

Bove Property Natural Resource Assessment and Land Use Planning

Final Report

December 2010

Prepared for:



**The Town of
Milton, Vermont**

Prepared by:



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Bove Property Natural Resources Assessment and Land Use Planning

EXECUTIVE SUMMARY

Lamoureux & Dickinson (L&D), with subconsultants Northeast Archaeology Research Center, Wildlife Biologist Tina Scharf, and Ecologist/Botanist Brett Engstrom, worked with the Town of Milton on a natural resources assessment and land use planning study for the Bove Property. This property, consisting of approximately 135 acres of land along the Milton-Westford town line, contains a mixture of ridges and valleys, forest, wetlands, and field. About 51 acres of this property is in Milton and 84 acres in Westford.

The study began with a documentation of the natural resources in the summer of 2010:

- Wetlands,
- Native American and Euro American Archaeology,
- Wildlife Habitat, and
- Natural Plant Communities and Rare, Threatened, & Endangered Plant Species.

Parts 1 through 4 are the final findings of these natural resource investigations.

Due to the variety of relatively undisturbed landscape types, the property contains a range of natural resources. Wetlands cover over 1/3 of the property and most of their acreage exhibits a high level of wetland functions and values. There is one identified Euro American archaeological site and a number of potential Native American sites. Although no rare, threatened, or endangered wildlife species were identified, the property provides habitat for many wildlife species including moose, deer, bear, coyote, otter, mink, many dozens of species of birds, as well as reptiles and amphibians. The botanical inventory identified two rare, and two uncommon plant

species, a state significant natural community, as well as several uncommon plant community types.

Following the natural resource documentation, L&D used this information as the beginning point of the land use planning phase of the project, which is described in Part 5. They led a public input meeting to review the natural and cultural resource findings, and to begin identifying potential recreational uses that could be considered for the Bove property. A matrix was created of the potential recreational uses that documents the attributes and needs of each for further analysis and comparison.

With this information, three conceptual master plan alternatives were developed along with the advantages /disadvantages of each one. A second public meeting was held to present these plans with a refined master plan as the final outcome. The final recommended master plan includes several types of trails for hiking, mountain biking, and horseback riding; several primitive camping sites, and recommendations for potential future access by ATVs and snowmobiles.

Estimated costs and recommended phasing of the final recommended master plan were prepared. Regulatory requirements were reviewed, including those of the Vermont Agency of Natural Resources, the U.S. Army Corps of Engineers, as well as the Town of Westford Water Resources Overlay Zone restrictions. This report is a compilation of this process with the outcome a final recommended conceptual master plan.

Part 1. Bove Property Wetland Assessment

Brian Tremback, Wetland Scientist (Lamoureux & Dickinson)

In May and June 2010, wetlands were identified and delineated on the Bove Property. A substantial portion of the Bove Property consists of areas that meet the State and Federal definition of wetland; that is, they have wetland hydrology, hydric soils, and hydrophytic vegetation.

Wetlands cover more than a third of the Bove Property (see Figure 1-3). There are five wetland areas on the property:

Westford Swamp

For the purposes of this report, the wetland complex that occurs on the portion of the Bove Property in the Town of Westford is referred to as the Westford Swamp. It is the largest wetland on the property (see Figure 1-3). This wetland has also been referred to as “Hidden Swamp” in a

hills. Five small tributaries carry water into this basin, and one stream carries water away to the north. At the southern end of this wetland is an area dominated by red maple, black spruce, shrubs, ferns, and sphagnum moss (Figure 1-1). This area has been classified as a Red Maple-Sphagnum Acidic Basin Swamp by the Vermont Nongame & Natural Heritage Program and designated as a “significant natural community”.

Further north, a large beaver dam has created a deep impoundment (Figure 1-2). The presence of dead trees in a deeply inundated portion of the swamp and dying trees along the shorelines is an indication of substantial variation of the water level. As shown in the series of photos in Figure 1-4, large portions of this wetland (and the Milton Swamp) fluctuate between open water



Figure 1-1. Westford Swamp — view of the Red Maple-Sphagnum Acidic Basin Swamp at the south end of the property.

previous plant community inventory done by the State. It covers approximately 37 acres of the Bove Property and also additional acreage on adjacent properties to the east, south, and west. Hydrology in this wetland is controlled by the landscape that forms a large basin surrounded by



Figure 1-2. Westford Swamp — main beaver dam at the north end of the swamp.

and marsh, depending on the presence and activity of beavers. Northward and downstream of the main beaver dam are several much smaller dams.

Beyond the lowest dam, the drainage consolidates into a narrow stream channel with a

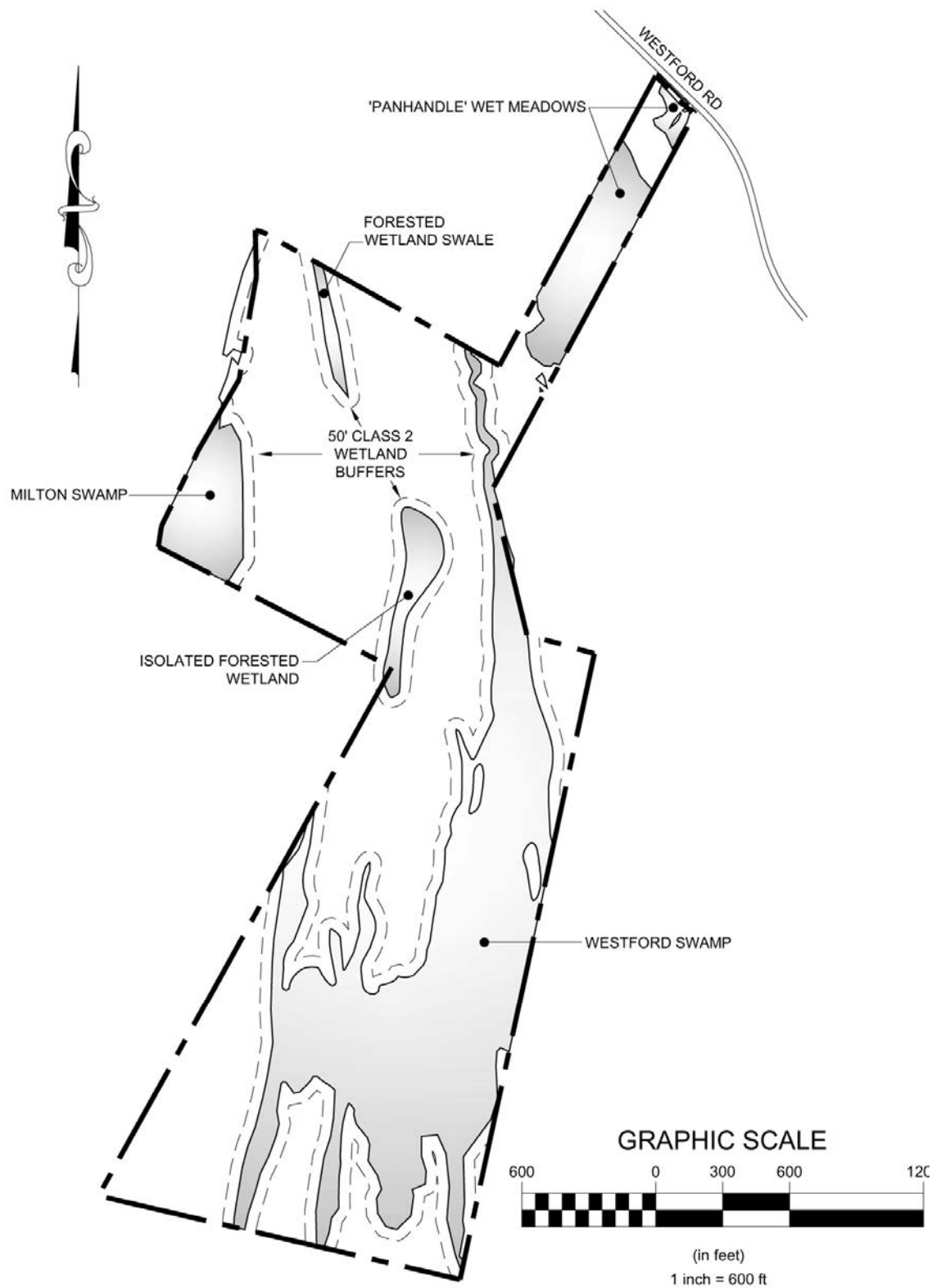
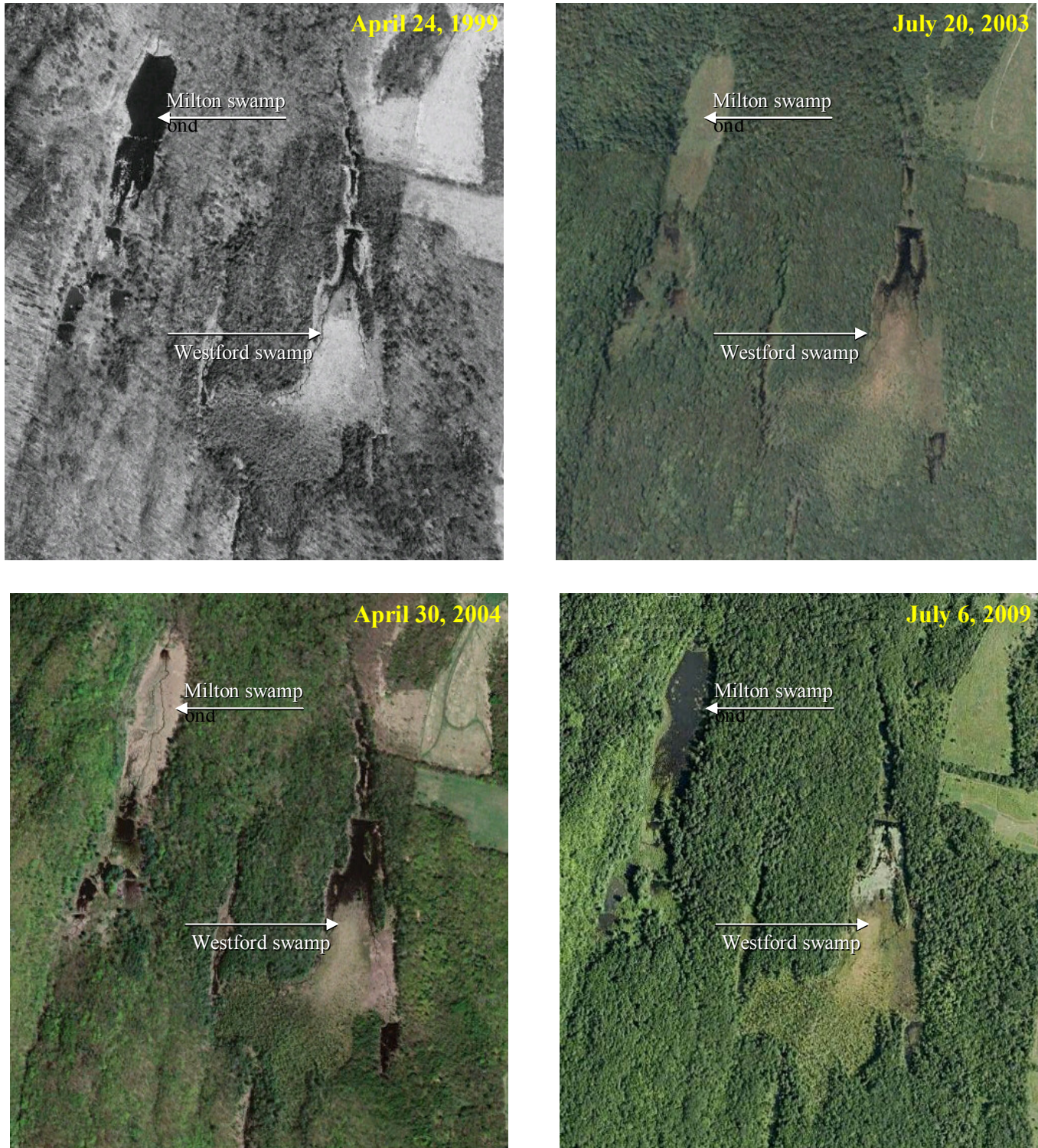


Figure 1-3. Map of the wetlands on the Bove Property.

Figure 1-4. A series of aerial photos showing fluctuating water levels in the swamps on both sides of the Bove Property. In the Summer of 2010, the water level in the Westford Swamp was higher than shown in any of these photos.



small flood plain. The stream bed is dominated by large stones and may be indicative of historically heavy flows of water after beaver dam failure that have swept away smaller stones and sediment. This stream flows to the north, eventually joins with a stream draining the Milton Swamp, continues northward under Westford Road, and eventually reaches the Lamoille River in the Town of Fairfax.

The Westford Swamp appears on the Vermont Significant Wetland Inventory map and would be considered a Class 2 wetland.

Milton Swamp

Another large wetland is located along the western edge of the Bove Property where it abuts the Town Forest (Figure 1-5). For the purposes of this report, this wetland is referred to as the Milton Swamp. It rivals the Westford Swamp in size, but only a small portion – approximately 4 acres – of this wetland is located on the Bove Property. The rest extends southward onto the Town Forest parcel. Like the Westford Swamp, the Milton Swamp also occupies a low basin between surrounding ridges. It also supports beavers that periodically create a substantial area of open water at the northern end. Besides open water, this wetland is surrounded by emergent vegetation consisting of sedges and shrubs. The wetland is drained by a small stream that flows northward and joins with the stream from the Westford Swamp a few hundred feet north of



Figure 1-5. Milton Swamp

Westford road before joining the Lamoille River in Fairfax.

The Milton Swamp appears on the Vermont Significant Wetland Inventory map and would be considered a Class 2 wetland.

‘Panhandle’ Wet Meadows

Another area of wetlands on the Bove Property is located on the narrow extension of the property - the ‘panhandle’ - that runs along the town line and has frontage on Westford Road. These wetlands cover approximately 5 1/2 acres and are dominated by an open field and most of a plantation of balsam fir and spruce trees. The hydrology is very different from the previous wetlands discussed. These wetlands are located on a gradual slope and cannot accumulate significant surface water, but the presence of glacial till hardpan within 18 inches of the surface severely limits infiltration of water. Consequently, any absorbed precipitation must move down slope laterally through the soil. Because the hardpan is shallow, groundwater is located only a short distance from the surface where it can saturate the topsoil if enough accumulates. In May and June, much of this wetland area had wet soils or puddled water on the surface. Wetland conditions fade at a distance of about 400 feet from Westford Road where the slope becomes steeper and both surface and groundwater drains away faster. Wetland conditions are again found along the frontage of the property where the slope again decreases and water puddles. The northern portion of the wetland (near Westford Road) was determined by the Vermont Wetland Section to be a Class 3 wetland. Although it would need to be verified, the southern portion is also a candidate for the Class 3 designation.

Isolated Forested Wetland

This wetland is located near the center of the property and is dominated by a forest of young red maple with a dense ground cover of wood fern. There were occasional small areas devoid of vegetation that may hold water in the Spring time



Figure 1-6. Isolated Forest Wetland—bare areas are likely to contain standing water in the Spring

and be classified as vernal pools. The wetland is approximately 2 acres in size. There is no surface flow of water out of this wetland but instead water is absorbed into the soil profile before it meets with the stream draining the Westford Swamp, located about 200 feet to the northeast. There is a possibility that the wetland may contain surface water for long enough in the Spring to serve as a breeding area for amphibians. Although this wetland does not appear on the Vermont Significant Wetland Inventory map, because of the functions and



Figure 1-7. Small stream that drains the Milton Swamp. As with the stream from the Westford Swamp, the bed load of large stones and boulders possibly attests to a history of beaver dam blow-outs that sweep away the finer material.

values it provides, it is likely to be considered Class 2 under the 2010 Wetland Rules.

Forested Wetland Swale

The final area of wetlands is a small swale that runs through the woods and joins with the stream that drains the Milton Swamp. This wetland is 0.6 acres in size, and is dominated by red maple, green ash, sensitive fern, and interrupted fern. Because of the shape of the terrain, the area concentrates surface and groundwater but, due to its slope, water does not puddle on the surface but rather saturates the topsoil. This wetland is likely to be considered Class 2 by the Wetland Section because it connects to a wetland north of the Bove Property that appears on the Vermont Significant Wetland Inventory maps.

RECOMMENDATIONS

A substantial portion of the Bove Property is covered by wetlands. Most of the wetlands on the property are of high value, that is, they exhibit all or most of the ten recognized wetland functions and values:

1. Water Storage for Flood Water and Storm Runoff
2. Surface and Ground Water Protection
3. Fish Habitat
4. Wildlife Habitat
5. Exemplary Wetland Natural Community
6. Rare, Threatened, and Endangered Species Habitat
7. Education and Research in Natural Sciences
8. Recreational Value and Economic Benefits
9. Open Space and Aesthetics
10. Erosion Control through Binding and Stabilizing the Soil

The Westford and Milton Swamps are likely to provide all the functions and values, the Isolated Forested Wetland provides many of the functions, and the Forested Wetland Swale and Panhandle Wet Meadows provide several functions and values.

Given the high level of functions and values provided by most of the wetland area on the property, any development of recreational infrastructure will need to be planned to avoid or minimize impacts to wetlands and surrounding uplands. Impacts to Class 2 wetlands and their 50-foot buffer zones are under the jurisdiction of the State, impacts to any of the wetlands (whether Class 2 or 3) are also under the U.S. Army Corps of Engineers. Impacts within 100 feet of wetlands in the Town of Westford fall

under the Town's Water Resources Overlay District for which there are significant restrictions regarding trail width, bridges, and permanent structures. If any of the wetland areas are suspected of having vernal pools, the Corps of Engineers may require Spring monitoring. If use by vernal pool dependent species is established, there could be a requirement to preserve an upland forested buffer around those wetlands.

Part 2. Archaeological Resource Assessment of the Bove Property

*Stephen R. Scharoun, M.A., Gemma-Jayne Hudgell, Ph.D., and Ellen R. Cowie, Ph.D.
Northeast Archaeology Research Center (Sept. 2010)*

INTRODUCTION

The Northeast Archaeology Research Center, Inc. (NEARC) conducted an archaeological resource assessment (ARA) of the Bove Property in Milton and Westford, Chittenden County, Vermont on behalf of Lamoureux & Dickinson Consulting Engineers, Inc. The work included background research and field inspection. This ARA conforms to regulatory requirements including, but not limited to, Section 106 of the National Historic Preservation Act and its implementing regulations, and follows guidelines determined by the Vermont Division for Historic Preservation (VT DHP).

As detailed below, the results of the ARA reported herein indicate that certain portions of the project area are considered archaeologically sensitive. In total 13 archaeologically sensitive areas (ASAs) were identified as sensitive for Native American resources and one area as sensitive for potential historic Euroamerican resources. Archaeological phase I survey is recommended for these areas should any ground disturbing activities be planned in these locations in the future.

PROJECT DESCRIPTION

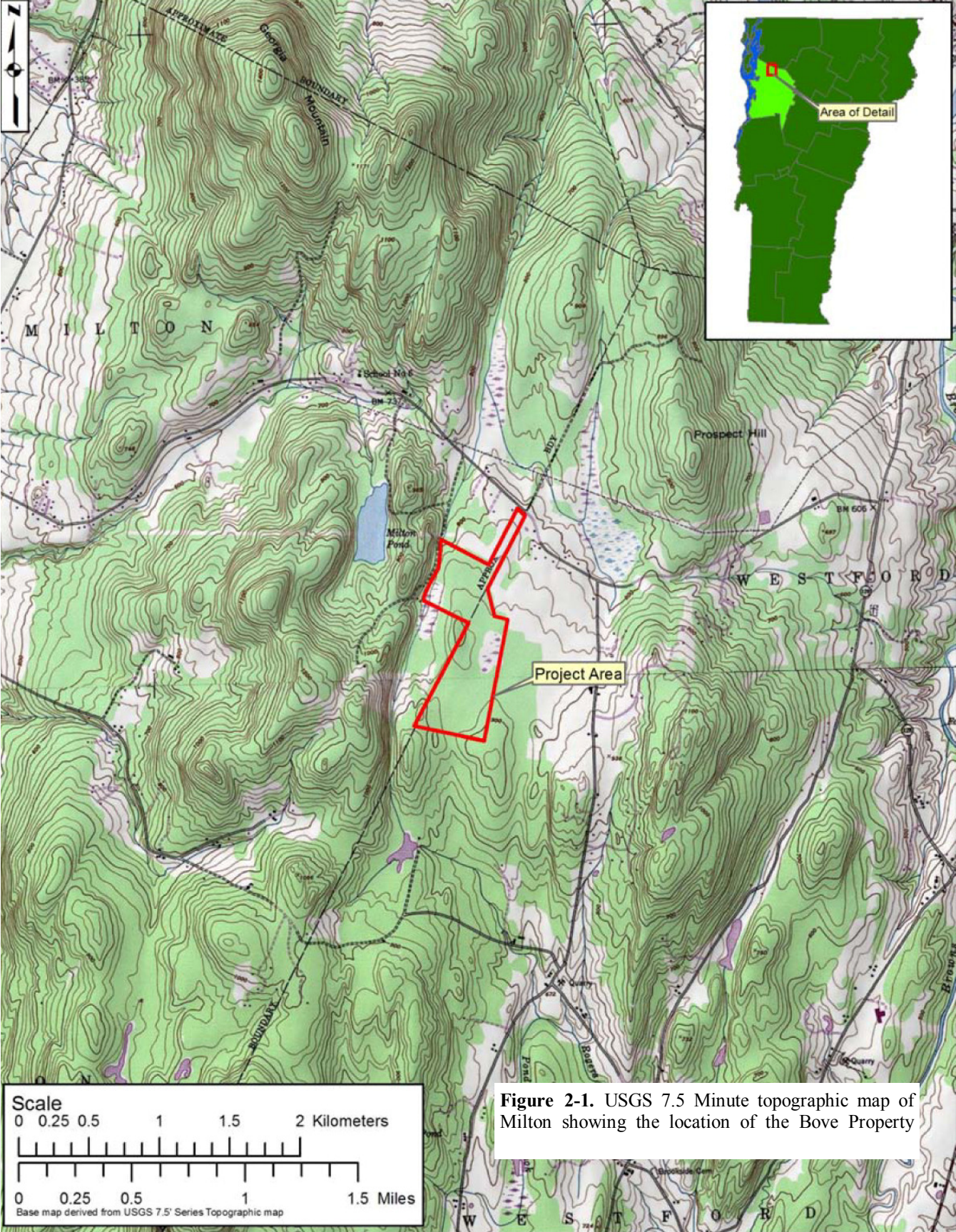
The Bove Property is owned by the Town of Milton, and is located adjacent to the Municipal Forest (MMF) in the eastern portion of the Town, 3.7 km (2.3 mi) from VT Route 7 (River Street) (Figure 2-1). The project area extends along both sides of the Milton/Westford Town line and totals 54.6 hectares (135 acres) in area. The Town of Milton is requesting assistance in assessing the property in order to develop plans for potential future uses. Possible future uses may impact potential cultural resources including

archaeological sites, thus necessitating this ARA.

The project area is situated on generally low-lying, hummocky ground characterized by knoll and terrace landforms rising above lower marshy areas and beaver ponds, all associated with two separate, north-flowing, unnamed streams that drain the beaver ponds (Figure 2-2). Three separate beaver ponds were noted at the time of the field inspection: a large pond situated mostly within the MMF at the western extent of the Bove Property, and two more situated entirely within the Bove Property in the Westford portion of the parcel. The first, largest beaver pond drains northwards via one stream that runs along the western boundary of the project area, while the two smaller beaver ponds are fed by two small streams flowing from the southeast corner of the Bove Parcel and are drained by a single stream that flows northwards along part of the eastern margin of the project area. Both of the unnamed drainages flow into the Lamoille River, which flows westwards into Lake Champlain (Figure 2-1). The project area is located approximately 16 km (10 mi) from Lake Champlain and the mouth of Lamoille River.

Landforms within the project area rise to an average elevation of approximately 260 m (850 ft) above mean sea level (a.m.s.l.). Beyond the western edge of the project area, the land rises steeply and forms a watershed between the above-mentioned unnamed tributaries of the Lamoille River and Milton Pond. Milton Pond drains into Malletts Creek, which also eventually drains into Lake Champlain at Malletts Bay, to the south of the mouth of the Lamoille River.

Vegetation within the project area is forested on higher ground, with a mixture of hard and softwood species and differing amounts of brushy undergrowth. The lower-lying portions of the project area, such as the southeast corner (the eastern half of the Westford parcel), are marshy



with beaver ponds and vegetated with marsh grasses and brushy undergrowth at the margins of the ponds. Eastern portions of the project area are bounded by former agricultural fields. A hay field and small tree plantation are adjacent to the northern part of the study area.

The soils within the project area are classified as the Peru stony loam and the Cabot extremely stony silt loam (0-25% slopes). The first of these is very deep and moderately well-drained, while the second is less well-drained; both soils are formed in dense, loamy glacial till on glaciated uplands and lowlands (USDA 2010).

Bedrock in the study area includes Cheshire quartzite and the Fairfield Pond member of the Underhill formation, which is a greenish quartzite schist. The Cheshire quartzite in particular was commonly used in the past by Native American groups as a raw material from which to make stone tools (Welby 1961).

BACKGROUND REVIEW

Native American Context

The project area and its immediate vicinity have not been the subject of previous subsurface archaeological investigation; however a number of archaeological sites have been identified at a distance of approximately 5 km (3 mi) from the project area in surrounding areas: in Milton, to the west of the project area; in Westford, to the southeast of the project area; and along the Lamoille River in Fairfax, to the northeast of the project area, and are recorded in the Vermont Archaeological Inventory (VAI). No Native American sites are known within 4 km (2.5 mi) of the project area, however.

Sites in and around the Town of Milton include VT-CH-315*, 360, 362 and 363, all situated on terrace landforms associated with a

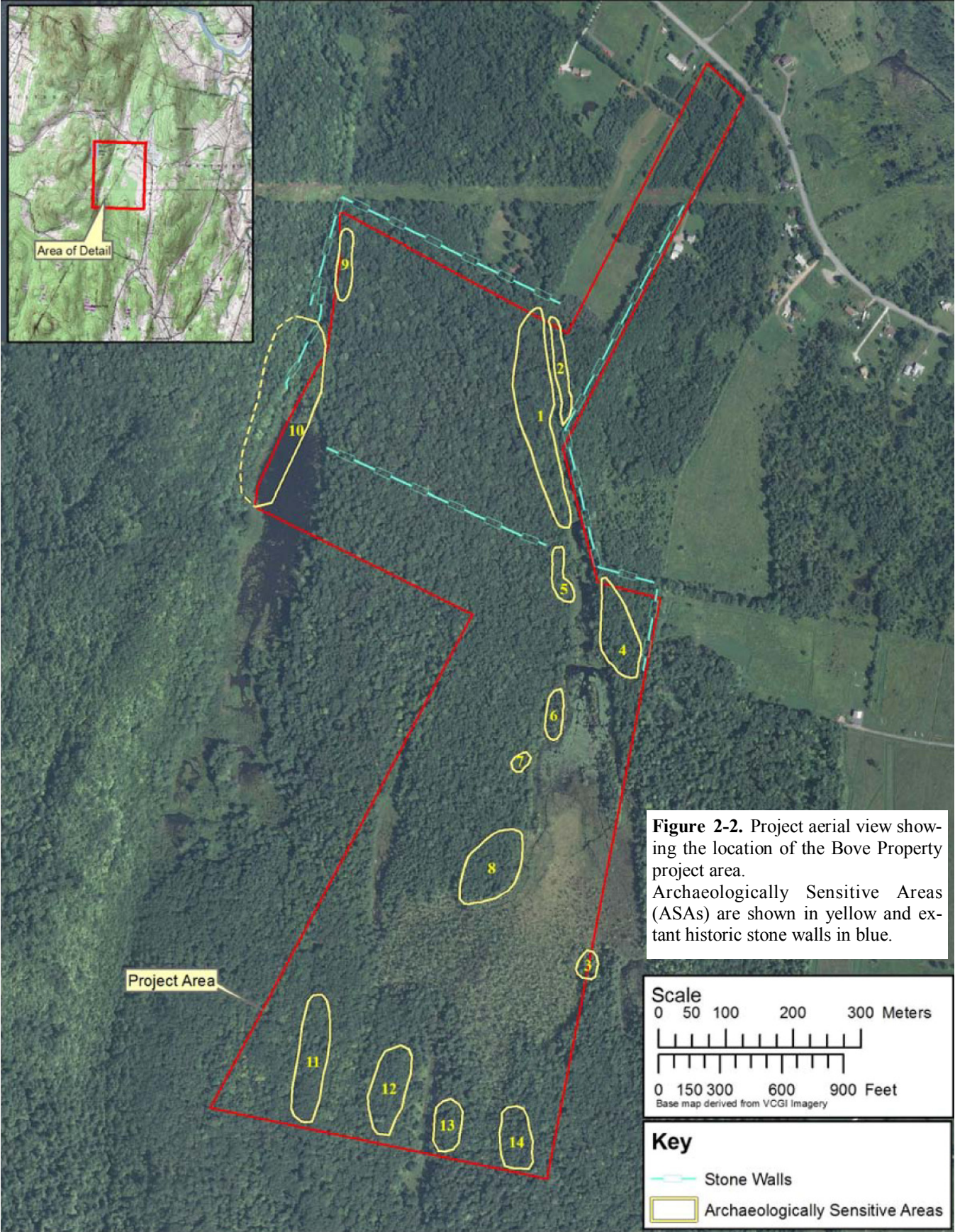
*Archaeological sites registered with the Vermont Division for Historic Preservation are numbered and preceded with state and county abbreviations, i.e. Vermont (VT), Chittenden (CH), Franklin (FR).

small tributary of the Lamoille River; VT-CH4 457, located on a tributary of Malletts Creek; and VT-CH-624, situated on level ground to the west of Malletts Creek. These sites have all yielded Native American material in the form of lithic debitage, yet are all of undetermined age. Site VT-CH-369 is located on the banks of the Lamoille River in Milton and is also of undetermined age, and is characterized by concentrations of fire-cracked rock and charcoal staining. Site VT-CH-623 is located adjacent to VT-CH-624 and has yielded lithic debitage and diagnostic stone tools which place it within the general Woodland period of Native American history, ca. 1,000 B.C. – A.D. 1650. Just north of Milton, sites VT-CH-737, 738 and 788 are located on landforms associated with Arrowhead Mountain Lake, and all have yielded Native American material of undetermined age.

In Westford, known sites include VT-CH-193, a Late Archaic to Middle-to-Late Woodland period site which yielded an Otter Creek type projectile point, among other items, and another Native American site of undetermined age, VT-CH-319.

A number of sites are known in Fairfax, predominantly located along the banks of the Lamoille River and on associated terrace landforms. Those on the south side of the river include VT-FR-72, dating to the Woodland period, and VT-FR-73, dating to the Late Archaic and Middle to Late Woodland period based on the recovery of diagnostic projectile points; site VT-FR-141 also yielded lithic material including bifacial stone tools. More significant sites in Fairfax include site VT-FR-64, the Fairfax Sandblows site, which has a Paleoindian period affiliation, and VT-FR-77, the Keefe #2 site, a multicomponent Native American site on the banks of the Lamoille River. No evidence of pre-settlement Native American land use was discovered within the Milton Municipal Forest (MMF) (Brooks et al. 2003).

The Vermont Archeomap, a GIS-based



program designed to assess Native American sensitivity based on a series of environmental variables, indicates moderate sensitivity for Native American cultural resources in the general project area. Factors favoring pre-contact period site identification within the project area include:

- Proximity to a pond or lake (i.e. Milton Pond)
- Proximity to a wetland
- Elevated landforms such as knolls or ridge crests
- Outcrops of stone used as raw material (i.e., Cheshire quartzite).

The areas designated as sensitive for Native American cultural resources were initially identified on the basis of these attributes (ASAs 1-9 and 11-14; Figure 2-2). In particular, the western edge of the property runs along the base of a more elevated area, and thus possesses landforms that provide views of the wetland to the east.

Historic Euroamerican Context

Historic Euroamerican background research included a review of printed material such as archival maps, town and county histories located at the Vermont Historical Society in Barre, a review of reports, site inventory forms and other relevant material on file at the Vermont Division for Historic Preservation, and in-house reports and histories located at the offices of the NEARC, Inc. Research also included relevant town documents such as the Milton Municipal Forest Management Plan (Brooks et al. 2003).

The settlement of New Hampshire began as part of a planned colonization effort by the British, for example beginning in 1623 when Captain John Mason and others, under the authority of an English land grant from King James I, sent a number of individuals to establish a fishing colony at the mouth of the Piscataqua River. Soon after, Portsmouth was established, gaining its name from the English town where Captain John Mason was commander of the fort: the name New Hampshire is that of his own English county of Hampshire.

A community of "towns" was erected in the new colony, becoming a "royal province" in 1679 with John Cutt as president. This continued until 1698 when it came under the jurisdiction of Massachusetts with Joseph Dudley as Governor. New Hampshire continued to be controlled by Massachusetts until 1741, when under King George II of England, New Hampshire returned to its provincial status and gained a governor of its own, Benning Wentworth, who was its chief magistrate from 1741 to 1766. (N.H. General Court 1977).

The Town of Milton was chartered by Governor Benning Wentworth on June 8, 1763 (Child 1882), during which 27,616 acres in the town were granted to 62 proprietors. However, the town was not permanently settled until the worst of the Revolutionary War was over: the earliest named settlers being William Irish, Leonard Owen, Amos Mansfield, Absalom Taylor and Thomas Dewey early in 1782 (Rann 1886:639). The first Euroamericans to settle in the vicinity of the project area were brothers David and Joseph Austin, who came to Milton from Rhode Island in the fall of 1785 or 1786 (Child 1882; Rann 1886): "In 1788, [David] walked back to Rhode Island, and in the following spring brought his family to their new home in the wilderness" (Rann 1886:640).

Joseph settled along what is now Westford Road, to the north of Milton Pond, while David settled nearby, close to the Westford/Milton town line. Between them, the Austin brothers had 17 children: 5 to Joseph and 12 to David – who later settled much of the land surrounding Milton Pond, although the precise location of each farmstead is unknown. Land near David's farm was settled by one of his sons, Ethan, and his wife Clarissa; passing on to their daughter Veronica and her husband George W. Crown in the early 1800s. An 1869 map (Beers 1971) shows two farmsteads owned by George W. Crown, marked as G.W. Crown and G.W.C., the first located on the Westford Road to the northwest of the Bove Property, and the second

along the road that follows the westernmost edge of the Milton portion of the project area (Figure 2-3). The map also shows various other properties belonging to members of the Austin family, including one marked “A.M. Austin” or “A. Austin” and located just to the east of the project area within the town of Westford (Figures 2-3 and 2-4). An earlier map (Walling 1857) dating to 1857 shows fewer roads and less settlement, but a number of “Austin” farmsteads or properties, including the same “A.M. Austin”, are preserved in the vicinity of the Bove Property and also “G.W. Crown” on the Westford Road (Figure 2-5).

A second family to settle in the area was the Allen family, with the building known as “School No. 6” also known as the “Allen School”, and sitting adjacent to property marked “S.L. Allen” (Figure 2-3). Heman Allen, a likely descendant of this family, is noted to own the farm originally settled by David Austin (Rann 1886:640).

Other individuals owning property within the project area are “Coburn & Perry”, occupying Lot 51 as marked on the Beers map of Milton, and “P. Brunell”, occupying Lot 52. On this map George Crown (G.W.C.) occupies adjacent lots 66 and 38 (Figure 2-3). The part of the project area falling within the Town of Westford is for the most part within Lot 60, and possibly also parts of Lot 61, occupied by A. Austin, and Lot 42 (Figure 2-4).

The land in the east of the Town of Milton, particularly just to the west of the Bove Property, is particularly hilly and rugged, and thus not ideal for farming activities. Rann describes this area:

“The surface, though rather uneven, is not so rugged as to render cultivation unprofitable. The eastern part of the town is elevated some two or three hundred feet above the general level of the other portions, affording many excellent views of the lake and the country that bounds it” (Rann 1886:639).

The Bove Property itself is situated on lower ground to the east of this hilly area, and would have been a more profitable location for farming activities, other than being somewhat marshy. Milton settlers in the 19th century cleared away much of the forest growth in the township, including in the area of the MMF, and would likely have attempted to farm the land using the crops that they knew, such as “corn, grain, and grass”, including maize, wheat, rye, oats, peas and beans, potatoes, apples, and other vegetables (Thompson 1842:7). However, intense land use soon depleted the fertility of the soil, with many hill farmers then turning to the grazing of sheep. Merino sheep were introduced to Vermont in 1812, to great success: resulting in “merino mania” and the growing demand for wool by the textile industry of New England. This led to a change in farming practices, as sheep required large grazing areas and small family farms had to be consolidated into larger farms. Also, many farms became dependent on a single product: wool - ultimately resulting in a boom-bust cycle for the product. Wool reached a price of 57 cents/pound in 1835, and by 1837, there were at least 1,000,000 sheep in the state. This flooding of the market subsequently led to a drop in the price of wool to 25 cents/pound in the late 1840s. The State could not withstand more efficient competition from the Western states, and sheep raising in Vermont collapsed (Vermont Historical Society 2007). This, in part, led to population decrease, as many Vermonters left the area for better opportunities farther west (Albers 2000). The boom and bust cycle is evident in the population record of Milton, with substantial growth from 282 to 1548 residents in the short period from 1790 to 1810, slowing down in the period 1810-1850 and peaking at 2451 residents. By 1860, the population was 1963 residents, and had started a long and gradual decline that was to continue through to the end of the century (Beers 1971).

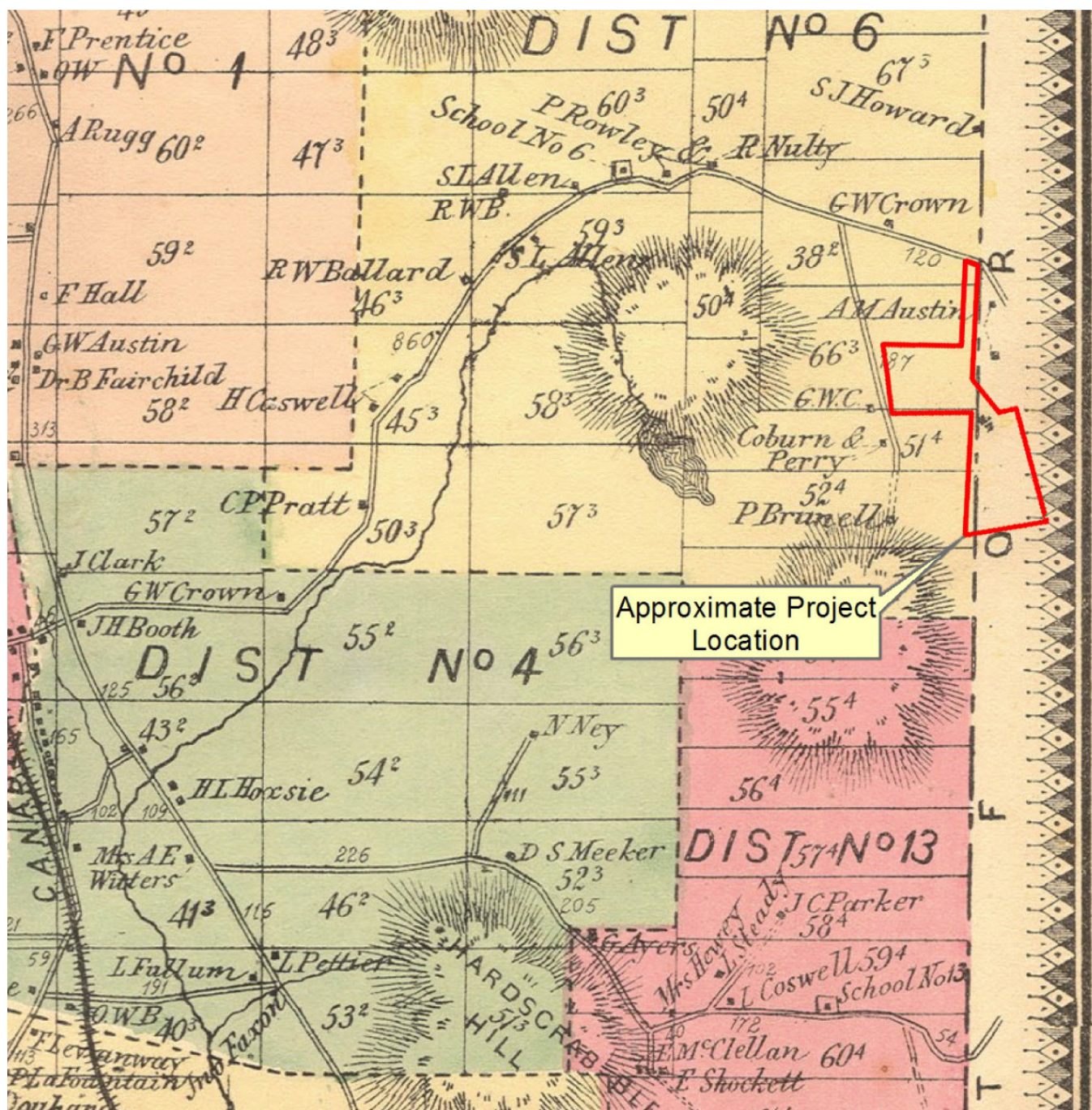


Figure 2-3. Beers' 1869 map of Milton showing the location of the Bove Property project area.

Although farm consolidation was undoubtedly practiced as part of profitable sheep farming in many local areas, further consolidation following the bust of the wool trade in the late 1840s was likely partially a response to depopulation and a period of general hard times for farmers. The Cultural Resources section of the Milton Municipal Forest Plan (Brooks et al. 2003) details deed research describing farm consolidation in the area of the MMF, which in parts may overlap with the Bove Property. For example, the Austin family began consolidation in 1849, continuing in 1857, when four farms totaling 400 acres were sold by family members to Albion M. Austin and his wife Matilda. Albion's farm, marked "A.M. Austin" on the 1857 map of Milton (Figure 2-5), was located on the Westford Road to the northwest of the project area, however another property also marked "A.M. Austin" is located farther to the east, approximately at the northern edge of the Bove Property itself. It is possible that this property was also part of the consolidation at this time. Further consolidation in the 1860s added another 50 adjacent acres on the Westford Road, bought from E. [Edgar] D. Austin (Figure 2-5), and the final 450 acres was later sold to Patrick Rowley and Robert Nulty in 1868. These individuals appear on the 1869 map (see Figure 2-3), and owned the land bordering the west of the Bove Property.

The Bove Property itself falls within an area for which the deed research is less clear, but as noted above, it is apparent that George W. Crown likely held some of this land (see Figures 2-3 and 2-5). The two parcels of the Bove Property which fall within Milton most likely were part of a 348-acre parcel owned by George W. Crown, whose property bounded that owned by Paul Brunell and possibly also Charles Coburn and Lorenzo Perry (Figure 2-3) – who would thus have been the landowners on the southern side of the Milton parcels and the western side of the Westford parcel. The

Westford parcel of the Bove Property falls within "Lot 60" of the Town of Westford, as noted above; however no name is affiliated with this parcel on the 1869 map (Figure 2-4).

George W. Crown died at some point between 1869 and 1882, and the farm passed to his widow, Veronica, and their daughter, Amanda. They sold the land in 1883 to Lucretia B. Witters, who resold the parcel to Arthur Martell, who in turn would own the farm for the next 47 years. While the land surrounding Milton Pond, including parts of the 450-acre farm owned by Rowley and Nulty, changed hands and eventually passed to the Milton Water Corp., Arthur Martell held his claim to the land on the east side of Milton Pond and thus likely the Milton portions of the Bove Property. The intention of the Milton Water Corp. purchase was to provide a reliable water source to a large creamery in Milton, via the damming and ultimate control of all of Milton Pond; this was achieved in 1923 following the purchase of the pond (including a 50-ft buffer) from the surrounding landowners, with the exception of Martell.

In 1930, Martell transferred all of his 348 acres to his daughter, Caroline, and her husband Edward Desranleau, who in 1932 finally sold a 100-ft strip along the east shore of Milton Pond to the Milton Water Corp. By 1948, Arthur J. and Etta Pidgeon had purchased the Arthur Martell Farm, among other property in the area of the MMF.

There followed a period of logging interests within the area of the modern MMF, which may have encroached upon or included properties within the current Bove Property. Two major cutting episodes occurred, one in 1946 and one in 1986 (Brooks et al. 2003). Recent cutting has also occurred within the project area.

The parcel of land to the southwest of the Bove Property (previously owned by Paul Brunell and/or Charles Coburn and Lorenzo Perry; Figure 2-3) passed through various different owners until 1963, when the Milton

Water Corp. obtained the property. The intention of the corporation was to build a dam at the outlet of the beaver pond in order to create a supplementary water supply. This dam would have been located within the Bove Parcel; however it was never constructed.

The old 19th-century road marked on the 1869 map (Figure 2-3) is still present in the Bove Property, running along the western edge of the project area (see also Figures 2-1 and 2-2). Many of the 19th century roads built to access farmland in the area of the MMF, including this one, are now logging trails or hiking paths, and in many places are no longer visible other than by lines of large trees such as maples. An obvious cellar hole is located just off the road running along the western edge of the Bove Parcel, and likely represents the remains of the homestead of George W. Crown, or possibly Charles Coburn/Lorenzo Perry.

FIELD INSPECTION

A field inspection of the project area was conducted on May 3-5, 2010 by Stephen Scharoun and Jessica Stuart of the NE ARC. All but the southern-most portion of the project (the area encompassing ASAs 11-14) was included in the inspection. The latter, southern area was not included as it was just recently added to the project plans, after the completion of the field inspection.

GIS based maps generated as a result of the background research and GPS was used during the field inspection to designate archaeologically sensitive areas (ASAs) and observed cultural features (Figure 2-2). A review of maps, including a Cultural Resources map provided with the Milton Municipal Forest Management Plan (Brooks et al. 2003), further indicates the possibility of archaeological sensitivity within portions of the project area.

There are no recorded Native American or historic Euroamerican sites within the Bove Property. However, a number of environmental variables present within the study area indicate moderate to high sensitivity for Native American cultural resources. During the field inspection, a total of nine areas were confirmed as sensitive for Native American cultural resources, and were designated ASAs 1 through 9. These are situated on landforms associated with the two northflowing drainages. As mentioned above an additional four areas, designated ASAs 11-14 were identified solely on the basis of the background research (including review of topographic maps, aerial photographs and Vermont Archeomap). No archaeologically sensitive landforms were identified within the thin strip of land extending to the Westford Road on the Milton side of the town line.

Potentially significant historic Euroamerican resources are present adjacent to the northwestern boundary of the Bove Property, in the form of a cellar hole possibly attributable to George W. Crown. Stone walls and a historic road were also noted in this area extending within the project area boundaries; this area was designated ASA 10. Secondary historic features, notably stone walls, were observed primarily along existing project boundaries (Figure 2-2). No other historic resources of potential significance were observed during the field inspection. Evidence of logging is present throughout the project area in the form of eroded skidder trails and breached stone walls.

ARCHAEOLOGICALLY SENSITIVE AREAS: NATIVE AMERICAN

ASA 1

ASA 1 is located in the southerly of the two Milton parcels, at the eastern edge of the parcel. ASA 1 is situated on a more or less continuous, relatively level, low-lying terrace extending approximately 250 m north to south and

associated with the west bank of a meandering stream which serves as an outlet of beaver ponds located in the southern portion of the project area. The stream runs north, and is a tributary of the Lamoille River. The terrace location of the area and proximity to this stream contribute to archaeological sensitivity for Native American resources in this case. The northern boundary of ASA 1 extends to the boundary line of the Bove Property which is delineated by an east-west trending stone wall. Other than this wall, no historic period cultural resources were observed in ASA 1. The terrace is relatively narrow, averaging 10-15 m in width, and is elevated approximately 1-2 m above the stream bed. This ASA, as with all those identified during the field inspection, is wooded with mixed soft and hardwoods and a relatively open understory.

ASA 2

ASA 2 is located opposite to ASA 1, on a similar low-lying terrace at the eastern bank of the northerly-flowing drainage. As with ASA 1, the terrace landform and proximity to the stream contribute to sensitivity for Native American resources. ASA 2 measures approximately 100 m in length and 10-20 m in width, and is bounded by wet, hummocky ground at its northern end and by a stone wall running parallel with the stream at its southeasterly end. This stone wall forms one of the boundaries of the Bove Property and also runs along the Milton/Westford town line. Barbed wire fencing was noted in association with the stone wall. In this section of the study area the wall is situated less than 5 m from the stream; to the east of the wall are former agricultural fields. Stone piles, likely representing field clearance, are visible along the western margin of the old fields, adjacent to sections of the stone wall. No other historic period cultural resources were observed in ASA 2.

ASA 3

ASA 3 is located at the southeastern edge of the Bove Property, within the Westford section of the parcel. ASA 3 contains the very northern end of a narrow, low-lying ridge, and is bounded on both the east and west by tributary streams and wetland which form the headwaters of the main beaver pond in this section of the project area. These factors contribute to the Native American archaeological sensitivity of this ASA. The ASA 3 landform measures approximately 10 m x 30 m and is elevated approximately 2 m above the level of the pond. This narrow promontory of land drops steeply on three sides, receding in a southerly direction to higher, better drained land on which a clump of mature white pine is established. The ridge-line landform is somewhat hummocky and uneven.

ASA 4

ASA 4 is located in the eastern, Westford section of the project area. The ASA is situated within a triangular piece of land formed by a corner of the Bove Property, which is delineated by stone walls which form a right angle immediately northeast of the ASA, and cut off from the remainder of the Westford section of the property by the beaver pond and its outlet. In addition to the stone walls which form sections of the project boundary, a farm road and a former farm dump were observed immediately to the east of the ASA, adjacent to the stone wall. No historic period cultural resources were observed within this ASA, however. ASA 4 is situated on a relatively level low ridge which runs parallel to a band of low, wet, hummocky ground adjacent to the drainage associated the beaver pond, and its situation on this landform adjacent to water contributes to ASA 4's sensitivity for Native American resources. ASA 4 measures approximately 100 m x 50 m.

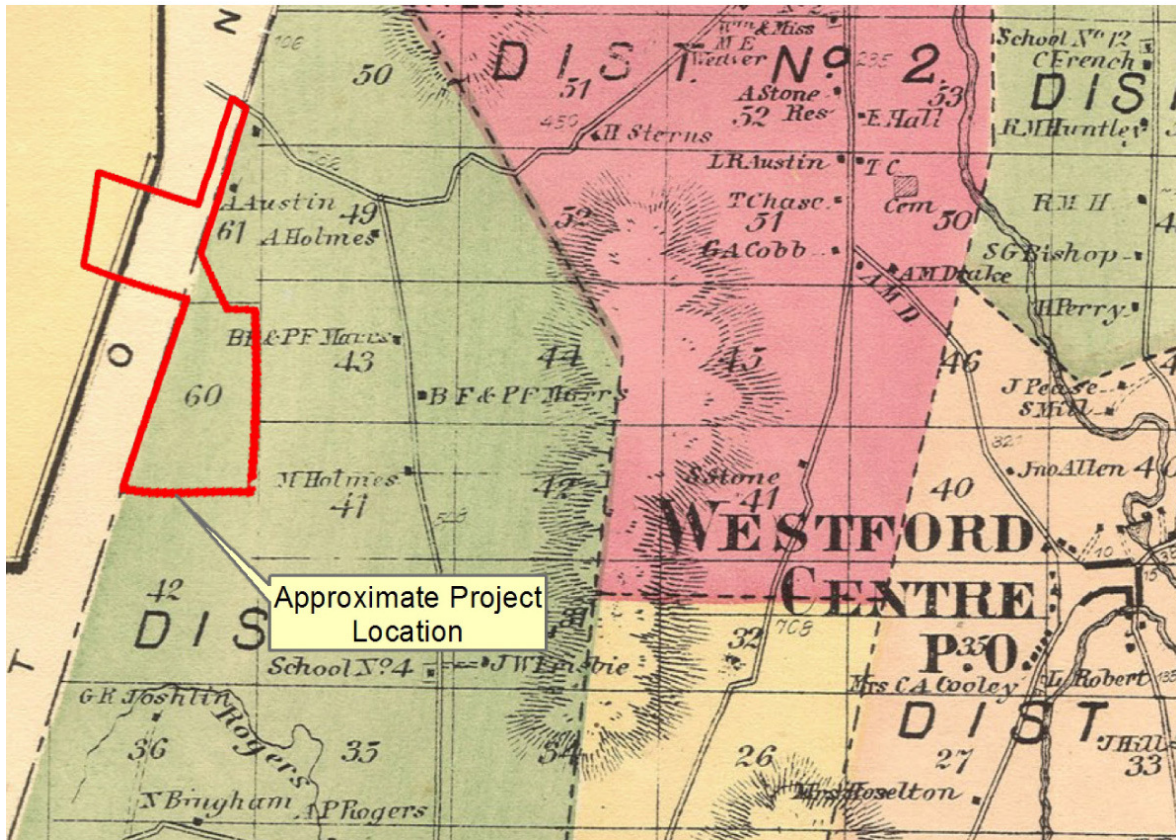


Figure 2-4. Beers' 1869 map of Westford showing the location of the Bove Property project

ASA 5

ASA 5 is located on a ridge landform on the west side of the drainage opposite ASA 4, and shares similar features which contribute to its archaeological sensitivity. ASA 5 overlooks the wetland associated with the smaller of two beaver ponds and measures approximately 75 m x 25 m. This landform is elevated approximately 7-10 m above the wetland and delineates a relatively level knoll-top section of a ridge-line which rises unevenly to the south.

ASA 6

ASA 6 is located in the middle of the Westford section of the Bove Property on a narrow, low-lying ridge. This landform separates wetlands that contain two tributary streams feeding into the larger of the two beaver ponds, and the northern end of ASA 6 overlooks the confluence of these two drainages. These factors contribute to Native American archaeological sensitivity of the ASA. ASA 6 contains mature stands of mixed growth with thick, woody undergrowth.

Although somewhat hummocky, the ASA is relatively level and elevated approximately 2-3 m above the wetland, and measures approximately 50 m x 20 m.

ASA 7

ASA 7 is located in the center of the Westford portion of the Bove Property, just to the southwest of ASA 6. ASA 7 is situated on the west side of the drainage on a high, relatively level knoll top that overlooks the larger of the two beaver ponds in this portion of the study area, which again contributes to Native American archaeological sensitivity. This ASA is elevated approximately 3-5 m above the wetland, and measures approximately 15 m x 20 m. The eastfacing slope is relatively steep and uneven and much of the surrounding area is characterized by hummocky, poorly drained terrain.

ASA 11

ASA 11 is located near to the southwestern corner of the Westford portion of the parcel, and occupies a long ridge which forms the western boundary of the wetlands/beaver pond in this part of the Bove Property. This ridge has two slight knolls, which each reach a maximum elevation of 20 ft above the wetlands/beaver bog to the north. The landform appears to slope down fairly steeply towards a small drainage that runs to the east of the ridge and less steeply to one that runs to the west of the ridge; both these drainages flow northwards into the beaver pond/wetland. This ASA is deemed sensitive for Native American cultural resources due to proximity to a permanent stream/watercourse, proximity to a wetland, and its location on relatively level terrain above these wet areas. This ASA is also deemed sensitive due to proximity to the confluence of the two smaller streams to the west and east of the ridge with the main beaver pond/wetland. ASA 11 is approximately 150 m in length by 50 m in width.

ASA 12

ASA 12 is located to the east of ASA 11, at the southern end of the Westford part of the Bove Property. ASAs 12 through 13 are all situated on landforms which form finger-like extensions northwards into the beaver pond/wetland. Each of these landforms are separated by drainages which may be ephemeral. The ASA 12 landform is lower towards the north, and slopes gently up to a double knoll, the more southerly of which is located on the boundary of the project area. The summit of each knoll lies approximately 20 ft in elevation above the wetland. ASA 12 is approximately 125 m in length by 50 m in width, and is deemed sensitive for Native American cultural resources on the basis of its position close to various water resources (streams; wetland/beaver pond) and the raised, relatively level nature of the landform. It is also deemed sensitive due to proximity to head of a drainage,

located to the south and outside of the project area.

ASA 13

ASA 13 is located to the east of ASA 12 and is situated on a very similar landform: a “finger” of land extending northwards into the wetland. Again, this ASA is low to the north, sloping gradually upwards and southwards towards a knoll which is located just to the north of the project area boundary. Once more, this landform appears to rise to a maximum elevation of 20 ft above the level of the wetland. ASA 13 measures approximately 100 m in length and 50 m in width, and is again deemed archaeologically sensitive for Native American cultural resources based on proximity to water and its situation on a raised and relatively level landform.

ASA 14

ASA 14 is located in the southeast corner of the Westford portion of the Bove Property, on a landform which forms the easternmost “finger” of land into the beaver pond/wetland to the north. ASA 14 shares similar characteristics with ASAs 12 and 13 in that it slopes up towards a knoll-like summit at the southern extent of the project area, which reaches an approximate elevation of 20 ft above the level of the wetland. ASA 14 is deemed archaeologically sensitive for Native American cultural resources, again based on proximity to water resources and its situation on a raised and relatively level landform.

*ARCHAEOLOGICALLY SENSITIVE AREA:
HISTORIC EUROAMERICAN**ASA 10*

ASA 10 is considered sensitive for historic Euroamerican resources, and is located at the far western boundary of the Bove Property, just to the south of ASA 9. ASA 10 contains an old road and dry-laid stone walls associated with the road

and former field divisions. As noted, a cellar hole was observed in ASA 10, within the MMF and adjacent to the project area. The archaeologically sensitive area within the MMF is marked by a dashed line in Figure 2-2. The total area containing Euroamerican resources is approximately 250 m x 100 m.

Within ASA 10, the historic road, shown on the 1869 Beers map (Figure 2-3), runs along a narrow terrace on the west side of the beaver pond outlet stream only 1.0 m or less above the level of the stream. The road crosses to the east side of the stream near the northwest corner of the study area, crossing back to the west side of the stream on its approach to the beaver pond dam. Stone walls intermittently line one or both sides of this road. The western boundary of the study area appears to follow the course of the old road. The MMF cultural features map included within the MMF Management Plan (see Brooks et al. 2003) indicates that the road enters the MMF near the outlet of the pond. Approximately 50 m northwest of the outlet and 30 m west of the road is the cellar hole attributed to G.W. Crown or Charles Coburn and Lorenzo Perry. As the MMF document indicates, a number of cellar holes and other cultural features are oriented along this road. Assignment of state site numbers to all cellar holes within the MMF is recommended.

CONCLUSIONS AND RECOMMENDATIONS

The results of the ARA research indicate that the Bove Property includes 13 areas which are sensitive for Native American cultural resources (ASAs 1-9 and 11-14). Sensitivity for historic Euroamerican remains is highest in the western portion of the property in the vicinity of the G.W. Crown/ Coburn and Perry cellar hole (ASA 10). Should any ground disturbing activities be planned in these areas in the future,

archaeological phase I survey work is recommended. All other areas are considered unlikely to preserve significant archaeological deposits, and no further archaeological work is recommended outside of the defined ASAs.

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Part 3. Wildlife Habitat Assessment for the Bove Property

Tina Scharf, MS, Wildlife Biologist (August 2010)

The Bove property is a composite of habitat types and natural communities. As such, it is a rich area for wildlife, offering a variety of resources for many species. A list of species and sign observed during the assessment is provided in Table 3-1.

DESCRIPTION OF HABITAT TYPES

Beginning in the northern “panhandle” by the Westford Road, there is a wet meadow planted with balsam firs. Kinglets and other species of birds use these trees as cover. Although they were not surveyed, there are certain to be small rodents in the tall grasses of this area that would attract fur-bearing predators.

The rest of the property that lies in Milton forms a rectangular piece that is bounded by two small streams with associated wetlands, sometimes narrow and, on the west side, draining from a large beaver pond. I heard a Louisiana water thrush near the stream that emanates from this pond. I also found otter, raccoon, skunk and coyote tracks along the old town road on this western boundary. Most of this part of the property is upland northern hardwood forest. The northeastern side is much younger forest with red maple, gray birch and other early-successional species. Obviously it was pasture or field in the not-too-distant past (also evidenced by a stone fence). The forest is more mature in the west and south. While there is value to all forested woodland as wildlife habitat, this part of the property is the least diverse.

Moving south, the narrow neck on the border of the two towns has a stream with some flat, wet ground along its edges. Theresa Benjamin, the neighbor to the east, reports seeing a mink in this area. There are also sedges and other plants that bears might eat in the spring. Bears commonly

eat greens in wetlands in the spring because they are the first plants to green up, and food is extremely scarce when bears emerge from their dens. Theresa also reports having bear problems at her bird feeder, which she eventually had to remove. She had seen a sow with cubs at her feeder in years past. It is probable that the bears were coming from the larger woodland to the south, of which the Bove property is a part.

Moving to the Westford section of the property, one is struck by the wetness of the area. There is a large beaver wetland that has several habitat types including open water, emergent marsh, and shrub and alder swamp. Mixed and coniferous woodland surrounds the wetland complex. Much of the property that is not actual wetland has a ridge-swale topography with apparently poor drainage. Water tends to collect in the swales, thus forming many tiny streams and pools. This observer has never seen an area so strewn - for lack of a better term - with pools. I noted at least a dozen potential vernal pools, which forest-dwelling amphibians (such as the blue-spotted salamander) use for breeding. There is certainly a very real possibility that this is an important area for amphibian breeding, but surveying for amphibians was beyond the scope of this study. Surveying would be a very good idea, however, and could make a good project for high school science classes.

No threatened or endangered (T&E) species or T&E species habitat has been identified on this property. However, the Vermont Fish and Wildlife Department Natural Heritage Program has identified the southern end of the Westford beaver wetland as a Significant Palustrine Community. This Red maple-sphagnum acidic basin swamp is known as “Hidden Swamp.” Besides its botanical interest, Hidden Swamp is excellent habitat for the declining Canada warbler mentioned below.

Table 3-1. Terrestrial vertebrate species observed on the Bove Property, Summer 2010.

MAMMALS (12 species)	BIRDS (49 species)	
beaver	American crow	song sparrow
black bear*	American goldfinch	swamp sparrow
coyote	American redstart	tufted titmouse
eastern chipmunk	American robin	veery
mink*	Baltimore oriole	white-throated sparrow
moose	black-and-white warbler	wild turkey
raccoon	black-capped chickadee	willow flycatcher
red fox	black-throated blue warbler	winter wren
red squirrel	black-throated green warbler	wood thrush
river otter	blue jay	yellow warbler
striped skunk	blue-headed vireo	
white-tailed deer	brown creeper	
	Canada warbler	
*Reported by the Benjamins, Bove Property neighbor	common grackle	
	common raven	
	common snipe	
	common yellowthroat	
AMPHIBIANS (5 species)	downy woodpecker	
eastern newt	eastern wood pewee	
gray tree frog	golden-crowned kinglet	
green frog	gray catbird	
spring peeper	great blue heron	
	great-crested flycatcher	
REPTILE (1 species)	hermit thrush	
snapping turtle	least flycatcher	
	Louisiana waterthrush	
	mallard	
	mourning dove	
	Nashville warbler	
	northern cardinal	
	ovenbird	
	pileated woodpecker	
	red-breasted nuthatch	
	red-eyed vireo	
	red-winged blackbird	
	rose-breasted grosbeak	
	ruby-crowned kinglet	
	ruffed grouse	
	scarlet tanager	

WILDLIFE OBSERVATIONS

Moose and deer are common inhabitants of the Bove parcel. Moose obviously live in the area year-round as evidenced by winter pellets and many moose tracks in the northern “panhandle” in the summer months. There was also bark stripping, browsed balsams, and browsed hobblebush (*Viburnum alnifolium*) standing as testimony to moose occupation. Deer tracks were common, and this observer saw a deer near the north end of the Westford beaver pond. However, there was no evidence that this particular property is a deer wintering area (DWA). The Vermont Fish and Wildlife Department DWA map shows an extensive DWA abutting the west side of the Bove property (which is at least partially in the Milton Town Forest).

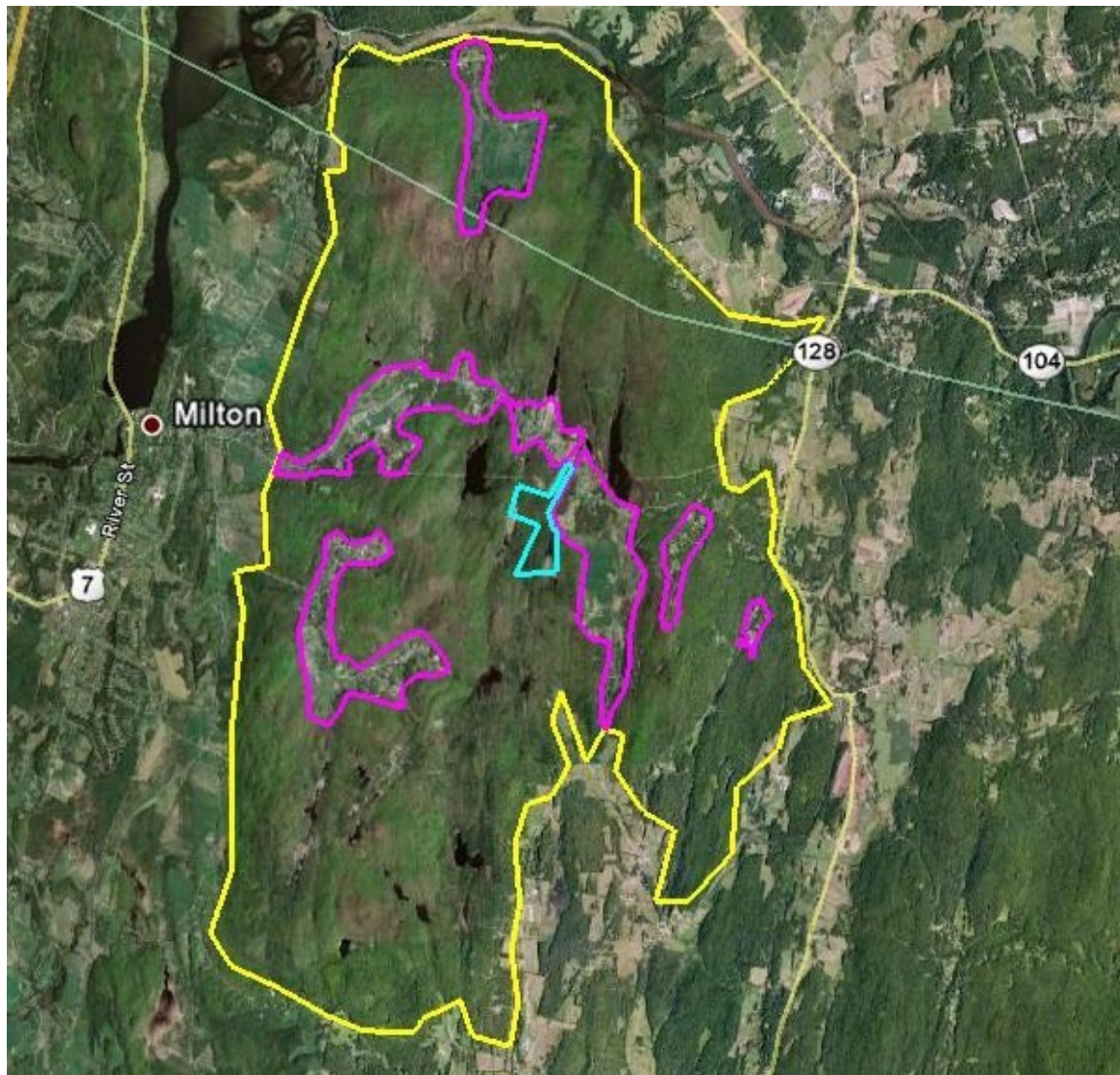
Of the other mammal species sign observed, the otter is of the greatest interest. This species requires fairly significant wetland and stream habitat and is also quite wide-ranging. The fact that otter tracks were found on the Bove parcel suggests that the maze of wetlands in the area (including Milton Pond and other nearby ponds and streams in the Milton-Westford area) is a healthy, functioning system with sufficient connectedness to support an otter population.

In just a few visits 49 species of birds were observed. The total would no doubt be higher if more time had been spent on the property. Such a diversity of bird species emphasizes the diversity of habitat types: both young and mature deciduous, mixed, and coniferous forest, and several types of wetland. It is almost certain that there are more bird species hiding in the emergent plants of the marshland and the swamp, such as rails, ducks and woodcocks, but these species can be difficult to detect.

WILDLIFE VALUES

The Bove property has at least four values from a wildlife perspective:

1. Looking at the larger landscape, the Bove parcel is part of a good-sized forested habitat block that is bounded on the north by the Lamoille River (Map A). Fields and housing developments form some incursions into this block. The Bove parcel provides connectivity with forested and wetland habitat, particularly in a north-south direction. An illustration of this connectivity is that moose regularly walk through the “panhandle” on the northern end of the property to get across the Westford Road. There is a hedgerow that provides cover on the north side of the road. This road crossing is one of only a couple of places on the Westford Road that provides cover for shy wildlife species to cross.
2. A second value is that this piece of property differs dramatically from a good deal of Milton, which is better known for its typical Champlain Valley natural communities. The Bove parcel seems to have more in common with the Northeast Kingdom than with the Champlain Valley. Since these types of natural communities are rather rare in Milton they have value – adding to diversity in both plant and animal life within the town.
3. The third value is extensive wetland, which is rich and diverse and provides habitat for a number of wildlife species. For examples: two uncommon bird species that were observed during my visits were three Louisiana waterthrushes and a Canada warbler. Waterthrushes require wetland and stream habitat. I heard waterthrushes both on the west side of the Milton part of the parcel and also near the Westford beaver pond. Canada warblers have declined dramatically in recent years. This species requires wet woodland habitat. Red maple swamps and poorly drained spruce-fir and mixed woods fill this requirement, including Hidden Swamp. All these types of woodland communities exist near and within the Westford beaver pond complex.
4. While walking the property one is continually running into wet spots in the forest floor that



KEY:

- Approximate Bove Property boundary
- Landscape level wildlife habitat block
- Incursions/fragmentation within habitat block

may be vernal pools. As mentioned above, the geology of the area appears to lend itself to the formation of these pools. Unfortunately the scope of this assessment didn't allow time to survey the pools, but in August there were still frogs in some of them, leading one to think that forest-dwelling amphibians do use at least some of them for breeding purposes. This area would make an excellent research project for school children. They could both survey the pools in the spring for egg masses and also set out traps and boards for amphibians to see what types of amphibians inhabit the area.

HUMAN USAGE AND IMPACT

The Bove property was apparently acquired to provide access to the Milton Town Forest, and the very narrow neck of land that gives access from the road is key to this project. Unfortunately for wildlife, that spot is one of the only places where there is cover for wild animals to cross the busy and developed Westford Road. If a driveway and a parking lot are to be constructed, I would recommend that some cover be left for wildlife road-crossing purposes. "Cover" can mean just a shrub-filled ditch, but obviously the widest amount of property that can be spared would be best. Coniferous trees such as the balsams that already exist there can be used effectively to provide a screen that can allow shier wildlife species to feel "safe" enough to use it. The hedgerow on the north side of the road is key to this crossing as well. Perhaps the Town could make some agreement with the landowner to preserve that hedgerow.

In terms of human usage of the rest of property from a wildlife standpoint, vehicles (mountain bikes, ATVs, motorcycles and also horses – erosion is already occurring due to horse traffic) can erode the soil and ruin vernal pool and other wetland habitats. Because of this, the dry upland deciduous forest in Milton is the only part of the property that is suitable for trails.

Winter usage of snowmobiles can be less problematical, although in the swales the ground still isn't likely to freeze as well and therefore even snowmobiles could cause erosion and disruption in the ridge-swale areas.

There is always a question of noise disturbance by snowmobiles and other motorized vehicles. Loud noises startle animals and cause them to run, expending unneeded extra energy. Wintertime is the most difficult time energetically for animals, especially deer. Noise disturbance is one area where human usage and wildlife conservation is often at odds. The comparative value of noisy types of human recreation must be weighed against the value of undisturbed wildlife.

Dogs are another potential problem for wildlife when trails are constructed. People like to take their pet dogs for walks on forest trails. In any trail development I recommend that dogs must be leashed. It is an unpopular stance to take, especially in a rural state like Vermont; but the fact is that loose domestic dogs are very disruptive and can and do cause harm to wild animals, especially in winter.

In summary, with the exception of the upland forest in the Milton section, much of the property is too wet to allow for trail construction. The Westford section would make a good educational area for school children, helping them to learn outdoor skills (e.g., bushwhacking and orienteering) and wildlife surveying (e.g., for amphibians using boards and low fences). If possible, dogs should be leashed. Motorized vehicles and wildlife don't mix well, so decisions concerning vehicle use must weigh the relative importance of those competing values.

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Part 4. Natural Plant Communities and Rare, Threatened, & Endangered Plant Species on the Bove Property

Brett Engstrom, Consulting Botanist/Ecologist (August 31, 2010)

An inventory for significant natural (i.e. plant) communities and rare, threatened, and endangered (RTE) plants was conducted at the Bove Property on June 15 and August 25, 2010. Based on biological and ecological information housed at the Vermont Department of Fish and Wildlife's Nongame and Natural Heritage Program (VNNHP), one significant natural community and no RTE plants were known to occur at the Bove Property prior to the June field survey. All areas of the 135 - acre Bove Property were covered for the natural community and RTE plant inventory. Waypoints and tracks taken with a Garmin GPSMap 60CSx document this coverage.

The natural communities inventoried included those described in *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*, by Elizabeth Thompson and Eric Sorenson. This book includes all the classified natural communities in Vermont, both rare and common types. Plants searched for included any native species listed by the VNNHP as RTE. This list of plants, entitled "Rare and Uncommon Native Vascular Plants of Vermont", dated August 7, 2009, is posted at the Vermont Fish and Wildlife website. The plants listed as "threatened" or "endangered" are protected by the Vermont Endangered Species Law (10 V.S.A. Chap. 123), while those listed as "rare", with a state rank of S1 or S2, are rare in Vermont, but not considered vulnerable. Uncommon plants, ranked as S3, are also found on this VNNHP list.

NATURAL COMMUNITIES

One state significant natural community has been documented and mapped by VNNHP for the Bove Property. This is a Red Maple -

Sphagnum Acidic Basin Swamp located in the southern portion of the large wetland on the Westford side of the property (see accompanying "Red Maple - Sphagnum A. Basin Swamp_Bove" PDF map accompanying report). Named "Hidden Swamp", Marc Lapin originally documented this as a 20 - acre Red Maple Swamp during the VNNHP's 1991 "Biological Natural Areas of Chittenden County" inventory. After the 2004 "Hardwood Swamps of Vermont" inventory, the VNNHP reclassified the swamp as a Red Maple - Sphagnum Acidic Basin Swamp and mapped it as 10.7 acres and gave it a B (i.e. good) rank as an example of the natural community type. Red Maple - Sphagnum Acidic Basin Swamp is a new S3 (uncommon) natural community type not found in Wetland, Woodland, Wildland.

The Red Maple - Sphagnum Acidic Basin Swamp at Hidden Swamp is a very wet, mossy, and shrubby wetland. There is a lot of floating moss mat which is treacherous to walk through. The vegetation is characterized by a very broken canopy (15 - 50% cover) of red maple, 50 feet or less tall, with a 25 - 35% understory of sapling to pole - sized black spruce and red maple. Shrub thickets dominated by mountain holly (*Nemopanthus mucronata*), winterberry (*Ilex verticillata*), and speckled alder (*Alnus incana*), plus a little highbush blueberry (*Vaccinium corymbosum*), constitute the 50+% cover of the tall shrub layer. The herb layer has anywhere from 50 - 75% cover and is dominated by a mix of ferns, especially sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and marsh fern (*Thelypteris palustris*), and a variety of herbs and sedges, including wild calla (*Calla palustris*), three - leaved false solomon's seal (*Smilacina trifoliata*), *Carex canescens*, and *Carex trisperma*. All of these flowering plants

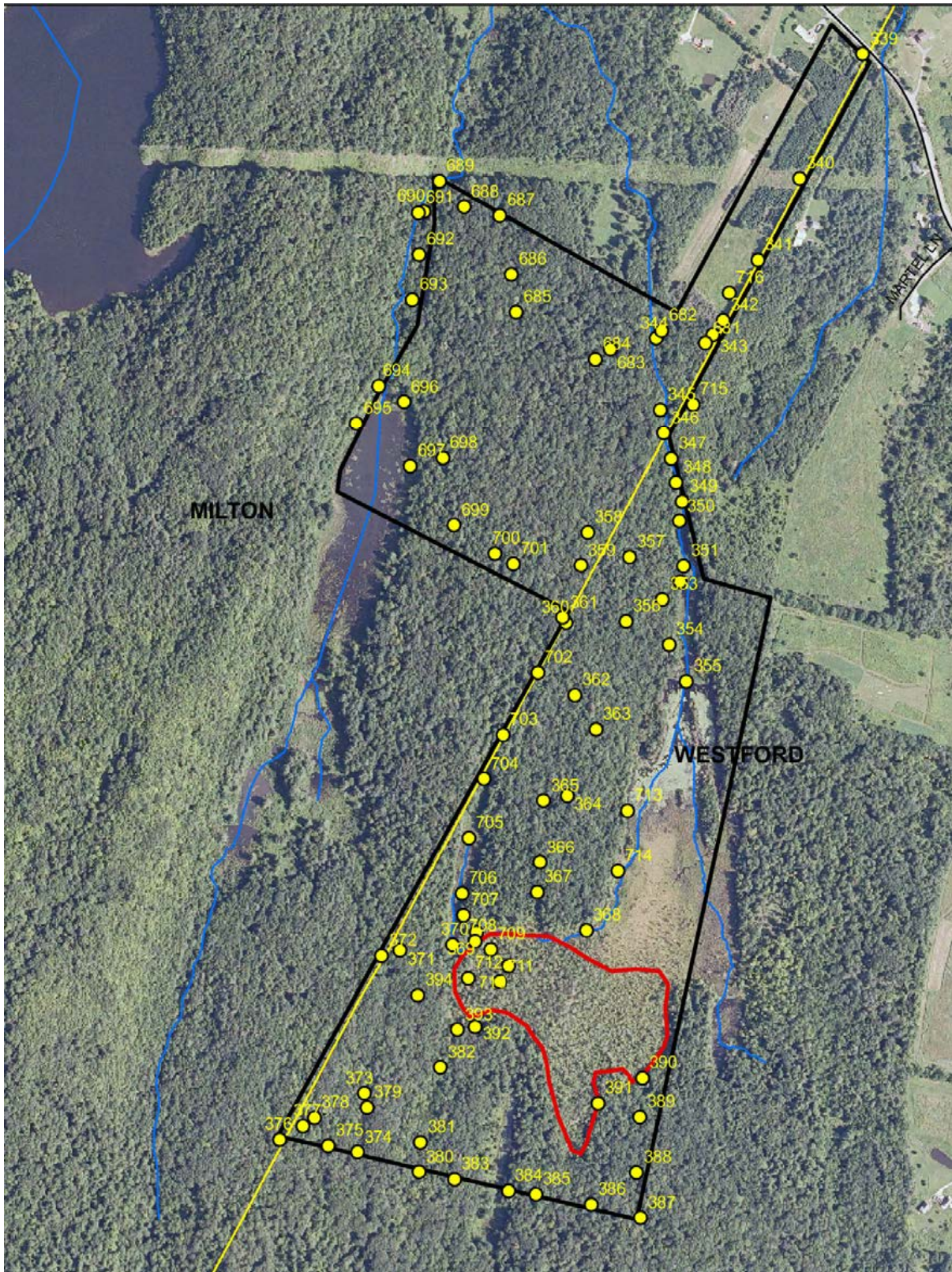


Figure 5-1. State-significant example of Red Maple-Sphagnum Acidic Basin Swamp outlined in red, as mapped by Nongame & Natural Heritage Program, VT Dept. of Fish & Wildlife. B. Engstrom 2010 waypoints in yellow. 2009 ortho photo base from VCGI.

grow out of a bog moss (*Sphagnum* spp.) mat, though some of the wet hollows have other mosses, such as *Calliergon* sp. The peat, or muck, mat supporting this swamp vegetation ranges up to 7.5 feet thick in some spots not far into the wetland. Two uncommon (S3) plants were found in this swamp: Long Sedge (*Carex folliculata*) and Fernald's False Manna - grass (*Torreyochloa pallida* var. *fernaldii*). As a significant natural community on the state level, this swamp should receive the highest level of protection. For this reason it is recommended that the swamp be excluded from management activities, including timber harvest.

Several natural communities of local ecological significance were found during the inventory and are listed below. These natural communities are important for maintaining biodiversity on the property and within the towns of Milton and Westford. They could also be used for environmental education in the towns. Locations of waypoints are shown on the "Red Maple - Sphagnum A. Basin Swamp_Bove" PDF map and in the shapefiles accompanying this report. Because of their significant ecological values, it is recommended that trails construction and other management activities avoid these wetlands.

1. Seep: Examples at waypoints 372, 374, 389, 685, and 690 show a diversity of seep types with 389 more of a spring and 690 on a steep, short slope leading down to a brook. These small, unique wetlands occur in forests where groundwater surfaces. They often are habitat for salamanders and for high invertebrate diversity.
2. Semi - alluvial Seep: Two examples of this variant of seep natural community were observed along small drainages at waypoints 344 - 346 and 686. They occur in alluvial bottoms and have many seepage indicator plants, but muddy soils that are affected by alluvial deposition.
3. Acidic Seepage Swamp: Found between waypoints 359 - 360, this perched wetland is an unclassified natural community type. It

sits in a narrow trough bounded on the east by ledge. It has a little woody plant cover of winterberry and young hemlock, though is fully shaded by overhanging hemlock. Herb cover is about 75% with a mannagrass (*Glyceria melicaria*), sensitive fern, and other seep species as the dominant plants. The soil is up to 8 inches of silty muck. A stonewall crosses the south end of the swamp.

4. Hardwood Seepage Swamp: This is another small (20 x 150+ feet), unclassified wetland type found at waypoints 381 - 382. It has a canopy of red maple, black ash, yellow birch and white ash with a scant understory of striped maple, beaked hazelnut (*Corylus cornuta*), sugar maple, and black ash. The lush herb layer is dominated by sensitive and cinnamon ferns, touch - me - not (*Impatiens capensis*), dwarf raspberry (*Rubus pubescens*), foamflower (*Tiarella cordifolia*), and golden spleenwort (*Chrysosplenium americanum*). The soil is a shallow (≤ 8 inches) muck. This natural community appears pristine, with no evidence of disturbance or alien species.
5. Beaver wetland complexes: While common in Vermont, beaver wetland complexes are great reservoirs for plant and animal diversity, including many vertebrate wildlife species, and ecological complexity. They include aquatic pond communities, Shallow Emergent Marsh, and often some shrub and other swamp types. On the Bove Property there are two large beaver wetland complexes at waypoints 355 and 697. The large mapped wetland on the Westford side of the property includes the state - significant "Hidden Swamp" previously described. This wetland complex covers at least 25 acres. It extends downstream from 355 as a string of beaver impoundments and upstream from waypoint 370 as another string of beaver impoundments, now largely marsh. The center of this wetland (east of waypoint 714) is a large boggy marsh mat loaded with cottongrass (*Eriophorum virginicum*). This

was not visited during the inventory due to difficult accessibility (open water and floating moss mats), but warrants inventory in the future. The second large beaver wetland complex is on the Milton side of the property west of waypoint 697. Though only partly on the Bove Property, it covers over 10 acres and includes a large pond surrounded by Shallow Emergent Marsh. A large variety of wildlife was observed at this pond, which is reported elsewhere in this report. Ponds at both large beaver wetland complexes support a rare (S2) aquatic plant – Prickly Hornwort. A third and much smaller beaver wetland complex occurs at waypoint 384. Interestingly, this smaller beaver wetland drains both to the north and south.

Other natural communities observed on the property include Hemlock - Red Spruce Forest, Hemlock - Northern Hardwood Forest, Northern Hardwood Forest, and Mesic Red Oak - Northern Hardwood Forest. None of these natural communities were of special significance due to immaturity, small areal size, or land use history. Temporary pools were observed at waypoints 356, 357, 358, 363, 366, 373, and 377. No vernal pool specialist species were observed at these, excepting a couple fingernail clams in the skidder rut pools at 366. None were believed to hold enough water, and hold it long enough, to support a Vernal Pool community. For more information about these natural communities, see the “FBEwaypts_Bove” shapefile accompanying this report which includes natural community attribute data.

While none of the preceding upland forests are of local or state levels of significance, it is suggested that some portions of these different upland forest natural community types be excluded from timber harvest so that areas of old - growth forest will develop on the landscape. Old - growth forest includes different age and size classes of trees, and different sizes and decay states of dead wood. The latter is especially important for some woodland salamander

species, and for maintaining high organic content of the forest’s surface soil layer. Old - growth forests are ecologically complex and important for maintaining biodiversity on a landscape level.

RARE, THREATENED, AND ENDANGERED PLANTS

Two rare (S2) and two uncommon (S3) plants of Vermont were found on the Bove Property during the inventory (see accompanying “RTE plants_Bove” PDF map and shapefiles). None of these species are listed as Threatened or Endangered and protected by Vermont statute. The two rare plants are an aquatic species, Prickly Hornwort (*Ceratophyllum echinatum*), and an upland forest species, Loose Sedge (*Carex laxiculmis*). The two uncommon plants are wetland species: Long Sedge (*Carex folliculata*) and Fernald’s False Manna - grass (*Torreyochloa pallida* var. *fernaldii*). The latter is a new name for what was formerly known as, and listed as, Fernald Alkali - Grass (*Puccinellia fernaldii*).

The Prickly Hornwort and Loose Sedge populations were documented by photographs and/or specimens, GPS waypoints, and VNNHP Rare Plant Forms (see Appendices). The completed Rare Plant Forms with attached photographs, a plant locations map, and the shapefiles accompany this report, and will be sent to the VNNHP for inclusion in their statewide database of RTE species. Documentation of the uncommon species includes brief notes on the populations observed and their habitat, along with waypoints. Their locations are also included in the RTE point shapefile accompanying this report.

The following RTE plant assessment of the rare and uncommon species discovered on the Bove Property includes summaries of the populations, their significance, and management considerations.

Prickly Hornwort (*Ceratophyllum echinatum*) – Rare (S2)

Prickly Hornwort is a rare aquatic flowering plant species in Vermont. The species was observed growing in abundance in shallow water of beaver ponds that are part of the large wetland complexes on the Milton and Westford sides of the property. Hornwort does not have roots or rhizomes, so occurs floating in the water or settled on the muck bottoms of the ponds. These are acidic wetlands based on the associated plant species and natural communities.

According to records in Nongame and Natural Heritage Program database, this is one of only three current occurrences in Vermont, and might be the largest population in the state. Historically, the species was found in a few widely scattered locations in Vermont. Another hornwort species, *Ceratophyllum demersum*, also known as Coontail, is widespread in Vermont and the United States.

The Prickly Hornwort appears secure on the property and is not likely threatened by passive recreational activities. The most likely threat to the species would be if the beaver ponds became infested by an invasive aquatic plant species. At present these wetlands appear in good health and devoid of invasive plants. Monitoring and active management for invasive plants is recommended for conservation of this species on the property.

Loose Sedge (*Carex laxiculmis*) – Rare (S2)

Many tussocks of Loose Sedge were observed in the more fertile upland hardwood forests on the Bove Property, including Northern Hardwood Forest with a sugar maple canopy, Northern Hardwood Forest with a red maple canopy and likely old field history, and Mesic Red Oak - Northern Hardwood Forest. Most of the soils in these forests are mesic to wet - mesic stony loams or silt loams of the Peru and Cabot series. Many of the plants were found growing adjacent ill - defined trails created by both people and game. The species was found most frequently in the northern half of the property, with lesser numbers found along the southern property boundary. At least 125 plants at 14 locations were counted on the property. One to five plants

were found at most of these locations, while a couple points had colonies of 25 - 50 plants.

In Vermont Loose Sedge is quite widespread in the forests growing on heavier (clay and silt) soils of the Champlain and Connecticut valleys. The population on the Bove Property appears to be healthy and secure. No special management is recommended for conservation of this species. Even though some plants may be directly impacted by construction of trails, it is likely the species will persist, and even spread, along trails.

Long Sedge (*Carex folliculata*) – Uncommon (S3)

A handful of fruiting plants were observed in the Red Maple - Sphagnum Acidic Basin Swamp (Hidden Swamp) at the southern end of the large wetland complex on the Westford side of the property (waypoint 708). This is an obligate wetland species that is likely to occur in other places in Hidden Swamp. This species is unlikely to be impacted by any management activities on the property as long as the wetlands are protected.

Fernald's False Mannagrass (*Torreyochloa pallida* var. *fernaldii*) – Uncommon (S3)

A couple small mats of flowering and fruiting plants were observed in the Red Maple - Sphagnum Acidic Basin Swamp (Hidden Swamp) at the southern end of the large wetland complex on the Westford side of the property (waypoint 712). This is an obligate wetland species that is likely to occur in other places in Hidden Swamp and in other wetlands on the property. This species is unlikely to be impacted by any management activities on the property as long as wetlands are protected.

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Part 5. Bove Property Land Use Planning

Gail Henderson-King, RLA, ASLA (Lamoureux & Dickinson)

The goals of Bove Property Natural Resource Assessment and Land Use Planning study are to:

- first identify natural and cultural resources that exist on the property,
- solicit public input in considering potential uses and developing layout options, and
- create a conceptual master plan with selected uses and recommended implementation.

With the detailed natural and cultural resource assessments of the property done, an existing conditions plan was created showing a compilation of these findings. A detailed review of relevant studies and information, and recreational use guidelines was done to understand historical context and recreational use needs.

BACKGROUND INFORMATION

The Bove property borders the Milton Town Forest and was originally purchased to provide public access to the Town Forest. The 135-acre Bove parcel is partially in Milton (51 acres) and Westford (84 acres). The Town Forest consists of 350 acres and includes Milton Pond, which was at one time the Town's water source.

Several studies and other documents and background information were reviewed to gain further insight into the Bove property planning process. These include:

Bove Property Informational Meeting February 27, 2006 Notes

The notes of this informational meeting summarize discussions regarding uses and access for the property. The discussions focused on allowing a mix of uses that would be determined

through a public process. There was also a strong desire to have public access to the Town Forest trails and the Bove property, which currently does have some informal trails on it. These notes provided valuable input into the early discussions of uses and access to the Bove Property.

Town of Milton 20-Year Recreation Master Plan 2007 - 2027

The Recreation Master Plan provides a framework for developing recreational programs and facilities throughout all of Milton. It includes several recommendations for the Bove Property that includes:

- Choose a name for the park;
- Mark the property boundaries;
- Complete a natural resource inventory and assessment;
- develop and adopt a Management Plan;
- Construct a parking area;
- Improve the trails and trail signage;
- Construct a wooded kiosk at the trail head; and
- Promote use of this site for interpretive programs and educational experiences."

These recommendations are incorporated into this study.

Ad Hoc Recreation Pathways Committee Evaluation Report dated October 15, 2009

This Ad Hoc committee, appointed by the Selectboard in 2007, evaluated and recommended potential pathways that could connect existing recreational areas throughout the town as well as potential connections to neighboring communities trail networks. Several pathways are shown as potential connections to the Town Forest and Bove properties from the west and south. The Committee ranked the pathways based on feasibility and #3 on this list recommends a

connection from the Town Forest to Hardscrabble or Devino Road.

Milton Municipal Forest Inventory, Assessment and Recommendations Report dated July 2003

This report focuses exclusively on the Town Forest and includes recommendations for the types of uses for the property. This will be helpful when looking at the Bove Property potential uses to see where connections can be made.

EXISTING CONDITIONS / ANALYSIS

The Bove Property is located east of the high north-south ridge on the Town Forest property. The topography is not as rugged as the Town Forest but has lower, bedrock ridges. The existing conditions of the Bove Property have been described earlier in this report in great detail. For the planning portion of the study, a composite plan was created that shows the existing conditions and is described in further detail here. Appendix A contains the Existing Conditions and Existing Conditions Zones Plans.

The Existing Conditions Zones Plan was created to show the different areas on the property for easier identification of the existing attributes. These six zones are:

- Panhandle Zone:
 - Access Area
 - Spruce Fir Tree Plantation Area
 - Open Field Area
- Stream Zones
- Open Water Zones
- Connector to Town Forest Zone
- Natural Area Zone
- Woodlands Zone:
 - Knoll Areas

Panhandle Zone

The northernmost portion of the site, referred to as the Panhandle Zone, provides access to the property from Westford Road. Narrow

residential lots border the Panhandle Zone on the western and eastern sides and the land gently slopes to Westford Road. An existing Spruce Fir tree plantation covers approximately 50% of this area with a large swath through it for transmission utility lines. The northern end of the Panhandle has trees lining its perimeter with some shrubs and grasses in the middle. On the southern end of the Panhandle is an open meadow that the Town of Milton mows on an annual basis. This is the only truly open spot on the Bove property, with the exception of the beaver ponds.

Stream Zones

Leaving the Panhandle Zone, one must cross one of the Stream Zones. Two streams drain northward across the property carrying drainage from the Westford and Milton swamps. The stream bordering the Panhandle Zone connects with the bog and wetlands on the Westford side of the property and flows northwest off the site. There are archaeologically sensitive areas on each side of the stream.

The connection to the Town Forest involves crossing the second stream zone. This stream connects with the beaver ponds and open waters on the Town Forest property and flows to the north.

Open Water Zones

The Open Water zone includes one of the Class 2 wetlands on the property. There are rare plants and archaeologically sensitive areas along the Stream and Open Water zones. There are beaver dams on the Milton property side and in the Westford Swamp in this zone.

Connector to Town Forest Zone

Heading west on the Milton portion of the site are the Connector to Town Forest and Woodlands zones. Because of the wooded and rolling knolls of the Woodlands zone and the Open Water zone along the Town Forest property, the only viable place for a trail connection is within the

Connector to Town Forest zone. It is wooded with a mix of understory plants and relatively dry ground. There is one area where a very narrow wetlands area exists.

There is a former Class 4 town road that ran along the western edge of the property in Milton where it borders the Town Forest. This former Class 4 town road originally connected with Westford Road to the north and Hardscrabble Road to the south.

Woodlands Zone

The Woodland zone contains two knolls and is the highest part of the property. There is a small wetlands between the knolls.

Natural Area Zone

The eastern part of the Bove Property - the Natural Area Zone - consists of the Red Maple Acid Sphagnum Bog, which is very unique. The existing native plants are diverse with a rare plant found in the wetlands. Numerous wildlife species are present and the area is considered valuable wildlife habitat. The bog is part of a Class 2 wetlands. Bordering the wetlands on the north and south are several fingers of land with archaeologically sensitive areas.

When looking at the natural and cultural resources that exist on the Bove property, they occupy a large portion of the site. About 1/3 of the Bove property is Class 2 and 3 wetlands. The Westford Swamp is approximately 37 acres; the Panhandle wet meadow is approximately 6 acres; the portion of the Milton swamp on the Bove property is approximately 4 acres in size. The wetlands consist of wet meadows, forested wetlands, marshes associated with beaver ponds, and a sphagnum bog. The sphagnum bog is on the Westford side with greater than 7 feet of peat in areas. Some of the land is of limited use because of the extent and configuration of the wetlands.

The soils on the property are mostly glacial till

with hardpan within 2 feet of the surface, or shallow glacial till over bedrock on the ridges. Deep, well-drained soils are scarce or absent on the site. In the large swamps in Milton and Westford, there is a deep accumulation of silty sediments and, in a portion of the Westford swamp, thick peat deposits exist.

There is a large mix of flora and fauna present on the property. It provides habitat for a wide variety of wildlife including moose, deer, fox, otter, black bear, mink, skunk, coyote, and amphibians and reptiles. A few amphibians were observed, but there are probably many more that could not be identified because a spring survey was not done. Forty nine species of birds were identified by sight and/or sound on the property. The Westford swamp has an uncommon natural community – Red Maple Sphagnum Acidic Basin Swamp. Two rare and two uncommon plant species were observed on the property; one of the rare plants (hornwort) is likely to be the largest population in the State.

Although there are no recorded Native American archaeological sites on the Bove property, 9 areas were identified as potentially sensitive based on landscape position. A potentially significant Euro American site was identified on the west side of the property and marked by a cellar hole possibly associated with George W. Crown, a property owner in the early to mid 1800's.

POTENTIAL RECREATIONAL USES

Recreational uses are often broken down into two categories: active and passive. The definitions of these categories can vary and potential uses for this study were not identified as active or passive. However, they can be generally defined as follows.

Passive recreation may be defined as a non-motorized activity that offers constructive, restorative, and pleasurable human benefits and

fosters appreciation and understanding of open space and its purpose; is compatible with other passive recreation uses; does not significantly impact natural, cultural, scientific, or agricultural values; and requires only minimal visitor facilities and services directly related to safety while minimizing environmental impacts.

Active recreation is generally defined as activities requiring extensive infrastructure or built facilities and services, or does not fit the criteria of passive recreation.

Potential recreational uses considered for the Bove property include both passive and active. This list is compiled from existing documents, Town staff, and public comments from the First Public Meeting held on September 16, 2010.

They include:

- * ATV trails. This also includes connections to a larger ATV trail network.
- * Bird/Wildlife Watching
- * Camping, including the following:
 - Group - this is defined as a camping area offering a larger space for use by groups. It could include restroom facilities and structures.
 - Primitive/backpacking - this type of camping is more rustic with individual sites limited in size designed to access by foot.
- * Court games/playing fields: volleyball and badminton are the anticipated uses.
- * Cross country skiing
- * Dog walking
- * Educational activities - this could include school groups or organizations leading or participating in events on site.
- * Fishing - this could occur in the open waters on the site. It is unknown as to what species may exist here.
- * Horseback riding
- * Hunting and trapping
- * Snowmobiling
- * Snowshoeing
- * Trails - there are various types of trails



considered that include:

Boardwalk involving some type of above ground walkway

Interpretive with signage

Mountain biking

Shared use path that could be bituminous concrete or gravel

Walking, hiking and running - these are put together as they all use unimproved existing ground.

A recreational use matrix was created using the potential uses outlined above. A Recreation Use Matrix and Technical Provisions for Accessible Routes, Outdoor Access Routes and Accessible Trails are in Appendix B. The needs of each of these uses was researched and documented in this matrix. In addition to the potential recreational uses, the matrix also included:

- * Agricultural operations (haymaking, maple sugar production, orchard, bee keeping, etc.);
- * Forest management: logging; and
- * Protection of flora and fauna.

The matrix then identifies attributes and potential needs of recreational uses. These attributes / needs include the following:

- Transportation Access Needed and Type - How one accesses the Bove Property:
 - Need to be transported to the site for the recreational activity?
 - What type of transportation: car, truck, trailer, snow mobile, ATV, mountain bike, etc.
 - Access from existing recreational trails/network?
- Transportation Volume Generation - Number of vehicles used to get to the Bove Property:
 - Low: less than 3 vehicles per day
 - Medium: Between 3 and 6 vehicles per day
 - High: Greater than 6 vehicles per day

- Year Round or Seasonal Use:

- Year round - no restrictions
- Seasonal - fall, winter, spring and/or summer

- Length of Stay: What's the length of time between arrival and departure for the selected recreational activity?
- Resource Dependency: Is the recreational activity dependent upon a particular resource? Such as water resources, mountains/hills, woods, open fields, wildlife diversity, snow.
- Natural Resource Impacts: Does the recreational activity impact a natural resource and if so, to what degree?
 - Habitat disturbance (noise and motion)
 - Habitat fragmentation
 - Competition in plant communities
 - Soil erosion
 - Water Quality/nutrient loading
 - Archaeology sensitive areas
 - Decreasing wildlife populations
- Noise Generation: Does the recreational activity create noise? To what levels?
 - Low, medium or high
- Annual Maintenance Level / Supervision / Oversight:
 - To what degree is annual maintenance needed for the recreational activity?
 - * None
 - * Low: Once or twice a year
 - * Medium: Monthly
 - * High: Several times a month
 - Who is responsible for this?
 - Is onsite supervision needed for recreational activity?
- Square Feet Needed for Activity: Does the recreational activity require a specific acreage/square feet size to function?

- Field size:

- * Volleyball – 3,000 sf minimum; asphalt, sand, clay mix, turf
- * Badminton court – 1,000 sf; hard surface or turf
- * Parking area size: Badminton – 2 cars/court
- * Volleyball – 6 cars/court
- Camping area size:
 - * Family size sites – 14' x 16', campfire rings 2' with 3' for seating, picnic bench
- Trail / Path Width: How wide a trail or path is needed to accommodate the recreational activity?
 - Horseback riding trails: Average 3' to 6' wide, 10' for passing; 5% maximum ideal, 10% for short distances
 - ATV trails: 5' width for ATV's and off road motorcycles
 - Mountain bike trails: 3' - 4' for off road trails
 - Shared use paths: 8'-10'
 - Hiking trails: Dependent upon slope and accessibility, ranges from 3'-6'
 - Cross country ski trails: Ungroomed and groomed; 3' to 4' minimum
 - Snowmobile trails: 4' to 8' width for secondary trails, wider for main trails
- Surface Needed for Activity: Is there a surface that is best for the recreational activity?
 - Trail surface: unimproved, improved
 - Field surface
- Handicapped Accessibility: Is the recreational activity handicapped accessible?
- Regulatory / Permitting: Are there regulatory and/or permitting needs for the recreational use? Potential permits needed include:
 - Wetlands Permitting: State, US Army Corp of Engineers (Class II or III wetlands)
 - Stream Alteration Permit
 - Act 250 permit (Archaeology, endangered species)
 - Erosion Prevention & Sediment Control Construction General Permit
 - Town regulations:
 - Westford Zoning Regulations – Water Resources Overlay District: boardwalk and public trail greater than 4 feet in width are conditional uses. Special provisions – cutting of vegetation prohibited; no permanent structures, underground power and communications prohibited. 100 foot buffer around wetlands required.
 - Milton Zoning Regulations – R5 Agricultural/Rural Residential District
- Conflicts with Other Uses: Does the recreational activity have conflicts with other recreational uses?
- Requires Visitor Facilities and Services: Are visitor facilities and services needed for the recreational activity?
- Recreational Use Available in other Town Parks / Facilities or Regionally?

Each potential use was then reviewed against each attribute / need and a value was filled in. There are some uses that can conflict with the enjoyment of other uses. For example, horseback riding can be problematic because horses can get spooked by other users like ATVs and mountain bikes and be difficult to manage. There are parks that do allow multiple uses on the same trails and use public education, signage and patrols for enforcement.

More passive activities such as bird watching and hiking are often disrupted by uses that generate noise. Hunting is also an activity that can create conflicts with other users.

This matrix also revealed that some of the

potential recreational uses that have greater physical needs than others. One example is modern shared use paths, which require minimal grades and a wide improved surface. This type of path typically is part of a larger network where users can access it from different areas such as neighborhoods, downtown centers and outdoor spaces. While it would be possible to create a shared use path on the Bove property, it would involve extensive grading and land disturbance, and would need to employ techniques to handle stormwater runoff and drainage because of the soils and topography. One of the Ad Hoc Trails Steering Committee recommendations is for a trail to connect with the Town Forest and therefore the Bove property, too. However, the Town Forest currently does not have any provisions for incorporating a shared use path.

Some uses requiring large acreage may not make sense on the Bove property alone. For example, group camping area layouts require specific square footage with minimal grade change and support facilities. Court games and playing fields need even larger space with fairly level open areas in addition to parking facilities for participants. It also make more sense to have court games and playing fields in town parks where similar fields and parking already exist.

Agricultural operations do need an area large enough for a viable production to make sense. There are other communities that offer lease arrangements with local farmers to use a public space for an agricultural operation for a fixed cost. This could be one way for generating income to contribute to annual maintenance and upkeep of a park. It would also involve annual oversight and administration by the town.

For some uses, it makes sense to make connections to a larger trail network. Because uses such as horseback riding and ATVs can move so quickly along trails, they really need a larger trail network that will be used by these recreationalists. For the Bove property, this

could be providing a connection through the property to a local and / or regional trail network. Horseback riding, mountain biking, snowmobiling and ATV riding are several uses that could benefit from connections to a larger trail network as the physical space on the Bove property for these uses is limited.

In addition, there are uses on the matrix that are not permitted uses in the Town Forest such as horseback riding, ATV's and snowmobiles. Others, such as mountain biking, are allowed on designated trails. However, the trails have not yet been designated for these uses. If these uses are selected for the Bove Property, there will need to be measures taken to keep the use off the Town Forest property or have it be considered for inclusion in the management plan.

CONCEPTUAL MASTER PLAN ALTERNATIVES

The development of conceptual master plan alternatives involved using the overlay of the natural and cultural resources on the base plan combined with the recreational use matrix information. Three distinct alternatives: Master Plan Concepts A, B and C were created involving a mixture of the identified potential uses. Appendix C includes the Master Plan Concept plans.

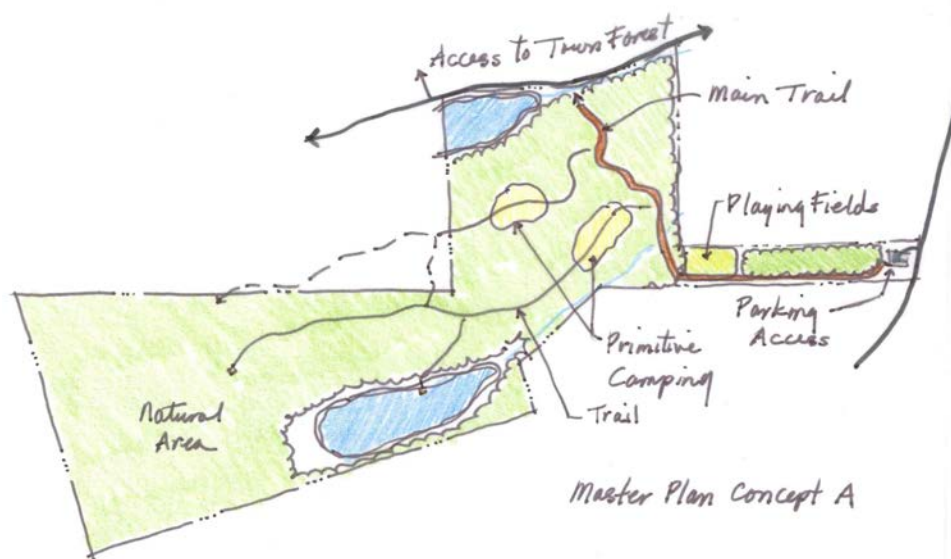


Examples of Observation Platforms and Boardwalks in wetland areas



Examples of Different Trail Surfaces and Trail Signage Marker

Master Plan Concept A



This concept accommodates a large number of uses on site, preserves the natural areas, and includes connections to the Town Forest. Concept A includes:

- Several areas in the woodlands for primitive camp sites,
- Two court game / playing fields in the open meadow area in the Panhandle area,
- A parking area that would be sized to accommodate the proposed uses including trailers,
- Two observation platforms at the Westford swamp and wetland areas,
- Two types of trails: a mixed use main trail for accommodating ATVs, snowmobiles, horseback riding, and mountain biking; and walking / hiking trails, and
- Two bridges at the stream crossings for trail access.

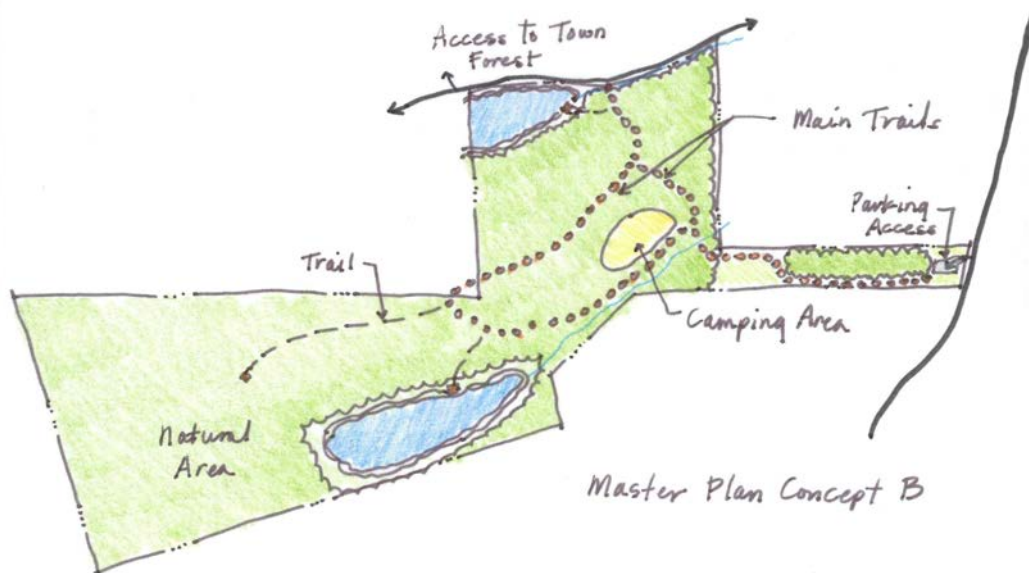
A mixed use trail connects the parking area to the old town road and Town Forest. This trail would be improved for ATVs, snowmobiles, horseback riding, and mountain biking. The walking / hiking trails lead off of the mixed use trail and access the bog and wetlands areas, and the woodlands. Observation and platforms would be located off of the walking / hiking trails.

Advantages

- + Accommodates a wide variety of uses on the property.
- + Preserves natural area and wetlands areas.
- + Allows for ATVs, snowmobiles, horseback riding, and mountain biking use on the main trail. The main trail would connect with the old town road that could be used to connect to a larger trail network for these uses.
- + Has trail connections to the Town Forest.
- + Parking area accommodates trailers and buses.

Disadvantages

- Will have medium to high maintenance requirements for the mixed use trails, camping and court game / playing fields.
- Potential conflicts on mixed use trail between ATVs, horseback riding and mountain biking.
- Wetlands impacts in the Panhandle Area because of the playing fields and trail.
- Noise impacts from the court games / playing fields and ATV use.
- Will need to work with Town of Westford for permitting observation platforms.

Master Plan Concept B

This concept plan has less wetland impacts in the Panhandle area, an adjusted main trail in Panhandle Area to limit disturbance to the wetlands and neighboring residences, and an expanded main trail network. Master Plan Concept B includes:

- Area designated for overnight camping in the woodlands,
- A parking area that would be sized to accommodate the proposed uses including trailers,
- Three observation platforms at the Westford and Milton swamps and wetland areas,
- Two types of trails: a mixed use main trail for accommodating walking, running, horseback riding, and mountain biking; and interpretative walking / hiking trails, and
- Two bridges at the stream crossings for trail access.

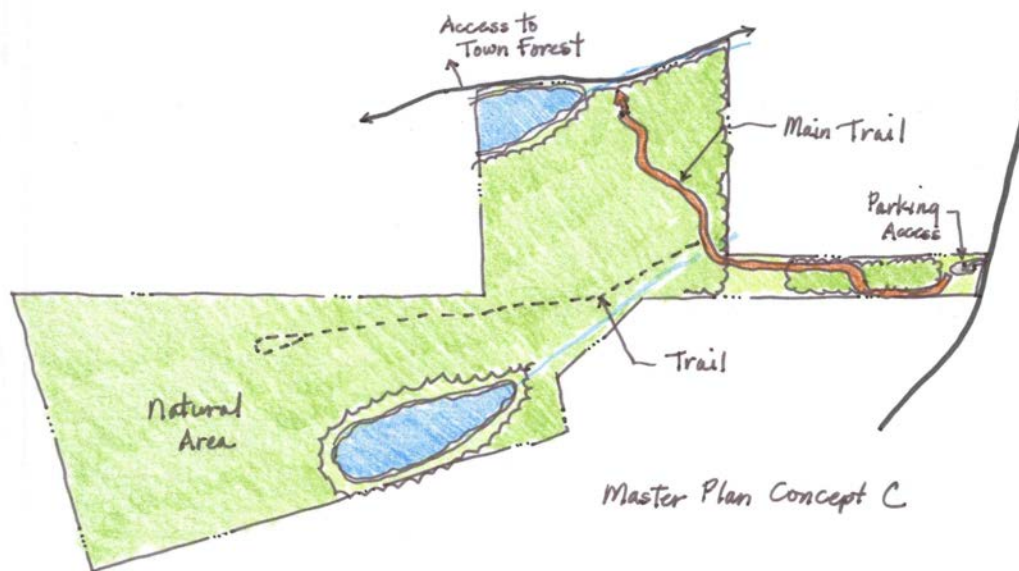
This option provides a designated area for overnight group camping for educational groups and organizations, has observation platforms for observing the wetlands and bog areas, offers a network of trails for non-motorized uses only, provides connections to the Town Forest, and parking needed for horse trailers and buses.

Advantages

- + Accommodates some different uses on the property.
- + Preserves the natural area and wetlands areas.
- + Less wetlands impacts in the Panhandle area.
- + Allows for non-motorized uses on the main trail. The main trail would connect with the old town road that could be used to connect to a larger trail network for these uses.
- + One designated area for overnight camping that could be by town permission only.
- + Has smaller interpretative trail network with connection to Town Forest.
- + Parking area accommodates trailers and buses

Disadvantages

- This option does not accommodate motorized uses: ATVs or snowmobiles.
- Will have medium maintenance requirements for the mixed use trails and overnight camping.
- Smaller trail network.
- Will need to work with Town of Westford for permitting observation platforms.

Master Plan Concept C

While this is a minimalist option: it still accommodates all uses (although some of them off site), connects to the Town Forest, preserves natural areas, has a much smaller trail network, and will have much less maintenance. Master Plan Concept C includes:

- A limited trail network with two types of trails: a mixed use main trail for accommodating walking, running, horseback riding, ATVs and mountain biking; and interpretative walking / hiking trails,
- The main trail in the Panhandle area traverses through the Spruce Pine plantation to have less noise impacts on abutting residential properties,
- Two bridges at the stream crossings for trail access, and
- A parking area that would be sized to accommodate the proposed uses including trailers.

This option offers a limited network of trails, has one main trail for a mix of uses that connects to the Old Town Road, provides connections to the Town Forest, and parking needed for trailers. It has the least impact on the natural areas and woodland areas on the property.

Advantages

- + Accommodates many different uses including motorized and non motorized uses on one main trail.
- + Preserves the natural area and wetlands areas.
- + Has minimal wetlands impacts in the Panhandle area.
- + The main trail would connect with the old town road that could be used to connect to a larger trail network for these uses.
- + Will have low maintenance requirements - only two trails.
- + Trail connection to Town Forest.

Disadvantages

- Accommodates few potential uses on the property.
- Limited trail access.

These three options were presented at a second public meeting where the attendees were asked to help select one preferred option. A discussion took place of the advantages and disadvantages of each option and the following is a summary for each option.

Master Plan Option A: The advantages discussed are the extensive walking trails, the primitive camping areas were preferred over one large group camping area, the boardwalks can provide additional access to the natural areas, and the limited interpretative signage was good.

The disadvantages discussed included the playing fields should be at Bombardier Park not on the Bove property, the main trail is too close to eastern property line and the abutting neighbor's house, and the Panhandle area is very wet and a trail in this area could be a problem without improvements.

Master Plan Option B: The advantages discussed were allowing non-motorized uses only was preferred, the walking trail network is good and could be expanded even further with loop trails as in Option A, the trails could be done in phases, and a preference for a limited parking area.

The disadvantages discussed are the large overnight camping area could involve greater impacts to the Woodlands area and create unwanted noise disturbance, there would need to be more trail improvements to accommodate horseback riding, currently no trails in Town Forest have been designated for horseback riding and it was felt this use doesn't make sense without connecting to a larger trail network.

Master Plan Option C: The advantages discussed of this plan include that it would work well but only without the motorized use component, and this could be Phase I with Option B as Phase II. Also, it would be preferable to route the main trail through the

power line in the Panhandle area to keep the trail far from the two houses on either side. However, the landowners on the Westford side did indicate that they would prefer it if the trail went straight back off of the parking lot and stayed close to the western side of the Panhandle area.

The disadvantages discussed are there are very limited trail access to the property and natural areas.

PREFERRED CONCEPTUAL MASTER PLAN

The final selected preferred conceptual master plan was arrived at through public input at the two public meetings and staff comments. It consists of elements from all three options. The final preferred conceptual master plan, in Appendix D, includes the following uses:

- A mixed use main trail that would be 4-foot wide and improved to accommodate walking, running, horseback riding, and mountain biking. The mixed use main trail will connect the parking area off of Westford Road with the old town road in the Town Forest that borders the Bove property.
- Two 6-foot wide wooden bridges at the stream crossings for trail access. These bridges should be built to have the least amount of impact on the streams and wetlands.
- A mixed use trail off of the mixed use main trail described above.
- Primitive camp sites in the Woodlands zone. The plan indicates 6 potential sites.
- Interpretive walking / hiking trails connecting with the mixed use trail in the Woodlands zone. This trail would be a maximum 4 feet wide that is minimally improved.
- Three wooden observation platforms at the Westford and Milton swamps and wetland areas. These platforms should also be constructed on piers for minimal impacts to the wetlands and wetland buffers.
- A parking area to accommodate the proposed uses with possible future expansion for larger vehicles: trailers and buses for school groups. The parking area should be gravel for low maintenance and include an information

kiosk with a map of the property, permitted uses of the property, and rules.

There are several types of wooden bridges that would be appropriate to use here. A wooden bog bridge constructed simply with two wood planks attached to wood boards laid on the ground will have the least amount of disturbance of the wetlands. The Charlotte Park and Wildlife Refuge has several of these bog bridges on the lower trails as well as Colchester Bog near Airport Park in South Burlington. For handling horseback riding and mountain bikes, a more structural wooden bridge able to handle these uses should be used. The Burlington bike path in Delta Park has a good example of this type of bridge.

In the original discussions at the Select board public meeting in 2006, there was a strong desire to be able to accommodate ATV use on the Bove property. This also came up at the first public meeting with differing viewpoints expressed about allowing this use. The local ATV group expressed the desire to be able to make a connection to the Town of Westford. Any proposed trail network on the Bove property needs to be north / south because of the extensive wetlands and bog on the Westford side. This really limits the potential to try to connect with any trail network in Westford through this property.

Therefore, the most appropriate location for a trail to handle ATVs and snowmobiles would be on the Old Town Road bordering the Bove property and the Town Forest. In an effort to include the potential use of ATVs and snowmobiles, a prerequisite for their use would be that there needs to be a connection to a larger trail network that is maintained and supervised by a local group. Input from the local ATV group members was supportive of such a prerequisite.

Currently, motorized vehicles (ATVs and snowmobiles) are not allowed in the Town

Forest. Because the length of trail that could be accommodated only on the Bove property is short due to wetlands and topography limitations, there appears to be little advantage to establishing a short section of disconnected trail for motorized vehicles. The appeal of motorized access is dependent on a larger trail network. Some questions that will need to be discussed further are:

- a. Would the Town be willing to open the Town Forest for motorized vehicles on the Old Town Road only to allow this future connection?
- b. The Old Town Road is no longer a Town Highway. Can easements be obtained across private property to allow motorized access along the Old Town Road to allow connections to other roads or trails?
- c. Will local groups be able to assist with maintenance and enforcement so other users can enjoy the property, too?

It is recommended that the dialogue continue with the local ATV group on this trail connection.

The following federal, state and local permits and clearances will most likely be needed for implementing the Preferred Conceptual Master Plan. However, the Town should contact the respective permitting agencies during the next phase of design.

- A State Stormwater Discharge Permit may be needed for future expansion of the parking area if the total disturbance is greater than one acre.
- A State Erosion Prevention & Sediment Control Construction General Permit is not likely needed.
- Municipalities usually don't need an Act 250 permit for projects disturbing less than 10 acres. The total construction area is estimated at 1.3 acres.
- A State Stream Alteration Permit is not likely needed.
- A Section 404 U.S. Army Corps of Engineers General Permit (wetlands) will possibly be

needed if wetlands impacts exceed 3,000 square feet. If this permit is required, a Section 401 Water Quality, Rare, Threatened & Endangered Species and State Historic Preservation Office clearances will also be needed.

- A State Conditional Use Determination (wetlands) would be needed for impacts to the Class II wetlands or their buffer areas.
- State Agricultural Soils Clearance may be needed based on disturbance of prime agricultural soils on the site.
- The Town will also need to work with the Town of Westford regarding the observation platforms. Currently, the Westford Zoning Regulations does not permit decks. There are numerous examples of similar observation platforms that have been built in similar natural areas.

RECOMMENDED PHASING AND IMPLEMENTATION

Because of the size and magnitude of the proposed elements for the Bove property, it is recommended to phase its construction. This will help with making improvements as funding becomes available. Depending upon available funding, the phases could be implemented annually.

The Preferred Conceptual Master Plan has been divided into four overall phases with consideration given to logical construction boundaries, which is described below. Appendix E includes the Preferred Conceptual Master Plan Phasing Plan.

The construction of the parking area and access off of Westford Road, and trailhead kiosk are not included in these estimates and phasing. The Town currently has the design work completed and is working on obtaining funding through grant programs for construction during 2011.

- **Phase I:** This phase will create the main trail connection to the Town Forest. It includes Mixed Use Main Trail connection to Town Forest, two wooden bridges over streams on the Bove property and along the old town road on the Town Forest, and trail signage.

For Phase I, the Mixed Use Main Trail and wooden bog bridges could be constructed as an initial interim step. The main trail could be improved for handling walking and hiking to begin with and would involve minimal trail improvements. Wooden bog bridges could be constructed at the stream crossings, possibly used in the wet meadow panhandle and forested areas. The costs of both of these interim measures would be less expensive and would help the Town establish a trail connection to the Town Forest.

- **Phase II:** This phase includes the mixed use trail loop off of the main mixed use trail, the establishment of the primitive camping area sites, and trail signage.
- **Phase III:** This phase includes interpretive walking / hiking trails, three boardwalks and observation platforms, trail signage and interpretative signage.
- **Phase IV:** This phase includes the interpretive walking / hiking trail on the Town Forest property that connects with the trails on the Bove property, and the future parking lot expansion.

This recommended phasing order will help with getting access to the Town Forest. The advantage of creating the various phases is to assist the Town with determining affordable segments to move forward with design and construction. This will also assist with grant funding programs, which are often limited in their resources and look for projects that have smaller associated costs.

While these phases are broken down into trail segments, Phases II and III could be broken down further depending upon available funding. For example, the primitive camping areas in Phase II could be done at a separate time, or in Phase III, a interpretive walking / hiking trail loop and one boardwalk platform could be constructed for starters. There also may be opportunities for volunteer assistance for implementation.

ESTIMATED COSTS FOR DESIGN AND CONSTRUCTION

Conceptual Estimates of Probable Costs has been broken down into the four phases. These estimates are based on estimated construction costs for trail construction from similar projects. See Tables 1 through 5.

Several potential funding sources for construction implementation are outlined below. Appendix F includes a list of potential funding sources prepared by the National Park Service Rivers & Trails program that might also be helpful.

VTrans Enhancement Program

Federal funding is available for transportation enhancements through this VTrans administered program. Eligible activities include facilities for pedestrians and bicyclists, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping and other scenic beautification, historic reservation, rehabilitation of historic transportation buildings, preservation of abandoned railway corridors, control and removal of outdoor advertising, archaeological planning and research, environmental mitigation, transportation museums, and safety and education activities for pedestrians and bicyclists. A 20% local match is required. June letter of intent required and August application deadline.

Contact Kevin Russell, VTrans Enhancements Coordinator, 802.828.0583, Kevin.Russell@state.vt.us

**Table 1: Preferred Plan Estimate of Probable Construction Costs
Entire Project**

	Item	Unit	Quantity	Cost	Total
1	Mixed Use Main Trail - connection to Town Forest	Linear Feet *	3,000	\$10	\$30,000
2	Mixed Use Main Trail - Internal loop	Linear Feet *	3,500	\$10	\$35,000
3	Interpretative Walking / Hiking Trails	Linear Feet **	3,500	\$4	\$14,000
4	Interpretative Walking / Hiking Trails: on Town Forest property	Linear Feet **	1,400	\$4	\$5,600
5	Wooden Bridge: Bove Property	Linear Feet	50	\$200	\$10,000
6	Wooden Bridge: Town Forest	Linear Feet	50	\$200	\$10,000
7	Primitive Camping Area: Clearing for 6 sites	Each	6	\$500	\$3,000
8	Boardwalk and Observation Platforms: Westford Bog	Each	2	\$36,000	\$72,000
9	Boardwalk and Observation Platforms: Milton Swamp	Each	1	\$17,500	\$17,500
10	Trail Signage	Each	4	\$250	\$1,000
11	Interpretive Signage	Each	2	\$1,000	\$2,000
12	Future Parking Area Expansion	Square Feet	6,000	\$5	\$30,000
<i>Subtotal</i>					\$230,100
20% Contingency					\$46,020
10% Design Engineering and Permitting					\$23,010
10% Construction Inspection					\$23,010
<i>TOTAL Estimated Costs</i>					<i>\$322,100</i>

* - The cost for the mixed use main trail construction includes clearing, gravel and geotextile fabric, and path cross slope adjustments where needed.

** - The cost for the interpretive walking / hiking trails includes clearing only.

**Table 2: Preferred Plan Estimate of Probable Construction Costs
Phase I**

	Item	Unit	Quantity	Cost	Total
1	Mixed Use Main Trail - connection to Town Forest for walking and hiking (initial interim construction)	Linear Feet *	3,000	\$4	\$12,000
2	Mixed Use Main Trail - connection to Town Forest upgrade for horseback riding and mountain biking	Linear Feet *	3,000	\$7	\$21,000
3	Wooden Bog Bridges: Bove Property and Town Forest (initial interim construction)	Linear Feet	100	\$50	\$5,000
4	Wooden Bridges: Bove Property	Linear Feet	50	\$200	\$10,000
5	Wooden Bridge: Town Forest	Linear Feet	50	\$200	\$10,000
6	Trail Signage	Each	2	\$250	\$500
<i>Total</i>					\$58,500
20% Contingency					\$11,700
10% Design Engineering and Permitting					\$5,850
10% Construction Inspection					\$5,850
TOTAL Estimated Costs					\$81,900

* - The cost for the mixed use main trail construction includes clearing, gravel and geotextile fabric, and path cross slope adjustments where needed.

**Table 3: Preferred Plan Estimate of Probable Construction Costs
Phase II**

	Item	Unit	Quantity	Cost	Total
1	Mixed Use Main Trail - Internal loop	Linear Feet *	3,500	\$10	\$35,000
2	Primitive Camping Area: Clearing for 6 sites	Each	6	\$500	\$3,000
3	Trail Signage	Each	1	\$250	\$300
4	Interpretive Signage	Each	1	\$1,000	\$1,000
<i>Subtotal</i>					\$39,300
20% Contingency					\$7,860
10% Design Engineering and Permitting					\$3,930
10% Construction Inspection					\$3,930
TOTAL Estimated Costs					\$55,000

* - The cost for the mixed use main trail construction includes clearing, gravel and geotextile fabric, and path cross slope adjustments where needed.

**Table 4: Preferred Plan Estimate of Probable Construction Costs
Phase III**

	Item	Unit	Quantity	Cost	Total
1	Interpretative Walking / Hiking Trails	Linear Feet **	3,500	\$4	\$14,000
2	Boardwalk and Observation Platforms: Westford Bog	Each	2	\$36,000	\$72,000
3	Boardwalk and Observation Platforms: Milton Swamp	Each	1	\$17,500	\$17,500
4	Trail Signage	Each	1	\$250	\$300
5	Interpretive Signage	Each	1	\$1,000	\$1,000
<i>Total</i>					\$104,800
20% Contingency					\$20,960
10% Design Engineering and Permitting					\$10,480
10% Construction Inspection					\$10,480
TOTAL Estimated Costs					\$146,700

** - The cost for the interpretive walking / hiking trails includes clearing only.

**Table 5: Preferred Plan Estimate of Probable Construction Costs
Phase IV**

	Item	Unit	Quantity	Cost	Total
1	Interpretative Walking / Hiking Trails: on Town Forest property	Linear Feet **	1,400	\$4	\$5,600
2	Future Parking Area Expansion	Square Feet	6,000	\$5	\$30,000
<i>Total</i>					\$35,600
20% Contingency					\$7,120
10% Design Engineering and Permitting					\$3,560
10% Construction Inspection					\$3,560
TOTAL Estimated Costs					\$49,800

** - The cost for the interpretive walking / hiking trails includes clearing only.

Vermont Youth Conservation Corps

The Vermont Youth Conservation Corps (VYCC) program hires young people ages 16-24 to work and study together under adult leadership to complete conservation projects throughout Vermont. Municipalities can apply to have a VYCC group assist with a project in their community. They could assist with shared use path construction and street tree planting for this project.

Contact the Vermont Youth Conservation Corps at 802.434.3969, www.vycc.org

American Greenway Awards / The Conservation Fund

Non-profit organizations, public agencies, and individuals can apply for funding for planning and implementation of greenway projects. Grants may be used for activities such as mapping, surveying, developing brochures, hiring consultants, planning a bike path or other creative projects. Grants range from \$500 to \$2,500. Applications may be submitted between March 1st and June 1st each year.

Contact the American Greenways Coordinator at The Conservation Fund, 703.525.6300, www.conservationfund.org

Impact Fees

The Town of Milton does collect impact fees through their Capital Improvement Program and Impact Fee Ordinance. New developments are required to pay an impact fee to help cover the costs that their project will have on a community. Impact fees can be collected for recreation related activities for which these park improvements are potential projects.

Municipal Bonds

One method for funding the construction of park and trail facilities that many communities in Vermont have utilized are bonds. A request for a community to finance a project with a bond must have voter approval and are often added to ballots for other items such as the annual town budget or national voting days. A project could

be funded in its entirety or partially with the funds used as a match for a grant.

Municipal Crews

Some of the proposed improvements, such as clearing trail areas and trail construction could possibly be constructed using municipal roadway crews. This could assist with reducing construction costs by combining phases of this project with other projects in the community.

Volunteers

Using local volunteers to assist with street tree planting may be possible. There should be an experienced coordinator who understands the needed construction skills to oversee this type of effort.

PUBLIC INVOLVEMENT

Public participation consisted of several public meetings for this project. Each of these meetings was attended by Town staff members and residents. Support remains strong for moving the various phases of this study to design and implementation.

A kickoff meeting was held with Town planning, recreation and public works staff on June 3, 2010. Discussion took place on L&D's natural resource inventory work findings, survey boundary issues, and initial background information.

On September 16, 2010, a local concerns meeting was held with residents and town staff attended. An overview of the study, documentation of the existing conditions, observations and site analysis was given by Ms. Henderson-King of L&D. The discussion was opened up to allow for public input and thoughts on recreational uses and access.

On November 9, 2010, an Alternatives Presentation was held. An overview was given by

Mr. Tremback of L&D of the natural and cultural resources present on the property. Ms. Henderson-King presented the recreational use matrix and the three proposed master plan alternatives. Discussion ensued regarding each plan with additional comments, details and possible adjustments. A preferred alternative was outlined at the meeting with additional input obtained by Town staff. Overall support for the project still remains strong as expressed by the attendees.

On January 3, 2011, a Final Presentation meeting was held to present the Final Recommended Master Plan Concept, phasing recommendations, and estimated costs to the Milton Select board. Support remains high for moving this study forward to design and construction. Appendix G contains notes from the aforementioned public meetings.

REFERENCES

Vermont Trails and Greenways Manual,
Vermont Trails and Greenways Council,
September 2007

Milton Municipal Forest Inventory,
Assessment and Recommendations, LIA
Consultants, July 2003

Bove Property Natural Resource Assessment and Land Use Planning Final Report

Appendices

Appendix A

- Existing Conditions Plan
- Existing Conditions Zones Plan

Appendix B

- Recreational Use Matrix
- Technical Provision for Access Routes, Outdoor Access Routes and Accessible Trails Matrix

Appendix C

- Master Plan Concept A
- Master Plan Concepts B
- Master Plan Concepts C

Appendix D

- Final Recommended Master Plan Concept

Appendix E

- Final Recommended Master Plan Concept - Phasing Plan

Appendix F

- Financial & Technical Resources Compiled by the National Park Service Rivers & Trails Program

Appendix G

- Public Meeting Notes — September 16, 2010
- Public Meeting Notes — November 9, 2010

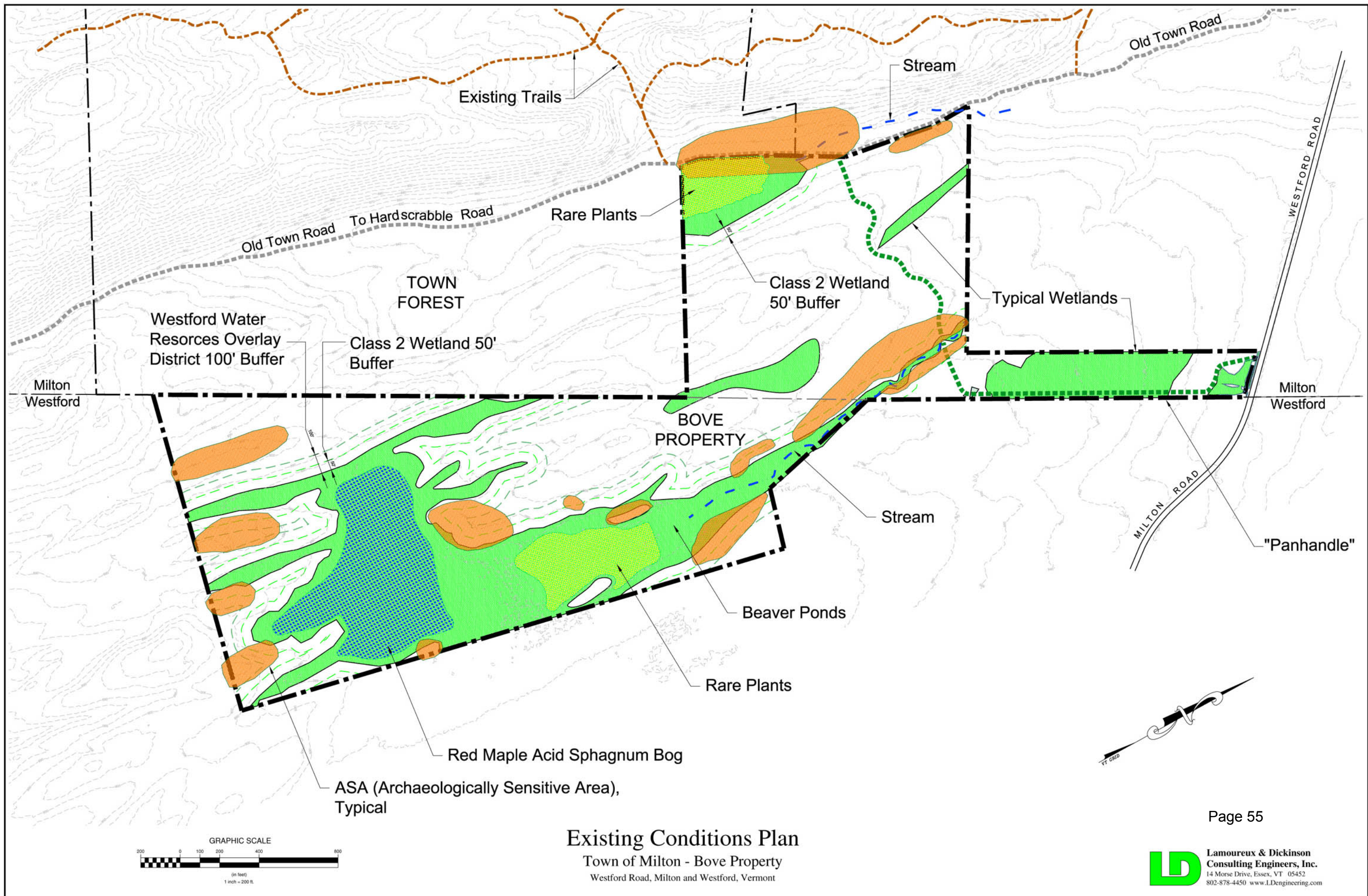
Appendix H

Rare Plant Forms

- *Ceratophyllum echinatum* (Milton)
- *Ceratophyllum echinatum* (Westford)
- *Carex laxiculmis*

**Bove Property
Natural Resource Assessment and Land Use Planning
Final Report**

Appendix A
Existing Conditions Plan
Existing Conditions Zones Plan



**Bove Property
Natural Resource Assessment and Land Use Planning
Final Report**

Appendix B
Recreational Use Matrix
Technical Provision for Access Routes, Outdoor Access Routes and
Accessible Trails Matrix

Bove Property - Recreational Use Matrix																		
Recreational Uses	Attributes / Needs	Transportation Access Needed and Type	Transportation Volume Generation	Year Round or Seasonal Use	Length of Stay	Resource Dependency	Natural Resource Impacts: Wildlife, Plant Communities, Water Quality	Noise Generation	Annual Maintenance Level / Supervision / Oversight	Area / Square Feet Needed for Activity	Trail / Path Width	Surface Needed for Activity	Handicapped Accessibility	Regulatory / Permitting	Potential Conflicts with Other Uses	Need for Visitor Facilities and/or Services	Recreational Use Available in other Town Parks / Facilities or Regionally	Other Comments
ATV Trails / Connections to ATV Trail Network		Vehicle with trailer, access from larger ATV trail network	Low / Medium	Spring - Fall	2 to 4 Hours - with connection to ATV trail network	Varied terrain, scenery	Habitat disturbance - noise and motion, high potential for soil erosion	Medium to High	Medium / high, Local ATV group offered to assist with Oversight	Parking spaces to accommodate trailers	50" width maximum	Natural soil with minimal improvements; Improved for wetland and stream crossings	Yes	Wetlands, buffers and stream impacts - Federal and/or State Permitting; Westford Zoning - Conditional Use	Horseback riding, Mountain biking, hiking and walking, dog walking, camping	Trailhead with map	Yes - existing trail network in Town and Regionally	ATV trail connection with larger network should be in place before any segment on the Bove Property
Bird / Wildlife Watching		Vehicle, Bike or Walking from larger trail network	Low	Year Round	2 to 4 Hours - with connection with Town Forest trails	Good wildlife / bird habitat	Low soil erosion, habitat disturbance - motion	Low	Low; Low / Medium if bird blind is provided	Optional bird blinds can vary in size and shape depending upon available space	Can use trail network	Optional bird blinds: wood or green alternative	Yes for selected segments		ATV, snowmobiles, dog walking, hunting	Trailhead with map	Yes locally and regionally	
Camping: Group		Vehicle or Hiking from larger trail network	Low / Medium	Summer - Fall	1 to 2 Overnights	Remote wooded areas	Soil compaction and erosion, low habitat disturbance - noise and motion	Low to Medium	Medium / High	Tent sites: 14' x 16' with 3' for campfire rings, picnic bench	Can use trail network	Turf / Natural soil with minimal improvements for drainage; can use wood platform	Yes providing trail is accessible			Potential water source, trailhead with map	Yes regionally	Could accommodate school groups or organizations with Town permission
Camping: Primitive / Backpacking		Vehicle or Hiking from larger trail network	Low	Spring - Fall	1 to 2 Overnights	Remote wooded areas	Soil compaction and erosion, low habitat disturbance - noise and motion	Low to Medium	Low if carry in/out by campers	14' x 16' for camp sites	Can use trail network	Turf / Natural soil with minimal improvements	Yes providing trail is accessible			Trailhead with map	Yes regionally	
Court Games / Playing Fields: Volleyball and Badminton		Vehicle	Low	Summer - Fall	2 to 3 Hours	Open level field	Low habitat disturbance - noise	Medium	Medium / High	3,000 sf minimum for volleyball; 1,000 sf for badminton	Can use trail network	Turf, sand, clay mix		Wetlands; Milton Zoning - Site Plan		Storage area for equipment	Yes - Bombardier Park	Fields would be very removed from other similar recreational activities in Town and furthest from a parking area
Cross Country Skiing		Vehicle or ski access from larger trail network	Medium	Winter	2 to 4 Hours - with connection with Town Forest trails	Snow, scenery, varied terrain	Low habitat disturbance - motion	Low	Low		Can use trail network	Snow		Wetlands, buffers and stream impacts - Federal and/or State Permitting; Westford Zoning - Conditional Use	Snowmobiles	Trailhead with map	Yes locally and regionally	
Dog Walking		Vehicle or Walking from larger trail network	Medium	Year Round	1 to 2 Hours - with connection with Town Forest trails	Scenery	Moderate Habitat disturbance - motion, off leash dogs: high habitat disturbance	Low to Medium	Low		Can use trail network	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing	Yes providing trail is accessible		Horseback riding, ATV, Mountain bikes	Trailhead with map, Dog waste bags	Yes regionally	
Educational Activities		Vehicles: Buses or cars	Low / Medium	Year Round	2 to 4 Hours	Unique or Interesting natural feature, quality of wildlife and plant community habitat	Low habitat disturbance	Low to Medium	Low		Can use trail network	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing	Yes providing trail is accessible		Possibly with ATV's		Yes locally and regionally	
Fishing		Vehicle or Walking from larger trail network	Low	Spring - Fall	1 to 2 Hours	Water	Low terrestrial habitat disturbance, reduction of fish population	Low	Low	Optional dock for water access should be 4' wide, 6' unobstructed area for casting	Can use trail network	Dock for handicapped access, vehicle access if stocking water	Yes providing trail is accessible	Westford Zoning - Conditional use for dock		Trailhead with map	Yes locally and regionally	
Horseback Riding		Vehicle with trailer or access from larger trail network	Low	Spring - Fall	2 to 3 Hours - with connection to future horseback riding network	Varied terrain, scenery	Moderate soil erosion, low habitat disturbance motion	Low	Medium	Parking spaces to accommodate trailers	Average 3' to 6' width, 10' for passing; 5% maximum grade w/10% for short distances	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing		Wetlands, buffers and stream impacts - Federal and/or State Permitting; Westford Zoning - Conditional	Mountain biking, ATV	Trailhead with map	Yes locally and regionally	Trail connection with larger network is needed for longer ride
Hunting and Trapping		Vehicle or Walking from larger trail network	Low / Medium	Fall	2 to 8 Hours	Good wildlife habitat	Reduction of wildlife populations	Low to Medium	Low		n/a	n/a	Yes providing trail is accessible	None	Horseback riding, Mountain biking, dog walking, hiking, walking, camping, ATV		Yes locally and regionally	
Snowmobiling		Vehicle with trailer, access from larger snowmobile trail network	Low / Medium	Winter	2 to 4 Hours - with connection to snowmobile trail network	Varied terrain, scenery, snow	Habitat disturbance - noise and motion, low potential for soil erosion	Medium to High	Medium, Possibly local snowmobile group or VAST could assist with maintenance	Parking spaces to accommodate trailers	4' to 8' width	Snow	Yes	Wetlands, buffers and stream impacts - Federal and/or State Permitting; Westford Zoning - Conditional Use	Cross country skiing, dog walking	Trailhead with map	Yes - existing trail network in Town and regionally (VAST)	Trail connection with larger network is needed for longer ride
Snowshoeing		Vehicle or Snowshoing from larger trail network	Medium	Winter	2 to 4 Hours - with connection with Town Forest trails	Varied terrain, scenery, snow	Low habitat disturbance - motion	Low	Low		Can use trail network	Snow			Snowmobiling	Trailhead with map	Yes locally and regionally	
Trails: Boardwalk		Vehicle, Bike or Walking from larger trail network	Medium	Year Round	2 to 3 Hours - Connection with Town Forest trails and larger trail network	Scenery and water feature	Low potential for habitat disturbance - motion	Low	Low / Medium		Boardwalk widths can vary	Boardwalk: Wood or Green Alternative	Yes providing trail is accessible			Trailhead with map	Yes locally and regionally	Make connection to Town Forest trails
Trails: Interpretive with Signage		Vehicle, Bike or Walking from larger trail network	Medium	Year Round	2 to 4 Hours - with connection with Town Forest trails	Unique or interesting natural feature for interpretation, quality of wildlife and plant community habitat	Low soil erosion, habitat disturbance - motion	Low	Low / Medium		Can use trail network	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing	Yes providing trail is accessible			Trailhead with map, interpretative signage	Yes locally and regionally	Interpretive signage needs to be vandal resistant
Trails: Mountain Biking		Vehicle, by Mountain Bike, or access from larger mountain bike trail network	Low / Medium	Summer - Fall	2 to 3 Hours - with connection to future horseback riding network	Varied terrain, scenery	Habitat disturbance - noise and motion, moderate potential for soil erosion	Low	Medium		3' to 4' for off road trails	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing			Horseback riding, dog walking	Trailhead with map	Yes locally and regionally	Trail connection with larger network is needed for longer ride
Trails: Shared Use Path		Vehicle, Bike access along roads or future path network	Low / Medium	Year Round	2 to 3 Hours - with connection to future path network	Varied terrain with limited topographic relief, scenery	Habitat disturbance - noise and motion	Low	Low if paved, Low / Medium if gravel surface		Minimum 10' wide	Asphalt, gravel	Yes		Horseback riding, dog walking, ATV	Trailhead with map	Yes regionally	Make connection to Town Forest trails
Trails: Walking / Hiking / Running		Vehicle, Bike, Walking, Hiking or Running from larger trail network	Medium	Year Round	2 to 4 Hours - with connection with Town Forest trails and larger trail network	Varied terrain, scenery	Low soil erosion, habitat disturbance - motion	Low	Low		Trail width can vary from as little as 2' to 3'	Turf / Natural soil with minimal improvements; Improved for wetland and stream crossing	Yes providing trail is accessible		Horseback riding, ATV, snowmobiling	Trailhead with map	Yes locally and regionally	Make connection to Town Forest trails
Other:																		
Agricultural Operations (Haying, Maple Sugar Production, Orchard, Bee Keeping, etc.)		Vehicle	Low	Spring to Early Fall	1 to 8 hours depending upon agricultural operation	Open fields, Maple trees (maple sugar production)	Habitat disturbance - noise and motion, decimation of existing plant communities	Medium if using tractors / bush hog machinery	Medium / High	Varies depending upon agricultural operation	Need access roads - Can possibly use trail network if able to handle loads	Access roads need to be improved to handle vehicles and for wetland and stream crossing		State Agricultural permit, Wetlands, buffers and stream impacts - Federal and/or State Permitting	Depending upon the agricultural operation		Yes locally and regionally	
Forest Management: Logging		Vehicle	Low	Winter	1 to 4 days depending upon needed operations	Forests	Habitat disturbance by changing plant community composition	Medium if using heavy machinery or equipment	Operations can occur annually or less frequently	Varies dependent upon area to be logged	Need access roads - Can possibly use trail network if able to handle loads	Access roads need to be improved to handle vehicles and for wetland and stream crossing					Yes locally and regionally	
Protection of Flora & Fauna		None	None	Year Round	n/a	Unique or Interesting flora and fauna, quality of habitat	Improved flora and fauna	None	Low		n/a	n/a			Every use	Trailhead with map highlighting areas of protection	Yes locally and regionally	

TECHNICAL PROVISION FOR ACCESS ROUTES, OUTDOOR ACCESS ROUTES AND ACCESSIBLE TRAILS

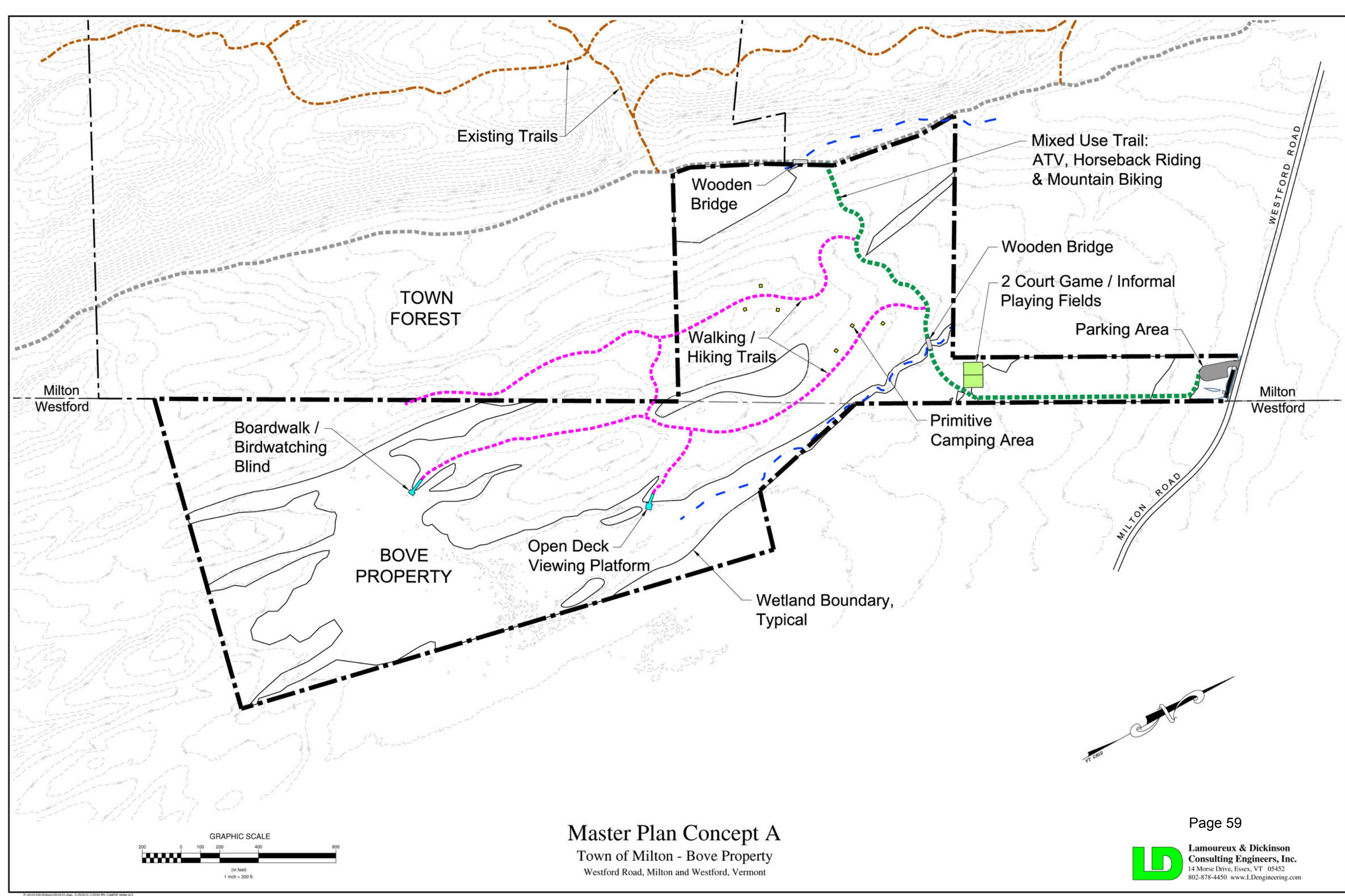
	Access Route (ADAAG)	Outdoor Access Route	Accessible Trail
Surface	stable, firm, and slip resistant	firm and stable	firm and stable (exception:*)
Maximum Running Slope	1:12 [8.33%]	1: 20 [5%] (for any distance) 1: 12 [8.33%] (for max. 50 ft) 1:10 [10%] (for max. 30 ft)	1: 20 [5%] (for any distance) 1: 12 [8.33] (for max. 50 ft) 1:10 [10%] (for max. 30 ft) 1: 8 [12.5%] (for max. 10 ft) <i>(Exception: 1: 7 [14.3%] for 5 ft maximum for open drainage structures or when * applies)</i>
Maximum Cross Slope	1:50 [2%]	1: 33 [3.03%] (Exception: 1: 20 [5%] for drainage purposes	1: 20 [5%] (Exception: 1: 10 [10%] at the bottom of an open drain where clear tread width is a minimum of 42 inches
Minimum Clear Tread Width	36 inches 32 inches for no more than 24 inches	36 inches <i>(Exception: 32 inches when * applies)</i>	36 inches <i>(Exception: 32 inches when * applies)</i>
Tread Obstacles	Changes in level: 1/4 inch with no beveled edge, 1/4 - 1/2 inch must have a beveled edge with a max slope of 1: 2 [50%] (over 1/2 inch = ramp)	1 inch high maximum <i>Exception: 2 inches high maximum where beveled with a slope no greater than 1: 2 [50%] and where * applies.</i>	2 inches high maximum <i>Exception: 3 inches maximum where running and cross slopes are 1: 20 [5%] or less. (Exception: *)</i>
Passing Space	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 x 60 inch space, or a T-shaped intersection of two walks or corridors with arms and stem extending minimum of 48 inches.	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 x 60 inch space, or a T-shaped intersection of two walks or corridors with arms and stem extending minimum of 48 inches. <i>(Exception: Every 300 feet where * applies.)</i>	Every 1000 feet where clear tread width is less than 60 inches, a minimum 60 x 60 inch space, or a T-shaped intersection of two walks or corridors with arms and stem extending minimum of 48 inches. <i>(Exception: *)</i>
Resting Intervals	Landings: 60 inch min length, minimum width as wide as the ramp run leading to it, if change in direction occurs, must have 60 x 60 inch space	60 inches minimum length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a max slope of 1: 33 [3.03%] (Exception: A max slope of 1: 20 [5%] is allowed for drainage purpose.)	60 inches minimum length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a max slope of 1: 20 [5%] <i>(Exception: *)</i>

** The provision may not apply if it cannot be provided because compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics; substantially alter the nature of the setting or purpose of the facility; require construction methods or materials that are prohibited by Federal, state, or local regulations or statutes; or be infeasible due to terrain or the prevailing construction practices.*

NOTE: This table is from the **Trail Design Guidelines for Portland's Park System**, Portland Parks & Recreation, May 2009

**Bove Property
Natural Resource Assessment and Land Use Planning
Final Report**

Appendix C
Master Plan Concepts A, B and C



Existing Trails

Wooden Bridge

Mixed Use Trail:
ATV, Horseback Riding
& Mountain Biking

Wooden Bridge

2 Court Game / Informal
Playing Fields

Parking Area

Walking /
Hiking Trails

Primitive
Camping Area

Boardwalk /
Birdwatching
Blind

BOVE
PROPERTY

Open Deck
Viewing Platform

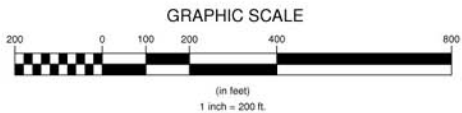
Wetland Boundary,
Typical

WESTFORD ROAD

Milton
Westford

MILTON ROAD

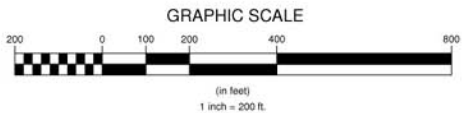
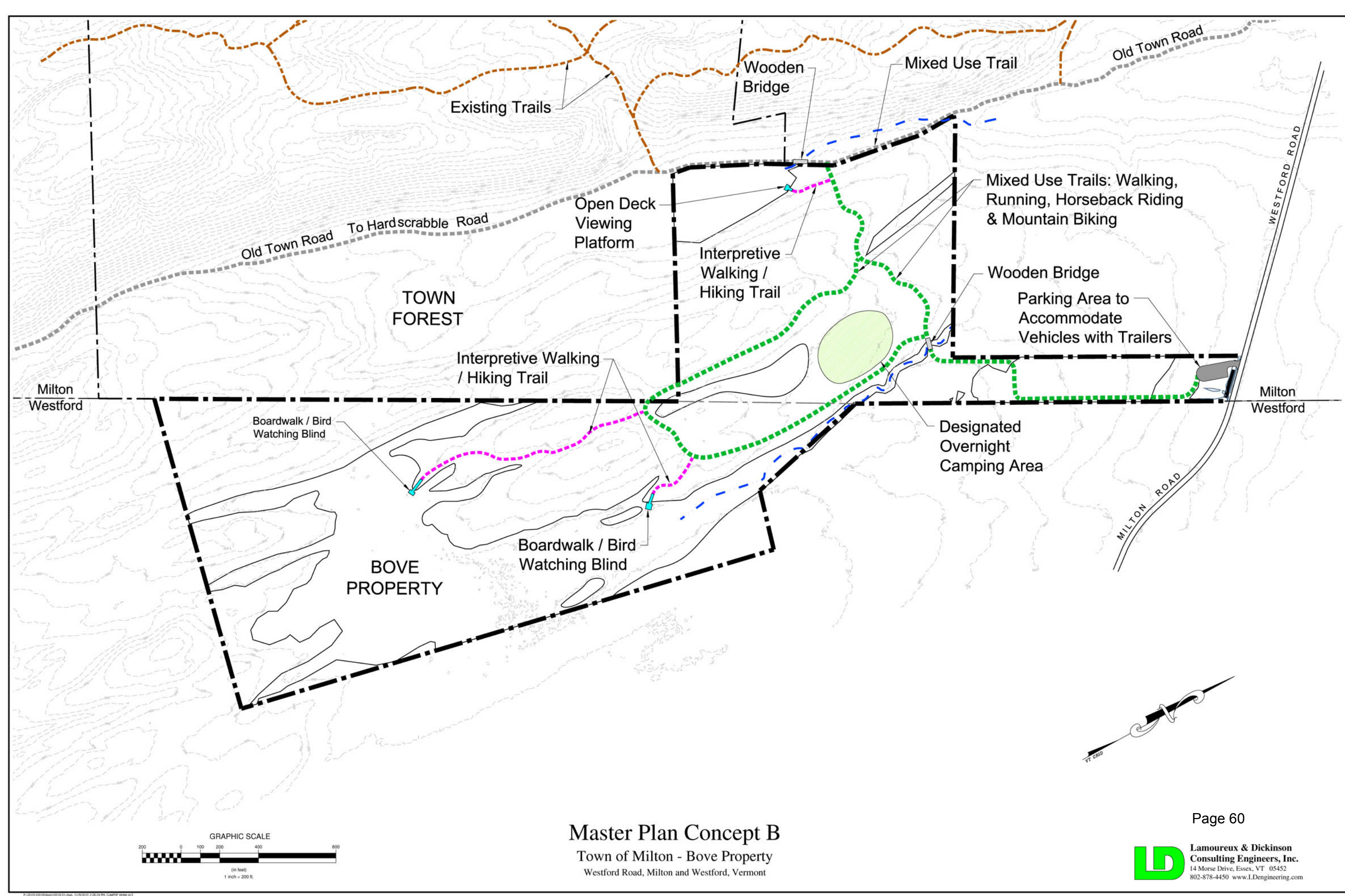
Milton
Westford



Master Plan Concept A

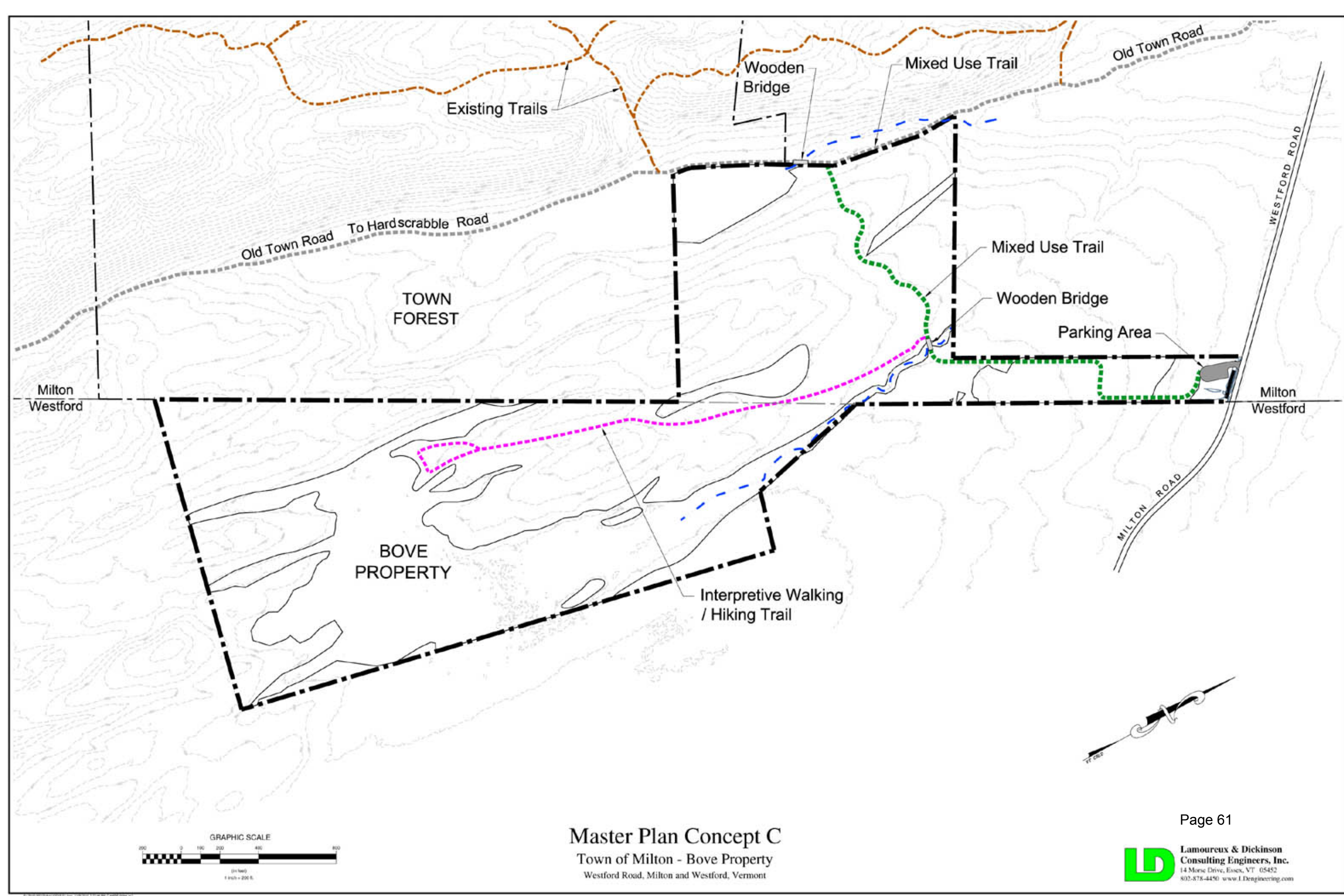
Town of Milton - Bove Property
Westford Road, Milton and Westford, Vermont





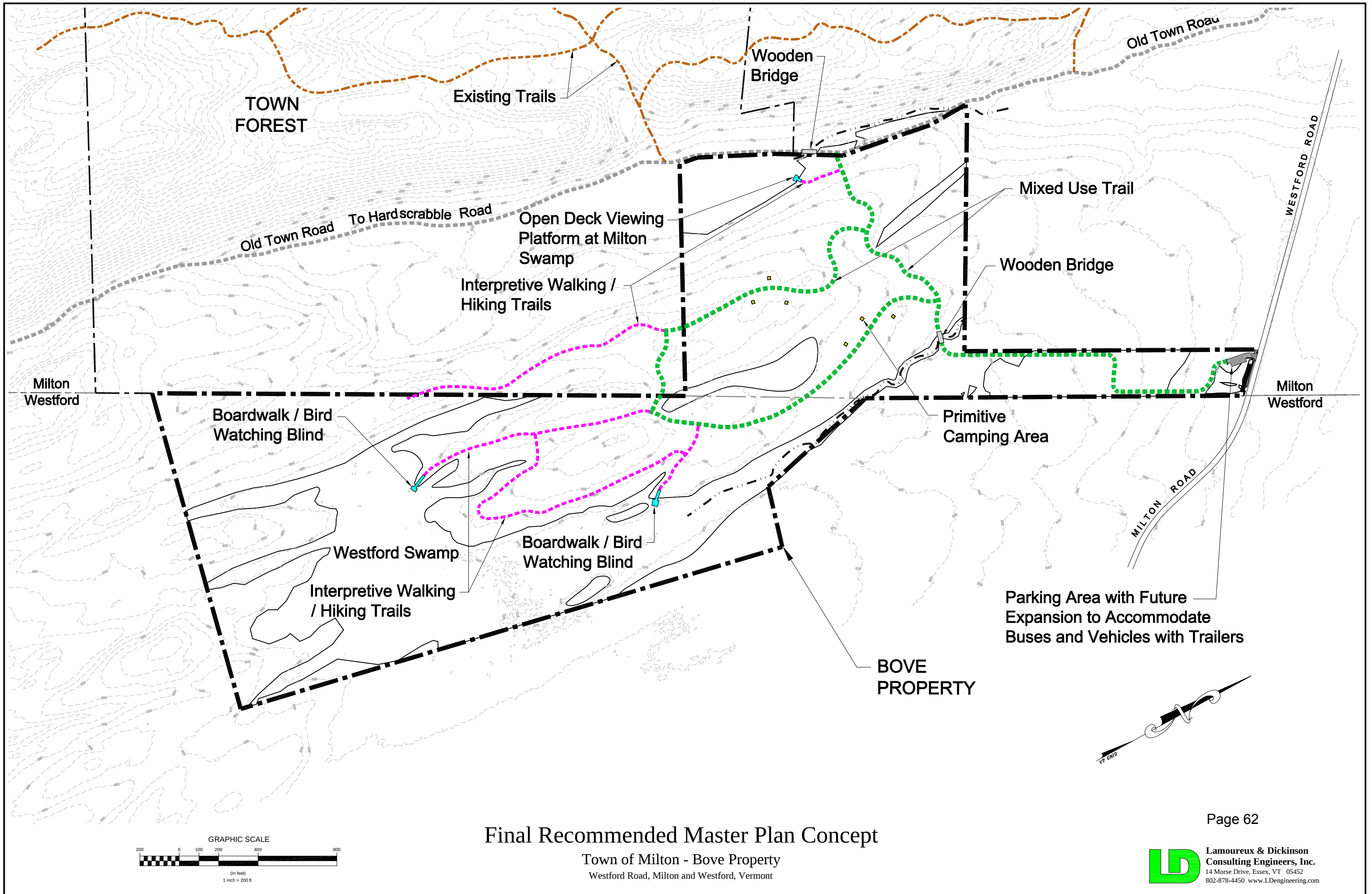
Master Plan Concept B

Town of Milton - Bove Property
Westford Road, Milton and Westford, Vermont



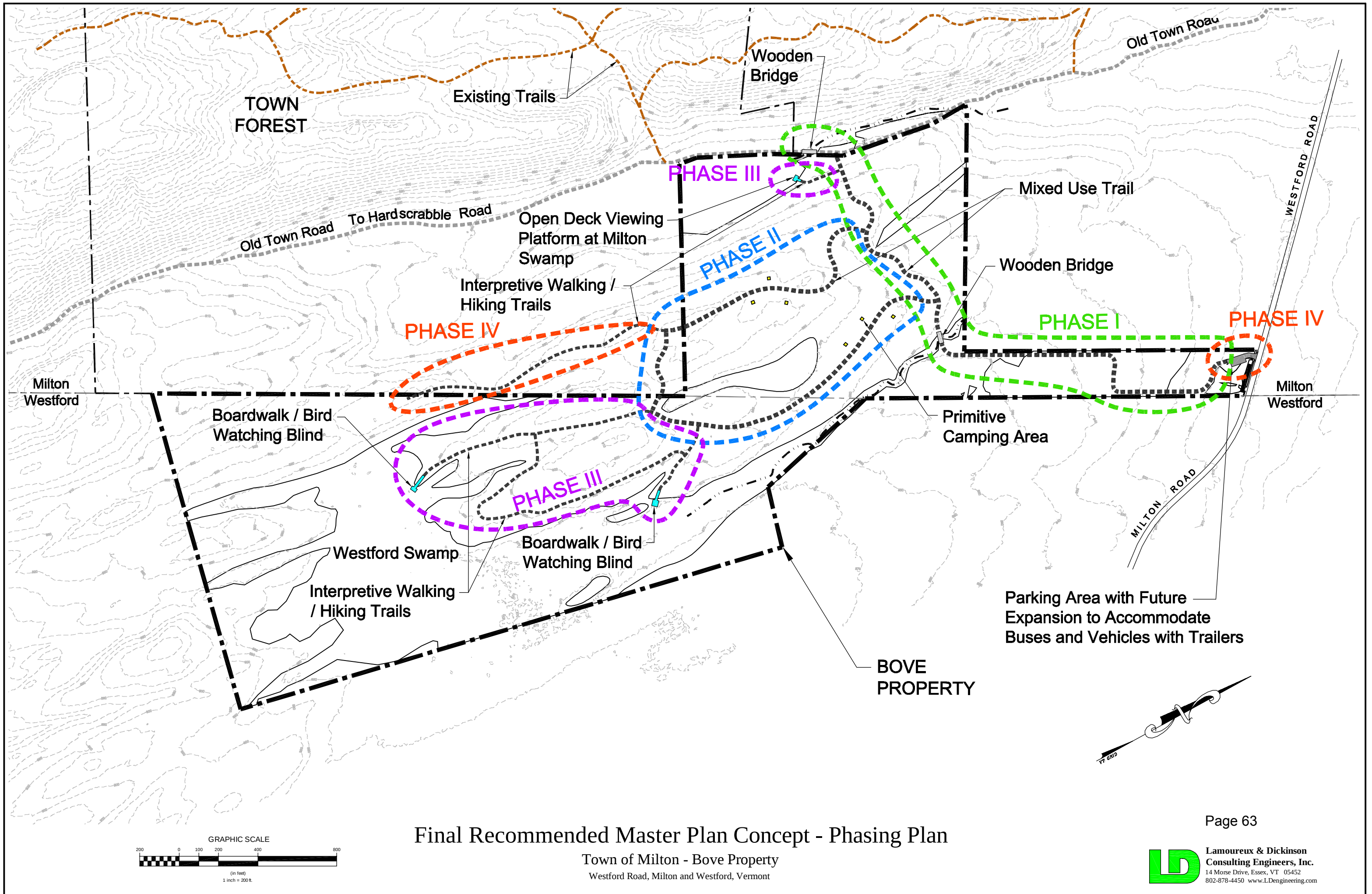
**Bove Property
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Appendix D
Final Recommended Master Plan Concept



Bove Property
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Appendix E
Final Recommended Master Plan Concept - Phasing Plan



**Bove Property
Natural Resource Assessment and Land Use Planning
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Appendix F
Financial & Technical Resources Compiled by the National Park Service
Rivers & Trails Program

Financial & Technical Resources

Compiled by the National Park Service Rivers & Trails Program, Vermont Field Office.
Updated September 2004.

Connecticut River Partnership Program Grants of \$500 to \$5,000 to support innovative, community-generated projects that address the Connecticut River Valley's economic and conservation challenges in ways that are compatible with its historic, scenic and natural resources. Applications are due early spring. Contact: *Connecticut River Joint Commissions, P.O. Box 1182, Charlestown, NH 03603 Tel: 603-826-4800 or visit their web site @:* <http://www.crjc.org>

Patagonia's Conservation Alliance Grants A group of 62 outdoor businesses who donate 100% of their membership dues to support grants to grassroots groups for direct citizen action to protect and enhance our natural resources for recreation. Web Site: www.conservationalliance.com/grantcriteria Grant questions should be directed to: *Lisa Pike, 259 W. Santa Clara St., Ventura, CA 93001 E-mail: lisa_pike@patagonia.com*

Jobs and Training Youth Employment Program Youth 14-21 years' old may be employed to work a limited number of hours per week (up to 40 hours/week in the summer) in recreation programs as activity leaders, maintenance or clerical staff, etc. JTPA funds may pay up to 100% of student training stipends. For more details go to web address www.det.state.vt.us. Contact: Your local Department of Employment & Training Office.

Job Training Partnership Act (JTPA) This federal program may be available to train economically disadvantaged individuals in recreation-related occupational areas. Specifically designed summer youth programs are available as well as year-round programs for both youth and adults. Youth are defined as those who are 14-21 years of age. All or part of their training stipends or wages may be paid with JTPA funds. Contact: (for summer programs) your local Department of Employment and Training Office, local high school guidance offices/Summer Youth Employment Program Representatives, or the Vermont Youth Conservation Corps. Contact: http://www.thinkvermont.com/workforce/fed_job.cfm

Lake Champlain Basin Program Local Implementation Grants

Grants support local community involvement in the implementation of the comprehensive management plan, *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*. Three grant categories are offered: Organizational Support Grants (to build organizational capacity for watershed groups, up to \$5,000); Partnership Grants (for smaller projects emphasizing community partnerships, up to \$5,000); Annual Priorities Grants (for larger projects addressing implementation priorities, up to \$10,000). April deadline. LCBP, PO Box 204, 54 West Shore Road, Grand Isle, VT 05458 Tel: 800-468-LCBP Web Site: <http://www.lcbp.org/grants.htm>

Vermont Division for Historic Preservation Grants Historic Preservation grants are available to assist municipalities and non-profit organizations in restoring important historic buildings; and Certified Local Government matching grants are available for local preservation projects. Contact: *Eric Gilbertson, Division for Historic Preservation, National Life Building, Drawer 20, Montpelier, VT 05620-0501, telephone: 802/828-3043 Or visit their web site @:* <http://www.dhca.state.vt.us/dhp/financial>

New England Grassroots Environment Fund Small grants of \$500 to \$2,500 are available to both non-profit and ad hoc groups to increase engagement and participation in grassroots environmental initiatives and to build and connect healthy sustainable communities in New England (including communication needs, capacity building, advocacy campaigns, conferences).

Jan 15/May 1/Sept 15 deadlines. *Contact: NEGEF, PO Box 1057, Montpelier, VT 05601; Tel: 802-223-4622 Web Sites: www.grassrootsfund.org info@grassrootsfund.org*

Resource Conservation and Development (RC&D) Provides technical support to community improvement projects through technical and financial resource coordination. In Northern Vermont, Contact - Executive Director, Northern Vermont RC&D, 617 Comstock Road, Suite 2, Berlin, VT 05602-8927, Tel: (802) 828-4595; FAX (802) 223-6163; E-mail: beth_ann.finlay@vt.usda.gov In Southern Vermont, Contact: Executive Director, George D. Aiken RC&D, 22 Main Street, Suite 2, Randolph, VT 05060, telephone: (802) 728-9526; FAX (802) 728-5951.

Retired Senior Volunteer Program (RSVP) RSVP is part of Senior Corps, a network of national service programs that provides older Americans the opportunity to apply their life experience to meeting community needs. To learn more how you can tap into a pool of committed volunteers willing to offer their business and professional skills in a diverse range of non-profit organizations, public agencies, and faith-based groups, *contact your local Office on Aging or visit their web site @: [http:// www.seniorcorps.org/joining/rsvp](http://www.seniorcorps.org/joining/rsvp)*

Surplus Property State and local public recreation agencies are eligible to receive federal and state surplus supplies and equipment. *Contact: Central Surplus Property Agency, 50 Packard Rd., Suite 2, East Montpelier, VT 05651 Tel: (802) 828-3394 Or web site: [http:// www.bgs.state.vt.us/gsc/surplus/index](http://www.bgs.state.vt.us/gsc/surplus/index).*

US Department of Education 21st Century Community Learning Centers Grants The Vermont Department of Education conducts grant competitions for the 21st Century Community Learning Centers (21st CCSC) program seeking to enhance students' academic achievement and to foster lifelong interests in the arts, recreation and other areas through high-quality, out-of-school learning opportunities. Grant amounts: \$50,000 - \$250,000. *Contact: Ed Haggett, Vermont Department of Education, 120 State Street, Montpelier, VT 05620-2501; Tel: 828-5400 or visit the web site @: <http://www.state.vt.us/educ/new/html>*

The Department of Health, Division of Alcohol and Drug Abuse Programs New Directions Grants

Grant Amounts: \$5,000 - 40,000 to support coalitions as they initiate or enhance alcohol and other drug abuse prevention efforts in their community. *Contact: Melissa Liebig, New Directions Coordinator, 108 Cherry Street, P.O. Box 70, Burlington, VT 05402-0070; Tel: 802/786-5979 or visit <http://www.state.vt.us/adap>*

Chittenden Bank Community Fund Chittenden Bank Community Fund directly supports programs and projects which encourage and demonstrate private and public sectors working together to solve problems and initiate positive change. Contact: Cynthia Gubb @ 802/660-1367 or Tracie Adrian @ 802/258-4069

Vermont Agency of Transportation (VTRANS):

Bicycle and Pedestrian Program

The VT Agency of Transportation (VTrans) works with the states, 11 regional planning commissions and the Chittenden County Metropolitan Planning Organization each year to identify bicycle and pedestrian facility projects (multi-use

paths, sidewalks, and rail-trails) that can be funded through the Local Transportation Facilities Program. A 10% local match is required. Early April deadline. Projects must have completed a conceptual alignment analysis or equivalent feasibility study. Contact: Amy Bell, Bicycle and Pedestrian Coordinator, or Jon Kaplan, Asst. Bicycle & Pedestrian Coordinator, VTrans, National Life Building, Drawer 33, Montpelier, VT 05633-5001, telephone: (802) 828-5799 or (802) 828-0059. Web site: www.aot.state.vt.us/projdev/sections/ltf/ltf.htm
Email: amy.bell@state.vt.us or jon.kaplan@state.vt.us

Enhancements Program

Funding is available for transportation enhancements including: provision of facilities for pedestrians and bicycles, acquisition of scenic easements and scenic or historic sites, scenic or historic highways programs, landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic structures or facilities, preservation of abandoned railway corridors and conversion to bicycle trails, control and removal of outdoor advertising archeological planning and research, mitigation of water pollution due to highway runoff, reduction of vehicle-caused wildlife mortality while maintaining wildlife habitat connectivity, tourist and welcome centers, and transportation museums, safety and education for pedestrians and bicyclists. Coordination with your Regional Planning Agency is strongly encouraged. September letter of intent. November Deadline. Contact: Sandy Aja at the VT Agency of Transportation, National Life Building, Drawer 33, Montpelier, VT 05633-5001, telephone: 828-2544. Web site: www.aot.state.vt.us/projdev/sections/LTF/Enhancements

Public Lands Highways

Funding for projects that are on, adjacent to, or providing access to federal public lands (e.g. Green Mountain National Forest, Army Corps, National Park Service). In Vermont, PLH funding has been used for the West River Trail, protection of scenic properties along highways, and visitor improvements at Quechee Gorge. April application deadline. Contact Scott Fortney at 802-828-0057, Scott.Fortney@state.vt.us (VT Agency of Transportation, National Life Building, Drawer 33, Montpelier, VT 05633)

Scenic Byways Program

For projects including acquisition, development and planning along designated scenic byways. May application deadline. Contact Scenic Byway Coordinator Warren Vail, 802-828-0451, warren.vail@state.vt.us (VT Agency of Transportation, National Life Building, Drawer 33, Montpelier, VT 05633)

Vermont Council on the Arts Funds are available through the Council's Grant programs and initiatives for the creation, presentation, and development of cultural arts programming (dance, music, theater, literature, visual arts, etc.). Grant amounts vary but all require at least a 50/50 match. Contact: Heather Pipino, Grants Manager, Vermont Council on the Arts, 136 State Street, Drawer 33, Montpelier, VT 05633-6001, telephone: (802) 828-5425, email at Info@vermontartscouncil.org, and web site at www.vermontartscouncil.org.

The Windham Foundation

Grants are available to support projects that assure the preservation of the rural nature of Vermont, educational activities, other cultural and community projects. Request an application form via phone, mail, fax, or e-mail by contacting: Tuula Ingerson, Grants Administrator; Tel:

802/843-2211 FAX: 802/843-2205; E-Mail: winfound@sover.net Web site:
<http://www.windham-foundation.org>

Vermont Department of Forests, Parks and Recreation (FPR):

Land & Water Conservation Fund (LWCF) The LWCF program helps to create and develop high quality recreation areas and facilities and contributes to the protection of outdoor recreation resources. It is a reimbursement grant program that provides for land acquisition and development of public outdoor recreation areas and facilities. A minimum of 50% local match is required. Funds are available to municipalities and governmental entities. Contact: Sherry Smecker, Grants Administrator, or Rebecca Brown, Grants Program Assistant, Vermont Department of Forests, Parks and Recreation, 103 South Main Street - 10 South, Waterbury, VT 05671-0601, telephone: (802) 241-3690 or (802) 241-3653. Email: sherry.smecker@anr.state.vt.us or rebecca.brown@anr.state.vt.us. Website: www.state.vt.us/anr/fpr/recreation.

Vermont Recreation Trails Grants

The Recreation Trails Grant Program helps to create and maintain trails and greenways in Vermont and provides up to 80% of the cost of acquisition, development, and maintenance of recreation trails. Funds are available to municipalities and nonprofit organizations. Applications due by 4:30 PM on Friday, January 31, 2004. Contact: Sherry Smecker, Grants Administrator, or Rebecca Brown, Grants Program Assistant, Vermont Department of Forests, Parks and Recreation, 103 South Main Street - 10 South, Waterbury, VT 05671-0601, telephone: (802) 241-3690 or (802) 241-3653. Email: sherry.smecker@anr.state.vt.us or rebecca.brown@anr.state.vt.us. Website: www.state.vt.us/anr/fpr/recreation.

Vermont Urban and Community Forestry Program

The U&CF program provides a variety of technical assistance for communities, including trainings/workshops, educational publications, onsite assistance from regional staff, and a quarterly newsletter, the Town Green. Additionally, the program offers a competitive cost-share grant program, "Trees for Local Communities", designed to encourage citizen involvement in creating and supporting long-term and sustainable urban and community forestry programs. For 2005, up to \$60,000 will be available to local governments, community tree volunteer groups, educational institutions, civic groups, or approved non-profit organizations. The maximum funding for proposals are \$4,000 for Community Planning/Education, Tree Planting and Maintenance grants and \$200 for mini grants. For more information, contact Danielle Fitzko at 802/241-3673 or www.vtcommunityforestry.org

Vermont Housing & Conservation Board (VHCB) VHCB makes grants and loans for the purchase of conservation easements or land to provide public access to trails, water, or greenways, to conserve agricultural land and natural areas, to protect archaeological sites, to acquire historic sites for public use, or for the development of affordable housing. Funding is also available for associated project costs such as appraisals, options, closing costs, or other predevelopment costs. Eligible applicants include municipalities, nonprofit housing and conservation organizations and certain state agencies. Contact: Vermont Housing and Conservation Board, 149 State St., Montpelier, VT 05602, telephone: (802) 828-3250. Their web site, with information on application deadlines and policies, is www.vhcb.org

Vermont Student Employment Financial assistance (up to 50% for a maximum of \$1000 per student) is available to employers to hire college students in municipal recreation departments. Contact: Vermont Student Assistance Corporation, Champlain Mill, P.O. Box 2000, Winooski, VT 05404-2601, telephone: (802) 655-9602, ext. 202, or 1-800-642-3177, and web site at www.vsac.org

Vermont Watershed Grants Funded by sales of Vermont's Conservation License Plates, mini-grants of \$200-\$1,000 and larger grants of \$1,000- \$5,000 are available for a wide range of water-related projects, including developing or enhancing recreational use and enjoyment. Late October deadline. *Contact Vermont Watershed Grants at 802-241-3777 (VT Agency of Natural Resources, Water Quality Division, Building 10 North, 103 South Main St, Waterbury, VT 05671-0408), or visit their web site @: <http://www.vtwaterquality.org/grants.htm>*

Vermont Youth Conservation Corps VYCC crews complete work on public lands, waters, or buildings or on projects that have a clear value to the local community. Since 1985 VYCC, a non-profit organization, has coordinated trail crew work with VT youths in a variety of conservation projects including trail building and wildlife habitat enhancement projects. VYCC provides crew leaders, transportation, trail tools, and crews of 10-12 members, ages 16 - 24 to assist communities with conservation projects. Communities can apply to VYCC for a crew for their project. *Contact: Brian Cotterill, VYCC, 92 So. Main Street, Waterbury, VT 05676 Tel: 802/241-4452 E-Mail: brian@vycc.org, or visit their web site @ <http://www.vycc.org>*

Other Assistance

Vermont Recreation & Park Association: The VRPA is an organization of professionals and volunteers who work to improve and expand recreation and park services in Vermont. It has many services and programs that will be helpful to people working on park and recreation projects including over 500 resource sheets and manuals, a quarterly newsletter, meetings, educational programs, and a weekly "Recreation Check In" list serve. It also provides Challenge Grants to help communities develop and improve their recreation programs. The grants are typically \$500 and applications are due in February. Applicants must be members of VRPA. Contact: Betsy Orselet 802/878-2077. Email: orselet@adelphia.net.

Foundations and other resources

In addition to state and federal agencies there are many foundations, some located in Vermont, and some located outside of Vermont, that might make grants to appropriate outdoor recreation projects. Other than land protection, parks and recreation are generally not high on the list for funding and often foundations do not give to governmental agencies. It is important with any foundation prospecting to call ahead to discuss your project and request specific guidelines, and to focus on specific project needs that best fit the goals of the foundation's giving program!

To explore grants in Vermont, a great place to start is the **Vermont Directory of Foundations** (\$45, published by CPG Enterprises). The Directory covers foundations incorporated in Vermont as well as those outside of Vermont making regular Vermont contributions, and is the only publication specifically designed for VT grantseekers. You may also be able to borrow a copy from a non-profit organization, regional planning commission, or your local library. To purchase a copy, contact CPG Enterprises, 283 Union St., #1, Burlington, VT 05401; Telephone: 802-862-0327 Web site: www.cpgfundraising.org

Another good resource is the Vermont State Library, State Street, Montpelier. This is the most complete development library publicly available in the state, and is affiliated with the national Foundation Center. In addition to printed resources, the library now has the Foundation Center CD-ROM listing of all foundations in the United States.

The Foundation Center (www.fdncenter.org) is a national information center on corporate and private foundations, community foundations, and grantmaking public charities. They publish The Foundation Directory, a national reference with detailed descriptions and giving histories that you can find at most libraries. You can also subscribe to it online at the Foundation Center's website.

You can also check the Environmental Grantmaker's Association Directory. Web site: www.ega.org, Telephone: 212-373-4260.

Vermont Community Foundation (VCF) This is the one foundation you should check out from the beginning. VCF is a public charity providing a number of grants to projects ranging from \$1,000 - \$10,000 that make a significant difference to the state and address a clear community need in the areas of environment, public affairs, community development, social services, education or the arts. April 1 and October 1 deadlines. Contact Betsy Benton at the Vermont Community Foundation, Three Court Street, P.O. Box 30, Middlebury, VT 05753, telephone: 802/388-3355. Check out VCF's Guide for Grantmakers on their web site at: www.vermontcf.org

Federal Funding Opportunities Sources of federal financial and technical assistance are compiled in the Catalog of Federal Domestic Assistance (www.gsa.gov/fdac). The Catalog is available at depository libraries nationwide or contact the Federal Domestic Assistance Catalog Staff, General Services Administration, 300 7th St. S.W., Washington, D.C., 20407, Telephone 1-800-669-833.

The National Park Service Rivers & Trails Program has information on funding sources at their web site, www.nps.gov/rtca.

EPA hosts an online guide to Federal Funding Sources for Watershed Protection at www.epa.gov/watershedfunding.

**Bove Property
Natural Resource Assessment and Land Use Planning
Final Report**

Appendix G
Public Meeting Notes

***Bove Inventory, Assessment and Recommendations
Public Meeting #1 Notes
September 16, 2010***

Attendees: See attached List of Attendees
Regina Mahony, Town of Milton Planning Director
Meghan Grant, Milton Planning Assistant
Dustin Keelty, Buildings & Grounds Superintendent
Gail Henderson-King, Lamoureux & Dickinson

Discussion

1. *Introductions*

Ms. Mahony gave a quick overview of the Bove Inventory, Assessment and Recommendations project. She introduced Ms. Henderson-King of Lamoureux & Dickinson. Lamoureux & Dickinson has been retained by the Town of Milton to assist with this project.

2. *Overview of Project: Goals and Objectives of Study*

Ms. Henderson-King gave a brief overview of the project goals. The goals of this project are to first identify natural and cultural resources, solicit public input in developing potential uses and layout, and create a master plan with selected uses.

**3. *Presentation of Existing Conditions and Inventory:
Site Constraints and Opportunities***

Ms. Henderson-King presented the existing natural and cultural resources found on the Bove property. The following natural resources were inventoried:

Wetlands, soil types and topography by Brian Tremback, Wetlands Specialist, Lamoureux & Dickinson;

Wildlife species and habitats by Christina Scharf, Wildlife Biologist; and

Plant species and plant communities by Brett Engstrom, Botanist/Ecologist.

Archaeological resource inventory was done by NorthEast Archaeology Research Center.

The “Panhandle Area”, which borders Westford Road, has a wet meadow, a spruce plantation, and provides access from Westford Road. There are several existing streams on the property with associated wetlands. Beaver dams in the wetlands have created open bodies of water.

On the portion of the property that is in Westford, there is a Red Maple Acidic Sphagnum Bog, which is very unique. The existing native plants are diverse with a rare plant found in the wetlands. Numerous wildlife species are present and the area is considered valuable wildlife habitat.



4. Open Discussion for Vision of Bove Property

Following the existing conditions inventory, Ms. Henderson-King opened the discussion to what types of uses people are interested in having available within the Bove property. Below is a summary of these comments.

General

- The Town Forest and Bove Property should be considered as one property.
- Are only structures supposed to be out of the setback? Is a boardwalk considered a structure? Structures are defined in the zoning regulations for Milton and Westford. This will need to be looked into further.
- Are there any dry sections on the piece in Westford? Are there any dry sections on the piece in Milton? There are areas that don't have wetlands, ponds or streams.
- What can the property support based on the knowledge gained from the inventory? The consultants will have more information on this at the next meeting.
- What is the definition of a Class Two wetland? What does it mean? The classifications of the different wetlands: Class Two and Class Three, are not finalized yet. The State will be meeting with our wetlands specialist to review all the wetlands on the site and determine which class they are.

Access to Property

- Is access to the Town Forest possible? Yes, the reason the Town of Milton purchased the Bove property is to provide access to the Town Forest.
- Would like to see someplace to park in order to access the walking trails.
- An abutting property owner would not like to have a parking lot next to their property.
- Are there other places within the Town for a parking lot to access the property? The consultants are not looking at other access points to the Bove property or Town forest.
- There is concern about the safety of ingress and egress from Westford Road.
- Instead of providing a parking area, it was suggested that a school bus can just drop kids off right on Westford Road to access the property.



Potential Uses

- Will impacts of the potential uses be addressed? Impact of the potential uses will be documented in a matrix at the next meeting.
- Leash-off dog walking trails would be great. They may not be compatible with motorized uses. Niquette State Park and South Burlington have leash-off trails.
- Horseback riding.
- Dog walking.
- Hiking.
- There should be stated hours of operation like “dawn to dusk”. No overnight use. Hours of operation need to be enforced by an already strapped police force.
- Natural Area with protection of flora and fauna.
- Use Town Forest Management Plan as a model and guide for this property.
- A person read from a 2008 Town Forest Plan the full list of uses that are allowed there.
- Low impact, passive, non-motorized uses - similar to the Town Forest uses.
- Mountain bikes. They may not be appropriate.
- Are bikes allowed in the Town Forest Management Plan? It is silent on this. A Conservation Commission member mentioned that the mountain biking trails mentioned under #41 have not been designated yet.
- Volleyball or badmitten courts in field.
- No courts of any kind. Nothing built, including no parking lot.
- Is camping feasible?
- Possibly primitive camping. How to handle facilities and fires is important.
- It is a rural area, but it is residential with young families.
- Safety concern of this being a potential party spot



- Handicap individuals should be allowed to use the property.
- There was mention that handicap individuals are protected by law to use motorized vehicles to get on any public property. The consultant will check into this.
- Trapping, hunting and fishing for potential uses.
- Hunting compatible with passive recreation? Will hunting area be taken away? People can hunt at Niquette State Park and the Town Forest and there is passive recreation there as well.
- Significant deer wintering habitat on the Bove property.
- Snow shoeing and cross country skiing.

ATV Use

- Is it feasible to have ATV use here?
- Several people stated that they want no ATVS or any motorized vehicles accessing the Bove property.
- There are now 14 miles of ATV trails in Milton and people use these trails for walking, walking dogs, and riding bikes. However, they are not for snow mobile use.
- The abutters have evidence of ATV and snow mobile use harming their property: knocking over “No Trespassing” signs. There should be places where ATVs are not allowed to go.
- Should be ATV use somewhere even if minimal. Lawnmower decibels are higher than some ATVs now.
- The Bove parcel is public property. Everyone pays for it so everyone should be allowed to use it, including ATV users.
- When legal ATV trails have been established, there has been a decline in illegal ATV use.
- ATV use is not possible in the Town Forest, so is it feasible on the Bove property?



- ATV folks just want a connection. A connection to what? Where would the trail connect to? The ATV group has trails on Georgia Mountain and would like to connect into Westford. No trail layout has been determined at this point.
- The Town Forest inventory showed that ATV use could not be sustained on that property and that is why ATV use is not in the Town Forest Management Plan. Could this be looked at for the next meeting for the Bove property?
- The Town has spent years trying to get better access to the Town Forest. It was better for the Town to have the Bove Property for this. All uses should be able to be accommodated if done correctly. Don't want an ATV mud run; but people should be able to use one to get to the Milton Pond to fish; and should be able to use ATVs for rescue purposes.
- There are serious ATV impacts on the property behind Checkerberry village with irreparable damage. Trails are so worn out that the ATVs have made new trails.
- Following the meeting, there was further discussion on ATV use on the Bove property between abutters and the ATV group. A recommendation that came out of this discussion is to consider having an ATV trail in the future when there is a proposed trail connection in mind.

Trails

- The trail shown as existing on the plan is in the neighbor's setback. The trail is actually on the Bove property's setback.
- What is the walking distance from the "panhandle" to the Milton Pond? This will be determined and brought to the next meeting.
- Member of the Pathways Committee stated that it would be nice to have some sort of connector trail to the east.
- The UVM Study on the Town Forest Inventory, Assessment and Recommendations discusses the negative impacts of walkers on the soil and wildlife. This should be reviewed.
- An interpretive trail would be good to help educate people on the unique habitats on the property.
- Any trails feasible in the bog area? This will be determined and brought to the next meeting.



Westford Official Representative Comments

- Westford Regulations are stricter than the State in terms of wetlands. They require a 100 foot buffer around wetlands instead of 50 feet. The consultant will look into this.
- Westford official would like to have no ATV use on Westford side - only passive, non-motorized uses such as hiking and cross-country skiing.
- Public Education on the Westford piece. The Westford Conservation Commission is willing to work with the Milton Conservation Commission on this.

5. Next Steps

The next steps in the master planning process involves creating a matrix of all the proposed uses and their needs and considerations. Several alternative master plan layouts will be developed using the proposed uses from the matrix. This will all be presented at a second public meeting for discussion and input.

The above is my summation of the Bove Inventory, Assessment and Recommendations from the First Public Meeting. If you have any additions and/or corrections, please contact me for incorporation into these notes.

Prepared By: Gail Henderson-King, RLA, ASLA
Lamoureux & Dickinson



SIGN-IN sheet for Bove Inventory, Assessment & Recommendations

DATE: September 16, 2010

NAME (PRINT)	SIGNATURE	MAILING ADDRESS	PHONE #
DUSTIN KEELTY	Dustin Keelty	43 BOMBARDIER RD MILTON	3-6030
Sarah Kieslich	Sarah Kieslich	597 Westford Rd Milton	893-6237
Teresa Benjamin	Teresa Benjamin	384 Westford-Milton Rd Westfd	893-6557
Patricia Heckmer	Patricia Heckmer	34 Maple Tree Ln. Westford	878-3725
Dean Benjamin	Dean Benjamin	384 Westford Milton Rd	Westford 893-6557
JEFF KIESLICH	Jeff Kieslich	597 Westford Rd, Milton, VT	893-6237
MARTY KOLBYK	Marty Kolbyk	18 QUARRY LANE, MILTON	238-2782
Kym Duchesneau	K Duchesneau	Steyb	893-4922
David Smith	David Smith	44 Gouyeau Rd.	893-5093
Debbie Harkins	Debbie Harkins	29 Doris Dr	893-3018
Judy Kinner	Judith S. Kinner	270 Cold Spring Rd	893-2542
Jeff Knaman	Jeff Knaman	62 Overlake Dr	893-8064
Matt Musgrave	Matt Musgrave	583 Westford Rd	329-7469

SIGN-IN sheet for Bove Inventory, Assessment & Recommendations

DATE: September 16, 2010

NAME (PRINT)	SIGNATURE	MAILING ADDRESS	PHONE #
Jocelyn Tedford	Jocelyn Tedford	73 Patten Crosby Rd Stillbans VT	
Michael Tedford	Michael Tedford	73 Patten Crosby Rd Stillbans VT	
Louis Mossey	Louis Mossey	24 Cooper Rd Milton	893-1712
Meghan Grant	Meghan Grant	43 Bombardier Rd	893-1186
Bonnie A. Pease	Bonnie A. Pease	431 Westford Rd	893-0343
BRIAN PEASE	Brian Pease	" " "	" "
STEVE CARLIN	Steve Carlin	41 BEAVER BROOK RD. MILTON	893-2883
MELISSA MANKA	Melissa Manka	1713 VTR 128 WFD 05494	878-4587
ERNEST STRONG	Ernest Strong	515 WESTFORD RD. MILTON	893-2162
Matthew Tenney	Matthew Tenney	121 Rt 7 North	343 9633
BRIAN WILLETTE	Brian Willette	968 ELLSWORTH RD FAIRFAX	844-6729
RANDY BARROWS	Randy Barrows	88 NORTH RD MILTON	893-4258
Bill Kaige	William Kaige	15 School St Milton	893-7367

SIGN-IN sheet for Bove Inventory, Assessment & Recommendations

DATE: September 16, 2010

NAME (PRINT)	SIGNATURE	MAILING ADDRESS	PHONE #
Ron Harwood	RH Harwood		

SIGN-IN sheet for Bove Inventory, Assessment & Recommendations

DATE: September 16, 2010

[illegible]

Bove Property Inventory, Assessment & Recommendations
Presentation of Master Plan Alternatives
Public Meeting #2 Notes
November 9, 2010

Attendees: See attached List of Attendees
Regina Mahony, Milton Planning Director
Meghan Grant, Milton Planning Assistant
Dustin Keelty, Milton Buildings & Grounds Superintendent
Gail Henderson-King, Lamoureux & Dickinson
Brian Tremback, Lamoureux & Dickinson

Discussion

1. Introductions

Ms. Mahony, Town Planning Director, introduced the project and the Consultants.

2. Goal of Evening

Ms. Henderson-King began by explaining the agenda for the night and the purpose of the meeting, which was to present master plan alternatives and to obtain community input concerning selecting a preferred master plan.

3. Summary of Existing Conditions and Inventory

Mr. Tremback presented the results of the inventory and field research. He reported the following information:

- Topography: The Bove Property is approximately 135 acres in size and located east of the high north-south ridge on the Town Forest property. The topography is not as rugged as the Town Forest but has lower, bedrock ridges. Two streams drain northward across the property carrying drainage from the Westford and Milton swamps.
- Wetlands exist on the Bove Property: about 1/3 of the property is wetlands: Class II and III. The Westford Swamp is approximately 37 acres; the Panhandle wet meadow is approximately 6 acres; the portion of the Milton swamp on the Bove property is approximately 4 acres in size. The wetlands consist of wet meadows, forested wetlands, marshes associated with beaver ponds, and a sphagnum bog. The sphagnum bog is on the Westford side with greater than 7 feet of peat in areas.
- There are beaver dams on the Milton property side and in the Westford Swamp.
- Soils: Mostly glacial till with hardpan within 2 feet of the surface or shallow glacial till over bedrock on the ridges; deep, well-drained soils are scarce or absent. In the large swamps in Milton and Westford, there is a deep accumulation of silty sediments and, in a portion of the Westford swamp, thick peat deposits exist.
- Wildlife: The Bove property provides habitat for a wide variety of wildlife including moose, deer, fox, otter, black bear, mink, skunk, coyote, and

amphibians and reptiles. A few amphibians were observed, but there are probably many more that could not be identified because a spring survey was not done.

- Forty nine species of birds were identified by sight and/or sound on the property.
- Plants: The Westford swamp has an uncommon natural community – Red Maple Sphagnum Acidic Basin Swamp. Two rare and two uncommon plant species were observed on the property; one of the rare plants (hornwort) is likely to be the largest population in the State.
- Archaeological sensitivity: Although there are no recorded Native American archaeological sites on the Bove property, 9 areas were identified as potentially sensitive based on landscape position. A potentially significant Euro American site was identified on the west side of the property and marked by a cellar hole possibly associated with George W. Crown, a property owner in the early to mid 1800's.

4. Review of Potential Recreation Uses

Ms. Henderson-King then explained the process that they used to analyze potential recreational uses. The potential recreational uses include those identified at the first meeting as well as the *Milton Recreational Master Plan* and the *Milton Municipal Forest Inventory, Assessment and Recommendation Report*. Ms. Henderson-King then presented the Bove Property Recreational Use Matrix.

In the Recreational Use Matrix, the list of potential recreational uses that could take place on the property is listed in alphabetical order. These include both active and passive uses. In addition to the recreational uses, they also included Agricultural Operations (Haying, Maple Sugar Production, Orchard, Bee Keeping, etc.), Forest Management, Logging, and Protection of Flora & Fauna. Across the columns of the matrix, the identification of attributes / needs for each identified recreational use is listed. These attributes / needs include the following:

- Transportation Access Needed and Type: How one accesses the Bove Property
- Transportation Volume Generation: Number of vehicles used to get to the Bove Property
- Year Round or Seasonal Use
- Length of Stay: What's the length of time between arrival and departure for the selected recreational activity?
- Resource Dependency: Is the recreational activity dependent upon a particular resource?
- Water, mountains/hills, woods, open fields, wildlife diversity, snow, etc.
- Natural Resource Impacts: Does the recreational activity impact a natural resource and if so, to what degree?
- Noise Generation: Does the recreational activity create noise? To what levels?
- Annual Maintenance Level / Supervision / Oversight: To what degree is annual maintenance needed for the recreational activity? Who is responsible for this? Is onsite supervision needed for recreational activity?

- Square Feet Needed for Activity: Does the recreational activity require a specific acreage/square feet size to function?
- Trail / Path Width: How wide a trail or path is needed to accommodate the recreational activity?
- Surface Needed for Activity: Is there a surface that is best for the recreational activity?
- Handicapped Accessibility: Is the recreational activity handicapped accessible?
- Regulatory / Permitting: Are there regulatory and/or permitting needs for the recreational use?
- Conflicts with Other Uses: Does the recreational activity have conflicts with other recreational uses?
- Requires Visitor Facilities and Services: Are visitor facilities and services needed for the recreational activity?
- Recreational Use Available in other Town Parks / Facilities or Regionally?

Ms. Henderson-King explained some of the situations that became clear when the uses were analyzed for this property. For example, there is not much usable land because of the extent and configuration of the wetlands on the property. Some of the uses that require a lot of acreage don't make sense on the Bove property alone. Camping area layouts require specific square footage with minimal grade change; court games / playing fields need even larger space with fairly level open areas; and agricultural operations need an area large enough for production to make sense. For other uses, it makes sense to connect with a larger trail network and/or provide a connection through the property if and when regional trails come to the property. Horseback riding, mountain biking, snowmobile and ATV use are several uses that could benefit from connections to a larger trail network.

5. Presentation of Master Plan Alternatives

Ms. Henderson-King then presented three Master Plan Options that are based on the inventory and field research, the matrix analysis and public comments. A summary of each option is as follows.

Option A: This option accommodates all uses on site, preserves the natural areas, includes connections to the Town Forest, several areas for primitive camping, two playing fields, a parking area to accommodate all uses, observation platforms and docks at wetland / water features, and several different types of trails. This option will have medium to high maintenance requirements, potential conflicts on main trail (although this could be done well with signage and patrolling), and there could be noise from playing fields and ATV use.

Option B: This option has less wetland impact, provides a large group camping area, observation platforms and docks at wetland / water features, network of trails for non-motorized uses only, provides connections to the Town Forest, parking needed for horse trailers and buses.

Option C: This is a minimalist option: while it still accommodates all uses (although some of them off site), it also connects to the Town Forest, preserves natural areas, has a much smaller trail network, and will have much less maintenance.

6. Voting / Discussion of Each Alternative

After this presentation the attendees were invited to review all of the materials. The natural resource maps, matrix, and the three Options were up on the walls in the room. The attendees were each given three dots and were asked to place their dots on the alternative that they preferred.

Everyone gathered as a group again and Ms. Henderson-King reviewed each alternative. She asked what specific items the group liked and disliked about each option. The discussion occurred in such a way that the majority of the comments were made during Option A and B. The following comments are attributed to each Option in which it was brought up, however the discussion was really used to establish one option with all of the best features on it. The comments made were as follows:

Option A: No dots were placed on this option.

Likes: extensive walking trails, primitive camping areas preferred over one large group camping area, boardwalk – can provide additional access, limited interpretative signage.

Dislikes: playing fields - should be at Bombardier Park not on Bove property, main trail too close to eastern property line and abutting neighbor's house, the Panhandle area is very wet and a trail in this area could be a problem without improvement.

Option B: 24 dots were placed on this option.

Likes: non-motorized uses preferred, walking trails – would like to see even more, loop trails would be good, trails could be done in phases, prefer limited parking area.

Dislikes: designated large overnight camping, amount of trail improvements needed to accommodate horseback riding – no trails in Town Forest have been designated for horseback riding and therefore this use doesn't make sense without a larger trail network to connect to.

Option C: 3 dots were placed on this option.

Likes: as an initial plan this would work well but only without the motorized use component, this could be Phase I with Option B as Phase II. Also, it may make sense to route the main trail through the power line in the Panhandle area. This would keep the trail far from the two houses on either side. However, the landowners on the Westford side did indicate that they would prefer it if the trail went straight back off of the parking lot and therefore stayed close to the western side of the pan handle. If the trail is moved in the Panhandle, it would then be really close to the neighboring house on that side. There was also mention of the bus turnaround on Westford Road in Westford that could have a connection via Martel Lane which could

be an alternative access to the Bove property. However, this route would bring people into the property where a Class 2 wetland exists and would likely not work.

During this discussion, there was a question regarding why the parking lot is bigger than the 8 space parking lot proposal in front of the Development Review Board right now. Ms. Henderson-King explained that these are two separate projects; however some of the uses identified at the last meeting would require more space than the proposed 8 space parking lot could accommodate. If some of these uses are accommodated, the parking lot would need to be expanded.

Ms. Henderson-King mentioned that ATV use was identified at the first meeting as a desired use. The one representative from the ATV club present at this meeting explained that the group does not need a parking lot because they use one on North Road, and they would only want ATV uses accommodated on this property if and when a regional trail comes to the area, and that they would commit to help maintain the trail. Others in the group then stated that the old Town road would be the best place for this use.

7. Next Steps

Ms. Henderson-King then explained that they would take this information and finalize the report with the preferred alternative master plan, which would be Option B as discussed.

The final presentation will be at the Selectboard's second meeting in December (December 20th).

The above is my summation of the Bove Inventory, Assessment and Recommendations from the Second Public Meeting. If you have any additions and/or corrections, please contact me for incorporation into these notes.

Prepared By: Gail Henderson-King, RLA, ASLA
Lamoureux & Dickinson

SIGN-IN sheet for Bove Inventory, Assessment & Recommendations Meeting #2

DATE: November 9, 2010

NAME (PRINT)	SIGNATURE	MAILING ADDRESS	PHONE #
Courtney Lamolin	Courtney L		893-2028
Bonnie Pease	Bonnie Pease		893-0343
KIM DUCHOSNEAU	Kim Duchosneau	Rec - staff	893-4922
Teresa Benjamin	Teresa Benjamin	PO Box 15 Westford	893-6557
PATRICIA HECHMER	Patricia Hechmer	34 Maple Tree Lane Westford	876-3725
SETH JENSEN	Seth M. Jensen	274 CAMBRIDGE RD. WESTFORD, VT 05494	879-4167
LAURIE DICESARE	Laurie Di Cesare	431 East Rd Milton	893-1845
Dean Benjamin	Dean Benjamin	384 Westford Milton Rd	893-6557
MARTY KOLDYK	Marty Koldyk	18 QUARRY LAKE, MILT	288-2782
DUSTIN KEELTY	Dustin Keelty	43 BOMBARDIER	893-6030
Meghan Grant	Meghan Grant	43 Bombardier	893-1186
Judy Kinner	Judith Kinner	270 Cold Spring R.	893-5542

Bove Property
Natural Resource Assessment and Land Use Planning
Final Report

Appendix H
Rare Plant Forms

Nongame and Natural Heritage Program (NNHP)
Vermont Department of Fish and Wildlife
Rare Plant Form

SPECIES NAME: Ceratophyllum echinatum

EO# (if known):

Are there any questions about the identification or taxonomy of the plant? If so, describe:

Was a specimen taken? yes **Collection #:** none **Repository:** Brett Engstrom personal **Photos taken?** yes

Survey site (or project name): Bove Property –Milton

Surveyor(s): Brett Engstrom **Report by:** Brett Engstrom

Survey date(s): 25 August 2010

Fill in below or note 'See Site Summary' for the following.

Town: Milton **County:** Chittenden **State:** Vermont

USGS Quad: Milton **Quad Code:** 4407361

Attach map (showing survey route and rare species location; optional attach sketch map)

Location of or directions to the rare plant: Plants found in shallow water of beaver impoundment at north end of large beaver wetland complex between Milton Pond and the Westford town line. See another form for population in wetland on east side of property – the Bove Property – Westford.

Show the survey route (including compartments and stands if applicable):

Ownership (include specific owner where rare plant observed) and Managed Area Name(s) (address and telephone number; how owner was contacted and their response; and other owner comments): town of Milton

Are there any unusual data sensitivity issues? Please explain. not to my knowledge

List the following: source of lead, prior site reports, and knowledgeable individuals: none

Reason for visit: RTE and natural community inventory of Bove Property for town of Milton. Subcontracted with Lamoreaux and Dickinson, Consulting Engineers, of Essex, VT.

In what format have you provided the location? (insert X or provide information)

Paper Map Attached (label scale if reduced or enlarged): X

Electronic File Name/Location (e.g. of GIS coverage or jpeg): RT Esp_Bove

GPS: Model: Garmin GPSmap 60CSx

Latitude: Longitude:

Other (Northing, Easting): waypt. 694 =UTM zone 18 North, NAD83: 4943846 N, 654044 E

Differential Correction (Yes/No): no

Accuracy (PDOP x base accuracy): 5m

Indicate Base Map used to map the occurrence:

1:24,000 USGS Quad:

1:25,000 USGS Quad:

1:5,000 Ortho Photo:

GPS (indicate accuracy): 5m

Other:

If this occurrence was mapped as a point or line, not a polygon, how accurately is the location mapped (in meters)? (insert X or provide additional information)

<6.25 (requires GPS data with <6.25 meter accuracy or measured distance from a known, mapped location): X

>6.25 - 25: >25 - 50: >50 - 100: >100 - 200: >200 - 400: >400 - 800: >800 - 1500: >1500 - 4000: other:

Area OR length of linear area where plants were ACTUALLY OBSERVED, with unit:

Area: or **Length** (for linear areas less than 6.25 meters wide):

Was this area (insert X) **Measured?:** or **Estimated?:**

If this occurrence was mapped as a polygon, is it based on GPS data with accuracy (PDOP x base accuracy) of 6.25 meters or better? OR was it mapped based on the best interpretation of orthophotos, topo maps, etc.? (Please X one. If the occurrence was not mapped by either of these methods, please consider

remapping more accurately, or provide further information. Note that ONLY THE LOCATION OF THE OBSERVATION(S), not presumed habitat, SHOULD BE MAPPED.)

If applicable, estimate the percentage of the mapped polygon occupied by this species (insert X):

>95%: >80-95%: >20-80%: 0-20%: Unknown:

Confidence Extent (insert X):

Confident that the full extent is known:

Full extent is not known: X

Uncertain if full extent is known:

Comments: likely throughout shallows of this large beaver impoundment

Additional inventory needed? yes **Comments:** also location in next large beaver impoundment east, in Westford, on same property. Could be throughout the numerous beaver impoundments on this property.

General description and range of variability of site (Give a word picture of site): The Bove Property is a 135-acre parcel along the Milton/Westford town line. The bulk of the property is upland forest on flats and low ridges, ranging from a red maple-dominated canopy forest that presumably was field in the past, to Hemlock-Northern Hardwood Forest, Northern Hardwood Forest, and Mesic Red Oak-Northern Hardwood Forest. Same ledgy and low-lying areas are Hemlock Forest or Hemlock-Red Spruce Forest. The site includes parts of two large wetland complexes, one in a drainage totally in Milton and the other in drainage largely in Westford. Both are beaver impoundments, including beaver ponds, Shallow Emergent Marsh, and other open and shrubby wetlands. The Westford wetland includes a large boggy marsh loaded with cottongrass in its center. There are a variety of small seeps and seepage wetlands separate from these large wetlands associated with the principal drainages. The north end of the property includes old fields and conifer plantation.

Phenology (in leaf, in bud, in flower, immature fruit, mature fruit, dispersing, dormant): Fruiting: I found one fruit on the several stems I examined.

Approximate # of individuals

- **ramets (individuals connected by roots or stem):** thousands of short, leafy stems (species does not have roots or rhizomes)

- **genets (individuals not connected by roots or stem):** unknown

Age Structure:

- **% seedlings: % immature: % 1st year: % mature: % senescent:**

Vigor (feeble, normal, vigorous (explain)): Don't know, but appeared healthy.

Verbal synopsis of biological data and evidence of reproduction: Vegetative stems with at least one fruit found commonly in shallow water of this first, lower, and smaller large beaver impoundment of this large beaver impounded wetland complex. Also found in large beaver impoundment to the east in Westford.

Discuss the following features associated with the rare plant (natural community type, substrate, topographic position, aspect, slope, light, moisture): Plant was observed in beaver pond of large wetland complex, including shallow emergent marsh, and red maple-Carex lacustris swamp/forest, and shrub swamp. Species does not have roots or rhizomes, so is floating in water or settled on muck bottom.

Elevation, with units (if this doesn't agree with what's marked on the USGS map why not?)

minimum elevation: 840 feet **maximum elevation:** 840 feet

Associated plant species: Persicaria amphibia, Najas flexilis, Sagittaria latifolia, Drepanocladus? moss

How much potential habitat in the area? 5+ acres of open water in this impoundment

Quality of occurrence -A comparative evaluation of this occurrence with others in the state or rangewide.

(Indicate whether State Rank: or Global Rank:). Several factors should be used in this evaluation including quality, size, condition, viability, and defensibility). A excellent estimated viability; B good estimated viability; C fair estimated viability; D poor estimated viability; E verified extant (viability not assessed); H historical; F failed to find; X extirpated – a range of ranks may be used (E.g. AB): A would be a guess, based on the abundance and amount of habitat available

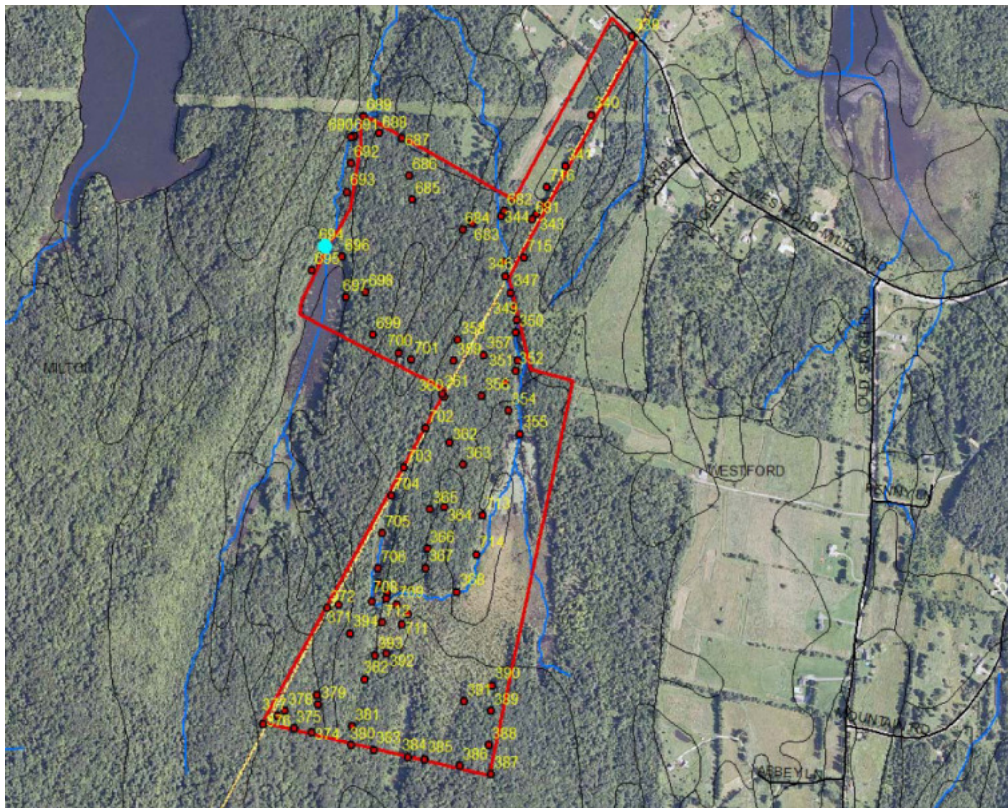
Is the habitat natural and likely to persist? yes, though beaver impoundment will fluctuate

Is the plant likely to persist at the site? yes

Discuss threats: invasive aquatic plant

Conservation and management needs: FNA account for this species states that it is relatively uncommon and fast disappearing from much of its range due to habitat alteration.

Monitoring needs comments: This population and the population in the adjacent drainage to east (in Westford) should be monitored every 5 years to see if persists with changes in water level. Also to see if invasive aquatics infest these quite pristine ponds and affect hornwort population.



Map showing *Ceratophyllum echinatum* waypoint location (highlighted in blue) at Bove Property-Milton.

Nongame and Natural Heritage Program (NNHP)
Vermont Department of Fish and Wildlife
Rare Plant Form

SPECIES NAME: Ceratophyllum echinatum

EO# (if known):

Are there any questions about the identification or taxonomy of the plant? If so, describe:

Was a specimen taken? yes **Collection #:** none **Repository:** Brett Engstrom personal **Photos taken?** yes, photos 1575 & 1577. See attached at end of form.

Survey site (or project name): Bove Property – Westford

Surveyor(s): Brett Engstrom **Report by:** Brett Engstrom

Survey date(s): 15 June 2010

Fill in below or note 'See Site Summary' for the following.

Town: Westford **County:** Chittenden **State:** Vermont

USGS Quad: Milton **Quad Code:** 4407361

Attach map (showing survey route and rare species location; optional attach sketch map)

Location of or directions to the rare plant: Plants found washed up on, and in shallow water adjacent, long beaver dam at north end of large beaver wetland complex ca. 200m east of Milton town line, south of Milton-Westford Rd. Hidden Swamp is at the south end of this same beaver wetland complex. See another form for population in wetland on west side of property – the Bove Property – Milton portion.

Show the survey route (including compartments and stands if applicable):

Ownership (include specific owner where rare plant observed) and Managed Area Name(s) (address and telephone number; how owner was contacted and their response; and other owner comments): town of Milton

Are there any unusual data sensitivity issues? Please explain. not to my knowledge

List the following: source of lead, prior site reports, and knowledgeable individuals: none

Reason for visit: RTE and natural community inventory of Bove Property for town of Milton. Subcontracted with Lamoreaux and Dickinson, Consulting Engineers, of Essex, VT.

In what format have you provided the location? (insert X or provide information)

Paper Map Attached (label scale if reduced or enlarged): X

Electronic File Name/Location (e.g. of GIS coverage or jpeg): RT Espp_Bove

GPS: Model: Garmin GPSmap 60CSx

Latitude: Longitude:

Other (Northing, Easting): waypt. 355 = UTM zone 18 North, NAD83: 4943452 N, 654479 E

Differential Correction (Yes/No): no

Accuracy (PDOP x base accuracy): 5m

Indicate Base Map used to map the occurrence:

1:24,000 USGS Quad:

1:25,000 USGS Quad:

1:5,000 Ortho Photo:

GPS (indicate accuracy): 5m

Other:

If this occurrence was mapped as a point or line, not a polygon, how accurately is the location mapped (in meters)? (insert X or provide additional information)

<6.25 (requires GPS data with <6.25 meter accuracy or measured distance from a known, mapped location): X

>6.25 - 25: >25 - 50: >50 - 100: >100 - 200: >200 - 400: >400 - 800: >800 - 1500: >1500 - 4000: other:

Area OR length of linear area where plants were ACTUALLY OBSERVED, with unit:

Area: or **Length** (for linear areas less than 6.25 meters wide):

Was this area (insert X) **Measured?:** or **Estimated?:**

If this occurrence was mapped as a polygon, is it based on GPS data with accuracy (PDOP x base accu-

racy) of 6.25 meters or better? OR was it mapped based on the best interpretation of orthophotos, topo maps, etc. (Please X one. If the occurrence was not mapped by either of these methods, please consider remapping more accurately, or provide further information. Note that ONLY THE LOCATION OF THE OBSERVATION(S), not presumed habitat, SHOULD BE MAPPED.)

If applicable, estimate the percentage of the mapped polygon occupied by this species (insert X):

>95%: >80-95%: >20-80%: 0-20%: Unknown:

Confidence Extent (insert X):

Confident that the full extent is known:

Full extent is not known: X

Uncertain if full extent is known:

Comments: likely throughout shallows of this large beaver impoundment

Additional inventory needed? yes Comments: also location in next large beaver impoundment west, in Milton, on same property. Could be throughout the numerous beaver impoundments on this property.

General description and range of variability of site (Give a word picture of site): The Bove Property is a 135-acre parcel along the Milton/Westford town line. The bulk of the property is upland forest on flats and low ridges, ranging from a red maple-dominated canopy forest that presumably was field in the past, to Hemlock-Northern Hardwood Forest, Northern Hardwood Forest, and Mesic Red Oak-Northern Hardwood Forest. Same ledgy and low-lying areas are Hemlock Forest or Hemlock-Red Spruce Forest. The site includes parts of two large wetland complexes, one in a drainage totally in Milton and the other in drainage largely in Westford. Both are beaver impoundments, including beaver ponds, Shallow Emergent Marsh, and other open and shrubby wetlands. The Westford wetland includes a large boggy marsh loaded with cottongrass in its center. There are a variety of small seeps and seepage wetlands separate from these large wetlands associated with the principal drainages. The north end of the property includes old fields and conifer plantation.

Phenology (in leaf, in bud, in flower, immature fruit, mature fruit, dispersing, dormant): all the material I saw was vegetative. Apparently rare to find flowers or fruit for the species. One fruit found on stem in latter August at the Milton beaver pond located in the west half of the property.

Approximate # of individuals

- ramets (individuals connected by roots or stem): thousands of short, leafy stems (species does not have roots)

- genets (individuals not connected by roots or stem): unknown

Age Structure:

- % seedlings: % immature: % 1st year: % mature: % senescent:

Vigor (feeble, normal, vigorous (explain)): Don't know, but appeared healthy. Does not flower often.

Verbal synopsis of biological data and evidence of reproduction: Vegetative stems found on, and in shallow water adjacent, beaver dam of this large beaver impoundment and beaver impoundment to the west in Milton.

Discuss the following features associated with the rare plant (natural community type, substrate, topographic position, aspect, slope, light, moisture): Plant was observed in beaver pond of large acidic wetland complex, including boggy marsh, shallow emergent marsh, and red maple-sphagnum acidic basin swamp

Elevation, with units (if this doesn't agree with what's marked on the USGS map why not?)

minimum elevation: 880 feet maximum elevation: 880 feet

Associated plant species: Brasenia schreberi, large leeches, green frog

How much potential habitat in the area? ca. 5 acres of open water in this impoundment

Quality of occurrence -A comparative evaluation of this occurrence with others in the state or rangewide.

(Indicate whether State Rank: or Global Rank:). Several factors should be used in this evaluation including quality, size, condition, viability, and defensibility). A excellent estimated viability; B good estimated viability; C fair estimated viability; D poor estimated viability; E verified extant (viability not assessed); H historical; F failed to find; X extirpated – a range of ranks may be used (E.g. AB): A would be a guess, based on the abundance and amount of habitat available

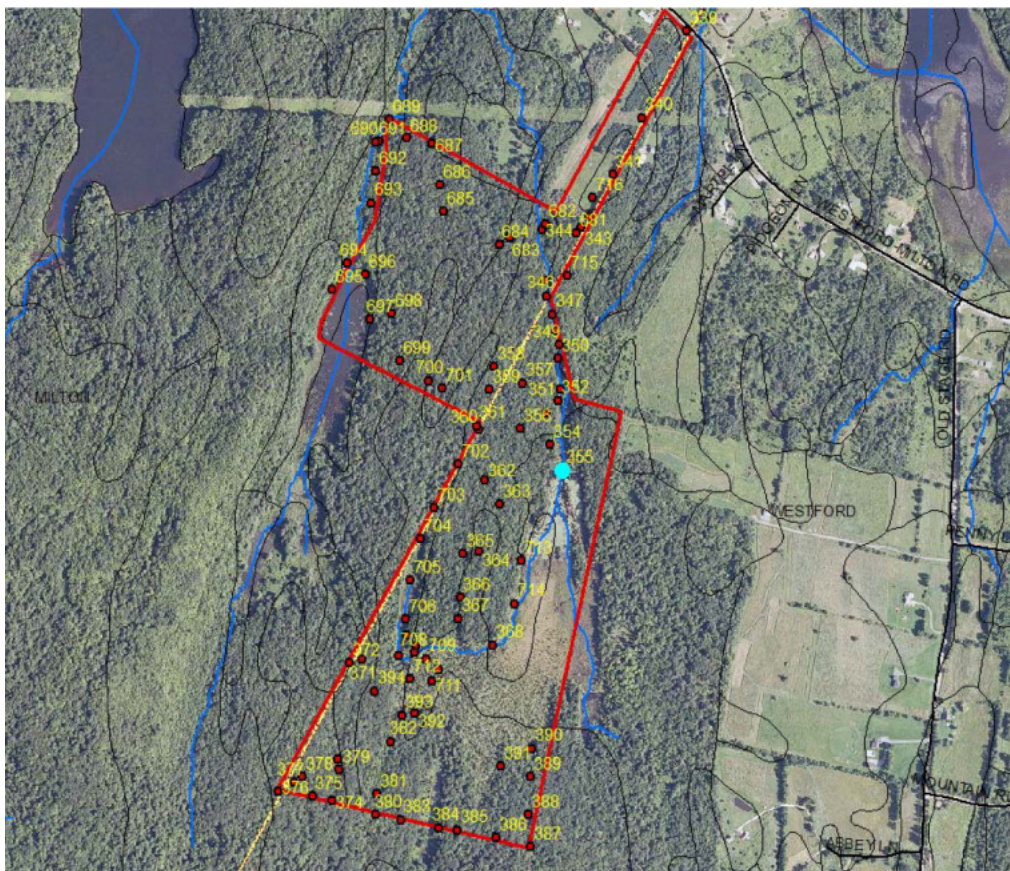
Is the habitat natural and likely to persist? yes, though beaver impoundment will fluctuate

Is the plant likely to persist at the site? yes

Discuss threats: invasive aquatic plant

Conservation and management needs: FNA account for this species states that it is relatively uncommon and fast disappearing from much of its range due to habitat alteration.

Monitoring needs comments: This population and the population in the adjacent drainage to west (in Milton) should be monitored every 5 years to see if persists with changes in water level. Also to see if invasive aquatics infest these quite pristine ponds.



Map showing waypoint location (highlighted in blue) of *Ceratophyllum echinatum* (prickly hornwort) at Bove Property – Westford.

Nongame and Natural Heritage Program (NNHP)
Vermont Department of Fish and Wildlife
Rare Plant Form

SPECIES NAME: Carex laxiculmis

EO# (if known):

Are there any questions about the identification or taxonomy of the plant? If so, describe:

Was a specimen taken? no **Collection #:** none **Repository:** **Photos taken?** yes. Pasted at end of form.

Survey site (or project name): Bove Property –Milton

Surveyor(s): Brett Engstrom **Report by:** Brett Engstrom

Survey date(s): 15 June and 25 August 2010

Fill in below or note 'See Site Summary' for the following.

Town: Milton and Westford **County:** Chittenden **State:** Vermont

USGS Quad: Milton and Essex Center **Quad Code:** 4407361 and 4407351

Attach map (showing survey route and rare species location; optional attach sketch map)

Location of or directions to the rare plant: Plants found scattered throughout the upland hardwood forests in both Milton and Westford portions of property.

Show the survey route (including compartments and stands if applicable):

Ownership (include specific owner where rare plant observed) and Managed Area Name(s) (address and telephone number; how owner was contacted and their response; and other owner comments): town of Milton

Are there any unusual data sensitivity issues? Please explain. not to my knowledge

List the following: source of lead, prior site reports, and knowledgeable individuals: none

Reason for visit: RTE and natural community inventory of Bove Property fortown of Milton. Subcontracted with Lamoreaux and Dickinson, Consulting Engineers, of Essex, VT.

In what format have you provided the location? (insert X or provide information)

Paper Map Attached (label scale if reduced or enlarged): X

Electronic File Name/Location (e.g. of GIS coverage or jpeg): RT Espp_Bove

GPS: Model: Garmin GPSmap 60CSx

Latitude: Longitude:

Other (Northing, Easting): Noted at 14 waypoints as shown on attached map and in shapefile.

Two representative gps points: waypoint 378 = UTM zone 18 North, NAD83: 4942837 Northing, 653987 Easting; waypoint 684 = 4943892 N & 654341 E.

Differential Correction (Yes/No): no

Accuracy (PDOP x base accuracy): 5m

Indicate Base Map used to map the occurrence:

1:24,000 USGS Quad:

1:25,000 USGS Quad:

1:5,000 Ortho Photo:

GPS (indicate accuracy): 5m or less

Other:

If this occurrence was mapped as a point or line, not a polygon, how accurately is the location mapped (in meters)? (insert X or provide additional information)

<6.25 (requires GPS data with <6.25 meter accuracy or measured distance from a known, mapped location): X

>6.25 - 25: >25 - 50: >50 - 100: >100 - 200: >200 - 400: >400 - 800: >800 - 1500: >1500 - 4000: other:

Area OR length of linear area where plants were ACTUALLY OBSERVED, with unit:

Area: or **Length** (for linear areas less than 6.25 meters wide):

Was this area (insert X) Measured?: or Estimated?:

If this occurrence was mapped as a polygon, is it based on GPS data with accuracy (PDOP x base accuracy) of 6.25 meters or better? OR was it mapped based on the best interpretation of orthophotos, topo

maps, etc.? (Please X one. If the occurrence was not mapped by either of these methods, please consider remapping more accurately, or provide further information. Note that **ONLY THE LOCATION OF THE OBSERVATION(S)**, not presumed habitat, **SHOULD BE MAPPED**.)

If applicable, estimate the percentage of the mapped polygon occupied by this species (insert X):

>95%: >80-95%: >20-80%: 0-20%: Unknown:

Confidence Extent (insert X):

Confident that the full extent is known:

Full extent is not known: X

Uncertain if full extent is known:

Comments: likely throughout shallows of this large beaver impoundment

Additional inventory needed? no **Comments:** scattered throughout the property and apparently secure

General description and range of variability of site (Give a word picture of site): The Bove Property is a 135-acre parcel along the Milton/Westford town line. The bulk of the property is upland forest on flats and low ridges, ranging from a red maple-dominated canopy forest that presumably was field in the past, to Hemlock-Northern Hardwood Forest, Northern Hardwood Forest, and Mesic Red Oak-Northern Hardwood Forest. Same ledgy and low-lying areas are Hemlock Forest or Hemlock-Red Spruce Forest. The site includes parts of two large wetland complexes, one in a drainage totally in Milton and the other in drainage largely in Westford. Both are beaver impoundments, including beaver ponds, Shallow Emergent Marsh, and other open and shrubby wetlands. The Westford wetland includes a large boggy marsh loaded with cottongrass in its center. There are a variety of small seeps and seepage wetlands separate from these large wetlands associated with the principal drainages. The north end of the property includes old fields and conifer plantation.

Phenology (in leaf, in bud, in flower, immature fruit, mature fruit, dispersing, dormant): Fruiting, though most perigynia had already dropped by Aug. survey.

Approximate # of individuals

- ramets (individuals connected by roots or stem):

- genets (individuals not connected by roots or stem): at least 125 genets observed

Age Structure:

- % seedlings: % immature: 2 % 1st year: % mature: 98 % senescent:

Vigor (feeble, normal, vigorous (explain)): normal. Most plants had 1-several fruiting stems.

Verbal synopsis of biological data and evidence of reproduction: Many fruiting plants totalling at least 125 were found scattered throughout the property in small numbers, though at couple points had colonies of 25 to 50 plants. During Aug. 25 survey, 1-several fruiting culms per plant were observed for the large majority of plants. Almost all the perigynia were dropped by this time.

Discuss the following features associated with the rare plant (natural community type, substrate, topographic position, aspect, slope, light, moisture): Plants were observed in upland hardwood forests with more fertile soils, including Northern Hardwood Forest with a sugar maple canopy, Northern Hardwood Forest with a red maple canopy and likely old field history, and Mesic Red Oak-Northern Hardwood Forest. Most of the soils are mesic to wet-mesic stony loams or silt loams of the Peru and Cabot series. Essentially all the plants were in full shade. Many were adjacent ill-defined trails, human and game. Plants were distributed largely in the northern half of the property in Milton, then along the southern property boundary in Westford.

Elevation, with units (if this doesn't agree with what's marked on the USGS map why not?)

minimum elevation: 840 feet **maximum elevation:** 920 feet

Associated plant species: *Dryopteris intermedia*, *Onoclea sensibilis*, *Thelypteris novaboracensis*, *Athyrium filix-femina*, *Dennstaedtia punctilobula*, *Maianthemum canadense*, *Carex swanii*, *Carex intumescens*, *Carex debilis*, *Aralia nudicaulis*, *Arisaema triphylla*, and many others.

How much potential habitat in the area? probably over 100 acres on this property alone, and hundreds of acres in adjacent woodlands.

Quality of occurrence -A comparative evaluation of this occurrence with others in the state or rangewide.

(Indicate whether State Rank: or Global Rank:). Several factors should be used in this evaluation including quality, size,

condition, viability, and defensibility). A excellent estimated viability; B good estimated viability; C fair estimated viability; D poor estimated viability; E verified extant (viability not assessed); H historical; F failed to find; X extirpated – a range of ranks may be used (E.g. AB): A would be a guess, based on the abundance and amount of habitat available

Is the habitat natural and likely to persist? yes

Is the plant likely to persist at the site? yes

Discuss threats: none

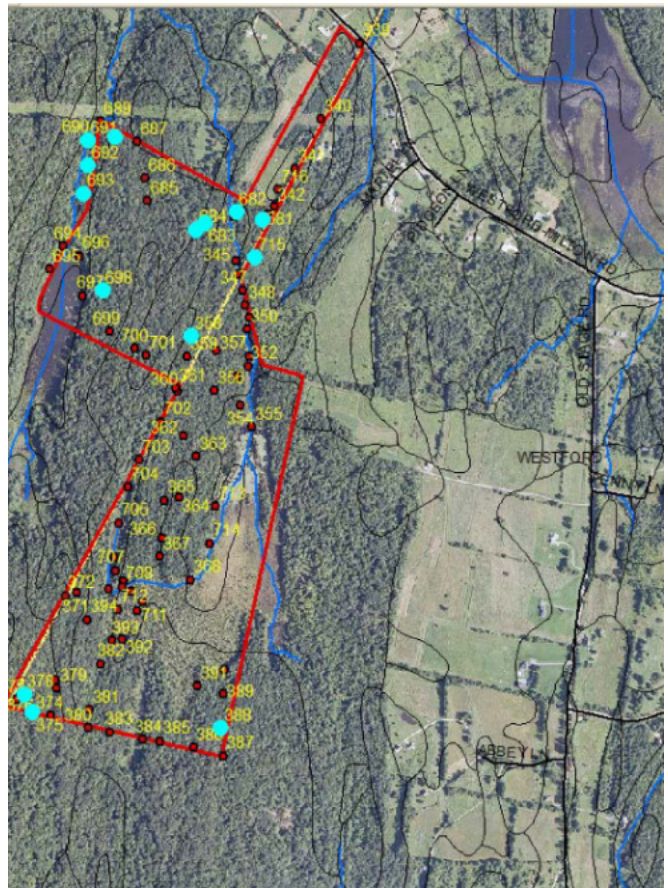
Conservation and management needs: Species appears to tolerate, if not profit, by minimal disturbance associated with trails in the forest. I believe this species is secure on this property, and elsewhere in the state. It probably should be made an S3 species.

Monitoring needs comments: Would be interesting to return to property and resurvey in 10 years to see if population persists at such a level as found in 2010.

Carex laxiculmis at BoveProperty, Milton-Westford, VT, 25 Aug. 2010. Note foliage with blue-green cast – a good vegetative character to ID the species. Map below: waypoints highlighted in blue are *C. laxiculmis* on the property.



Carex laxiculmis at BoveProperty, Milton-Westford, VT, 25 Aug. 2010. Note foliage with blue-green cast – a good vegetative character to ID the species.



Waypoints highlighted in blue are *C. laxiculmis* on the property.