Cornell University
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Spring 2015 Consulting Project:
Lake Placid/North Elba Trail Connection Analysis and Recommendations

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I.   Executive Summary

During the Spring of 2015, the Cornell University trail connection group developed a series of recommendations to integrate the extensive trail system in the Lake Placid/North Elba Region. Project recommendations are presented in the form of case study analysis, qualitative stakeholder interviews and analysis, and geographic information systems (GIS) analysis. This report utilizes a comprehensive literature review, which gathers existing research on trail systems, stakeholder theory, consensus building, and GIS. Further, we dedicate a portion of this work toward a data and methodology section to rationalize and justify for methods of observation and information collection. This includes gathering data regarding cases of successful trail integration practices across the country, qualitative stakeholder interviews conducted in Lake Placid, New York, and GIS mapping practices. Lastly, we include our project findings—covering the aforementioned research areas and conclude with our recommendations for trail connectivity and the project moving forward.

II.   Literature Review

The New York State "Healthy Trails, Healthy People" initiative was started in 2004 and is funded by the New York Department of Health. Since its foundation, the program has developed and promoted 260 miles of trail across the state in 38 communities and in 34 separate counties ("Parks & Trails New York - Healthy Trails Healthy People grant program," n.d.). Often called multi-use, shared-use or community trails, these routes have become an important network to travel between and within adjacent communities (Dropkin & Elton, 2009). A review of the literature on trail development shows a need for strong qualitative and quantitative data analysis. This will be addressed through case study analysis, stakeholder interviews, and GIS analysis.

Economic, Social & Health Benefits of Trails Case Study Analysis

The benefits associated with the Lake Placid/North Elba trail connection project is addressed through comparison with similar projects via case studies. The literature around economic, social, and health benefits of trail networks provide a foundation for this case study analysis.

Eyler *et al.* researched the policy processes of six trail projects. Exploring a variety of case studies was essential for researchers to identify policy influences on trail development, explore the role of key players in trail development, and compare and contrast findings from different trails. The authors that found significant federal and state policy guidelines influence trail funding and design standards. This was relevant in Lake Placid/North Elba because the connections involved meeting design standards on both federal and state land. The project also required significant funding from state and federal sources, which dictated the timing and structure of its implementation. In addition to federal and state policy, local policy was incredibly influential in the cases that were examined. Community partners, activists, and opposition groups were all significant players in these projects. The article provided insight into the importance of looking to other projects through an evaluative lens in order to develop an understanding of the potential of the trail connections initiative.

In their paper, Schasberger *et al.* (2009) provide an explanation about how advanced trail networks can result in regional economic development, health service improvement, and active-living behavior formation. Schasberger *et al.* explained this in details that the Wyoming Valley Wellness Trails Partnership received an Active Living by Design grant in 2003 for a project centered on a growing trail network linking urban, suburban, and rural communities in northeast Pennsylvania in order to increase physical activity among residents. Active Living by Design

was a non-profit organization whose mission was to create healthy communities. Economically, the trail network served as an effective tool to connect many state parks along the Susquehanna River and attract tourists. From a social standpoint, the trails gave the community accessibility benefits and the ability to traverse more of the area. The trails also provided recreation and physical activity without changing development patterns – the trails revitalized surrounding communities in urban, suburban, and rural areas very successfully. In creating pleasant, safe, and interesting walking surroundings, trails helped to form people's active living behavior, although this behavior varied according to region. As a result, more chronic illness were to be cured and alleviated. For the Lake Placid/North Elba project, other cases were evaluated to further support the notion that this project would have a strong economic, social, and health impact.

Stakeholder Analysis

Robert Gill (2014), in "Public Relations and the New Stakeholder Management Environment," reviewed how the inclusion of diverse perspectives has changed concepts of stakeholder relations and engagement. Further, he reviewed existing literature on management to identify the range of stakeholders, and how the stakeholders' relationships are best managed by organizations. Stakeholder engagement has given way to the evolution of organizations being accountable to multiple publics and systems. Gill reexamined the concept of open source branding, which empowers citizen stakeholders to become co-builders alongside the organization. Greater presence of stakeholders in the lifecycle of a project often gives greater social-license to operate in a respective community.

Robert Gould (2012) presents the conceptual underpinnings and practice of open innovation during stakeholder engagement. Open innovation highlights a structural tension between the practical desire to reap potential benefits of open collaboration and the concern that

other institutional actors may misappropriate those benefits. To address this, Gould calls for organizations to use open innovation, which engages stakeholders through open collaboration and integration, rather than placate them in minimized roles. Successful organizations utilize stakeholder networks and the range of stakeholder knowledge to fully maximize innovative potential. Organizations oftentimes fail to fully expound upon stakeholder engagement because they limit their knowledge sharing and exploration activities. With open innovation, the flow of knowledge from stakeholder to organization is free flowing and inviting.

Judith Innes (1996) outlines a core function of consensus building—addressing complex, controversial public issues with multiple interests at stake. Consensus building comes in direct contrast to the theory of communicative rationality. The former incorporates information sharing, face-to-face meetings, and the ability to develop criteria for multiple options on the topic at hand. Citizens, public agencies, or even legislatures create consensus building groups to supplement traditional procedures for policy development and plan preparation. Such groups have built consensus for planning and policy tasks on geographic scales. Consensus building, especially at the municipal level, is effective at creating, editing, and implementing policy or practices that the community internally desires.

Cedric Dawkins' (2013) analysis seeks to strengthen the accountability of normative stakeholder theory by introducing the concept of good faith. It borrows from the labor relations field to argue that altered power dynamics are essential underpinnings of a viable stakeholder engagement mechanism. Dawkins then discusses the characteristics of good faith as dialogue, negotiation, transparency, and totality of conduct—explaining how the aforementioned tools are applied to the stakeholder context. This research attempts to further the organization-stakeholder

relationship by addressing potential roadblocks that arise from the nature of the uneven power structures and providing them with good faith tools to establish commonality.

Blanchard, Petherick, and Barasa (2015) found that stakeholder integration and innovation helped solve a local policy problem through collaboration. They used a community-based participatory approach to gathering information from local stakeholders in regards to a proposed tobacco law. Extended engagement resulted in an effective foundation for policy planning that promoted collaboration between tribal departments, local governments, and third-party stakeholders. Critical relationships were fostered through interdepartmental visits, facility site tours, interviews, and attendance at tribal activities. Blanchard, Petherick, and Barasa concluded that, without extended collaboration, the levels of trust necessary to plan and enact completion would not have been possible in the uncertain political environment..

Data and GIS Analysis

The body of research into the implications of connecting various trails is a growing field, as policies across the U.S. continue to support an increase in green infrastructure. Courtenay and Lookingbill (2014) maintain that trail network design must take into consideration the ecological corridors of the area in addition to human use. Software such as Circuitscape uses algorithms from electronic circuit theory to predict patterns of animal migratory movement across heterogeneous landscapes and consider all possible routes across the landscape. Circuitscape analysis is not germane for this project.

Olafsson and Skov-Peterson (2013) study the importance of GIS data in recreational trail planning in Denmark. They acknowledge that GIS is a new skill set required of planners and policymakers and there is a significant learning curve. Despite this, their research has shown that

the increased use of GIS and geo-information enhances the planning basis of multiple spatial aspects of recreational trail management

GIS analysis of an area's sub-grade, which includes topography, soils, and watersheds, is necessary to determine if the area is suitable for trail development. The sub-grade must be able to accommodate the trail's intended uses without overly expensive or severe alterations. A highly suitable sub-grade has moderate slopes, good drainage, and firm, dry soils (Flink *et al.*, 2001). Environmental considerations are of high priority in protected forest regions such as the Adirondacks. Trails around rivers and creeks often require a complete water-quality certification and need to gain authorization from the state department of natural resources and department of wildlife resources (Eyler *et al.*, 2008).

For multi-use trails, there are usage specifications that need to be considered. For example, a bicyclist travels between 8-10 mph and can handle a maximum slope of 8%, whereas a person in a wheelchair travels between 3-7 mph and the maximum slope is 5% (Flink *et al.*, 2001). The aesthetics of trails are just as significant as the technical specifications. According to the Appalachian Mountain Club, a "trail should blend into the natural surroundings by maintaining continuity and regularity in a way it traverses land" (Proudman, 1981).

III.   Data and Methodology

Case Study Analysis

The literature review and case study analysis gave a broad view about why an advanced trail network is urgently needed and how other towns or places in the U.S. have successfully implemented trail projects. The criteria for the cases chosen were projects that embodied several trails being developed within a municipality or county with multi-stakeholder processes. Input

from the Lake Placid/North Elba Development Commission also guided the process for choosing areas of the U.S. to focus on. The following were chosen for the case study analysis:

1. **Safety Path Plan**, Adirondacks, NY
2. **Park City Trails Master Plan**, Park City, UT
3. **Crested Butte Gunnison County Trails Master Plan**, Gunnison County, CO

It was expected that these cases would not be identical to the Lake Placid/North Elba trail connection project, but would provide context for evaluation of the trail project. Gathering research was intended to support the findings of the consulting team. Additionally, the case study research has given the Development Commission a tool to begin the trail construction projects in the future.

Qualitative Stakeholder Interview Analysis

Stakeholder analysis provided our project with greater context when considering stakeholder input and our forthcoming recommendations. On March 20th, the consulting team travelled to Lake Placid/North Elba and held a series of interviews with individuals related to the trails in the region. This included representatives from Barkeater Trails Alliance, Lake Placid Land Conservancy, Adirondack Ski Touring Council, Uihlein Foundation, Adirondack Research, LLC, and Adirondack Foundation. Prior to the visit, the team worked with the Development Commission to create interview questions to guide the conversations.

The purpose of the qualitative interviews was to gather input from various community members and trail experts regarding areas where trails could be connected and their ideas on how the trail system in Lake Placid/North Elba could be improved. Many stakeholders shared a wide variety of opinions when considering the possible trail connections. Integrating their recommendations and insight into our analysis reinforces Innes' concept of consensus building

as community benefit (Innes 1996). We have taken their input into consideration when formulating our recommendations. With multiple interests at play in this project, consensus building amongst our stakeholders can give the forthcoming recommendation and township more social license to operate within the community (Gill 2014). Moreover, collecting answers from these interviews helps overcome the challenge of fragmented information sharing.

Mapping Analysis: GIS

The GIS analysis used data from the Cornell University Geospatial Information Repository (CUGIR), National Geographic, and United States Geological Survey (USGS) to evaluate the recommendations generated by the individual qualitative interviews. CUGIR is a repository for all New York State datasets regarding land use, planning, and Adirondack Park Agency designations. USGS and National Geographic provided the topographic components and distinguishes whether the state owns the land and if it is protected wilderness. The use of GIS has been shown to enhance the planning analysis of trail development projects (Olafsson and Skov-Peterson, 2013). Observance of land use classifications will be considered in the analysis (Courtenay & Lookingbill, 2014). There are strong legal instruments, including complex easements, on the trail land. The GIS analysis cannot address spatial data that is not known.

From the GIS analysis, maps of the area were created that display all existing trails and recommended connection points. Maps of the individual trails can be found alphabetically in Appendices A-I. A consumer map was created that will be accessible for local residents and tourists to utilize to explore the area in Lake Placid/North Elba. All area trails identified in the qualitative interview process have been included in the spatial analysis. The trails were drawn on maps and are not to scale. In order to get accurate data for the trails, the consulting team would require on-the-ground GPS mapping of the area. This was a data limitation of the analysis.

IV.   Case Study Analysis

Case Study 1: Safety Path Plan

The Keene-North Elba Safety Path Plan was a study to plan and design an off-road safety and recreation path between the Town of Keene and the Village of Saranac Lake. After the completion of the path, communities would be closely connected and facilities, such as schools, hospitals will better serve the local residents. The Safety Path Plan provided a very comprehensive project scope, which could be divided into two phases: the project feasibility study phase and follow-up study phase.

The project feasibility study phase included many components: resource collection and assessment, trail design criteria, rough per linear foot cost estimates, development of route alternatives, identification of ownership and governmental permit issues, identification of final route and development of information to pursue future funding. Among all the components, the resource collection and assessment step was the most fundamental and important part. It established a baseline from which subsequent plans could be implemented. Information of land ownership, topography, soils, water features, wetlands, land use classifications and other trails within the corridor was collected and assessed.

The resource collection portion of the Lake Placid/North Elba project ties directly in to the work that was done in GIS. The data needed was downloaded from databases and trail maps were found on the internet or shared during the day of stakeholder interviews. The connection recommendations for Lake Placid/North Elba are based on the information provided by trail stakeholders during the qualitative interview process. The interviews helped to establish the baseline of knowledge discussed in the Safety Path Plan. According to this case's guidance,

recommendations should take into account land ownership, topography, soils, water features, wetlands, land use classifications.

The Safety Path Plan also provides steps of rough per linear foot cost estimates, identification of ownership and governmental permit issues and development of information to pursue future funding.

The follow-up study phase is really helpful to the further development of Lake Placid/North Elba trail connection project. In this phase, Safety Path Plan went through more detailed parts to ensure the comprehensive consideration of trail construction. By categorizing different trails using populated frequency and traveled frequency standards, Safety Path Project chose different surface materials to meet various needs and controlled project costs.

Overall, the case analysis of Safety Path Project provided a comprehensive project scope, which could be followed by Lake Placid trail connection project. We know where we could make improvements to our final connection recommendation and what follow ups should be considered in the process of trail construction.

Case Study 2: Park City Trails Master Plan

This Park City Trails Master Plan was to plan and design trail projects to improve pedestrian and cyclist safety, connectivity and efficiency in urban Park City, Utah.

Comparing to our Lake Placid Trail Connection Project, this case was much similar in that it already had existing pedestrian and biking trails. There were three points in the case that were highly applicable to the scope of the Lake Placid/North Elba project: how to be more engaged in public involvement, how to deal with environmentally sensitive sites, and how to better be aligned with American Disability Act when designing and planning trails.

In Park City Trail Master Plan, the local government gave attention to public involvement by telephone survey, middle school workshops, and community workshops and so forth to create a community version for Park City connectivity. For the Lake Placid, the consulting team did seven in-person stakeholder interviews. The list of interviewees was provided by the Lake Placid/North Elba Development Commission. The project could be improved by public involved activities to identify more local people's ideas and needs.

In Park City Trails Master Plan, sensitive sites, such as wetlands, highly visible hillsides, significant vegetation areas, highly erodible soils, unstable slopes, and ridgelines, were especially concerned with. The case provided recommendations of techniques to minimize environmental, visual or construction impacts. Those techniques included site-specific trail routing, erosion control measures, site-specific adjustment of construction standards, and site-specific construction practices. When we looked into our Lake Placid Trail Connection Project to make the final connection recommendation, we considered the techniques used in Park City to evaluation environmentally sensitive areas.

The special detail that the Park City Case mentioned was the consideration for the disabled. Although they thought it was not practical to implement accessibility for all types of trails in a mountainous environment, the trail system should comply with the following standards set forth in the American Disability Act.

1. Five foot minimum width.

2. Hard surfaces – Asphalt and concrete are the most accessible. Compacted crushed stone also works well, provided that the stones' diameter is less than 3/8 inches. Loose gravel is not recommended.

3. Trail gradient should be no greater than 5%.

4. Ramps, not stairs, should be provided for grades exceeding the 5% maximum.

5. Ramp grades should not exceed 8% and have a level landing for every 30 inches of vertical rise and have a slip resistant surface.

6. 32 inches high handrails should be installed on all ramps and bridges.

7. Fully accessible trails should have a rest area every 300 feet, preferably cleared with a bench outside of the trail path with the distance between rest areas posted.

8. One or more accessible parking spaces should be provided at trail parking lots.

Although our Lake Placid Project was focused on finding feasible routes to connect fragmented trails and not reaching this detailed stage, this part gave us a good preparation in the further development of the project in the future.

The Park City Trails Master Plan was very similar to the Lake Placid/ North Elba project. It gave helpful guidance in how to be more engaged in public involvement, how to deal with environmentally sensitive sites, and how to better be aligned with American Disability Act when designing and planning trails.

Case Study 3: Crested Butte Gunnison County Trails Master Plan

The Crested Butte Gunnison County Trails Master Plan was a long-term plan to identify desirable multi-seasonal and multi-use routes and improve existing trails, which connected trail systems, public lands and communities within Gunnison County. This plan had a very comprehensive framework and detailed information about how they implemented the construction plan. We learned from its report and make full use of that in our Lake Placid Trail Connection Project Final report.

It provided us with a broad mix of trail types to serve all user groups. Those trails were divided into two categories: non-motorized uses and motorized uses. The non-motorized uses

included hiking, trail running, road biking, mountain biking, equestrian, in-line skating, skiing, snowshoeing, dog sledding, baby strollers, push scooters. And the motorized uses included off-road motorcycles, snowmobiles, and all terrain vehicles.

Although in our Lake Placid Trail Connection Project, we were still at the early stage of developing and connecting trails, knowing more about comprehensive trail categories by uses enabled us to give recommendations about what was the most appropriate usage for the trails we have developed.

It provided us with project selection criteria. The plan believed the criteria listed below would be good measurements to evaluate whether the trail was important and needed or not. And in our Lake Placid Trail Connection Project, we also could use those criteria to assess whether the trail recommendations that we have made are successful or not.

PROJECT SELECTION CRITERIA
1) Linkages:
- Link population centers in a multi-use/multi-season, interconnected trail network.
- Link outlying developments safely with school and other institutions.
- Link the recreation, historic, cultural, and other attractions to towns.
- Link trail systems and to population centers.
- Link trails to those of neighboring counties to create a regional trails network.
2) Access:
- Access to public lands.
- Access to cultural and historic points of interest.
- Access to unique natural features.
3) Multiple-Use/Multiple-Seasons:
- Enjoyment for different types of user groups.
- Both recreation and commuter/transportation uses.
4) General Enhancements:
- Improvements such as parking, signage, reroutes and trail repair.
5) Views and Aesthetics:
- Offers scenic views and ambiance for users.
- Provides aesthetics that can transfer into economic value (tourism revenue).
6) Other Issues:
- Routes do not adversely impact sensitive sub-environments.
- Route is safe.
- Route is financially and technologically feasible.
- Route minimizes adverse effects on neighboring landowners and land uses.

It provided us with detailed fundraising and land acquisition strategies. The fundraising included inter-government cooperation and funding, business and cooperation funding, citizens funding and private foundations. And the land acquisition included land dedication, land trades, property easements, land trusts and so forth.

It provided us with a good method to summarize project results, as the chart listed below. It included important information, such as, linkage, purpose, routing, recommendations and so forth. It gave us a pretty clear view of the project with details in order. When we considered our Lake Placid/North Elba Trail Connection Project, we considered whether to develop a similar

Table 3.1: Summary of Trails Projects - Gunnison County Trails Master Plan.

SUMMARY OF TRAILS PROJECTS - GUNNISON COUNTY TRAILS MASTER PLAN

Map No.	LINKAGE/PURPOSE	ROUTING	RECOMMENDATIONS	PRIORITY	IMPLEMENTOR
1	Crested Butte to Brush Creek Road	Adjacent to SH 135 and Gothic Road	Continuation of Multi-use Path	Moderate	Gunnison County
2	SH 135 - Bike Lanes North of Gunnison	Gunnison River to Ohio Creek Road	Separate Bike Path - East Side to West Side at Bridge	Immediate	Gunnison County City of Gunnison
3	Forest Service Access	Cement Cr., Brush Cr., Baxter Gulch	Multi-use Path - Obtain Public Access	Immediate	Private Developers USFS, Gunnison Co
4	Crested Butte Area Trailhead	Chamber of Commerce Buildings.	Major - Parking, Signage	Completed	Town of Crested Butte & Mt. Crested Butte
5	Brush Creek Bike Lane	SH 135 to Grant Lake	Separate Bike Path	Moderate	Private Developers Gunnison County
6	Cement Creek Bike Lane	SH 135 to CB South Entrance	Separate Bike Path or Bike Path on Cement Creek Road	Moderate	Private Developers Gunnison County
7	Brush Creek Trailhead	West of East River Bridge	Minor - Signage	Completed	USFS Gunnison County
8	Cement Creek Trailhead	FS 409 and Cement Creek Road	Minor - Parking, Signage	Moderate	USFS Gunnison County
9	Gunnison River Trailhead	SH 135 and Gunnison River	Major - Parking, Signage, Comfort Station, Picnic Area	Immediate	Gunnison County City of Gunnison
10	Brush Creek Road to CB South	Adjacent - near to SH 135	Continuation of Multi-use trail	Immediate	Private Developers Gunnison County Utility Cos., CDOT
11	Gunnison River Greenway	North Bridge to Twin Bridges	Multi-use Path	Immediate	Private Developers City of Gunnison
12	Gunnison to Mt. Crested Butte	SH 135 and CR 317 in its entirety	Paved shoulders Widen as roadway is improved	In-Progress	CDOT
13	Mt. Crested Butte to Gothic	Adjacent to CR 317	Signage, vehicle speed control, dust suppression	In-Progress	Gunnison County
14	Ohio Creek to Kebler Pass	CR 730/FS to CR 12/Forest Service	Signage for Equestrians and Bicyclists	Immediate	Gunnison County
15	Washington Gulch - Slate River Road	CR 811 - CR 734	Signage, vehicle speed control, dust suppression	In-Progress	Gunnison County

chart with detailed information to give reader a comprehensive idea.

V.   Stakeholder Analysis

Over the duration of this project, our team conducted seven qualitative interviews with stakeholders in the community, each presenting a different expertise or acumen for trails and potential connections in the area. The interviews were structured around scripted questions and follow-up questions in which we asked the subject to elaborate or touch upon a specific area in which they had insight. The following presents a summary of the qualitative interviews and outlines the key observations presented by the respondents.

Raymond Curran— Adirondack Park Agency and Uihlein Foundation

Mr. Curran is a certified ecologist and professional wetlands scientist, and is widely known for his problem solving abilities and penchant for consensus building. He is the Supervisor for the APA's Natural Resource Analysis, and was instrumental in drafting the *Development in the Adirondack Park* guidebook. Mr. Curran presented our group with expertise in GIS mapping, trail development, extensive familiarity of the Adirondack Park, and knowledge of the Henry's Woods trails.

During our interview, we questioned Mr. Curran on the issue of counters tracking trail activities, to which he claimed Henry's Woods sees around 40-50,000 visitors each year. Mr. Curran also has connections with the Uihlein Foundation, which owns the Henry's Woods trail system and the land around it. Mr. Curran, who is involved with programming on behalf of the Uihlein Foundation, reported that the "Uihlein Foundation is willing to facilitate a connection to the Northville Lake Placid Trail" (Curran, 2015). This creates the potential to alleviate foot traffic along Averyville Road. Instead of walking across the road, a large portion of travel time would now take place in Uihlein Land. While the Foundation may favor connecting the trails,

Mr. Curran stressed that Henry's Woods may not want to be featured on an updated trail system map.

Jeff Erenstone—Barkeater Trails Alliance (BETA), Adirondack Ski Touring Council (ASTC)

Mr. Erenstone is a member of BETA, a local group whose purpose is to "develop, maintain, and advocate for a diverse, sustainable and interconnected multi-use trail system for mountain bikes in the Adirondack Tri-Lakes Region" (BETA, 2015). BETA has recently merged programmatic and personnel services with ASTC. Mr. Erenstone has spent most of his time with the organization focusing on the Craigwood Golf Course trail network. When asked about possible connections, Mr. Erenstone provided maps of old bridle path systems that can provide crucial connection points for existing trails. He reasoned that in-town trail connections and trailheads can be difficult to locate in the winter season, and the bridle trail system may relieve confusion the Jack Rabbit Trail elicits in some community members. A difficulty in utilizing the bridle network is gaining permission to use private land for trail usage—as large portions of the network exists on privately owned property.

Mr. Erenstone asserts that another problem with the existing trail system is the lack of clearly defined and maintained trailheads. In the creation of a potential map, Mr. Erenstone would like to see clear identification of trailheads so people can know exactly where to go when searching for a trail. He would also like to see parking lots constructed near trailheads, if possible—specifically near the proposed Power Pond and Craigwood trailhead. When our group inquired about community information sharing, Mr. Erenstone claimed that there was little communication between trail stakeholders, and would like to see a "roundtable discussion: where the potential for feedback and collaboration could greatly benefit trail connections and

maintenance. Lastly, Mr. Erenstone would like to see local businesses get involved and promote the trail systems information.

Tony Goodwin—Adirondack Ski Touring Council (ASTC)

Mr. Goodwin's longstanding career with ASTC has seen the cultivation of major trail systems and consolidation of major trail organizations in the area, all promoting excellence in trail maintenance and promotion. The author of *Ski and Snowshoe Trails in the ADKs*, Mr. Goodwin is widely known for his long and successful career as a trail expert in the Adirondacks—helping build the 33 mile Jackrabbit Trail and managing it for over three decades.

Mr. Goodwin stressed the need to utilize the bridle paths during our interview. He did not have in his possession a map of the bridle trail system, but assured us that it existed in the community. Regarding the bridle paths, we needed to consider the status of sewer lines between possible connections. Further, Mr. Goodwin implored us to observe possible connections near the Old Cemetery Path, the Old Military Road/Pinbrook Farms, and the John Brown Trail. (See Appendix F). Lastly, Mr. Goodwin believed the Cobble Hill trails could be expanded and integrated into the trail network, as well as the Craigwood Golf Course and the Henry's Woods Trails as a part of the universal connection map. (See Appendix C & D).

Mr. Goodwin recommended we observe the Jackson, New Hampshire trail system, managed by the Jackson Foundation. The Jackson Foundation used its trail network to promote hotels along the trail paths. Mr. Goodwin informed us that he believed the Jackson, NH trail network had a large part in the economic revival of the small-scale hotel market in the area. Additionally, we were directed to look at the Kingdom Trails Association in Vermont. Mr. Goodwin also pointed to the economic benefits the Kingdom Trails have brought to its respective region. He believed our group could pitch the recommendations and forthcoming map to

business owners, pointing them to the track record of trail systems and economic revitalization of various industries. When asked about the potential hurdles to connections in the area, Mr. Goodwin cited the difficulties of overcoming the legal and geographical hurdles of connecting trails.

Jeff Graff—Lake Placid Land Conservancy (LPLC)

Mr. Graff is the Executive Director of the LPLC, and has an extensive background in environmental policy. Mr. Graff was a great boon to our group's understanding of the legal issues surrounding easements, maintenance costs, and the environmental factors behind trail upkeep. In defining easements, in the trail context, we found two categories: donated and purchased. A donated easement includes open-space, public recreation, and access points. Mr. Graff points out that no easement is the same, and myriad legal questions arise when attempting to donate or purchase land.

LPLC does not accept easements unless there are funds to steward the land. Mr. Graff cited ballooning maintenance costs and funding shortfalls, one-reason easements are not so easily acquired by the LPLC. Further, Mr. Graff was uncertain as to the financial capability of Lake Placid/North Elba trail groups to steward trail systems over the long-term. Cost for these upkeep projects can reach into the thousands of dollars, and require significant labor to finish. Mr. Graff pointed our group to trail connection projects in the Salt Lake, Utah area. Lake Placid/North Elba has a conducive walking environment, according to Mr. Graff, and he believes connections can be made between pocket parks. Moreover, he reports there is a need for a collaborative network of individuals to look at specific areas and how they can be made available for connection.

Vinny McClelland--Adirondack Foundation and Safety Path Plan

Mr. McClelland has a forestry degree from the University of Vermont and experience in land use planning in Alaska. He urged the towns of North Elba and Keene to get a grant to do a safety path study. It was Mr. McClelland who pointed us to the Safety Path plan and how it relates to our project. To him there is a clear safety issue with pedestrians and athletes using the side of the roads. The goal, to Mr. McClelland is safety for children, athletes, and tourists. Moreover, he believes such a path would grant easy access to schools, tourist attractions, and training routes. He cited the Anchorage, Alaska and the community/economic benefits drawn from paths that connected the community. In Anchorage, a resident could walk out of their homes and be close to a pathway.

In regards to the safety path plan, Mr. McClelland believes there is great opportunity for developers to create pathways if easements could be secured by the planning board. However, the lack of continuity on the planning board, expense of trail maintenance, and the low priority trails yield, all contribute to the absence of action. He believed prioritizing inner-connections first made the most sense and had the greatest impact.When asked about how he would define success for this project, Mr. McClelland reported that public awareness was highly important. Making this project a priority on the planning board and the town's master plan would help toward getting it budgetary considerations. Lastly, Mr. McClelland cited the urge for engaged community members to push the project forward

Ezra Schwartzberg—Adirondack Research, LLC

Mr. Schwartzberg is the owner of Adirondack Research and has extensive experience with invasive species, climate change, and entomology research. Based on our interview, the Powerpond trail presents a potential connection point. Mr. Schwartzberg brought an environmental perspective to this project, and brought up the benefit of evaluative criteria to

measure the environmental feasibility of trail connections. Mr. Schwartzberg also identified the need the for community engagement when considering all of the trail connections. He identified a potential source of stewardship could come by way of grant-funded projects. Lastly, Mr. Schwartzberg recommended we observe USGS and Google maps for a frame of reference when creating a universal trail map.

Josh Wilson—Adirondack Ski Touring Council (ASTC)

Mr. Wilson is a founding member of BETA, and is the incoming director of the ASTC. He is an active member of the trail community and has an extensive knowledge of stewardship and upkeep of trails. Informal trail systems exist between Route 86 and River Road, as well as Craigwood and Jackrabbit. These are not legal under the states conservation laws, but are informally maintained through trail groups in the area. Mr. Wilson urged our group to view the trail system as "a regional trail network rather than a recreational asset." In regards to possible connections, Mr. Wilson identified a connection-point between the Northville Trail and the Old Orchard Trail. (See Appendix H). Connected trails, in his words, would reduce the risk hikers take when walking alongside the road system in the region.

Mr. Wilson would like to see the creation of a unit management plan to better manage trail systems. He addressed the issue of stewardship, citing costs reaching as high as $400,000. He recommended we observe the Scarface Mountain (Arizona) Trail network as a frame of reference for our project. Mr. Wilson echoed the sentiments discussed in the other interviews, specifically that traffic congestion and foot traffic on major roads continued to serve as a problem for the community. Additionally, he claimed agreed with our assessment that information sharing between organizations was fragmented and lethargic.

VI.   GIS Analysis

GIS analysis was essential for this project because it allowed the consulting team to look at the land use distribution of the area, analyze the location of existing trails, and provide recommendations for project execution. For the GIS analysis, the data was manipulated to fit the needs of this project. Issues arose in the projection of the files. Every dataset was projected on a different coordinate system and had to be re-projected to be New York State Plane East. This projection is preferred for our analysis because it eliminates some of the spatial distortion from looking at the three dimensional space of the Lake Placid/North Elba region on a two dimensional map.

The land use data from the Adirondack Park Agency is classified according to a numerical identifier. This was problematic because this assumes knowledge of the numbers being used. To address this issue, the land class names were matched to the appropriate number in the land class excel file. This file was joined with the shapefile in ArcGIS. The New York State Adirondack Park Agency classifies land according to criteria that fall within private and public use. Below are descriptions of each classification:

Property Owners/Private Use Land Classifications

- Hamlet: Growth and service centers of the Park where the Agency encourages development. The Adirondack Park Agency has very limited permit requirements in hamlet areas. Hamlet boundaries go beyond established settlements to give room for expansion.

- Moderate Intensity Use: Most uses are permitted. Relatively concentrated residential development is most appropriate.

- Low Intensity Use: Most uses are permitted. Residential development is lower than hamlet or moderate intensity.

- Rural Use: Most uses are permitted. Residential uses and reduced intensity development that preserves rural character is most suitable.

- Resource Management: Permits required. Uses include residential, agriculture, and forestry. Special care is taken to protect the natural open space character of the land in this class.

- Industrial Use: Where industrial uses exist or areas that may be suitable for future industrial development. Industrial and commercial uses are allowed in other land classifications.

("Adirondack Park Agency Land Use Area Classification," 2015)

State Land Classifications

- Wilderness: Area of state land or water having a primeval character, without significant improvement or permanent human habitation, which is protected and managed so as to preserve, enhance, and restore its natural conditions. Wilderness designation requires at least ten thousand acres of contiguous land and water or of sufficient size and character as to make practicable its preservation and use in an unimpaired condition.

- Primitive: Area of land or water that is essentially wilderness in character but contains structures that are inconsistent with wilderness or private lands that prevent wilderness status. Primitive can also be of size or character not meeting wilderness standards, but where the fragility of the resource or other factors require wilderness management.

- Canoe: Area where the watercourses or the number and proximity of lakes and ponds make possible a remote and unconfined type of water-oriented recreation in an essentially wilderness setting.

- Wild Forest: Area where the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character. A wild forest area is further defined as an area that lacks a sense of remoteness and permits a wide variety of outdoor recreation.

- Intensive Use: Area where the state provides facilities for intensive forms of outdoor recreation by the public. Two types of intensive use areas are campground and day-use areas.

- Historic: Locations of buildings, structures, or sites owned by the state that are significant in the history, architecture, archeology or culture of the Adirondack Park, the state or nation.

- State Administrative: Areas there the state provides facilities for a variety of specific state purposes that are not primarily designed to accommodate visitors to the park.

("Adirondack Park Agency State Land Definitions," 2015)

The land use designation is significant because it shows where trails can be developed and areas that are "off-limits" for recreational use. Land use classifications had to be considered to evaluate the locations of possible trail networks and potential connection points. The total area was summed for each individual land class, converted into acreage, and divided by the overall land area total to get the percentage area of each land class. This data is displayed in Table I and Chart I. Wilderness is the most common land class in the region, as about 60% of the land is

designated wilderness. These areas will not allow trail development and must be eliminated for
trail connection consideration. The rest of the land in the Lake Placid/North Elba region is
allowed to have trail development to varying degrees, as described in the aforementioned
classification descriptions.

Table I. Total Area and Percentages for Classifications in Lake Placid/North Elba Region

Land Class Type	Total Area (sq.ft.)	Acreage	Percentage
Hamlet	18,143,355.46	416.51	2.35%
Moderate Intensity	8,533,655.48	195.91	1.11%
Low Intensity	29,243,079.73	671.33	3.79%
Rural Use	41,381,125.05	949.98	5.36%
Resource Management	60,914,573.17	1,398.41	7.90%
Pending Classification	84,890.36	1.95	.01%
Wilderness	458,155,183.06	10,517.80	59.38%
Wild Forest	116,129,657.14	2,665.97	15.05%
Intensive Use	13,308,135.82	305.51	1.72%
Historic	824,744.04	18.83	.11%
State Administrative	1,978,826.93	45.43	.26%
Water	22,843,451.15	524.41	2.96%
TOTAL	**771,540,677.39**	**17,712.14**	**100%**
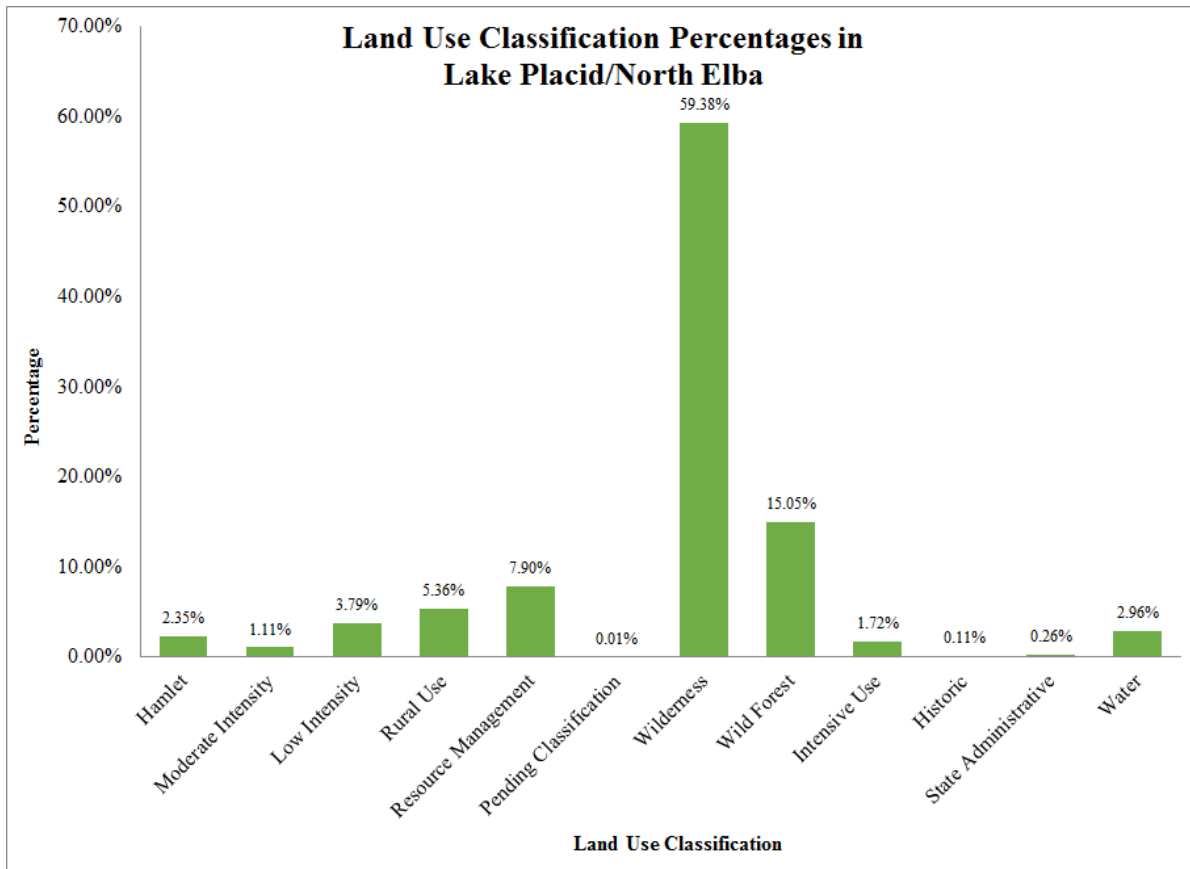
Chart I. Land Use Percentages in Lake Placid/North Elba Region

Map I is a visual of the Adirondack Park Agency land by land classifications. The symbolization or color scheme used in Map I will be used in subsequent maps to maintain consistency amongst the map products of this project. Map I shows where the percentage of land is distributed in the region. Wilderness is the majority of the land and is outside of the primary developed area. Despite the regulatory obstacles of dealing with land that has wilderness designation, this will not greatly interfere with the trail connection project as our focus is on municipal trails.

The land classification analysis done for Map I was the basis for the creation of Map II. The second map has the following components: land classifications, topography, and trail systems. The topographic map is a basemap provided by National Geographic in the ArcGIS software program. The trail systems were drawn in ArcGIS using the maps received during the qualitative stakeholder interviews and extensive research conducted by the consulting group (Appendix A-I).

The purpose of Map II is to show a visual of the area and provide a planning document for the Lake Placid/North Elba community going forward. Trails in Map II are not drawn to scale. This feature would have been more resource intensive and is beyond the scope of this project. If there is a desire for the trails to be drawn to scale, it is recommended that the Development Commission either acquire shapefiles from the trail experts or conduct GIS mapping on the ground with a measurement tool. The recommendation portion of the report will address this and provide suggestions for the continuation of this project.

Most of the trails in Lake Placid/North Elba have been developed within the private land use classifications – hamlet, moderate intensity, low intensity, rural use, and resource management. This is a significant finding and had implications for our connection recommendations. The BETA Lussi and Loggers Trail and John Brown Farm Trail do have a portion of their networks on state wild forest. It is assumed that the construction of these two systems has been permitted by the Adirondack Park Agency. The Jackrabbit Trail traverses areas of wilderness and is also assumed to be permitted by the Adirondack Park Agency. The initial reaction from the GIS analysis is that the trails are in a position to be connected across private land designated for human use in the area.

Map I. Land Use Classifications by Private Use and State Land

Lake Placid/North Elba: Land Use Classifications

N

0   1   2   4 Miles

Allison Springer
Date Created: April 14, 2015
Projection: NAD 1983 StatePlane
New York East FIPS 3101 Feet
Data Sources: Adirondack Park Agency & CUGIR
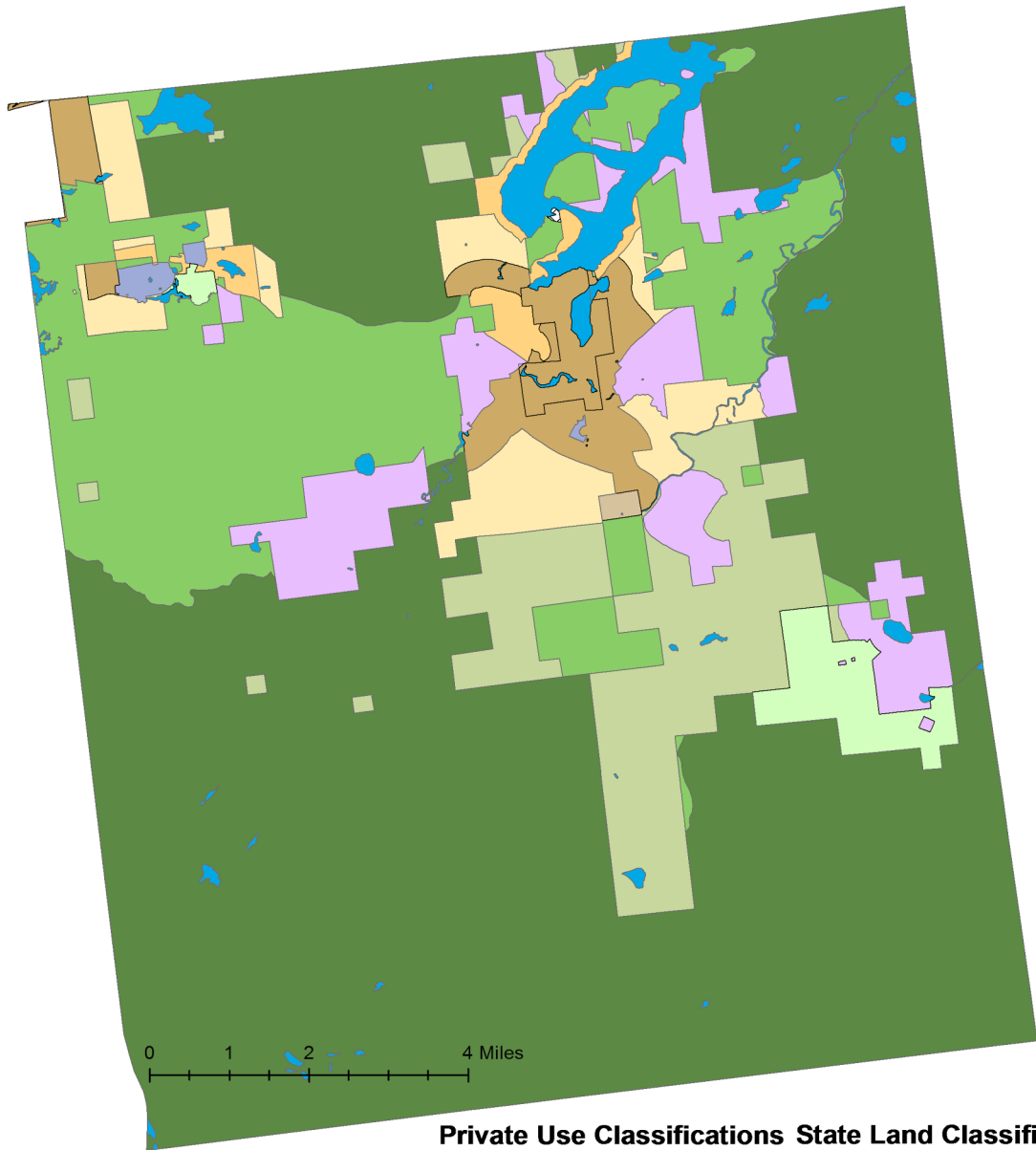
Private Use Classifications
- Hamlet
- Moderate Intensity
- Low Intensity
- Rural Use
- Resource Management
- Pending Classification

State Land Classifications
- Wilderness
- Wild Forest
- Intensive Use
- Historic
- State Administrative
- Water

Map II. Lake Placid/North Elba Trails and Land Classifications

Lake Placid/North Elba: Trails,
Land Classifications and Topography

Allison Springer
Date Created: April 11, 2015
Projection: NAD1983 StatePlane NY East
Data Sources: Adirondack Park Agency,
CUGIR, and National Geographic

Private Land Classifications
- Hamlet
- Moderate Intensity
- Low Intensity
- Rural Use
- Resource Management
- Pending Classification

State Land Classifications
- Wilderness
- Wild Forest
- Intensive Use
- Historic
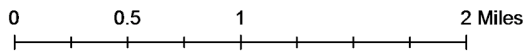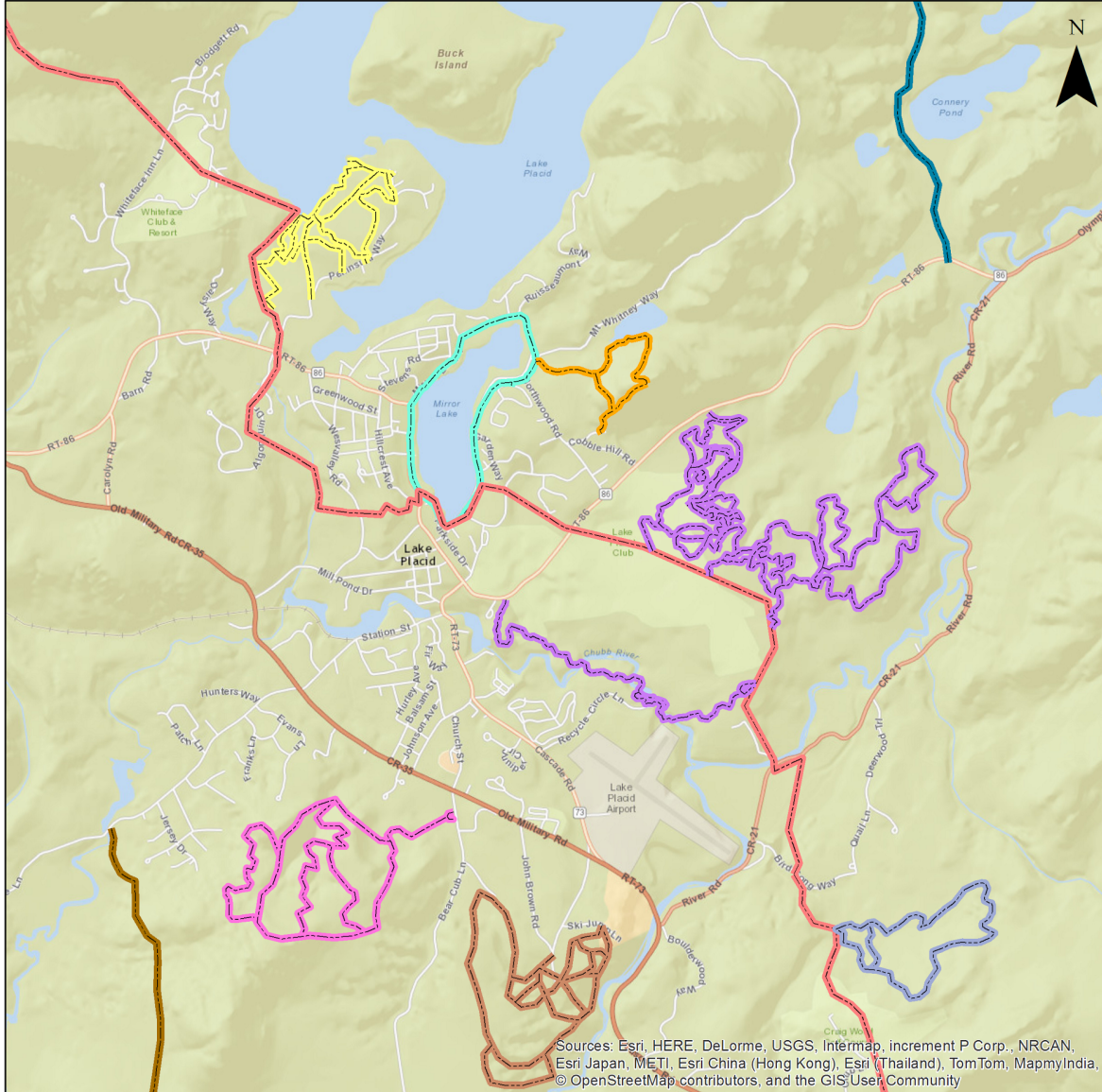- State Administrative
- Water

Trails in Lake Placid/North Elba
- Mirror Lake Path
- Whiteface Landing
- John Brown's Farm
- Cobble Hill
- Northville-Placid
- Lussi and Loggers Trail
- Craigs Wood
- Jackrabbit
- Penninsula
- Henry's Woods

Map III. Lake Placid/North Elba Trails Including

29

Lake Placid/North Elba: Trails, Land Classifications and Topography

Allison Springer
Date Created: April 11, 2015
Projection: NAD1983 StatePlane NY East
Data Sources: Adirondack Park Agency,
CUGIR, and National Geographic

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Private Land Classifications

- Hamlet
- Moderate Intensity
- Low Intensity
- Rural Use
- Resource Management
- Pending Classification

State Land Classifications

- Wilderness
- Wild Forest
- Intensive Use
- Historic
- State Administrative
- Water

Trails in Lake Placid/North Elba
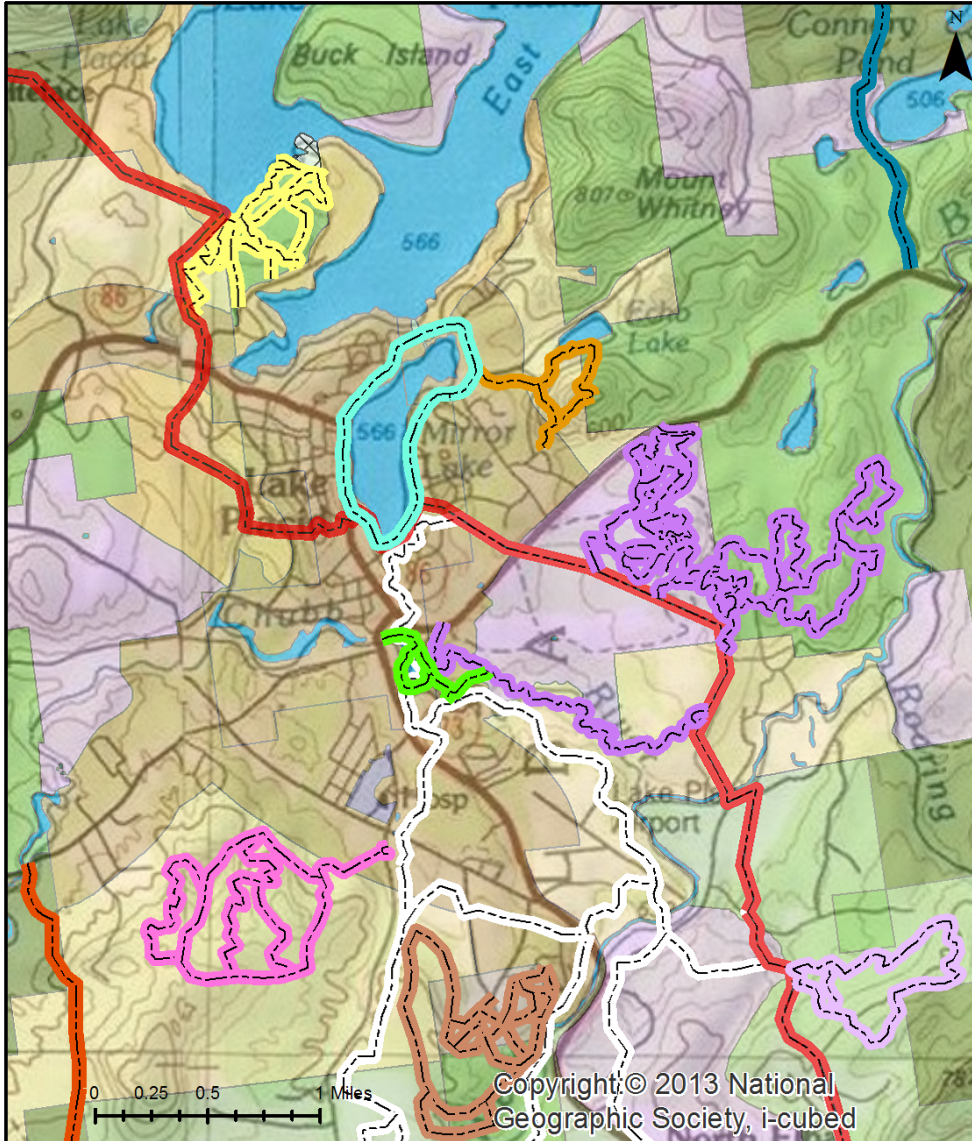
- Mirror Lake Path
- Whiteface Landing
- John Brown's Farm
- Cobble Hill
- Northville-Placid
- Lussi and Loggers Trail
- Powerpond (Not Constructed)
- Jackrabbit
- Penninsula
- Craigs Wood
- Henry's Woods
- Historic Bridle Trails

30

Map III was created with the addition of the Historic Bridle Trails (Appendix A) and Powerpond Trail. These two trail systems give opportunity for connections. If Powerpond is developed, it has the potential to create a connection with Jackrabbit, Lussi and Loggers, Mirror Lake Path, and Peninsula trails. The Bridle Trail network has the potential to further the municipal trail connections. Map III shows that if the Bridle Trails were revived, they would have the potential of connecting the entire system of trails in Lake Placid/North Elba.

The rationale for creating Map IV was to have a planning document that has less data and shows existing trails with local streets. This visual will assist in the conceptualization trail connections without reliance on Powerpond and Bridle Trails. During the stakeholder interview process, trail expert Tony Goodwin addresses a design consideration for the trail connection project. He stated that, "people do not like to traverse paved roads when they are hiking, they feel like it takes away from the experience." Based on this local knowledge, the consulting group has focused primarily on connection points that are not paved, but with the acknowledgement that some paved connections are inevitable based on current trail routes and land use constraints.

Map V was created to undertake a buffer analysis of existing trails in the area. The Lake Placid/North Elba Comprehensive Plan: Mobility Objective 2 is to create a safe and convenient pedestrian connection between key destinations ("Village of Lake Placid/Town of North Elba Comprehensive Plan," 2014). The buffer analysis in Map V allows for examination of whether the existing trails meet the criteria of Objective 2. The Lake Placid/North Elba community wants to have trails within a 10 minute walk of residential homes. In order to evaluate the existing trails, a ½ mile buffer was created around the roads in the hamlet, moderate intensity, and low intensity areas.

Map IV. Lake Placid/North Elba Trails and Municipal Streets
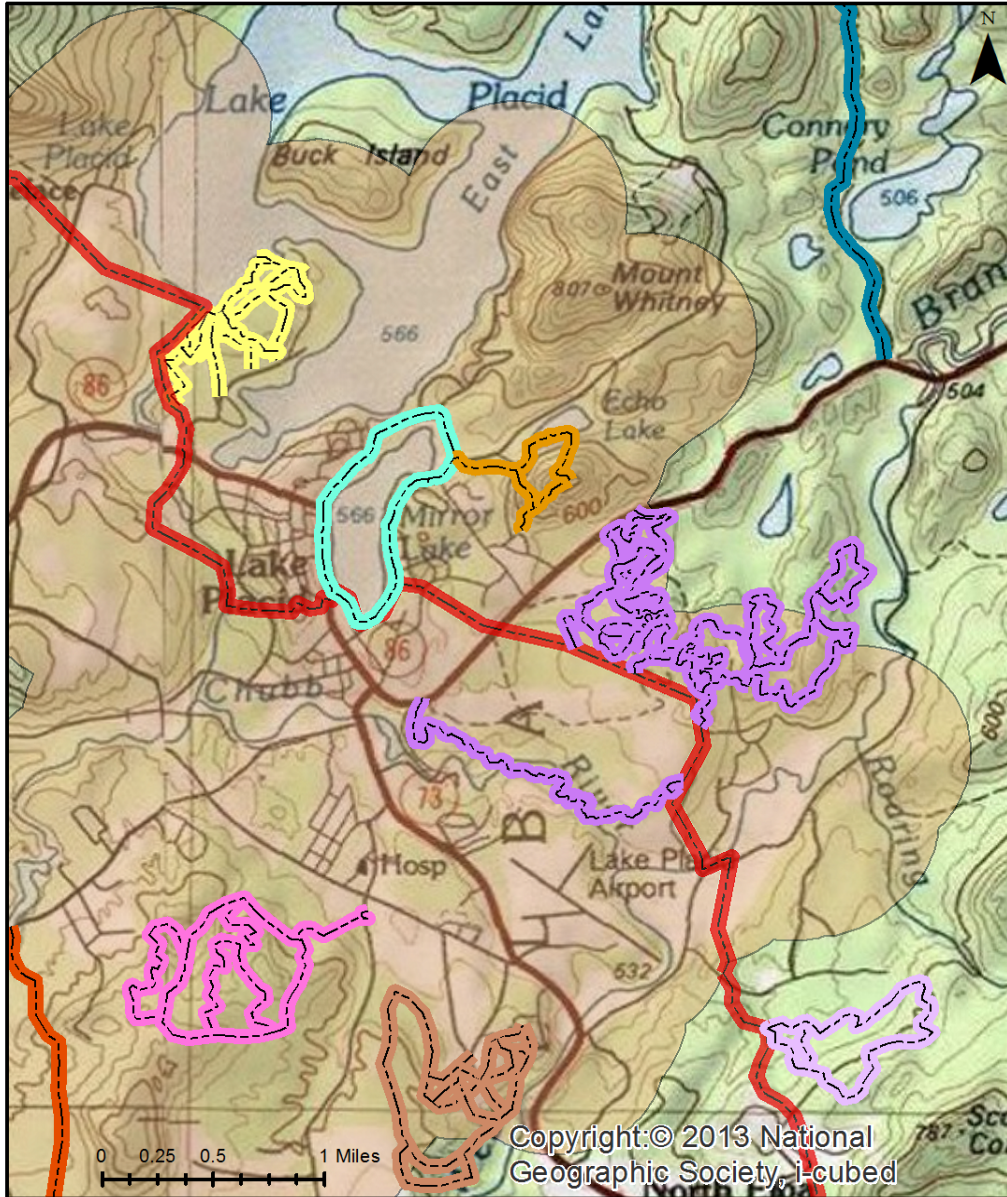
Lake Placid/North Elba Individual Trail Networks
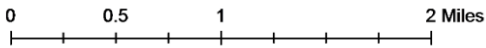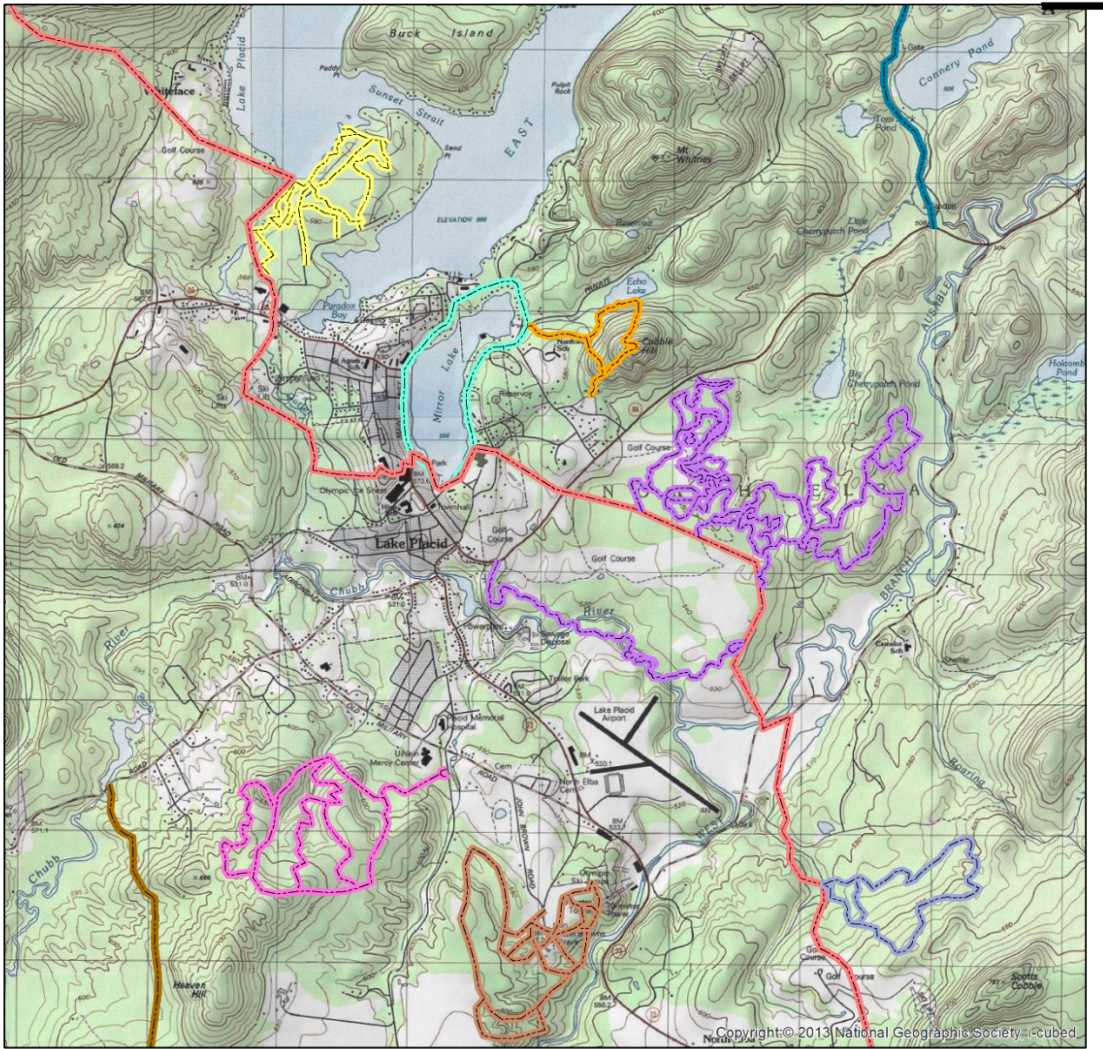

0   0.5   1   2 Miles

Allison Springer
Date Created: April 11, 2015
Projection: NAD 1983 StatePlane NY East
Data Sources: Adirondack Park Agency,
CUGIR, and National Geographic

Trails in Lake Placid/North Elba

- Lussi and Logger Trails
- Cobble Hill
- Craigs Wood
- Henry's Woods
- Jackrabbit
- John Brown Farm
- Mirror Lake Path
- Northville-Placid
- Penninsula
- Whiteface Landing

Map V. ½ mile Buffer Zone to Analyze Trails within 10 Minute Proximity

Lake Placid/North Elba Trail System
1/2 Mile Buffer Analysis

Trails in Lake Placid/North Elba

- Mirror Lake Path
- Whiteface Landing
- John Brown's Farm
- Cobble Hill
- Northville-Placid
- Lussi and Loggers Trail
- Craigs Wood
- Henry's Woods
- Jackrabbit
- Penninsula
- 1/2 Mile Buffer Zone

Allison Springer
Date Created: April 11, 2015
Projection: NAD1983 StatePlane NY East
Data Sources: Adirondack Park Agency,
CUGIR, and National Geographic

The buffer analysis shows that most of the trails in the Lake Placid/North Elba community do fall within ½ mile of the human developed area. Craig's Wood and Whiteface Landing are both outside of the 10 minute or ½ mile walking distance. An issue with using buffer analysis in this way is that it does not address individual homes. Though the trails are within the streets of the hamlet, moderate, and low intensity areas, there may be homes outside of these designations which do not have trails close by. Exploring distance from individual homes is an opportunity for future examination if the Lake Placid/North Elba community would like to further this as part of the trail connection project.

Map VI was made as a consumer product for the client to use for marketing and future consumer-driven trail projects. This map depicts the existing trails and the topography of the Lake Placid/North Elba area. The consulting team recommends, as a future project for the Lake Placid/North Elba community, a tourism brochure that includes a consumer map, maps of the individual trail networks, and descriptions of the trails provided by the trail experts in the region.

All of the data, shapefiles, and maps created for this project are available for client use for further projects.

Map VI. Consumer/Marketing Map

Lake Placid/North Elba Trails and Topography


```
0        0.5        1                2 Miles
```

Trails in Lake Placid/North Elba

-------- Lussi and Logger Trails	-------- John Brown Farm
-------- Cobble Hill	-------- Mirror Lake Path
-------- Craigs Wood	-------- Northville-Placid
-------- Henry's Woods	-------- Penninsula
-------- Jackrabbit	-------- Whiteface Landing

Allison Springer
Date Created: April 11, 2015
Projection: NAD 1983 StatePlane New York East FIPS 3101 Feet
Data Sources: Adirondack Park Agency,
CUGIR, and National Geographic

VII. Recommendations

Case Study Analysis

After study the case of Safety Path Plan, Park City Trails Plan and Crested Butte Gunnison County Trails Plan, we generated the following recommendations:

1. Get more public involved in Lake Placid/ North Elba Trail Connection Project by survey or other forms to get to know more local residents' opinions.

2. Pay more attention to environmentally sensitive sites when choosing the connection points.

3. Include considerations for the disabled to comply with American Disability Act.

4. Add per linear foot cost estimates step before making trail connection recommendations.

For the future long-term work the Lake Placid Development Committee would continue:

1. When coming to construction phase, pay attention to different types of trails, surface material choice, road sign design.

2. For the long term construction, learn from effective fundraising strategy.

Stakeholder Engagement

The Stakeholder Analysis of the Lake Placid/North Elba trail project has generated the following recommendations:

1. The creation of a community forum in which interested parties can meet to discuss trail-related projects, as well as share information regarding future connections.

2. Creation of a community file-sharing drive in which interested parties can share information related to trail systems.

Our interviewees recognized a need for clear and consistent communication between trail stakeholders. There is no current system we have identified in our observations that allows for

information sharing or collaboration. Increased dialogue amongst the most passionate trail enthusiasts can provide greater social license to operate in the community. With this in mind, we recommend the formation of a local forum in which trail issues can be discussed. Such a venue can be most beneficial for the Lake Placid/North Elba region. Further, a potential community forum can be accompanied by a local file sharing system to upload, compile, and edit trail related documents.

GIS Analysis

The GIS analysis of the Lake Placid/North Elba individual trail systems has generated the following recommendations.

1. Consideration of the Powerpond Trail as a centralized and integral trailhead that will be instrumental in connecting five of the trails in the Lake Placid/North Elba Region. This is best illustrated in Map III.

2. The Bridle Trails should be evaluated and assessed on the ground to determine viability for use for trail linkages.

3. Extension project to manually GPS the trails in Lake Placid/North Elba to create accurate distance shapefiles to be used to create future mapping products.

4. Trail connection between Henry's Woods and Northville-Placid trail has potential for future development based on the development plans determined by the Uihlein Foundation.

5. Create a tourism or marketing pamphlet with the consumer map, individual trail maps, and descriptions provided by trail management experts. This could include a Google Earth component if viable for the project.

Overall, the GIS analysis of the Lake Placid/North Elba region generated positive results and starting point for future trail development projects. The consulting group identified the first recommendation as a major priority for the Development Commission. The Powerpond Trail is the best single connection point due to the radial nature of the location. The project could incorporate citizen science components developed by Dr. Ezra Schwatrzberg and wide enough trail design akin to Henry's Woods.

The use of the Bridle Trails, wherever possible, bring about other possible connections. This would allow for the trails that are further from the center, Henry's Woods and John Brown Farm, to be linked with the trails in the primary developed area. The Bridle Trail map that was used for the GIS analysis does have scale concerns and therefore needs to be assessed on the ground (Appendix A). This could be conducted by another consulting team, trail experts that were consulted for this project, and/or the Development Commission themselves. Gathering the official GPS readings for all the trails is critical for the extension of the project. It will make project planning processes easier and have the quantitative data necessary to see if the trails fall within criteria of the Comprehensive Plan.

The trail connection between Henry's Woods and Northville-Placid may be a reality in the future. Raymond Curran eluded to the possibility during his interview. Depending on the plans and priorities of the Uihlein Foundation, the land that they own may become its own trail network. It is recommended that the Development Commission stay in contact with Raymond Curran and ask for updates on the progress of their projects.

Finally, the GIS analysis allowed for a deep dive into the land use components and mapping of the trails in the Lake Placid/North Elba area, but timing did not permit creation of marketing materials. It is recommended that the Development Commission work with a team or

consultants and/or group of community members to create a Lake Placid/North Elba trail brochure. This would include the consumer map, individual trail maps, and descriptions provided by trail management experts. For this project, it is recommended that the Development Commission seek out multiple GIS specialists and designers to guarantee that there are enough resources to complete this labor-intensive endeavor.
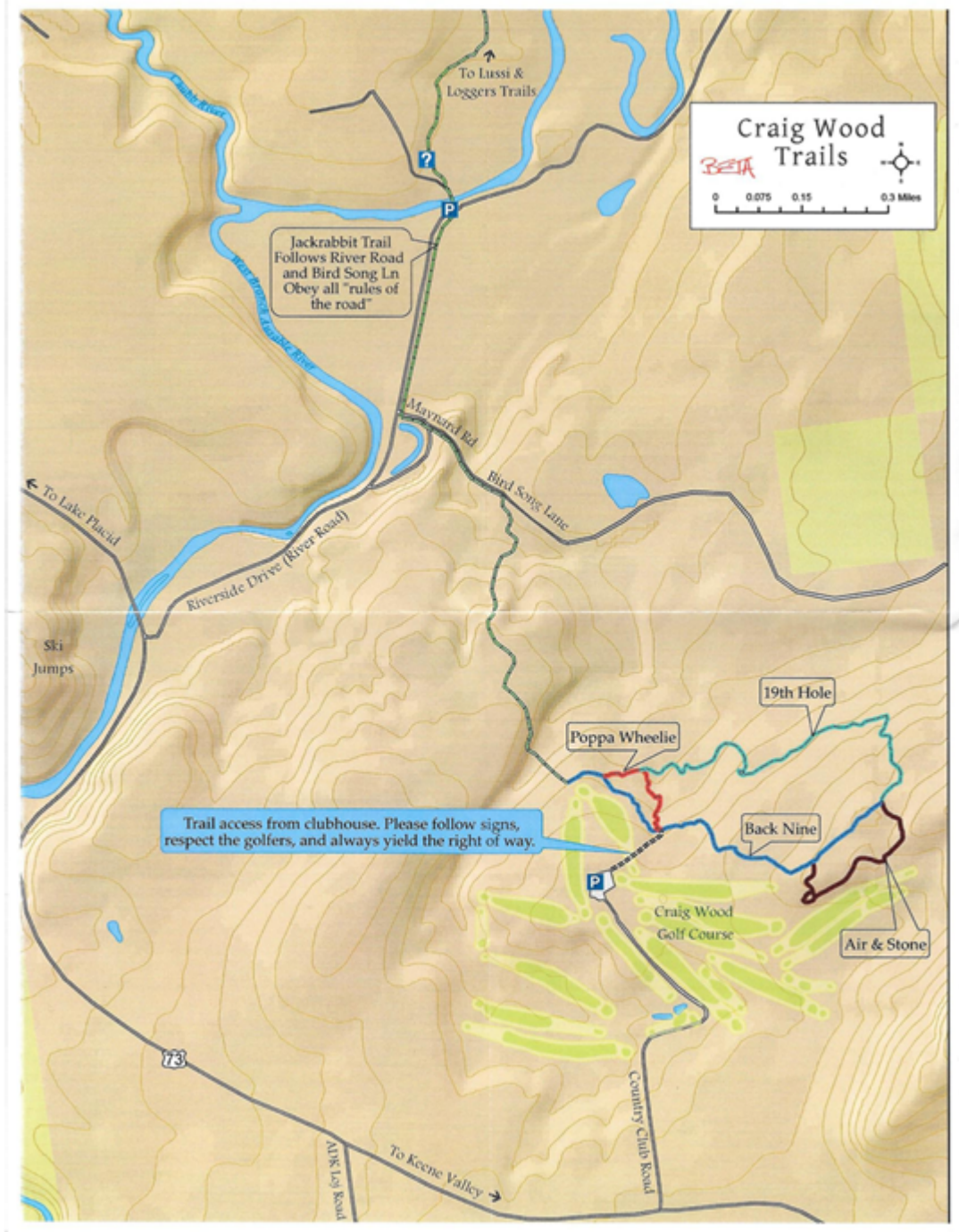
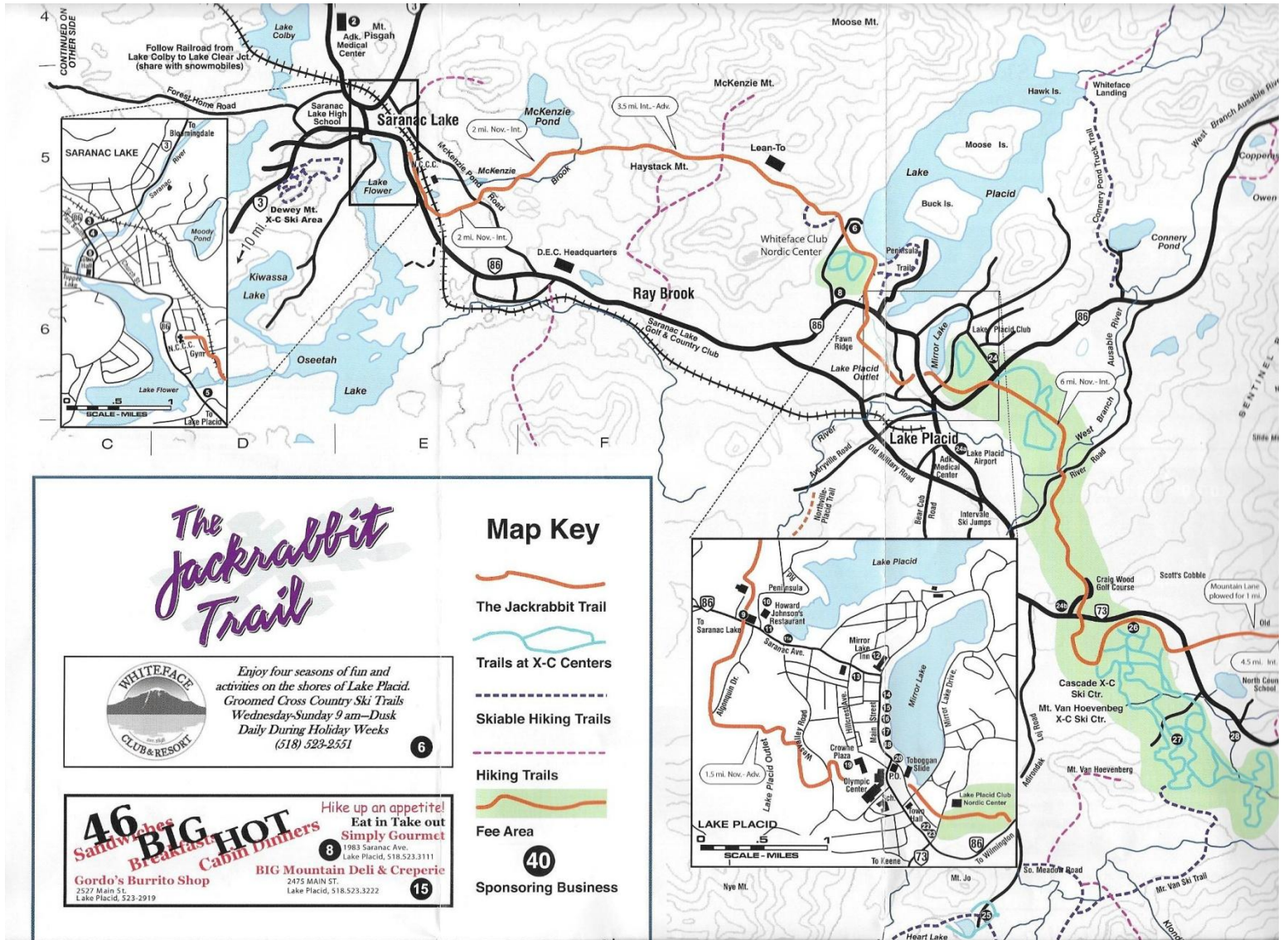**Appendix A**

Bridle Trails
Lake Placid, NY

Appendix B

Cobble Hill Trail
Lake Placid, NY

Appendix C

Craig Wood Trail
Lake Placid, NY

Appendix D

Henry's Wood Trail
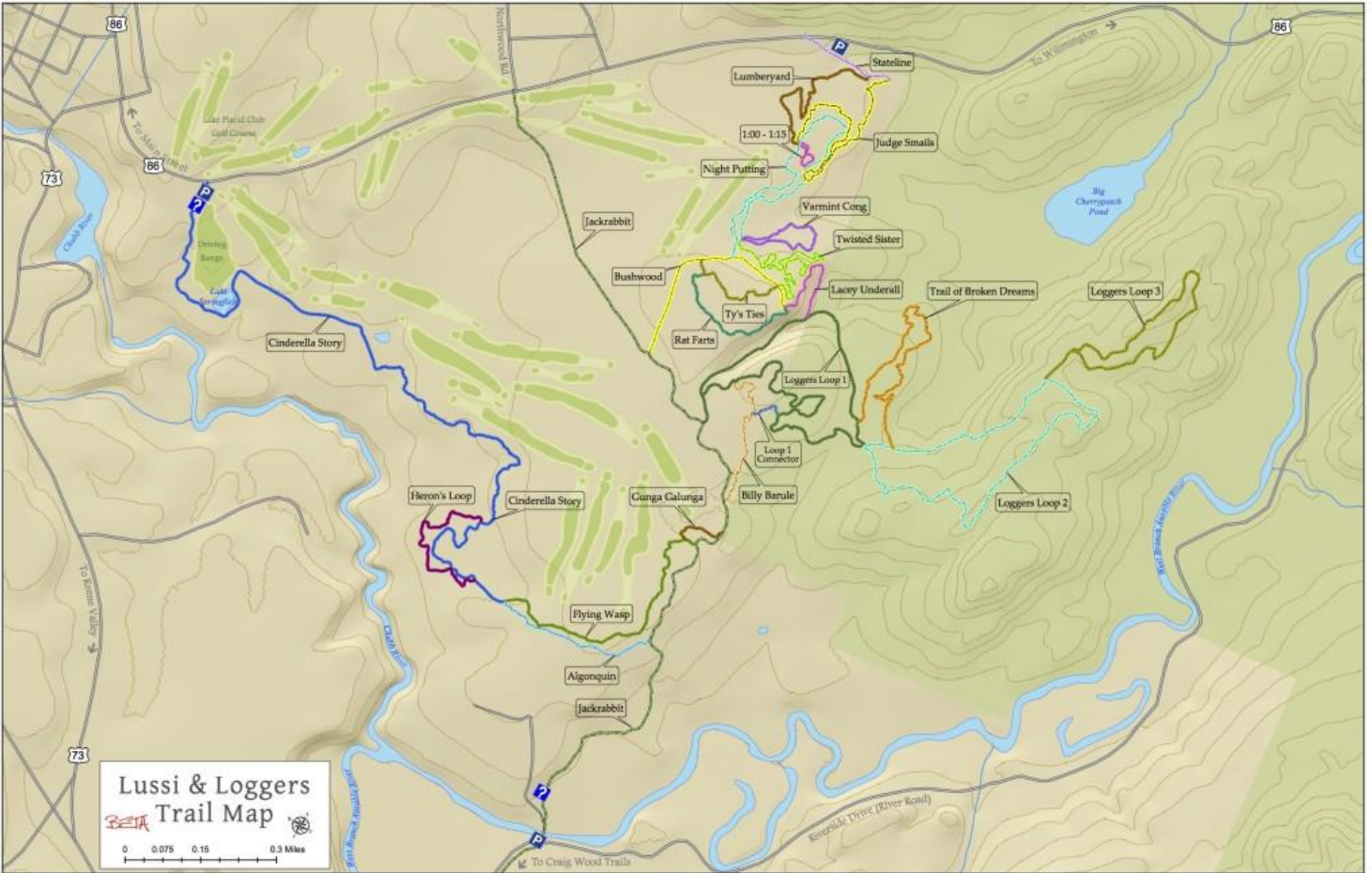## Lake Placid, NY

Jackrabbit Trail
Adirondack State Park, NY
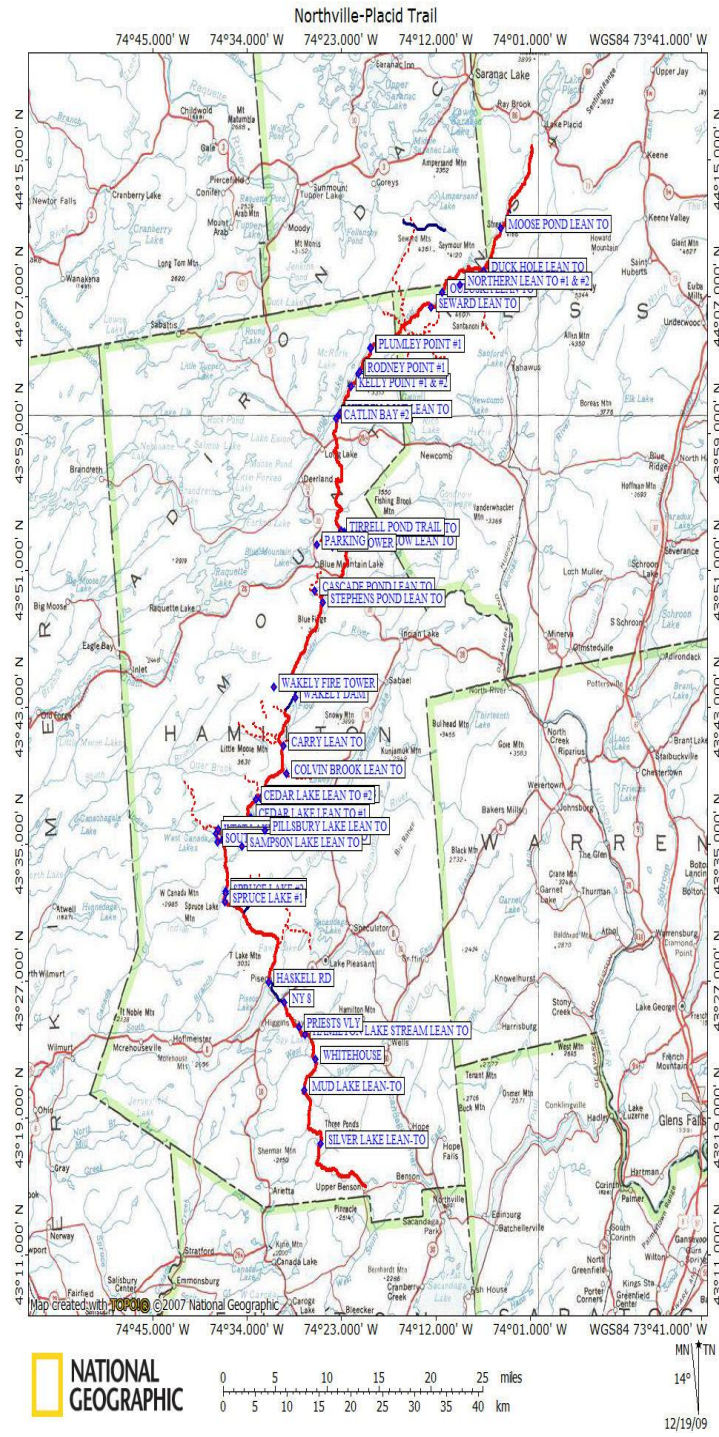
Appendix F

John Brown Farm Trail
Lake Placid, NY
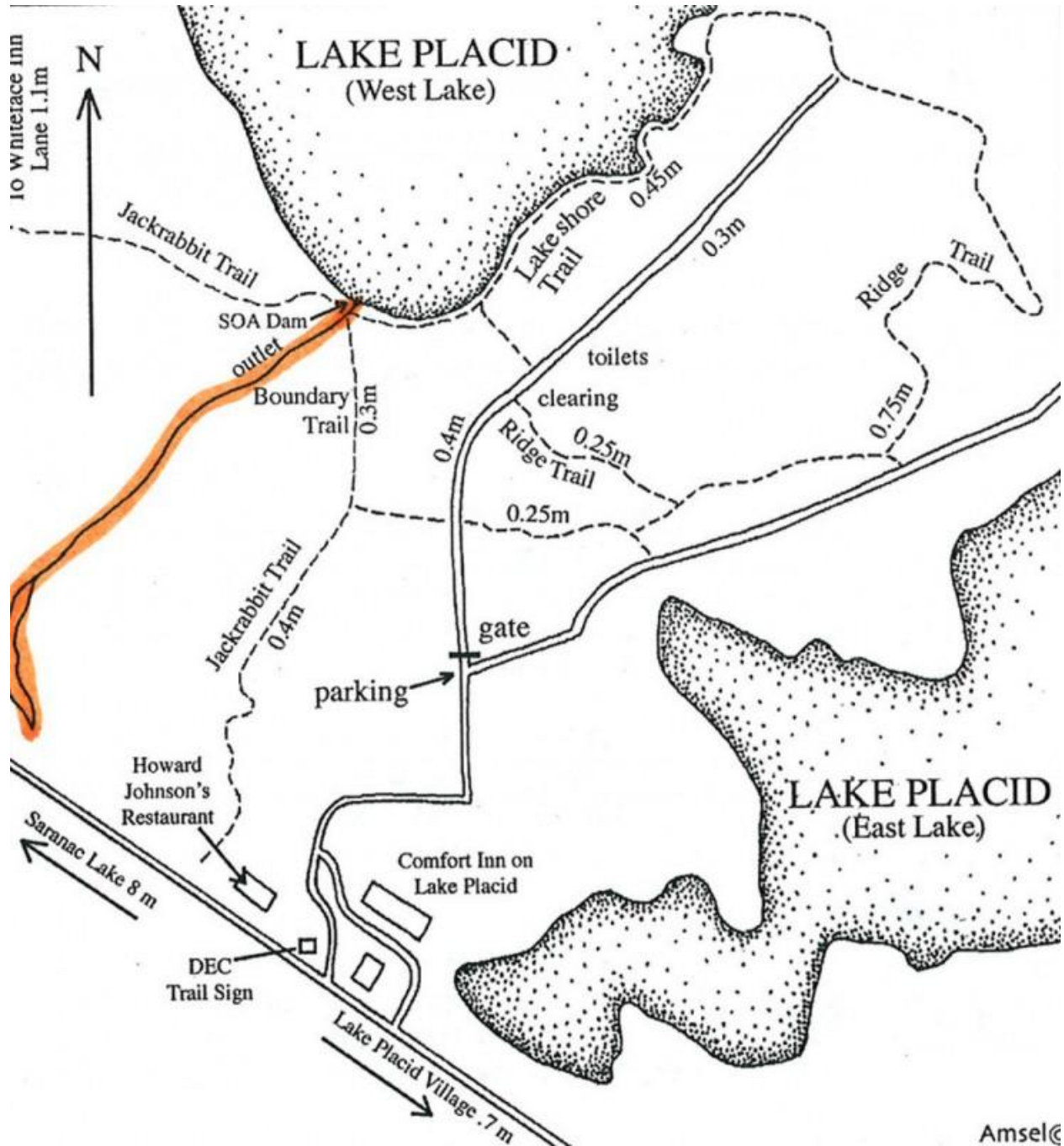
Lussi & Loggers
Trail Map

Appendix H

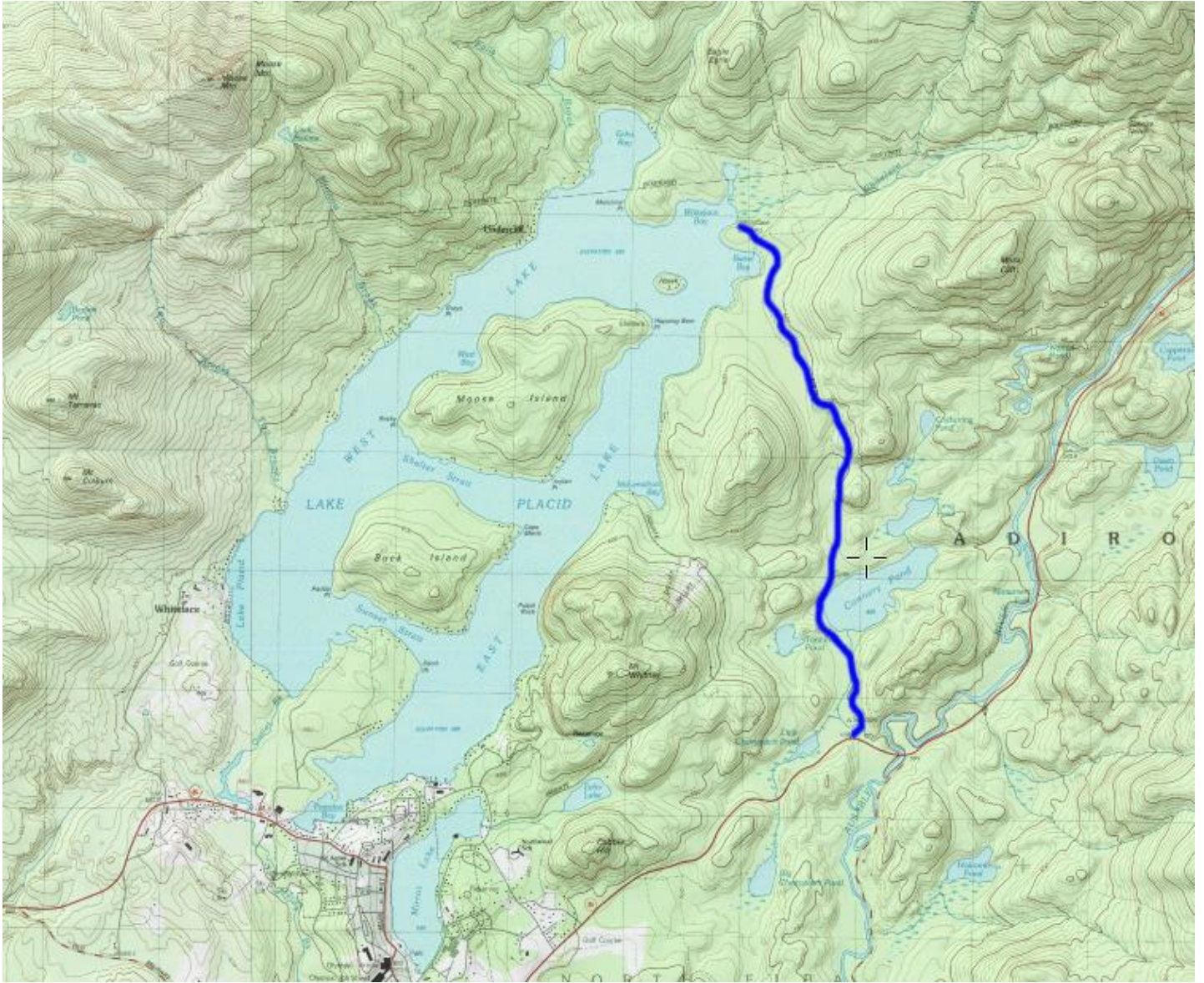## Northville-Placid Trail
Adirondacks, NY

Appendix I
Peninsula Trail
Lake Placid, NY

Appendix J
Whiteface Landing Trail
Lake Placid, NY

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