Appendix 6. Natural Resources Inventory

A. Introduction

The purpose of this Natural Resource Inventory (NRI) is to collect, map and describe important, naturally occurring resources in the town of Francestown. NRI's are typically used for a variety of purposes including: natural resource planning and management, conservation planning, land use planning, and evaluating effects of land use changes over time. They are also invaluable for educating the public about the resources that exist in a defined area (a town, a watershed, a region), where in the area they are located, and the role they play in contributing to ecological and community health. Natural resource inventories can be used to raise public awareness and understanding of how various land use practices can either harm or prevent harm to the resources' functions and values.

In the process of mapping Francestown's natural resources, town residents were invited to contribute local knowledge about the various resources to inform and enhance the quality and usefulness of the inventory information. Residents also identified specific places that have ecological, cultural, historical, recreational, and scenic significance to Francestown. This local knowledge has been integrated with the natural resources data to create a map that summarizes areas in town with important natural resource and community value.

Rural towns, like Francestown, tend to have a relatively high percentage of land that is identified as having important value to the community, particularly in relation to a town's desire to maintain its rural character. It is important to note that the identification of land as having important natural resource and community value is not intended to imply that this land should be conserved at all cost. This is particularly important to understand as the decision to conserve land is voluntary and rests solely with the individual owner of the land. The designation of "importance" is intended to help land owners understand the values associated with their land so that they are able to make informed land use decisions and hopefully avoid loss of or minimize any degrading of the identified values.

B. Jurisdiction

New Hampshire law grants to municipalities the authority and responsibility through their conservation commissions to catalogue their local natural resources and to take actions toward their protection, as follows:

NH RSA 36A:2 (Conservation Commissions)

"Such commission shall conduct researches into its local land and water areas and shall seek to coordinate the activities of unofficial bodies organized for similar purposes, and may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which in its judgment it deems necessary for its work. It shall keep an index of all open space and natural, aesthetic or ecological areas within the city or town, as the case may be, with the plan of obtaining information pertinent to proper utilization of such areas, including lands owned by the state or lands owned by a town or city. It shall keep an index of all marshlands, swamps and all other wet lands in a like manner, and may recommend to the city council or selectmen or to the department of resources and economic development a program for the protection, development or better utilization of all such areas."

C. General Explanation of Maps

All maps associated with this inventory were produced with ArcGIS 10.0, geographic information system(GIS) technology developed by Environmental Systems Research Institute, or ESRI. Most of the natural resources data used in this inventory are public data compiled from a variety of sources and made available through NH GRANIT, the statewide clearinghouse for GIS data. Original sources of data include the NH Fish & Game Department, the NH Department of Transportation, the US Geological Survey, the NH Department of Environmental Services, and USDA's Natural Resource Conservation Service among others.

While the data utilized in this inventory can be expected to have a high level of spatial, temporal, and content accuracy, they are intended to be used primarily for broad-scale planning purposes rather than site-scale analysis as most have not been field verified. Any land management or conservation activities initiated as a result of this inventory should also include some level of "on the ground" evaluation to confirm the findings of this report at the specific site and to identify any other features not included in this inventory.

Maps have been organized into six categories as follows:

1. Context Maps
    a. Aerial Photo
    b. Topography
    c. Regional Watersheds
    d. Bedrock Geology
2. Water Resources Maps
    a. Sub-watersheds and Surface Waters
    b. Wetlands and Poorly Drained Soils
    c. 100-year Flood Plain and Dams
    d. Steep Slopes and Probable Highly Erosive Soils
    e. Stratified Drift Aquifers and Public Water Supplies
    f. Probably Sand and Gravel Soils
    g. Known and Potential Contamination Sites
3. Wildlife and Ecology Maps
    a. Predicted Habitat land Cover
    b. Rare Species and Exemplary Natural Communities
    c. Open Lands Map (developed from 2010 high-resolution aerial photograph)
    d. Unfragmented Lands Map (Areas without maintained roads or significant development)
    e. NH Wildlife Action Plan Priorities (State wildlife habitat priorities)
    f. Quabbin to Cardigan Priorities
4. Working Lands Resource Maps
    a. Forest Soils
    b. Agricultural Soils
5. Community Resources
    a. Scenic Roads, and Roads with Undeveloped Frontages
    b. Trails
    c. Historic mills
6. Conservation Maps
    a. Conservation and Publicly Own Lands

All maps in this inventory include the following common "base layers":

- Town Boundaries - based on 1:24,000 USGS topographic maps.
- Roads data - produced and maintained by NH DOT. Data include state highways, town roads, private roads, and un-maintained roads (Class VI roads). In a few cases the DOT data were incorrect, and roads were added, removed, and/or reclassified based on input from the town.
- Surface Waters (lakes, ponds, rivers, and streams) - based on United States Geological Survey (USGS) data and updated using 2010 aerial imagery and input from local knowledge.

1. Context Maps

The maps in this section provide an orientation that is useful for putting the natural and cultural resources into context. This section includes four maps: an aerial photo map showing roads and land cover; a topographic map showing town boundaries, 20 foot contours, streams, and ponds; a high level watershed map showing the town boundaries, major watershed boundaries, and the rivers and streams flowing through each of the major watersheds; and a bedrock geology map identifying the approximate ages and major types of bedrock formations.

a. Aerial Photo

The Town of Francestown has an area of 19,442 acres. The town is characterized by rolling hills and river valleys, and a mixture of forest and fields. This historically rural town is slowly transitioning to an increasingly residential community, as former pastures and wood lots along many of the existing roads are gradually being converted to home sites. There are still a number of small farms, numerous rural residential dwellings and a small historic village. There are 20 private roads serving residential homes in town and 22 Class VI roads that are not maintained. Many of the roads in town contribute to the town's rural character, and the town places a priority in maintaining the scenic qualities of the roads. The following table provides a summary road inventory by road class.

Road Inventory	Number of Roads	Miles State Maintained	Miles Town Maintained	Miles of Road Not Maintained	Private	Total Miles
State Maintained Roads	4	10.6				10.6
Bennington Rd (NH Route 47)		3.6				3.6
Greenfield Rd (NH Route 136)		3.0				3.0
Main St (NH Routes 47)		.8				.8
New Boston Rd (NH Route 136)		3.2				3.2
Town Maintained Roads (Class V)	50		51.2			51.2
Non-Maintained Roads (Class IV)	22			13.5		13.5
Private Roads	20				5.6	5.6
Totals	96	10.6	51.2	13.5	5.6	80.9

This Page Blank

Map #1-NRI Base Map
(See separate uploaded NRI map files)

This Page Blank

Map #2-NRI Road Inventory
(See separate uploaded NRI map files)

This Page Blank

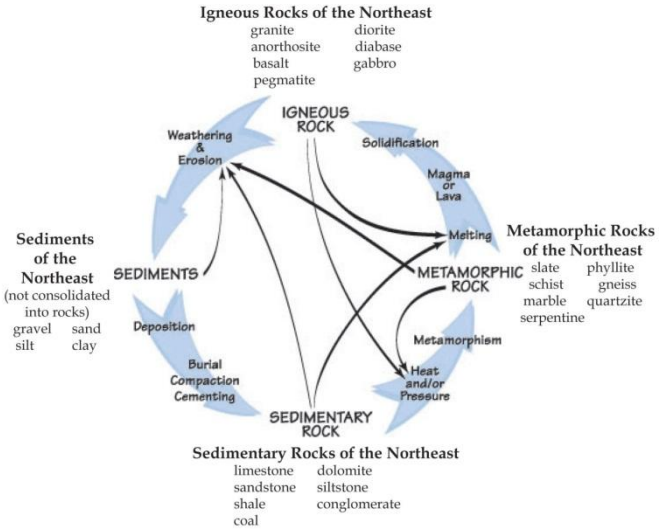
b. Bedrock Geology

Overview of Bedrock formation in Central New England

(Excerpted with permissions from Ansley, J. E. 2000. The Teacher-Friendly Guide to the Geology of the Northeastern U.S. Paleontological Research Institution, Ithaca, NY.)

There is an amazing diversity of rocks exposed at the surface in the Northeast. The rocks record a 1 billion year history of colliding plates, inland oceans, deposition, erosion, uplift, igneous intrusions and extrusions and glacial activity. The different rock types of the region influence the topography and tell us where to look for certain fossils and natural resources. The rocks exposed on the surface in the Northeast are there because of the unique geologic scale of the region. Each type of sedimentary, igneous and metamorphic rock forms in a particular environment under particular conditions.

Sedimentary rocks form from the breakup of pre-existing rocks. Weathering and erosion by wind, water or chemical action breaks up sedimentary, igneous and metamorphic rocks to form loose sediments.



Sediments are transported down-stream by rivers and dumped into the ocean or are deposited somewhere along the way. Compaction of the sediments usually happens through burial by more sediments. As fluids work their way through the spaces between the sediments, cementing-minerals are left behind to form hardened sedimentary rocks: sandstones, siltstones and shales. Sedimentary rocks may also form by evaporation of water, leaving behind deposits of evaporites such as halite and gypsum. Deposits of calcium carbonate, usually formed through the accumulation of calcium carbonate skeletal material (such as clams and corals), create the sedimentary rocks limestone and dolostone.

Igneous rocks form from the cooling of hot molten rock. If the molten rock is below the surface, it is called magma. Rocks with large crystals indicate there was plenty of time for the crystals to grow as the magma cooled slowly below the Earth's surface. Molten rock that breaks through the crust to the surface (usually through a volcano) is lava. Lava cools quickly as the heat escapes to the atmosphere, producing igneous volcanic rocks with very tiny crystals or no crystals at all.

Metamorphic rocks form from pre-existing sedimentary, igneous and metamorphic rocks that are exposed to increases in temperature and pressure. This can occur form plate movements, very deep burial, or contact with molten rock. The minerals within the rock recrystallize and realign, forming a much harder rock.

Silurian Rocks (~430 million years from present)

Central New England is predominantly composed of the remnants of the sediments deposited during the Silurian and Devonian in the Iapetus Ocean. These rocks were originally sand, silt and mud deposited on the floor of the Iapetus Ocean following the Taconic mountain-building event. The sedimentary rocks were later squeezed tight, folded and metamorphosed during the Acadian and Alleghanian mountain-building events. The metamorphosed sedimentary rocks are now the schists and gneiss of central Vermont, New Hampshire and southern Maine, the region where the temperature and pressure were highest.

Mid to Late Devonian Rocks (~410 – 380 million years before present)

In the late Devonian, when the microcontinent Avalonia was caught in the middle of the collision between North America and Baltica, numerous igneous intrusions occurred throughout Vermont, New Hampshire, Maine, Massachusetts and the Avalonia Rocks themselves. These intrusions are known as the New Hampshire Plutonic Series. Intrusions related to this series occur throughout New England and are responsible for several high peaks as the hard granite generally resists erosion better than sedimentary rocks.

Francestown Bedrock

Approximately 50 to 60% of the bedrock in Francestown is metamorphic rock formed during the Silurian period. This bedrock occurs in a wide band across the middle of town from the west-southwest to the northeast. This band includes intrusions of mid Devonian quartz diorite and granodiorite. The Northwest and Southeastern parts of town are primarily made up of quartz diorite formed during the late Devonian period.

Map #3-NRI Bedrock Geology
(See separate uploaded NRI map files)

c. Topography

The topography generally slopes from northwest to southeast with Crotched Mountain serving as the high point along the town's western boundary and the point where the south branch of the Piscataquog River crosses the town boundary at the southeast corner being the lowest elevation. The USGS topographic information shows nine named hills in town as follows:

Named Hills	Elevation	Notes
Crotched Mountain	2066	Highest Point in Town
Candlewood Hill	1305	
Campbell Hill	1285	
Bradford Hill	1285	
Bible Hill	1280	
Bullard Hill	1265	
Kingsbury Hill	1065	
Lincoln Hill (Aka Lakin Hill)	1040	

Elevations of notable points along the two principal sub-watersheds in town are shown on the following Chart:

Watersheds	Elevation	Notes
South Branch Piscataquog Sub-watersheds		
Dinsmore Brook Joins Collins Brook	857	
Shattuck Pond	935	
Shattuck Pond Outlet Joins Collins Brook	855	
Pleasant Pond	818	
Collins Brook Joins Pleasant Pond Outlet	765	
Bixby Brook Joins South Branch	698	
Brennan Brook Joins South Branch	627	
Rand Brook Joins South Branch	590	
Avery Brook Joins South Branch	577	
South Branch outlet at Southeast Boundary	575	Lowest Point in Town
Middle Branch Piscataquog Sub-watersheds		
Pettee Brook Joins Whiting Brook	655	
Haunted Lake	640	
Haunted Lake Outlet at Town Boundary	618	

This Page Blank

Map #4-NRI Topography
(See separate uploaded NRI map files)

This Page Blank

d. Regional Watersheds

Most natural resources occur on the landscape in a manner that has little or no relationship to politically created boundaries (parcel, town, county and state boundaries), except in those instances where the boundary follows a natural feature such as the centerline of a river, the edge of a lake, or along the high point of a ridgeline. Water flows, plant communities, animal populations, and more broadly ecological functioning, typically occur across human defined boundaries, and may be disrupted when land use decisions are made only in the context of political boundaries, (i.e. at the scale of a parcel owned by an individual landowner or at the town scale through the implementation of municipal zoning).

Delineation of the landscape based on physical and/or biological characteristics has more significant meaning and utility when seeking to avoid impacts of land use decisions on surface water quality. A common form of land delineation for land use planners is the watershed, in part due to the important role and impact that water flow has on ecological health and functioning. Watersheds are defined by the topographic dividing lines (the high points) between drainage areas. Rain falling on one side or the other of these dividing lines will flow into different streams. In some instances these streams will join together further down in the drainage basin to form a large stream or river. In other cases, the water will flow in a completely different direction and remain separate until it ultimately reaches the ocean.

Watershed boundaries can be defined at various levels of scale, a watershed for a small intermittent stream, (also known as a catchment, is also a part of the sub-watershed of the stream it flows into, which in turn is part of the larger watershed of the river it flows into and is sometimes referred to as a drainage basin). As such, some high level (basin scale) watershed boundaries act as real biological boundaries for the organisms and natural systems that occur within them. In other instances, smaller sub-watershed boundaries often serve as a mechanism for concentrating migrating wildlife along preferred routes or corridors.

For the purpose of providing context for the Francestown Natural Resource Inventory, two watershed levels of scale are mapped. The first level, shown in Map 1: “Regional Watershed”, provides a context for the entirety of Francestown, which is primarily situated in the southeast headwaters of the 115 thousand acre Piscataquog River watershed. Just east of the western town boundary of Francestown is the ridgeline of Crotched Mountain which serves as the dividing line between the Piscataquog River watershed and the 490 thousand acre Contoocook River watershed, both of which are ultimately part of the greater 2.65 million acre Merrimack River drainage basin. As such, the majority of water passing through and draining from Francestown’s land area flows to the Piscataquog River, with only 0.5% of the town’s surface water flowing to the Contoocook River. This means that Francestown is at the very top of the watershed divide. As such, land uses within the town’s boundaries can significantly influence the quality of surface water leaving the town and very little of the water flowing through Francestown is influenced by land uses occurring in another town before entering Francestown.

The Piscataquog watershed is divided into three headwaters watersheds: (the South Branch, the Middle Branch, and the North Branch). These join and drain into the lower main stem watershed of the Piscataquog River. All three of the headwaters watersheds have land areas within the Francestown town boundary, although the South Branch and Middle Branch watersheds encompass the greatest percentage (98.4%) of Francestown’s total area. The South Branch encompasses nearly the entire western side of the town including most of the town’s north boundary and west boundary and the entire southern town boundary. The South Branch generally flows from the north and west to the southeast corner of town, exiting through a small corner of Lyndeborough before passing into New Boston.

The portion of the Middle Branch watershed in Francestown includes 80% of the eastern town boundary extending south from the northeast corner of town. A majority of the flow from Francestown land in the Middle Branch sub-watershed is southward into Haunted Lake and then eastward from the lake into the Town of Weare.

A very small portion of the North Branch sub-watershed, 211 acres, begins along the center of the town's north boundary and drains north into a small pond and wetland complex in Deering and represents the southern-most headwaters of the 48,794 acre watershed.

Map #5-NRI Watershed Context Map
(See separate uploaded NRI map files)

This Page Blank

2. Water Resources Maps

a. Sub-watersheds

Each of the three headwaters watersheds described above, the South Branch, the Middle Branch and the North Branch, can be further broken down into the sub-watersheds that are within each of them. Because 77% of the town is within the South Branch watershed and 21.4% is within the Middle Branch watershed, this portion of the inventory is devoted to describing the sub-watersheds in Francestown within these two watersheds. Each sub-watershed is defined by and inclusive of the surface water resources, the lakes and ponds, rivers and streams, wetlands and vernal pools, and the riparian zones and uplands that ultimately drain through them.

South Branch Piscataquog Watershed

The total area of the South Branch Piscataquog watershed, inclusive of all of its sub-watersheds, is approximately 44,000 acres, almost two thirds of which is situated down-stream from the 15,514 acre portion of the watershed within Francestown. This inventory describes five of the more significant sub-watersheds from north to south including the sub-watersheds for: Pleasant Pond, Dinsmore and Collins Brooks, Brennan Brook, Rand Brook, and Avery Brook. These watersheds are deemed significant for a variety of reasons including overall size, importance for wildlife, water quality, and value to the community

Pleasant Pond

The Pleasant Pond sub-watershed originates from several small tributaries, ponds and wetlands areas in Deering and Weare. Approximately 560 acres of the watershed are north of the Francestown boundary, up-stream from Pleasant Pond. This source water flows southwest across the town boundary and through a wetland complex at the north end of the pond. The total watershed area for the nearly 200 acre pond is 1737 acres, 68% of which is in Francestown. A small island, or two depending on the lake level, sits in the southwest corner of the lake and Common Loons have been known to nest there. The lake is actively used for recreation and the pond is characterized by a number of seasonal residences along the southeastern, southern, and western shorelines. The primary access and public views of the pond are from the southwestern corner. The outlet of the pond is also at the southwest corner of the pond and flows south approximately 2.1 miles where it joins with Collins Brook.

Dinsmore Brook, Collins Brook, and Shattuck Pond

The greater Collins Brook sub-watershed totals 5,118 acres of which 4,912 Acres are located in Francestown. The Collins Brook sub-watershed is made up of three smaller sub-watersheds for Dinsmore Brook, Shattuck Pond, and the main stem of Collins Brook. The Dinsmore Brook sub-watershed is approximately 2,364 acres, 2,158 acres of which are in Francestown and the balance in Bennington to the west. The Dinsmore Brook drains the northeastern flanks of Crotched Mountain from four small tributaries, combining with a fifth tributary that passes through a network of wetlands and small ponds and then heads north to the main stem of Collins Brook.

The main stem of Collins Brook begins from two upper tributaries, one of which originates in Deering to the north, and flows to the east and south through wetlands and small ponds before joining with Dinsmore Brook. Approximately .25 miles further downstream, Collins Brook is joined by the outflow of Shattuck Pond. The Shattuck Pond is small, only 30.7 acres and has a watershed of only 140 acres. The pond is remote and pristine, and has great significance to the town. There is no development around the pond and the only access is from a town trail along a Class VI road. The outflow from the pond is from the west side and flows west into a wetland/ pond area also fed from a tributary from the north that originates in Deering. The combined outflow travels a few hundred yards further west to Collins Brook.

From this point Collins Brook flows south and east for approximately 2.75 miles before joining the outflow from Pleasant Pond to form the main stem of the South Branch. The majority of the Greater Collins Brook Watershed is very remote with only one relatively sparsely developed town road passing through the heart of this otherwise unfragmented complex of wetlands, ponds, and streams. Much of the greater Collins

Brook watershed, including Shattuck Pond, has been designated in the NH Wildlife Action Plan as Tier 1 Highest Ranked Habitat in New Hampshire. A significant portion of this watershed has been conserved and the remaining unconserved areas have been identified by the town as a priority to conserve.

Brennan Brook

The Brennan Brook sub-watershed drains the southeastern and southern slopes of the Crotched Mountain ridge. All but 33 acres of the 3,600 acre watershed are located within Francestown. The headwaters within the watershed include the Upper Brennan Brook, which originates between Bullard Hill and Campbell Hill, and Taylor Brook which originates further west along the lower southern slopes of the ridge. Upper Brennan Brook flows from a small pond and wetlands network, just west of Bullard Hill Road, a class VI road that crosses the flank of the mountain. The watershed serving Upper Brennan Brook is for the most part undeveloped and the lower part of this stretch of brook has been identified as important wild trout habitat.

The brook drops southeast approximately 2 miles to its confluence with Taylor Brook, just north of Greenfield Road. The Taylor Brook sub-watershed originates from two tributaries north of Greenfield Road. The tributaries drop south and east, following Greenfield Road and passing under it twice before joining Upper Brennan Brook. From this point the Lower Brennan Brook, continues approximately 2.3 miles east-southeast before joining the South Branch. Along the way several small tributaries join the Lower Brennan Brook from the north.

Just before the upper brook arrives at the confluence with Taylor Brook it begins to enter an area with some residential development that continues down through the first part of the lower section, then the lower portion passes through an area of conserved land. Much of the lower section is accompanied by wetland areas that parallel the steam as the slope of the brook moderates.

Rand Brook

The entire area of the Rand Brook sub-watershed is approximately 6,730 acres. Only approximately 1,820 acres of the watershed are found in Francestown. Rand Brook originates from three headwaters tributaries, two of which come from the south in Greenfield and the third, Mountain Brook, originates at the Francestown western boundary with Greenfield, just west of the Crotched Mountain Rehabilitation facility. Mountain Brook flows southeast from its origin along Farmington Road, a Class VI road, passing through conserved lands. As the stream flows eastward, it passes under Greenfield Road and turn south into Greenfield. In Greenfield Mountain Brook joins with the two other headwaters tributaries and flows eastward crossing back into Francestown along its southern most western boundary. This part of Francestown includes the Rand Brook Town Forest, an extensive conservation area. As Rand Brook continues east, it is joined by four additional tributaries from the south including Schoolhouse and French Brooks. Several of these tributaries, as well as portions of the main stem are important habitat for wild trout.

Avery Brook

The Avery Brook sub-watershed is one of the smallest of the described sub-watersheds in the inventory with a total area of 406 acres. The sub-watershed includes Avery Brook East and Avery Brook West each of which are approximately 0.6 miles in length. Avery Brook joins the South Branch in the southeastern corner of Francestown. The watershed been identified as important habitat for wild brook trout.

Middle Branch Piscataquog Watershed

The total area of the Middle Branch Piscataquog Watershed is approximately 26,470 acres. The portion of the watershed within Francestown is approximately 4300 acres. The area in Francestown represents the western most headwaters within the watershed. Most of the watershed in Francestown is comprised of the approximately 3,800 acre greater Haunted lake sub-watershed which includes the Whiting Brook , Pettee, Brook and an unnamed tributary east of Whiting Brook and north of Haunted Lake. Another sub-watershed of the Middle Branch Piscataquog Watershed present in Francestown is the western side of the 200 acre Dennison Pond sub-watershed and its unnamed outflow stream.

Whiting Brook

The Whiting Brook Watershed is spread over 2,587 acres, and covering 12.8% of Francestown. The northern most tributary of Whiting Brook originates between the southwest side of Candlewood Hill and eastern side of Bradford Hill. It is joined be a second tributary form the southeast side of Bradford Hill through a series of small ponds and wetlands. A third tributary draining the eastern side of Bible Hill comes in from the west about .75 miles further downstream. This upper section of Whiting Brook provides important wildlife habitat, including wild trout habitat.

Pettee Brook

Pettee Brook is the Whiting Brook's largest tributary. The brook originates south of Bible Hill in a wetland area and heads south under New Boston Road. The brook passes through a series of large wetlands complexes, turning east and then north before passing under New Boston Road again and Joining Whiting Brook just north of New Boston Road. The Pettee Brook wetlands have been identified as an important wildlife habitat area and neighbors in the area report a very active wildlife corridor. Whiting Brook passing under New Boston Road and continues south through relatively flat terrain accompanied by an extended area of wetlands, ultimately reaching the North side of Haunted Lake, near the northeastern corner.

Greater Haunted Lake (Aka Scoby/Scobie Pond)

Haunted Lake is the second largest waterbody in Francestown at approximately 140 acres. It is actively used for recreation and there is some scattered residential development along the southern shoreline and more concentrated development around the eastern and northeastern shoreline, particularly associated with Dodge Hill Road, Scoby Road, and Scoby Point lane.

The Second most significant tributary to Haunted Lake is associated with an unnamed stream that comes into the lake form the north, paralleling Whiting Brook to the west and the Dennison Pond outflow to the east. This relatively small catchment originates along the eastern side of Kingsbury Hill. The sub-watershed land on the south side of Haunted Lake is relatively small and nearly bounded by Journey's End Road that runs east-west south of the lake.

Dennison Pond

Dennison Pond straddles the town boundary and has a relatively small watershed serving the pond. The outflow exits the pond to the south, traveling along the town boundary until it reaches New Boston Road where it turns due east into New Boston.

The following table provides a summary of the major sub-watersheds in Francestown along with an indication of the area of each watershed that is conserved in Francestown.

Watersheds and Sub-watersheds	Total watershed acres	Watershed acres in Francestown	WS acres in FT as % of total watershed	Watershed acres in FT as % of total FT acres	Conserved watershed acres in Francestown	Conserved acres as a % of watershed acres in FT
South Branch Piscataquog River	40,000	15,514	38.7%	77.0%	4,627	29.82%
Dinsmore Brook	2,364	2,158	91.29%	10.7%	806	37.35%
Shattuck Pond	140	140	100%	.7%	85	60.71%
Collins Brook	5,118	4,912	95.97%	24.3%	1,603	32.63%
Pleasant Pond	1,737	1,177	67.76%	5.8%	193	16.4%
Brennan Brook	3,601	3,568	99.08%	17.7%	1,148	32.17%
Rand Brook	6,721	1,819	27.06%	9.0%	1,059	58.22%
Avery Brook	406	406	100.0%	2.0%	38	9.36%
Middle Branch Piscataquog River	26,476	4,322	16.3%	21.4%	627	14.51%
Dennison Pond	205	128	62.44	.6%	51	39.84%
Whiting Brook	2587	2,587	100.0%	12.8%	356	13.76%
Haunted Lake	3804	3,797	99.82%	18.8%	542	14.27%
North Branch Piscataquog River	48,794	211	0.43%	1.0%	31	14.69%
Contoocook River	488,971	127	0.03%	.6%	68	53.54%

For the purpose of this Table: Town area as calculated by GIS = 20,174 acres. WS = Watershed. FT = Francestown. ”Conserved” includes areas subject to a conservation easement and areas owned by the town or a conservation organization.

Map #6-NRI Sub-watersheds
(See separate uploaded NRI map files)

This Page Blank

b. Surface Waters

Streams, Rivers, Ponds, and Wetlands

Streams, rivers, ponds, and wetlands provide wildlife habitat in the form of direct support for aquatic and terrestrial species and also as corridors of travel to a wide variety of terrestrial species. They also provide recreational opportunities for fishing, swimming and boating, and in some towns, provide a source of drinking water for residents. Water quality of surface water is largely dependent on the land uses and the condition of the surrounding land, as well as the condition of ground and surface water inputs. As such, it is important that uplands adjacent to streams, rivers, ponds, and wetlands be preserved in their natural state to the greatest extent possible. Forestry, agricultural, commercial and residential activities, when not managed appropriately, all have the potential to degrade water quality.

The land areas immediately adjacent to surface waters, called riparian zones, provide a transition from surface waters to upland areas. Where they are undisturbed, these zones are important for the water quality services they provide. Undisturbed riparian zones can filter sediment, nutrients, and pollutants from storm water runoff before it enters surface waters. These zones, and in particular the wetlands associated with streams and ponds, often provide flood water storage during periods of heavy precipitation, groundwater recharge from the stored floodwater, and gradual release of stored water over time to surface water bodies, helping to maintain water flows during times of drought.

Undisturbed riparian zones provide many benefits to wildlife, including travel corridors, cover from predators, nesting areas, and food sources for many species. Shade provided by vegetation within the zone, particularly along the edges of streams and ponds is critical for maintaining cool water temperatures necessary for the health of the aquatic environment and for many sensitive aquatic species. Fallen woody debris within the zone provides important habitat both along and into surface water bodies.

As such, these zones tend to be hotspots for wildlife. They are preferred habitat in New Hampshire for the following species, among many others: Northern two-lined salamander, Fowler's toad, Blanding's turtle, ribbon snake, wood duck, red-shouldered hawk, Eastern screech owl, barred owl, red-bellied woodpecker, pileated woodpecker, veery, cerulean warbler, river otter, mink, and all species of bat in New Hampshire. The ecological systems that are incorporated within riparian zones make them worthy of consideration for conservation.

Wetlands

Wetlands are places on the landscape that are periodically or seasonally flooded or inundated by water and that have vegetation present that is adapted to grow in this type of wet condition. Often these places are associated with streams, pond edges, or beaver activity, or they may be isolated from streams or ponds, located in areas where soils have characteristics that do not allow pooled storm water to readily drain. Wetlands provide important wildlife habitat and are also important for filtering pollutants and sediments as storm water runs off, thus maintaining water quality of rivers and streams. Wetlands in Francestown have not been comprehensively mapped or field verified. This NRI uses two sources of information to predict where wetlands are located in town, the National Wetlands Inventory (NWI) and the Hillsborough County Soil Survey. The NWI was created by the United States Geological Survey, which mapped all wetlands that were evident from aerial photography. This digital database, last revised in 2001, captures many of the larger and visible wetlands, but misses many of the smaller, forested wetlands. To predict additional wetlands occurrences, this NRI provides the location of soils classified as poorly drained and very poorly drained (hydric soils) by the Hillsborough County Soil Survey. The combination of these two data sources provide a reasonable predictor of wetlands. Many of the wetlands identified through the wetlands mapping in Francestown are associated with one of the stream networks or ponds in town. There are also several isolated wetlands in each sub-watershed that do not appear to be directly connected on the land surface to the town's major streams.

Water Resources Inventory Streams	Total Miles	Miles in Francestown	% of Stream in FT	Total Miles Conserved	% Conserved
Dinsmore Brook	2.8	2.5	91%	1.1	40.8%
Collins Brook	4.6	4.2	91%	2.6	56.9%
Pleasant Pond Tributaries (unnamed)	3.7	2.5	67%	1.3	35.7%
Pleasant Pond & Outlet (to Collins Br.)	2.1	2.1	100%		
Bixby Brook	1.7	1.7	100%	0.0	0.0%
Taylor Brook	3.1	3.1	100%	0.9	30.1%
Brennan Brook	4.3	4.3	100%	0.8	18.0%
Mountain Brook	3.0	2.3	76%	1.6	53.1%
French Brook	1.6	0.9	55%	1.1	71.9%
Bicknell Brook	1.5	0.8	49%	0.5	29.7%
Rand Brook	5.9	2.7	45%	3.3	56.2%
South Branch Tributaries (unnamed)	1.0	0.3	33%	0.2	22.7%
South Branch Tributaries (unnamed)	3.3	3.1	96%	0.4	13.2%
Avery Brook East	0.6	0.6	100%	0.0	0.0%
Avery Brook West	0.6	0.6	100%	0.0	0.0%
Avery Brook	0.2	0.2	100%	0.0	0.0%
South Branch Piscataquog River	7.7	7.7	100%	4.1	52.9%
Whiting Brook	3.6	3.6	100%	0.2	6.2%
Pettee Brook	2.6	2.6	100%	0.7	26.4%
Haunted Lake Tributary (unnamed)	2.0	2.0	100%	0.4	18.3%
Haunted Lake Outlet	0.2	0.2	100%	0.0	0.0%
Dennison Pond Outlet	1.0	0.4	40%	0.0	0.0%
Buxton Brook headwaters	0.3	0.3	100%	0.0	0.0%
Middle Branch Tributary (unnamed)	0.4	0.2	50%	0.0	0.0%
North Branch Tributary (unnamed)	0.4	0.3	75%	0.0	0.0%

Water Resources Inventory Other Water Resources	Acres	Approximate Shoreline in Feet	Acres/ Shoreline Conserved	% Conserved
Shattuck Pond	30.7	6,849	5764’	81.5%
Pleasant Pond	198.4	18,866	952’	5.0%
Haunted Lake	139.9	12,588	329’	2.6%
Dennison Pond	22.4	7,822	1,523	19.5%
NWI Wetlands	1,621.1	N/A	1110.1	68.5%
NWI Wetlands and poorly & very poorly drained soils	3,737.4	N/A	1190.9	31.9%
Stratified Drift Aquifer	2,836.0	N/A	675.6	23.8%
Aquifer with moderate transmissivity	98.0	N/A	18.8	19.2%

Map #7-NRI Surface Waters & Predicted Wetlands
(See separate uploaded NRI map files)

This Page Blank

c. FEMA 100 Year Floodplain and Dam Sites

Areas prone to flooding have been mapped by the Federal Emergency Management Agency (FEMA). FEMA maps identify all land areas within the 100-year floodplain, i.e. any area with a 1% probability of flooding in any given year, the development of which may be subject to state and federal regulation. In Francestown, the 100-year flood plains are primarily found along the main stem of the South Branch of the Piscataquog River from the confluence of the Collins Brook to the southern boundary of Francestown. Other areas of the 100 year flood plain include the lower Rand Brook to its confluence with the South Branch, a small part of Whiting Brook, various areas within the Dinsmore Brook watershed and Collins Brook watershed, and edges around Haunted Lake and Pleasant Pond.

The map also displays the location of dams from the NH Department of Environmental Services database, distinguishing between those that are designated as "active" and those that are designated as "ruins" as follows:

	NAME	RIVER	STATUS	TYPE
1	PLEASANT POND DAM	SOUTH BR PISCATAQUOG RIVER	ACTIVE	CONCRETE
2	SOUTH BRANCH PISCATAQUOG RIVER	SOUTH BR PISCATAQUOG RIVER	ACTIVE	CONCRETE
3	IRRIGATION POND DAM	TR DINSMORE BROOK	ACTIVE	EARTH
4	DINSMORE BROOK DAM	TR DINSMORE BROOK	RUINS	TIMBERCOMB
5	CROTCHED MOUNTAIN DAM	NATURAL SWALE	ACTIVE	EARTH
6	FIRE POND	NATURAL SWALE	ACTIVE	EARTH
7	SMALL BROOK DAM	TR WHITING BROOK	RUINS	EARTH
8	BIXBY BROOK	BIXBY BROOK	ACTIVE	EARTH
9	BIXBY BROOK TOWN DAM	BIXBY BROOK	RUINS	TIMBERCOMB
10	HAUNTED LAKE DAM	MIDDLE BR PISCATAQUOG RIVER	RUINS	TIMBERCOMB
11	SOUTH BR PISCATAQUOG RIVER DAM	SOUTH BR PISCATAQUOG RIVER	RUINS	TIMBERCOMB
12	RECREATION POND	UNNAMED STREAM	ACTIVE	EARTH
13	CROCHET MOUNTAIN BROOK	BRENNAN BROOK	ACTIVE	EARTH
14	HAMMOND DAM	SOUTH BR PISCATAQUOG RIVER	RUINS	TIMBERCOMB
15	FIRE POND	UNNAMED STREAM	ACTIVE	EARTH
16	SOUTH BR PISCATAQUOG RIVER DAM	SOUTH BR PISCATAQUOG RIVER	RUINS	TIMBERCOMB
17	TORY PINES STORAGE LAGOON DAM	NA	ACTIVE	EARTH
18	BRENNAN BROOK	BRENNAN BROOK	RUINS	EARTH
19	RECREATION POND DAM	NATURAL SWALE	ACTIVE	EARTH
20	CLEMENT DAM	NATURAL SWALE	ACTIVE	EARTH

This Page Blank

Map #8-NRI 100 Year Flood Plain and Dams
(See separate uploaded NRI map files)

This Page Blank

d. Steep Slopes and Probable Highly Erodible Soils

Many types of land uses, when applied to areas with steep slopes and or with certain soil characteristics, dramatically increase the risk of water contamination from pollution, soil erosion, and transport of sediment into surface water bodies and to groundwater, particularly where the land use removes vegetation or disturbs the land surface on the slopes.

In considering soil erodibility, soils vary in their susceptibility to erosion. Both the extent to which soil particles bond to one another (resisting detachment) and the way in which soil texture affects the amount and rate of runoff, influence their susceptibility to erosion. Fine textured soils high in clay have lower susceptibility because they are resistant to detachment. Coarse texture soils, such as sandy soils, tend to have lower susceptibility because of low runoff characteristics, even though these soils are easily detached. Medium textured soils, such as silt loam soils, tend to be moderately erodible because they are moderately susceptible to detachment and they produce moderate runoff. Soils having high silt content are the most erodible of all soils. They are easily detached and they tend to crust and produce large amounts and rates of runoff.[i]

Steep slopes, those greater than 15%, can be a constraint to land development and some towns have adopted regulations that guide land uses within slopes of 15% to 25% and prohibit certain land uses with slopes over 25%. As slope increases, runoff volume and velocity tends to increase leading to a significant increase in the potential for erosion and sediment transport to occur.

Depending on site conditions, such as surface texture, vegetation type, soil characteristics, and slopes adjacent to water resources, buffer widths of 100 feet or more may be needed to adequately filter out sediments, nutrients, and pollutants from storm water run-off and avoid water quality degradation. Wider buffer strips are often necessary to avoid the potential for water quality degradation in areas that slope down to the water's edge.

Water Resources	Acres in Francestown	% of Town Total	In Francestown Conserved	% In Francestown Conserved
Highly Erodible Soils	7306.2	37.6%	1686.2	23.1%
Slopes 15-25%	3134.3	16.1%	879.7	28.1%
Slopes +25%	1301.0	6.7%	715.4	55.0%

This Page Blank

Map #9-NRI Steep Slopes and Highly Erodible Soils
(See separate uploaded NRI map files)

This Page Blank

Aquifers and Public Water Supplies

Virtually all portions of the landscape are capable of transmitting and storing some volume of water underground. Ground water is important as it both serves as a source of drinking water for human needs and it helps maintain the base flows in many rivers and streams allowing them to run even in times of drought. Those underground areas which are capable of transmitting and storing high volumes of ground water are called aquifers. One type of aquifer, stratified drift aquifers has been mapped by the state because of their exceptional potential as underground repositories of water.

Stratified drift aquifers are composed of deposits of coarse-grained sands and gravels underground that have a higher capacity for storing and transmitting water underground than areas with finer grain silt and clay particles. If water is withdrawn from a stratified drift aquifer, other water within the aquifer is able to flow to the location of withdrawal to replace it. These characteristics make stratified drift aquifers particularly suitable for use as public drinking water supplies.

The State of NH has ranked stratified drift aquifers based on the predicted volume of water that a given aquifer area will allow to be transmitted through itself per day, expressed in cubic feet of water. This predicted flow rate, known as transmissivity, provides an indicator of the potential for an aquifer to reliably meet drinking water supply needs.

The stratified drift aquifer map shows aquifers in Francestown that have been mapped by the state. The aquifers are shown in three shades of pink to purple according to transmissivity ranges. The light purple areas represent aquifers with predicted transmissivity rates between 0 and 1000 ft^3 per day (low), medium purple between 1000 and 4000 ft^3 per day (medium) and dark purple more than 4000 ft^3 per day (high). The majority of aquifer areas mapped in Francestown are predicted to yield relatively low transmissivity rates. These aquifer areas are located primarily under the South Branch of the Piscataquog River, but can also be found below the Brennan and Rand Brooks and in the Southeast corners of town.

The aquifer with the greatest potential is located perpendicular to New Boston Road under the middle section of the South Branch Piscataquog River as it passes through Francestown. This aquifer is predicted to have a transmissivity rate of 1000 to 2000 ft^3 per day. Another small area with a moderately favorable transmissivity rate includes the section of an aquifer the runs below Muzzey Road as it crosses Greenfield Road in southwest Francestown.

The map also shows thirteen Public Water Systems identified in the NH Department of Environmental Services water systems database. A Public Water System is defined in NH statute as: "a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year." This includes wells that support public or government buildings as well as commercial establishments meeting the threshold, or larger housing complexes served by a common well. Several of the wells identified may no longer meet the above definition.

f. Probable Sand and Gravel

For an aquifer to be utilized as a drinking water supply, the quality of the groundwater must be sufficiently free of pollutants and contaminants. As such, many communities identify land areas over aquifers and areas that potentially provide recharge to the aquifers as high priority for conservation to reduce the risk of contamination when protected. Some towns in NH have also enacted ground water protection ordinances to prohibit certain land uses that could a threat of contamination within the recharge areas.

Although recharge of groundwater does happen across the landscape, soils characterized by sand and gravel will drain more quickly and may provide a direct connection to stratified drift aquifers further underground. As such, soils classified in the Hillsborough County Soil Survey as having "probable" sand and/or gravel composition are shown on a separate map following the aquifer map.

This Page Blank

Map #10-NRI Stratified Drift Aquifer & Public Water Supplied
(See separate uploaded NRI map files)

This Page Blank

Map #11-NRI Probable Sand & Gravel Potential Recharge Areas
(See separate uploaded NRI map files)

This Page Blank

g. Known and Potential Contamination Sites

Contamination occurs from "point" and "non-point" pollution sources. Point source refers to releases of pollutants into the environment at specific, identifiable locations, such as leaking underground fuel storage tanks, industrial pipe discharges, accidental spills, and identifiable septic system failures. Non-point source pollution occurs more broadly across the landscape and cannot be identified to a specific site with certainty. Examples of non-point pollution sources include runoff from parking lots, roads and, when Best Management Practices (BMP's) are not employed, from farm animal waste in pasture or paddock storm-water runoff, animals entering streams, manure spreading in fields, forestry activities and land use conversion. Occurrences of pollution sources shown on the map were obtained from a NH DES database. The major occurrences in Francestown include several point source sites along 2nd NH Turnpike north, 2nd NH Turnpike south and in the historic village. There is also one site located north and east of the village and one site located south and west of the village. The NH DES database indicated that many of the releases shown have been remediated.

This Page Blank

Map #12-NRI Known & Potential Contamination Sites
(See separate uploaded NRI map files)

This Page Blank

3. Wildlife and Ecology Maps

a. Predicted Habitat Land Cover

Habitat for wildlife provides food, shelter, water and space for animal species to survive and thrive. Every species has unique habitat requirements and preferences. Virtually all portions of the landscape provide some form of wildlife habitat from time to time, yet some habitat areas are disproportionately important either to a particular species or to a diversity of species. Unfortunately, many of these important habitat types are relatively uncommon to begin with, and some are disappearing due to conversion or alteration by humans.

In 2006 New Hampshire Fish & Game Department published the NH Wildlife Acton Plan (WAP) which maps predicted habitat land cover types and establishes State wide priorities for habitat conservation. Recently updated in 2010, the WAP provides an important tool for landowners, towns, and conservation organizations to incorporate into their land use and conservation planning. When using this data in decision-making at specific sites, the WAP recommends verifying the predicted map data on the ground through field based surveys.

The WAP project worked with habitat groupings at three levels of scale: broad-scale (matrix forest type groupings), patch scale (smaller priority habitat types such as grasslands and peatlands) and individual site-scale (documented occurrences of rare and uncommon species and exemplary natural communities).

Patch-Scale Priority Wildlife Habitat Areas

The recent Wildlife Action Plan uses multi-variable modeling to predict locations where patches of significant habitat types are in likely to occur in New Hampshire. All of the modeled patch scale habitat types are considered to be especially critical habitats for wildlife and are relatively uncommon in the state. According to the WAP findings, five patch scale priority habitat types can be found in Francestown: Marshes (Wet Meadow/Shrub Wetland), Peatlands, Grasslands, Rocky Ridge – Talus Slopes, and Floodplain Forest. The total acreages of each critical habitat type in Francestown and the percent of type that is designated as conserved are shown in a table at the end of this section.

Grasslands (Light Tan)

While grasslands in New England were historically created and maintained for agricultural uses, they also provide critical habitat for a variety of wildlife species that migrated into New England when 80% of the forest was initially converted to pasture the 1800's. Grasslands have become increasingly uncommon in New Hampshire as the vast areas of open pasture and cultivated field that existed at the turn of the 19th century have given way to early successional and maturing second growth forests. This change in habitat structure has greatly reduced the numbers of species that rely on grassland habitat.

Large grasslands are especially important for wildlife diversity, with several species occurring only in the very largest of grasslands areas. Grasslands are generally active or recently abandoned farm fields. This can also include airports, restored sand and gravel pits, capped landfills, or heathlands. Northern harrier, upland sandpiper, purple martin, bobolinks, eastern meadowlark, grasshopper sparrow, horned lark, vesper sparrow, northern leopard frog and wood turtle are all uncommon species that depend on grassland habitat in New Hampshire.

There are still a number of sizeable grassland areas in Francestown due to the number of residents engaged in active agriculture. Many of the smaller grassland areas are associated with residential uses. The largest concentrations of large grasslands are associated with the golf course located in the northwest corner of Francestown and the five larger farms in town.

It should be noted that the grassland data included in the WAP model was digitized from 2001 aerial photographs. The updated map showing open lands in Francestown, including grasslands, open wetlands, and large patch cut forest management applications, was digitized from 2010 high resolution aerial photographs.

Marsh and Shrub Wetlands (Aqua-Blue-Green)
This large habitat group includes dozens of natural wetland community types. These open wetlands are dominated by herbaceous vegetation or short (less than 3 meters) woody vegetation (i.e. shrubs) and include three broad habitat types: wet meadows, emergent marshes, and scrub-shrub wetlands. Significant wildlife species associated with these areas include ringed bog-haunter dragonfly, American black duck, American bittern, American woodcock, northern harrier, osprey, pied-billed grebe, common moorhen, great blue heron, least bittern, rusty blackbird, sedge wren, Blanding's turtle, spotted turtle, eastern red bat, silver haired bat and New England cottontail. Often thought to be safe from development due to State wetlands laws, these habitats are susceptible to impacts from the surrounding uplands as well as from surface waters flowing into the wetlands.

For the most part, Marsh and Shrub wetlands in Francestown are associated with the major streams passing through town and are therefore fairly well distributed. Many of these occurrences are associated with existing or former human constructed dams and beaver dams. As beaver's come and go, the character of wetlands and marshes associated with their dams tends to be very dynamic.

Peatlands (Dark Blue)
Peatlands are a category of wetland that accumulates slowly decomposing vegetative matter as peat. Peaty wetlands form due to limited or no groundwater input and thus have poor nutrient content and acidic water. This habitat category contains many dozens of natural wetland communities, a number of which are rare in New Hampshire. "Quaking" bogs are one relatively uncommon type of peatland. Rare plant species are often associated with peatlands. Associated uncommon wildlife species of note include ringed boghaunter dragonfly, palm warbler, spruce grouse, mink frog, ribbon snake and northern bog lemming.

While rare throughout New Hampshire, the WAP predicts a number of significant occurrences in Francestown, several of which may be relatively large. Peatlands are shown to be relatively distributed across the town, with larger occurrences at the headwaters of an unnamed tributary of Haunted Lake, and west of Shattuck Pond.

Floodplain Forests (Yellow)
Associated with larger streams and rivers and prone to periodic flooding, floodplain forest areas contain a wide variety of natural communities that provide important habitat for uncommon species. Tree species found in floodplain forests include: red maples, silver maples, black ash, black cherry ironwood, and less frequently swamp white oak, sycamore, American elm, eastern cottonwood, and river birch. Red shouldered hawk, veery, cerulean warbler, American redstart, chestnut-sided warbler, Baltimore oriole, beaver, mink, river otter, wood turtle, Blanding's turtle and spotted turtle all depend on such habitat. Many floodplain forest areas have been cleared and converted to agriculture, as these easily worked and rock-free fine alluvial soils tend to be highly suitable for this use. Primarily for this reason, intact examples of this habitat are much less common than they once were.

The WAP predicts one large tract of floodplain forests in the southeast corner of Francestown, surrounding the area where Rand Brook and Avery Brook converge with the South Branch of the Piscataquog.

Rocky Ridge – Talus Slope Areas (Grey with Black dots)
This habitat group includes two distinct types. Rocky ridge and summit outcrops are characterized by thin soils and dry, nutrient-poor settings. Talus slopes are steep and rocky and range from open to barren to woodland. Situated primarily at the upper elevations of the higher mountains, and at the base of steep cliffs, bedrock and loose bedrock fragments compose the primary substrate. Twenty-five natural plant communities are known to occur statewide in areas mapped as rocky ridge – talus slope. Melissa arctic butterfly, black racer, timber rattlesnake, common nighthawk, peregrine falcon, black bear and bobcat are important wildlife species known to associate with this habitat in New Hampshire. Rocky Ridge – Talus Slope habitat groups in Francestown are found only along the top of the Crotched Mountain ridgeline at the western boundary of Francestown.

NH Wildlife Action Plan Habitat Land Cover Types	Francestown Acres	% of Town	Conserved Acres	% Conserved	Frequency in Francestown	Distribution in Francestown
Patch Scale Areas						
Grassland	1492.1	7.7%	208.5	14.0%	Uncommon	Distributed
Marshlands	942.8	4.8%	341.1	36.2%	Uncommon	Along Rivers
Peatland	154.0	0.8%	56.5	36.7%	Rare	Distributed
Rocky ridge-Talus Slopes	144.5	0.7%	143.6	99.3%	Rare	Northwest Central
Flood Plain Forest	421.1	2.2%	93.2	22.1%	Uncommon	Concentrated

For the purpose of this Table, "Conserved" includes areas subject to a conservation easement or areas owned by a governmental entity or a conservation organization.

NH WAP "Matrix Forest Types" Model

There are numerous classification systems of forest type (the associations of tree species that vary across the landscape). Each was developed with specific goals in mind by various entities such as the US Forest Service, the Natural Resource Conservation Service, and The Nature Conservancy. Working with The Nature Conservancy and the NH Natural Heritage Bureau, NH Fish & Game mapped areas predicted to support any of five large, inclusive "matrix forest" groupings as part of the WAP. All of the recognized forest species assemblages are included in one of these broad matrix forest types, and four of these are represented to some extent in Francestown. In predicting forest type occurrences, the WAP model included such factors as slope, aspect, elevation, latitude, and soil type. Each matrix forest type may encompass a number of smaller-scale natural communities that commonly occur within them, including various types of specific wetland communities.

The Monadnock Region and Francestown are predominantly located in a transition zone between the southern and northern habitat types. The transitional habitat type is called the Hemlock Hardwood Pine forest. This is the most common habitat type in Francestown, found ubiquitously throughout the town. In addition to Hemlock Hardwood Pine, there are three other forest habitats including Appalachian Oak Pine forests, Northern Hardwood Conifer forests, and Lowland Spruce-Fir forests.

Hemlock-Hardwood-Pine Matrix Forest (Light Green)

These forests are often considered a transitional zone between northern hardwood conifer forests and Appalachian oak pine forests. Major canopy species may include hemlock, red oak, and red maple. These forests are likely to succeed to hemlock and beech over the long term. Species of concern in New Hampshire associated with this habitat type include: spotted turtle, timber rattlesnake, wood turtle, northern goshawk, veery, Coopers hawk, cerulean warbler, eastern pipistrelle, eastern red bat, northern myotis, silver haired bat, New England cottontail and bobcat. This forest type grouping is especially suitable for popular game species including moose, white-tailed deer, wild turkey and black bear.

Appalachian Oak-Pine Matrix Forest (Brown)

Occurring in a southerly distribution relative to others, this matrix forest type reaches its northern extent in southeastern, southwestern and far western New Hampshire in association with warmer and drier conditions and often in fire-influenced landscapes. Major canopy species include the "southern" oaks such as white and black oaks as well as red oak and white pine. This matrix forest type is considered at risk, largely because it tends to occur in populated areas with impacts from infrastructure, development and intensive land use. Uncommon wildlife species known to associate with this matrix forest type include black racer, Fowler's toad, Eastern hognose snake, timber rattlesnake, smooth green snake, American woodcock, bald eagle, wild turkey, whip-poorwill, wood thrush, eastern pipistrelle and eastern red bat. In Francestown, this matrix forest type is thinly and evenly distributed in all but the westernmost border of Francestown.

Northern Hardwood-Conifer Matrix Forest (Orange)
These mid-elevation forests generally include an even mix of sugar maple, yellow birch, and beech. They can also include and frequently mix with red spruce and balsam fir (especially at higher elevations). Species of concern in New Hampshire associated with this habitat type include: ruffed grouse, American woodcock, wood thrush, veery, Canada warbler, cerulean warbler, eastern pipistrelle, eastern red bat, hoary bat, northern long-eared bat, and silver-haired bat. Northern hardwood-conifer matrix forests are found in Francestown at mid and upper elevations along the exterior flanks of the Crotched Mountain ridgeline.

Lowland Spruce-Fir Matrix Forest (Dark green)
These valley forests span an ecological gradient from swampy black spruce bogs to well-drained red spruce forests. Species of concern in New Hampshire associated with this habitat type include: spruce grouse, Northern goshawk, three-toed woodpecker, bay-breasted warbler, purple finch, rusty blackbird, hoary bat, Canadian lynx, American marten, and northern bog lemming. Lowland Spruce-fir matrix forests are found in Francestown at mid and upper elevations along the Crotched Mountain ridgeline, Campbell Hill, and in smaller patches distributed across the town.

NH Wildlife Action Plan Habitat Landcover Type	Francestown Acres	% of Francestown	Conserved Acres	% Conserved
Appalachian Oak Pine	2012.4	10.4%	521.3	25.9%
Hemlock Hardwood Pine	15415.5	79.3%	4086.8	26.5%
Northern Hardwood Conifer	370.1	1.9%	339.1	91.6%
Lowland Spruce Fir	365.3	1.9%	284.1	77.8%

For the purpose of this Table, ”Conserved” includes areas subject to a conservation easement or areas owned by a governmental entity or a conservation organization.

Map #13-NH Wildlife Action Plan Habitat Land Cover
(See separate uploaded NRI map files)

This Page Blank

b. Rare and Uncommon Species and Natural Communities

Rare and uncommon plant and animal species have been documented in the Town of Francestown in the past, and these data are maintained by the New Hampshire Natural Heritage Bureau of Department of Resources and Economic Development, in cooperation with the New Hampshire Fish & Game's Nongame and Endangered Wildlife Program. Generalized information on the presence of these species and communities is available from the Natural Heritage Bureau. Francestown has nine such sites including four exemplary natural communities, two rare or endangered plant observations, one rare or endangered bird observation, and three rare or endangered reptile observations. The exemplary natural communities are in the rocky ridge habitat of Crotched Mountain, and in the in the wetlands west of Shattuck pond, and surrounding Rand Brook. One plant observation is located in the low elevation wetlands of Francestown, though not likely to have been seen in very recent years, and the second is on Crotched Mountain. The rare and endangered animals found in Francestown are the Common Loon (threatened), Blanding's Turtle (endangered), the Spotted Turtle (threatened), and the Wood Turtle (special concern).

This page Blank

Map #14-NRI Natural Heritage Bureau Data
(See separate uploaded NRI map files)

This Page Blank

c. **Open Lands**

As previously mentioned, unforested lands and particularly grasslands have become increasingly uncommon in New Hampshire as these lands move quickly through an early successional stage and become maturing second growth forests. This change in habitat structure has greatly reduced the numbers of species that rely on grasslands and early successional habitat. In an effort to maintain some degree of open lands and early successional conditions, some landowners are engaging in active management to keep grasslands open, to recapture fields that have passed on to early succession, and to create new forest openings through targeted forest management practices.

The NH Wildlife Action Plan grasslands habitat type was identified through interpretation of 2001 aerial photographs. Because forest openings are so dynamic, grasslands data layer has been updated to reflect fields that have become smaller through the encroachment of hedge rows, fields that have been abandoned and reverted back to a forested condition, and new forest openings that have been created through management practices. The data layer has also been expanded to include unforested wetlands, and non-agricultural open lands (often remnant grassland) surrounding residential development. The updated and expanded data were developed from the interpretation of high-resolution 2010 NH Aerial Imagery photographs and the resulting data layer was named open Fields and Other Forest Openings. The data is summarized into five categories: Open Fields/Managed/Pasture/Equestrian, Open Field Brush Cut or Fallow, Residential, Forest Clear Cut/Early Succession, and Sand/Gravel/Disturbed lands.

Open Fields & Forest Openings	Francestown Acres	% of Town	Conserved Acres	% Conserved
All Open Lands	1532.0	7.9%	360.9	23.6%
Open Fields, Managed/Pasture/Equestrian	461.1	2.4%	69.7	15.1%
Open Field Brush Cut or Fallow	258.2	1.3%	43.2	16.7%
Residential	163.0	0.8%	6.7	4.1%
Sand/Gravel/Disturbed	41.8	0.2%	0.9	2.2%
Forest Clear Cut/Early Succession	308.9	1.6%	122.0	39.5%

This Page Blank

Map #15-NRI Open Lands
(See separate uploaded NRI map files)

This Page Blank

d. Unfragmented Lands

Large undeveloped areas are recognized for their significance as intact biological habitat, as areas with limited water pollution sources, and for their general open space values. These undeveloped areas are without maintained or regularly used roads. They contain natural land cover types such as forest, wetlands and surface waters, and can also contain (though far less frequently) agricultural lands and other unimproved human-disturbed areas such as managed forests and gravel pits.

Fragmentation from road use has a well-documented impact on wildlife, both by direct death or injury from vehicles, and by environmental effects such as noise, terrain alteration and light disturbance. Certain migrant songbird species and several species of larger mammals including black bear and bobcat are known to avoid areas with significant fragmentation, while conversely being attracted to large unfragmented areas.

Unfragmented areas were delineated in the WAP using roads data. A 500-foot buffer along regularly traveled roads was created for this analysis, to account for a typical existing or future house lot and its structures, and a disturbance area along maintained roads. This buffer was then removed from the landscape, resulting in areas unfragmented by roads and their associated development or development potential.

Blocks of unfragmented lands do not stop at political boundaries, and thus the analysis considers blocks that occur in Francestown that in most instances extend into neighboring towns. For this analysis, unfragmented blocks were calculated on the basis of total size regardless of political boundaries. Acreages in these other towns are included in the analysis.

Large blocks of undeveloped land are one of the most important parts of the Monadnock Region's landscape as well as that of Francestown. Many of these undeveloped blocks of lands are made up of multiple parcels and ownerships. In addition to supporting wildlife habitat and water quality, these unfragmented lands support the timber industry, making it economical to harvest timber across large ownerships without having to create multiple landings and constantly move equipment. They also support recreation and tourism, providing large expanses of woodlands, fields and wetlands that make up the scenic backdrop for our communities and our favorite places to recreate. Protecting these areas from through roads that result in traffic, noise, development and other disturbances will help ensure wildlife will continue using these areas and that people can enjoy the wilderness.

Francestown includes portions of nine large undeveloped blocks over 1,000 acres and portions of 15 smaller blocks between 100 acres and 1000 acres in size. The largest block being 6,790 acres in size, located in the northeast corner of town and extending northward into the towns of Deering and Weare. The second largest block encompasses all of Crotched Mountain and the lowlands along its eastern flanks.

Blocks of Land	Total Block Acres	Block Acres in FT	Block Acres Conserved	Block Acres in FT Conserved	% of Blocks in FT	Blocks as % of FT Area	% in FT Conserved
>4000 Acres	12917	6241	3296	2285	48%	32%	37%
1000 to 4000 Acres	15227	3886	4523	1956	26%	20%	50%
500 to 1000 Acres	4268	1540	423	157	36%	8%	10%
100 to 500 Acres	2008	1836	247	247	91%	9%	13%
< 100 Acres	390	353	61	30	90%	2%	8%

This Page Blank

Map #16-NRI NH Wildlife Action Plan Land Fragmentation
(See separate uploaded NRI map files)

This Page Blank

e. New Hampshire Wildlife Action Plan Tiers

A primary goal of the WAP is to identify state wide priorities for conservation of important wildlife habitat in New Hampshire. The WAP identified pristine, diverse, and significant land areas for each habitat type and then ranked the important land areas for each habitat type at both state-wide and biological region scales. This ranking analysis placed the top habitats in one of three levels, or tiers, of priority for conservation. Tier I land areas represent the highest ranking habitat for each habitat type in the state; Tier II areas represent the highest ranking habitat by type in each biological region; and Tier III areas represent supporting landscapes that are important for protecting the integrity and health of the higher ranked habitats.

Tier I habitats in Francestown are associated with wetlands along the Collins Brook to Shattuck Pond. Tier II habitats in Francestown are located along the top of the Crotched Mountain ridgeline, along the Rand Brook, and the region directly following the confluence of the Rand Brook and South Branch of the Piscataquog River. Tier II habitat areas were also found in the area surrounding headwaters of Whiting Brook, and other smaller sections were scattered along the South Branch Piscataquog River. The majority of the remaining area of Francestown is classified as Tier III supporting landscape.

NHWAP Conservation Priorities	Francestown Acres	Francestown Acres % of Town	Conserved Acres	Francestown % Conserved
Tier 1 - Statewide	2220.1	11.4	750.4	33.8
Tier 2 - Biological Region	1730.4	8.9	733.2	42.4
Tier 3 - Supporting Landscape	15378.6	79.1	4116.5	26.8

This Page Blank

Map #17-NRI NH Wildlife Action Plan Priority Tiers
(See separate uploaded NRI map files)

This Page Blank

f. Quabbin to Cardigan Priorities

Launched in 2003, the Quabbin to Cardigan Initiative (Q2C) is a collaborative, landscape-scale effort to conserve the Monadnock Highlands of north-central Massachusetts and western New Hampshire. Encompassing approximately two million acres, the Quabbin to Cardigan region is one of the largest remaining areas of intact, interconnected, ecologically significant forest in central New England, and is a key headwater of the Merrimack and Connecticut rivers. The Q2C region's forests collect and naturally filter drinking water for almost 200 cities and towns including the City of Boston. Habitat conservation in the region is a high priority for both the Massachusetts and New Hampshire Wildlife Action Plans (SWAPs), and the region's interconnected forests could also prove an important north-south corridor for wildlife adapting their ranges to a changing climate. Its managed timberlands are an important source of forest products and renewable energy, and are a highly-efficient carbon sink.

Quabbin to Cardigan Initiative partners worked for more than three years to develop the Quabbin-to-Cardigan conservation plan, which combines state-of-the-art natural resource science and the consensus vision of the Q2C partner organizations. Completed in 2007, the Q2C plan has identified approximately 600,000 acres of "core conservation focus areas" that represent the region's most ecologically significant forests. These conservation focus areas represent about 30 percent of the two-million-acre region, and are currently 39 percent protected. An additional 400,000 acres, or another 21 percent of the region, have been identified as "supporting landscapes" that buffer and link the core areas, are currently 26 percent protected.

Francestown is one of the towns that define the eastern boundary of the Q2C region. Q2C Conservation focus areas in Francestown are found in the north and south ends of town. Northern conservation focus areas include portions of the Dinsmore Brook watershed (Supporting Landscape), the Collins Brook watershed (Core Focus Area and Supporting Landscape), and the Pleasant Pond watershed (Core Focus Area). The southerly conservation focus areas include a small section of Core Focus Area in the headwaters of Rand Brook watershed and a small area of Core Focus area in the lower Rand Brook watershed surrounded by Supporting Landscape that extend into a portion of the lower Brennan Brook watershed.

This Page Blank

Map #18-NRI Quabbin to Cardigan Partnership Priorities
(See separate uploaded NRI map files)

This Page Blank

4. Working Lands Resource Maps

a. Forest Productivity

The economic benefits of forest lands to the state of New Hampshire are well known. Towns in New Hampshire traditionally derive revenue from the timber tax collected from timber sales, and the harvest, sale and utilization of wood products all contribute to the job base of the state. Keeping forest land in productive use provides an economically viable alternative to more intensive uses such as residential development. Forest land offers additional benefits as well, including preservation of rural character, wildlife habitat, water quality protection, recreational opportunities, hunting and fishing access, and scenic enjoyment, among others.

Soils are the basis of productive forest land, but not all soils are created equal in their capacity to grow forests. Areas with soils that are classed by the NRCS as more productive than others for their suitability to support some of the most economically valuable species, such as white pine and red oak, are especially important to preserve. These so-called Important Forest Soils have designations under which numerous particular soils units are grouped according to common traits such as moisture, depth of soil, and soil texture.

Productive Forest Soils

The Natural Resource Conservation Service (NRCS), a division of the United States Department of Agriculture, is responsible for maintaining the county soil surveys throughout the United States. The Hillsborough County Soil Survey contains soil maps and information for the town of Francestown. One way in which soils are classified is by their Forest Grouping. The forest soil groupings are defined by their ability to regenerate forest products and their suitability to mechanized harvesting. There are three groups of forest soils, Group I, Group II, and Soils not suitable for Forestry. Group I Forest Soils are soils that are highly fertile and support high growth rates in timber. There are three subgroups in Group I Forest Soils that delineate which species of trees will grow best based on mineral and water content characteristics. Group II Forest Soils are limited in their ability to support the timber industry in one of two ways. The first deficiency could be steepness or rockiness that make mechanized harvesting difficult. Another deficiency could be a lack of fertility or over saturation that cause slow growth rates or susceptibility of trees to damage such as wind throw or pests.

The Francestown NRI only maps Group I Forest Soils to show where the best soils for working forests are in town. These soils are found throughout town except for the steep, rocky soils in the western part of town by Crotched Mountain and in the lowlands associated with the river valleys and wetlands. It is important to protect these resources to ensure that forestry and the timber industry can continue to be a viable part of the economy in Francestown and New Hampshire. Sustainable harvesting of these resources not only supports the economy, but also increases habitat diversity to support wildlife species.

Working Lands Resources Forest Soils	Francestown Acres	Francestown % of Town	Conserved Acres	Francestown % Cons
Group 1 Forest Soils	12391.8	63.7%	2687.6	21.7%

This Page Blank

Map #19-NRI Forest Soils
(See separate uploaded NRI map files)

This Page Blank

b. **Agricultural Soils Map**

The Farmland Protection Policy Act of 1981 was enacted to ensure that federal programs are compatible with state and local efforts to limit the conversion of farmland to other uses. The states and counties followed suit shortly thereafter by bestowing their own designations on state and locally important soils. The classes mapped in New Hampshire and available from the GRANIT GIS data system are "prime farmland soils", "soils of statewide importance", and "soils of local importance".

Prime Farmland

These deep and arable agricultural soils are suitable for a variety of agricultural uses and are of the highest quality designation. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmland may be cropland, pastureland, rangeland, forest land, or other land but not urban built-up land. It has the soil quality, growing season, and moisture supply needed to produce continuous, high yields of crops when treated and managed according to acceptable farming methods.

Soils of Statewide Importance

These soils are deemed significant for the production of food, feed, fiber, forage and oilseed crops in New Hampshire. The soils are fertile and can be expected to produce a reasonable yield. Determination of statewide importance is made by a state committee with representatives of the Department of Agriculture, Markets and Foods; UNH Cooperative Extension; the NH Association of Conservation Commissions; and the NH Office of State Planning (now the Office of Energy and Planning). Soils of Statewide Importance are not stony, not poorly drained or excessively well drained, and do not have slopes that exceed 15%.

Soils of Local Importance

Agricultural Soils of Local Importance tend to be soils that have the fertility to support the growth of crops but need improvement to actually manage and harvest the crops. These soils may be poorly drained and require drainage ditching or they may have many rocks that need to be removed. Such soils can be improved to support agriculture at the local or town scale.

Francestown has limited occurrences of Prime Farmland and Farmland of Statewide Importance that are well scattered across the town and a number of these soils patches are forested or have been developed. Francestown has a greater abundance of Agricultural Soils of Local Importance that are fairly well distributed across the town, with higher concentration in the southern half of the town. It is important to note that areas with agricultural soils tend to be easier to develop in rural towns because of the soils capacity to accommodate in-ground waste water systems. Former agricultural lands are also vulnerable to development as they are often relatively flat, and easy to clear.

Working Land Resources: Agricultural Soils	Francestown Acres	Francestown % of Town	Conserved Acres	Francestown % of Cons
Prime Agricultural Soils	681.6	3.5	81.1	11.9
Soils of Statewide Importance	431.3	2.2	18.1	4.2
Soils of Local Importance	6029.4	31.0	1215.5	20.2

This Page Blank

Map #20-NRI Agricultural Soils
(See separate uploaded NRI map files)

This Page Blank

5. Community Resources

a. Roads with Undeveloped Frontages & Scenic Roads

This map identifies roads with one or more sides of the road having extensive lengths of undeveloped frontages and roads that have been designated by the town as Scenic Roads. Roads with undeveloped frontages contribute to the rural feel of a town, with forested edges often giving way to open fields or open wetlands streams or ponds. These openings provide some of the dramatic scenic views and vistas appreciated by residents, guests and visitors alike. Many of these roads provide cover for wildlife close to the road edge, making them common places for wildlife crossings. Wildlife crossings are also commonly found where surface water resources run close to the road and at points where the roads cross over a stream or wetland.

“Scenic Roads” are those that have been formally designated by the town under the authority of RSA 231:157. Francestown has 32 miles of town-maintained roads have been designated as scenic. Although the traffic levels on all these roads have increased since the early 1970s when they were designated, the functional classifications of these roads, based on local standards, have not changed.

According to RSA 231:158, any "repair, maintenance, reconstruction, or paving work done by the state or municipality, or any action taken by any utility or other person acting to install or maintain poles, conduits, cables, wires, pipes or other structures pursuant to RSA 231:159-189 shall not involve the cutting, damage or removal of trees, or the tearing down or destruction of stone walls, or portions thereof, except with the prior written consent of the planning board after a public hearing."

Designation of a road as a scenic road does not, in most cases, affect the rights of any landowner to work on his own property (for the few exceptions, see RSA 231:158). Roads designated as scenic roads in Francestown:

Avery Road
Bible Hill Road
Bible Hill Road Extension
Birdsall Road
Candlewood Hill Road
Clarkville Road
Cross Road
Dennison Pond Road
Ferson Road
Journey's End Road
Oak Hill Road
Old County Road North
Old County Road South
Perley Road
Pleasant Pond Road
Poor Farm Road
Red House Road
Schoolhouse Road
Scoby Road
Second NH Turnpike North
Second NH Turnpike South
Todd Road
Woodward Hill Road

b. Trails

Francestown has numerous areas with well-established trails networks. Many of these networks are associated with conserved lands, town forests, and Class VI roads. Several have established parking areas. The map provided includes the trail network on Crotched Mountain and the trail for accessing Shattuck pond.

c. Historic Mill Sites

Historically, Francestown was an active mill town with 20 known small mill sites. Many of these sites and their historic uses have been documented by the town. The following table lists the known sites.

Number	Name	Built Date	Comments
1	Sleeper Mill	About 1820	Saw mill for 50 years
2	White's Saw Mill	About 1855	Lots of stone work, Parts of millstone still there
3	Fisher's Saw Mill	About 1800	Lots of stonework still there
4	Mitchell's Grist Mill	About 1790	Ran about 60 yrs., not much there except dam
5	Unknown	unknown	Bullard Hill Rd, According to Flood map
6	Muzzey Rd. Mill	unknown	Was one of Daniel Bixby's mills, dam and some stone work still there
7	Dodge's carding and Grist mill	About 1816	Large Dam, lots of water, wonderful site
8	Bixby Mill	About 1821	Made furniture; fancy boxes; a creamery; a planing mill; nice foundation
9	Willard Mill	1807	Was a cabinet maker, not much there, some dam evidence
10	Carson Mill	1785	Grist/saw mill, pond washout 1796/1936. Bldg., soapstone cutting 1889- 1912
11	David Lewis Saw Mill	1770	1st mill, A-frame built on mill foundation, later cooperage & box mill
12	David Lewis Corn Mill	1773	Ruins still there, wonderful stone arch, mill rebuilt in 1840, burned 1865
13	Everett Mill, Later Kidder Mill (1876)	1799	Carding, threshing, cider mill, Some Machinery still in river
14	Scoby Mill	1800	Ran until 1860; long canal goes to another mill site in New Boston
15	Fairbanks Mill	1810	Became Fairbanks mill in 1810, later Hovey mill, manufacturing, winnowing mills
16	Thorndike Mill, later I. Dodge (1837)	1820	3 dam sites, 2 sluice ways, carding Mill, then a planing and grist mill.
17	Unknown	unknown	Bullard Hill, according to flood plain map
18	Unknown	unknown	Mountain Brook
19	Unknown	unknown	Bible Hill, according to flood plain map
20	Unknown	unknown	Back Mountain Rd, according to flood plain map
21	Unknown (retention pond)	unknown	Driscoll Hill, according to flood plain map
22	Dutton Grist Mill	1780	Off Russell Station Road

Map #21-NRI Designated Scenic Roads
(See separate uploaded NRI map files)

Map #22-NRI Recreational Trails
(See separate uploaded NRI map files)

Map #23-NRI Historic Mill Sites

(See separate uploaded NRI map files)

6. Conservation Map

Land is conserved when it is legally protected in perpetuity. This form of protection is typically accomplished in one of two ways: a) it is owned "in fee" by a conservation organization or a government entity and cannot be sold or otherwise disposed of for uses that are not compatible with the conservation values of the property; or b) it is protected with a conservation easement, reflected in a recorded deed, prohibiting uses that are inconsistent with identified conservation values, and further provided that the easement is held by a qualified conservation organization or governmental entity with the responsibility and capacity to enforce the terms of the easement.

The conservation lands data shown on the following map was provided from the 2012 NH Granit database with updates provided by the Town and the Francestown Land Trust. The NH Granit database includes land that may not meet all of the criteria to be considered permanently conserved, although from a practical standpoint, by virtue of ownership by a conservation organization or government entity for conservation purposes, it is included as conservation land. Municipally owned land not protected by conservation easement or some other legal mechanism might be able to be sold or developed for other uses that are deemed by town meeting to be more urgent than conservation; however, the majority of municipally owned conservation land in Francestown is protected by some form of legal deed restriction. The conserved lands map for the town of Francestown shows land owned by the town that is either designated town forest or protected by deed restriction, land owned by conservation organizations, and privately owned land protected by conservation easements.

Summary of Conserved Land

Conservation Easements (CE)	Acres	% of Conservation Land	% of Town	Notes
Francestown Land Trust	1,079.8	20.2%	5.6%	
New England Forestry Foundation	2.2	0.0%	0.0%	
NH Dept. of Agriculture	89.0	1.7%	0.5%	Easement totals do not
Nh Dept. of Res. & Econ. Dev.	349.0	6.5%	1.8%	include easements held on
Piscataquog Land Conservancy	129.1	2.4%	0.7%	fee owned lands accounted
Society for Protection of NH Forests	642.4	12.0%	3.3%	for below.
Town of Francestown	272.4	5.1%	1.4%	
	2,563.9	47.9%	13.2%	
Fee Owned				
Francestown Land Trust	589.5	11.0%	3.0%	388.3 Acres are Subject to CE
New England Forestry Foundation	41.4	0.8%	0.2%	6.4 Acres are Subject to CE
Piscataquog Land Conservancy	75.0	1.4%	0.4%	75 Acres are Subject to CE
Society for Protection of NH Forests	23.8	0.4%	0.1%	
Town of Francestown	2,063.1	38.5%	10.6%	1399.5 Acres are Subject to CE
	2,792.8	52.1%	14.4%	
Total Conserved	**5,356.7**	**100.0%**	**27.6%**	

This Page Blank

Map #24-NRI Parcels and Conservation Lands
(See separate uploaded NRI map files)

ACKNOWLEDGEMENTS

Funding for this Natural Resources Inventory was made in part with grants and donations from:

- The Wildlife Conservation Society –Wildlife Opportunities Fund
- Public Service of New Hampshire
- The New Hampshire State Conservation Committee Moose Plate Grant Program
- Donors to the Monadnock Conservancy
- Francestown Conservation Fund

DISCLAIMER

Every reasonable effort has been made to maintain a high level of quality in developing the natural resource inventory information included in this plan. However, the Town of Francestown, the Monadnock Community Conservation Partnership, and the Monadnock Conservancy, make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of the data described or displayed in the inventory. The information contained herein is not adequate for legal boundary definition, regulatory interpretation, or property conveyance purposes. In addition, the resources described and mapped in the inventory are subject to alteration by natural and human influences. This inventory represents a picture of the natural resources in Francestown at the point in time that the resource data was originally compiled.