

## Chapter 8 NATURAL RESOURCES

Boscawen still considers itself a rural community and the protection, preservation and enhancement of the natural environment are important to residents. Boscawen's proximity to Concord, the seacoast, and mountains, along with its rural character, makes it an attractive place to live and work. The residents of Boscawen have voiced their opinion about the future of their Town through surveys and other public outreach efforts. They have overwhelmingly stated that they wish to see Boscawen remain quaint and rural, and retain its agricultural character. Residents have expressed a great deal of respect for the land and an interest in conserving the rural character of the community.

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 Marsh Wildlife Management Area, are examples of an important economic and ecological resource. These two and many other resources are important to conserve. This Chapter describes Boscawen's natural features, including land, water and wildlife. It also identifies current threats to natural resources that can be used to prioritize actions, including resource protection efforts, and to target certain recommendations.

### CHAPTER VISION

Boscawen supports stewardship of its natural resources by:

- ✓ Actively participating in opportunities to conserve and protect important resources.
- ✓ Maintaining healthy watersheds with high-quality ground and surface water.
- ✓ Ensuring land use regulations protect and enhance natural systems that support healthy and diverse habitats.

### Land Resources

A summary of Boscawen's terrain, including geology and soils, gives important clues about constraints for development in certain areas. This information can be helpful when drafting regulations or in conducting a site suitability analysis as assessing potential constraints can identify areas more suited to a particular use than others.

#### CLIMATE

Land resources and how they are developed can have a direct/indirect impact on climate. As an example, land use decisions that lead to sprawling development patterns result in more paved surfaces, less forest cover and open space, and reliance on automobiles to

access needed services, leading to more generated heat, runoff and erosion, as well as energy consumption and emissions.

Broader climate events, associated with the frequency and intensity of storm events, have occurred throughout New Hampshire (NH), leading to increases in annual average precipitation and the amount of rainfall associated with storm events. These extreme precipitation events can cause damage to infrastructure, homes, businesses, drinking water supplies, recreation areas, and our ecosystems. Making informed land use decisions that evaluate potential flooding, erosion, and impacts to key natural resources, ecosystems and habitats is an important goal of creating a resilient, healthy community. For a full discussion of natural hazard risks, please refer to [Boscawen's Hazard Mitigation Plan](#).

#### GEOLOGY AND SOILS

There are many natural geological features within Boscawen. They include a variety of gorges, eskers, and glacial erratics (rocks carried by a glacier) between Routes 3 and 4, gravel pits at the gateway to the Town on Route 4 at the Concord/Boscawen intersection, clay along Cold Brook, cliffs along King Street and Route 4 on Colby Farm.

#### *Geology*

One of the most significant features is a drumlin (oval hill of glacial deposits) in the southeastern part of Town, directly north of the Unnamed Pond. Various stratified deposits lie in the Tannery Brook areas and include glacial deposits known as kame terraces as well as eskers, the long, narrow ridges that formed in subsurface water river tunnels in or under a glacier. Stratified sand and silt from glacial outwash lie next to the Merrimack River just south of the Northfield town line.

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

#### NOVEMBER 2016 OPEN HOUSE

On November 14, 2016, Boscawen held an open house at the Winthrop Carter House as part of a Municipal Technical Assistance Grant that focused on rezoning and revitalizing the King Street corridor in Boscawen. Many of the attendees at the open house voiced their opinions regarding Boscawen's rural character and recreational opportunities such as the rail trail and the Merrimack River. Of those present, many stated that they would like to utilize the river and the rail trail more, and desire additional parking and adding a river front park. It was suggested by some that bicycle and canoe rentals would bring more utilization to these resources, and contribute to attracting new residents and tourists to Boscawen.

Table 8-1: Hills and Mountain

Name	Description or Location
Ariat Mountain	west of King Street, section known as Windy Ghoul
Choate Hill	between Daniel Webster Highway and High Street
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
Raleigh Hill	North Water Street to Salisbury line
Boscawen Hill	in Boscawen Town Forest, ledge outcropping

Source: 2004 Master Plan and Boscawen Town Staff

**Bedrock**

Nearly half of Boscawen is underlain by Spaulding Tonalite, specifically in the northern portion of Town and along the Merrimack River. Perry Mountain Formation is also one of the prominent bedrock types in Boscawen. An area of Smalls Falls Formation can be found in the northeast portion of Town; other bedrock types found throughout Boscawen include areas of Upper and Lower Rangeley Formation, Littleton Formation, and Madrid Formation. These can be viewed on the **Bedrock Geology Map**.

**SAND AND GRAVEL DEPOSITS**

Large deposits of sand and gravel are important for two main reasons: they are permeable and can hold and transmit groundwater in large quantities, serving as an aquifer; and they also can be a valuable source of construction material. Because of their permeability, sand and gravel deposits are very vulnerable to contamination. Once contaminants are spilled or dumped, they can quickly spread. Therefore, special attention should be given to regulating land uses over sand and gravel deposits.

The Town of Boscawen issues permits for commercial sand and gravel excavation under New Hampshire’s state statute (RSA 155-E:4-a) and through the Table of Uses in the Boscawen Zoning Ordinance. As shown in Table 8-2, there are currently four active privately owned sand and gravel pit operations that will need to be reclaimed once all of the financially viable deposits have been removed. Reclamation means the restoration of an excavation site to a standard at least equal to those outlined in Town regulations. Since the conditions present in active and abandoned excavation areas can provide unique and

**NAMING BOSCAWEN HILL**

In the Fall of 2018, a competition was held at Boscawen Elementary School to name an “Unnamed Hill” in the Town Forest. When all the votes were counted, Boscawen Hill was declared the winner. Students from grades 2 through 5 participated in the competition. Second place was Bear Hill, followed by Shimmering Hill and Unicorn Hill. The students were very excited to be in charge of something so important!

important wildlife habitat, reclamation should provide for leaving some of these areas open for wildlife. For more detail on excavation sites in Boscawen, please refer to the Existing and Future Land Use Chapter.

**Table 8-2: Excavation Sites in Boscawen**

Map/Lot #	Lot Acreage	Status
81/212	256.4	Active
47/40	50.0	Inactive
81/19A	4.5	Active
79/123	7.77	Inactive
94/23	130.0	Active
183D/134	12.99	Active

*Source: Town of Boscawen Records, 2018*

#### AGRICULTURAL LAND AND SOILS

The Natural Resource Conservation Service (NRCS) soil mapping program inventories the complex patterns of soils and organizes them into groups as a useful and understandable planning tool. Using NRCS derived data compiled in GRANIT's database, prime farmland soils are delineated on the **Prime Farmland Soils Map** and the and identified in the Tables below.

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 628 acres found in Boscawen are concentrated along the Merrimack River intervalles, north of Walker Pond, or along Daniel Webster Highway south of the Salisbury, Franklin, and Northfield town lines.

**Table 8-3: Prime Farmland Soils in Boscawen**

Map Symbol	Full Name	Hydrolic Rating	Drain Class	Farmland Class	Total Acres
101A	Ondawa very fine sandy loam, 0 to 3 percent slopes, frequently flooded	Not Hydric	Well drained	Prime farmland if protected from flooding or not frequently flooded during the growing season	126
104A	Podunk fine sandy loam, 0 to 3 percent slopes, frequently flooded	Partially Hydric	Moderately well drained	Prime farmland if protected from flooding or not frequently flooded during growing season	13
166B	Canterbury fine sandy loam, 3 to 8 percent slopes	Partially Hydric	Well drained	All areas are prime farmland	20
201A	Ondawa very fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Partially Hydric	Well drained	All areas are prime farmland	369
478B	Gilmanton fine sandy loam, 3 to 8 percent slopes	Partially Hydric	Moderately well drained	All areas are prime farmland	22
48A	Madawaska loamy sand, 0 to 3 percent slopes	Partially Hydric	Moderately well drained	All areas are prime farmland	22
64A	Groveton fine sandy loam, 0 to 3 percent slopes	Not Hydric	Well drained	All areas are prime farmland	56
Total prime farmland acres					628

*Sources: NH GRANIT February 2009, Agricultural Chapter of Boscawen Master Plan, May 2014*

There are many other soils that are excluded from prime farmland soils due to their properties but still are considered important to the State of New Hampshire and locally in Merrimack County. These soils produce fair to good crop yields when managed properly and also support the production of food, feed, fiber, and oilseed crops. Together with the prime farmland soils indicated in Table 8-3, these soils represent approximately 9% (1,346 acres) of the Town’s total land area. Although these soils are not detailed in this Chapter of the Master Plan, they can be found mapped and outlined in the Agricultural Chapter of the Boscawen Master Plan dated May 2014.

Active farms, orchards and agricultural enterprises comprise at least 3559 acres or 22% of Boscawen’s total area. Several factors such as land availability, transportation routes, walking routes and access to markets are some of the other important factors that affect location. Table 8-4 is a list of active farms, orchards, and agricultural enterprises in Boscawen, all of which are extremely important to protect from development or other use changes.

**Table 8-4: Active Farms and Orchards in Boscawen**

Farm	Owner	Map/Lot	Location	Acreage	Use
Apple Ridge Farm & Orchard	Larochelle Family Trust	45/2	Water Street	58	Flowers, vegetables, equine
Avaloch Farm	Tauber, Alfred	96/7 47/56/2 96/7/1	Hardy Lane	85 21 44	Fruit, silage, hay
Black Forest Nursery	John & Sue Maze	81D/87/1	King Street	4	Trees, shrubs, flowers
Colby	JM Colby Trust	47/9 47/24	High Street	97 116	Hay, timber
Colby	JM & JG Colby Gerrish Trust	47/20B	High Street & Merrill Corner	86	Hay, timber
Colby	JG & BV Colby	47/15 47/30	High Street	258 27	Hay, timber
Colby	RG Colby Trust	47/28 94/37	High Street & North Water Street	40 120	Hay, timber
Water Street Farm	Water Street Farm	47/44 97/17	Water Street & Backland	164	Hay, timber
Jones Farm – Water Street	Jones, Jeffery	47/40	Water Street	35	Hay
Merrimack County Farm	MC Farm	49/21	Daniel Webster Highway	483	Hay, timber
Tom Gilmore	Tome Gilmore	96/3	Water Street	144	Hay, silage
Highway View Farm	Crete, Martha, Trustee	81/3 81/4 81/5 81/6 81D/1 183D/1 183D/2 183D/7 183D/8	River Road	114 8 112 9 155 170 4 1 19	Active dairy, corn, beef

Table 8-4: Active Farms and Orchards in Boscawen Continued

Farm	Owner	Map/Lot	Location	Acreage	Use
Mason Donovan	Mason Donovan	45/4	Water Street	106	Hay
Peor Es Nada Farm	John & Barbara Keegan Family Trust	45/54	Corn Hill Road	89	Timber, eggs, vegetables, maple
Marshall Farm	Marshall, Keith	183D/14	North Main Street	39	Pumpkins, vegetables
Morrill Farm Water/Long	Morrill Trust	96/1	Long Street	122	Hay
Porter Farm Porter's Perfect Peppers	Porter, John	183D/8/A	River Road	1	Peppers, blueberries, potatoes
Richardson Farm	Richardson, James & Susan	47/42 47/45	Water Street	109	Flowers, vegetables, ice cream, baked goods
Sanborn/Sarah Millard	Sarah Millard	94/3 94/24	North Water Street	131	Leased corn, hay
Goodrich Horse Farm - Foster Meadows	Goodrich, Pamela	47/40/1	Water Street	96	Training horses
Sanborn Farm	Sanborn Trust RW AV	81D/11	King Street	3	Horses
Sunrise Knoll	Jaworski, Charles	83/39A	Queen Street	27	Hay, leased corn, beef, eggs
Sweatt Farm	Mary Pearson, Dot Sweatt & Linda Riel	94/21	Long Street	74	Hay
Rangeway Farm	Hardy, Alan & Pam	96/5	Water Street	88	Stock, hay
Pustizzi Fruit Farm	Pustizzi Trust, Joseph	45/47 45/47/A 45/61	Corn Hill Road	144 113 22	Fruits, vegetables, maple syrup, eggs
Udder Hope Farm	Paul & Valerie Strieby	45/6 45/6/2 45/6/3	Water Street	12 11 10	Dairy, poultry beef, eggs, vegetables
Boutwell	Boutwell, Martin	45/46/1	Corn Hill Road	18	Hay, beef
Total acreage				3,559	

Sources: NH GRANIT February 2009, Agricultural Chapter of Boscawen Master Plan, May 2014  
Updated by Boscawen Planning Board, 2018

\*'Active farm' means an agricultural enterprise with a gross annual income of \$1,500 or more

### FOREST LAND AND SOILS

Forests serve a number of functions in both the community and the region, including protecting public water supplies and surface waters, serving as a source of renewable energy, providing lumber and other forest products, wildlife habitat, providing outdoor recreational opportunities, and contributing to the rural character of the community. According to the NH Wildlife Action Plan (WAP), Boscawen is located in the forest region characterized as mainly comprised of Hemlock-hardwood-pine and Appalachian oak-pine. Typical Hemlock Hardwood-Pine Forests are comprised mostly of hemlock, white pine, beech and oak trees. This forest type is the most common in NH, covering nearly 50% of the state and providing habitat for wildlife species such as the eastern box turtle, wood thrush, Canada warbler and American woodcock. Appalachian Oak-Pine Forests contain oak, hickory, mountain laurel and sugar maples and many wildlife species use these forests

including black bear, whip-poor-wills, ruffed grouse and eastern hognose snakes. See the [WAP](#) for more detailed information on these habitats.

The Boscawen Town Forest consists of 259 acres located along Weir Road in the southwest corner of Town, adjacent to both the Town of Webster and the City of Concord. It abuts the NH Fish and Game Department's Hirst Wildlife Management Area and conservation land owned by the City of Concord, forming a large block of permanent conservation land with diverse wildlife habitat, productive forest soils and valuable timber resources, unique natural communities, and tremendous current and potential recreation values.



*Cleared field at the Town Forest*

The Boscawen Conservation Commission (BCC) has had formal management responsibility of the Town Forest since 1982. In 2017, the BCC retained a licensed forester to update an inventory of timber resource as well as recommendations for recreational management, timber and habitat management for the next ten years. Recommendations for the next ten years are organized by management activities. More detail is available in the Updated Timber Inventory and Recommended Forest Management Practices dated August 2017. The privately owned wood lots in Town are managed by landowners, often with the aid of professional foresters. A Tree Farm is a privately owned forest managed to produce timber with added benefits of improved wildlife habitat, water quality, recreation, and scenic values. The American Tree Farm System (ATFS) is the national tree farm program that encourages private forest owners to actively manage their forests in a sustainable manner for many values such as wildlife habitat, recreation, and water quality. Launched in 1942, its mission is to promote the growing and harvesting of renewable forest resources while

protecting the environment and increasing public understanding of all benefits of productive forestry. Currently, there are over 14,300 tree farms in NH covering 38,600 acres of land. There are eight properties encompassing 1,429 acres in Boscawen enrolled in the tree farm program.



*Pine cut as part of Timber Harvest, 2017*

Several private, nonprofit organizations also manage their forests, such as the Forest Society, the New England Forestry Foundation, NH Audubon, the Nature Conservancy, and other local or regional land trusts. Table 8-5 lists both managed and active forest properties in Boscawen.

**Table 8-5: Active Forest Properties**

Property Name(s)	Owner	Map/Lot	Location	Acreage	Use
Colby	JM Colby Trust	47/9 47/24	High Street	97 116	Hay, timber
Colby	JM & JG Colby Gerrish Trust	47/20/B	High Street	86	Hay, timber
Colby	JG & BV Colby	47/15 47/30	High Street	258 27	Hay, timber
Colby	RG Colby Trust	47/28 94/37	High Street	40 120	Hay, timber
Colby	JG & JM Colby BoscawenTrust	47/10 47/10 47/29A	High Street	150 52 124	Hay, timber
<i>Morrill Farms</i>	<i>Morrill Trustees. DJM &amp; EM</i>	96/1	<i>Long Street</i>	122	<i>Softwoods</i>
<i>Niebling Property</i>	<i>Charles &amp; Mabel Niebling</i>	94/27	<i>North Water Street</i>	67	<i>Timber</i>
Sarah Millard	Sarah Millard	94/3 94/24	North Water Street	131	Timber
Lorden Property	Lorden, Pamela	94/34	North Water Street	59	Hardwood, hemlock
Olsen Properties	Olsen Family Partnership, Stanley	94/38 94/40	North Water Street	48 256	Timber
Gilmore Property	Tom Gilmore	96/3	Water Street	144	Timber
Jones Property	Jones, Jeffrey	47/16	Water Street	35	Timber
Avaloch Farms	Tauber, Alfred	96/7 47/56/2 96/7/1	Hardy Lane	85 21 44	Timber
Water Street Farm	Addie Mock	47/44 94/17	Water Street	89 75	Timber

Table 8-5: Active Forest Properties Continued

Property Name(s)	Owner	Map/Lot	Location	Acreage	Use
Larochelle Property	Larochelle Family Trust	45/2	Water Street	58	Timber
Millard Property	Millard Trust, Maxwell and Elizabeth	45/3 45/77 94/4 94/7 81D/92	Water Street	117	Timber
<i>Justin West</i>	<i>Justin West</i>	<i>79/2</i>	<i>Daniel Webster Highway</i>	<i>77</i>	<i>Timber</i>
Anderson, Bennett, Wolf, Gechman	Anderson, Bennett, Wolf, Gechman	79/67 79/68	Daniel Webster Highway	155	Timber
McKerley Property	McKerley Trust, Sharon Johnson	47/6 47/8	Daniel Webster Highway	304	Timber
Moreno Property	Scott & Christine Moreno	49/2/1	Daniel Webster Highway	6	Timber
<i>Merrimack County</i>	<i>Merrimack County Farm</i>	<i>49/21</i>	<i>Daniel Webster Highway</i>	<i>483</i>	<i>Timber</i>
<i>State of NH (State Forest)</i>	<i>NH St Forest Nursery</i>	<i>49/8 49/11</i>	<i>Stirrup Iron Road, Daniel Webster Highway</i>	<i>435</i>	<i>Timber</i>
Bartlett Property	Bartlett, Todd & Susan	81D/67A /2 67A/3, 68	Newbury Road	15	Timber
<i>Woodman Lot</i>	<i>Society for Protection of NH Forests</i>	<i>45/62</i>	<i>Corn Hill Road</i>	<i>93</i>	<i>Timber</i>
<i>Cabot Forest</i>	<i>Society of Protection of NH Forests</i>	<i>49/23/1</i>	<i>High Street</i>	<i>57</i>	<i>Timber</i>
<i>Society for Protection of NH Forests</i>	<i>Society for Protection of NH Forests</i>	<i>94/1</i>	<i>Mutton Road</i>	<i>2</i>	<i>Timber</i>
<i>JJ Kelly Property/Horizon Holdings</i>	<i>JJ Kelly</i>	<i>83/57 83/44</i>	<i>Queen Street</i>	<i>1002</i>	<i>Timber</i>
<i>Town Forest</i>	<i>Town of Boscawen</i>	<i>83/49</i>	<i>Weir Road</i>	<i>259</i>	<i>Timber</i>
<i>NH Fish &amp; Game</i>	<i>NH Fish &amp; Game</i>	<i>83/62</i>	<i>Queen Street</i>	<i>140</i>	<i>Timber</i>
<i>Peor Es Nada Farm</i>	<i>John &amp; Barbara Keegan Family Trust</i>	<i>45/54</i>	<i>Corn Hill Road</i>	<i>89</i>	<i>Timber, maple syrup, hunting, hiking, birding</i>
<i>Corn Hill Farm, LLC</i>	<i>DeAlmeida, Joseph</i>	<i>45/46/2</i>	<i>Corn Hill Road</i>	<i>103</i>	<i>Timber</i>
<i>Town Conservation Property</i>	<i>Town of Boscawen</i>	<i>83/7</i>	<i>Queen Street</i>	<i>296</i>	<i>Timber</i>
Carey Property	Carey Trust, Bridget	81D/91 91A & B 96	Queen Street & Newbury Road	61	Timber
<i>Jean V Lawrie</i>	<i>Jean V Lawrie</i>	<i>45/94</i>	<i>Corn Hill Road</i>	<i>113</i>	<i>Timber</i>
<i>Integrity Holdings</i>	<i>Integrity Holdings</i>	<i>47/1</i>	<i>Daniel Webster Highway</i>	<i>175</i>	<i>Timber</i>
<i>Ronald Wareing</i>	<i>Ronald Wareing</i>	<i>47/39</i>	<i>Water Street</i>	<i>49</i>	<i>Timber</i>

**Table 8-5: Active Forest Properties Continued**

Property Name(s)	Owner	Map/Lot	Location	Acreage	Use
<i>Gail Devoid</i>	<i>Gail Devoid</i>	<i>49/56,57,58,61 &amp; 62</i>	<i>High Street</i>	<i>85</i>	<i>Timber</i>
<i>Wayne Patenaude</i>	<i>Wayne Patenaude</i>	<i>81/18</i>	<i>Queen Street</i>	<i>25</i>	<i>Timber</i>
<i>Keith Marshall</i>	<i>Keith Marshall</i>	<i>83/5</i>	<i>North Main Street</i>	<i>27</i>	<i>Timber</i>
<i>Jennifer Ashworth &amp; Alan Wayne O'day Jr.</i>	<i>Jennifer Ashworth &amp; Alan Wayne O'day Jr.</i>	<i>87/7/1</i>	<i>Queen Street</i>	<i>18</i>	<i>Timber</i>
<i>James M Pierce</i>	<i>James M Pierce</i>	<i>83/33/C</i>	<i>Queen Street</i>	<i>14</i>	<i>Timber</i>
<i>Richard Green</i>	<i>Richard Green</i>	<i>83/41 &amp; 83, 41-1 thru 5</i>	<i>Queen Street</i>	<i>19</i>	<i>Timber</i>
<i>Nathan &amp; Valerie Mock</i>	<i>Nathan &amp; Valerie Mock</i>	<i>94/12/1</i>	<i>North Water Street</i>	<i>60</i>	<i>Timber</i>
<i>Whyte Land Dev.</i>	<i>Whyte Land Dev.</i>	<i>81B/56/A</i>	<i>North Main Street</i>	<i>58</i>	<i>Timber</i>
<i>Rebecca Jones</i>	<i>Rebecca Jones</i>	<i>81D/67</i> <i>81D/70</i>	<i>Newbury and High Street</i>	<i>3</i> <i>128</i>	<i>Timber</i>

*Source: Agriculture Chapter, Master Plan, 2014  
 Updated by Boscawen Planning Board 2018  
 Note: Italic are Managed Forest Properties*

Owners of forested areas in NH are taxed under the real estate tax, since privately owned forested land is considered real estate. However, timber is only taxed at the time it is cut and at a rate that attempts to encourage the growth of forested areas. Most recently, \$6,474.21 was collected in 2017. All funds generated from the timber tax are allocated to the general operating account.

Forestry soils are organized into categories that identify important forest soils groups, using characteristics such as depth to bedrock, texture, saturated hydraulic conductivity, available water capacity, drainage class, and slope. These groupings can help in evaluating the relative productivity of soils and how soil and site interactions can influence management or land use decisions. There are definitions for each soil grouping with Group I soils having the highest potential for commercial forest products, suitability for native tree growth, and overall forest use and management. For a complete list of definitions, please refer to the summary developed by [UNH Cooperative Extension](#). Forestry soils can be seen on the **Forestry Soils Map** and described in Table 8-6.

**Table 8-6: Forestry Soils in Boscawen**

Soil Type	Definition	Types of Wood	Total Acres
Forestry Soil IA	Deeper loamy soils, moderately- to well- drained	Prime northern hardwood	5,504.6
Forestry Soil IB	Sandy or loamy soils, moderately- to well-drained	Oak & beech	5,068.1
Forestry Soils IC	Outwash sands & gravel	White pine	1,699.7
Forestry Soils II A	1A & 1B with limitations (very steep, shallow, or rocky)	Northern hardwood	836.2
Forestry Soils II B	Poorly drained soils	Northern spruce & fir	1,425.5
Total forest soil acreage			14,534.1

*Sources: NH GRANIT, Soil Survey Geographic (SSURGO) database for NH*

### CORRIDORS AND CORRIDOR TRAVEL

Greenways are corridors of open space managed for conservation and recreational purposes, which often follow natural land or water features, and link nature reserves, open space, farms and forest land, parks, cultural features, and historic sites with each other as well as with populated areas. Corridors and greenways are typically used not only by people, 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. Common tracts of land that can be used as a greenway include Class VI roads, railroad right-of-ways, and buffer areas along agricultural/forestry lands. Creating and maintaining a greenway system can also help prevent those parcels of open space from becoming isolated parcels, detached from one another and surrounded by development.

Boscawen contains quite a few corridors, located along the Merrimack River, along Class VI and discontinued roads, and the abandoned Boston and Maine Railroad.

### TRAILS AND TRAIL MANAGEMENT

Trails provide opportunities for residents and tourists to get outdoors to enjoy the natural environment, scenic views, exercise, and recreation. A multi-use trail can be any trail that is used by more than one user group, or for more than one trail activities. Users of multi-use trails include pedestrians, hikers, equestrians, mountain bikers, and snowmobilers.

The Northern Rail Trail is one of the longest recreational trails in New Hampshire, spanning two counties from Lebanon to Boscawen, a total of 58 miles. The trail is open for use year round, with three access points in Boscawen: at Gerrish Depot on Route 3, at an access spot on Depot Street, and at the Hannah Dustin Park & Ride.

### 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 for a limited period of time. In Table 8-7, those parcels which have been permanently protected from development have been identified. Overall, 3,238.1 acres are presented in Table 8-7, which covers approximately 20.3% of Boscawen's total land area.

Table 8-7: Conservation Lands and Permanently Protected Lands

ID # on Map	Conservation Land	Protection Type	Owner/Easement Holder	Acres
1	Boscawen Town Forest	Fee Ownership	Town of Boscawen	425.7
2	Boscawen Town Lot	Fee Ownership	Town of Boscawen	281.7
3	Boscawen Town Lot	Fee Ownership	Town of Boscawen	20.9
4	Boscawen Town Park	Fee Ownership	Town of Boscawen	1.4
5	Boscawen Town Park	Fee Ownership	Town of Boscawen	8.3
6	Cabot	Conservation	Town of Boscawen	14.2
7	Cabot (Taylor Lot)/Niebling	Deed Restriction	Society for the Protection of NH Forests	68.3

Table 8-7: Conservation Lands and Permanently Protected Lands Continued

ID # on Map	Conservation Land	Protection Type	Owner/Easement Holder	Acres
8	Cabot Memorial Forest	Fee Ownership	Society for the Protection of NH Forests	59.7
9	Cummings	Conservation	Town of Boscawen	143.9
10	Fisher Parcel	Fee Ownership	Town of Boscawen	5.9
11	Hannah Dustin Historic Site	Fee Ownership	NH Dept. of Transportation	6.3
12	Hardy	Conservation	Town of Boscawen	94.6
13	Hirst WMA	Fee Ownership	NH Fish & Game Dept.	150.0
14	Jones	Conservation	Town of Boscawen	32.4
15	Keegan	Conservation	Five Rivers Conservation Trust	88.7
16	Merrimack County Farm	Fee Ownership	Merrimack County	39.6
17	Merrimack County Farm	Fee Ownership	Merrimack County	566.4
18	Merrimack River State Forest	Fee Ownership	NH Dept. of Natural and Cultural Resources	53.2
19	Merrimack River State Forest	Fee Ownership	NH Dept. of Natural and Cultural Resources	105.1
20	Miller Lots – Boscawen Town	Fee Ownership	Town of Boscawen	7.2
21	Outdoor Education Area	Fee Ownership	Merrimack Valley School District	71.3
22	Penacook Boscawen Water	Fee Ownership	Other	29.2
23	Penacook Boscawen Water	Fee Ownership	Other	46.4
24	Prince Pasture	Fee Ownership	Society for the Protection of NH Forests	2.6
25	Sanborn – Agric. Pres. Rest.	Ag. Preservation	NH Dept. of Agriculture, Markets, and Food	158.3
26	Sanborn – Agric. Pres. Rest.	Ag. Preservation	NH Dept. of Agriculture, Markets, and Food	160.1
27	State Forest Nursery	Fee Ownership	NH Dept. of Natural and Cultural Resources	424.0
28	Town Forest Lot	Fee Ownership	Town of Boscawen	5.3
29	Town of Boscawen Land	Fee Ownership	Town of Boscawen	3.0
30	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.1
31	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.9
32	Town of Boscawen Land	Fee Ownership	Town of Boscawen	4.1
33	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.6
34	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.7
35	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.3
36	Town of Boscawen Land	Fee Ownership	Town of Boscawen	44.6
37	Town of Boscawen Land	Fee Ownership	Town of Boscawen	7.3
38	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.3
39	Town of Boscawen Land	Fee Ownership	Town of Boscawen	2.1
40	Woodman Forest	Fee Ownership	Society for the Protection of NH Forests	91.4
			Total acreage	3,238.1

Source: Town of Boscawen Staff

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

#### CURRENT USE TAX PROGRAM

To reduce the amount of property tax landowners pay on open space, 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 (cleared land devoted or capable of agricultural or horticultural uses); forest land (land growing trees); unproductive land (land, including non-forested wetlands, which by its nature is incapable of producing agricultural or forest products); and wet lands (areas of farm, forest, and unproductive land that are inundated or saturated by surface water or groundwater that is able to support a prevalence of vegetation).

Approximately 10,066 acres, or 63.2% of the Town’s total land and water area, were in current use at the end of 2017.

**Table 8-8: Current Use Acreages by Land Type, 2008-2017**

Year	Farm Land	Forest Land	Forest Land w/ Doc. Stewardship	Unproductive Land	Wet Land	Total Acres in CU
2008	1,378.64	5,672.24	1,842.43	72.35	839.41	9,805.07
2009	1,378.14	5,741.54	1,842.43	72.35	846.57	9,881.03
2010	1,380.14	5,755.53	1,840.39	72.35	846.67	9,894.98
2011	1,410.14	5,751.77	1,840.39	72.35	846.57	9,921.22
2012	1,392.26	5,754.86	1,840.39	72.35	849.57	9,909.43
2013	1,385.00	5,543.00	2,070.00	72.00	858.00	9,928.00
2014	1,379.24	5,533.41	2,070.48	76.80	867.51	9,927.44
2015	1,396.35	5,625.91	1,992.37	72.17	850.51	9,937.31
2016	1,395.56	5,586.00	2,019.37	72.17	850.51	9,923.61
2017	1,392.97	5,572.53	2,117.59	72.17	910.25	10,065.51

*Sources: NHDRA Current Use Reports, 2017 values from the Town of Boscawen*

According to RSA 79-A:7, when land is removed from Current Use, ten percent of the full and true value of the land, not the Current Use assessed value, must be paid as a Current Use Land Change Tax. It is important to understand that the Current Use classification can be placed on, or removed from, land at the landowner’s discretion which is why these lands vary from conservation lands. 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 8-9: Land Use Change Tax Collected, 2008-2017

Year	Land Use Change Tax Collected
2008	\$111,971
2009	\$6,500
2010	\$6,040
2011	\$7,060
2012	\$12,400
2013	\$24,940
2014	\$15,540
2015	\$20,500
2016	\$7,180
2017	\$27,252

Source: NHDRA Current Use Reports

## PLANTS AND WILDLIFE

### Rare Plants, Rare Animals, and Exemplary Natural Communities

The New Hampshire Natural Heritage Bureau (NHB) maintains a database of known rare plant and animal populations and exemplary natural community occurrences. Exemplary communities are distinctive communities of forests, wetlands, grasslands, etc., that are rare or are relatively undisturbed and are in good condition. These, along with other rare plants and animals are indicated in Table 8-10. Each species or community name in the Table also includes a star rating, indicating their relative importance. It should be noted that this rating is based on a combination of (1) how rare the species or community is and (2) how large or healthy its examples are in that particular town.

Table 8-10: Rare Plants, Rare Animals, and Exemplary Natural Communities

Species Name or Community Name	Listed?		Number reported in last 20 years	
	Federal	State	Town	State
<b>Natural Communities - Palustrine</b>				
Silver Maple - false nettle - sensitive fern floodplain forest**	-	-	2	24
<b>Plants</b>				
Dragon's-mouth ( <i>Arethusa bulbosa</i> )**	-	Endangered	1	21
Flat-stem pondweed ( <i>Potamogeton zosteriformis</i> )	-	Endangered	Historical	11
Long-leaved pondweed ( <i>Potamogeton nodosus</i> )	-	Threatened	Historical	24
Sessile-fruited arrowhead ( <i>Sagittaria rigida</i> )	-	Endangered	Historical	7
<b>Vertebrates - Birds</b>				
Bald eagle ( <i>Haliaeetus leucocephalus</i> )**	-	Threatened	1	88
Common loon ( <i>Gavia immer</i> )**	-	Threatened	1	288
Pied-billed grebe ( <i>Podilymbus podiceps</i> )**	-	Threatened	1	28
<b>Vertebrates - Reptiles</b>				
Blanding's turtle ( <i>Emydoidea blandingii</i> )	-	Endangered	Historical	709
Wood turtle ( <i>Glyptemys insculpta</i> )**	-	Special Concern	1	193
<b>Vertebrates - Amphibians</b>				
Fowler's toad ( <i>Bufo fowleri</i> )**	-	Special Concern	1	6
Northern leopard frog ( <i>Rana pipiens</i> )**	-	Special Concern	1	18

Table 8-10: Rare Plants, Rare Animals, and Exemplary Natural Communities Continued

Species Name or Community Name	Listed?		Number reported in last 20 years	
	Federal	State	Town	State
<b>Invertebrates – Dragonflies &amp; Damselflies</b>				
Pygmy snaketail ( <i>Ophiogomphus howei</i> )***	-	-	1	8
Rapids clubtail ( <i>Gomphus quadricolor</i> )***	-	Special Concern	1	9
Riverine clubtail ( <i>Stylurus amnicola</i> )**	-	Special Concern	2	11
Skillet clubtail ( <i>Gomphus ventricosus</i> )***	-	Special Concern	1	7
Spine-crowned clubtail ( <i>Gomphus abbreviatus</i> )***	-	-	1	2
Tule bluet ( <i>Enallagma carunculatum</i> )**	-	-	1	8
Zebra clubtail ( <i>Stylurus scudderii</i> )**	-	-	1	1
<b>Invertebrates - Mollusks</b>				
Brook floater ( <i>Alasmidonta varicosa</i> )***	-	Endangered	1	32

\*\*\*\*=Highest importance; \*\*\*=Extremely high importance; \*\*=Very high importance; \*=High importance

Source: Rare Plants, Rare Animals, and Exemplary Natural Communities in New Hampshire Towns, NH Natural Heritage Bureau, July 2013

The Wildlife Action Plan (WAP) also identifies over 174 species of greatest conservation need as well as their 27 habitats that support these species. The WAP identifies species of greatest conservation need as those species that are considered to be “in trouble” – declining in numbers, squeezed into smaller patches of habitat and generally threatened by a number of issues. For the complete listing, refer to the [species of greatest conservation need listing](#).

THREATS TO LAND RESOURCES

*Habitat Loss and Fragmentation*

pattern that consumes the rural landscape, causing habitat fragmentation through changes in the landscape from roads, driveways and lawns. Wildlife that is sensitive to human encroachment become restricted to small areas of undisturbed land, resulting in a loss of native plants, a reduced breeding gene pool, a loss of natural predators, and an increase in animal’s susceptibility to disease. Reducing the size of forest tracts affects many species, even if all other habitat features remain the same.

For optimum wildlife habitat, blocks of unfragmented land should be protected from significant human activity or development. Unfragmented lands are generally considered to be large pieces of land which are not bisected by a maintained (Class V or lower) road. These areas can include forests, meadows, open water, wetlands and agricultural fields and may include many different landowner parcels. Unfragmented lands often encompass multiple habitat types thus providing safe travel corridors and migratory pathways habitats.

*Invasive Species*

Invasive species pose an increasing threat to native plants and wildlife due to their ability to reproduce rapidly under a variety of site conditions and the lack of natural controls on growth and reproduction characteristics of native species. Their presence alters the way plants, animals, soil and water interact within native systems, often causing harm to other

species and reducing ecological diversity.

Examples of common invasive species are listed below. Only a few of these species have been found or reported in Town; however, many have been reported in nearby communities. The [Picking Our Battles](#) initiative, a cooperative effort of the NH Fish and Game Department, NH Natural Heritage Bureau and the Great Bay Research Reserve, has also identified blunt-leaved privet, dame's rocket and garlic mustard as invasive plant species that should be monitored before they become more fully established in Boscawen. This initiative developed a statewide prioritization plan for the control of upland, wetland and intertidal invasive plant species and created customized maps for each NH municipality, showing priority areas for removal and identifying "early detection" and "watch" lists of plants that should be monitored for establishment.

- *Emerald Ash Borer (EAB)*: The Emerald ash borer (EAB) has been found in various communities across the central portion of NH, including Boscawen in 2016. As a small beetle, adults average one to one and a half centimeters in length and are metallic green in color. Active May through August, the beetles are found primarily in the bark of ash trees where they lay their eggs to live through the winter to emerge in May. Trees with infestations usually only survive three to five years. Currently, a quarantine of all hardwood firewood, ash wood-products and all ash nursery stock is in effect for Belknap, Hillsborough, Merrimack, and Rockingham counties.



Photo from NH Department of Agriculture, Markets & Food

- *Hemlock Woolly Adelgid*: Hemlock woolly adelgid is a small insect that feeds on small hemlock twigs, damaging the tree and leaving the tree susceptible to damage from other pests. A tree, if left untreated, will typically have a lifespan of 4 to 10 years after infestation. Currently, hemlock woolly adelgid has been identified in many communities throughout the southeast and the Lakes Region within NH. Though it has not been identified in Boscawen, it has been identified in nearby communities, including Concord, Webster, and Salisbury. Additionally, the NH Department of Agriculture,



Photo from NHBug.org

Markets & Food and the New Hampshire Department of Resources and Economic Development have maintained a joint quarantine on the movement of hemlock nursery stock and hemlock forest products within infested counties, including Merrimack County.

- *Oriental Bittersweet*: Oriental bittersweet is a plant consisting of dense vines that can cause weakening or death of shrubs, small trees and other plants under the heavy weight of the vines and block sunlight needed for photosynthesis. With infestations throughout the northeast, including Boscsawen, oriental bittersweet is commonly introduced with birds and small mammals feeding on its abundant fruits and excreting the seeds as they move from one area to another. It can also be introduced through human activities, including seasonal wreaths and decorations.



*Photo from NH Department of Agriculture, Markets & Food*

### STATEWIDE INVASIVE SPECIES CONTROL PROJECT

The New Hampshire Department of Agriculture, Markets & Food (DAMF) conducts annual herbicide applications to invasive species across the state. Typically, these applications are done within state and federal highway rights-of-way (ROW). Roadways have been documented as being a key vector for spreading invasive plants as a result of frugivorous birds feeding on invasive species fruits and excreting the seeds as they move about.

In 2016, the Town of Boscsawen requested assistance with the management of oriental bittersweet overtaking the Town Forest/Weir Tree Farm. Herbicide was applied through a low volume spray in late August. The site will continue to be monitored and retreated as needed.

Another area treated for the invasive species, Japanese Knotweed, is along Depot Street. Treated over a two year period starting in 2014, the stand was quite large and is still being monitored for regrowth.

*Source: NH Department of Agriculture, Markets and Food, Statewide Invasive Species Control Project, Annual Reports.*

- *Japanese Knotweed*: Japanese knotweed is a tall perennial that spreads quickly due to a rooting system that is composed of numerous rhizomes that can grow up to three inches in diameter. Its stems are hollow, similar to bamboo, and leaves are broadly ovate; small whitish flowers appear in late August/September. Preferring most, well-drained soils, it can be found in woodland sites, open spaces, ditches, roadsides and riverbanks. The plant is very aggressive and spreads quickly along surface waters and in right-of-ways.



*Before and after along Depot Street. Photos from NH Department of Agriculture.*

The pictures above were taken in the summer of 2015 and shows the same Giant knotweed stand about a year after treatment. Due to its large population size and the existence of desirable native vegetation, caution was employed while spraying the foliage to avoid off-target impacts. This is why about half of the population, shown in the left side of the photo, still exists. The remaining knotweed was treated as part of the 2015 initiative.

For additional information on invasive species, please see [NH Bugs](#) and the [NH Department of Agriculture, Markets & Food's Invasive Plants webpage](#).

## Water Resources

This section on water resources includes information on surface water, groundwater, wetlands, floodplains, and drinking water supplies located in the Town of Boscawen. The health and function of the Town's water resources are critically important to ensure adequate and safe drinking water and provide healthy habitats for wildlife. It is important to acknowledge the importance of connectivity of small streams and wetlands to the integrity of downstream waters. The **Water Resources Map** details the water resources as noted here in this section.

### SURFACE WATER RESOURCES

#### *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.

A watershed is an area of land where all waters flow to another river or ocean (such as the Atlantic Ocean). This includes precipitation, surface water, groundwater, wastewater discharges, and surface water runoff from natural and urban areas. Water bodies within a watershed include seasonal and perennial streams, rivers, ponds, vernal pools, and lakes.

#### *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

### A LAND CONSERVATION PLAN FOR THE MERRIMACK RIVER WATERSHED

The Merrimack Conservation Plan is the final product of a two year effort facilitated by the Society for the Protection of New Hampshire Forests, working with conservation and planning professionals representing 33 private agencies in New Hampshire and Massachusetts.

As the plan explains, the US Forest Service identified the Merrimack watershed as the most threatened in the nation in terms of projected loss of private forest land over the next 20 years. This projection was based on an expectation of continued robust population growth coupled with a land-intensive suburban development pattern.

Between 2000 and 2010, the New Hampshire portion of the Merrimack watershed, which comprises 19% of the state's land area, absorbed almost 42,000 new residents, or 52% of all the population growth in the state. Even with the watershed's increase in population, almost two-thirds of the watershed remains largely undeveloped and available for development, increasing the vulnerability to the loss of private forest land.

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 areas 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.

The portion of the Merrimack River in Boscawen is referred to as the Upper Merrimack, and is a designated river under the state's Rivers Management and Protection Program. The NH Rivers Management and Protection Program was established in 1988 with the passage of RSA 483 to recognize and designate rivers to be protected for their outstanding natural and cultural resources. A rigorous process is followed in order for a river to achieve state designation, including approval by the NHDES Commissioner, NH Legislature, and Governor. In 1990, the Upper Merrimack was one of the state's first designated rivers. After designation, a management plan was created (amended in 2007) that recommends ways to protect resources identified during the nomination process. The Plan is developed and implemented by a local river management advisory committee that conducts a variety of programs and projects through the watershed. The Upper Merrimack River Local Advisory Committee (UMRLAC) includes representatives from Boscawen. Volunteer water quality monitoring in the Upper Merrimack is a major part of the UMRLAC's activity.

### *Brooks*

Boscawen is home to various brooks, including the seven listed in Table 8-11. The majority of these brooks drain to the Merrimack River, with the exception of Beaverdam Brook which flows to Pillsbury Lake in Webster.

**Table 8-11: Brooks in Boscawen**

Name	Description
Tannery Brook	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	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.
Moore's Brook	Moore's 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.

Table 8-11: Brooks in Boscawen Continued

Name	Description
Glines' 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	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, it forms the majority of the Boscawen/Webster political boundary.
Stirrup Iron Brook	The main branch of Stirrup Iron Brook flows 1.18 miles through Boscawen before meeting the Merrimack River. It 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	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.

### Ponds

In addition to rivers and brooks, ponds are another common water feature found in Boscawen. Similar to the table depicting brooks, Table 8-12 depicts ponds in Boscawen.

Table 8-12: Ponds in Boscawen

Name	Description
Patenadude's Pond	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.
Walker Pond	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.
Flanders' Pond	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	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.
Moore's Pond	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	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.
Morse Hill Pond	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.

## WETLANDS

Wetlands are areas where water is present at or near the soil surface for at least part of the growing season and influences the plants that can grow there, as well as the soil characteristics. Wetlands include, but are not limited to swamps, bogs, marshes, and similar areas.

Many wetlands have water present because the soils are poorly drained or the water table is very high. Large wetland systems that provide significant water quality and wildlife benefits can be found throughout the Town. Wetlands provide a multitude of services that include flood control, fish and wildlife habitat, pollutant removal, recreation, groundwater protection, and soil stabilization. The primary impacts facing wetlands in Boscawen today are the effects of development within the wetlands or the adjacent buffer areas needed to protect them.

While some larger and wetter wetlands can be identified from interpretation of aerial photographs, most wetlands must be identified “in the field” where the soils characteristics, evidence of water, and plant species present can be evaluated.

Boscawen contains over 1,234.5 acres in wetlands (see **Water Resources Map**), which are classified into three different wetland types. Palustrine wetlands are vegetated nontidal wetlands areas characterized by the presence of trees, shrubs or emergent vegetation (rooted below water but grows above the surface). These wetlands are typically referred to as marsh, swamp, or bog and represent the most abundant wetland type present in Boscawen. The second type of wetland, lacustrine wetlands are large, open water-dominated systems such as ponds and lakes.

The third type of wetland present is riverine wetlands, those wetlands and deepwater habitats contained within a channel with flowing water. The wetlands listed in Table 8-13 provides the total acreage of each type in Boscawen. Historically, wetlands were viewed as areas with little economic value and were subjected to unchecked filling, draining, and dumping with little regard for the consequences. There is now a greater understanding of the services that wetlands provide.

**Table 8-13: Wetland Acreages by Type**

Type of Wetland	Acreage
Palustrine	888.0
Lacustrine	136.8
Riverine	209.7
Total	1,234.5

*Sources: National Wetlands Inventory Plus, UNH GRANIT data, 2014*

## FLOODPLAINS

Floodplains are areas of low-lying ground adjacent to a river or stream that become inundated when heavy precipitation occurs upstream within the watershed. Retaining a floodplain in its natural state is the most cost-effective way of protecting life and property by reducing flood damages, and has been found to be far less expensive than dams, channelization, and other structural methods. Undeveloped vegetated floodplains also trap

sediments and pollution and reduce erosion, whereas development within the floodplain leads to higher peak flows and more rapid movement of pollutants into the stream channel, which degrades water quality. See the **Water Resources Map** for the location of floodplains in Boscawen.

As development continues to occur within a watershed, the runoff volume and rate of flow increases due to the larger areas of paved and other impervious surfaces (e.g. roofs, roads and driveways). Flooding can consequently become more frequent and floodwaters more damaging since they are moving at higher velocities. Preserving floodplains becomes increasingly important as the cumulative impacts of development continue along with decreased capacity to store floodwaters.

### GROUNDWATER

Groundwater is an important resource as it provides the drinking water for the majority of Town residents. Groundwater is typically hydrologically connected to surface waters, and thus affects the quantity and quality of them. It is defined as the subsurface water, which saturates sand, gravel and other soil deposits, and fills the cracks within the underlying bedrock. The top surface of this saturated zone is called the water table, which may be just below the surface or at some depth. In some wetlands, the visible surface of the water may reflect the level of the groundwater of the adjacent land.

Groundwater is replenished largely by rainwater and snowmelt, which percolates downward through the unsaturated soil. Other sources of replenishment, or recharge, may come from streams, lakes and ponds. Some groundwater discharges to wetlands, streams, ponds, and lakes and then becomes part of the surface water runoff. Although rainfall will percolate into all soil and weathered rock surfaces to some extent, areas of more porous sand and gravel will allow a greater amount of infiltration, and are specifically noted as "recharge zones" to signify their importance in recharging groundwater reservoirs. Therefore, it is important to identify and protect these areas from certain land uses that may prevent the recharge of groundwater or be a significant threat of subsurface contamination. In addition, impervious surfaces such as roads and rooftops, increase stormwater runoff, carrying with it salt, chemicals and excess nutrients which can contaminate surface and groundwater.

### *Stratified Drift Aquifer*

An aquifer is defined as an underground body of porous materials, such as sand, gravel, or fractured rock, filled with water and capable of supplying useful quantities of water to a well or spring. The two main type of aquifers, bedrock and stratified drift aquifers, vary in composition and the amount of water accessible. Stratified draft aquifers are typically used for public water supplies, including industrial, commercial, and domestic uses.

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

The **Water Resources Map** displays known locations of aquifers in Boscawen.

### WATER USE AND CONSUMPTION

#### *Private Water Systems*

Water supply, which is essential for residents, businesses and local agriculture, is typically collected and distributed through two different methods: a public water system or a private water system. Typically, public water systems are found in densely populated communities, and provide water via piping for a large area with a high number of homes and businesses. Private water supply systems, typically in the form of a well, usually service one area, typically a household or business.

Boscawen residents and businesses depend primarily on groundwater for their water supply; NHDES lists an estimated 251 wells registered in Boscawen. According to NHDES, approximately 40 percent of NH's population depends on domestic wells for water supply, and more than 75 percent of those wells are drilled bedrock wells.

There are naturally occurring water quality concerns with bedrock aquifers in NH, most notably arsenic and radon. Arsenic can have an adverse effect on human health and occurs in groundwater throughout NH, originating from minerals within the rocks of the region. Former pesticide use, treated lumber, and manufacturing also are potential sources of arsenic and may also be a contributing factor to ground-water contamination.

Radon is a naturally occurring radioactive gas that is commonly found in bedrock and in water from bedrock (drilled) wells in NH. Radon in water from bedrock wells is released into indoor air during showering, dishwashing and doing laundry, as well as directly as a gas from bedrock. Exposure to radon poses an increased risk of developing certain types of cancer, primarily lung cancer and stomach cancer. Testing your water every three to five years is recommended by NHDES.

#### *Community Water Systems*

As shown in Table 8-14, there are two public water systems in Boscawen. The first is the Penacook-Boscawen Water Precinct, which serves an estimated 3,800 people and is served by three wells. This water system is classified as a community water system as it serves the same population year-round.

The second system is the Avaloch Farms Music Institute, a transient non-community water system that serves a smaller population of approximately 48 people, who do not reside for long periods of time.

**Table 8-14: Types of Public Water Supplies**

Type of Public Water Supply	Number of System in Boscawen
Community Water System <i>A public water system that supplies water to the same population year-round. Includes single family residences, senior housing, and for fire protection.</i>	1
Non-Transient Non-Community Water System <i>A public water system that regularly supplies water to at least 25 of the same people at least six months per year. Includes schools, daycares, industrial facilities, and commercial properties.</i>	0
Transient Non-Community Water System <i>A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time. Includes recreation and education facility, historical site, businesses, restaurants, service stations, libraries, police and fire, churches, and medical offices.</i>	1
Inactive Systems	0

*Sources: NHDES OneStop Data, 2018*

**Dams**

There are currently seven active structures listed for the Town of Boscawen in the NDHES Dam Bureau’s database. Every dam is categorized into one of four classifications, which are differentiated by the degree of potential damages that a failure of the dam is expected to cause. The classifications are designated as High Hazard, Significant Hazard, Low Hazard, and Non-Menacing. As seen in Table 8-15 below, Boscawen has one Significant Hazard level, four Low Hazard levels, and two Non-Menacing Hazard levels.

Dams can provide an array of benefits, including enhanced recreation, fire protection, hydropower production, water supply, and flood control. However, some dams, which may be old, unsafe and uneconomical, may provide greater benefits by being removed. When the costs associated with a dam outweigh its benefits, dam removal may be the best decision, resulting in significant environmental, economic, and social benefits. These benefits include eliminating a public safety hazard, providing cost savings to taxpayers and dam owners, improving water quality, eliminating barriers to fish and other aquatic species, restoring river habitats, and creating river-based recreational opportunities.

**Table 8-15: Active Dams in the Town of Boscawen**

Status	Hazard Class	Name	Water Body Approximate Location
Active	Significant	Penacook Lower Falls Dam	Contoocook River
Active	Low	Hirst Marsh Dam	Hirst Marsh
Active	Low	Tannery Brook Dam	Tannery Brook
Active	Low	Flagpole Pond Dike	Contoocook River
Active	Low	Flagpole Pond Dam	Contoocook River
Active	Non-Menacing	Walker Pond Dam	Pond Brook
Active	Non-Menacing	McKerley Recreation Pond Dam	Natural Swale

*Source: NHDES OneStop Mapper, Accessed 12/5/2017*

## THREATS TO SURFACE WATER AND GROUNDWATER

### *Point Source Pollution*

Point source pollution, which is defined as any single identifiable source of pollution, such as a pipe or ditch, is a concern to local residents and business owners as it threatens current and potential water supply. Point source pollution may have many different routes of entry, and examples include leaking above and below-ground storage tanks, floor drains that directly release into the ground or water body, dry wells, burying waste, and inadequate septic systems. Larger point sources include industrial factories, sewage treatment plants, oil refineries, food processing, and pulp and paper mills.

As household wells are threatened by contaminated groundwater and surface water, New Hampshire has taken many precautionary steps in the form of regulation of potential contaminants. This includes permits for the discharge of anything other than normal household waste to an on-site sanitary disposal system (e.g. floor drains) and for the discharge directly into surface waters. Because of the continuing need for clean, safe, and available drinking water for the residents of the Town, there needs to be an awareness and emphasis placed on protecting this important resource.

According to the NHDES, potential sources of contamination exist in Boscawen. These include solid waste sites, above ground and underground storage tanks, hazardous waste generators and groundwater discharge sites. Table 8-16 below lists the types of existing and potential sources of contamination that are located in Boscawen.

**Table 8-16: Potential Sources of Contamination**

Potential Sources of Contamination	Number of Locations
Solid Waste Site	6
Above Ground Storage Tanks	7
Underground Storage Tanks	21
Hazardous Waste Generators	29
Groundwater Discharge Site	12

*Source: NHDES OneStop Mapper, Accessed 1/17/2018*

Private wells are susceptible to the same pollutants as public water supplies; however, unlike public water supply protection and monitoring, there are no state requirements regulating the quality of the water gathered through private systems. Common, naturally occurring contaminants, such as arsenic, radon and uranium, may be present in water derived from wells. A report published in 2013 on Water Supply Infrastructure and Protection by NHDES estimated about 55% of private well systems in NH exceed the state's radon limits and 20% exceed EPA's arsenic contamination level. As mentioned previously, private wells should be tested regularly and appropriate treatment systems installed when necessary in order to protect public health. Public awareness through education of the importance of private well testing is critical.

### *Nonpoint Source Pollution*

The greatest threat to waterways is typically 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.

Protection from nonpoint source pollution can be a challenge for any community. Low impact development (LID) is one method used to reduce nonpoint source pollution, and focuses on reducing impervious areas, using the natural landscape to manage runoff, and decentralizing drainage infrastructure. Methods of LID design include infiltration trenches, rain gardens, permeable pavements and protecting sensitive areas.

## Land and Water Conservation Strategies

The following strategies could be employed to help meet the conservation recommendations that are listed throughout this Chapter.

### REGULATORY/NON-REGULATORY TECHNIQUES

There are many techniques available to assist with conserving natural resources. Regulatory protection measures are an important part of a town's conservation strategy.

#### *Conservation Subdivision Design*

Rather than consume all developable land with 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. Boscawen has a Cluster Development Ordinance that should be reviewed periodically to be sure it is still meeting its original intent.

### NH ROADS SCHOLAR PROGRAM

The NH Roads Scholar Program establishes educational and training requirements across six levels of achievement and includes coverage of subjects essential to effective local road management.

The program is administered by the NH Technology Transfer Center (T<sup>2</sup>) and primarily serves public works directors and employees, road agenda, and the municipal offices concerned with local roads, along with others in the public and private road-related organizations.

For additional information, please visit the [Road Scholar Program Website](#).

### *Conservation Easement/Fee Simple Acquisitions*

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. Conservation easements may or may not allow public access. 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.

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 a town. 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 ensure that it will be protected and maintained for future generations, thus fee simple acquisition in these cases should be considered.

### KING STREET VILLAGE DISTRICT

Innovative zoning techniques have many advantages, including when there are many zones that converge along a defined area like the King Street corridor. The Village District located along King Street creates a single new zoning district that still allows for a mix of uses but is intended to promote appropriately scaled development that takes into account the scale and mix of uses currently located along the corridor. Districts like this take into account the existing look and feel of an area and promote the forming of public spaces, encouraging walkability and connection to the natural environment.

Using the principles of form-based codes (using physical form as the organizing principle rather than uses), the focus is primarily on the form and placement of structures with a decreased emphasis on the use. This approach allows for more consistent building forms that will contribute more visual appeal and consistency with existing development patterns. Preserving and encouraging the adaptive reuse of existing historic structures is a priority as well.

Other features of this new district include sidewalks standards, retail and commercial activities located on the ground floor with residences above, and parking standards that encourage shared parking and new landscaping/streetscape standards. For more information on this District, please refer to the Land Use Chapter.

### *Management Agreements*

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, a town could then create plans to acquire, protect, or manage these important corridors.

### *Natural Resource Inventory*

Most critical to any natural resource protection effort is an inventory of where these resources are, their significance and what areas need to be prioritized or have high value to the Town. Having solid baseline data can help to prioritize areas of high importance and contribute to an overall protection plan to preserve resource corridors. A Natural Resource Inventory (NRI) is one technique used to identify and describe natural resources that includes soils, wetlands, water, plants and wildlife. Identifying and mapping areas of high ecological value can help support land use planning and resource protection measures by providing a clearer picture of where these resources are located, their significance and how to incorporate the information into other planning activities.

### SIGNIFICANT NATURAL RESOURCE AREAS

#### *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.

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.

Water quality should be protected through acquisition of land or easements or the adoption of land use regulations to minimize 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 can be costly, time consuming and not always effective at restoring water quality. Protecting critical environmental resources such as wetlands, steep slopes, and aquifers is important. 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 a combination of acquisitions and land use regulations.

### *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 rural 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 also aids in preservation of wildlife habitat. Agricultural preservation should continue to be a priority for Boscawen and the Town should work with the Agricultural Commission to ensure the continuation of farming in the community and that Boscawen continues to be farm-friendly.

### *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 saw timber 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 are managed in a way to ensure that the forests remain a viable resource to help meet the future needs of the townspeople. Management Plans for these forests are important mechanisms to ensure that there is long-term stewardship of these resources.

### *Recreational Opportunities*

Working land that is actively managed for agriculture and forestry is maintained as open space. 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 and the Merrimack Rivers are examples of resources with diverse recreational opportunities for residents to enjoy.

### *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.

## **Objectives of the Chapter and Recommendations**

### **OBJECTIVE 1**

To preserve the traditional, rural, and visual character 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 **Topography and Scenic Vistas Map**.
- Secure through acquisition or easement wetlands on the northwestern boundary of the Town Forest.
- Encourage the preservation of existing stone walls by adopting an ordinance that protects walls along Town-owned roads.

### **OBJECTIVE 2**

To promote the conservation, protection, and sound management of the Town's natural resources.

- Encourage citizens and local officials to report sightings of threatened or endangered plants, animals, or natural communities to the NH Natural Heritage Inventory.
- Continue to work on securing conservation easements on lands currently in public or utility ownership such as the Boscawen Town Forest and those of the Penacook-Boscawen Water Precinct.
- Work with willing landowners on securing easements on land supporting significant natural resources.

- Continue to inventory and manage invasive species that have been located in Boscawen; educate the public about invasive species as well as the presence of endangered, threatened and/or species of concern.
- Support efforts of the Walker Pond volunteer group to monitor water quality and conduct other conservation activities.

### **OBJECTIVE 3**

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.
- Encourage implementation of Best Management Practices for agriculture, forestry, and residential land to reduce nonpoint source pollution, erosion, and runoff.
- 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.

### **OBJECTIVE 4**

To raise the awareness of the citizens and officials in Boscawen of the importance of protecting the Town's natural resources.

- Organize joint meetings of Town boards to facilitate collaboration and cooperation in managing Boscawen's natural resources.
- Expand the Town website with more conservation and natural resource pages with links to grant programs, inventories, organizations, and other information.
- 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.
- Connect Boscawen Elementary School with natural resource curriculums offered through NH Fish and Game, Project Learning Tree and UNH Cooperative Education.
- Encourage highway staff and relevant municipal officials to attend Best Management Practices workshops such as the Roads Scholar Program.

**OBJECTIVE 5**

To provide opportunities for recreational enjoyment of the Town's natural resources by Boscawen citizens.

- Explore securing easements on greenways and the rail trail as well as 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.
- Work with adjacent communities to create trail systems that span Town lines, including connections into Concord's trail network, particularly the Northern Rail Trail.
- 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.
- Look for opportunities to coordinate with local groups on recreational trail use for snowmobiling, biking, and hiking.

**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.

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, the Contoocook 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.

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.

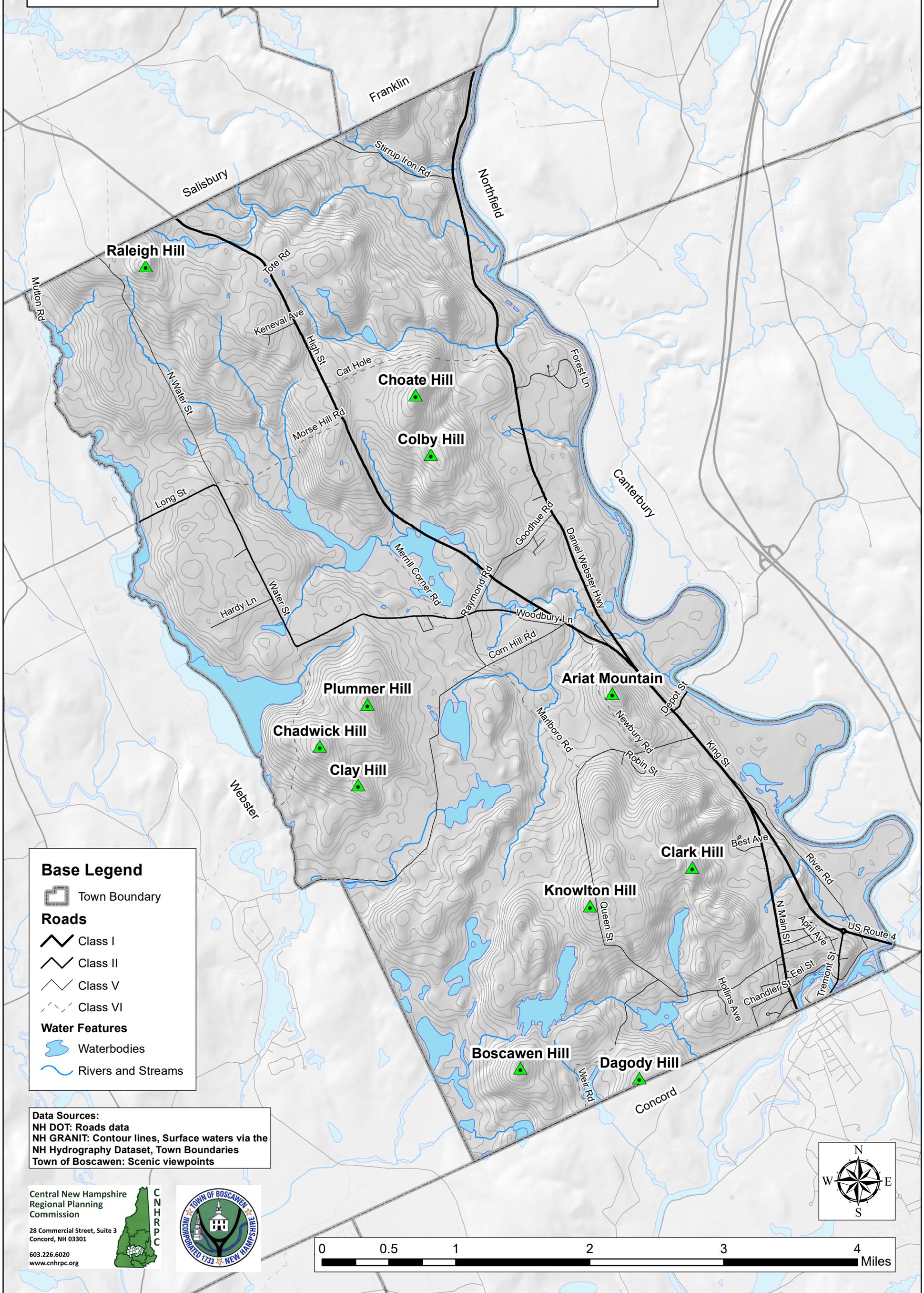
# Topography and Scenic Vistas Map

## Boscawen Master Plan

Map adopted December 4, 2018

### Legend

-  Scenic Vistas
-  20 Foot Contour Lines



**Base Legend**

-  Town Boundary

**Roads**

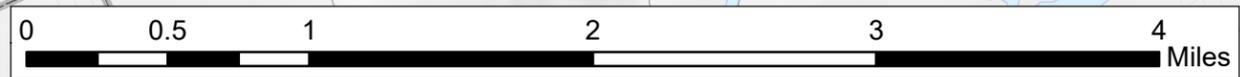
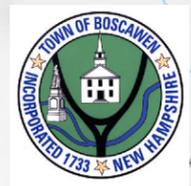
-  Class I
-  Class II
-  Class V
-  Class VI

**Water Features**

-  Waterbodies
-  Rivers and Streams

**Data Sources:**  
 NH DOT: Roads data  
 NH GRANIT: Contour lines, Surface waters via the NH Hydrography Dataset, Town Boundaries  
 Town of Boscawen: Scenic viewpoints

Central New Hampshire  
 Regional Planning  
 Commission  
 28 Commercial Street, Suite 3  
 Concord, NH 03301  
 603.226.6020  
 www.cnrpc.org



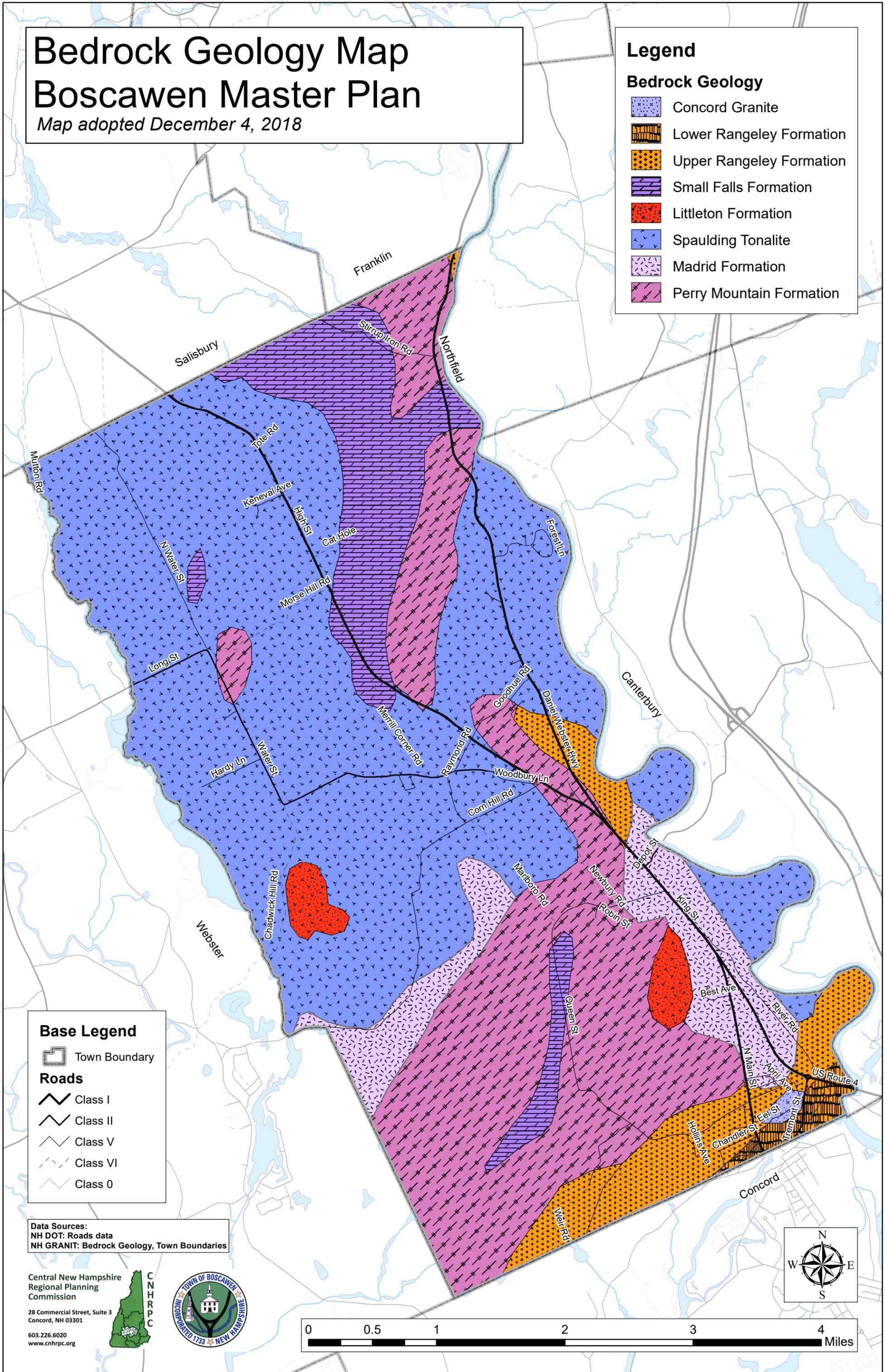
# Bedrock Geology Map Boscawen Master Plan

Map adopted December 4, 2018

## Legend

### Bedrock Geology

-  Concord Granite
-  Lower Rangeley Formation
-  Upper Rangeley Formation
-  Small Falls Formation
-  Littleton Formation
-  Spaulding Tonalite
-  Madrid Formation
-  Perry Mountain Formation

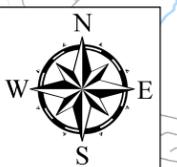
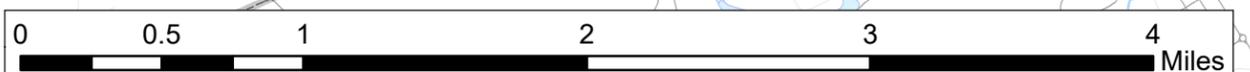


### Base Legend

-  Town Boundary
- Roads**
-  Class I
-  Class II
-  Class V
-  Class VI
-  Class 0

Data Sources:  
NH DOT: Roads data  
NH GRANIT: Bedrock Geology, Town Boundaries

Central New Hampshire  
Regional Planning  
Commission  
28 Commercial Street, Suite 3  
Concord, NH 03301  
603.226.6020  
www.cnrpc.org



# Prime Farmland Soils Map Boscawen Master Plan

Map adopted December 4, 2018

## Legend

### Soils

#### Prime Farmland Soils

-  Canterbury fine sandy loam, 3 to 8 percent slopes
-  Gilmanton fine sandy loam, 3 to 8 percent slopes
-  Groveton fine sandy loam, 0 to 3 percent slopes
-  Madawaska loamy sand, 0 to 3 percent slopes
-  Ondawa very fine sandy loam, 0 to 3 percent slopes, occasionally flooded

### Water Features

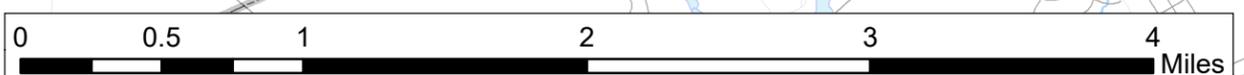
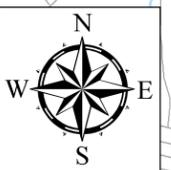
-  Waterbodies
-  Rivers and Streams

## Base Legend

-  Town Boundary
- Roads**
-  Class I
-  Class II
-  Class V
-  Class VI
-  Class 0

**Data Sources:**  
 NH DOT: Roads data  
 NH GRANIT: Soils data via Natural Resources Conservation Service, Surface waters via the NH Hydrology Dataset, 2001 Wetlands via US Fish and Wildlife Service, Town Boundaries

Central New Hampshire  
 Regional Planning  
 Commission  
 28 Commercial Street, Suite 3  
 Concord, NH 03301  
 603.226.6020  
 www.cnhrpc.org



# Forestry Soils Map Boscawen Master Plan

Map adopted December 4, 2018

## Legend

### Forestry Soils

-  Group IA
-  Group IB
-  Group IC
-  Group IIA
-  Group IIB

### Water Features

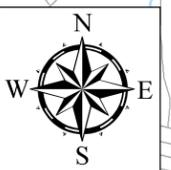
-  Waterbodies
-  Rivers and Streams

## Base Legend

-  Town Boundary
- Roads**
-  Class I
-  Class II
-  Class V
-  Class VI
-  Class 0

**Data Sources:**  
 NH DOT: Roads data  
 NH GRANIT: Soils data via Natural Resources Conservation Service, Surface waters via the NH Hydrology Dataset, 2001 Wetlands via US Fish and Wildlife Service, Town Boundaries

Central New Hampshire  
 Regional Planning  
 Commission  
 28 Commercial Street, Suite 3  
 Concord, NH 03301  
 603.226.6020  
 www.cnhrpc.org



# Conservation Lands and Public Lands Map

## Boscawen Master Plan

Map adopted December 4, 2018

ID Number	Name	Acreage	Owner/Easement Holder	Protecting Agency
1	Boscawen Town Forest	425.71	Fee Ownership	Town of Boscawen
2	Boscawen Town Lot	281.67	Fee Ownership	Town of Boscawen
3	Boscawen Town Lot	20.90	Fee Ownership	Town of Boscawen
4	Boscawen Town Park	1.38	Fee Ownership	Town of Boscawen
5	Boscawen Town Park	8.25	Fee Ownership	Town of Boscawen
6	Cabot	14.15	Conservation Easement	Town of Boscawen
7	Cabot (Taylor Lot) / Niebling	68.27	Deed Restriction	SPNHF
8	Cabot Memorial Forest	59.69	Fee Ownership	SPNHF
9	Cummings	143.90	Conservation Easement	Town of Boscawen
10	Fisher Parcel	5.92	Fee Ownership	Town of Boscawen
11	Hannah Dustin Historic Site	6.33	Fee Ownership	NH DOT
12	Hardy	94.60	Conservation Easement	Town of Boscawen
13	Hirst WMA	150.03	Fee Ownership	NH F&G
14	Jones	32.42	Conservation Easement	Town of Boscawen
15	Keegan	88.68	Conservation Easement	Five Rivers Conservation Trust
16	Merrimack County Farm	39.62	Fee Ownership	Merrimack County
17	Merrimack County Farm	566.36	Fee Ownership	Merrimack County
18	Merrimack River State Forest	53.20	Fee Ownership	NH DRED
19	Merrimack River State Forest	105.06	Fee Ownership	NH DRED
20	Miller Lots - Boscawen Town Forest	7.21	Fee Ownership	Town of Boscawen
21	Outdoor Education Area	71.29	Fee Ownership	Merrimack Valley School Dist.
22	Penacook Boscawen Water Precinct	29.21	Fee Ownership	Other
23	Penacook Boscawen Water Precinct	46.42	Fee Ownership	Other
24	Prince Pasture	2.56	Fee Ownership	SPNHF
25	Sanborn - Agric. Pres. Rest.	158.28	Ag. Preservation Restriction	NH DAMF
26	Sanborn - Agric. Pres. Rest.	160.13	Ag. Preservation Restriction	NH DAMF
27	State Forest Nursery	423.98	Fee Ownership	NH DRED
28	Town Forest Lot	5.27	Fee Ownership	Town of Boscawen
29	Town of Boscawen Land	3.00	Fee Ownership	Town of Boscawen
30	Town of Boscawen Land	2.09	Fee Ownership	Town of Boscawen
31	Town of Boscawen Land	2.85	Fee Ownership	Town of Boscawen
32	Town of Boscawen Land	4.14	Fee Ownership	Town of Boscawen
33	Town of Boscawen Land	2.63	Fee Ownership	Town of Boscawen
34	Town of Boscawen Land	2.65	Fee Ownership	Town of Boscawen
35	Town of Boscawen Land	2.28	Fee Ownership	Town of Boscawen
36	Town of Boscawen Land	44.55	Fee Ownership	Town of Boscawen
37	Town of Boscawen Land	7.27	Fee Ownership	Town of Boscawen
38	Town of Boscawen Land	2.33	Fee Ownership	Town of Boscawen
39	Town of Boscawen Land	2.05	Fee Ownership	Town of Boscawen
40	Woodman Forest	91.43	Fee Ownership	SPNHF

### Legend

#### Conservation Lands

#### Protection Type

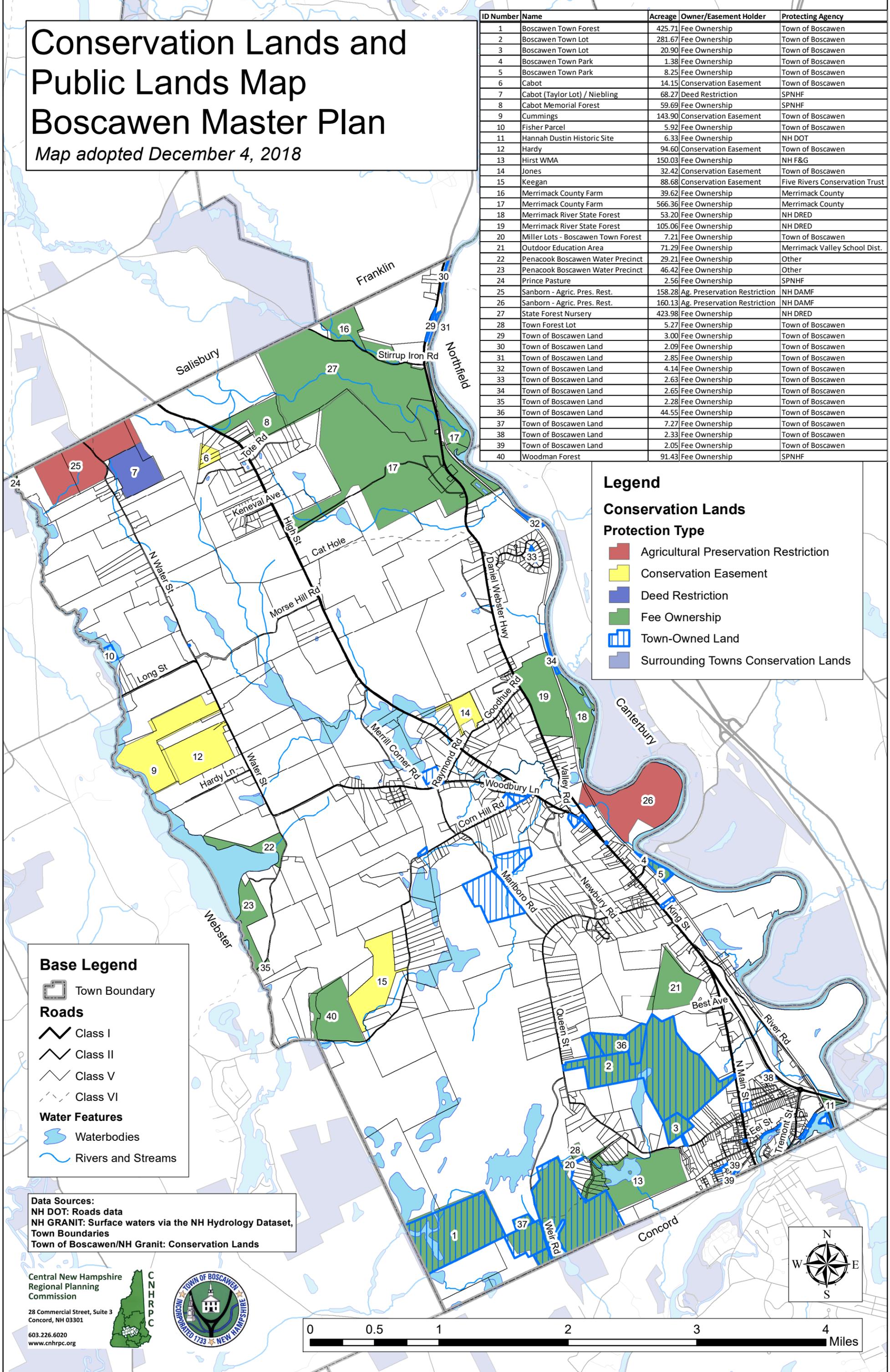
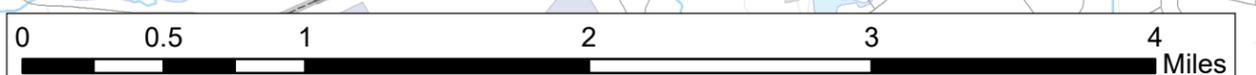
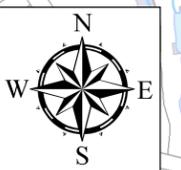
- Agricultural Preservation Restriction
- Conservation Easement
- Deed Restriction
- Fee Ownership
- Town-Owned Land
- Surrounding Towns Conservation Lands

### Base Legend

- Town Boundary
- Roads**
- Class I
- Class II
- Class V
- Class VI
- Water Features**
- Waterbodies
- Rivers and Streams

**Data Sources:**  
 NH DOT: Roads data  
 NH GRANIT: Surface waters via the NH Hydrology Dataset,  
 Town Boundaries  
 Town of Boscawen/NH Granit: Conservation Lands

Central New Hampshire  
 Regional Planning  
 Commission  
 28 Commercial Street, Suite 3  
 Concord, NH 03301  
 603.226.6020  
 www.cnrpc.org



# Water Resources Map Boscawen Master Plan

Map adopted December 4, 2018

## Legend

- Public Water Supplies
- Private Well
- Water Features**
  - Waterbodies
  - Rivers and Streams
  - Watershed Boundary
- Wetland Type**
  - Palustrine: 888.0 Acres
  - Lacustrine: 136.8 Acres
  - Riverine: 209.7 Acres
- Aquifer Transmissivity**
  - 0 - 1,000 sq. ft./day
  - 1,000 - 2,000 sq. ft./day
  - 2,000 - 4,000 sq. ft./day
  - >4,000 sq. ft./day
- Floodplains**
  - 1% Annual Flood Risk
  - .5% Annual Flood Risk

## Base Legend

- Town Boundary
- Roads**
  - Class I and II State Maintained
  - Class V Local Roads
  - Class VI Not Maintained
  - Other Roads/Private

**Data Sources:**  
 NH DOT: Roads data  
 NH GRANIT: Public Water Supply Sites via NH DES, 2000 Stratified Drift Aquifers via US Geologic Survey, Surface Waters via the NH Hydrography Dataset, Wetlands via NH DES NWIPlus, 2002 Watershed Boundaries via USDA Natural Resource Conservation Service/NH DES, Town Boundaries

Central New Hampshire  
 Regional Planning  
 Commission  
 28 Commercial Street, Suite 3  
 Concord, NH 03301  
 603.226.6020  
 www.cnhrpc.org

