The St. Albans Town Forest is a 162 acre forest located on French Hill in St. Albans Town, VT. It is in active management for a variety of human powered recreation and serves as a demonstration of active Migratory Bird Habitat Enhancement.
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1. Executive Summary

This Comprehensive Trail Plan for St. Albans Town Forest makes recommendations to enhance and expand the recreational opportunities available to residents of St. Albans Town. The goal of these improvements is to provide a larger and greater variety of nearby recreational opportunities to promote physical activity, thereby increasing access to the related health benefits for the residents of St. Albans Town. Other goals of the project include increasing access to the property for a greater range of abilities and abilities, increasing overall human powered recreation, as well as creating trail options accessible to schools and groups.

To achieve these goals, the 2.65 miles of existing trails were assessed for improvements to increase the variety of user groups it serves, as well as bringing all trails up to a level of sustainability and maintainability. The entire property was then assessed for areas suitable for new trail development. These were further refined to provide 2 miles of new trail alignment, increasing the overall recreational opportunities on the property by 43%.

While areas accessible from the parking did not prove to be cost effectively suitable for ABA status, the new trail additions recommended in this plan will provide as great a range of ability and skill levels for a variety of uses as the terrain would allow: from introductory to advanced, from a smooth 6 foot wide trail to a 18 inch footpath furthest from the main trailhead. Trail are designed for sustainability and to highlight the natural features present on the property, while minimizing costs of construction and off trail impacts.
2. Introduction

2.1 Location
The St. Albans Town Forest is a 162 acre property located on Forest Drive off of French Hill in St. Albans, VT.

2.2 Goals
The overall goal of this project is to enhance and expand non-motorized, human powered trail experiences available for residents of the St. Albans town in order to provide appealing, nearby opportunities for physical activity and promote healthy lifestyles. The first objective is to develop a trail network design and comprehensive plan for improvements and expansion to the current trail system on St. Albans Town Forest.

Target trail uses identified thus far are non-motorized, human powered. Targeted potential user groups include a diversity of walkers, hikers, runners, skiers, snowshoers, mountain bikers, bird watchers, naturalists, and school groups. Care will need to be taken to accommodate as great a diversity of ages and abilities as possible. This may include sections of surfaced or ABA trail, as the terrain allows. (FROM ST. ALBANS TOWN FOREST MEETING NOTES, 9/3/15, ST. ALBANS TOWN HALL)

2.3 General Property Trail Suitability Assessment
Terrain is challenging due to rocky outcrops with thin organic soils interspersed with low lying seepy areas. Trails in lower areas generally need to be raised by either retained soil, wood or rock and are cost or labor intensive, but can result in flatter less challenging trail characters. Trails that skirt the edges of rocky outcrops travel through naturally challenging terrain. This results in generally more advanced trails, though labor/high costs can be invested in altering the natural features to create smoother, less challenging trail tread.
3. Planning Team and Process

3.1 Planning Team
This plan was created by Brooke Scatchard and Mariah Keagy of Sinuosity, LLC. Brooke specializes in GIS mapping and mountain bike trail construction, layout and design. Mariah’s specialties encompass a broad range of multi-use, non-motorized and pedestrian recreation management practices.

Prior to data collection, a stakeholder meeting was held (see meeting notes in Appendix) for visioning, background information sharing, public input and guidance in the goals of recreational improvements and enhancement on the property. The development of the St. Albans Town Forest Comprehensive Trail Plan was additionally developed under the guidance of the Management Plan (2010, Amended 2012), Town Forest Survey Summary (2008), Forest Bird Habitat Assessment (2010), and other available forest inventory data provided by Nancy Patch, Franklin-Grand Isle County Forester.

3.2 Assessment Process
The trail system was systematically assessed by Sinuosity, LLC over the course of multiple field days. Data was collected for: current condition, existing structures, areas of needed trail improvement (based on user safety), existing and potential erosion (based on user group, use of trail, trail slope and substrate), trail widening, and potential for new trails. A range of recommendations for trail improvements were made.

This data was collected in coordination with GPS data points to allow for the creation of GIS maps to clearly indicate the location of all data sites on their corresponding trail section. These maps and associated data will assist land managers in the implementation of trail improvement projects according to Trail Improvement Inventory included. Costs for labor, equipment, and materials are included for each recommended improvement for each section of trail.

3.3 New Trail Layout and Design Process
Research and discovery began with review of available documents and a meeting with the St. Albans Town Forest Planner, project sponsor Rise VT, County Forester, and stakeholders. St. Albans Town Forest information was shared to inform the design process. Through meeting, clearer direction was given regarding additional priorities and vision for the end product of the property’s recreational goals. Among these were: access to areas of interest on the property, trail loops, diversity of trail difficulty experiences, use of trails to highlight sustainable forest and wildlife management (bird gaps), and opportunities for school group access.

With a clear vision of the desired recreational opportunities to expand and create on the St. Albans Town Forest, the available spatial data and other available information resources were used to further narrow the possible trail locations. Data used to determine suitable areas for new trail layout include: property boundaries, planned timber harvests, topography, hydrology, soils, natural communities, existing trails and roads and migratory bird habitat. The overlay of
pertinent data combined with knowledge of the target areas of interest allowed Sinuosity to define areas most likely to support sustainable and cost effective trail building. Further field explorations and field assessments as well as draft conceptual maps shared with the St. Albans Town Forest stakeholder group eventually refined general trail locations and possible routes to identified trail corridors which have been flagged in the field and mapped. The trail structures which will need to be installed on new sections of trail were inventoried and have been included in the New Trail Structure Inventory.

4. Summary of Considerations

4.1 Minimizing Impacts
The sections of existing trail as well as proposed new sections of trail were designed and assessed utilizing known standards for sustainable trail design in order to minimize and mitigate impacts to surrounding natural resources. Of these main considerations addressed in the trail design process, three are specifically noted below.

Soils and Water
Each trail section was designed or assessed for the possibility to mitigate both user created and water created erosion. By minimizing and mitigating both forms of erosion and using proper building techniques, soils that make up the tread and trail corridor will remain in place, keeping nearby waterways and drainages clear of excess siltation. Some of the solutions used to address these challenges include taking into account slope and soil type, designing trails to avoid the need for bikers to brake or skid excessively.

Other considerations taken in this trail design to protect water quality are minimizing stream crossings as well as keeping buffers and maximizing proximity to waterways whenever possible. Trail layouts avoid wet areas as much as possible. However, with their prevalence on this property some seasonally low-lying wet areas will require boardwalk installation in order to allow for trail development.

All of these steps, along with utilizing industry standards in lower impact trail construction as well as following the construction specifications that accompany this report will protect the trail surface and surrounding soils and waterways.

Sensitive Species or Natural Communities
No identified sensitive, rare or endangered species are known in the area and the proposed trails do not come near any natural community considered rare on a state level. No deer yards have been identified on the property.

Archaeology/Historic Features
No archaeological or historic features have been identified on this property.
4.2 Other Considerations
Other vital considerations in addition to protection of natural and cultural resources include cost effectiveness of the overall project and designing trails to minimizing user conflict and maximize user safety provide for an enjoyable trail user experience for a diversity of trail users. The trail locations and recommended alignments include the most cost effective solutions when taken into consideration all goals of the project. User conflict is mitigated in the providing alternate routes, limiting numbers of trail junctions, and providing appropriate sight lines.

Many of these same solutions also provide for increased user safety and when constructed will prove to provide a trail user experience accessible and enjoyable to a diversity of abilities and interests. Care was taken in creating the greatest diversity of trail user experiences and accommodating the largest range of physical abilities and interests as possible within the balance of cost, impact, and topography constraints.

Natural/Cultural History
The property highlights for educational interest include the bird patches, beaver pond, and general forest ecology of northern hardwood forest. Opportunities to compile information to share with the trail users could take a variety of forms: brochures, trailhead signage, trail side plaques, trailside markers corresponding with maps/handouts, online scavenger hunts, etc. In order to incorporate this, it is advised to either work with local schools or students from nearby colleges to develop and design this content.

It will be imperative that the community and stakeholders are involved as the project moves forward. While education about appropriate trail use is mandatory, it will work best paired with opportunities to educate trail users about the features and ecology of St. Albans Town Forest. It is advised that trail user education be paired with opportunities for interpretative education to aid in instilling a respect for the ecological landscape that exists alongside the public recreational opportunities.

Educational sign highlighting efforts to enhance migratory bird habitat in St. Albans Town Forest
5. Trail Inventory

5.1 Existing Trails

**Bird Patch Trail**

*Length*: 4440 feet  
*Current Trail Uses*: Ski, Hike (primitive)  
*Recommended Trail Uses*: Hike, Ski, Snowshoe  
*Recommended Improvement Cost*: $500

**General Description**: This is the main trail out to the Bird Patches, beginning at the saddle of the height of land in the center of the property. The character of this trail is more primitive as it travels further into the property and accesses multiple patch cuts designed to increase migratory bird habitat.  
**Summary of Recommended Improvements**: There is a short reroute of the existing trail necessary where the trail follows close to a stream.

**Ski Trail**

*Length*: 1280 feet  
*Current Trail Uses*: Ski, Hike, Bike  
*Recommended Trail Uses*: Ski ONLY  
*Recommended Improvement Cost*: $0

**General Description**: This section of the existing logging road begins just beyond the junction of the VYCC WEST trail. It climbs to the saddle at the height of land. Too many wet areas exist on this section of trail to be cost effective to raise and drain for non-frozen use.  
**Summary of Recommended Improvements**: The new Saddle Trail provides an adjacent route for hikers and bikers, as well as snowshoers in the winter months. This would leave the existing trail open only to skiing and therefore only in winter months with frozen temperatures and snowpack to protect the saturated and thereby fragile soils.

**Road to Beaver Pond-West**

*Length*: 1365 feet  
*Current Trail Uses*: walk, snowshoe, ski  
*Recommended Trail Uses*: walk, snowshoe, ski, bike (introductory)  
*Recommended Improvement Cost*: $300

**General Description**: Trail begins on old, wide roadbed and travels directly north from the parking lot. Wet sections have been rerouted to better draining terrain and are a much more narrow tread.  
**Summary of Recommended Improvements**: A short wet section of trail is in need of drainage.
Road to Beaver Pond-East
Length: 1300 feet
Current Trail Uses: hike, bike, snowshoe
Recommended Trail Uses: walk, snowshoe, ski, bike (introductory)
Recommended Improvement Cost: $495

General Description: Old road bed looping around from the east side of the parking lot then north the meet up with the old road to the beaver pond.
Recommended Improvements: A wet, low lying section of trail can be routed to a higher and drier alignment.

VYCC Loop East
Length: 1865 feet
Current Trail Uses: Hike, bike (intermediate), snowshoe
Recommended Future Trail Uses: Hike, bike (intermediate), snowshoe
Recommended Improvement Cost: $0

General Description: Trail begins east of the parking on an old road bed. It cuts north, looping around to the eastern shore of the beaver pond. Recently built, this trail has a rugged character on a steep side slope. It is most suitable for biking and hiking with the current trail structures.
Summary of Recommended Improvements: None

VYCC Loop West
Length: 1615 feet
Current Trail Uses: Hike, bike (intermediate)
Recommended Future Trail Uses: Hike, bike (intermediate)
Recommended Improvement Cost: $2850

General Description: Also recently worked on by the VYCC, this section of trail is suitable for intermediate travel with a narrow tread and multiple rock trail structures in sections. With the exclusion of a small set of stairs it is generally suitable for more technical biking, though less technical than the Eastern Loop.
Summary of Recommended Improvements: Includes a few small alterations for bike travel as well as installing bog bridges in two sections to prevent tread widening and erosion.

Intro Loop
Length: 1715 feet
Current Trail Uses: walk, bike
Recommended Future Trail Uses: Walk, bike (intermediate)
Recommended Improvement Cost: $2200

General Description: An old road bed gently climbs up from near the beginning of the Saddle Trail and travels north. Upon cresting the mixed oak forest at a small height of land it drops down and turns east through a series of switchbacks and stone steps through a small seep and along another old road bed to meet with the Road to Beaver Pond.
Summary of Recommended Improvements: The northern section of this trail that loops back around to the Road to Beaver Pond is recommended for inclusion in the New Intro Loop. This will include grading and filling in sections to achieve a manicured, wide and trail with a more compact surface accessible to many levels and abilities of trail users. The section of this trail with switchbacks and steps makes the entire loop less feasible for all trail users.

5.2 New Trail Additions

Saddle Trail
*Length:* 2030 feet new trail, 420 feet existing trail  
*Designed Trail Uses:* bike (intermediate), run, hike, snowshoe  
*Estimated Construction Cost:* $18,950

**General Description:** Trail provides access to a nice ledge with seasonal views at the height of land. It would traverse and cross a low lying wet area to provide a sustainable alternative to the existing logging road when the ground is un-frozen and muddy. Sections of bridging and boardwalk will be necessary to pass through unavoidable areas of saturated soils and seeps crossing thin soils over bedrock.

Short Trailhead Loop
*Length:* 1800 feet  
*Designed Trail Uses:* bike (intermediate), run, hike  
*Estimated Construction Cost:* $9,000

**General Description:** A loop of intermediate rocky terrain, split by the more moderate old road bed off the Connector. This area is recommended for a release cut by the Forest Management Plan. *It is not recommended that trail construction begin in this area until after the recommended tree thinning takes place.*

Ridge Trail
*Length:* 975 feet  
*Designed Trail Uses:* hike, bike (advanced), snowshoe, run  
*Estimated Construction Cost:* $2,925

**General Description:** Trail traverses over the top of the rocky ridgeline between the parking area and the VYCC Loop East. Thin soils over a ridge of bedrock running north south create intermediate options. This trail section would provide an alternate route through hemlock covered terrain dropping down to the main road to the beaver pond at the Intro Loop intersection.

New Intro Loop
*Length:* 660 feet new, plus existing and improved  
*Designed Trail Uses:* walk, bike (introductory), snowshoe, ski, groups  
*Estimated Construction Cost:* $5,120
**General Description:** Loop of natural smooth natural surface or imported surface trail, 6’ wide to accommodate a large variety of uses. This loop joins the two existing logging roads north and west of the parking lot, creating a loop around the oak knoll northwest of the parking lot.

**Top Loops**
*Length: 3625 feet*
*Designed Trail Uses: bike (advanced), run*
*Estimated Construction Cost: $20,105*

**General Description:** These loops make use of the high rocky outcrops near the saddle at the height of land of the property. The terrain is rugged but with good drainage and interesting features. Loops may be too short to be of interest for hikers, but will be suitable for bikers and runners.

**Bird Patch Loop**
*Length: 800 feet*
*Designed Trail Use: hike, ski*
*Estimated Construction Cost: $1700*

**General Description:** This section forms a loop from the first 2 bird patches, allowing for bird watchers, skiers and hikers to have a more continuous loop as opposed to a dead end before the return trip.

### 6. Improvement and Construction Recommendations

#### 6.1 Annual Maintenance
Every trail requires annual maintenance. A well-built trail system, up to standard for the current use, still requires at least one annual maintenance patrol in which blow downs are removed and drainages are cleared of leaf litter and sediment. Additional general maintenance tasks may include light brushing out of trail corridors as well as the closing of new or old bootleg trails using dead and down brush and leaf litter. Ideally the trails are monitored and patrolled for light maintenance needs throughout their popular use seasons, especially after larger wind or rain events. With timely light maintenance, long term trail degradation can be avoided, such as when trail users look for alternative routes around fallen trees, causing undue vegetation trampling and trail widening.

Trail adoption for trail sections can provide ownership and delegate trail system care, and may be a viable option for this property. The only known current organized group of maintainers are the Franklin County Mountain Bike Club.
6.2 Trail Improvement Inventory, Construction Summary and Phasing
PLEASE REFER TO COST ESTIMATES IN THE APPENDIX

Trail Improvement Summary
The recommended trail work is primarily intended to reduce the existing erosion and trail widening caused by inadequate drainage structures. The recommended improvements will also enable a wider range of trail users to enjoy the existing trails.

Construction Summary
The new trail segments and reroutes have been designed to accommodate a variety of trail users in the places they are most likely to travel. The most widely accessible and heavily constructed trails are focused near the trailhead and more primitive trails are further out on the property. Some of the new trail segments would only be effectively constructed with equipment, while other segments could be easily constructed with hand tools and volunteer labor. The segments and structures with associated Equipment Costs indicate our recommendations for where professional labor with specialized equipment for trail building would be most effective.

Phasing
Due to all the variables of funding, trail contractor selection and availability, volunteer availability, and timing to minimize disturbance to sensitive bird habits, this plan may be implemented in a variety of ways. One recommendation of this is as follows:

Phase 1
Trail Segments: Intro Loop, Road to Beaver Pond East and West, Saddle Trail
Cost Estimate for Phase 1: $28,765

Phase 2
Trail Segments: VYCC West, Ridge Trail, Bird Patch Trail and Loop
Cost Estimate for Phase 2: $7,975

Phase 3
Trail Segments: Top Loops, Short Trailhead Loop
Cost Estimate for Phase 3: $29,105

6.3 Notes on Construction Costs
Labor- Construction cost estimates are based on average professional labor rates. While use of volunteer labor is recommended for certain projects, others require more skills and training to be constructed efficiently, effectively and to safety and durability specifications. General recommendations for this project fall under the lines of a hybrid project where the work of a Professional Trail Contractor is assisted by Volunteer labor to save costs.

Materials-Material costs may vary. Cost estimates are given at current costs from local suppliers. Each material was chosen for its ability to be both durable and cost effective and all are standard industry building materials.
Supply Donations and Grants- Donations from local hardware store, individuals or businesses may be available for hardware for structures. Lowe’s Education grants also fund projects, such as nature trails: [http://www.toolboxforeducation.com/sample.html#5](http://www.toolboxforeducation.com/sample.html#5)

### 6.4 Bird Habitat Considerations

During the construction and annual maintenance, the following recommendations are given to minimize impacts to forest bird habits and habitat. This and further guidance has been offered by Bridget Butler, Bird Diva Consulting ([http://www.birddiva.com/](http://www.birddiva.com/))

**When to Plan Disturbance:**
August 1 – January 31 is the best time to plan for tree removal, invasive plant species management, and grubbing and clearing.

**When to Avoid Disturbance:**
February 1 – April 15 is the early nesting season. Disturbance to vegetation, especially trees, should be avoided during this time.
April 15 – July 31 is the primary nesting season. Disturbance to vegetation should be avoided during this time.

If birds are not present during nesting season, vegetation removal and other disturbance activities may proceed.

If work must occur in the recommended avoidance time frames, the project area and specific vegetation impacted should be surveyed for nesting birds.

### 7. Preparation for Implementation

#### 7.1 Community Involvement

More community engagement would support trail efforts and allow for ownership of the trails by local residents. Offering trail adoption opportunities to groups, such as Franklin Country Mountain Bike Club, organizers of area running/biking events, or schools could strengthen the community’s long term commitment, ownership and enjoyment of the St. Albans Town Forest trails.

**Training Volunteers**

Along with community engagement, volunteer labor can help defray the costs of the overall project construction as well as general maintenance. However, training and direction are necessary. There are multiple trail trainings available. For Vermont Mountain Bike Association Chapter Members, there is an annual training offered. Sinuosity, LLC can also provide volunteer trainings, if requested.
## 7.2 Funding

### Funding Sources

Various funding strategies can be used to support the construction phase of this project. Considering the size of the project, a funding strategy that employs multiple means will most likely be needed.

*Public fundraising campaigns* can work in multiple ways to publicize and gain support for a project, as well as raise funds to support it. Additional funding might even be raised through trail adoption by local businesses. Also more creative ideas like crowd funding and trail name auction could be part of a funding plan.

*Fundraising events* could be sponsored by the various groups who may have interest in using the trails.

### Possible Grant Options

<table>
<thead>
<tr>
<th>Grant Source</th>
<th>Deadline</th>
<th>Maximum Amount</th>
<th>Website</th>
<th>Special Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and Water Conservation Fund</td>
<td>TBD</td>
<td>Varies</td>
<td><a href="http://fpr.vermont.gov/recreation/grants/lwcf">http://fpr.vermont.gov/recreation/grants/lwcf</a></td>
<td>Funds are for municipalities and state agencies only</td>
</tr>
<tr>
<td>Rivers, Trails, and Conservation Assistance Program</td>
<td>August 1st</td>
<td></td>
<td><a href="http://www.nps.gov/orgs/rtca/apply.htm">http://www.nps.gov/orgs/rtca/apply.htm</a></td>
<td>Consult with NPS 30 days prior to discuss project</td>
</tr>
<tr>
<td>Recreation Trails Program</td>
<td>TBD for next round</td>
<td>$50,000</td>
<td><a href="http://fpr.vermont.gov/recreation/grants/rtp">http://fpr.vermont.gov/recreation/grants/rtp</a></td>
<td>80%/20% match - St. Albans Town Forest Awarded $16,000 in 2014</td>
</tr>
<tr>
<td>People for Bikes - Community Grant</td>
<td>Spring: Jan 31 - Letter of Interest: April 4 - Full Application.</td>
<td>$10,000</td>
<td><a href="http://www.peopleforbikes.org/pages/grant-guidelines">http://www.peopleforbikes.org/pages/grant-guidelines</a></td>
<td></td>
</tr>
<tr>
<td>Recreational Facilities Grant</td>
<td>TBD for next round</td>
<td>$25,000</td>
<td><a href="http://bgs.vermont.gov/sites/bgs/">http://bgs.vermont.gov/sites/bgs/</a></td>
<td></td>
</tr>
<tr>
<td>National Recreation and Park Association</td>
<td>Feb. 2nd</td>
<td></td>
<td><a href="http://www.nrpa.org/fund-your-park/">http://www.nrpa.org/fund-your-park/</a></td>
<td>Crowd funding platform for parks and recreation (platform takes 5%)</td>
</tr>
<tr>
<td>Lintilhac Foundation</td>
<td>March 1st</td>
<td>$5,000-$30,000</td>
<td><a href="http://www.lintilhacfoundation.org/guidelines.html">http://www.lintilhacfoundation.org/guidelines.html</a></td>
<td></td>
</tr>
<tr>
<td>Vermont Mountain Bike Association Trail Grants</td>
<td>TBD 2016</td>
<td>Varies</td>
<td><a href="https://vmba.org/vmba-chapter-trail-grant">https://vmba.org/vmba-chapter-trail-grant</a></td>
<td>Chapter leader will receive email with grant information, usually in the Fall</td>
</tr>
</tbody>
</table>
8. Trailhead and Signage

8.1 Trailhead Recommended Features
The trailhead is a prime opportunity where people are often looking for information and moving slowly enough to read signs, therefore it provides a key opportunity for trail user education. It is advisable to utilize the trailhead kiosk to both mark the beginning of the trail as well as draw trail users to an area of official information, such as: Leave No Trace principles, trail map and descriptions, and permitted uses. A variety of opportunities to share education information could be presented in this area. Formats could include: a posted flyer highlighting natural and cultural landmarks, a scavenger hunt of features and landmarks, a naturalists brochure or informational sheet for trail users to take with them and use during their travels. Possible partners in development of these resources may include nearby schools or college students majoring in environmental education.

Other pertinent information could include any other regulations or trail user guidelines for respectful sharing of multi-use trails.

8.2 Trail Signage and Marking
Placement: Trails should be signed at all junctions. Signposts are recommended, which can be securely placed in clear viability at all trail junctions. Using appropriately placed trees can save costs, but care should be taken not to completely tighten fasteners. Signs should be affixed with screws or lag bolts.

Materials: Trail markers should be of metal or plastic for longevity and affixed with small lag bolts to help prevent theft. Costs and suppliers are listed below.

Blazing: Trails should be marked along their length as well as signed at junctions. This may be done with paint or markers.

Signage
Two types of signs are recommended for different applications: Trail names and trail user designation (i.e. ski, snowshoe, etc.)

Sign Suppliers and Cost:

<table>
<thead>
<tr>
<th>Type of Sign</th>
<th>Cost Each</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designated Trail User (aluminum, custom)</td>
<td>$2.11</td>
<td><a href="http://www.vosssigns.com/products/">http://www.vosssigns.com/products/</a></td>
</tr>
<tr>
<td>Named Trail (engraved)</td>
<td>$10.85</td>
<td><a href="http://www.gordonstamp.com/">http://www.gordonstamp.com/</a></td>
</tr>
</tbody>
</table>
**8.3 Motorized Vehicle Encroachment**

On numerous occasions during field data collection for this project signs of motorized vehicle encroachment were seen on sections of old road, now designated for non-motorized, human powered recreation. As this can cause a great amount of damage, especially in wet areas or during times that soils are saturated, it is recommended that measures be taken to protect the trails from motorized damage.

There are a variety of options the town may consider, based on the town’s need and frequency of need to access these roads for maintenance or public safety. Gates work for areas needing to be easily accessed, though they can invite vandalism. Very large and well placed boulders invite less vandalism and can be moved by large equipment, if necessary. Other options include either removable bollards with locks, or non-removable.

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**9. Summary of Recommendations**

This Comprehensive Trail Plan include both assessment and recommended improvements to existing trails as well as the addition of new trails (2 miles) to increase the recreational opportunities offered by this property to the residents of St. Albans. This plan includes a 43% increase in total trail mileage available as well as opening up opportunities for multiple levels and recreational abilities.

Aside from the enhancements and additions with the implementation of this plan, trail signs, maintenance, and trail user information/education at the existing kiosk will support and encourage the use of this underutilized town property for the health and enjoyment of those living in the nearby communities.

Outreach to schools and the community of trail users and businesses will help to achieve these goals in implementation and momentum of the project, as well as achieving the stewardship and maintenance needed annually to sustain trails.
10. Appendix

10.1 Meeting Notes

St. Albans Town Forest Meeting Notes
9/3/15
St. Albans Town Hall

Attendees:
- Nathaniel Neider, satplanner@comcast.net
- Nancy Patch, nancy.patch@vermont.gov
- Stephen Bernard bernard.stephen@hotmail.com
- Steve Beauregard, satpublicworks@comcast.net
- Jessica Purvis Frost, purvis99@hotmail.com
- Susan Bruce, adjacent landowner
- John Thoren, local trail user and maintainer
- Brooke Scatchard and Mariah Keagy, Sinuosity

Background: (provided by Nancy Patch) The property has a Forest Management Plan which was accepted by the town. It has some current trails which are used minimally for hiking and skiing primarily, though there are no trail signs and no current organized maintenance. Trail construction was completed in some areas by the VYCC. Additional recent management on the property include a comprehensive survey, plan and management for Forest Bird Responsibility Species, with the guidance and support of the Audubon Society. This includes recent patch cuts and corresponding educational signs on location.

A parking lot and trail head exist with a kiosk near the Southeast corner of the property. Supporting materials, such as maps, bird and user survey, and forest management plan have been shared with Sinuosity.

Goals: The overall goal of this project is to enhance and expand non-motorized, human powered trails for residents of the St. Albans town in order to provide appealing opportunities for physical activity and promote healthy lifestyles.

The first objective is to develop a trail network design and comprehensive plan for improvements and expansion to the current trail system on St. Albans town Forest.

Target trail uses identified thus far are non-motorized, human powered. Targeted potential user groups include a diversity of walkers, hikers, runners, skiers, snowshoers, mountain bikers, bird watchers, naturalists, and school groups. Care will need to be taken to accommodate as great a diversity of ages and abilities as possible. This may include sections of surfaced or ABA trail, as the terrain allows.

User conflict will also need to be addressed in the design and plan, which may also take the form of education (i.e. snowshoe tracks next to, not on top of, ski tracks).
Scope: This project will culminate in a Comprehensive Trail Plan and trail design that incorporates the expressed desires of the representative trail users and stakeholders (those in attendance at this meeting and additional stakeholders invited to a draft review meeting), while taking into account the landscape and natural features of the Town Forest. The Plan will be accompanied by a GIS map, construction cost estimates, and a list of possible funding sources to support the implementation the project. Proposed new trails will be flagged in the field. Signage recommendations will be provided if requested.

Timeline:
September-October
- Initial field work and Conceptual design
- Mariah and Nancy meet and walk on site and identify natural features to include as “points of interest” and interpretive sites where possible
- Follow-up meeting to review and discuss conceptual design

November
- Revisions to conceptual design as needed after October meeting
- Trail corridors are identified in the field
- Recommended trail alignments are flagged and mapped

December
- Comprehensive Trail Plan, cost estimates and final maps are prepared
- Materials and project are presented to the working group
- Revisions, if necessary

Follow Up Tasks:
1. Reach out to others who should be involved in this process and provide Mariah with their email (Steve? Nancy? John? Susan?)
2. Schedule October Meeting via Doodle Poll (Mariah)
3. Schedule site visit (Nancy and Mariah)
10.2 References


[http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm](http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm)

10.3 Recommended Structures

Bog Bridging/Puncheon
Design specifications: Overhangs at the end of the stringers should not exceed 6 inches. Spikes must exceed over 2 inches beyond the depth of the stringer into the sill log and be off-set in their placement so as to minimize the risk of splitting. Tread should total 24” minimum, with dimensional decking instead of milled native timber.

Photo Examples:

Native Sills, Dimensional Decking - Clark’s Pond Trail, Portland, ME

Bog Bridging, Dimensional sills and decking. Cady Hill, Stowe, VT. Built by Sinuosity 2014
Foot bridges:
Bridge heights will not need handrails. Width should be maintained at 3 feet or greater and constructed without bumpers. Bridge should be constructed to fit with landscape and character of trails and terrain whenever possible.

Source: Standard Specifications for Construction and Maintenance of Trails (USFS)
http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm
Drainages
Design Specifications: Drainages should be made of soil, unless they are requiring armoring. Follow guidelines specified for various natural drainage features during new trail construction. Appropriate drainage features should be installed at a minimum frequency of 100 feet during construction. i.e. grade reversals, grade dips, knicks etc.

Knick

Source: Standard Specifications for Construction and Maintenance of Trails (USFS)
http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm
Grade Reversal

Sign Posts

Source: Standard Specifications for Construction and Maintenance of Trails (USFS)  
http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm
Trail Re-grading

Source: Standard Specifications for Construction and Maintenance of Trails (USFS)
http://www.fs.fed.us/ftproot/pub/acad/dev/trails/trails.htm
## 10.4 Cost Estimate Tables

### Existing Trail Improvement Inventory

<table>
<thead>
<tr>
<th>Phase</th>
<th>Trail</th>
<th>Length</th>
<th>Problem</th>
<th>Prescription</th>
<th>Labor Cost</th>
<th>Materials</th>
<th>Equipment</th>
<th>Total Cost</th>
<th>Labor Source</th>
</tr>
</thead>
<tbody>
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</tr>
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### New Trail Segment Inventory

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<tr>
<th>Phase</th>
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<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Prescription</th>
<th>Labor Cost</th>
<th>Materials</th>
<th>Equipment</th>
<th>Total Cost</th>
<th>Labor Source</th>
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<tbody>
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### New Trail Structure Inventory

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<tr>
<th>Phase</th>
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<th>Problem</th>
<th>Prescription</th>
<th>Labor Cost</th>
<th>Materials</th>
<th>Equipment</th>
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<th>Labor Source</th>
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<td><strong>$4,000</strong></td>
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<td><strong>Volunteer/Pro</strong></td>
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<td>Bird Patch Loop</td>
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<td>bog bridge</td>
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<td>$400</td>
<td></td>
<td>$900</td>
<td>Volunteer/Pro</td>
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<tr>
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<td>Top Loops</td>
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<td>$500</td>
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### Overall Costs

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<tr>
<th>Phase</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Labor Cost</th>
<th>Materials</th>
<th>Equipment</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
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