stewardship in the determination of assessment ranges.
- ✍ "Open space land" means any or all farm land, forest land, or unproductive land as defined by this section. However, "open space land" shall not include any property held by a city, town or district in another city or town for the purpose of a water supply or flood control, for which a payment in place of taxes is made in accordance with RSA 72:11.
- ✍ "Unproductive land" means land, including wetlands, which by its nature is incapable of producing agricultural or forest products due to poor soil or site characteristics, or the location of which renders it inaccessible or impractical to harvest agricultural or forest products, as determined and classified by criteria developed by the CUB. The CUB shall develop only one category for all unproductive land, setting its current use value equal to that of the lowest current use value established by the CUB for any other category.
- ✍ "Wetlands" means those areas of farm, forest and unproductive land that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Approximately 10,106 acres, or 62% of the Town's total land and water area, were in current use as of December 31, 2000.

A land use change tax shall be levied when the land use changes from open space use to a non-qualifying use. At the 1999 Boscawen Town Meeting, residents voted for a 100% land use change tax allocation, with no cap, to be deposited into the Conservation Fund to support land conservation.

Table VI-12  
Land Use Change Tax Collected, 1990-2000

	Land Use Change Tax Collected
1990	\$420
1991	\$2,000
1992	\$2,760
1993	n/a or \$0
1994	\$3,292
1995	\$2,614
1996	\$11,000
1997	\$9,200
1998	\$15,410
1999	\$20,989
2000	\$21,380

Sources: Boscawen Annual Reports and Town Files

Table VI-13  
Current Use Acreages by Land Type, 1990-2000

CU Acreage by Land Type	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991*	1990*
Farm Land	1,521.8	1,549.7	1581.9	1,635.8	1,781.6	1,817.7	1,863.7	1,967.4	2,122.4	1,617.5	1,610.6
Forest Land	7,835.3	7,852.5	7985.1	7,941.5	7,952.4	7,929.0	7,823.8	7,543.5	7,357.0	3,855.6	3,648.5
Unprod. Land	71.5	71.5	71.5	71.5	71.5	71.5	75.5	71.5	71.5	n/a	n/a
Wet Land	677.0	676.0	674.0	680.0	659.4	658.4	661.6	661.2	656.8	572.7	566.7
Total CU Acres	10,105.7	10,149.7	10,312.5	10,328.8	10,464.9	10,476.6	10,420.5	10,243.6	10,207.7	9,720.2	9,713.6

Sources: Boscawen Annual Reports, \*data discrepancy in Town Reports

Table VI-14  
Current Use Acreages Statistics, 1990-2000

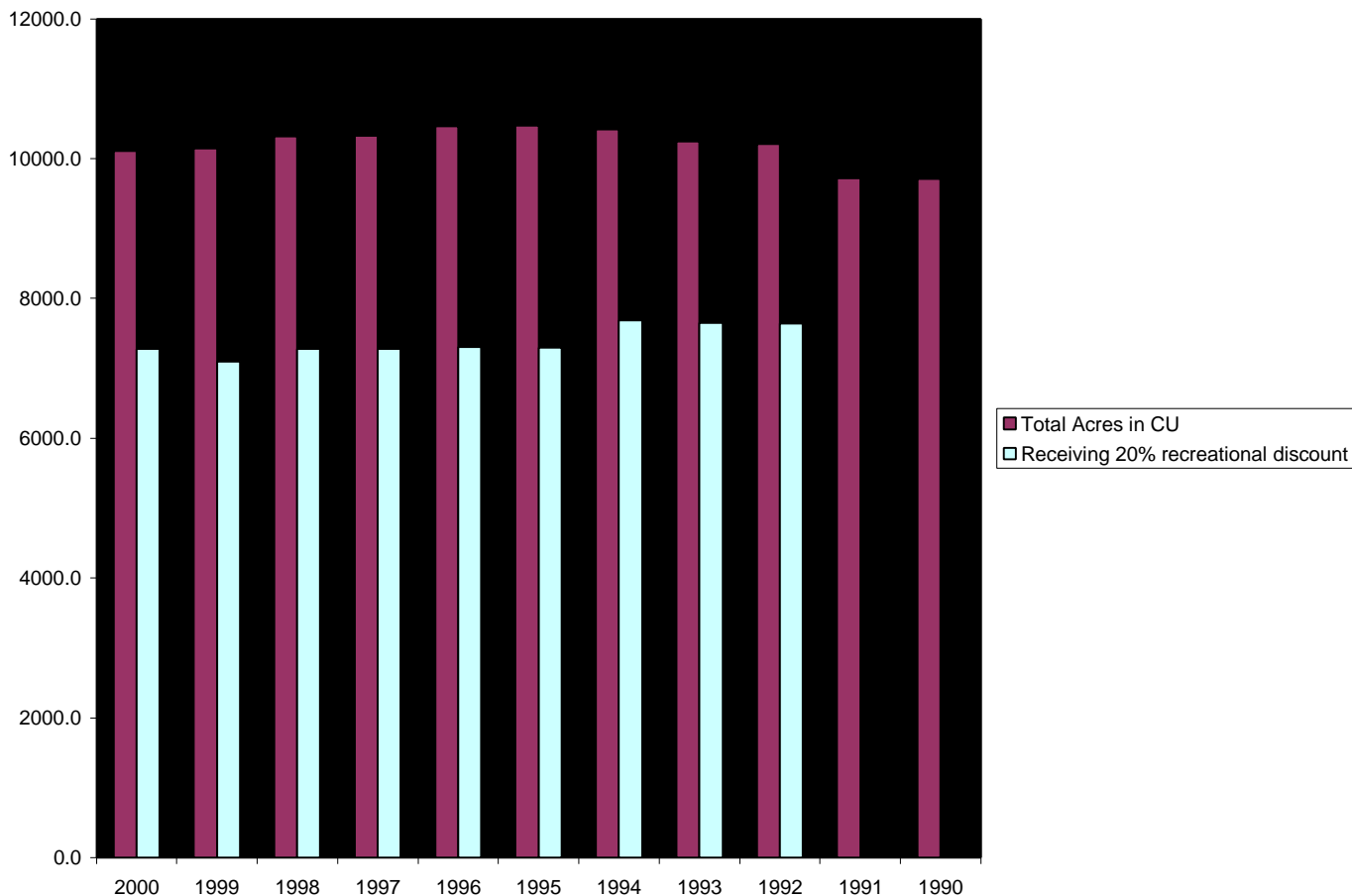
Acreage Statistics	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Total Acres in CU	10,105.7	10,149.7	10,318	10,328.8	10,464.9	10,476.6	10,420.5	10,243.6	10,207.7	9,720.2	9,713.6
Removed from CU	43.1	28.2	31.5	19.1	7.0	6.3	n/a	n/a or 0	3.9	2.8	0.8
Receiving 20% recreational discount	7,279.5	7098.8	7,276.6	7,281.5	7,303.2	7,299.8	7,688.5	7,651.1	7,643.9	n/a	n/a

Sources: Boscawen Annual Reports

Since 1990, the current use acreages have remained fairly consistent. Slowing creeping up, the number of acres removed from current use has increased to 43.1 acres in 2000. Between 1990 and 2000, the total number of acres removed from current use is 142.7 acres, which represents less than 1% of the total acreage of the Town.

As documented in Figure VI-1, the majority of acres under current use are receiving a 20% discount for allowing the public to use their land for recreational purposes for twelve months of the year.

Figure VI-1  
Current Use vs Recreational Discount, 1990-200



Sources: Boscawen Annual Reports

**Agricultural Resources**

The *Agricultural Soils Map* of Boscawen depicts the location of the best soils in Town for farming. Prime farmland soils, soils of statewide importance, and soils of local importance to Merrimack County are depicted using the 1965 Soil Conservation Service (now Natural Resources Conservation Service, the NRCS) Survey. A comprehensive update to the Merrimack County Soil Survey by the NRCS is underway and is anticipated to be completed by fall of 2002. This update should include a change from the alpha-categorization of soils, as shown here, to a numeric categorization.

Prime farmland soils are described nationally as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and are also available for these uses. Most of the 1,062 acres found in Boscawen are concentrated in the Merrimack River intervals, north of Walker Pond, or along Daniel Webster Highway south of the Salisbury, Franklin, and Northfield town lines.

Table VI-15  
Prime Farmland Soils in New Hampshire

Map Unit Symbol	Map Unit Name and Slopes	Acres in Boscawen
AfA	Agawam Very Fine Sandy Loam, 0-3%	
AfB	Agawam Very Fine Sandy Loam, 3-8%	
BcB	Belgrade Silt Loam, 0-8%	
NnA	Ninigret Very Fine Sandy Loam, 0-3%	
Oh	Ondawa Fine Sandy Loam, high bottom	
PaB	Paxton Loam, 0-8%	
Po	Podunk Fine Sandy Loam	
WoB	Woodbridge Loam, 0-8%	
Ru	Rumney Fine Sandy Loam	
Of	Ondawa Fine Sandy Loam	
Total Prime Farmland Acres in Boscawen		

Sources: Soil Conservation Service 1965; Natural Resource Conservation Service, October 2000

Categorized soils of Statewide importance, shown below in Table VI-16, have properties that exclude them from the prime farmland list. However, they are important to agriculture in the State of New Hampshire. They produce fair to good crop yields when properly treated and managed. As a general rule, erosion control and irrigation practices are necessary to produce high-yield crops. The areas of the 716 acres found in Boscawen are scattered throughout Town, but concentrations are found in the Valley of Industry and its outlying areas, along Queen Street, and along the northern portion of Daniel Webster Highway.

Table VI-16  
Soils of Statewide Importance

Map Unit Symbol	Map Unit Name and Slopes	Acres in Boscawen	
AcB	Acton Fine Sandy Loam, 0-8%		
GcB	Gloucester Sandy Loam, 3-8%		
GcC	Gloucester Sandy Loam, 8-15%		
HmB	Hermon Sandy Loam, 3-8%		
HmC	Hermon Sandy Loam, 8-15%		
MmC	Merrimac Sandy Loam, 8-15%		
PaC	Paxton Loam, 8-15%		
SgB	Shapleigh-Gloucester Sandy Loams, 3-8%		
SuA	Sudbury Fine Sandy Loam, 0-3%		
SuB	Sudbury Fine Sandy Loam, 3-8%		
WoC	Woodbridge Loam, 8-15%		
Total Soils of Statewide Importance Acres in Boscawen			716

Sources: Soil Conservation Service 1965; Natural Resource Conservation Service, October 2000

Soils of local importance are identified by County agencies within the State. These soils also support the production of food, feed, fiber, forage, and oilseed crops. These soils produce fair to good crops when managed properly. In Boscawen, 2,571 acres of the total land acreage of the Town (15,916) are identified as soils of local importance to Merrimack County. These soils are mainly found on top of the stratified drift aquifers (along the Merrimack River, in lower Boscawen, and north of Walker Pond). An additional concentration is found in the north-central part of Town along High Street.

Table VI-17  
Soils of Local (Merrimack County) Importance

Map Unit Symbol	Map Unit Name and Slopes	Acres in Boscawen	
AgA	Au Gres Fine Sandy Loam, 0-3%		
AgB	Au Gres Fine Sandy Loam, 3-8%		
AuB	Au Gres Loamy Sand, 0-8%		
CoA	Colton Loamy Sand, 0-3%		
CoB	Colton Loamy Sand, 3-8%		
DuB	Duane Fine Sandy Loam, 0-8%		
GrB	Gloucester Very Stony Sandy Loam, 3-8%		
HnB	Hermon Very Stony Sandy Loam, 3-8%		
HsA	Hinckley Loamy Sand, 0-3%		
HsB	Hinckley Loamy Sand, 3-8%		
Lm	Limerick Silt Loam, high bottom		
PnB	Paxton Very Stony Loam, 3-8%		
PnC	Paxton Very Stony Loam, 8-15%		
RbA	Ridgebury Loam, 0-3%		
RbB	Ridgebury Loam, 3-8%		
Sy	Suncook Loamy Sand		
WdA	Windsor Loamy Sand, 0-3%		
WdB	Windsor Loamy Sand, 3-8%		
WdC	Windsor Loamy Sand, 8-15%		
WvB	Woodbridge Very Stony Loam, 0-8%		
WvC	Woodbridge Very Stony Loam, 8-15%		
Total Soils of Local Importance Acres in Boscawen			2,571

Sources: Soil Conservation Service 1965; Natural Resource Conservation Service, October 2000

The following is a list of active farms and orchards in Boscawen, all of which are extremely important to protect from development or other change of use:

Table VI-18  
Active Farms and Orchards in Boscawen

Name(s)	Location	Products or Use
Apple Ridge Farm & Orchard (LaRochelle & Cassidy)	Water Street	flowers, vegetables
Avaloch (Tauber) Farm	Hardy Lane	fruit
Bevens Orchard	High Street	apples
Black Forest Nursery	Forest Lane	trees, shrubs, flowers
Colby (Banks, Folsom, Choate & Gerrish) Farms	High Street	hay, pasturage, orchard
Corn Hill Farm, LLC (Towle & Callahan)	Corn Hill Road	deer
County Farm	Daniel Webster Highway	wood, hay, etc
Cummings (Sahlin) Farm	Water Street	hay, livestock
French Farm	Water Street	hay
Highway View Farm (Crete Farm)	River Road	active dairy
Jones (Fisher) Farm & Orchard	Water Street	stock
Jones (Emery) Farm	Goodhue Road	leased hay
Knowlton Farm	Knowlton Road	hay
Knoxland Farm (Rattee)	River Road	leased hay
Marshall Farm	North Main Street	pumpkins, corn
McKerley Farm	Daniel Webster Highway	deer
Morrill Farm	Water Street	hay, corn, pasture
Porter Farm	River Road	peppers
Raymond (Barvenick) Farm	High Street	hay
Richardson Farm	Water Street	flowers, vegetables
Raleigh Farm	North Water Street	leased corn
St. Jacques Horse Farm	Water Street	training horses
Silver Farms	Water Street	hay, corn, seasonal stock
Sunrise Knoll (Jaworski Farm)	Queen Street	hay, leased corn, syrup
Sweatt (Hall) Farm	Water Street	small fruit
Woodbury Farm	Water Street	stock, hay, syrup

Source: Subcommittee input

### Forest Resources

There are a number of certified Tree Farms in Town. They include those owned by the Town of Boscawen, the Society for the Protection of NH Forests, the NH Department of Fish and Game, and privately owned lands. Many additional properties in Boscawen have considerable timber value, including those mentioned above as farms and orchards.

Table VI-19  
Timber Tax Collections, 1990-2000

	Timber Tax Collected
1990	\$5,314
1991	\$4,928
1992	\$4,084
1993	\$21,930
1994	\$37,549
1995	\$34,049
1996	\$13,790
1997	\$32,905
1998	\$23,500
1999	\$32,084
2000	\$14,899

Sources: Boscawen Annual Reports and Town Files

Table VI-20  
Active Forest Management Areas

Property Name(s)	Location	Type / Description
Colby Properties	High Street	softwoods, cordwoods
Morrill Farms	Water Street	softwoods
Niebling Property	Water Street	timber
Sanborn Property	Water Street	timber
Davis Property	Water Street	hardwood & hemlock
Colby (R) Property	Water Street	soft & hardwoods
Olsen Properties	Water Street	timber
Cummings Property	Water Street	timber
Jones Property	Water Street	timber
Avaloch Farms	Water Street	timber
Silver Farms	Water Street	timber
Larochelle Property	Water Street	timber
Millard Property	Water Street	timber
Knowlton Property	Water Street	timber
Wolf Property	Daniel Webster Highway	timber
McKerley Property	Daniel Webster Highway	timber
Holmes Property	Daniel Webster Highway	timber
Merrimack County	Daniel Webster Highway	timber
State of NH (Merr River State Forest)	Daniel Webster Highway	timber
Bartlett Property	Corn Hill Road	timber
French Property	Corn Hill Road	timber
Woodman Property	Corn Hill Road	timber
Russell Property	Queen Street	timber
Patenaude Property	Queen Street	timber
Town Forest	Queen Street	timber
NH Fish & Game	Queen Street	timber
Sumner Property	Queen Street	timber
Creaser Property	Queen Street	timber
Carey Property	Queen Street	timber

Source: Subcommittee input

Table VI-21  
Forest Soil Groups

Forest Soils Type	Definition	Types of Wood
1A	Deeper loamy soils, moderately- to well-drained	prime northern hardwood
1B	Sandy or loamy soils, moderately- to well-drained	oak & beech
1C	Outwash sands & gravels	white pine
2A	1A & 1B with limitations (very steep, shallow, or rocky)	northern hardwood
2B	Poorly drained soils	northern spruce & fir
not considered	muck & peat, rock outcrop, gravel pits, marsh, etc	n/a

The *Integrated Natural Resource Management Plan, Boscawen Town Forest* is currently being revised by an ad-hoc Committee of the Conservation Commission. The forest is managed cooperatively by the Boscawen Conservation Commission and the NH Department of Fish and Game. The cooperative agreement was executed November, 1990.

### Geologic Resources

There are many other interesting natural geological features within Boscawen. They include a variety of gorges and eskers, glacial erratics between Routes 3 and 4, gravel pits at the gateway to the Town on Route 4 at Concord/Boscawen intersection, clay along Cold Brook, a cave on Colby Farm, cliffs along King Street and Route 4 on Colby Farm, and a soapstone mine on High Street.

The *Construction Materials Map* and the *Development Constraints Map* of the EXISTING AND FUTURE LAND USE CHAPTER depict the location of permitted gravel operations and slopes greater than 15%.

### Surficial Geology

One of the most significant features is a drumlin in the southeastern part of Town, directly north of the Unnamed Pond. Various stratified gravel deposits lie in kame terraces and eskers, with corresponding outwash plains, in the Tannery Brook area. Stratified sand and silt from glacial outwash lie next to the Merrimack River just south of the Northfield town line.

A number of hills and mountains within Boscawen create a unique topography that serves to enhance the visual and scenic character of the Town. They are depicted on the *Viewsheds Map*.

Table VI-22  
Hills and Mountain

Name	Description or Location
Clark Hill (aka Crete Hill)	west side of Lower King St
Clay Hill	north bank of Corn Hill
Colby Hill (formerly Gerrish Hill)	north of Colby residence
Collins Hill	unknown (historical name)
Dagody Hill	southern boundary at Concord TL, 620'
Jackman Hill (aka Chadwick Hill)	Chadwick Hill Road
Knowlton Hill	upper Queen Street, 760'
Plummer Hill	off Corn Hill Road
Poplar Hill	between Daniel Webster Highway and High Street
Raleigh Hill	North Water Street to Salisbury line
The Mountain	west of King Street, section known as Windy Ghoul
Unnamed Hill	in Boscawen Town Forest, ledge outcropping

Sources: Subcommittee input; CNHRPC 1999 Natural, Cultural and Historical Resources Inventory

Bedrock Geology

Two-thirds of Boscawen is underlain by the Littleton Formation of Undifferentiated Schists and Gneiss, which are comprised mostly of gray mica. The remaining one third of Town, in the northwestern section, is underlain by an unnamed pluton composed of Granodiorite-Biotite Quartz Monzonite (mostly quartz, some garnet). A vein of garnet extends north-south through the center of Boscawen.

Excavation Materials

Boscawen has several excavation operations in Town. A few are located near the Merrimack or Contoocook Rivers on the eastern side of Town, and a few others are dispersed throughout Boscawen, especially in the Morse Hill Road area. The specific locations and tax map and lot numbers can be found in the **EXISTING AND FUTURE LAND USE CHAPTER**.

Table VI-23  
Selected Intent to Excavate Application Facts, 2001-2002

Total Acreage Permitted to Excavate, 2001-2002	287.02
Total Acres Previously Excavated on Lots as of 4/1/01	17.625
Total Acres Reclaimed on Lots as of 4/1/01	2.5

Source: Town Files

## Ecological Resources

### NH Natural Heritage Inventory (NHI)

Several outstanding plant and animal species have been identified in Boscawen since the 1930s, as well as one outstanding natural community, and recorded NHI program's database. It is known that other species and communities do presently exist in Boscawen, and efforts should be made to report the information to the NHI.

The Flatstem Pondweed (*Potamogeton zosteriformis*) is threatened in New Hampshire, but not listed as such federally or globally. Only two locations in the State within the last twenty years have been reported to harbor this plant, with the last occurrence in Boscawen in 1946.

A natural community valued as extremely high in importance is the terrestrial community Floodplain Forest along the Merrimack River. The State has only twenty-three other such communities.

The invertebrate mollusk Brook Floater (*Alasmidonta varicosa*) is listed in the State as endangered. Only one occurrence in Boscawen within the last twenty years has been recorded.

The vertebrate Blanding's Turtle (*Emydoidea blandingii*), not a native species to New Hampshire, has been reported to be found in Boscawen only once within the last twenty years.

Although the Fowler's Toad (*Bufo folseri*) is often sighted in the Merrimack River area of Boscawen, the Natural Heritage Inventory has not been recently alerted to its presence.

The Pied-Billed Grebe (*Podilymbus podiceps*) is listed as endangered in the State and has only been reported in Boscawen once within the last twenty years.

### Corridors

Corridors and greenways are typically used not only by people for recreation or transportation, but also by wildlife to travel from one habitat to another. Maintaining viable and undeveloped corridors ultimately measures the biological success of the animals, particularly larger mammals, within an area. The following corridors have been identified in Boscawen:

A large riparian corridor is located along the Merrimack River which forms the entire eastern boundary of the Town, spanning 10.4 miles by meandering currents. The majority of the Merrimack corridor north of Jamie Welch Memorial Field is undeveloped, while the southern portion within Boscawen contains commercial, agricultural, or industrial activity combined with less developed habitat.

The abandoned Boston and Maine Railroad corridor, over seven (7) miles long and approximately 80' wide, follows the Merrimack River from Boscawen's southern Concord boundary to its northern Franklin boundary. The corridor is currently owned by the State of New Hampshire and managed by the NH Department of Resources and Economic Development. It is actively used in the winter by a local snowmobile club.

Class VI and discontinued roads, such as Merrill Corner Road, Morse Hill Road, Cat Hole Road, a portion of Weir Road, and Chadwick Hill Road, serve as corridors for animal movement. These old roads are often conduits for travel as the pathways have already been established and human activity is limited. Additional Class VI roads include Hale Road, Cross Street, the northern half of Stirrup Iron Road, Newbury Street, Mutton Road, and Marlboro Road.

#### Exemplary Natural Communities

Other special, undisturbed lands are essential for the biological diversity of plants and animals. The more biodiversity found within an area, the more valuable and self-sustaining the community becomes from both ecological and economic perspectives. The following natural communities have been identified in Boscawen:

Hirst Wildlife Marsh Area, owned by the NH Fish and Game, is critical habitat for freshwater wetlands species. It is managed cooperatively with the Boscawen Town Forest.

The 70-acre Patenaude's Pond, with its rare undeveloped shorefront, is situated within a nearly 1000-acre parcel in the southwestern part of Town. Abutting the Town Forest, the parcel itself is also undeveloped and supports a wide variety of plant and animal species.

Olsen Pond, Walker Pond, County Farm Pond (along Glines Brook), Stirrup Iron Pond, Tannery Brook, and Choate Brook are among the Town's significant natural water resource communities.

At this time, no heron rookeries have been identified in Town although several local marshes and wetlands may accommodate them. Herons are frequently sighted along the Merrimack, at Walker Pond, and at other waterbodies in Boscawen, including wetlands.

Egrets and mink have been spotted on the Merrimack River.

Colby and Fisher swamps between Route 4 and Water Street, Colby Swamp between Route 4 and Route 3, and the swamp on Corn Hill Road are important areas for maintaining Boscawen's biological and ecological diversity, as well as the State's diversity.

#### Viewsheds

A number of viewsheds have been identified on the *Viewsheds Map*. They include scenic views of the Merrimack River, neighboring towns, Mount Kearsarge, farmlands, and the White Mountains. Infrastructure should be designed to maintain these unrennewable assets to Boscawen.

### CURRENT AND PROPOSED REGULATORY PRESERVATION MEASURES

There are many techniques available to assist with conserving natural resources. Regulatory protection measures are an important part of a Town's preservation toolkit.

#### **Cluster Development Zoning**

Boscawen's current Cluster Development Ordinance was written based upon older principles which do not fully address present-day needs and conflict with Zoning Districts themselves. A revision of the Cluster Development Ordinance should be undertaken using an approach which minimizes conflicts with surrounding land uses and considers the environmental opportunities of the sites, with the goal of maximizing open space and minimizing fragmentation. The revision should also address the appropriateness of cluster zoning relative to the zone and the site.

An answer to the sprawling landform created under conventional cookie cutter subdivisions is a new approach to subdivision design for rural areas, as outlined in the book entitled *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks*, by Randall Arendt (Island Press, 1996). Figures in the **EXISTING AND FUTURE LAND USE CHAPTER** show graphics from Arendt's book depicting the typical scenario for the development of a parcel under the conservation development design process. In its most basic form, the conservation development process can be broken into six logical steps, which are not the typical steps taken for a conventional subdivision:

1. Create a "yield plan" for the site that assesses the number of viable building lots on the site under a conventional subdivision design. This plan establishes the density for the conservation development design. Although a yield plan is conceptual, it must be consistent with Town ordinances and regulations already in place.
2. Prepare a conservation site analysis plan that identifies prominent open spaces and important natural features broken out into primary and secondary conservation areas. Primary conservation areas are those resources for which development should be excluded almost without exception. Secondary conservation areas are those that should not be developed, if at all possible.
3. After evaluating the primary and secondary conservation areas, locate the portions of the site most suitable for development.
4. Locate dwelling unit sites using innovative arrangements to maximize views of open space and resources.
5. Locate and design the road and pedestrian travel ways, maximize the protection of viewsheds and natural terrain in the design, and locate septic fields.
6. Delineate lot lines.

Under this approach, use existing minimum lot sizes as the basis for conventional residential density on the best soils, with reduced densities according to declining soil quality. The current minimum lot sizes for residential uses should represent the maximum aggregate density on the best soils under the soils-based lot sizing approach. Lower quality soils should require lower density development. Primary conservation areas may include wetlands, steep slopes, aquifer recharge zones, and floodplains. Secondary conservation areas may include stonewalls, viewsheds, prominent vegetation, prominent landforms, prime agricultural soils, historic sites and features, archeological sites, and communities and species identified in the Natural Heritage Inventory.

### **Large Lot Forestry and Agricultural Zoning**

Planning theory states that dividing developing land, or potentially developing land, into larger lots will slow development and preserve open space and rural character. The goal of these two types of zoning is to provide large enough blocks of land that they can be managed for a specific resource value. If this technique is used, lot sizes that truly reflect the amount of land needed to allow for commercially viable use of the land and are related to the reality of the use of the land in the area must be established.

### **Overlay Districts**

Overlay zoning districts can be used by communities to define and apply special regulations to a particular resource. Once resource areas of concern are identified, the Planning Board must establish what kind of special regulations apply to that particular resource.

Ground Water Protection Districts  
Mountain Conservation Districts  
Steep Slope Districts

Historic Districts  
Forestry Districts  
Agricultural Districts

### **Aesthetics-Based Land Use Regulations**

Because the appearance of the community, including views of simple things like tree-lined streets, mixed farm land, forests, historic buildings and water resources that largely define Boscawen's traditional landscape, is so important to the fabric of the community, there must be a priority placed on preserving them. Planning regulations addressing lot size, placement of buildings, signage, as well as landscaping are typically used to address aesthetic elements of the community.

### **Environmental Science-Based Regulations**

Environmental science-based land use regulations are based directly upon measurable characteristics of the land-base of the community, rather than on possibly arbitrary standards established by people. Regulations based on the characteristics of the land may reflect the actual ability of the land base to sustain development and are often easier to defend against legal challenges than those arbitrarily created.

**Flexible Zoning**

Flexible zoning is an alternative to traditional fixed zoning regulations. It allows for more latitude in adapting proposed land use changes to the desires of the community, the wishes of the developer, and the characteristic of the resource base. Extra care must be taken in designing these regulations, to ensure that both the intent of the zoning and the conditions that must be met to qualify for it are clear to the Planning Board, developer, and residents.

**Urban Growth Districts**

An urban growth district allows the community to define one or more areas where growth and development will be concentrated. This typically includes a downtown area and sometimes existing areas with higher concentrations of development. Desired growth will take place inside of the district, thus preserving open space in other parts of the Town. Development within the urban growth area can still be regulated by various zoning standards, but density regulations should be adjusted to accommodate a denser development pattern.

**Phased Growth Plan**

Towns may adopt regulations to control the rate of development. In certain rapid growth situations, slowing the rate of development can be a way to retain some open space from development for a short period of time, during which it may be possible to determine if there is a need or mechanism to preserve it permanently.

**Limitations to the Number of Building Permits**

One way to help conserve open space in the short-term in a community is to establish a maximum number of new building permits that will be allowed in any given year. The number of permits allowed annually needs to be correlated in some meaningful way with the growth pressure on the community. This type of growth control strategy needs to be carefully crafted to accurately reflect the goals of the community and to avoid the perception of creating "snob zoning."

**Open Space/Village Design Planning**

Rather than filling all available space with similar-sized houses centered on uniformly sized lots, this development strategy focuses the construction in a smaller portion of the total land being developed, and provides for permanent protection of the open space not used for construction. The land selected for permanent open space protection should be designed to fulfill the open space interests of the entire community.

### **NON-REGULATORY PRESERVATION MEASURES**

Volunteer efforts to conserve land are recognizable and are often more appreciated than regulatory requirements. Hand in hand, regulatory and non-regulatory methods work together to serve the community's preservation interests.

#### **Conservation Easement**

A conservation easement is a permanent, legally binding agreement that ensures that certain uses will never be allowed on that property. Typically conservation easements prevent development of land uses such as construction, subdivision, and mining but allow uses such as agriculture, forestry, wildlife habitat, scenic views, watershed protection, and education. The agreement exists between a willing landowner and a qualified recipient, which can be the Town or State government or various conservation organizations. Each conservation easement is tailored to the interests of the landowner, the receiving entity, and the unique characteristics of the property. The land can be sold or deeded by the original owner and subsequent owners, but an easement is binding to all future owners.

#### **Management Agreement**

These management agreements are conservation easements applied to particular land uses. Each focuses on a particular open space value and a management agreement can be custom tailored to any specific situation.

Right-of-Way for Trails - The Town may protect open space along a recreational trail corridor area. The right-of-way could be arranged and exist as a legal agreement between the Town/nonprofit organization and the owner of the land where the trail is located.

Wildlife Corridors - Open space can be protected for its value in allowing wildlife to travel from one place to another safely. Working with maps indicating where certain species can be found, probable travel corridors could be recognized. Once areas are recognized, the Town could then create plans to acquire, protect, or manage these important corridors.

Buffers Between Uses - Buffers between incompatible land uses can ensure that development and growth within the Town does not have a negative impact on the rural and scenic qualities that the Town values.

#### **Dollars and Sense of Open Space**

New Hampshire studies, such as the *Dollars and Sense of Open Space* by the NH Wildlife Federation and *Does Open Space Pay* by the UNH Cooperative Extension show that open space brings in more revenue to a town than it requires in services. The general consensus is that less development, particularly residential development, means lower taxes. More houses require, among other community services, additional roads to maintain and the providing of more schooling for children. In Chester, it cost the community \$449,206 more to educate children from 117 new homes than those new residents paid in taxes. In Peterborough, the 188-home Pine Ridge Development cost the town \$128,124 more than it brought in taxes.

The Boscawen Conservation Commission has hosted the *Dollars and Sense of Open Space* presentation for area communities. Although it is not the intent of this Chapter, Master Plan, or Town to discourage growth, all growth and further use of land must be managed in a way which will be sustainable for future generations. A study to measure the costs of community services for Boscawen should be undertaken.

#### USE AND PROTECTION OF NATURAL RESOURCES

There are numerous mechanisms available for protecting and conserving a community's natural, scenic, historic and agricultural resources. A very effective, but costly method is fee simple purchase of the resource. Because of the limited funding available, this method is the most challenging for the Town. In the majority of the cases, fee simple ownership is not necessary to achieve effective protection of the resource.

In some instances, however, fee simple acquisition of a parcel may be the best alternative for protection. Some landowners may no longer be willing to own and manage their property. They may still want to insure that it will be protected and maintained for future generations, thus fee simple acquisition in these cases should be considered.

Easements provide another option of protection when the Town may want less than fee simple ownership. Purchase of the development rights would insure the continuation of, for example, agricultural use, while compensating the owner for the lost rights to develop the property at a cost significantly less than fee simple purchase. This could be accomplished through mechanisms such as the Land and Community Heritage Investment Program, through a municipal or regional land trust, or through the Farmland Protection Program, a federally funded program that is a 50/50 venture with communities.

#### **Merrimack River**

The water resources in Boscawen are important assets to the Town. The streams, rivers, ponds, wetlands and aquifers provide diverse wildlife habitats, numerous recreational opportunities, ground water recharge, water supplies, and many scenic views and vistas. It should be a priority for the Town of Boscawen to preserve and protect its water resources.

Conservation easements could be used to acquire development rights and public access to parcels with river frontage. Easements for a trail network that would allow public passage in existing developed areas could be used to complete the trail system. In addition, acquisition of key parcels may be required to allow for boat/canoe put-in and take-out areas, picnic areas and public parks linked by the trail system. Acquiring buffer strips along the Merrimack River should be a priority of the Town of Boscawen. The Comprehensive Shoreland Protection Act should also be incorporated directly into the Town's regulations as part of the effort.

Healthy watersheds are vital for a sound environment and economy by providing for drinking water, irrigation, industry, and habitat. Managing the Town's watersheds and other natural resources is an effective and efficient way to sustain the local economy and environmental health. The Town should create a Watershed Management Plan for one or more of its three watersheds.

Water quality should be protected through acquisition of land or easements or the adoption of land use regulations to avoid ground and surface water pollution and erosion and sedimentation. Once a body of water has been contaminated, the restoration of the ground and surface waters is costly, time consuming, and often a futile endeavor.

Zoning should be used to protect large, dispersed, critical environmental resources such as floodplains, wetlands, steep slopes, and aquifers. For example, it would be difficult, costly and inefficient for the Town to purchase all of its wetland areas when effective protection could be accomplished through zoning. A Wetlands Conservation District could be designed to restrict use of the wetland, to establish minimum setback requirements for structures, parking and other impervious areas, to establish minimum setbacks for agricultural, excavation, and forest activities, to require maintenance of a vegetative buffer strip, and to eliminate wetland areas from the overall calculation of minimum lot size. This District would adequately protect the wetland resource at no cost to the Town, and this means may also be used to protect wetlands not specific to a district. Principles of the Comprehensive Shoreline Protection Act should be used as guidelines.

### **Agriculture**

Agriculture is another resource important to Boscawen. Historically, agriculture was the major land use in the Town. Many of the original agricultural fields have grown fallow and reverted to forests. Today, Boscawen contains some large, contiguous parcels of active farmland. Many of the existing agricultural conservation programs are concerned mainly with prime farmland soils and the productivity of the land. While these factors should not be ignored, they are not the only measures for evaluating the importance of agricultural areas. Farms provide open space for viewing fields and hillsides, hunting opportunities, habitat, as well as scenic views of the farm itself. The visual presence of the farm buildings, pastures, croplands, and orchards are essential to the character of Boscawen. Farms, in general, provide the variety of habitats-- fields, forests, streams, wetlands, and transitional areas-- essential for species diversity. Preservation of farmland aids in preservation of wildlife habitat. In addition, farmland preservation generally provides multiple benefits as mentioned earlier. Therefore, agricultural preservation should be a priority for the Boscawen. The Town should seek to acquire development rights and easements to agricultural lands to ensure the continuation of farming in the community.

### **Forestry**

The forests of Boscawen have long been an important part of the Town's history. The early settlers used the forest as a source of building material, fuel, and food. By the mid-1800s, most of the once-majestic forests were cleared for farmland. However, much of the land proved unsuitable for agriculture, and the abandoned fields and pastures quickly reverted to forest. The drier, sandy plains tended to favor pine, while the hillsides favored a mixed forest of oak, maple, birch, pine, and hemlock. These forests are once again providing a source of sawtimber and firewood to the local population along with providing a place for recreation, wildlife habitat, and watershed protection. Publicly owned forests such as the State and Town Forests, as well as many private woodlots in the Town, are managed in a way to ensure that the forests remain a viable resource to help meet the future needs of the townspeople.

### **Recreational Opportunities**

Working land that is actively managed for agriculture and forestry is maintained as open space. Properly managed open space is essential for wildlife habitat and contributes to maintaining clean soil and water. Open space provides a variety of recreational opportunities including wildlife viewing, hiking, cross-country skiing, cycling, and hunting. Scenic vistas or "viewsheds" not only enhance recreation and contribute to the quality of life of a community, but also develop a community's tourism opportunities. The Town Forest is an example of a variety of recreational opportunities within this context. An interpretive trail, hunting, wildlife observation, and other activities are commonly practiced. The Merrimack River is another opportunity. Private enterprises in Boscawen provide residents and visitors with outdoor activities. More recreational opportunities should be explored in conjunction with preservation of the land. Recreational needs and opportunities are further discussed in the **COMMUNITY AND RECREATIONAL FACILITIES AND UTILITIES CHAPTER**.

### **Land Use**

Open spaces are vital to a healthy local economy, a livable community, and responsible management of the natural resources of a municipality. Well-managed forestry and agricultural lands are an asset to the financial well-being of a community by creating a sustainable source of income for the owner, who pays taxes and fees to the community. A healthy community offers the diversity of agriculture and forestry as part of its commercial and industrial land uses. Conflicts of land use should be minimized and upheld within the Zoning Ordinance.

### **POTENTIAL FUNDING SOURCES FOR CONSERVATION PROJECTS**

While the list of choices for funding conservation and preservation endeavors is ever-changing with respect to local, regional, state, and federal grant programs, municipal "income" opportunities remain relatively stable. In addition, a municipal dollar-match is most often required in order to obtain any type of grant funding.

#### **Municipal Contributions to the Conservation Fund**

Many Towns have created a separate Conservation Fund or an open space acquisition fund, through vote at Town Meeting, specifically for the purpose of paying for land acquisition or easements. Money for these funds may come from Town budget appropriations, land use change taxes, or proceeds from managing or selling Town property, just to name a few.

Appropriation from Town Budget - The Town can regularly set aside money for a Conservation Fund in their annual Town budgeting process. The land use change tax allocation to the Conservation Fund is an additional tool provided by a vote at Town Meeting.

Proceeds from Managing or Selling Town Property - Towns that have property or resources that they manage often can provide income to the Town as well as the Conservation Fund. This is frequently done through timber harvest operations on mature forest land owned by the Town. The proceeds from the sale of Town property can also be dedicated to the Conservation Fund.

Bond Issue - The Town may agree to borrow money for a conservation project through a municipal bond issue.

Town Surplus Funds - The Town can apply funds, if they are available, that are left over from prior years' budgets to fund conservation projects.

Tax Liens - When the Town acquires property because the owner has not paid all of the taxes on the property, the Town can keep and manage the land and include it in as part of the Town's conservation plan. On the other hand, if there is little resource value in the land, it could be sold and the revenue placed into the Conservation Fund.

Fines - Fines imposed for misuse of Town property could be allocated to the Conservation Fund by a vote at Town Meeting.

#### **Land and Community Heritage Investment Program**

This State fund is designed to assist communities that want to conserve outstanding natural, historic, and cultural resources. There is a requirement that the Towns match the State money from this fund with a 50% match from other sources, which can include an "in kind" match, as well as funds from other sources.

**State of New Hampshire Funding Sources**

The Departments of Environmental Services, Agriculture, Transportation, Resources and Economic Development, and many other State agencies offer grants on a matching basis to assist with conservation-related projects. Although not in a centralized listing, research can yield a number of grant opportunities to help offset the municipal costs of a project.

**Federal Funding Sources**

There are many potential funding sources at the federal level. Depending on the type of project to be undertaken, the federal government has an updated register of hundreds of grant programs located in the Catalog of Federal Domestic Assistance, currently at <http://aspe.os.dhhs.gov/cfda/ialph.htm>. The US Department of Agriculture office in Concord offers numerous free or low-cost services to municipalities.

**In-Kind Services or Mini-Grants from Quasi-Public Entities**

The UNH Cooperative Extension and the Central NH Regional Planning Commission offer a variety of free or very low-cost services to municipalities within their respective areas. They may be able to provide technical assistance to help a town pursue grant funds, research potential grant opportunities, or perform training or site inspections.

**Grants from Foundations**

The Town would need to research available grants and develop proposals to seek funding to conserve a particular piece of property or type of resource within the Town. Funding could be sought from foundations at the local, state, regional, and national level.

**Cooperative Ventures with Private Organizations**

When the interests of the Town to conserve open space correspond with the interests of a private organization, the potential for a cooperative partnership to protect land exists. This tactic will require some creative thinking and introductory discussions by Town officials with area organizations who have, or could develop, an interest in conserving open space.

### CONSERVATION PLANNING REFERENCES

In order to assist the Planning Board, Conservation Commission, Board of Selectmen and other entities with implementing several of the recommendations listed in the beginning of the Chapter, a list of reference material has been compiled. This is merely a sampling of the vast number of resources available for conservation planning:

*Alternative Techniques for Managing Growth*, Irving Schiffman, Institute of Governmental Studies Press 1999.

*Balancing Nature and Commerce in Gateway Communities*, Jim Howe, Ed McMahon and Luther Post, the Conservation Fund and the Sonoran Institute.

*Comprehensive Shoreland Protection Act*, New Hampshire RSA 483:11.

*Conservation Design for Subdivisions*, Randall Arendt, Island Press 1996.

*Conservation Easements for New Hampshire Farms: A Guide for Decision Making*, NH Coalition for Sustaining Agriculture, UNH Cooperative Extension.

*Does Open Space Pay?*, Philip A Auger, University of New Hampshire Cooperative Extension.

*Identifying and Protecting New Hampshire's Significant Wildlife Habitat: A Guide for Towns and Conservation Groups*, Nongame and Endangered Wildlife Program of the NH Department of Fish and Game.

*Minimum Impact Development Partnership "MID Toolbox,"* The Jordan Institute, <http://www.nhmid.org/toolbox.htm>.

*New Hampshire's Vanishing Forests: Conversion, Fragmentation, and Parcelization of Forests in the Granite State*, Society for the Protection of NH Forests 2001.

*Open Space for New Hampshire: A Toolbook of Techniques for the New Millenium*, NH Wildlife Trust Preserving Rural Character Kit, NH Coalition for Sustaining Agriculture, UNH Cooperative Extension.

*Rural by Design*, Randall Arendt et al, American Planning Association 1994.

[Upper Merrimack River] *Management and Implementation Plan*, Upper Merrimack River Local Advisory Committee.

*Upper Merrimack Wild and Scenic River Study, Draft Report*, Upper Merrimack River Local Advisory Committee with assistance from the National Park Service.

*1999 Natural Cultural, and Historical Resources Inventory of the Central New Hampshire Region*, Regional Environmental Planning Program of the Central NH Regional Planning Commission.

### SUMMARY

The traditional land uses of agriculture and forestry are strong and important components of Boscawen's rural character. These working lands support Boscawen's economy, wildlife habitat, and open space. The Recommendations listed in the beginning of this Chapter resulted from the input of Boscawen citizens through the Community Survey, at the Visioning Session, and at subsequent meetings. The Recommendations should be implemented to create management tools that respect Boscawen's history and enhance its natural beauty.

Outreach is critical to assure that Boscawen citizens are aware of the many natural resources and features of their Town. The Boscawen Conservation Commission, the Upper Merrimack River Local Advisory Committee, and other volunteer groups should be supported in their continuing efforts to provide the Town with natural resource, recreation, and conservation information through the media, publications, curricula, and events.

Through the Survey and Visioning Session, the people of Boscawen voiced a strong desire for conservation. A full 95% indicated that conservation was "important" to them with over half of the respondents replying that it was "very important." Those surveyed indicated that they enjoy Boscawen's open spaces for a variety of outdoor activities. Many, 65%, indicated that they are concerned that development may make it difficult for them to access private lands for recreation. Despite the strong desire for open space— only 748.2 acres or 4.6% of Boscawen's lands— are permanently protected.

In the survey, 67% indicated that they support acquisition of lands for conservation purposes. Most respondents indicated that they believe that government grants and private fundraising should pay for conservation lands. The reality is that grant cycles for most funds occur once or twice a year and are highly competitive. Private fundraising is daunting for small towns and volunteer organizations.

Boscawen should invest in conservation commensurate with the desire and commitment expressed by its citizens. Funds raised through warrant articles and budget line items are a first step in Boscawen investing in and shaping its future. Additionally, these funds could potentially complement and leverage government grants and private fundraising where and when available. Because open space pays, the return to the citizens of Boscawen on their investment will be an improved quality of life with lower taxes, the maintenance of the Town's rural character, and economic prosperity.