



# Where the Sidewalk Ends and the Trail Begins: An Evaluation of Pedestrian Infrastructure in Swanzey, New Hampshire

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## **Abstract**

Residents in Swanzey, New Hampshire are redefining its rural character to create a 'complete community.' Complete communities are towns/cities with plans incorporating safe streets for pedestrians, bicycles, and cars. They also include connected sidewalk networks and safe, accessible trail systems. Research objectives are to give Swanzey a comprehensive inventory and analysis of pedestrian infrastructure, evaluate residents' perceptions, and offer suggestions for improving current conditions. Trails and sidewalks are evaluated and mapped to show location and condition. Surveys gauge residents' attitudes towards current conditions. A focus group and Chi-Square tests of survey results are used to determine public perceptions of pedestrian infrastructure. Results indicate that Swanzey's sidewalk network is fractured and concentrated in three unconnected areas, and though there are ample trails most have poor accessibility due to lack of trailhead markings and accurate maps.

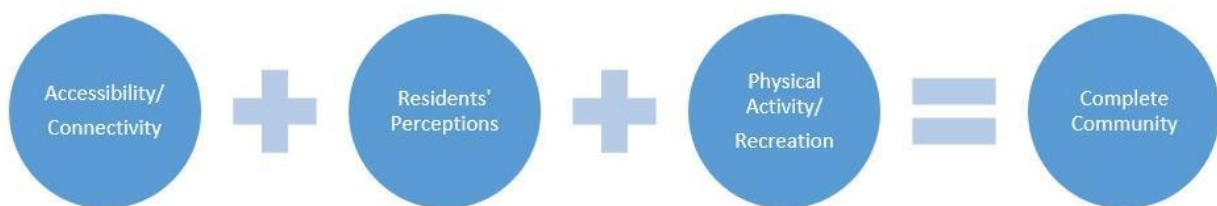


# Chapter 1: Introduction

A view along the Cheshire Rail Trail. Photo credit: Sam Jones.

Small town America is beginning to disappear. In many of these towns, aging populations, lack of resources, and movement of younger generations to metropolitan areas inhibit local governments from developing community resources. When this happens, the unique character of these areas is threatened as local community resources and infrastructure is forgotten. With low density settlement, necessities such as sidewalks and trails are oftentimes left to break apart and become overgrown. In the hopes that this will not be the future of their town, local officials in Swanzey, New Hampshire are interested in evaluating their sidewalks and trails. It is through these evaluations that they hope to take the first step towards becoming a “Complete Community.”

In order to do this, Swanzey is beginning by evaluating two of its most basic assets - trails and sidewalks. It is through these evaluations that officials hope to reach the goal of increasing resident awareness of trails and sidewalks to ultimately increase their usage. Maps will also be created and posted on Swanzey’s website for resident use when recreating. A mixed-methods approach will examine three components of trails and sidewalks including connectivity/accessibility, residents’ perceptions, and physical activity/recreation. Figure 1 shows these themes as the building blocks to creating a complete community. Within these broad categories, specific variables such as residence distance from trails and sidewalks, perceived safety on trails and sidewalks, resident physical activity levels, and frequency of sidewalk and trail use will be assessed.



**Figure 1** *The components of a “complete community.”*

Although a “complete community” is ideal for Swanzey, too much development and commotion may pollute the idea of living in a rural community. In Swanzey, much like other small, rural towns throughout the United States, there is a strong emphasis on what the Swanzey Master Plan Sub-Committee refers to as “rural character” (2003). This rural character is the pride of living in such a place, where inhabitants strongly believe in the beauty and sentimental values of being part of a small town community. It is troublesome to attempt to define the exact meaning of rural character because it is a subjective term. “For some, it may mean to cherish as much of nineteenth century life and aesthetics as possible. For others, it may mean keeping the town as open to hunting and fishing as possible,” therefore leaving the actual meaning up for interpretation (Swanzey Master Plan Subcommittee 2003). It is rural character that will affect how community resources, such as trails and sidewalks, are governed.

Created from what were once railroad tracks that ran through the town of Swanzey, local rail trails weave throughout the wooded and open areas of the town and are used by people with a variety of interests. In the summer, dog walkers and families riding their bikes frequent the trails. Fall leaves attract usage from “leaf peepers” admiring the changing colors. With winter comes the use of snowmobiles on these same paths. Given that these trails are already a treasured local resource with potential, officials are interested in knowing how they could be improved.

Presently, the trails exhibit a few main concerns for the town of Swanzey and its inhabitants. The first of these concerns is that there is currently no comprehensive map of all trails located within town boundaries. Due to this, many locals are discouraged from using the trails, as they do not know how trails connect, how they can be accessed from different areas of

the town, or if they even exist. Additional concerns involve the unknown conditions of many sections of trail, making people question whether it is safe to wander into unknown territory. It is through addressing these concerns that the town of Swanzey hopes to determine the future of its trails, ultimately aiming to make them a well-known and well-used community resource.

Along with trails, local officials also have concerns about town sidewalks. For many people, the most pressing issue with sidewalks is poor condition, which makes them difficult or unsafe to use, especially for Swanzey's aging population. Another concern is the obvious lack of sidewalks. In the town's nodes, such as Monadnock Regional Middle-High School and Main Street, sidewalks are present, but only for a short distance before they come to an abrupt end. Children, parents, and the elderly are only able to use sidewalks within a certain distance of these areas. With this information, it is important to evaluate the location, length, and condition of sidewalks. Constructing additional sidewalks would make the town more pedestrian-friendly, as well as safe for the aging and younger populations who use them regularly. It would also increase accessibility to trails, as sidewalks could lead to where the trails begin.

During the research process, qualitative data will be collected using a focus group. Quantitative data will be collected using a survey, as well as data sheets and GPS units for both trails and sidewalks. After data collection, analysis will take place and an action plan will be written, providing information to town officials about possible improvements.



## Chapter 2: Literature Review

A view of Mt. Monadnock atop Mt. Caesar. Photo credit: Ryan Zarnowski.

Previous literature was examined to gain a better understanding of how other researchers approached similar studies. Reoccurring themes within these different sources began to emerge as important topics of discussion and consideration in this study. These themes are: accessibility/connectivity, sidewalks, perceptions, safety & vulnerable populations, trails, physical activity/recreation, and resident attitudes. The concepts and practices that are prevalent in these works will be applied to many aspects of this study such as, creating hypotheses, methods of acquiring data, and formulating conclusions.

### **Accessibility/Connectivity**

Accessibility and connectivity are important factors that affect the ability and willingness of people to use pedestrian infrastructure (i.e. sidewalks and trails) for non-motorized transportation (Lee and Moudon 2008, 395-396). Research has shown that increasing physical activity reduces health risks and suggests that active transportation, or non-motorized travel modes, is an ample way to supplement that activity. Increased active transportation also reduces automobile traffic and emissions (Larouche, Barnes, and Tremblay 2013, 487).

A study conducted in Washington State examined what residents felt were the most significant factors that prevented them from walking or biking and which were the greatest facilitators of it. The results stated that traffic was the largest obstacle preventing would-be walkers, followed by long distances. Bikers were also deterred from activity by traffic, followed by hills and lack of bike lanes and trails (Lee and Moudon 2008, 396-405). The best facilitators for biking were found to be continuous bike lanes and trails, lighting at night, and bike racks at destinations. Walkers were most encouraged if there was ample lighting. Another finding in the

study concluded that grocery stores were the most common destination for both walkers and bikers (Lee and Moudon 2008, 405-411).

The research suggested short-term improvements that could be made to bolster walking and cycling activity in neighborhoods and communities. Traffic calming methods, which are generally any features of a roadway that decrease automobile speed and usage, are the most important improvements. They include the addition of street trees, sidewalk improvements, speed bumps, and street-side parking. Suggested long-term enhancements that can increase walking and biking activity are increasing aesthetic appeal, safety improvements, improving accessibility and street connectivity, and methods of fostering social interaction among users (Lee and Moudon 2008). Figure 2 outlines the options for short-term and long-term improvements.



**Figure 2** *Short- and long-term sidewalk and trail improvements.*

Prior to making short- or long-term improvements, current conditions must be assessed. “Walkability” generally refers to a pedestrian’s level of ease and enjoyment in traversing a city or

town. Despite the increasing number of walkable communities across the United States, a clear definition of walkability has yet to be created. Data shows that even though one-quarter or less of all personal trips taken by Americans have a destination within one mile, that three-quarters are made with a personal vehicle. Walkable communities promote physical activity and combat obesity, serving as a preventative health measure (Shay, Spoon, and Kattack 2003). The importance of healthy citizens and communities is obvious and paramount.

Four elements determine the walkability of an area: accessibility, aesthetics, connectivity, and safety. Sidewalks and trails are the primary paths for foot traffic and, therefore, have their own set of elements dictating their level of walkability. These include connectivity to surrounding destinations, crosswalks, safety features, width, condition or quality, and lighting. It is important to note that these factors are all external, and an individual's decision to travel on foot is also swayed by many internal factors. Such factors include physical condition, culture, family circumstance, education, profession, habits, attitudes, and values (Shay, Spoon, and Kattack 2003).

Due to the wide variety of features and combinations of features affecting walkability, it is difficult to define and quantify. Strict, concrete guidelines and definitions will often rule out pedestrian-friendly places that do not meet specific criteria, but are still considered walkable. A proper definition must be flexible enough to accommodate unique local conditions, but include defined classifications. Many groups have previously made guidelines to define walkability using a wide array of variables. The literature is extensive and considers many different methods of measuring walkability, but some variables are more consistent and useful than others. Those considered to best test the walkability of an area include prevalence of mixed land use,

accessibility, amount of pedestrian infrastructure, connectivity, street pattern, density, aesthetics, presence of open space, traffic calming methods, and access to transit (Shay, Spoon, and Kattack 2003).

Connectivity of streets, trails, and sidewalks plays a large role in walking and bicycling activity and can serve as a major facilitator. Measuring connectivity is done in a multitude of ways that each consider different criteria for what constitutes good connectivity. City planners measure connectivity by mean block length, mean block size, block density, intersection density, street density, and connected intersection ratio. Other indices used include link-node ratio (nodes are intersections or endpoints and links are connecting paths), percent of streets in a grid pattern (considered the most efficient street layout for connectivity), pedestrian route directness (ratio of route distance to straight-line distance), and effective walking area (ratio of parcels within a one-quarter mile walking distance of a node to the total number within a one-quarter mile radius) (Dill 2004, 2-6).

Professional geographers use two indices to measure connectivity. First, the gamma index is a ratio of the number of links between nodes and the maximum possible number of links. The second method, the alpha index, is the ratio of actual links to the maximum possible number. Though all of these methods of measurement give insight into neighborhood connectivity, they cannot fully explain bicycling and walking patterns. Other influencing factors include slope, sidewalks (prevalence and condition), bike lanes and trails, and aesthetics (Dill 2004, 6-7).

In assessing connectivity, it is important to examine case studies that compare cities and towns of relatively equal size and density. A study that took place in the suburban towns of Wallingford and Crossroads, both in the state of Washington, gave insight into what the

attributes are of towns with good connectivity. Wallingford was found to possess better connectivity due to features such as wide roads, a well-connected sidewalk network, and more land allocated to public rights-of-way. Crossroads lacked connected sidewalks and had many areas blocked by fences and walls. The Crossroads road network is also very inefficient. With few through streets, trips of equal distance are longer than they are in Wallingford. Fragmented sidewalk systems make Crossroads an unfriendly place for pedestrians, limiting walking to to-and-from automobiles in parking lots. The term “walking shed” refers to a half mile radius around a location and counts the amount of destinations that are within it. It is used in the Crossroads study as a tool for measuring connectivity. Walking sheds in Wallingford provide many more destinations than those in Crossroads, mostly due to sidewalk connectivity. Assessing the successful sidewalk connectivity of Wallingford provides several strategies and designs that bolster pedestrian activity (Hess 1997, 58-65).

One section of the population that is often not considered when examining access to pedestrian infrastructure is elderly people. A study completed in Detroit, Michigan aimed to identify factors that determine whether the elderly use pedestrian infrastructure (Clarke and Gallagher 2013, 997-1009). Not including poor health conditions, other factors determining elderly use of pedestrian infrastructure included access to public transportation, living close to sidewalks and/or trails, and homes that had safe exits/entrances (Clarke and Gallagher 2013, 1006). Studies like this one serve to show what areas may be of importance when considering improvements to pedestrian infrastructure in communities with a large elderly population.

Trails serve as valuable community assets by providing access and connectivity as well as diversion and fitness to people in many different forms. Examples include bicycling, bird

watching, skating, walking, running, etc. Trails can also interest more users in featured stops along the way (Dutton 2005, 56-63). The Rails-to-Trails Conservancy (RTC) stated that one benefit of rails to trails conversion is the opportunity to reshape communities (Dutton 2005, 61). One community in Illinois is connected to other communities through a network of trails and paths in a park. There are plans in the future to extend these paths to other towns. The goal is to allow residents from all corners to have access to all parts of the community via pathways for walking or biking (Dutton 2005, 61). This is just one possibility of what could happen in Swanzeey.

For many people, sidewalks are a background component in their travels to a destination. However, many challenges and parameters must be examined in the design and creation of sidewalks to make them accessible, connected and desirable to use. One article discusses the complications of designing sidewalks, their importance as a main type of infrastructure for communities, and suggestions as to how planners can successfully integrate them into any area (Ehrenfeucht and Loukaitou-Sideris 2010, 459-460). It highlighted that sidewalks are singular spaces that should function in three ways: spaces of leisure, infrastructure, and daily activities (Ehrenfeucht and Loukaitou-Sideris 2010, 460).

Given these varied purposes, planners face three main challenges in designing sidewalks. These include ensuring space can be used for a variety of pursuits, clear travel paths while allowing access to activities, and accounting for unplanned uses of space (Ehrenfeucht and Loukaitou-Sideris 2010, 461). In avoiding or fixing these problems, planners must recognize that sidewalks are their own separate space and must be treated with individual consideration (Ehrenfeucht and Loukaitou-Sideris 2010, 463). Second, planners must also be able to create connections between sidewalk users with conflicting interests. This would mean building

relationships between street performers, vendors, and landowners (Ehrenfeucht and Loukaitou-Sideris 2010, 465). Finally, to make sidewalks 'destinations,' planners can ensure that businesses in the area are attractive to a variety of people with differing socioeconomic statuses, cultures, and values (Ehrenfeucht and Loukaitou-Sideris 2010, 468). In considering this information, planners will be able to create a better environment for their city, instead of just providing public space.

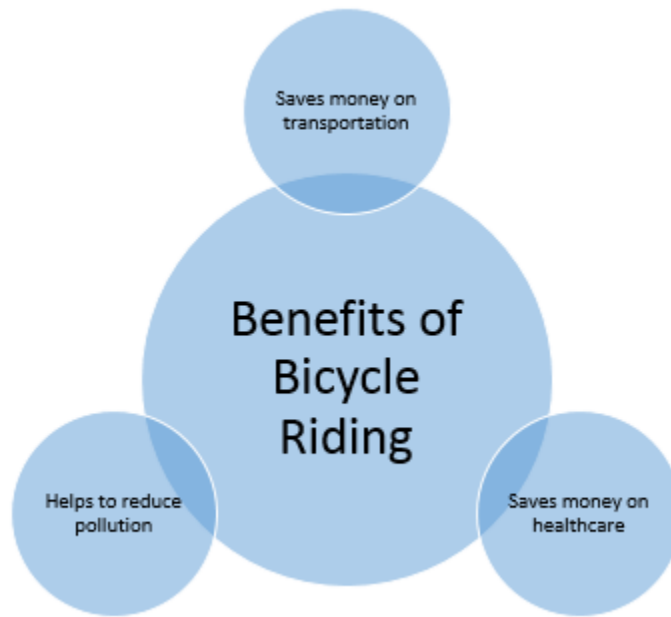
### **Physical Activity/Recreation**

Trails and walkways are important considerations in keeping communities physically active. The more access and availability that communities have to these areas can lead to more active citizens. In the United States, lack of physical activity in communities is a major contributor to obesity. Promoting active living can create a more healthy and connected community. Access to trails can connect people to new areas and create an outlet for physical activity. Bike paths in towns and cities were found to be the best way to create a sense of a healthy and connected community (Maibach 2003, 3). Examples of studies like this can be taken into consideration when looking at the trails and sidewalks in Swanzey, New Hampshire.

Many studies have shown health benefits from going to recreational areas to either walk, bike, or work out, especially for people 50 years of age or older (Ho et al. 2003, 2). This is an important consideration in a state such as New Hampshire due to large elderly populations throughout most of the state. One study found that seven out of ten recreational area users considered themselves vigorously physically active through walking, biking, jogging, or hiking (Ho et al. 2003, 4). This strengthens the argument that not only do people use these recreational areas, but also seek to improve upon personal fitness via these recreational assets.

Recreation has a value for individuals that constitute a means of improving the function of societies and communities (Briand, Sauv  , and Frechette 2011, 24-44). One study defines recreation as community-based educational or sports activities that contribute to the overall development of individuals and the ability of citizens to take charge of their local community (Briand, Suav  , and Frechette 2011, 2). Their study identified a new view of the impacts that recreation can have on a community.

In order to get to many recreation locations people will likely ride bikes. There are many physical benefits from choosing to ride a bicycle over other methods of transportation. A few of these benefits include reduced pollution and traffic congestion, which will allow for a more stable rural character that residents' seek to maintain. Studies have shown that higher cycling rates lead to people becoming more physically active and healthier as a result of this choice (Chansky 2011, 2). As people improve physical fitness, there is an assumption that these residents will take advantage of a town's recreational opportunities. Figure 3 shows the benefits of riding a bike for individuals and the environment.



**Figure 3** *Benefits of bicycle riding.*

One study emphasized that recreational areas can be a good venue for bicycling by providing proper bike lanes, as well as mixed-trails that would become a destination for bicyclists. Attracting bicyclists to parks can also be supported by adding bike lanes to streets (Chansky 2011). This is important for Swanzey, especially with the town trying to create “complete streets.” One way to do this is to place “sharrows” or bike arrows along streets, so that bicyclists have their own designated area in which they can safely ride. Swanzey is looking to improve its streets and trails and initiating complete streets will help the town move forward.

“Destination walking” or “active transportation” is walking as a form of transportation (Carlson et al. 2012, 271). In a study completed by graduate students at the University of New Hampshire, the relationships between the built environments, destination walking, and health were examined. Surveying the towns of Manchester and Portsmouth, New Hampshire, the graduate students asked homeowners questions about gender, age, income, daily exercise

habits, walking as transportation, and local sidewalk conditions (Carlson et al. 2012, 271-277). It was found that rather than a straight-line relationship between these variables, there are “feedback loops” and other factors previously unconsidered (Carlson et al. 2012, 279-280). The steps connecting these variables seem to follow this pattern: people walk to be healthy; if infrastructure for walking exists, people will use it; people's views of pedestrian infrastructure affect their use patterns; and health is connected to the condition of pedestrian infrastructure. It is suggested that this information can be used for areas that are looking to improve pedestrian infrastructure (Carlson et al. 2012, 279-280). This may be an important consideration for officials in Swanzey, New Hampshire.

Some of the most comprehensive data collected on active transportation is that of children commuting to and from school. Trends in both Canada and the United States have shown drastic declines in active transportation rates to and from schools over the past generation. Half as many Canadian children walk or use non-motorized transportation to commute as did a generation ago. In the United States, the amount has decreased from 41 percent in 1969 to just 13 percent in 2001. Distance is attributed as a main factor, however, children living within 1.6 kilometers (considered a reasonable distance for a child to walk) still declined from 86 percent to 50 percent. This suggests that other factors, such as changes in lifestyles, are at play (Larouche, Barnes, and Tremblay 2013, 487-489).

To increase the prevalence of active transportation of children to and from school several solutions can be introduced. First, a well-connected sidewalk network on low traffic streets would provide students with a better opportunity to walk or bike. Traffic calming measures and improved pedestrian infrastructure are also basic methods that are applicable. Community-

based partnerships providing parents with temporary parking or safe places to drop off their children would also improve opportunities for active transportation. Planned placement of new schools and public facilities is another, long-term, option. Increased street connectivity and population density does not, however, guarantee increased active transportation. In some cases, it increased motorized traffic and safety concerns (Larouche, Barnes, and Tremblay 2013, 487-489). In areas where available, trails can be used as a way for children to travel to schools as well. Increasing the active transportation of school age children will not only improve their health but also increase the likelihood they will continue to bike or walk into adulthood, reinforcing the future of sidewalk and trail use.

One real implementation of these suggestions is Safe Routes to School, which is a piece of legislation that was pushed to Congress by Democratic Minnesota Representative James Oberstar (Friel 2004, 2038-2039). The legislation aims to increase the number of children who are able to get to school via walking and bicycling. Oberstar has pushed the legislation because of increasing obesity rates among children, decreasing numbers of parents walking their children to school, and concerns about safety. His goal is to help schools improve sidewalks and paths within one mile of their location. The legislation will include improving pedestrian infrastructure in these areas to reduce the number of accidents and increase parent comfort with children walking and biking to school (Friel 2004, 2038-2039). Local communities can use this legislation to help them improve walking conditions for schools.

## **Residents' Perceptions**

With the addition and improvement of sidewalks and recreational infrastructure, like rail trails, resident perceptions may become a concern. While some people hope to attract more

physical activity on rail trails and increased usage of sidewalks by local citizens, some residents of rural towns like Swanzey may worry about the negative effects of this development. Apprehensive attitudes could pertain to the commotion that comes with these attractions, as well as concerns for the safety and well-being of those who may live nearby these areas. This is not to say that all residents will look pessimistically at these changes of infrastructure and recreation. Some may see it as an opportunity to bring a new source of wealth and livelihood to their community. Studies have been done trying to capture the tendencies of rural town residents' emotions towards improving their town's recreational and overall development. As previously stated, rural character is often a cherished idea within communities such as Swanzey.

The possibility of altering or increasing pedestrian infrastructure, such as the addition of sidewalks or the advertisement of Swanzey's trail system, may be concerning to some trying to hold onto the idea of rural character. On the other hand, these might not be the values that some believe make up rural character, so these changes will not affect their perception of the town. A loose definition of the term "rural character" encompasses the natural elements of a developed area that can be experienced using the five senses. Rural character is disturbed when pollutants to the natural environment negatively impact the way in which the environment can be experienced by the five senses. Pollution management should be used to uphold rural character (Swanzey Master Plan Sub-Committee 2003).

With this being stated, part of the master plan for Swanzey is to provide its residents with recreational resources. The effort to build athletic fields, trails, as well as buildings, should not come at the expense of usurping a local farmer's property. The goal of the local government to

maintain the recreational areas is not to cause distress to any, but rather the “re-creation” of the mind, body and soul (Swanzy Master Plan Sub-Committee 2003).

Safety is another important consideration when evaluating resident perceptions of pedestrian infrastructure. The World Health Organization’s Department of Violence and Injury Prevention and Disability produced an article which discusses ways to decrease pedestrian fatalities on roads (Toroyan, Khayesi, and Peden 2013, 197-202). Listed as the dangers to pedestrian safety are high speeds, inadequate pedestrian infrastructure, alcohol-related crashes, and low perceptibility of road infrastructure and pedestrians (Toroyan, Khayesi, and Peden 2013, 198). Solutions to these problems include reducing vehicle speeds, reducing the number of areas where pedestrians interact with traffic, increasing pedestrian safety knowledge, ensuring quality care for pedestrians that become injured, designing cars with pedestrian safety in mind, and emphasizing the presence of pedestrians and pedestrian infrastructure (Toroyan, Khayesi, and Peden 2013, 200).

Perceptions of the environment surrounding pedestrian infrastructure are important in determining whether or not people will walk in certain areas. In one study, variables were collected using a survey and included the following: accessibility, safety, comfort, and pleasure (Alfonzo et al. 2008, 39). Conclusions of the study indicated that observed “built environment features” affected usage (Alfonzo et al. 2008, 39, 44). The presence of benches, flower gardens, and garbage receptacles, whether positive or negative, affect a person’s decision to use pedestrian infrastructure. Similarly, another finding indicated that features identified in the last conclusion agglomerate to solidify a pedestrian’s perception of an area (Alfonzo et al. 2008, 44, 46). The last outcome pinpointed perceived safety as one of the biggest identifiers of pedestrian

usage of infrastructure (Alfonzo et al. 2008, 46). This study serves to identify elements that are important to consider in identifying pedestrian usage patterns in specific areas.

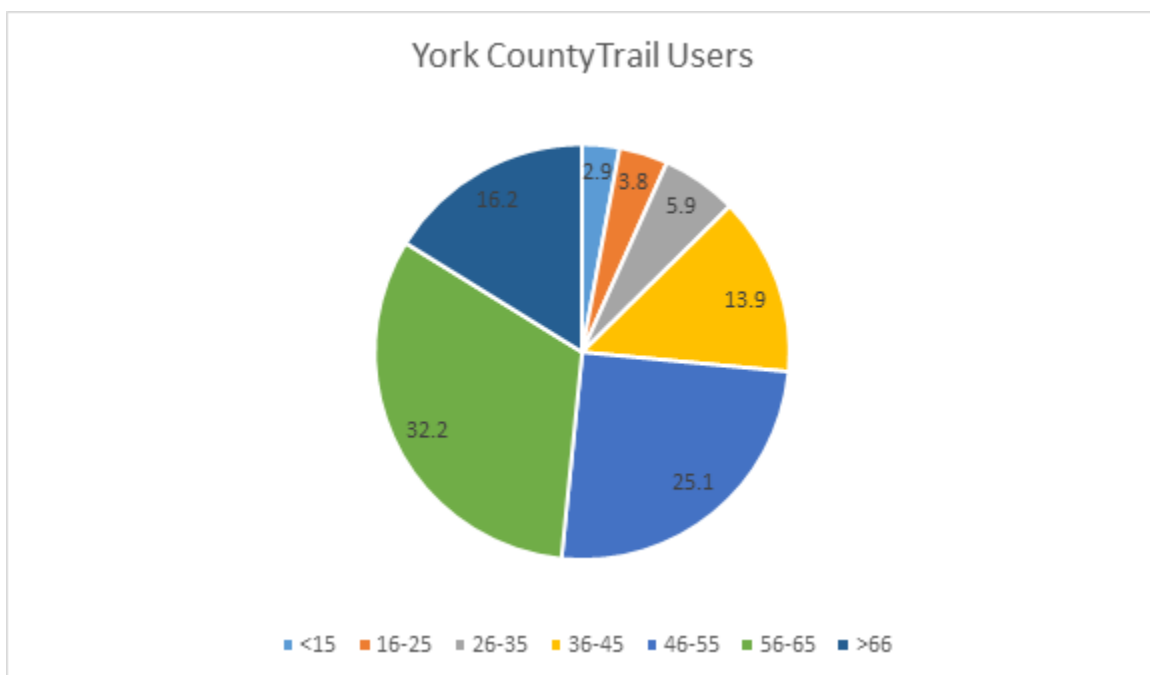
The concept of “safe space” has been widely-researched and written about. The argument states that creating a safe space for recreation is a key aspect for sport and recreational management and community event leverage (Spaaij and Schulenkorf 2014, 633). Having more pedestrian infrastructure within these safe spaces has been found to maximize positive social impacts for local communities around the world (Spaaij and Schulenkorf 2014, 644). Promotion of this idea has increased, enabling more people in communities with safe spaces to enjoy its benefits.

Though the goal of local governments is to create accessible trails, there is often opposition. Much of the concern is voiced by those who own property adjacent to trails (Turco, Gallagher, and Lee 1998). The worries of these residents are often focused on the possible increase of crime and litter that they may face due to the development of trails. They believe that these factors ultimately would lower their property value. One study in particular collected primary data by asking residents questions about the rail-trails adjacent to their land. Those residents whose property touched the rail-trail experienced positive outcomes. In these areas, the trails increased the convenience and opportunity for exercise, socialization, and gardening (Turco, Gallagher, and Lee 1998).

Out of the residents surveyed, only 15 percent seemed to notice an increase in litter, noise pollution, or invasion of privacy. Those that opposed the development of rail-trails adjacent to them have been coined as NIMBYs (Not in My Backyard) (Turco, Gallagher, and Lee 1998). Those with NIMBY syndrome, as studies have shown, tend to be those with preconceived

negative views on the development of trails and do not use them. This study concluded that within five years of the development of the rail trail, of those that had originally opposed, the majority had changed their views. Along with this, ten percent of people who purchased land adjacent to the rail-trails stated they were seeking the convenience (Turco, Gallagher, and Lee 1998).

In 2012, York County Parks located in Pennsylvania conducted a survey to receive feedback about what trail users thought about the trail, as well as basic information about the users themselves (York County Parks 2012). In Swanzey, there is an aging population, who may or may not see the continuous development of trails as a concern. However, in their study, York County found that roughly 16 percent of trail users were 66 years or older, and 32 percent were 56 to 65 years old. Those aged 56 to 65 were the largest group of users on the trail (York County Parks 2012). The percentages of trail users' ages that took the questionnaire can be seen in Figure 4.



**Figure 4** *Percent of trail users as collected by the York County Heritage Rail Trail County Park 2012 User Survey.*

As Figure 3 shows, the majority of trail users were older in age. This could be due to the excess leisure time of retirees or maybe a desire to improve their physical well-being. With this information, the assumption that many Swanzey residents would appreciate the rail-trail is not unlikely. Though York County's questionnaire concluded that mostly older adults use the rail trail system, there could still be concerns from parents about letting children use these amenities. Fears for children include an increased number of interactions with strangers and an increased possibility of getting injured (York County Parks 2012). However, in related literature, parents tended to have positive attitudes towards a more walkable community. They felt that the addition of pedestrian infrastructure allowed their children to separate themselves from the vehicular traffic (Kaczynski and Sharratt 2010).

Another study used focus groups to obtain qualitative data, as it would hopefully lead to a dialogue based on other attendees' responses. It was found that most parents were okay with children using trails without parental supervision. Trails in walkable neighborhoods created a better sense of community between those in the area. Parents felt as though they could trust other residents due to their increased relationship with those they saw more often (Kaczynski 2010). This information provides support for the increased use of trails and sidewalks. If parents see children using trails more frequently as a positive change, then they may also view a connected network of sidewalks in the same way. With a complete system of trails and sidewalks, parents could be comfortable with their children traveling to more destinations without accompaniment. This scenario would be possible for Swanzey to achieve if they can take the right steps towards becoming a complete community.

Improving sidewalk and bike trail use is an important issue for many communities across the United States that are trying to enhance the health and livability of their towns as well as move toward sustainable means of transportation. Increasing recreation and pedestrian activity benefits these communities in terms of social and economic activity, as well as helping to maintain their rural character. Many factors play a role in the prevalence of non-motorized transportation and trail usage, and should be examined thoroughly. Accessibility and connectivity are major factors affecting sidewalk and bike trail use, and can determine the overall usefulness of a pedestrian path. Proper pedestrian infrastructure is an important component of a healthy community and must be planned carefully in accordance with the best known facilitating factors of usage as well as the geography of the area.

In examining the best ways to design sidewalk and trail systems, the safety issues concerning pedestrian-vehicle interactions, perceptions of safety in areas with pedestrian infrastructure, ways to encourage destination walking, and studying special considerations for fragile populations, one is better able to understand the complexity of pedestrian infrastructure. It is through examining all of these variables - condition, usage, and connectivity that the town of Swanzey, New Hampshire will be able to identify what assets that it currently has and what improvements are needed. In evaluating their network of sidewalks and trails Swanzey will be taking the first step towards becoming a “complete community.”

# Chapter 3: Study Area

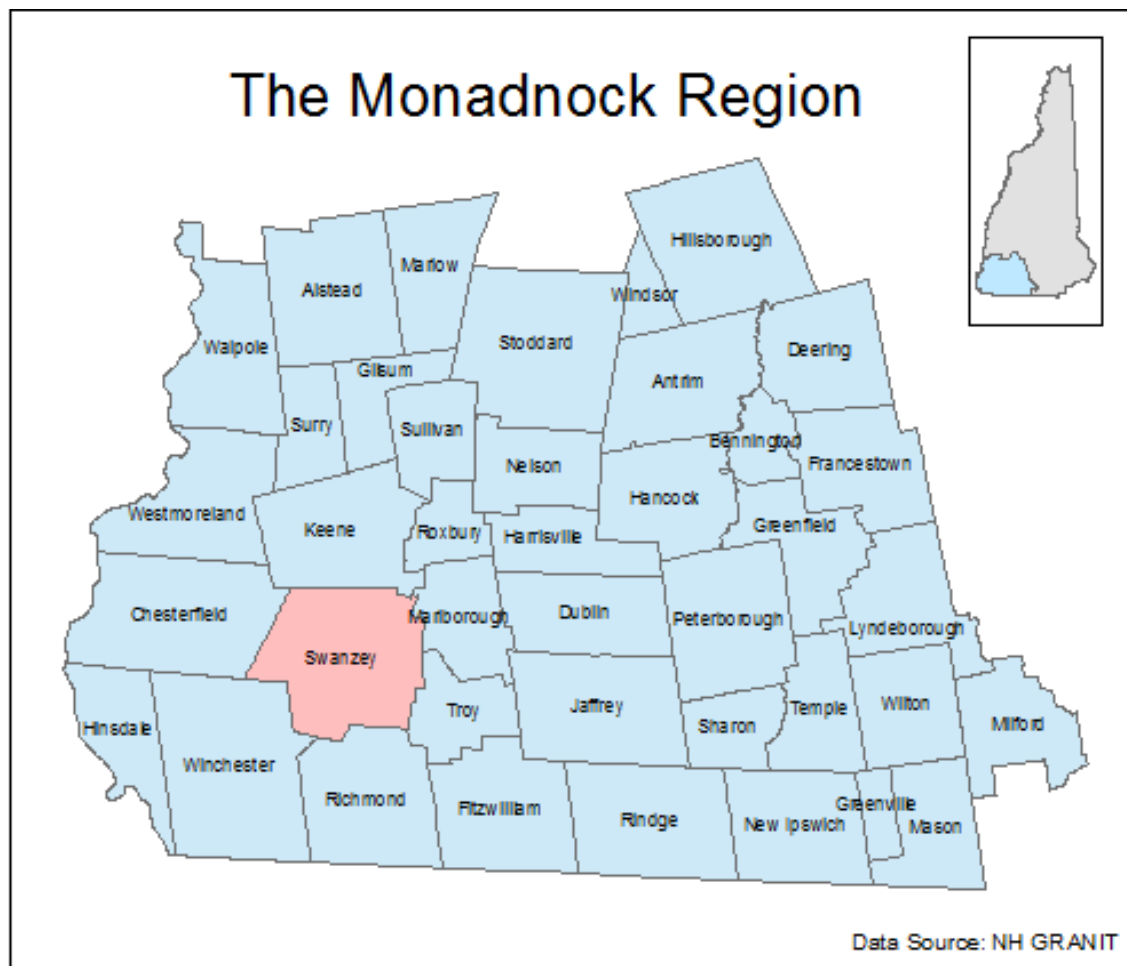
A scenic landscape photograph taken from an elevated position, likely the top of Honey Hill. The foreground is dominated by several large, dark, moss-covered boulders and patches of dry, brownish vegetation. In the middle ground, a dense forest of trees is visible, with many leaves turned in shades of orange, yellow, and red, indicating autumn. A few tall, green pine trees stand out against the colorful deciduous canopy. In the far distance, a range of rolling hills and a prominent, rounded mountain peak are visible under a sky filled with soft, white and grey clouds. The overall lighting is natural, suggesting a bright but slightly overcast day.

View from the top of Honey Hill. Photo Credit: Sam Jones.

An important part of this study is to first, understand the area in which this research is taking place. This includes the relative location of Swanzey, as well as the town's basic political background. Another important component of the study area is the general demographic information because residents' perceptions may correlate with traits such as gender, age, etc. Lastly, those responsible for pedestrian infrastructure will be defined, as there are many groups that influence alterations of the landscape.

### **Swanzey's Location & Political Background**

Swanzey is bordered to the north by Keene, to the east by Marlboro and Troy, to the south by Richmond and a part of Winchester, and to the west by Winchester and Chesterfield. Figure 5 shows Swanzey's location and extent in the Monadnock Region, which is often grouped together based upon distance away from Mt. Monadnock. Originally, the town was deemed to be a part of Massachusetts in 1733 and known as the fort town of Lower Ashuelot. It was chartered by New Hampshire in 1753 and named Swanzey by the Governor of Rhode Island (Read 1892).



**Figure 5** *The Monadnock Region.*

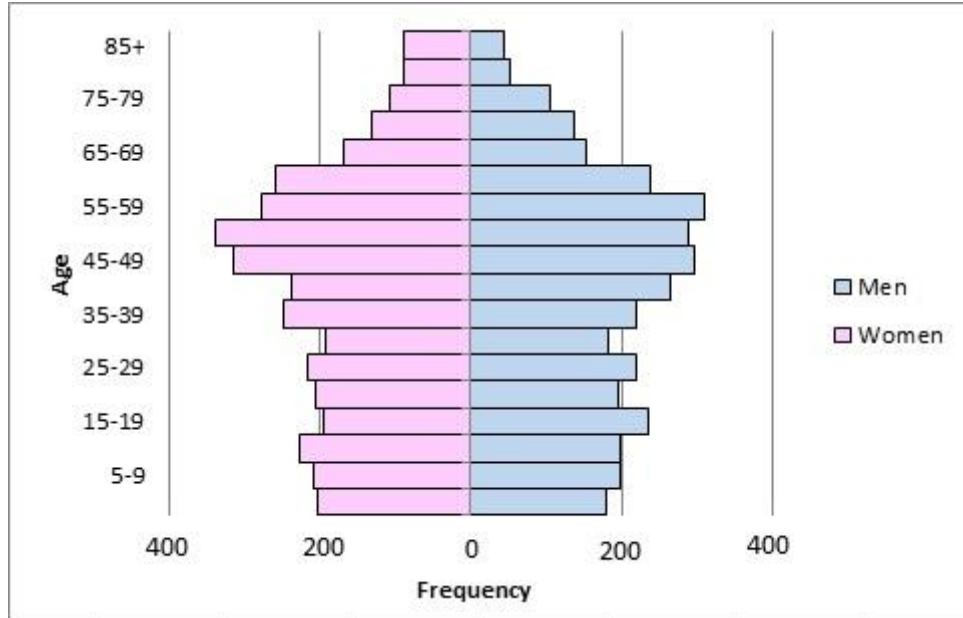
The villages of West Swanzey and Westport had train stations along the Ashuelot Railroad. This maintained good connectivity with the many businesses and manufacturers in Swanzey for importing and exporting their goods (Read 1892). Along with West Swanzey and Westport, East Swanzey, North Swanzey and Swanzey Center are included in the town's villages. Swanzey currently has a local police department and two fire departments in town, as well as three schools. There are multiple parks within the town to go along with two town libraries, and churches. Major businesses also reside in Swanzey, including grocery stores, a number of car

dealerships, and multiple restaurants. Other points of interest in town are the revival of “The Old Homestead” play, held at the Potash Bowl in Swanzey Center, and the Swanzey Historical Museum, located in West Swanzey (Sentinel Source 2014).

The locations of these activities, businesses, and local government buildings have a strong relation to the presence of the different neighborhoods in Swanzey. Within the town lines of Swanzey, there are separate nodes of commerce created by these attractions that over time lead to the development of Swanzey’s villages. The creation of multiple town centers and resulting inequities between these villages has historically been a point of contention for Swanzey residents.

## **Population Demographics**

Swanzey is a small town with an aging population and a lack of industry to employ its residents. When the first census was taken in 1790, there were approximately 1,157 residents. As of 2013, that number had increased to an estimated 7,243 people. Figure 5 shows that, currently, the highest amount of males is between the ages of 55 and 59 and for females the 49 to 55 age cohort is the largest. By looking at Figure 6, it can also be seen that most of Swanzey’s population is between the ages of 45 and 64, resulting in an average age of 45.3 years old (New Hampshire Office of Energy and Planning 2013).



**Figure 6** *Population pyramid of Swanzey residents.*

As of 2013, the median family income for Swanzey was \$62,344 and the average household income was \$55,066. The percentage of working residents who are employed in the community is 46.7 percent. An additional 41.7 percent of residents commute to another New Hampshire community for employment. Given that Swanzey is close to the border of Vermont and Massachusetts, 11.6 percent of residents commute to these areas as well (Economic & Labor Market Information Bureau and NH Employment Security 2015).

### **Pedestrian Infrastructure Responsibilities**

The town of Swanzey has a government that is composed of both the Town Meeting and Board of Selectman. These are the two groups that oversee all that is done within the town. There are many organized committees, commissions, and boards that are created to propose ideas to both the Town Meeting and Board of Selectman for advancements in their relative jurisdictions. Of these groups there are a select few that are involved in the development of pedestrian

infrastructure. Those that deserve considerable mention are the Conservation Commission, Open Space Committee, Planning Board, and West Swanzey Sidewalk Committee (Town of Swanzey 2010).

All four of these assemblies are responsible for different sanctions of pedestrian infrastructure, but together they are responsible for existing and future operations within Swanzey. As more land is devoted to connectivity and recreation in the form of sidewalks and trails, it is very important to remember that anthropogenic pollution may often occur. That is why the Conservation Commission was formed. The responsibility of the Conservation Commission as stated in their mission statement is to not only maintain, but also improve the quality of such things as air, soil, water, plants, and animals. They do this by assessing any new proposals for development and examining the possible impacts that it may have on the surrounding environment (Town of Swanzey 2010). Careless development that is not reviewed may lead to negative consequences, such as the destruction of sensitive habitats or pollution of wetlands.

Another group that is similar to the Conservation Commission is the Open Space Committee. The main objective of the Open Space Committee is to promote the sense of rural character that Swanzey values. This group is less involved in the science of the negative impacts of human-environment interactions and more focused on the aesthetics of residing in the rural society of Swanzey. The open spaces that can be seen all over towns like Swanzey are important in maintaining the strong rural character because they more easily invoke a connection with the land, which is the goal of Swanzey's Open Space Committee. The continued success of the group

is strongly due to land trusts that allow town property to remain open for public use (Town of Swanzey 2010).

The Swanzey Planning Board is not necessarily associated with the natural world in terms of the environment, but rather they approach it from more of a two-dimensional, geometric view. Proposals given by the Planning Board are in the form of subdivisions and zoning ordinances in the effort to make the most of Swanzey's land. This is influential for the purposes of this study because the proposals that are approved dictate land ownership and use. Lastly, the West Swanzey Sidewalk Committee is only associated with the village of West Swanzey. The responsibility of this committee is to use its funds to expand and maintain the already existing sidewalk system located in West Swanzey. This committee reinforces the theme of inequities between the separate villages within Swanzey (Town of Swanzey 2010).

Given the rural nature of this small town and the separation of pedestrian infrastructure responsibilities, some steps should be taken to analyze its limited community assets, especially pedestrian infrastructure. The data collected is gathered in the hopes that it will help these separate factions of the town's government improve the pedestrian infrastructure. It was also done in the hopes that in the future, these separate entities can come together to improve Swanzey's community resources.

# Chapter 4: Methodology

Different sidewalk conditions of West Swanzy. Photo Credit: Ryan Zarnowski.

Given the complex nature of evaluating trails, sidewalks, and the potential for a complete community, a mixed-methods approach was used. As a result, two types of data were collected during this research process: quantitative and qualitative. Quantitative, or numerical, data was used in the survey to measure residents' perceptions of community assets and in field work to collect physical characteristics of trails and sidewalks. Qualitative, or descriptive, data was collected during the focus group, when residents were asked to expand upon their opinions about the condition and extent of Swanzey's trails and sidewalks. This form of data collection is meant to highlight residents' perceptions of the already existing pedestrian infrastructure. The mixture of these two forms of data collection allows research to be done on all aspects of pedestrian infrastructure.

## **Survey**

The first step in the research process was to gauge residents' perceptions. To do this, a survey was used to evaluate residents' perceptions of trails and sidewalks in Swanzey. The survey included questions about demographic information, trail use, and sidewalk use. A copy of the survey can be seen in Appendix A. Surveys were administered and accepted during the month of October, 2015 in a combination of formats. The first surveys were handed out in paper form at the Swanzey Recycling Center on October 7<sup>th</sup>, 10<sup>th</sup>, and 14<sup>th</sup> between 8:00am and 10:30am. Dates were varied to reach residents from different parts of town that may frequent the facility on different days. The Recycling Center was chosen as the distribution location because it is the only facility in town that all residents must use to dispose of waste. Another round of surveys was completed online by participants that were sent a link via email by Sara Carbonneau, the town of Swanzey's Director of Planning and Community Development. Survey recipients in the email list

included elected and appointed town officials and department heads. A total of 76 respondents participated in the survey, with 36 of them completing it online and 40 of them completing it in person.

Questions and hypotheses were formulated around the project's three main themes: accessibility/connectivity, residents' perceptions, and physical activity/recreation. The demographic data collected using the survey revealed the following information about the sample population: most respondents were 65 and older, 25.2 years was the average number of years that people had been a Swanzey resident, and most people rated their physical activity level as a 4, meaning that they are moderately active. The average age of survey respondents was older than the average age of 45 reported in the Swanzey demographics (New Hampshire Office of Energy and Planning 2013). Research questions and objectives for each theme are discussed in the following sections.

Prior to testing each hypothesis, data was placed into individual Excel sheets. Any records not containing information for both variables were deleted. Most data was coded using numbered responses. Objectives not evaluated by a statistical test were displayed graphically and in tables to show the distribution of results in order to inform the research question. Tests run on the remaining objectives were completed using IBM's SPSS software. Most tests run were non-parametric because the data was categorical in nature. Some tests evaluate regular vs. non-regular users. "Regular users" are any respondents who indicated using the specified asset daily, weekly, or monthly, whereas non-regular users never used them or used them only a few times a year.

## **Accessibility/Connectivity:**

***Question 1: Do people who use trails regularly view them as more accessible than those who do not?***

***Question 2: Do people who use sidewalks regularly view them as more accessible than those who do not?***

***Question 3: Do people who live near sidewalks think that there were enough in town?***

The goal of the first two questions was to determine if perceived accessibility played a role in trail and sidewalk use. Question 1 asks this relationship of trails and Question 2 of sidewalks. Question 3 makes the assertion that living closer to a sidewalk causes residents to believe that there are enough sidewalks in Swanzey. Tables and graphs were used to display the results, which can be seen in the next chapter.

## **Residents' Perceptions:**

***Hypothesis 1: People who live closer to trails view them as safer.***

***Hypothesis 2: There is a difference in how safe males and females feel while recreating on trails.***

The first set of hypotheses aims to evaluate residents' perceptions of safety on trails. Hypothesis 1 was formulated with the assertion that residence proximity to trails impacts how safe residents view trails as being. Hypothesis 2 insinuates that gender plays a role in how safe respondents feel when recreating on trails. Both objectives were tested using a Chi-Square Test for Independence. This test was chosen because the data for all variables being evaluated was nominal or ordinal, and also because the variables consisted of two more independent groups (Lund Research Ltd. 2013). The purpose of a Chi-Square Test is to determine if a distribution of data looks like it would if the variables were independent, and also determines how likely the "distribution is due to chance" (Ling 2008). Running this test determined whether the relationship between the categorical variables was statistically significant.

## **Physical Activity/Recreation:**

***Hypothesis 3: Is there a difference in the trails regular users recreate on?***

***Hypothesis 4: People who rate themselves as more physically active would be more interested in using an expanded sidewalk network.***

Hypotheses 3 and 4 evaluate the recreation patterns and sidewalk use of Swanzey residents. Hypothesis 3 aims to determine what trails are used by regular trail users. In evaluating this objective, trail use was not agglomerated into two categories. Instead, this data was left in its original categories and renumbered. Users who indicated never using a trail were marked with a zero, and trails that were used every day were marked with a four. Physical activity had been ranked on a Likert Scale in the demographic section of the survey. Trails assessed included the following: the Ashuelot Rail Trail, Carroll's Hill Trail, Cheshire Rail Trail, Honey Hill Trail, Mt. Caesar Trail, Mt. Cresson Trail, and Tippin Rock Farm Trail. This hypothesis was evaluated using a Kruskal-Wallis Test. The Kruskal-Wallis test was chosen because the dependent variable was measured on a continuous scale, the independent variable was made of five separate groups, and there was no overlap in data for either of these variables (Lund Research Ltd. 2013). Given that the Kruskal-Wallis Test is a modified form of the Analysis of Variance (ANOVA) test and some data was measured using a Likert scale, there is much controversy over whether it is appropriate to use this test.

Many people debate whether or not it is appropriate to use an ANOVA test on data that was collected using a Likert scale. Considering that trail frequency was represented using a number, it was okay to use these numbers as interval data because you can tie frequency to a number. This claim is supported by the fact that Likert scales can be represented as numbers,

making them interval data. In testing interval data, one of the appropriate methods of analysis is the ANOVA test (Boone and Boone 2012, 3-4).

Hypothesis 4 was formulated to determine if there was a relationship between how physically active a person is and whether or not they would use an expanded sidewalk network. Physical activity ratings were taken from the same question used for Hypothesis 3 regarding recreation levels and trail usage. Data about interest in utilizing expanded sidewalk networks was taken from the sidewalk section of the survey. A Chi-Square Test was run on the data.

### **Focus Group**

In order to collect qualitative data about Swanzey residents' opinions regarding trails and sidewalks, a focus group was held at the Swanzey Town Hall on Friday, October 23<sup>rd</sup>. Invitations were sent via email and members from prominent community organizations, such as Swanzey's Open Spaces Committee and Conservation Commission attended. A group of approximately ten Swanzey residents participated in the meeting and were asked to come ready to share their opinions. Presenters went over survey questions with attendees, letting the conversation develop naturally, while keeping participants focused on Swanzey's trails and sidewalks, which took approximately an hour. The focus group was audio recorded on an Apple iPhone 6 using the Voice Memos app. To supplement the audio recording handwritten notes were also taken. The goal in organizing this event was that new or more in-depth information, not recorded by the survey, would be given about residents' opinions of trails and sidewalks and other issues surrounding them. Information collected was used as evidence to support the findings for hypotheses and helped to formulate new project conclusions and considerations. Along with this qualitative data, quantitative data was also collected in the assessment of sidewalks and trails.

## Trail Data Collection

In most rural towns there are expanses of land that have yet to be exposed to development. It is in these large areas that trails are often created to allow residents to experience a connection with natural landscapes and have outdoor recreation opportunities. Given that many people who live in rural towns choose to do so because of the abundance of natural features and lack of development, oftentimes there is a large selection of bike or hiking trails from which they can choose to recreate and even commute. With such a large number of trails in these towns, keeping updated maps and records on trail condition is very often a difficult task for local government and small town committees.

For this study, data for residents' personal perceptions of the trails were collected via a survey. However, another important component of this project was to conduct field work on these trails and manually collect physical attribute data. The first step in this process was to choose which trails were going to be involved in the scope of this study. Many trails are created and used on private property, making them subject to the private landowner's authority. To eliminate possible altercations with property owners, the trails chosen for assessment were those advertised on the town of Swanzey's official website and also those that are available in map form through the Open Spaces Committee. These trails were chosen because they are officially established, generally maintained, and open to the public. Six complete trails were chosen for data collection and included Tippin Rock/Hewes Hill Trail, Carroll's Hill Trail, Mt. Cresson Trail, Mt. Caesar Trail, Dickinson Forest, and Honey Hill Trail. Two additional rail trail segments that run through Swanzey were assessed. These are the Cheshire Rail Trail and Ashuelot Rail Trail.

In consideration of the fact that trails often serve multiple purposes, their assessment was more complex than that used for sidewalks. Given this complexity, more variables were needed in the assessment of trail condition because trails are created to accommodate a greater number of possible uses than sidewalks. Trail activities range from walking to mountain biking and snowmobiling, as well as many others. In order to best evaluate such a large number of trails and their uses, the same criteria was used for this study as used in the *Ashuelot Rail Trail: The ART of Commuting* report (Fournier et al. 2014). For both studies, trails were assessed on their surface type, condition, and suitability. Recent rainfall was also recorded as an attribute to provide contextual data for why a trail might be wet. For the purposes of this study, data for the Ashuelot Rail Trail in Swanzey was taken from the previous report. However, the trail was also assessed for the number of houses located along it and the amount of infrastructure that residents had made to access the trail from their property. These elements were also collected for all other trails evaluated, but addresses were not recorded due to privacy concerns.

The first attribute, surface, refers to the actual material that comprises a trail. The options in this category were asphalt, concrete, dirt, gravel, stone dust, sand, grass, and other, as well as combinations of two such as dirt/grass. The next attribute, condition, records how well the trail is able to drain surface water. Options included > 50% dry, > 50% wet, standing water/puddle, and other. Another crucial piece of information in assessing trail condition was to record the recent rainfall in the area, which could be marked as today, within three days, within one week, and unknown. The reason for this variable is because trails that have experienced rainfall on the day data was collected will more likely have a worse perceived condition than a trail that was assessed a week after the most recent rainfall. The last physical characteristic to record was

suitability, which refers to how smooth a trail is. The choices for this variable are smooth, lightly rutted, very rutted, and other. The previous two physical features are assessed using a subjective observation by the analyst acting as a trail user, rather than scientific fact.

Other attributes were also recorded, regarding physical qualities of the trails. This section included amenities such as parking, trailheads, trail markers, scenic views, goat paths created by property owners adjacent to the trail, and other features that were found to be important to understanding each individual trail. While waypoints were being placed along trails, attributes were used as markers so that other individuals can retrace the same path, if desired.

For reasons of safety and because of the compressed timeline of the project, research was done by two pairs of research teams. Each group had a list of materials that were needed for field work. This included a GPS unit, blank spreadsheets with the criteria for evaluation, yellow work vests, a cell phone, and any available maps of the trail. A copy of the trail data tables can be seen in Appendix B. The process for collecting the trail evaluation data was to set an initial waypoint, oftentimes at a trailhead parking location and then record the physical attributes of the trail.

A new waypoint was made when one of two things occurred. First, if there was a change in any physical characteristics a new waypoint would be set and the corresponding changes were recorded in a new record on the attribute table. A second reason was to record any large or prominent curvatures that occurred in the trail. For large bends, three waypoints were marked in order to get the shape of the turn. One point was in the center of the turn, one was where the turn began, and one for where the turn again became straight. The latter two points are often

referred to as points of tangency. This technique is used for the convenience of mapping the shape of the trails later on in ArcGIS.



**Figure 7** *John Ahern evaluating conditions along Cheshire Rail Trail.*

During each trail evaluation, a cell phone was kept on researchers for safety purposes, but also for the convenience of the camera. Pictures were taken by each team to capture noted attributes, trail obstructions and condition changes, as well as nature and scenic views. A single waypoint was used as the end marker for the path of each trail. If needed, additional comments were recorded to note overall experience of being on the trail. A similar, process was used in the evaluation of sidewalks. An example of a trail data table can be seen in Appendix B. Figure 7 shows one project member collecting data along the Cheshire Rail Trail.

## **Sidewalk Data Collection**

Sidewalks are a very important factor in a town's connectivity for pedestrians. Certain features, such as the condition and location of a sidewalk can determine whether or not residents use them. Having a complete network of sidewalks that are in good condition could motivate people to travel by foot to their destination, instead of having to use their car and deal with parking inconveniences. There are many different sidewalk attributes that are used to assess how useful and realistic a sidewalk really is in a community.

In Swanzey, networks of sidewalks appear mostly in West Swanzey and Swanzey Center. There is a small portion of sidewalk that runs along Route 12 in Northern Swanzey that connects

into Keene and is used to link businesses in the area, such as Sam's Outdoor Outfitters and the T-Bird Mini Mart. The array of sidewalks in West Swanzey are primarily used to connect people to local attractions such as the Ashuelot Rail Trail and library, as well as neighborhoods. A portion also runs along Route 10, which contains a few businesses. Swanzey Center is where the Monadnock Regional High School, Mt. Caesar School, and Town Hall are located. In this area, there is a smaller network of sidewalks that run along Route 32 and Sawyers Crossing Road.

In the assessment of sidewalks a data table was created for field work and can be seen in Appendix C. As with assessing the trails, GPS units were used to collect waypoints for certain features and used whenever there were changes in sidewalk shape, condition, or notable features. As the material or condition changed, a waypoint would be marked and noted in the data table. The table was created based off of the SADES (Statewide Asset Data Exchange System) booklet, which goes into detail about how to assess sidewalks, what to look for, and what attributes should be evaluated (NHDOS et al. 2014, 6-11). A copy of the data table can be seen in Appendix C.

The waypoint number was written down first so that when the GPS points are uploaded onto a computer and into ArcGIS, the record containing that information and the corresponding section of sidewalk can be easily found. The waypoint number is recorded because it ensures the accuracy of the data recorded. In the attribute column, any changes would be noted by recording the new attribute. This was approximately every 75 feet, and could be a change in material or notable damage on the sidewalk. Damage, such as cracks and holes, were noted only if they seemed to drastically change a pedestrian's walking pattern or create a change in surface.

Oftentimes, small cracks were not recorded due to the fact were a sign of natural sidewalk aging on concrete and asphalt. These small cracks did not affect a pedestrian's walking pattern.

The next attribute recorded was the sidewalk's surface material. During this process of data collection, only common concrete and asphalt style sidewalks were found. It should be noted that on the closed portion of Christian Hill Road with the bridge, the bridge has sidewalks that were made out of wood. After recording surface material, overall sidewalk condition was assessed on a Likert scale from poor to new. These decisions were based off of guidelines given in the SADES booklet. Sidewalk condition ranged from those that looked like they were poured very recently to some that looked like they were in desperate need of replacement. Along with the sidewalk condition, surface defects were recorded under each waypoint. Types of defects found included cracks, holes, dips in the sidewalk, abuse from the snowplows in the winter time, and grass/weeds growing in between the slabs. Defects were noted if they changed the pedestrian walking pattern or if a section of the sidewalk appeared to be hazardous to users.

Curbs were also assessed during data collection, as they play an important role in sidewalk networks. Curb material, if any was present was on the sidewalk, was documented. Oftentimes, there was no curb, and instead, just a four inch drop to the road. The types of curbs found were made of concrete, asphalt or granite. Asphalt curbs often had a curved shaped to them, while any made of concrete or granite usually had a sharp edge. Curb condition was also entered into data tables. Some curbs were brand new, while others had been damaged by snow plows or cars hitting them over the years. The last pieces of information recorded were the date of data collection, as well as whether a sidewalk was placed on both sides of the road or just a single

side. Attribute data collected about trails and sidewalks was used in the creation of condition maps.

## **Mapping/GIS**

Once all of the waypoints were collected for the trails and sidewalks on the GPS devices, they were uploaded onto a computer using DNRGPS. After this, waypoints were exported and saved as shapefiles so that they could be opened in ArcMap.

Once the points were opened in ArcMap, a base layer available through the software was added so that point locations could be referenced. The goal of mapping was to connect all of these points as line segments, and create maps showing the trail and sidewalk conditions in the lines. After data was uploaded, the information recorded for each waypoint was transferred to an Excel file in order to be able to join it to the line segments drawn in ArcGIS. Waypoints were turned into shapefiles in order to draw lines to connect the points. Each segment of line shows an attribute of the trail or sidewalk, but also contains other attribute information collected during field work. Once the lines were drawn, the FID number was entered into the Excel files so that everything would join properly. Files were then joined together to show the condition or attribute of the line.

Four different series of trail maps were made, each of which displays a different category of data. These categories include surface material, surface condition, suitability, and overall user ranking (which was created by adding the point values for each of the other attributes). Point values were assigned to attributes in each category based upon a ranking system, which can be seen in Appendix B. To show the condition of each section of a trail, lines were placed into one of seven different categories, each in a different color to indicate if the trail was excellent, very

good, good, average, needing improvement, poor, or impassible. These rankings were taken from the ART Report (Fournier et al. 2014).

Sidewalks were also mapped using four categories, somewhat similar those used for the trails. Categories included surface material, surface condition, curb type/condition, and overall score. The overall score was calculated using a similar ranking system as was used for trails and can be seen in Appendix B. Maps created were used to inform the action plan given to Swanzey officials.



# Chapter 5: Results

View from the top of Tiffin Rock Farm Trail. Photo Credit: Ryan Zarnowski.

Given the complex nature of evaluating pedestrian infrastructure, research questions were created to give context to data collected during field work. After creating objectives, various methods were chosen to evaluate each objective based on its variables and the type of data to be tested. Each objective and the corresponding tests were described in the previous chapter. This chapter describes the outcome of each of objectives and their implications for the town of Swanzey in moving towards a complete community. Trail and sidewalk data tables used in the creation of maps can be seen in Appendices B and C.

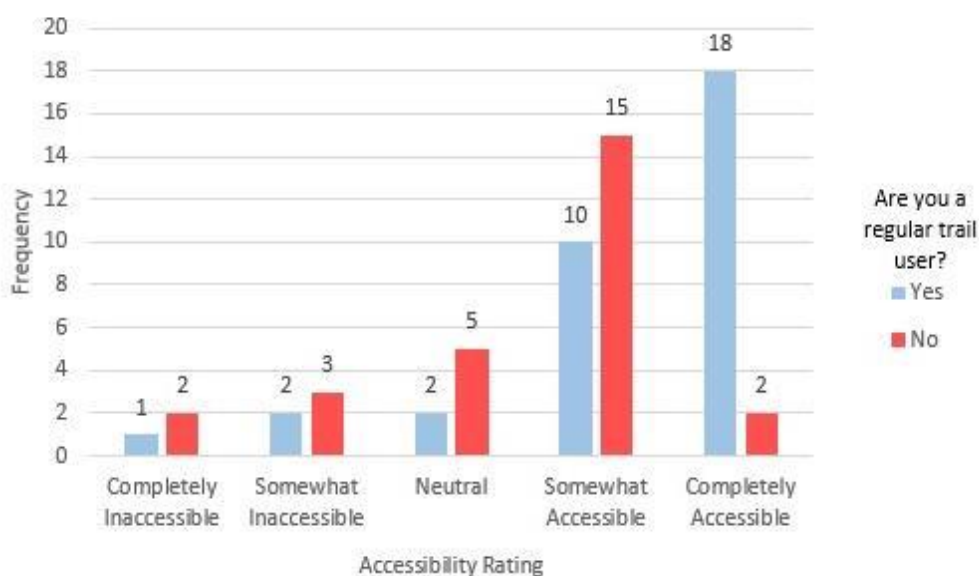
### **Accessibility/Connectivity**

One of the biggest proponents of utilizing community resources is simply being able to easily access them on foot. One of three themes of this research is accessibility/connectivity. In examining this theme, variables being assessed for both trails and sidewalks included regularity of use, accessibility ratings, and residence distance to sidewalks. These variables will help to determine what steps that Swanzey needs to take in order to improve the accessibility of these resources for residents. Maps included in the following section also serve to show whether resident perceptions of accessibility match what was found during field work.

#### ***Question 1: Do people who use trails regularly view them as more accessible than those who do not?***

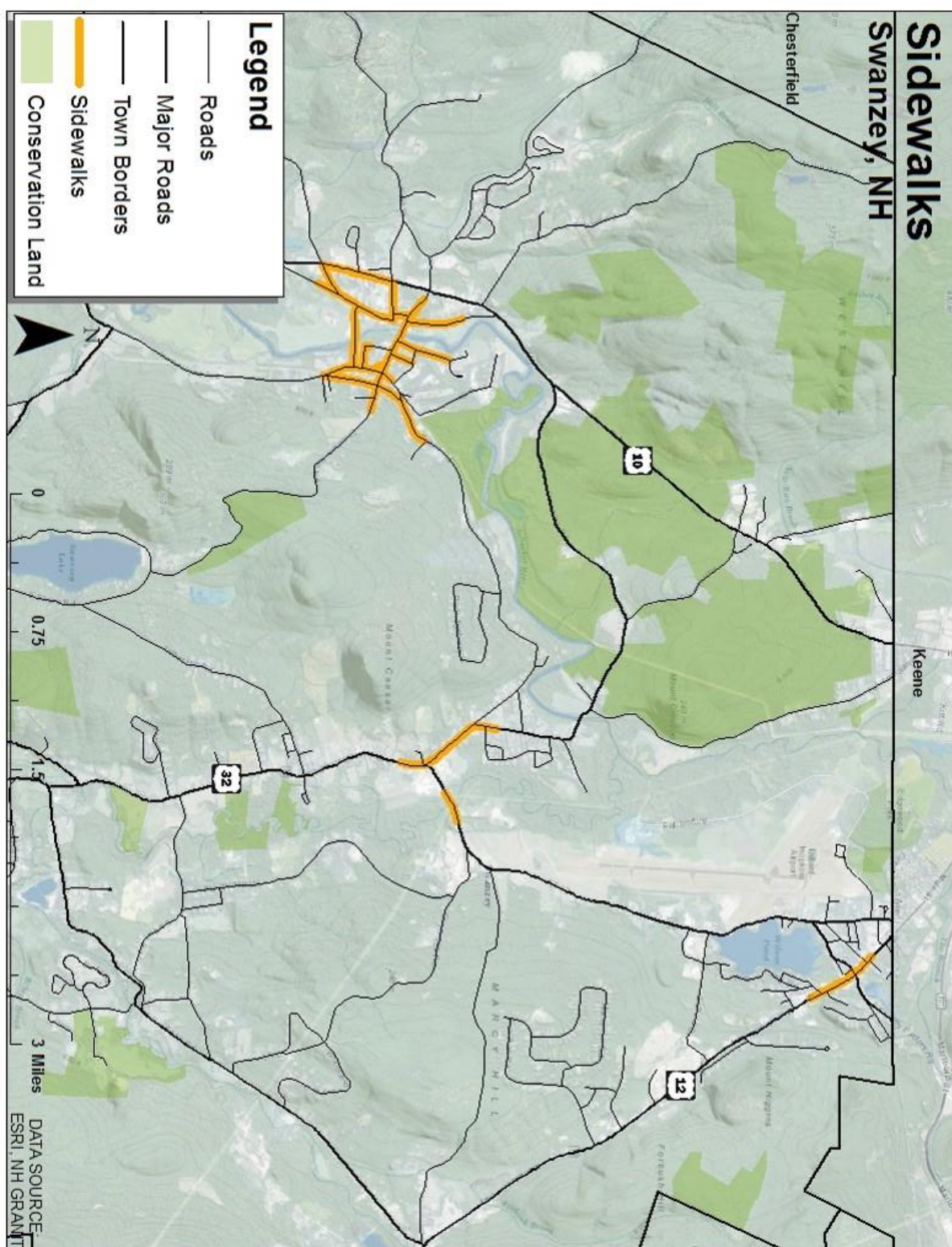
Oftentimes, accessibility of community resources affects resident usage. Approximately 55 percent of regular trail users or eighteen individuals indicated that they found trails to be completely accessible. Another 30 percent (ten respondents) felt that trails were somewhat accessible. Out of all the respondents who indicated that they were not regular trail users, approximately 56 percent (fifteen individuals) indicated that they found trails to be somewhat accessible. These results indicate that there is not necessarily a relationship between how

regularly people use trails and how accessible they find them to be. As can be seen in Figure 8, accessibility ratings for users and non-users are similar in all categories except the last one, which displays whether or not individuals find trails to be completely accessible. Only 7 percent of non-users or two individuals indicated that they found trails to be completely accessible, compared to 55 percent of regular trail users who found them to be completely accessible. It is also the only rating in which “yes” is more than “no” – in all other cases it is the opposite.

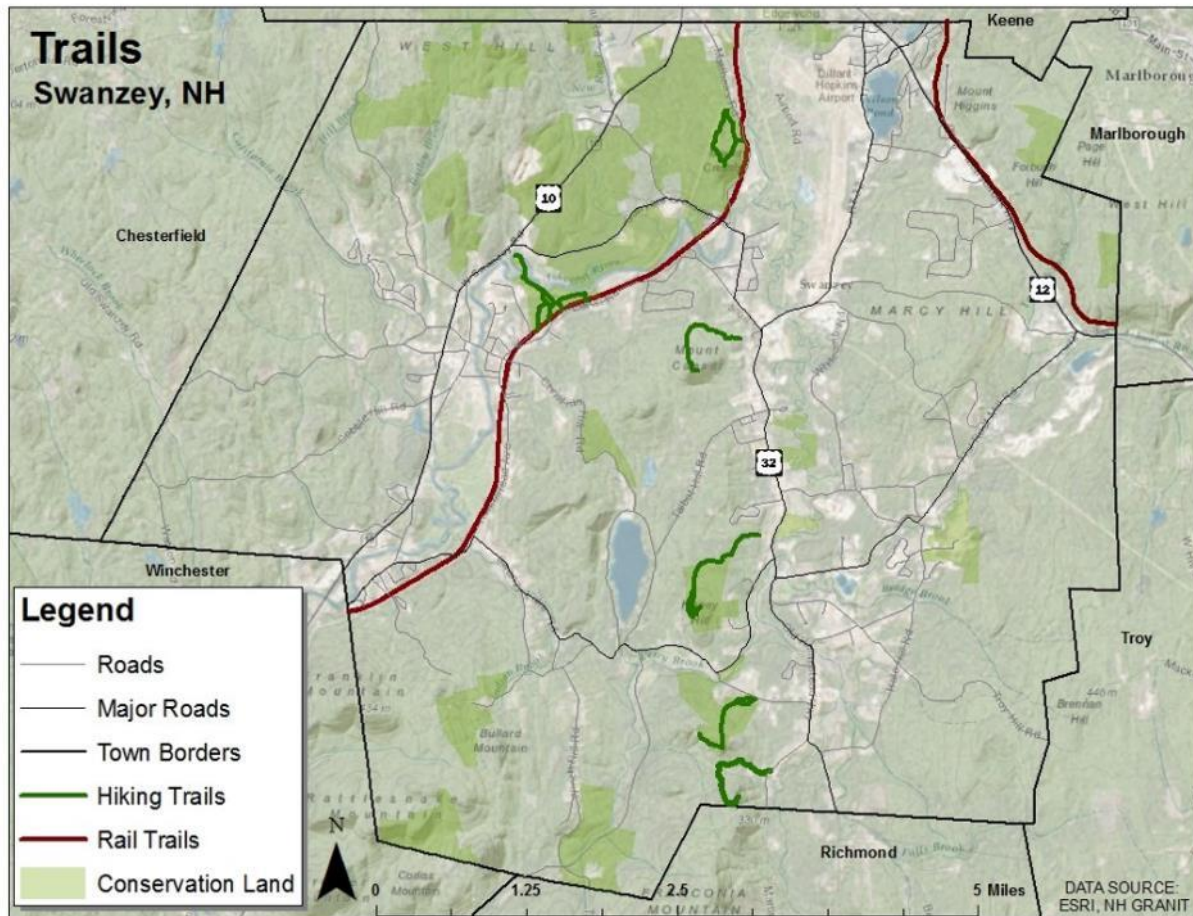


**Figure 8** *Difference between regular trail users and non-users’ ratings of trail accessibility.*

Despite there being outlying difference in opinion, Figure 8 indicates that there is not a relationship between how often an individual uses trails and how they rate trail accessibility. This is evidenced by the fact that the data is distributed almost completely evenly in most of the accessibility rating categories on the graph, with the exception of the last category. It may also suggest that people will not use trails unless they are considered completely accessible. Figures 9 and 10 show all trail and sidewalk locations in Swanzey.



**Figure 9** All sidewalk locations in Swanzey.



**Figure 10** All trail locations in Swanzey.

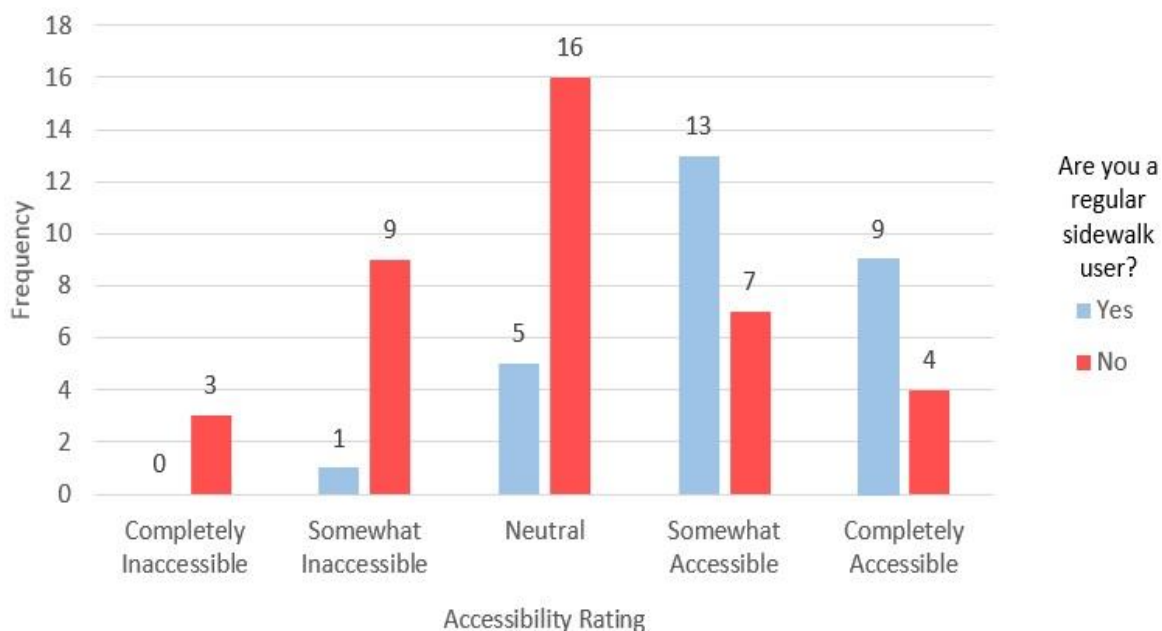
A larger version of Figure 10 can be found in Appendix E. Figure 10 illustrates that most trails are easily accessible by car off of major roads. Again, this provides evidence for the notion that trail accessibility is not affected by regularity of trail use.

**Question 2: Do people who use sidewalks regularly view them as more accessible than those who do not?**

The second connectivity question examines the relationship between sidewalk usage and accessibility. A chart and table were again used to inform the answer. The resulting numbers do not mirror each other in this situation nearly as much as they did for the last objective. Thirteen or approximately 46 percent of sidewalk users indicated that they felt sidewalks in Swanzey were

somewhat accessible. Another nine or 32 percent indicated that they felt that sidewalks were completely accessible. Amongst individuals who did not identify as sidewalk users, 41 percent (sixteen respondents) were neutral about the accessibility of sidewalks and 23 percent (nine individuals) indicated that they felt sidewalks were somewhat inaccessible.

Figure 11 shows the frequency of users choosing each category of sidewalk accessibility and whether or not they are regular sidewalk users. As can be seen in Figure 11, most non-users seemed to feel neutral about sidewalk accessibility, while the majority of sidewalk users felt that sidewalks were somewhat or completely accessible. People who use sidewalks regularly view them as more accessible than those who do not. This relationship can be asserted with a certain level of confidence because the data for non-users is skewed slightly to the left-hand side of the graph. On the other hand, regular sidewalk users much more heavily indicated feeling that sidewalks were pretty accessible. This difference in the distribution of data supports this finding.

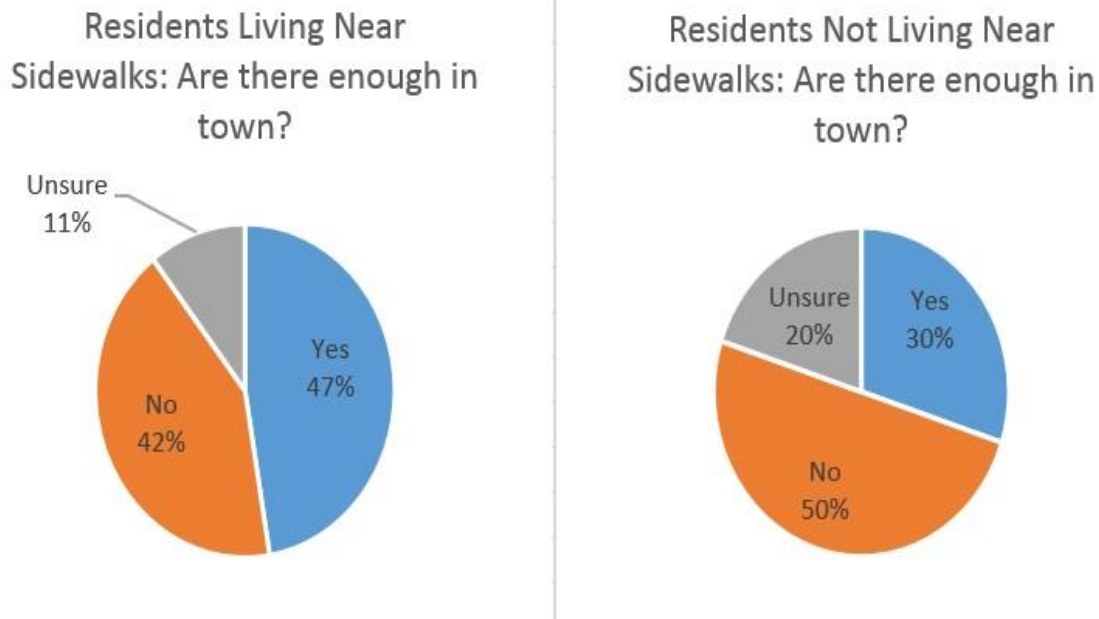


**Figure 11** Accessibility ratings of Swanzey sidewalks by users and non-users.

Figure 9 in the previous section shows that the most extensive network of sidewalks is located in West Swanzey, followed by small sidewalk network near Monadnock Regional Middle-High School and another area near Sam's Outdoor Outfitters, located on Route 12 in Swanzey. Given that sidewalks are located in these areas, regular users most likely live close to or participate in daily activities near these locations.

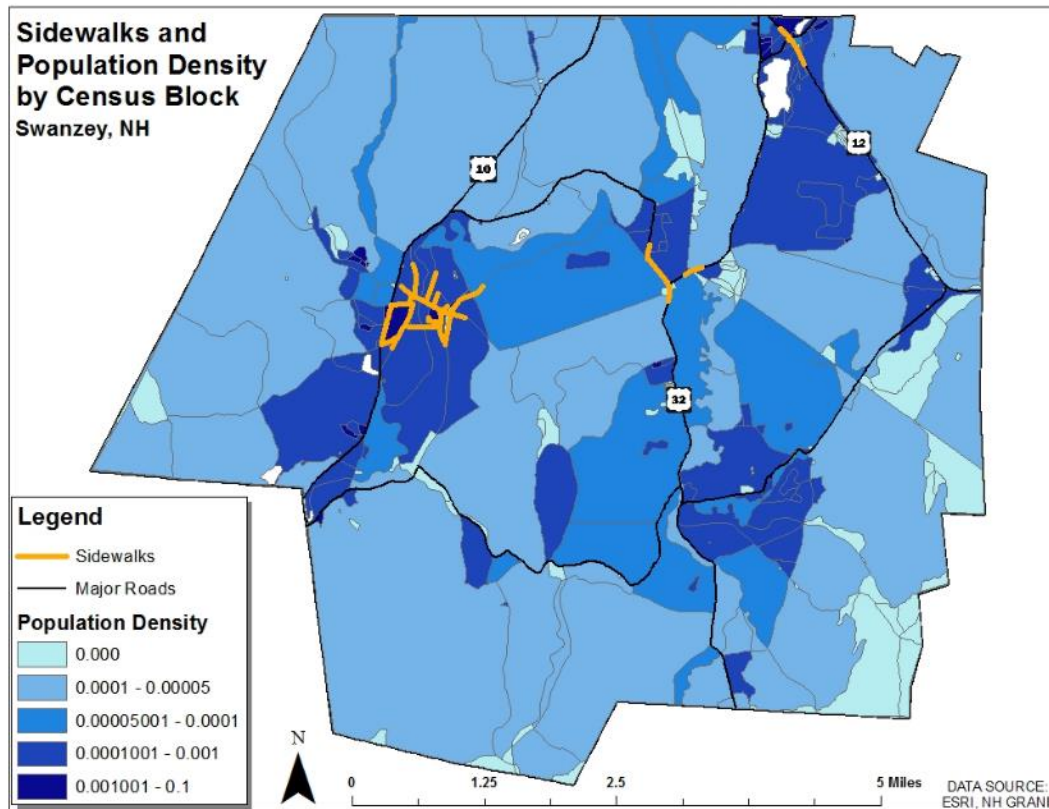
***Question 3: Do people who live near sidewalks think that there are enough in town?***

The final question regarding accessibility examines residence distance from sidewalks and survey respondent opinions about Swanzey's sidewalk network. Figure 12 shows the distance that residents live from sidewalks and their opinion about the extent of Swanzey's sidewalk network. Of residents living near sidewalks, 47 percent thought that there were enough in town, while 42 percent thought there were not, and eleven percent were unsure. For residents not living near sidewalks, 30 percent thought that there were enough sidewalks, 50 percent thought that there were not, and 20 percent were unsure. Clearly, residents living near sidewalks were more apt to think that there were enough in town. However, more surprising is the close percentages of residents in both categories who thought that there were not enough sidewalks in town. Almost 50 percent of both groups reported feeling that there were enough sidewalks in town.



**Figure 12** Resident location from sidewalks and opinion on extent of sidewalk network.

As can be seen in from Figure 9 from the first section, sidewalks are located in three main clusters of Swanzey: West Swanzey, Swanzey Center, and North Swanzey. Maps of the condition of sidewalks in the these individual areas can be seen in Appendix D. Figure 13 shows the population density of Swanzey overlaid with the current extent of the sidewalk network. Sidewalks are located in areas of town with some of the greatest population densities. However, a great majority of survey respondents still felt that the sidewalk network needed to be expanded. On their surveys, many respondents remarked that they would like to see expansion of the sidewalk network in Swanzey Center, near Monadnock Regional Middle-High School. Many described this area as dangerous during school hours and said that they would be able to walk to school if additional sidewalks were added.



**Figure 13** Population density by census block in Swanzey, New Hampshire.

### Residents' Perceptions:

One very important aspect that towns must take into consideration before making any major community changes are residents' perceptions. In administering the survey, the goal was to gauge how residents felt about current conditions of trails and sidewalks. These hypotheses were created to determine if residents' perceptions matched what can be seen on maps. For this theme variables tested included residence distance from trails, gender, and trail safety ratings.

#### ***Hypothesis 1: People who live closer to trails view them as safer.***

Evaluating residents' perceptions is pivotal when a community is contemplating changes to community resources. In examining this objective, a Chi-Square for independent samples was used to test the hypothesis. Figure 14 contains the results that will accept or reject the null

hypothesis. The null hypothesis is stated as follows: People who live closer to trails do not view them as safer than those who do not. The alternative hypothesis asserted that residents living closer to trails would give higher safety ratings. The asymptotic two-tailed significance from the Pearson's Chi-Square test was used to determine whether the relationship between variables was statistically significant. The value for p-value for this test statistic was calculated at 0.000 and because it is less than 0.05, this relationship is statistically significant. This means that the null hypothesis will be rejected and the alternative accepted. This means that there is a difference in how safe people feel on trails based upon how close to them they live. This relationship can also be confirmed because the data is not evenly distributed within the columns in the Chi-Square section of Figure 14.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
DistanceToTrails * SafetyRating	64	100.0%	0	0.0%	64	100.0%

**DistanceToTrails \* SafetyRating Crosstabulation**

			SafetyRating					Total
			Neutral	Somewhat Safe	Somewhat Unsafe	Very Safe	Very Unsafe	
DistanceToTrails	No	Count	4	10	1	13	0	28
		% within DistanceToTrails	14.3%	35.7%	3.6%	46.4%	0.0%	100.0%
		% within SafetyRating	50.0%	30.3%	50.0%	65.0%	0.0%	43.8%
		% of Total	6.3%	15.6%	1.6%	20.3%	0.0%	43.8%
	Unsure	Count	0	0	1	0	0	1
		% within DistanceToTrails	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
		% within SafetyRating	0.0%	0.0%	50.0%	0.0%	0.0%	1.6%
		% of Total	0.0%	0.0%	1.6%	0.0%	0.0%	1.6%
	Yes	Count	4	23	0	7	1	35
		% within DistanceToTrails	11.4%	65.7%	0.0%	20.0%	2.9%	100.0%
		% within SafetyRating	50.0%	69.7%	0.0%	35.0%	100.0%	54.7%
		% of Total	6.3%	35.9%	0.0%	10.9%	1.6%	54.7%
Total	Count	8	33	2	20	1	64	
	% within DistanceToTrails	12.5%	51.6%	3.1%	31.3%	1.6%	100.0%	
	% within SafetyRating	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	12.5%	51.6%	3.1%	31.3%	1.6%	100.0%	

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	39.233 <sup>a</sup>	8	.000
Likelihood Ratio	16.613	8	.034
N of Valid Cases	64		

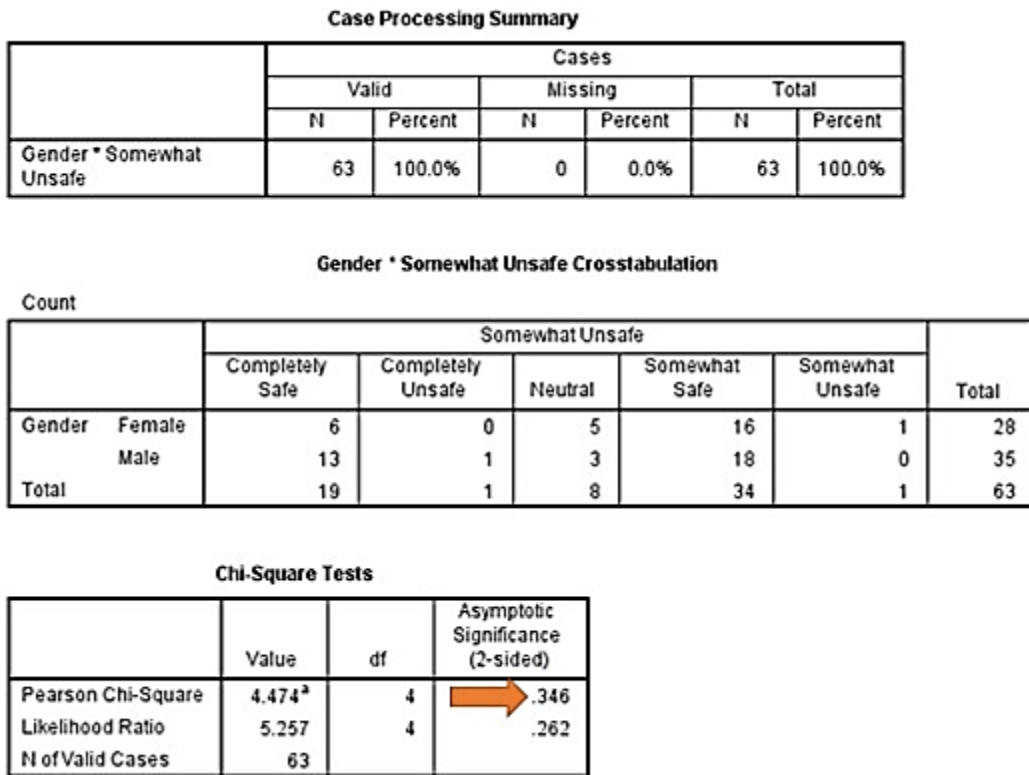
a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .02.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.783	.000
	Cramer's V	.554	.000
N of Valid Cases		64	

**Figure 14** *Chi-Square Independence Test for residence distance from trails and safety rating.*

**Hypothesis 2: There is a difference in how safe males and females feel while recreating on the trails.**

Gender can sometimes play role in how safe males and females feel in similar situations. In assessing this hypothesis, the goal was to examine differences in trail safety rating by gender, which was done using a Chi-Square Independence Test. Figure 15 shows the results. As with the previous hypothesis, the two-tailed significance from the Pearson Chi-Square test was used to determine whether there was a statistically significant relationship between variables. The p-value for this test was 0.346, indicating that the relationship between variables is not statistically significant. This means that the null hypothesis will be accepted and that there is no difference in how safe males and females feel while recreating on trails. This relationship is unsurprising, as the data in the Gender Cross tabulation section of the figure down below shows that, for the most part, men and women provided similar answers for each category of safety.



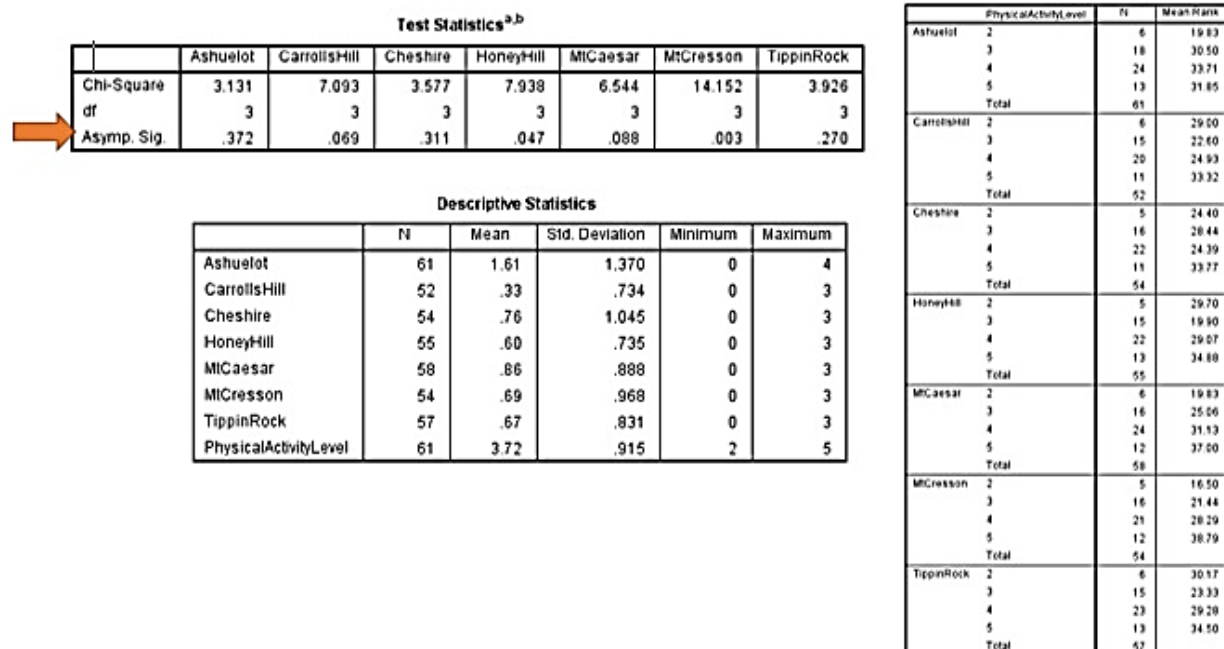
**Figure 15** *Chi-Square Independence Test for gender and trail safety rating.*

## Physical Activity/Recreation

Community resources include not only those that are historic, but also public recreation spaces, such as parks, playgrounds, and even trails and sidewalks. For officials in Swanzey, it is important to determine what section of the population actually uses the recreational resources available in the community. Variables used in evaluating these objectives include physical activity ratings, frequency of trail use, and interest in utilizing an expanded sidewalk network. One major goal of this project was to create maps of trails and sidewalks that people can use in deciding where to physically recreate in their community.

***Hypothesis 3: People who rate themselves as more physically active use trails more often than those who do not.***

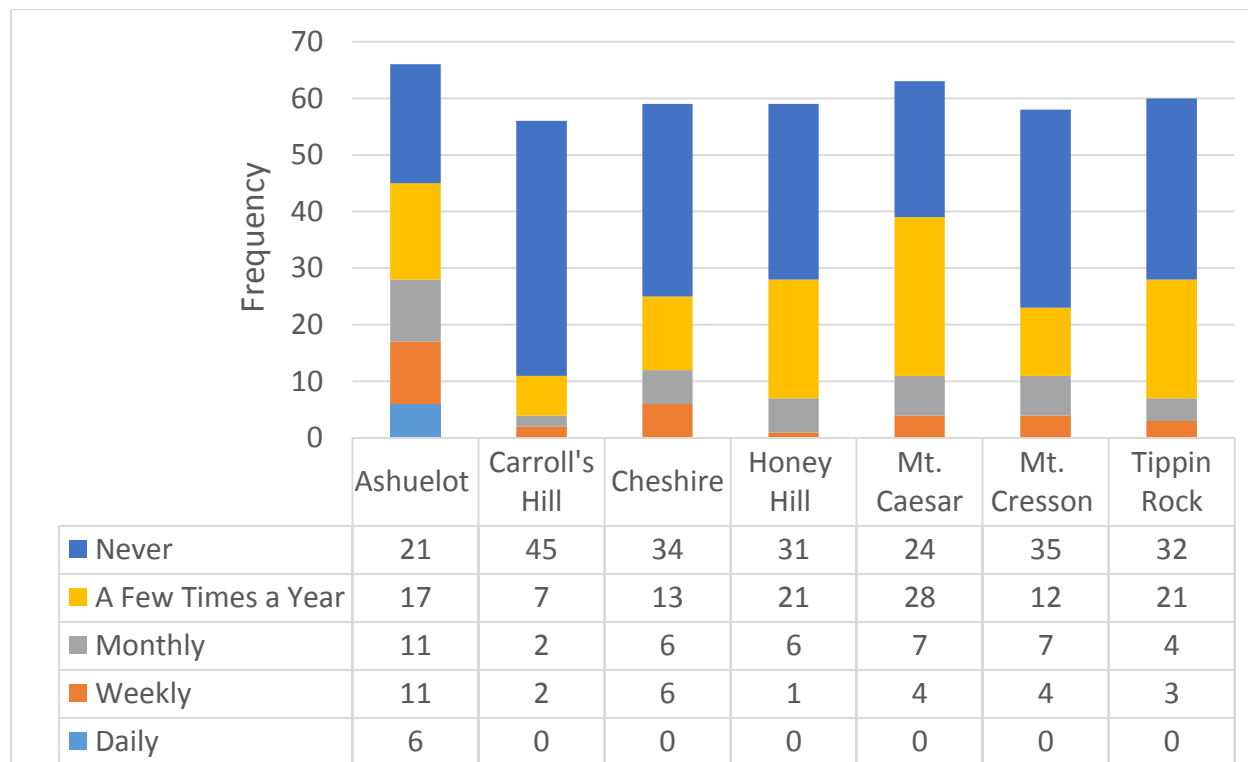
One question that was posed during research was whether physical activity rating affected trail usage. In evaluating this assertion, a Kruskal-Wallis Test was used. It was found that the Honey Hill ( $p=0.047$ ) and Mt. Cresson ( $p=0.003$ ) Trails were the two locations where physical activity and frequency of use had a statistically significant relationship, as both of their p-values were less than 0.05. For all other trails, there was no statistically significant relationship between user physical activity rating and frequency of use. The mean physical activity level for all survey respondents was 3.72, indicating respondents, on average, were moderately physically active. The Ashuelot Rail Trail was used the most by survey respondents, with a mean usage of 1.61 on a scale from 0 to 4. Figure 16 shows the results of the Kruskal-Wallis Test.



**Figure 16** Results of the Kruskal-Wallis test.

In addition to examining the relationship between physical activity level and trail usage, the frequency of use on each trail was also examined. This can be seen in Figure 17, which shows that the Ashuelot Rail Trail is used most by survey respondents, followed by Mt. Caesar and Tippin

Rock Trails. Carroll's Hill was the trail with the least amount of users. As can be seen for most trails, never was the highest category to be indicated by most survey respondents.



**Figure 17** Usage rates for trails in Swanze.

**Hypothesis 4: People who rate themselves as more physically active would be more interested in using an expanded sidewalk network.**

The objective in evaluating surveys was to determine if physical activity rating has an effect on residents' interest in using an expanded sidewalk network. For this objective, a Chi-Square Independence Test was used to test the relationship between variables. The results can be seen in Figure 18. The p-value for the Pearson Chi-Square test had a value of 0.125. Because this number is greater than 0.05, the alternative hypothesis will be rejected and the null will be accepted. This means that there is no relationship between how much people exercise and their interest in an expanded sidewalk network, suggesting that sidewalks are not commonly used for recreating in Swanze.

#### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PhysicalActivityLevel * ExpandedNetwork	67	100.0%	0	0.0%	67	100.0%

#### PhysicalActivityLevel \* ExpandedNetwork Crosstabulation

Count		ExpandedNetwork			Total
		No	Unsure	Yes	
PhysicalActivityLevel	I exercise sometimes.	3	5	15	23
	I exercise somewhat regularly.	4	4	16	24
	I rarely exercise.	4	1	2	7
	I'm very active.	6	1	6	13
Total		17	11	39	67

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.982 <sup>a</sup>	6	.125
Likelihood Ratio	9.574	6	.144
N of Valid Cases	67		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is 1.15.

**Figure 18** Results of the Chi-Square Independence Test for physical activity level and resident opinions on an expanded sidewalk network.

## Focus Group

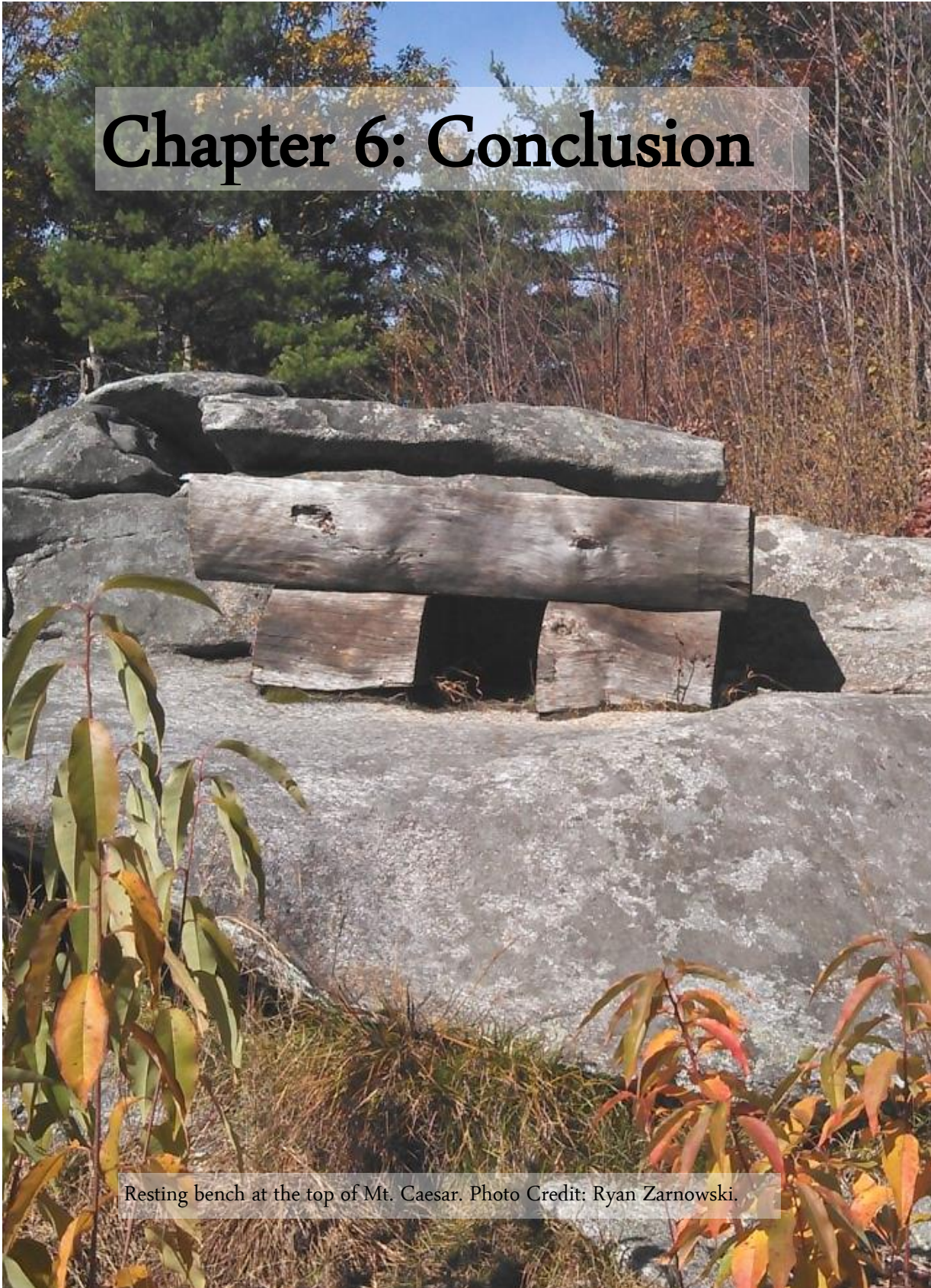
After the focus group had a taken place, it seemed as if residents of Swanzey were concerned with a few different topics. Everyone in attendance said that if there were comprehensive maps of all the trails available online, then they said they would be more likely to use them. They thought it was a good idea to have maps that show condition as well so someone can see what the trail is like, before taking a walk on them. Another interesting, not mentioned, but later discussed was idea of a “Bridge to Bridge” network of sidewalks, so that leaf peepers and residents alike can walk to all seven covered bridges in town on one connected system of sidewalks. The only bridge where residents can currently do this is Thompson Bridge in West Swanzey. Some residents do not want any sidewalks in front of their house, just because there

would be no real purpose for them. These individuals are of the philosophy that sidewalks are not needed just so individuals can walk from farm to farm. A summary of resident concerns about trails and sidewalks can be seen in Table 1.

**Table 1** Resident concerns about Swanzey trails and sidewalks.

	Trail Name/Sidewalk Location	Problem
Trail Concerns	Dickinson Forest	Serves as a party spot for local teenagers.
		Parking area is too far into the woods.
	Honey Hill	Walking from parking area is not safe because the road has no shoulder.
	Ashuelot & Cheshire Rail Trails	Pedestrians feel unsafe because not enough signage to show that trail is intersecting with road.
Sidewalk Concerns	Swanzey Center (near town hall and MRMHS)	Not enough sidewalks in this area, area is dangerous for pedestrians.
	West Swanzey	There are plenty of sidewalks in this area.

# Chapter 6: Conclusion



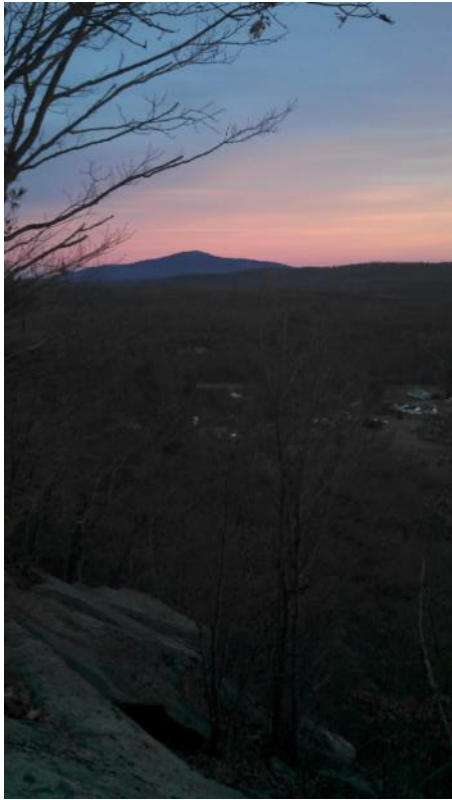
Resting bench at the top of Mt. Caesar. Photo Credit: Ryan Zarnowski.

Swanzeny, New Hampshire is a unique community with specific needs. Experiencing trails and sidewalks as first-time users, some necessary changes became obvious as field work was being done. Trails need be cleared, increased signage needs to be placed along entrances, and trail markers need to be repainted using brighter colors. Increased availability of parking would also allow more users to frequent trails at the same time. For sidewalks, some repaving and overall maintenance needs to be done in areas that seem neglected. Overall, more sidewalks really need to be added in high-traffic areas of town, such as the area by Monadnock Regional Middle-High School. Suggestions for improvement to pedestrian infrastructure can be seen in Table 2. Line and condition maps for trails and sidewalks can be seen in Appendices D and E.

**Table 2** *Suggested improvements for Swanzeny's pedestrian infrastructure and overall rating.*

	Trail Name	Improvements to be Made									Overall Rating
		Increased Signage	Brighter Trail Markers	Improved Parking	General Clean-Up (removal of leaves/obstructions)	Trail Widening	Availability of Lighting	Repaving	Defined Curbing	Filling of Cracks	
Suggestions for Trail Improvement	Ashuelot Rail Trail	X									Good
	Carroll's Hill Trail	X	X		X	X					Average
	Cheshire Rail Trail										Good
	Dickinson Forest	X	X								Average
	Honey Hill Trail	X	X	X							Average
	Mt. Caesar Trail	X	X	X	X						Average
	Mt. Cresson Trail	X	X	X							Average
	Tipplin Rock Farm Trail		X								Needs Improvement
Suggestions for Sidewalk Improvement	Northeast Swanzeny										Very Good
	Swanzeny Center				X		X			X	Needs Improvement
	West Swanzeny				X			X	X	X	Needs Improvement

As can be seen in Table 2, minor changes, such as increased signage and better trail



**Figure 19** *A view atop Mt. Caesar.*

markers are needed on most trails. Most of the trails were given an average to good rating, meaning that they are very usable and promising community assets, but enhancements could be made to increase their value as community assets.

Despite the fact that small changes could be made to improve the resident usability and appeal of these trails, the journey is very well worth the hike, as can be seen in an evening view atop the Mt. Caesar Trail, shown in Figure 19.

Trail rejuvenation took place this past summer on Swanzey sections of the Ashuelot Rail Trail near the Swanzey Recycling Center. In relation to trails, the biggest change

that needs to be made is how they are advertised. While

trail maps are available on Swanzey's website, trail usage would most likely increase if the public were made more aware of the existence of trails.

Trail maps could be placed under the "Community & Culture" section of the town's website (Town of Swanzey 2010). An announcement could be made on the town website announcing that maps are available. Two other suggestions would be to make a poster featuring each of the different trails, with a description of how to get to the trail, a picture of some part of the trail, and a trail map. This could be placed in a prominent location in the town hall, and informational trail brochures could be placed underneath it for visitors to take.

Table 2 shows that sidewalks are also in need of some physical improvements, mainly include removal of leaves and filling of cracks. Figure 20 shows an example of what many sections of sidewalk look like in Swanzey, covered with leaves. Residents desire the placement of additional sidewalks near Swanzey Center, so that pedestrians can safely traverse near the schools and town hall. It should be noted that during the fieldwork portion of this project, a new crosswalk was placed and repaving was completed near Mt. Caesar School, which can be seen in Figure 21. Sidewalks near the town hall could stand to be improved, as they feature cracks, but none that are dangerous to pedestrians traversing on them. This can be seen in Figure 22.



**Figure 20** Debris and leaves covering a sidewalk on Railroad Street in West Swanzey.

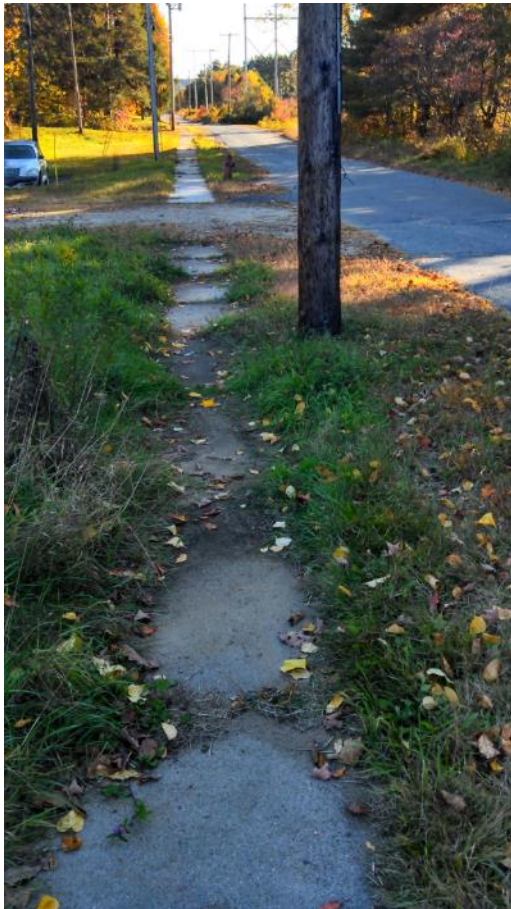


**Figure 21** A new crosswalk located near Mt. Caesar School in Swanzey Center.



**Figure 22** A sidewalk near Swanzey's town hall.

During the focus group, many residents indicated that they felt as though West Swanzey



**Figure 23** *West Swanzey sidewalks in poor condition.*

had sufficient sidewalks. While West Swanzey may contain the highest quantity of sidewalks, the condition of many of them could be improved. West Swanzey's Sidewalk Committee is responsible for the placement of sidewalks in this area. Many sections of sidewalk are uneven, and unlike sidewalks in Swanzey Center, could be dangerous to pedestrians walking along them. Figure 23 shows an example of this. Oftentimes, sidewalks were placed on side streets off the Main Street in front of Whitcomb Hall. Many lead to dead ends, rather than serving to connect one section of a neighborhood to another. It is suggested that sidewalks in this area be

cleared of debris and repaved. During the fieldwork portion of this research, a new section of sidewalk was

being replaced adjacent to the Ashuelot Rail Trail near South Grove Street.

Sidewalks in northeast Swanzey were given the best ratings, as there are few of them in this area, and many were being replaced throughout the duration of this research. With the opening of the new rotary connecting Route 12, Lake Street, and Swanzey Factory Road, additional sidewalks were placed so that pedestrians can safely travel near the rotary. This section of town features a sufficient quantity and quality of sidewalks, as it connects with the sidewalk network in southeast Keene and pedestrians are able to access all major roads points

of business in this area. In addition to evaluating the quality of sidewalks in Swanzey, the process of this research itself must also be evaluated.

## **Recommendations & Limitations**

Overall, there are improvements that could be made to better the quality of this research. One change would include distributing surveys to more town residents, as this would result in a more representative sample of the Swanzey population. Because a limited number of surveys were administered at the Swanzey Recycling Center, it cannot be certain that each section of Swanzey's population was truly represented. Given that online surveys were also mainly distributed to individuals involved with the local government and its associated committees, this may have slightly skewed the results. There is also a clear age discrepancy within the survey responses, of which the vast majority came from older residents due to their higher level of community involvement and the restrictions involved with surveying minors. This problem could have been avoided if survey preparation and administration locations had been completed earlier. If this had been done, more surveys would have been distributed and a wider variety of people would have been included in the responses. It also would have been beneficial if the link to the survey had been made available to residents via the town website. While there is danger in getting false responses, people may have been more inclined to complete the survey because they could do it from the comfort and privacy of their own home.

One limitation found during the process of this project was the equation used to rate the overall score of the sidewalks. After final scores were calculated for each section of sidewalk, it was noticed that when a sidewalk had no curb that it was automatically deemed "poor" quality. For example, if a sidewalk was in great condition but had no curb, then it was still given a poor

overall rating. In conducting research like this in the future, the scale should be modified so that existence of a curb would not affect a sidewalk's overall score. Similarly, the equation for the hiking trails was also skewed because the rating scale was based on that used for the Ashuelot Rail Trail (ART) Report (Fournier et al. 2014). For example, the best rating on the scale for surface material was stone dust, but none of the hiking trails were made of stone dust, so even if a trail was in great condition, its condition would not be accurately portrayed, as it was not made of the best material. In conducting this research again, the current scale should be modified for hiking trails to better fit them.

In addition to these limitations and recommendations, providing a volunteer day for people to go out onto the trails and sidewalks and clear them off would also be a good idea. This gives people the chance to ensure that the trails and sidewalks they are using are in good condition, as well as possibly informing other residents to the existence of the trails. Similarly, having a specific section of the Swanzey town website dedicated to trails and their condition is also recommended. Including an area specifically meant for the trails and having them promoted on the website will give people better access and availability to them. A poster showing maps of all the trails and directions to get to them should be placed in the Swanzey Town Hall. See Appendix F for a copy of one. This will be good way to promote the trails to anyone walking into the town hall and possibly showcase them to people who have never heard of them.

Further, a meeting should have been held with the Swanzey Conservation Commission and West Swanzey Sidewalk Committee, as these would have shed more light on exactly how these organizations are involved with sidewalks and trails in the community. In speaking with these groups, it would have been easier to understand what they see as the main issues

surrounding pedestrian infrastructure, and what challenges they face in distributing the responsibility for these assets. If it had been possible to hold a large meeting with the Conservation Commission, Sidewalk Committee, and Open Spaces Committee issues between groups could have been presented and discussed. Members of each group would also be able to openly discuss contentious issues with each other, and, hopefully, agree to make changes that would more evenly distribute the responsibility of these resources in the future.

Suggestions for future studies include inventorying important Swanzey community resources. This would include public buildings, historic buildings and locations, and locations that are deemed important community resources by the residents of Swanzey. Mapping these locations and collecting data would help Swanzey officials in further creating a complete community, as they may find out where more sidewalks need to be placed so that residents can safely access historical community resources or points of interest for their everyday needs. This is important because historical community resources are very important to the rural character of an area, something that Swanzey is trying to embrace and preserve.

Another suggestion is that a meeting be held in the future with Swanzey's Open Spaces Committee, Conservation Commission, and West Swanzey Sidewalk Committee. In gathering these parties together and holding a discussion, they may be able to better understand one another's perspectives around governing these important community assets. While complete agreement on how responsibilities are and should be divided is unlikely, bringing together these three entities and having them at least listen to one another would be a starting point for determining the future of these assets. If these three groups can come together successfully, then that will speak of an effective future to come in making Swanzey a complete community.

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## Appendix A: Survey

### Swanzeny Trail & Sidewalk Survey



We are a group of Keene State College students working with the town of Swanzeny on our senior research project. Our project includes obtaining information from Swanzeny residents about the condition and use of trails and sidewalks. Information collected will be used to inform the town of Swanzeny about trail and sidewalk conditions, as well as resident attitudes about changes that should be made. No personal information collected will be viewed or shared with anyone not affiliated with this research project. We thank you for your support!

1. What is your gender? ☐ Male ☐ Female ☐ Prefer not to answer
2. What is your age? ☐ Under 18 ☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65+
3. How many years have you been a resident of Swanzeny? \_\_\_\_\_
4. Please rate your physical activity level. (1 - I don't exercise at all; 5 - I'm very active)  
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

### Tell us about your trail use...

1. Do you use any of the trails in town?  
☐ Yes ☐ No ☐ Unsure
2. If yes, how do you access the trails?  
☐ Car ☐ Bike ☐ Walk ☐ Other: \_\_\_\_\_
3. Do you live within ¼ mile of a trail or is your property adjacent to a trail?  
☐ Yes ☐ No ☐ Unsure
4. Can you access a trail from your residence via sidewalk or bike lane?  
☐ Sidewalk ☐ Bike lane ☐ Both ☐ Neither
5. What activities do you participate in while on the trails? (Check all that apply)  
☐ Walking/jogging ☐ Biking ☐ Dog Walking ☐ Nature Viewing ☐ Bird Watching ☐ Horseback Riding ☐ Snowmobiling ☐ Other: \_\_\_\_\_
6. Rate the overall physical condition of trails in Swanzeny.  
☐ Very Poor ☐ Poor ☐ Neutral ☐ Good ☐ Very Good
7. How safe do you feel while using the trails?  
☐ Very Unsafe ☐ Somewhat Unsafe ☐ Neutral ☐ Mostly Safe ☐ Very Safe
8. Overall, how accessible do you find the trails in Swanzeny?  
☐ Completely Inaccessible ☐ Somewhat Inaccessible ☐ Neutral ☐ Somewhat Accessible ☐ Completely Accessible

9. How often do you use the following trails?

Trail Name	Do you use this trail? (Yes/No)	Frequency of Use					I've never heard of this trail.
		Daily	Weekly	Monthly	A Few Times a Year	Never	
Example Trail	Yes	X					
Ashuelot Rail Trail							
Carroll's Hill Loop Trail							
Cheshire Rail Trail							
Honey Hill Trail							
Mt. Caesar Trail							
Mt. Cresson Trail							
Tippin Rock Farm Trail							

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<p>10. If there was a comprehensive map of all trails in Swanzey, would you be more likely to use them?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p>	<p>11. What improvements could be made to trails to encourage you to use them? (Check all that apply)</p> <p><input type="checkbox"/> Trailhead parking</p> <p><input type="checkbox"/> Availability of maps</p> <p><input type="checkbox"/> Trail markers</p> <p><input type="checkbox"/> Lighting</p> <p><input type="checkbox"/> More signs</p> <p><input type="checkbox"/> Better conditions</p> <p><input type="checkbox"/> Paving</p> <p><input type="checkbox"/> Other: _____</p>	<p>12. If you could access trails using a sidewalk or bike lane, would you be more likely to use them?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p>
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## Tell us about your sidewalk use...

<p>1. How regularly do you use the sidewalks in town?</p> <p><input type="checkbox"/> Daily    <input type="checkbox"/> Never</p> <p><input type="checkbox"/> Weekly</p> <p><input type="checkbox"/> Monthly</p> <p><input type="checkbox"/> A few times a year</p>	<p>2. Do you live within ¼ mile of a sidewalk or is your property adjacent to a sidewalk?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p>	<p>3. What do you use sidewalks for? (Check all that apply)</p> <p><input type="checkbox"/> Exercise</p> <p><input type="checkbox"/> Commuting</p> <p><input type="checkbox"/> Other: _____</p>
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<p>4. Do you think that there are enough sidewalks in town?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p>	<p>5. Are there any areas in town that should have sidewalks/crosswalks, but do not?</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>6. Rate the overall condition of sidewalks in Swanzey.</p> <p><input type="checkbox"/> Very Poor</p> <p><input type="checkbox"/> Poor</p> <p><input type="checkbox"/> Neutral</p> <p><input type="checkbox"/> Good</p> <p><input type="checkbox"/> Very Good</p>
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<p>7. Overall, how accessible do you find the sidewalks in Swanzey?</p> <p><input type="checkbox"/> Completely Inaccessible</p> <p><input type="checkbox"/> Somewhat Inaccessible</p> <p><input type="checkbox"/> Neutral</p> <p><input type="checkbox"/> Somewhat Accessible</p> <p><input type="checkbox"/> Completely Accessible</p>	<p>8. Would expanding or improving the sidewalk network encourage you to use it?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p>	<p>9. What improvements could be made to sidewalks to encourage you to use them? (Check all that apply)</p> <p><input type="checkbox"/> Curbs    <input type="checkbox"/> Better lighting</p> <p><input type="checkbox"/> Repaving</p> <p><input type="checkbox"/> Increased width</p> <p><input type="checkbox"/> Other: _____</p>
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Additional Comments:

We will be hosting a focus group Friday, October 23rd at 4:00pm at the Swanzey Town Hall. If you would like to participate but cannot make this time, please leave your information and best available days/times down below.

<p>Name: _____</p> <p>Phone Number: _____</p> <p>Email: _____</p>	<p>Available Days/Times: _____</p>
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## Appendix B: Trail data tables.

### Appendix B-1: Cheshire Rail Trail data table.

Waypoint	Attribute	Surface	Condition	Suitability	Rainfall	FID	Surface Rank	Cond. Rank	Suit. Rank	Score
217	To gravel	Dirt/Grass	>50% dry	Smooth	Within We	0	5	1	1	7
218	Blank	Dirt/Grave	>50% dry	Smooth	Within We	1	3	1	1	5
219	To sand	Dirt/Sand	>50% dry	Smooth	Within We	2	5	1	1	7
220	Blank	Dirt/Sand	>50% dry	Smooth	Within We	3	5	1	1	7
221	Birth tree	Dirt/Sand	>50% dry	Smooth	Within We	4	5	1	1	7
222	Drainage	Dirt/Grave	>50% dry	Smooth	Within We	5	3	1	1	5
223	Drainage	Dirt/Grave	>50% dry	Smooth	Within We	6	3	1	1	5
224	Blank	Gravel/Sa	>50% dry	Smooth	Within We	7	5	1	1	7
225	Goatpath	Dirt/Sand	>50% dry	Smooth	Within We	8	5	1	1	7
226	See Rt. 12	Sand	>50% dry	Smooth	Within We	9	5	1	1	7
227	Blank	Dirt/Sand	>50% dry	Smooth	Within We	10	4	1	1	6
228	Gate 3	Dirt/Grave	>50% dry	Smooth	Within We	11	3	1	1	5
229	James Rd.	Dirt/Grave	>50% dry	Slightly Ru	Within We	12	3	1	2	6
230	Gate 4	Gravel	>50% dry	Smooth	Within We	13	4	1	1	6
231	Caution Si	Dirt/Grave	>50% dry	Smooth	Within We	14	3	1	1	5
232	Blank	Dirt/Grave	>50% dry	Slightly Ru	Within We	15	3	1	2	6
233	Blank	Dirt	>50% dry	Smooth	Within We	16	4	1	1	7
234	Cut log	Dirt/Grave	>50% dry	Slightly Ru	Within We	17	3	1	2	6
235	Washout	Sand/Gras	>50% dry	Smooth	Within We	18	5	1	1	7
236	Blank	Dirt/Grave	>50% dry	Smooth	Within We	19	3	1	1	5
237	Stream	Gravel/Gr	>50% dry	Smooth	Within We	20	4	1	1	6
238	Blank	Dirt/Grave	>50% dry	Smooth	Within We	21	3	1	1	5
239	Fallen tre	Dirt/Grave	>50% dry	Smooth	Within We	22	3	1	1	5
240	Tire pile	Dirt/Grave	>50% dry	Smooth	Within We	23	3	1	1	5
241	Abandone	Dirt/Grave	>50% dry	Smooth	Within We	24	3	1	1	5
242	Fence	Dirt/Grass	>50% dry	Smooth	Within We	25	5	1	1	7
243	Blank	Dirt	>50% dry	Smooth	Within We	26	4	1	1	6
245	Caution Si	Dirt/Sand	>50% dry	Smooth	Within We	27	5	1	1	7
246	Gate 5	Dirt	>50% dry	Smooth	Within We	28	4	1	1	6
247	Gate 6	Dirt	>50% dry	Smooth	Within We	29	4	1	1	6
248	Keep Righ	Dirt/Sand	>50% dry	Smooth	Within We	30	5	1	1	7
249	Bend 1	Dirt/Sand	>50% dry	Smooth	Within We	31	5	1	1	7
250	Bend 2	Dirt/Sand	>50% dry	Smooth	Within We	32	5	1	1	7
253	Bend 3	Dirt/Grave	>50% dry	Smooth	Within We	33	3	1	1	5
254	Intersecti	Other	>50% dry	Smooth	Within We	34	6	1	1	8
255	Blank	Dirt/Sand	>50% dry	Smooth	Within We	35	5	1	1	7
256	Snowmob	Dirt/Sand	>50% dry	Smooth	Within We	36	5	1	1	7
257	Blank	Dirt/Sand	>50% dry	Smooth	Within We	37	5	1	1	7
258	Blank	Dirt	>50% dry	Smooth	Within We	38	4	1	1	6
259	Blank	Dirt	>50% dry	Smooth	Within We	39	4	1	1	6
260	Blank	Dirt/Sand	>50% dry	Smooth	Within We	40	5	1	1	7
261	Rocks star	Dirt	>50% dry	Smooth	Within We	41	4	1	1	6
262	Rocks mid	Gravel	>50% dry	Smooth	Within We	42	3	1	1	5
264	Rocks mid	Dirt/Grave	>50% dry	Smooth	Within We	43	3	1	1	5
265	Rocks end	Dirt/Grave	>50% dry	Smooth	Within We	44	3	1	1	5
266	End	Dirt	>50% dry	Smooth	Within We	45	4	1	1	6

**Appendix B-2: Carroll's Hill Trail data table.**

Waypoint #	Attributes	Surface	Condition	Suitability	Date	Recent Rainfall	FID	Surface Rank	Cond. Rank	Suit. Rank	Score
219	Grass	Grass	>50% Wet	Good	10/29/2015	Today	0	5	2	1	8
220	Trailhead	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	1	5	2	2	9
221	Fallen Log	Grass	>50% Wet	Good	10/29/2015	Today	2	5	2	1	8
222	Tree	Grass	>50% Wet	Good	10/29/2015	Today	3	5	2	1	8
223	Tree	Gravel	>50% Wet	Good	10/29/2015	Today	4	3	2	1	6
224	(leading to a	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	5	3	2	2	7
225	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	6	3	2	2	7
226	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	7	3	2	2	7
227	Tree	Gravel	Standing Water	Lightly Rutted	10/29/2015	Today	8	3	3	2	8
228	Tree	Gravel	>50% Wet	Very Rutted	10/29/2015	Today	9	3	2	3	8
229	Gate	Gravel	>50% Wet	Very Rutted	10/29/2015	Today	10	3	2	3	8
230	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	11	3	2	2	7
231	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	12	3	2	2	7
232	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	13	3	2	2	7
233	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	14	3	2	2	7
234	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	15	3	2	2	7
235	Bump	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	16	3	2	2	7
236	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	17	3	2	2	7
237	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	18	3	2	2	7
238	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	19	3	2	2	7
239	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	20	3	2	2	7
240	Trail Marker	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	21	3	2	2	7
241	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	22	5	2	2	9
242	Goat path	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	23	5	2	2	9
243	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	24	5	2	2	9
244	Tree	Grass	Standing Water	Lightly Rutted	10/29/2015	Today	25	5	3	2	10
245	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	26	5	2	2	9
246	Tree	Gravel	>50% Wet	Lightly Rutted	10/29/2015	Today	27	3	2	2	7
247	Tree	Dirt	>50% Wet	Lightly Rutted	10/29/2015	Today	28	4	2	2	8
248	Trail Marker	Grass	>50% Wet	Very Rutted	10/29/2015	Today	29	5	2	3	10
249	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	30	5	2	2	9
250	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	31	5	2	2	9
251	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	32	5	2	2	9
252	Tree	Grass	>50% Wet	Very Rutted	10/29/2015	Today	33	5	2	3	10
253	Tree	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	34	5	2	2	9
254	Tree	Grass	Standing Water	Lightly Rutted	10/29/2015	Today	35	5	1	2	8
255	Tree	Grass	Standing Water	Lightly Rutted	10/29/2015	Today	36	5	1	2	8
256	Tree	Grass	Standing Water	Lightly Rutted	10/29/2015	Today	37	5	1	2	8
257	Tree	Grass	Standing Water	Lightly Rutted	10/29/2015	Today	38	5	1	2	8
258	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	39	5	1	3	9
259	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	40	5	1	3	9
260	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	41	5	1	3	9
261	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	42	5	1	3	9
262	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	43	5	1	3	9
263	Birch Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	44	5	1	3	9
264	Tree	Grass	>50% Wet	Very Rutted	10/29/2015	Today	45	5	2	3	10
265	Rock	Grass	>50% Wet	Very Rutted	10/29/2015	Today	46	5	2	3	10
266	Tree	Grass	>50% Wet	Very Rutted	10/29/2015	Today	47	5	2	3	10
267	Tree	Grass	>50% Wet	Very Rutted	10/29/2015	Today	48	5	2	3	10
268	Tree	Grass	>50% Wet	Very Rutted	10/29/2015	Today	49	5	2	3	10
269	Tree	Grass	Standing Water	Very Rutted	10/29/2015	Today	50	5	3	3	11
270	Trail Marker	Grass	>50% Wet	Very Rutted	10/29/2015	Today	51	5	2	3	10
271	Trail Marker	Grass	>50% Wet	Very Rutted	10/29/2015	Today	52	5	2	3	10
272	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	53	5	2	2	9
273	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	54	5	2	2	9
274	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	55	5	2	2	9
275	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	56	5	2	2	9
276	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	57	5	2	2	9
277	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	58	5	2	2	9
278	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	59	5	2	2	9
279	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	60	5	2	2	9
280	Bedrock	Grass	>50% Wet	Lightly Rutted	10/29/2015	Today	61	5	2	2	9
281	Overlook	Bedrock	>50% Dry	Lightly Rutted	10/29/2015	Today	62	6	1	2	9

### Appendix B-3: Dickinson Forest Trail data table.

Date	Waypoint #	Attribute	Surface	Condition	Suitability	Rainfall	lineFID	Surface Rank	Condition Rank	Suitability Rank	Score
10/15/2015	54	Pine tree corner	Dirt/Grass	>50% dry	Slightly Rutted	Today	0	5	1	2	8
10/15/2015	55	Lone tree	Dirt/Grass	>50% dry	Slightly Rutted	Today	1	5	1	2	8
10/15/2015	56	Clearing 1	Dirt/Grass	>50% dry	Slightly Rutted	Today	2	5	1	2	8
10/15/2015	57	End clearing 1	Grass	>50% dry	Slightly Rutted	Today	3	5	1	2	8
10/15/2015	58	Old hunter stand	Grass	>50% dry	Slightly Rutted	Today	4	5	1	2	8
10/15/2015	59	Bend 1	Grass	>50% dry	Slightly Rutted	Today	5	5	1	2	8
10/15/2015	60	Fallen branches	Grass	>50% dry	Very Rutted	Today	6	5	1	3	9
10/15/2015	61	Muster Field	Grass	>50% dry	Slightly Rutted	Today	7	5	1	2	8
10/15/2015	62	Bend 2	Dirt	>50% dry	Slightly Rutted	Today	8	4	1	2	7
10/15/2015	63	River 1	Dirt	>50% dry	Smooth	Today	9	4	1	1	6
10/15/2015	64	Bridge begin	Dirt/Grass	>50% dry	Smooth	Today	10	5	1	1	7
10/15/2015	65	Bridge end	Wood	>50% dry	Smooth	Today	11	6	1	1	8
10/15/2015	66	Sign	Dirt/Grass	>50% dry	Slightly Rutted	Today	12	5	1	2	8
10/15/2015	67	Two trees	Dirt	>50% dry	Smooth	Today	13	4	1	1	6
10/15/2015	68	Sawed log	Dirt	>50% dry	Smooth	Today	14	4	1	1	6
10/15/2015	69	Tree over trail	Dirt	>50% dry	Smooth	Today	15	4	1	1	6
10/15/2015	70	Rail trail sign 1	Dirt	>50% dry	Smooth	Today	16	4	1	1	6
10/15/2015	71	Tall pine 1	Dirt	>50% dry	Smooth	Today	53	4	1	1	6
10/15/2015	72	Pine cover	Dirt	>50% dry	Smooth	Today	17	4	1	1	6
10/15/2015	73	Fallen tree	Dirt	>50% dry	Smooth	Today	18	4	1	1	6
10/15/2015	74	Bend 3	Dirt	>50% dry	Smooth	Today	19	4	1	1	6
10/15/2015	75	Fork 1	Dirt/Grass	>50% dry	Smooth	Today	20	5	1	1	7
10/15/2015	76	Fork 2	Grass	>50% dry	Slightly Rutted	Today	49	5	1	2	8
10/15/2015	77	Stumps	Dirt/Grass	>50% dry	Smooth	Today	32	5	1	1	7
10/15/2015	79	ART trailhead 1	Dirt/Grass	>50% dry	Smooth	Today	33	5	1	1	7
10/15/2015	82	Treeline 2 begin	Dirt	>50% dry	Slightly Rutted	Today	31	4	1	2	7
10/15/2015	83	Treeline 2 end	Grass	>50% dry	Smooth	Today	30	5	1	1	7
10/15/2015	84	Bend 4	Dirt	>50% dry	Smooth	Today	29	4	1	1	6
10/15/2015	85	River 2	Dirt/Grass	>50% dry	Smooth	Today	28	5	1	1	7
10/15/2015	86	Bend 5	Dirt/Grass	>50% dry	Smooth	Today	27	5	1	1	7
10/15/2015	87	Clearing 2	Dirt	>50% dry	Smooth	Today	26	4	1	1	6
10/15/2015	88	Tall pine 2	Dirt/Grass	>50% dry	Smooth	Today	25	5	1	1	7
10/15/2015	89	Cut log	Dirt/Grass	>50% dry	Smooth	Today	24	5	1	1	7
10/15/2015	90	Fern clearing 1	Dirt/Grass	>50% dry	Smooth	Today	23	5	1	1	7
10/15/2015	91	Fork 3	Dirt/Grass	>50% dry	Smooth	Today	22	5	1	1	7
10/15/2015	92	Fork 4	Dirt/Grass	>50% dry	Smooth	Today	21	5	1	1	7
10/15/2015	93	Tall pine 3	Dirt/Grass	>50% dry	Smooth	Today	50	5	1	1	7
10/15/2015	94	Clearing 3	Dirt/Grass	>50% dry	Smooth	Today	34	5	1	1	7
10/16/2015	95	Blank	Dirt/Grass	>50% dry	Smooth	Today	35	5	1	1	7
10/15/2015	96	ART trailhead 3	Dirt/Grass	>50% dry	Smooth	Today	36	5	1	1	7
10/15/2015	97	Pine grove	Dirt	>50% dry	Smooth	Today	37	4	1	1	6
10/15/2015	98	Rail trail sign 2	Dirt/Grass	>50% dry	Smooth	Today	51	4	1	1	6
10/15/2015	99	Fern clearing 2	Dirt/Grass	>50% dry	Smooth	Today	52	4	1	1	6
10/15/2015	100	Tree cover 2	Dirt/Grass	>50% dry	Smooth	Today	38	4	1	1	6
10/15/2015	101	Mossy log	Dirt/Grass	>50% dry	Smooth	Today	39	4	1	1	6
10/15/2015	102	Clearing 4	Dirt/Grass	>50% dry	Smooth	Today	42	4	1	1	6
10/15/2015	103	Bend 6	Dirt/Grass	>50% dry	Smooth	Today	43	4	1	1	6
10/15/2015	104	Blank	Dirt/Grass	>50% dry	Smooth	Today	44	4	1	1	6
10/15/2015	105	ART trailhead 4	Dirt/Grass	>50% dry	Smooth	Today	45	4	1	1	6
10/15/2015	106	Bend 7	Dirt/Grass	>50% dry	Smooth	Today	53	4	1	1	6
10/15/2015	107	Incline end	Dirt/Grass	>50% dry	Smooth	Today	40	4	1	1	6
10/15/2015	108	Blank	Dirt/Grass	>50% dry	Smooth	Today	41	4	1	1	6
10/16/2015	109	Same as #70	Dirt/Grass	>50% dry	Smooth	Today	46	4	1	1	6
10/16/2015	110	Blank	Dirt/Grass	>50% dry	Smooth	Today	47	4	1	1	6
10/17/2015	111	Blank	Dirt	>50% dry	Smooth	Today	48	4	1	1	6

#### Appendix B-4: Honey Hill Trail data table.

Date	Waypoint #	Attribute	Surface	Condition	Suitability	Rainfall	Notes	FID	Surf Material	Surf Cond	Suit Rank	Score
10/29/2015	158	Parking Area	NA	NA	NA	NA						
10/29/2015	159	Gate to field	NA	NA	NA	NA						
10/29/2015	160	Enter forest	Grass	>50% dry	Smooth	Today	Logging Trail	0	5	1	1	7
10/29/2015	161	Fallen log	Dirt/Grass	>50% wet	Slightly Rutted	Today	Logging Trail	1	5	2	2	9
10/29/2015	162	Stump	Dirt/Grass	>50% wet	Very Rutted	Today	Logging Trail	2	5	2	3	10
10/29/2015	163	Rock step	Dirt	>50% dry	Smooth	Today	Logging Trail	3	4	1	1	6
10/29/2015	164	Fallen birch 1	Dirt	>50% dry	Smooth	Today	Logging Trail	4	4	1	1	6
10/29/2015	165	Begin pines	Dirt	>50% dry	Slightly Rutted	Today	Logging Trail	5	4	1	2	7
10/29/2015	166	Clearing 1	Dirt	>50% dry	Smooth	Today	Logging Trail	6	4	1	1	6
10/29/2015	167	Bend 1	Dirt	>50% dry	Smooth	Today	Logging Trail	7	4	1	1	6
10/29/2015	168	Stone wall	Dirt	>50% dry	Smooth	Today	Logging Trail	8	4	1	1	6
10/29/2015	169	Begin Honey Hill Trail	Dirt	>50% dry	Smooth	Today		9	4	1	1	6
10/29/2015	170	Tall pines 1	Dirt	>50% dry	Smooth	Today		10	4	1	1	6
10/29/2015	171	Bend 2	Dirt	>50% dry	Smooth	Today		11	4	1	1	6
10/29/2015	172	Stumps	Dirt	>50% dry	Smooth	Today		12	4	1	1	6
10/29/2015	173	Slanted tree	Dirt	>50% dry	Smooth	Today		13	4	1	1	6
10/29/2015	174	Down birch logs	Dirt	>50% dry	Smooth	Today		14	4	1	1	6
10/29/2015	175	Log bridge	Dirt	>50% dry	Smooth	Today		15	4	1	1	6
10/29/2015	176	Bend 3	Dirt	>50% dry	Smooth	Today		16	4	1	1	6
10/29/2015	177	Fallen birch 2	Dirt	>50% dry	Smooth	Today		17	4	1	1	6
10/29/2015	178	Tall pine grove	Dirt	>50% dry	Smooth	Today		18	4	1	1	6
10/29/2015	179	Rotted log bridge	Dirt	>50% dry	Smooth	Today		19	4	1	1	6
10/29/2015	180	Covered rock	Dirt	>50% dry	Smooth	Today		20	4	1	1	6
10/29/2015	181	Fork 1	Dirt	>50% dry	Smooth	Today		21	4	1	1	6
10/29/2015	182	Lone pine	Dirt	>50% dry	Smooth	Today	Blue Trail	22	4	1	1	6
10/29/2015	183	Tall birch	Dirt	>50% dry	Smooth	Today	Blue Trail	23	4	1	1	6
10/29/2015	184	Pine cover	Dirt	>50% dry	Smooth	Today	Blue Trail	24	4	1	1	6
10/29/2015	185	Mossy rocks 1	Dirt	>50% dry	Smooth	Today	Blue Trail	25	4	1	1	6
10/29/2015	186	Bend 4	Dirt	>50% dry	Smooth	Today	Blue Trail	26	4	1	1	6
10/29/2015	187	Tall pine	Dirt	>50% dry	Smooth	Today	Blue Trail	27	4	1	1	6
10/29/2015	188	Bend 5	Dirt	>50% dry	Smooth	Today	Blue Trail	28	4	1	1	6
10/29/2015	189	Rock face	Dirt	>50% dry	Smooth	Today	Blue Trail	29	4	1	1	6
10/29/2015	190	Fork 2	Dirt	>50% dry	Smooth	Today	Blue Trail	30	4	1	1	6
10/29/2015	191	Two logs	Dirt	>50% dry	Smooth	Today		31	4	1	1	6
10/29/2015	192	Bend 6	Dirt	>50% dry	Smooth	Today		32	4	1	1	6
10/29/2015	193	Large pine	Dirt	>50% dry	Smooth	Today		33	4	1	1	6
10/29/2015	194	Mossy rocks	Dirt/Rock	>50% dry	Other	Today		34	6	1	4	11
10/29/2015	195	Large oak	Dirt/Rock	>50% dry	Smooth	Today		35	6	1	1	8
10/29/2015	196	Bend 7	Dirt	>50% dry	Smooth	Today		36	4	1	1	6
10/29/2015	197	Trees over trail	Dirt/Grass	>50% dry	Smooth	Today		37	5	1	1	7
10/29/2015	198	Top	Dirt/Grass	>50% dry	Smooth	Today			5	1	1	7
10/29/2015	200	Bend 8	Dirt	>50% dry	Smooth	Today	Yellow Trail	38	4	1	1	6
10/29/2015	201	Bend 9	Dirt	>50% dry	Smooth	Today	Yellow Trail	39	4	1	1	6
10/29/2015	202	Bend 10	Dirt	>50% dry	Smooth	Today	Yellow Trail	40	4	1	1	6
10/29/2015	203	Bend 11	Dirt	>50% dry	Smooth	Today	Yellow Trail	41	4	1	1	6
10/29/2015	204	Bend 12	Dirt	>50% dry	Smooth	Today	Yellow Trail	42	4	1	1	6
10/29/2015	205	Large rock face	Dirt	>50% dry	Smooth	Today	Yellow Trail	43	4	1	1	6
10/29/2015	206	Mossy rocks 2	Dirt/Rock	>50% dry	Smooth	Today	Yellow Trail	44	6	1	1	8
10/29/2015	207	Pine grove	Dirt	>50% dry	Smooth	Today	Yellow Trail	45	4	1	1	6
10/29/2015	208	Oak grove	Dirt	>50% dry	Smooth	Today	Yellow Trail	46	4	1	1	6
10/29/2015	209	Small clearing	Dirt	>50% dry	Smooth	Today	Yellow Trail	47	4	1	1	6
10/29/2015	210	Large rock	Dirt	>50% dry	Smooth	Today	Yellow Trail	48	4	1	1	6
10/29/2015	211	Tall pines 2	Dirt	>50% dry	Smooth	Today	Yellow Trail	49	4	1	1	6
10/29/2015	212	Rocks	Dirt	>50% dry	Smooth	Today	Yellow Trail	50				
10/29/2015	182	Trees	Dirt	>50% dry	Smooth	Today	Yellow Trail	51				

### Appendix B-5: Mt. Caesar Trail data table.

Waypoint #	Attributes	Surface	Condition	Suitability	Date	Recent Rainfall	FID	Surface Rank	Cond. Rank	Suit Rank	Score
167	Stonewall	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	0	4	1	3	8
168	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	1	4	1	3	8
169	Stonewall	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days		4	1	1	6
170	Rock	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	2	4	1	1	6
171	Rock	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	3	4	1	1	6
172	Fallen Tree	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	4	4	1	1	6
173	Turn in Trail	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	5	4	1	1	6
174	Tree	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	6	4	1	1	6
175	Bush	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	7	4	1	2	7
176	Field	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	8	4	1	2	7
177	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	9	4	1	3	8
178	Trailhead	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	10	4	1	2	7
179	Beginning of Dip in Trail	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	11	4	1	3	8
180	End of Dip in Trail	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	12	4	1	3	8
181	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	13	4	1	3	8
182	Rock	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	14	4	1	3	8
183	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	15	4	1	2	7
184	Puddle	Dirt	Standing Water	Very Rutted	10/26/2015	Within 3 Days	16	4	3	3	10
185	Rock	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	17	4	1	3	8
186	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	18	4	1	3	8
187	Dip	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	19	4	1	3	8
188	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	20	4	1	3	8
189	Tree	Dirt	>50% Wet	Very Rutted	10/26/2015	Within 3 Days	21	4	2	3	9
190	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	22	4	1	3	8
191	Bump	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	23	4	1	2	7
192	Drainage Ditch	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	24	4	1	3	8
193	Mt. Caesar Sign	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	25	4	1	3	8
194	Forest Sign	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	26	4	1	3	8
195	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	27	4	1	3	8
196	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	28	4	1	3	8
197	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	29	4	1	3	8
198	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	30	4	1	2	7
199	Corner	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	31	4	1	3	8
200	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	32	4	1	3	8
201	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	33	4	1	3	8
202	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	34	4	1	3	8
203	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	35	4	1	2	7
204	Tree	Dirt	>50% Dry	Very Rutted	10/26/2015	Within 3 Days	36	4	1	3	8
205	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	37	4	1	2	7
206	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	38	4	1	2	7
207	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	39	4	1	2	7
208	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	40	4	1	2	7
209	Tree	Dirt	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Days	41	4	1	2	7
210	Tree	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	42	4	1	1	6
211	Tree	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	43	4	1	1	6
212	Tree	Grass	>50% Dry	Smooth	10/26/2015	Within 3 Days	44	5	1	1	7
213	End Point	Grass	>50% Dry	Smooth	10/26/2015	Within 3 Days	45	5	1	1	7
214	DELETE THIS POINT						46				0
	Starting Point for Goat Path to View of										
215	Monadnock	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	47	4	1	1	6
216	Sign	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	48	4	1	1	6
217	Scenic Overlook	Dirt	>50% Dry	Smooth	10/26/2015	Within 3 Days	49	4	1	1	6

### Appendix B-6: Mt. Cresson Trail data table.

Date	Waypoint #	Attribute	Surface	Condition	Suitability	Rainfall	FIDline	Surface Rank	Cond Rank	Suit Rank	Score
10/26/2015	111	Parking area	NA	NA	NA	NA					
10/26/2015	112	Old oak	Dirt	>50% dry	Slightly Rutted	Within 3 days	0	4	1	2	7
10/26/2015	113	Stream	Dirt/Rock	>50% wet	Slightly Rutted	Within 3 days	1	3	2	2	7
10/26/2015	114	Bend 1	Dirt	>50% dry	Slightly Rutted	Within 3 days	2	4	1	2	7
10/26/2015	115	Stone wall 1	Dirt	>50% dry	Slightly Rutted	Within 3 days	3	4	1	2	7
10/26/2015	116	Bend 2	Dirt	>50% dry	Slightly Rutted	Within 3 days	4	4	1	2	7
10/26/2015	117	Bend 3	Dirt/Rock	>50% wet	Very Rutted	Within 3 days	5	3	2	3	8
10/26/2015	118	Clearing 1	Dirt/Rock	>50% dry	Very Rutted	Within 3 days	6	3	1	3	7
10/26/2015	119	Intersection 1	Dirt	>50% dry	Smooth	Within 3 days	7	4	1	1	6
10/26/2015	120	Tree over trail	Dirt	>50% dry	Smooth	Within 3 days	8	4	1	1	6
10/26/2015	121	Second trailhead	Dirt	>50% dry	Smooth	Within 3 days	9	4	1	1	6
10/26/2015	122	Bend 4	Dirt	>50% dry	Smooth	Within 3 days	10	4	1	1	6
10/26/2015	123	Bend 5	Dirt	>50% dry	Smooth	Within 3 days	11	4	1	1	6
10/26/2015	124	Begin steep section	Dirt	>50% dry	Smooth	Within 3 days	12	4	1	1	6
10/26/2015	125	Mid steep section	Dirt/Rock	>50% dry	Smooth	Within 3 days	13	4	1	1	6
10/26/2015	126	Top steep section	Dirt/Rock	>50% dry	Smooth	Within 3 days	14	4	1	1	6
10/26/2015	127	Bend 6	Dirt/Rock	>50% dry	Smooth	Within 3 days	15	4	1	1	6
10/26/2015	128	Tower	Dirt/Rock	>50% dry	Slightly Rutted	Within 3 days	16	4	1	1	6
10/26/2015	129	Fallen tree	Dirt/Grass	>50% dry	Slightly Rutted	Within 3 days	17	4	1	2	7
10/26/2015	130	Bench/End	Dirt	>50% dry	Slightly Rutted	Within 3 days	18	4	1	2	7
10/26/2015	131	Beginning back trail	Dirt	>50% dry	Slightly Rutted	Within 3 days	19	4	1	2	7
10/26/2015	132	White rock	Dirt	>50% dry	Slightly Rutted	Within 3 days	20	4	1	2	7
10/26/2015	133	Arrowhead rock	Dirt	>50% dry	Slightly Rutted	Within 3 days	21	4	1	2	7
10/26/2015	134	Bend 8	Dirt	>50% dry	Slightly Rutted	Within 3 days	22	4	1	2	7
10/26/2015	135	Bend 9	Dirt	>50% dry	Slightly Rutted	Within 3 days	23	4	1	2	7
10/26/2015	136	Fallen tree 2	Dirt	>50% dry	Slightly Rutted	Within 3 days	24	4	1	2	7
10/26/2015	137	Fallen tree 3	Dirt	>50% dry	Slightly Rutted	Within 3 days	25	4	1	2	7
10/26/2015	138	Mossy Rock	Dirt	>50% dry	Slightly Rutted	Within 3 days	26	4	1	2	7
10/26/2015	139	Tree pile	Dirt	>50% dry	Slightly Rutted	Within 3 days	27	4	1	2	7
10/26/2015	140	Bend 10	Dirt	>50% dry	Slightly Rutted	Within 3 days	28	4	1	2	7
10/26/2015	141	Large rock	Dirt	>50% dry	Slightly Rutted	Within 3 days	29	4	1	2	7
10/26/2015	142	Large rock 2	Dirt	>50% dry	Slightly Rutted	Within 3 days	30	4	1	2	7
10/26/2015	143	Fallen trees	Dirt	>50% dry	Slightly Rutted	Within 3 days	31	4	1	2	7
10/26/2015	144	Clearing 2	Dirt	>50% dry	Slightly Rutted	Within 3 days	32	4	1	2	7
10/26/2015	145	Bend 11	Dirt	>50% dry	Slightly Rutted	Within 3 days	33	4	1	2	7
10/26/2015	146	Bend 12	Dirt	>50% dry	Slightly Rutted	Within 3 days	34	4	1	2	7
10/26/2015	147	End decline	Dirt	>50% dry	Very Rutted	Within 3 days	35	4	1	3	8
10/26/2015	148	Fallen tree 4	Dirt	>50% dry	Slightly Rutted	Within 3 days	36	4	1	2	7
10/26/2015	149	Tall pines	Dirt	>50% dry	Slightly Rutted	Within 3 days	37	4	1	2	7
10/26/2015	150	Stone wall 2	Dirt	>50% dry	Slightly Rutted	Within 3 days	38	4	1	2	7
10/26/2015	151	End of logs	Dirt	>50% dry	Slightly Rutted	Within 3 days	39	4	1	2	7
10/26/2015	152	End of puddles	Dirt/Rock	>50% wet	Very Rutted	Within 3 days	40	3	2	3	8
10/26/2015	153	Pine grove	Dirt	>50% dry	Slightly Rutted	Within 3 days	41	4	1	2	7
10/26/2015	154	To Parking	Dirt	>50% dry	Slightly Rutted	Within 3 days	42	4	1	2	7

**Appendix B-7: Tippin Rock Trail data table.**

Waypoint #	Attributes	Surface	Condition	Suitability	Date	Rainfall	FID	Surface Rank	Cond. Rank	Suit Rank	Score
096	Trail Sign	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	1	5	2	2	9
097	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	3	5	2	2	9
098	Split Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	4	5	2	2	9
099	Oak Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	5	5	2	2	9
100	Split Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	6	5	2	2	9
101	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	7	5	2	2	9
102	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	8	5	2	2	9
103	Rock	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	9	5	2	2	9
104	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	50	5	2	2	9
105	Fork in Road (Trail Marker)	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	51	5	2	2	9
106	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	10	5	2	2	9
107	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	11	5	2	2	9
108	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	12	5	2	2	9
109	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	13	5	2	2	9
110	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	14	5	2	2	9
111	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	15	5	2	2	9
112	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	16	5	2	2	9
113	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	17	5	2	2	9
114	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	18	5	2	2	9
115	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	19	5	2	2	9
116	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	20	5	2	2	9
117	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	21	5	2	2	9
118	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	22	5	2	2	9
119	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	23	5	2	2	9
120	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	24	5	2	2	9
121	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	25	5	2	2	9
122	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	26	5	2	2	9
123	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	27	5	2	2	9
124	Tippin' Rock Sign	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	28	5	2	2	9
125	Tippin' Rock	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	29	5	2	2	9
126	Split in Trail	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	49	5	2	2	9
131	Trail Marker	Grass	>50% Wet	Very Rutted	10/22/2015	Today	29	5	2	3	10
132	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	30	5	2	2	9
133	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	31	5	2	2	9
134	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	32	5	2	2	9
135	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	33	5	2	2	9
136	Trail Obstruction	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	34	5	2	2	9
137	Trailhead	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	35	5	2	2	9
138	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	36	5	2	2	9
139	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	37	5	2	2	9
140	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	38	5	2	2	9
141	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	39	5	2	2	9
142	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	40	5	2	2	9
143	Trail Marker	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	41	5	2	2	9
144	Tree	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	42	5	2	2	9
147	Trail Marker						43			0	
148	Hewes Hill Overlook						44			0	
149	Goat Path	Grass	>50% Wet	Smooth	10/22/2015	Today	45	5	2	1	8
150	Tree	Bedrock	>50% Wet	Smooth	10/22/2015	Today	46	6	2	1	9
152	Rock	Grass	>50% Wet	Smooth	10/22/2015	Today	47	5	2	1	8
153	Trail Marker						48			0	
154	Rock	Grass	>50% Wet	Lightly Rutted	10/22/2015	Today	49	5	2	2	9
157							50				
158							51				
159	Tree										0
160	Parking Lot										0
161	Tree	Grass	>50% Wet	Smooth	10/22/2015	Today		5	2	1	8
162	Tree	Dirt	>50% Wet	Smooth	10/22/2015	Today		4	2	1	7
163	Tree	Grass	>50% Dry	Very Rutted	10/26/2015	Within 3 Day:		5	1	3	9
164	Tree	Grass	>50% Dry	Very Rutted	10/26/2015	Within 3 Day:		5	1	3	9
165	Oak Tree	Grass	>50% Dry	Very Rutted	10/26/2015	Within 3 Day:		5	1	3	9
166	Trail Marker	Grass	>50% Dry	Very Rutted	10/26/2015	Within 3 Day:		5	1	3	9
	Fallen Tree	Grass	>50% Dry	Very Rutted	10/26/2015	Within 3 Day:		5	1	3	9
	Connecting Point w/ Main Trail	Grass	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Day:		5	1	2	8
		Grass	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Day:		5	1	2	8
		Grass	>50% Dry	Lightly Rutted	10/26/2015	Within 3 Day:		5	1	2	8

## Appendix C: Sidewalk data tables.

### Appendix C-1: East Swanzey sidewalks data table.

Waypoint	Surface Material	Sidewalk Conditions	Surface Defects	Curb Type	Curb Condition	FID	Surf Mat	Surf Cond	Surf Type	Curb Cond	Score
282	Asphalt	Good	No	Granite	Good	0	1	1	1	1	4
283	Asphalt	Good	No	Granite	Good	1	1	1	1	1	4
284	Asphalt	Good	No	Granite	Good	2	1	1	1	1	4
285	Asphalt	Good	Yes	Granite	Good	3	1	1	1	1	4
286	Asphalt	Good	Yes	Granite	Good	4	1	1	1	1	4
287	Asphalt	Good	Yes	Granite	Good	5	1	1	1	1	4
288	Asphalt	Good	Yes	Granite	Good	6	1	1	1	1	4
289	Asphalt	Fair	Yes	Granite	Good	7	1	2	1	1	5
290	End Point					8					0
291	Asphalt	Fair	Yes	Granite	Good	9	1	2	1	1	5
292	End Point					10					0
293	Asphalt	Fair	Yes	Granite	Good	11	1	2	1	1	5
294	Under Construction	N/A	N/A	Granite	Good	12			1	1	2
295	Under Construction	N/A	N/A	Granite	Good	13			1	1	2
296	Under Construction	N/A	N/A	Granite	Good	14			1	1	2
297	Under Construction	N/A	N/A	Granite	Good	15			1	1	2
298	Under Construction	N/A	N/A	Granite	Good	16			1	1	2
299	End Point					17					0
300	Asphalt	Good	No	Granite	Good	18	1	1	1	1	4
301	Asphalt	Good	No	Granite	Good	19	1	1	1	1	4
302	Asphalt	Good	No	Granite	Good	20	1	1	1	1	4
303	End Point					21					0
304	Asphalt	Good	No	Granite	Good	22	1	1	1	1	4
305	Asphalt	Good	No	Granite	Good	23	1	1	1	1	4
306	End Point					24					0
307	Asphalt	Good	No	Granite	Good	25	1	1	1	1	4
308	End Point					26					0
309	Asphalt	Good	No	Granite	Good	27	1	1	1	1	4

**Appendix C-2: Swanzey Center sidewalks data table.**

Waypoint	Surface Material	Sidewalk Condition	Surface Defects	Curb Type	Curb Cond	Material Score	Cond Score	Curb Mat Score	Curb Cond. Score	Score	lineFID
45	asphalt	poor	cracks/bumps	n/a		1	3	4	4	12	3
46	asphalt	poor	cracks/bumps	n/a		1	3	4	4	12	2
47	asphalt	poor	cracks/bumps	n/a		1	3	4	4	12	1
48	asphalt	poor	cracks/bumps	n/a		1	3	4	4	12	0
49	asphalt	good		granite	fair	1	1	1	2	5	9
50	concrete	good		n/a		1	1	4	4	10	10
51	asphalt	good		granite	fair	1	1	1	2	5	11
76	Asphalt	Fair	Yes	N/A		1	2	4	4	11	4
77	Asphalt	Fair	Yes	N/A		1	2	4	4	11	5
78	Asphalt	Fair	Yes	N/A		1	2	4	4	11	6
79	Asphalt	Fair	Yes	N/A		1	2	4	4	11	7
80	Asphalt	Fair	Yes	N/A		1	2	4	4	11	8
81	Asphalt	Fair	Yes	N/A		1	2	4	4	11	12

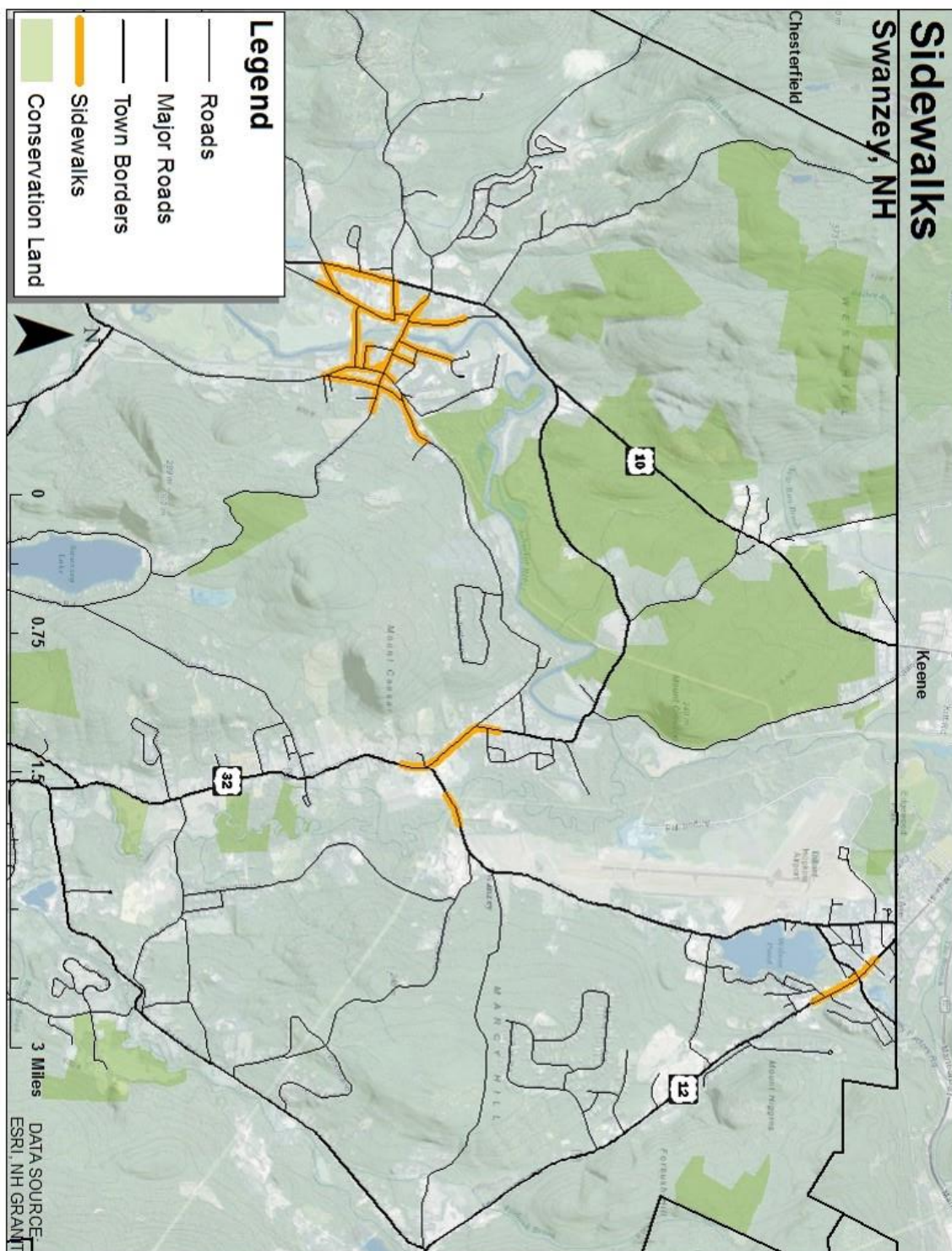
### Appendix C-3: West Swanzev sidewalks data table.

Waypoint #	Surface Material	Sidewalk Condition	Surface Defects	Curb Type	Curb Condition	Surf. Material	Surf. Cond.	Curb Type	Curb Condition	Score	lineFID
1	Concrete	Fair	Yes	N/A		1	2	4	4	11	
2	Concrete	Fair	No	Granite	Good	1	2	1	1	5	67
0	Concrete	Good		N/A		1	1	4	4	10	68
0	Concrete	Good		N/A		1	1	4	4	10	72
3	Concrete	Good	No	N/A		1	1	4	4	10	73
4	Concrete	Good	No	Concrete	Good	1	1	2	1	5	74
5	Concrete	Good	No	Concrete	Good	1	1	2	1	5	75
7	Concrete	Fair	No	N/A		1	2	4	4	11	63
8	Concrete	Good	No	N/A		1	1	4	4	10	64
9	Concrete	Good	No	N/A		1	1	4	4	10	65
10	Concrete	Good	No	N/A		1	1	4	4	10	59
11	Concrete	Good	No	N/A		1	1	4	4	10	60
12	Concrete	Good	No	N/A		1	1	4	4	10	58
13	Concrete	Good	No	N/A		1	1	4	4	10	57
14	Concrete	Good	No	N/A		1	1	4	4	10	52
015	Concrete	Good	No	N/A		1	1	4	4	10	53
016	Concrete	Poor	Yes	N/A		1	3	4	4	12	54
017	Concrete	Good	No	N/A		1	1	4	4	10	55
018	Concrete	Good	No	N/A		1	1	4	4	10	56
019	Asphalt	Fair	No	N/A		1	2	4	4	11	78
020	Asphalt	Good	No	N/A		1	1	4	4	10	79
021	Asphalt	Good	No	N/A		1	1	4	4	10	80
022	Asphalt	Good	No	N/A		1	1	4	4	10	81
023	Asphalt	Good	No	N/A		1	1	4	4	10	82
024	Asphalt	Good	No	N/A		1	1	4	4	10	83
025	Asphalt	Good	No	N/A		1	1	4	4	10	84
026	Asphalt	Good	No	N/A		1	1	4	4	10	85
027	Asphalt	Good	No	N/A		1	1	4	4	10	86
028	Asphalt	Good	No	N/A		1	1	4	4	10	87
029	Asphalt	Good	No	N/A		1	1	4	4	10	88
030	Asphalt	Good	No	N/A		1	1	4	4	10	89
031	Asphalt	Good	No	N/A		1	1	4	4	10	90
032	Asphalt	Good	Yes	N/A		1	1	4	4	10	91
033	Asphalt	Good	Yes	N/A		1	1	4	4	10	92
034	Asphalt	Good	Yes	N/A		1	1	4	4	10	93
035	Asphalt	Good	No	N/A		1	1	4	4	10	95
036	Asphalt	Good	No	N/A		1	1	4	4	10	96
037	Asphalt	Good	No	N/A		1	1	4	4	10	97
038	Asphalt	Good	No	N/A		1	1	4	4	10	98
039	Concrete	Good	No	N/A		1	1	4	4	10	
040	End Point									0	
041	Asphalt	Good	No	N/A		1	1	4	4	10	
042	Asphalt	Good	No	N/A		1	1	4	4	10	
043	Asphalt	Good	No	N/A		1	1	4	4	10	
044	Asphalt	Good	No	N/A		1	1	4	4	10	
045	Concrete	Good	No	Granite	Good	1	1	1	1	4	99
046	Concrete	Good	No	Granite	Good	1	1	1	1	4	100
047	Concrete	Good	No	Granite	Good	1	1	1	1	4	94
048	Concrete	Good	No	N/A		1	1	4	4	10	62
049	Concrete	Good	No	N/A		1	1	4	4	10	76
050	Concrete	Fair	No	N/A		1	2	4	4	11	
051	Concrete	Fair	No	N/A		1	2	4	4	11	77
052	Concrete	Poor	Yes	N/A		1	3	4	4	12	69
053	End Point									0	
054	Concrete	Good	No	N/A		1	1	4	4	10	70
055	Concrete	Good	No	N/A		1	1	4	4	10	71
057	Concrete	Poor	Yes	N/A		1	3	4	4	12	16
058	Concrete	Poor	Yes	N/A		1	3	4	4	12	17
059	Concrete	Poor	Yes	N/A		1	3	4	4	12	18
060	Concrete	Good	No	Concrete	Fair	1	2	2	2	7	19
061	Concrete	Good	No	Concrete	Fair	1	2	2	2	7	21
062	Concrete	Poor	Yes	Concrete	Poor	1	3	2	3	9	
063	Concrete	Good	No	Concrete	Fair	1	1	2	2	6	22
064	Concrete	Fair	No	N/A		1	2	4	4	11	23
065	Concrete	Fair	No	Concrete	Poor	1	2	2	3	8	24
066	Concrete	Poor	Yes	N/A		1	3	4	4	12	25
067	Concrete	Fair	None	N/A		1	2	4	4	11	
068	Concrete	Poor	Yes	Concrete	Poor	1	3	2	3	9	
069	Concrete	Fair	None	Concrete	Poor	1	2	2	3	8	26

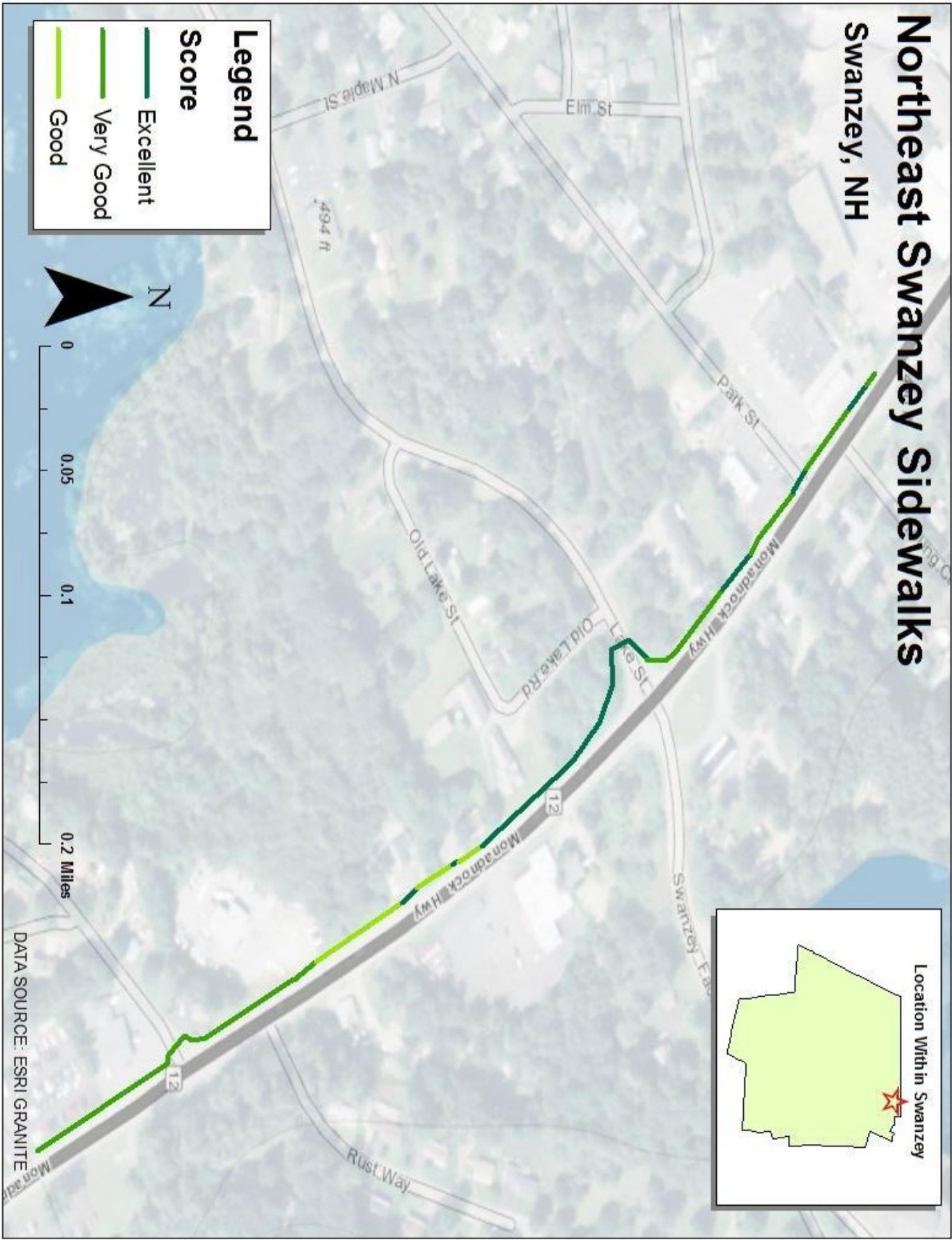
71	Concrete	Poor	Yes	Concrete	Fair	1	3	2	2	8	27
72	Concrete	Poor	Yes	N/A		1	3	4	4	12	28
1	concrete	fair	holes	n/a		1	2	4	4	11	
2	concrete	fair	cracks	n/a		1	2	4	4	11	66
3	concrete	good		n/a		1	1	4	4	10	0
4	concrete	good		concrete	fair	1	1	2	2	6	3
5	concrete	fair	cracks	concrete		1	2	2	2	7	4
6	concrete	fair	cracks	n/a		1	2	4	4	11	5
7	concrete	fair	cracks	n/a		1	2	4	4	11	101
8	concrete	fair	cracks	n/a		1	2	4	4	11	1
9	concrete	good	cracks	n/a		1	1	4	4	10	2
10	concrete	good	cracks	n/a		1	1	4	4	10	6
11	concrete	fair	weeds	n/a		1	2	4	4	11	7
12	concrete	fair	weeds/cracks	n/a		1	2	4	4	11	8
13	concrete	poor	weeds/cracks	n/a		1	3	4	4	12	9
14	concrete	fair	weeds	granite	fair	1	2	1	2	6	10
15	concrete	poor	weeds/chipped	n/a		1	3	4	4	12	11
16	concrete	poor	weeds/chipped	n/a		1	3	4	4	12	12
17	asphalt	good		asphalt	fair	1	1	2	2	6	20
18	asphalt	good		asphalt	good	1	1	2	1	5	31
19	concrete	good		granite	good	1	1	1	1	4	32
20	asphalt	good		asphalt	good	1	1	2	1	5	33
21	asphalt	fair	cracks	asphalt	fair	1	2	2	2	7	41
22	asphalt	good		asphalt	fair	1	1	2	2	6	42
23	asphalt	good		asphalt	fair	1	1	2	2	6	43
24	concrete	good		n/a		1	1	4	4	10	45
25	concrete	fair	worn	n/a		1	2	4	4	11	47
26	concrete	good		granite	good	1	1	1	1	4	48
27	concrete	good		n/a		1	1	4	4	10	46
28	concrete	good		n/a		1	1	4	4	10	44
29	concrete	fair	worn	n/a		1	2	4	4	11	49
30.5	concrete	poor		n/a		1	3	4	4	12	51
30	concrete	poor	weeds/cracks/h	n/a		1	3	4	4	12	50
31	concrete/wood	fair	worn	n/a		1	2	4	4	11	13
32	concrete	fair	cracks	n/a		1	2	4	4	11	14
33	concrete	fair		n/a		1	2	4	4	11	34
34	concrete	poor	cracks/weeds	n/a		1	3	4	4	12	35
35	concrete	fair	worn	n/a		1	2	4	4	11	36
36	asphalt	poor	bumpy	asphalt	poor	1	3	2	3	9	37
37	concrete	good		n/a		1	1	4	4	10	38
38	asphalt	fair	cracks	asphalt	poor	1	2	2	3	8	39
41	concrete	fair	cracks/worn	n/a		1	2	4	4	11	40
42	concrete	fair	worn/overgrow	n/a		1	2	4	4	11	29
43	concrete	fair		n/a		1	2	4	4	11	30
56	concrete	fair		n/a		1	2	4	4	11	15

## Appendix D: Sidewalk maps.

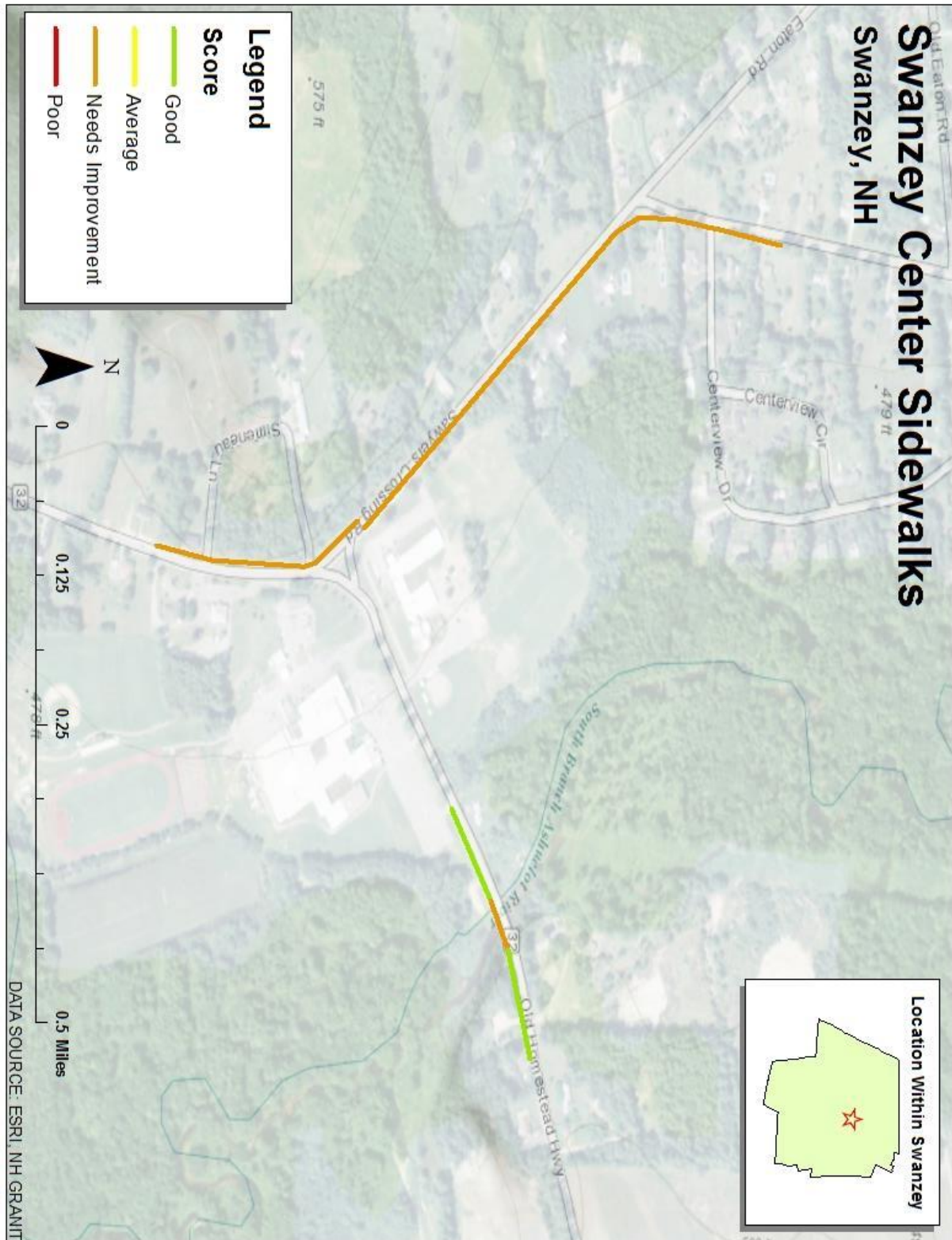
### Appendix D-1: Overall sidewalk line map.



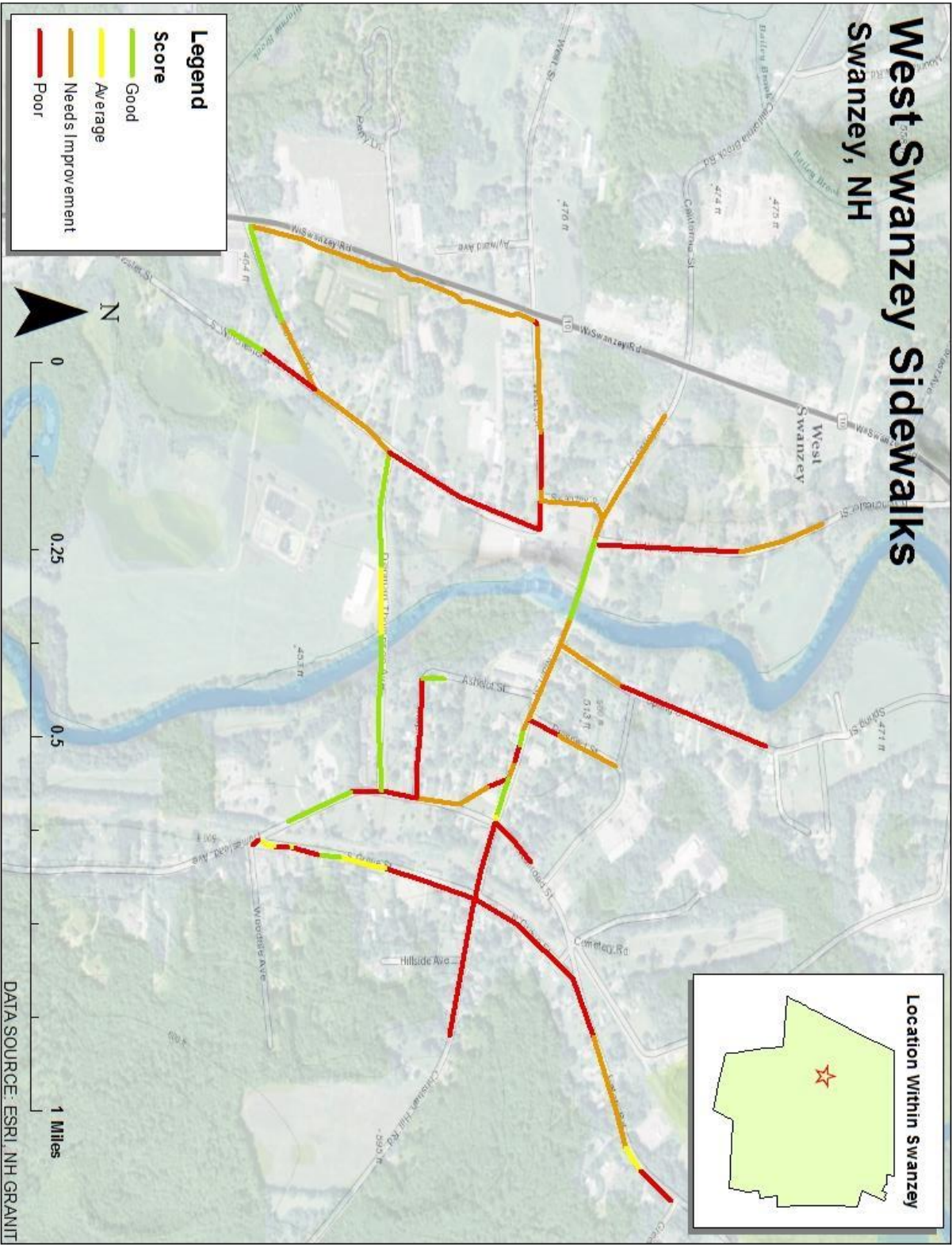
Appendix D-2: Northeast Swanzey sidewalk condition map.



Appendix D-3: Swanze Center sidewalk condition map.

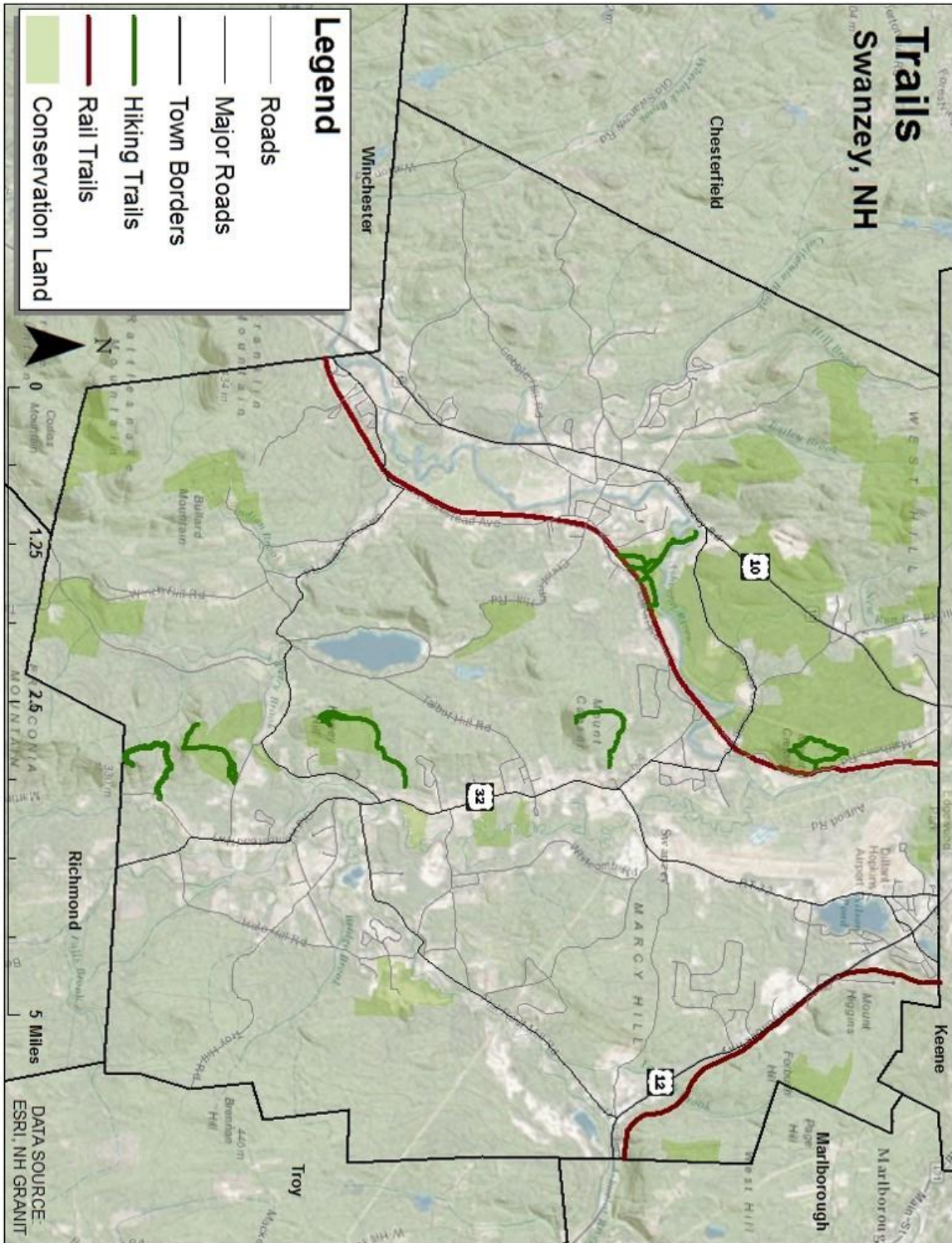


Appendix D-4: West Swanzey sidewalk condition map.

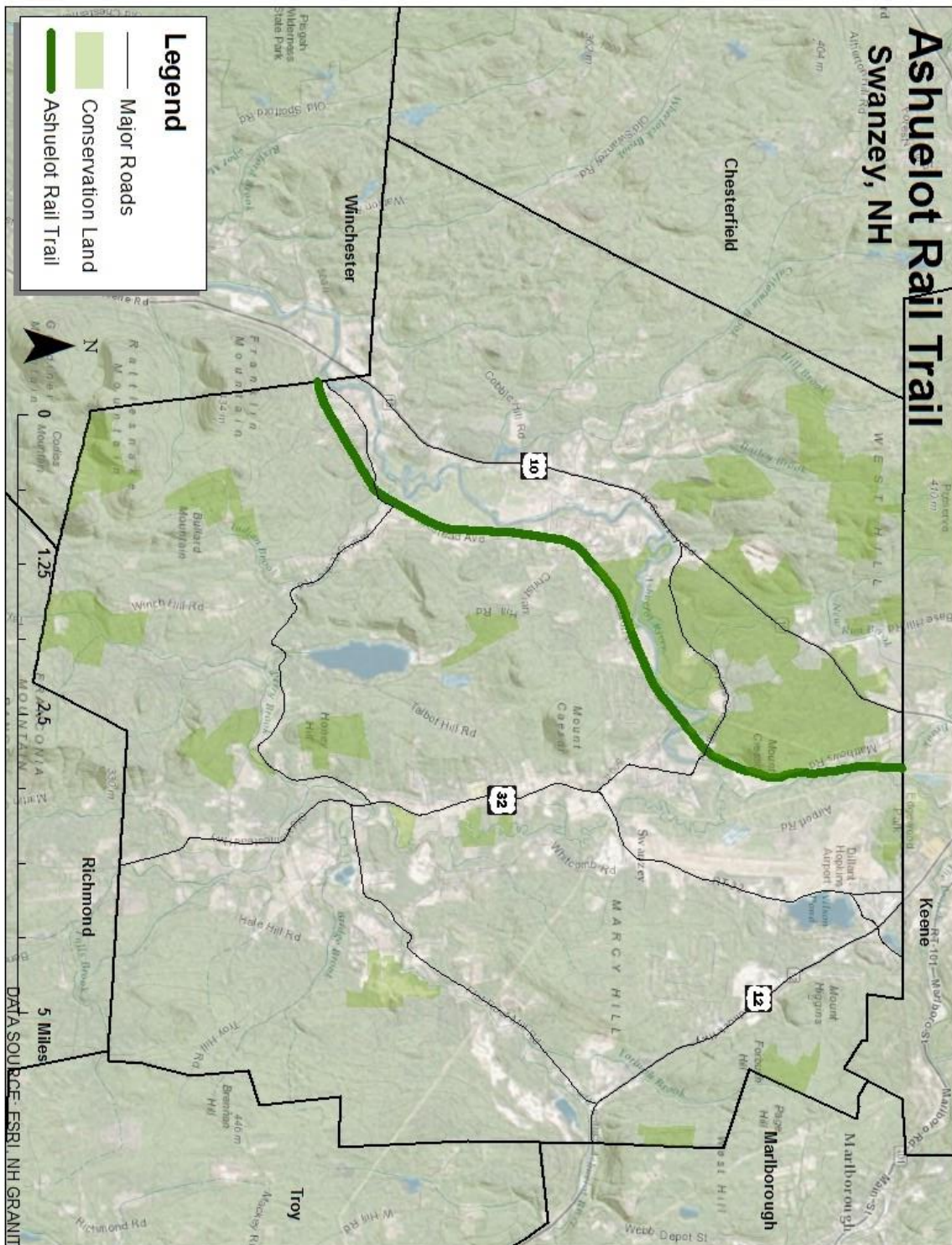


**Appendix E: Trail maps.**

**Appendix E-1: Overall trail location map.**

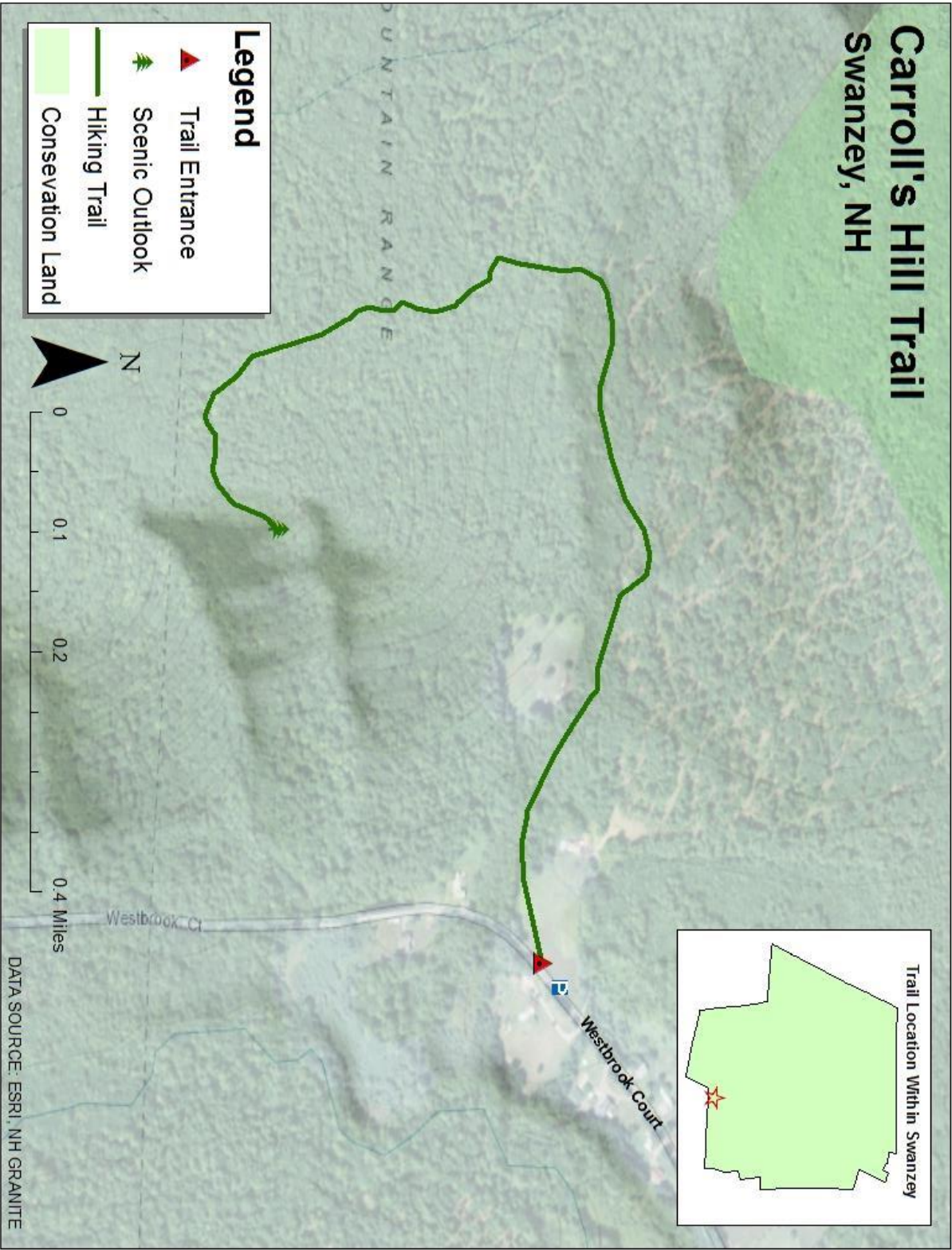


**Appendix E-2: Ashuelot Rail Trail line and condition maps.**

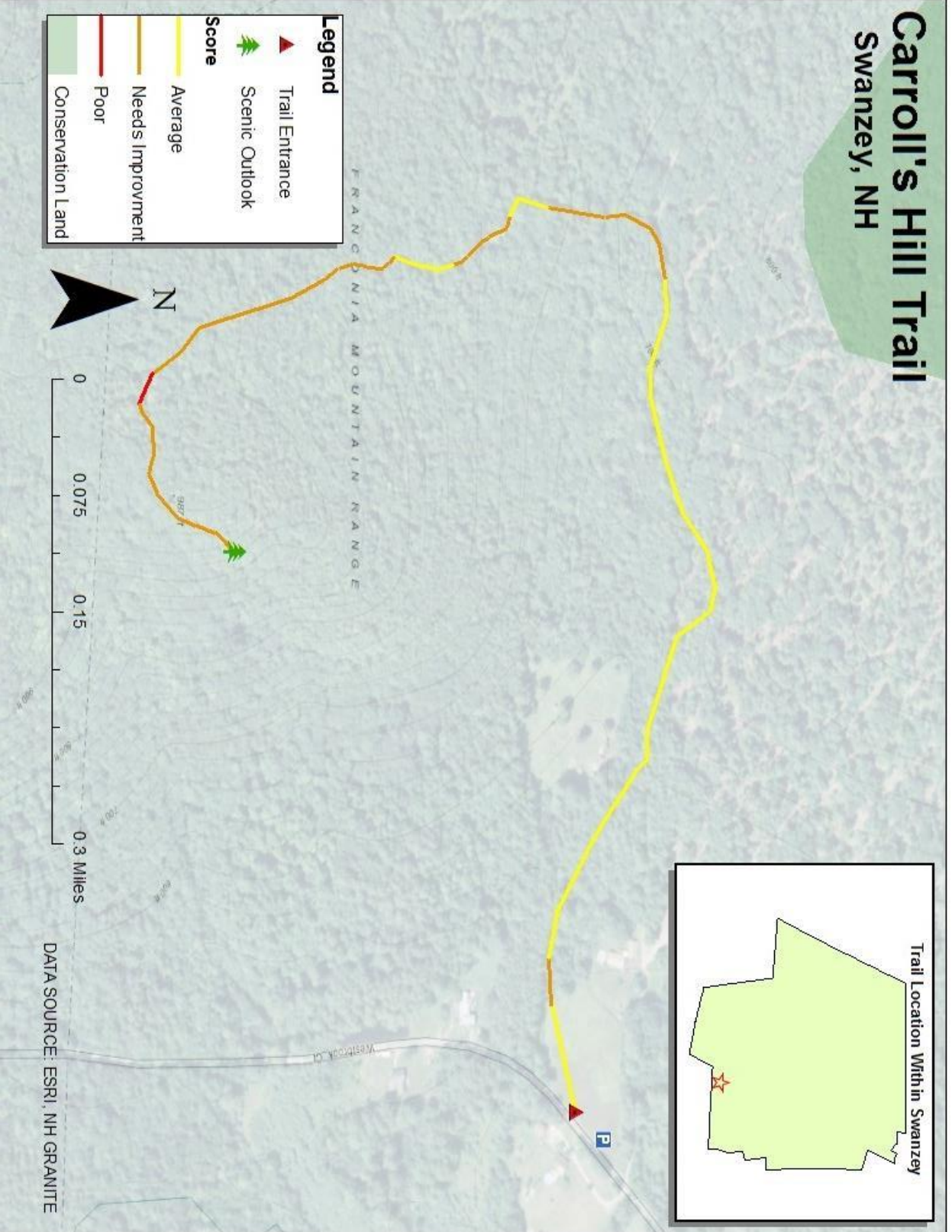




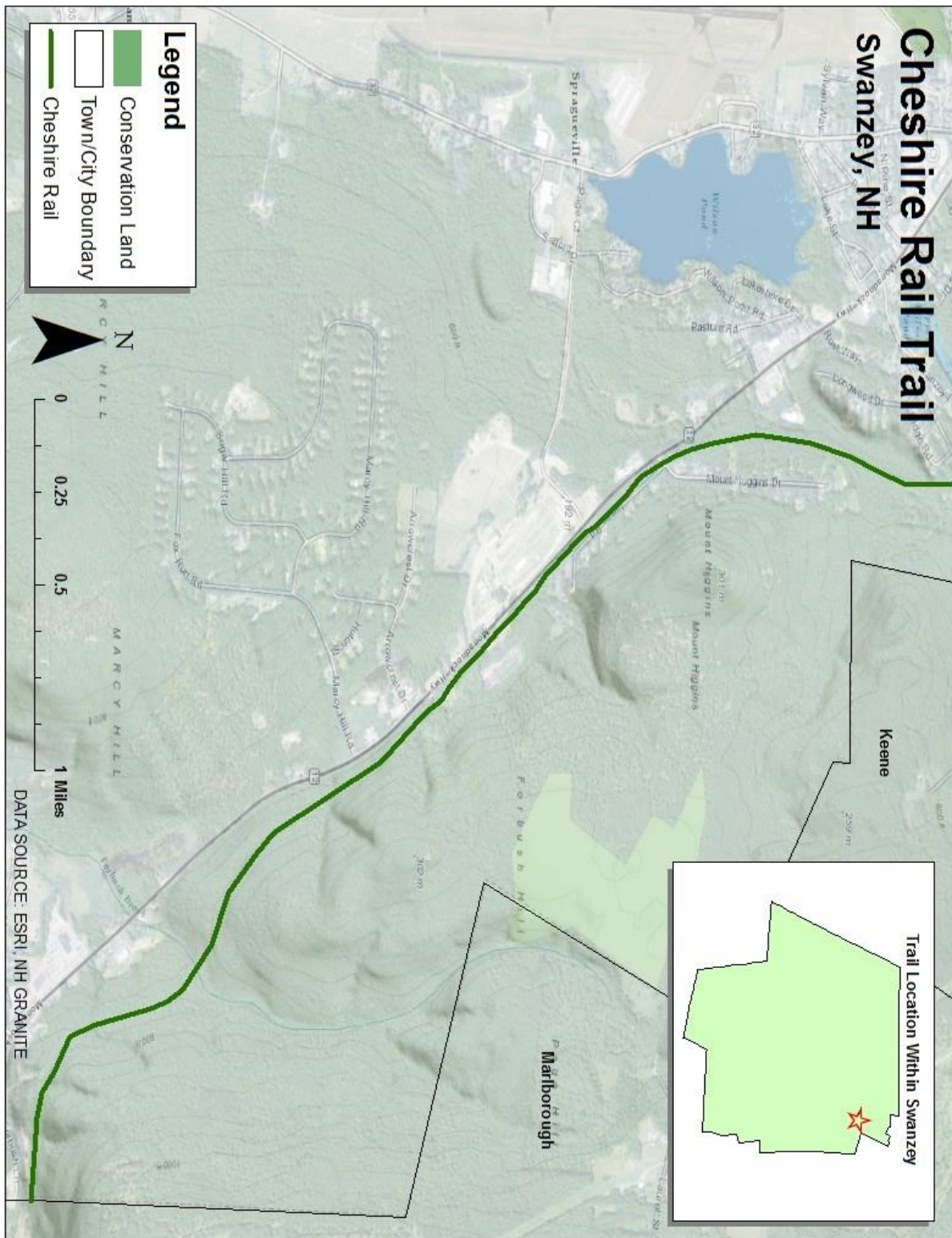
Appendix E-3: Carroll's Hill Trail line and condition maps.

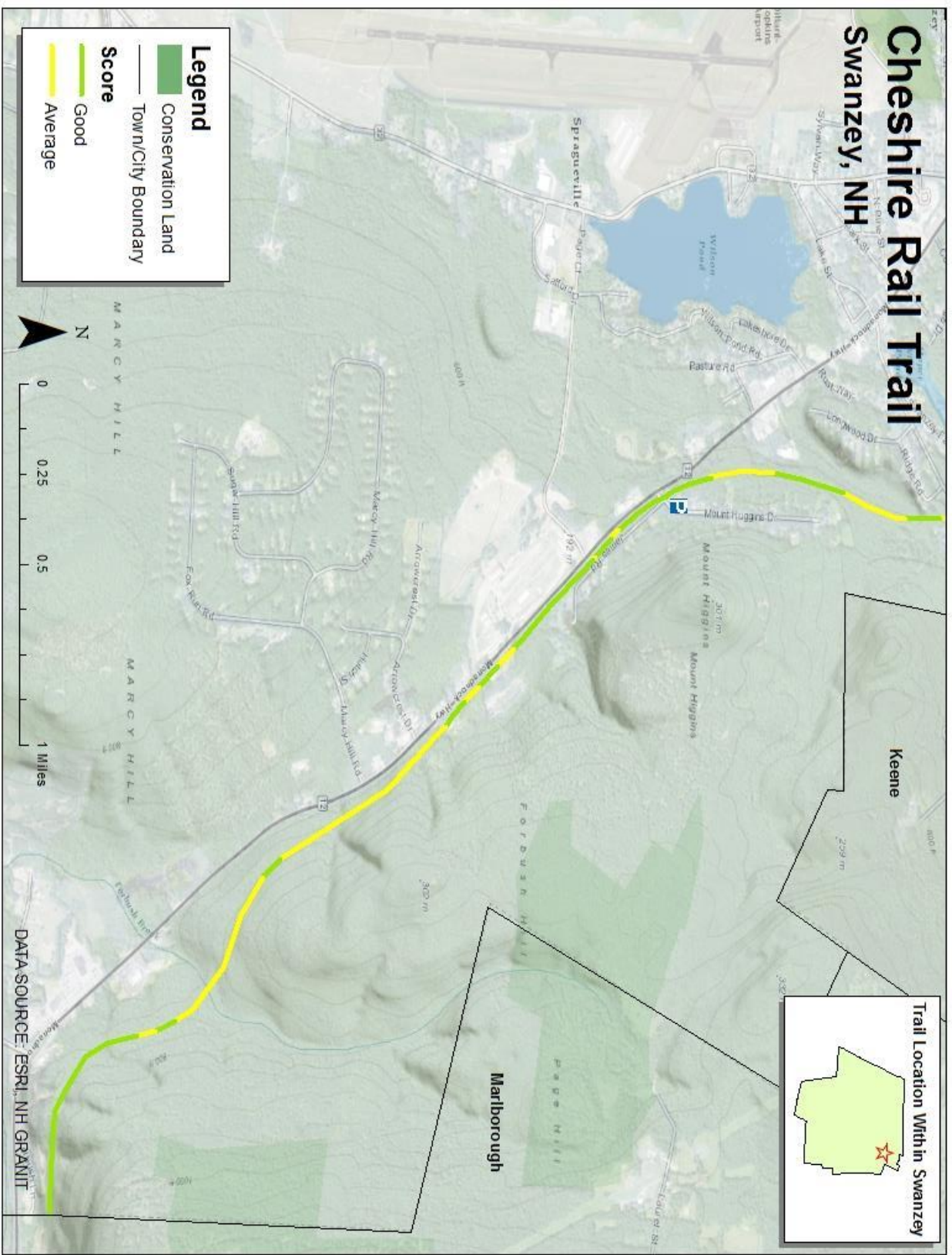


# Carroll's Hill Trail Swansey, NH

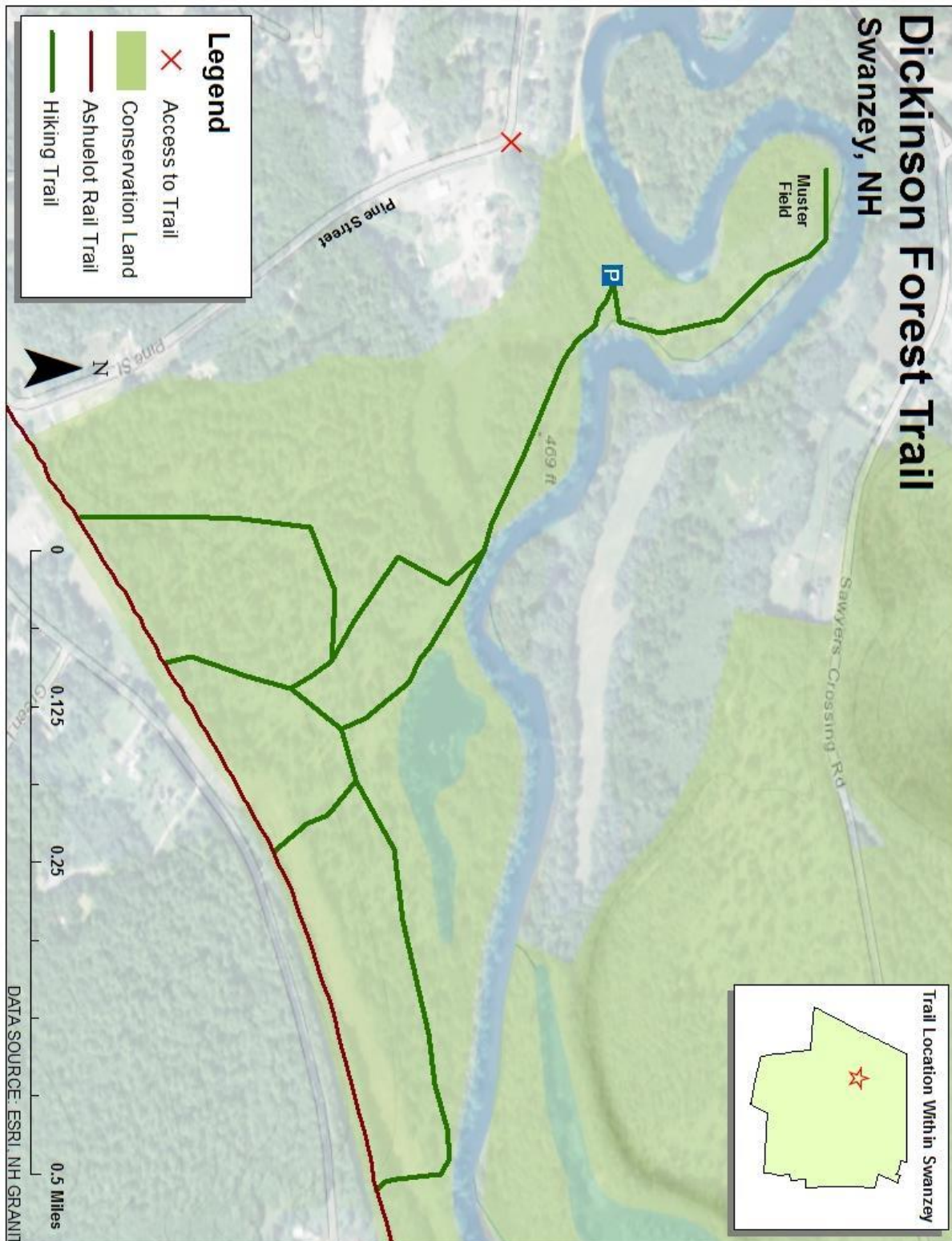


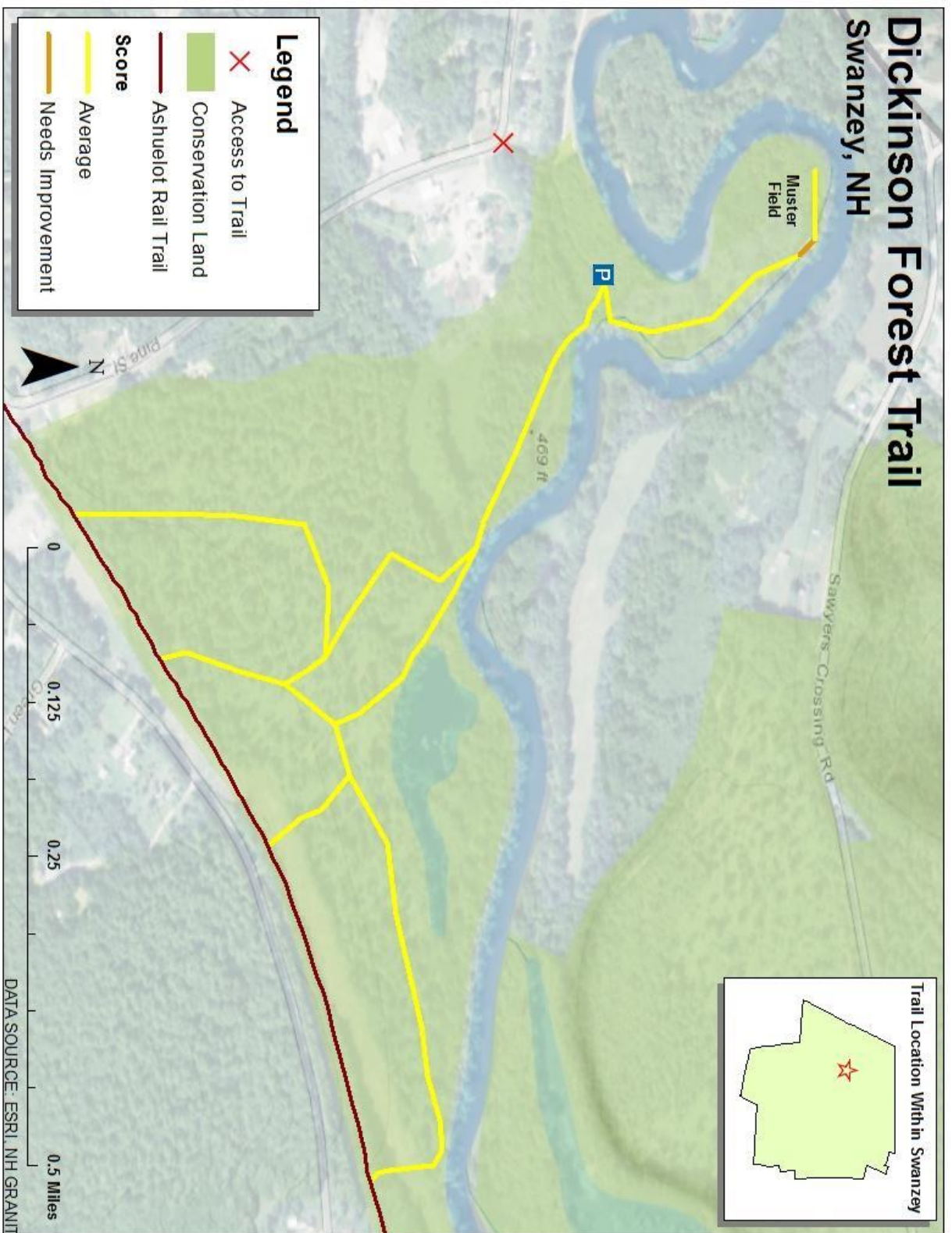
**Appendix E-4: Cheshire Rail Trail line and condition maps.**



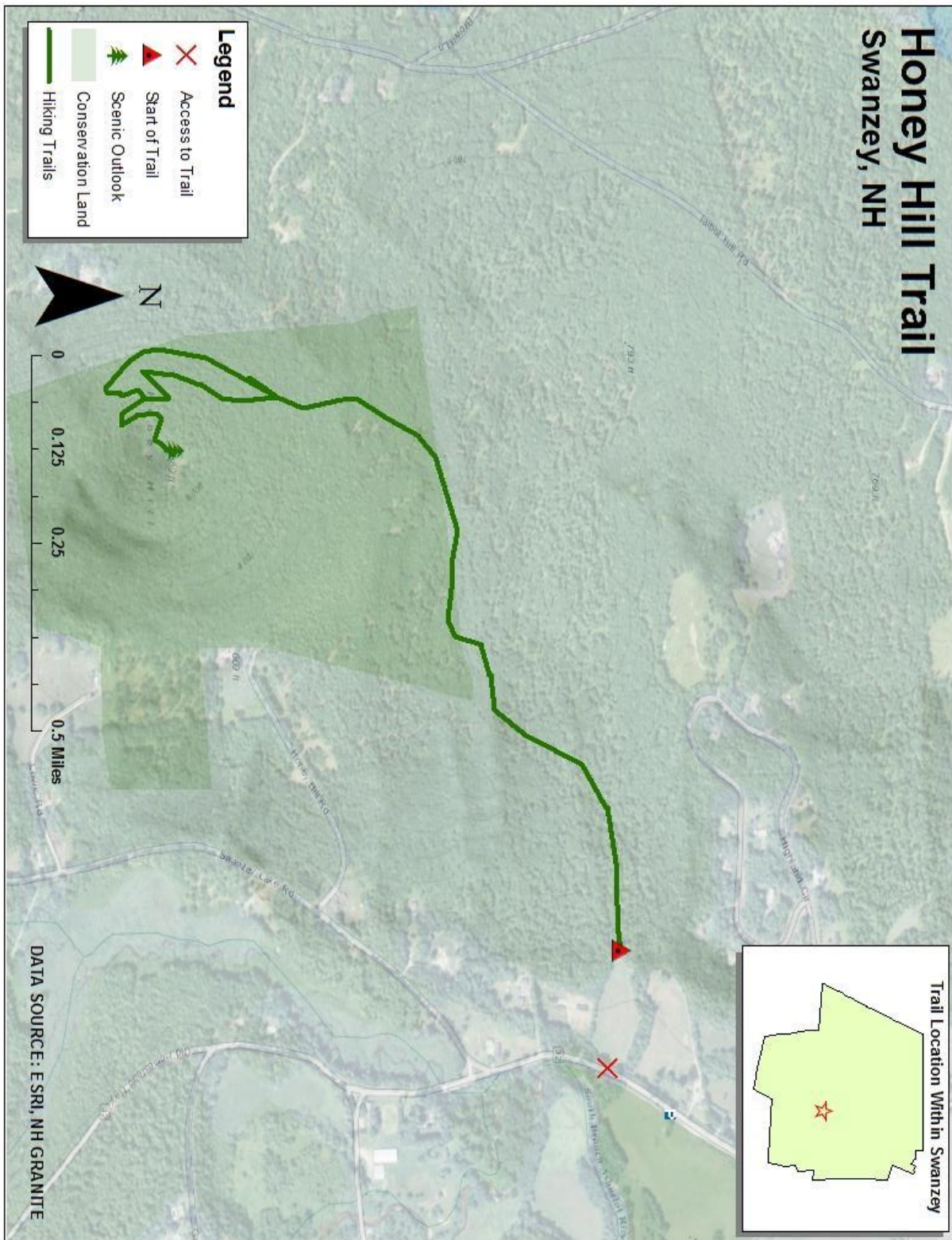


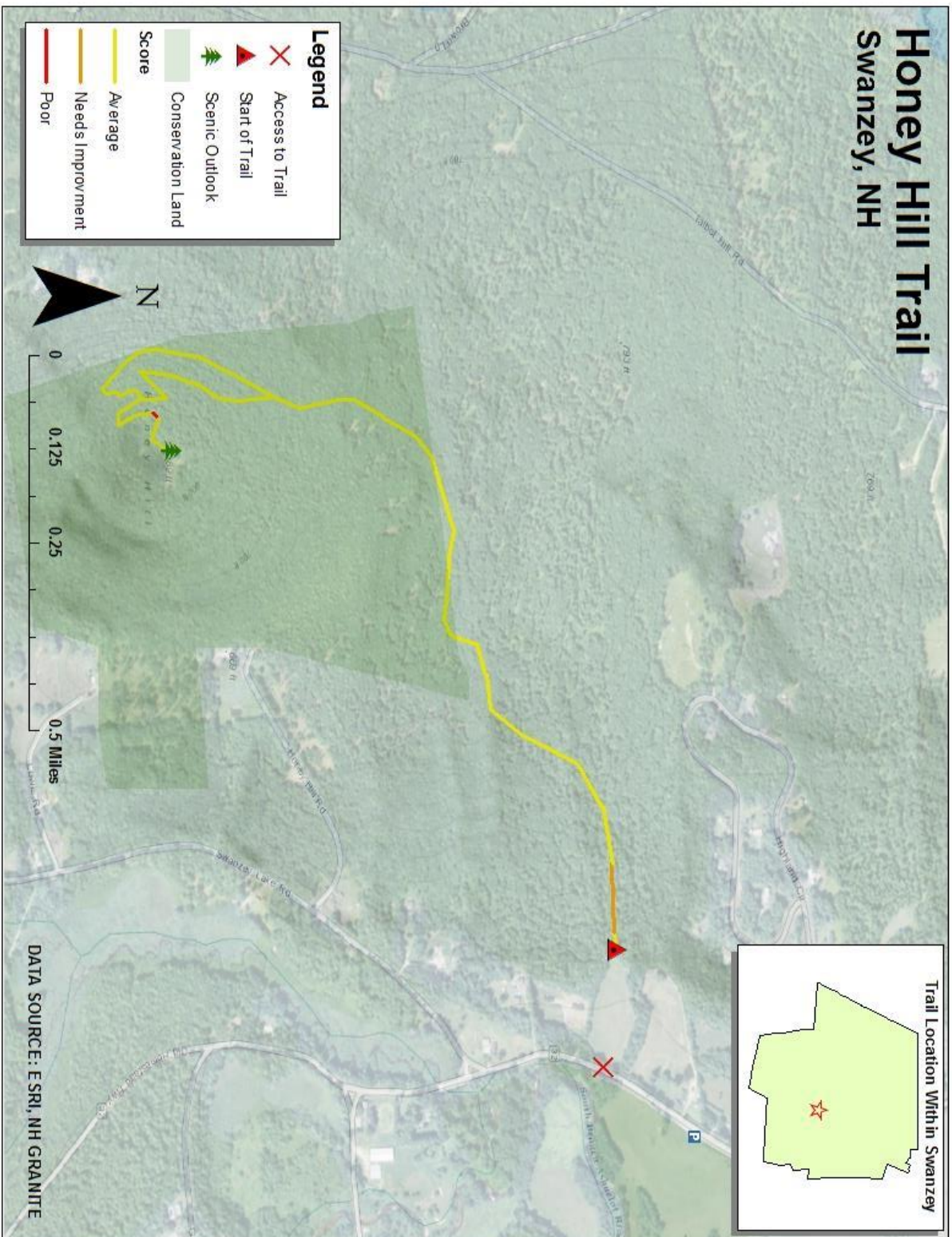
**Appendix E-5:** Dickinson Forest Trail line and condition maps.



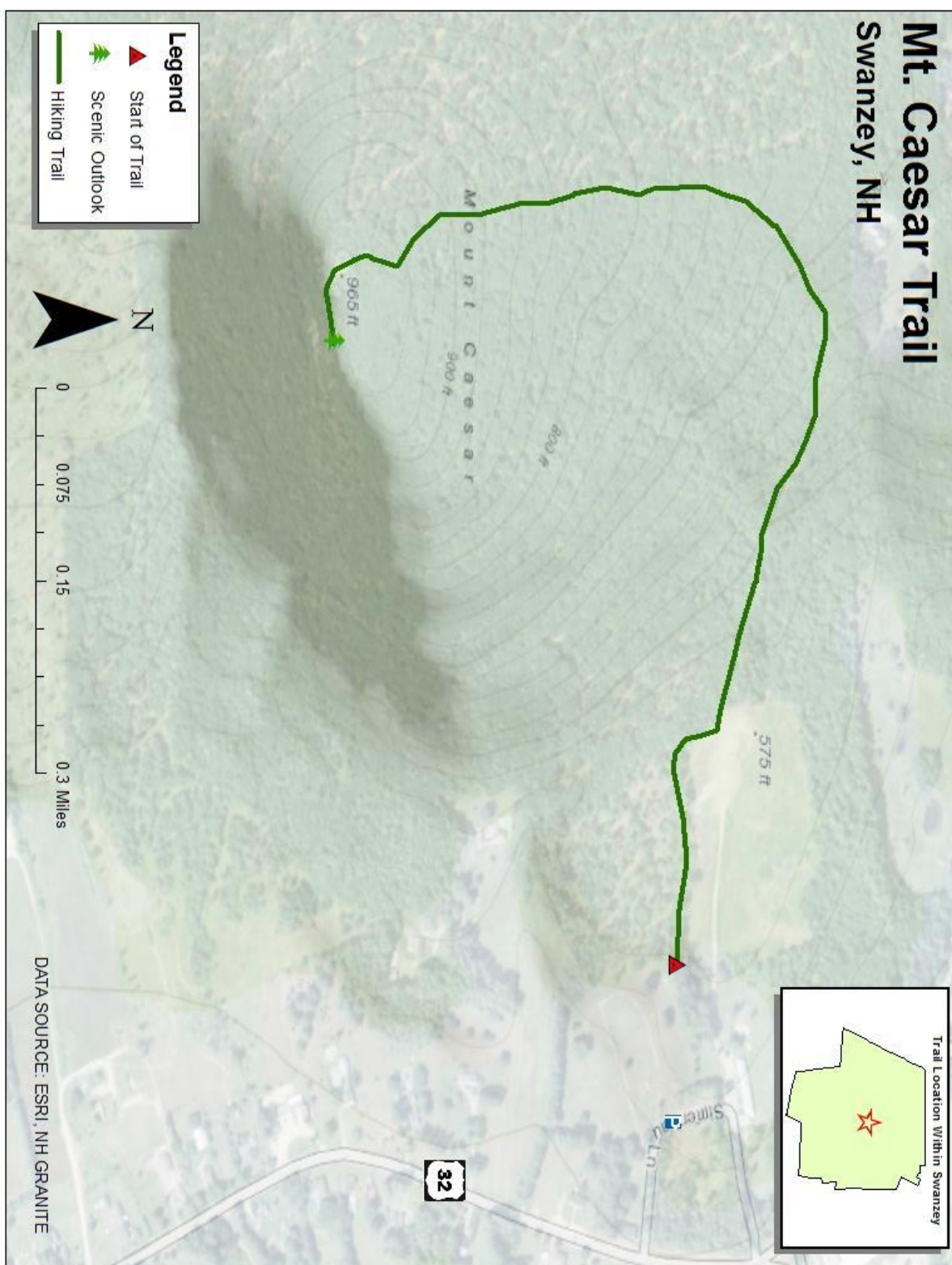


Appendix E-6: Honey Hill Trail line and condition maps.



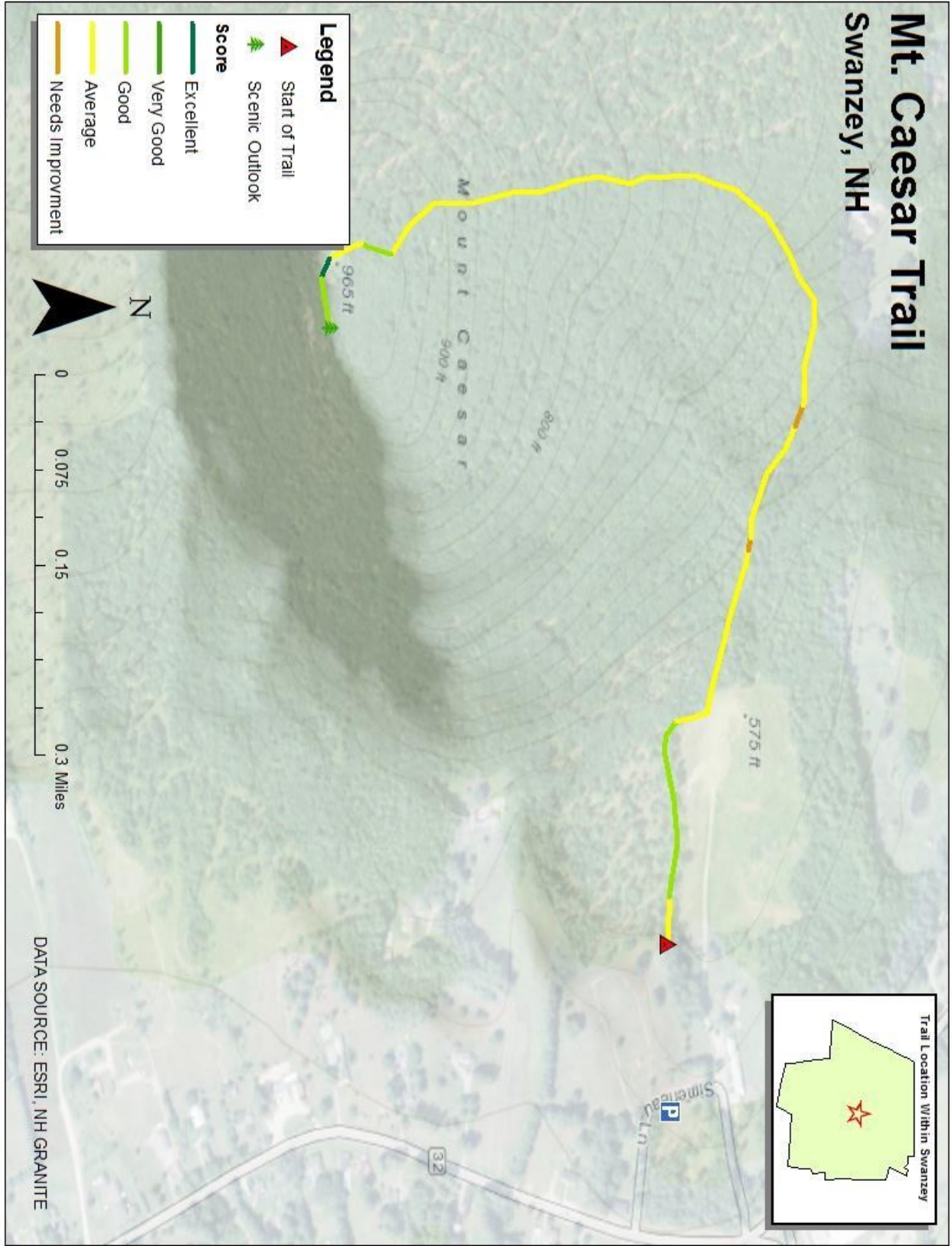


Appendix E-7: Mt. Caesar Trail line and condition maps.

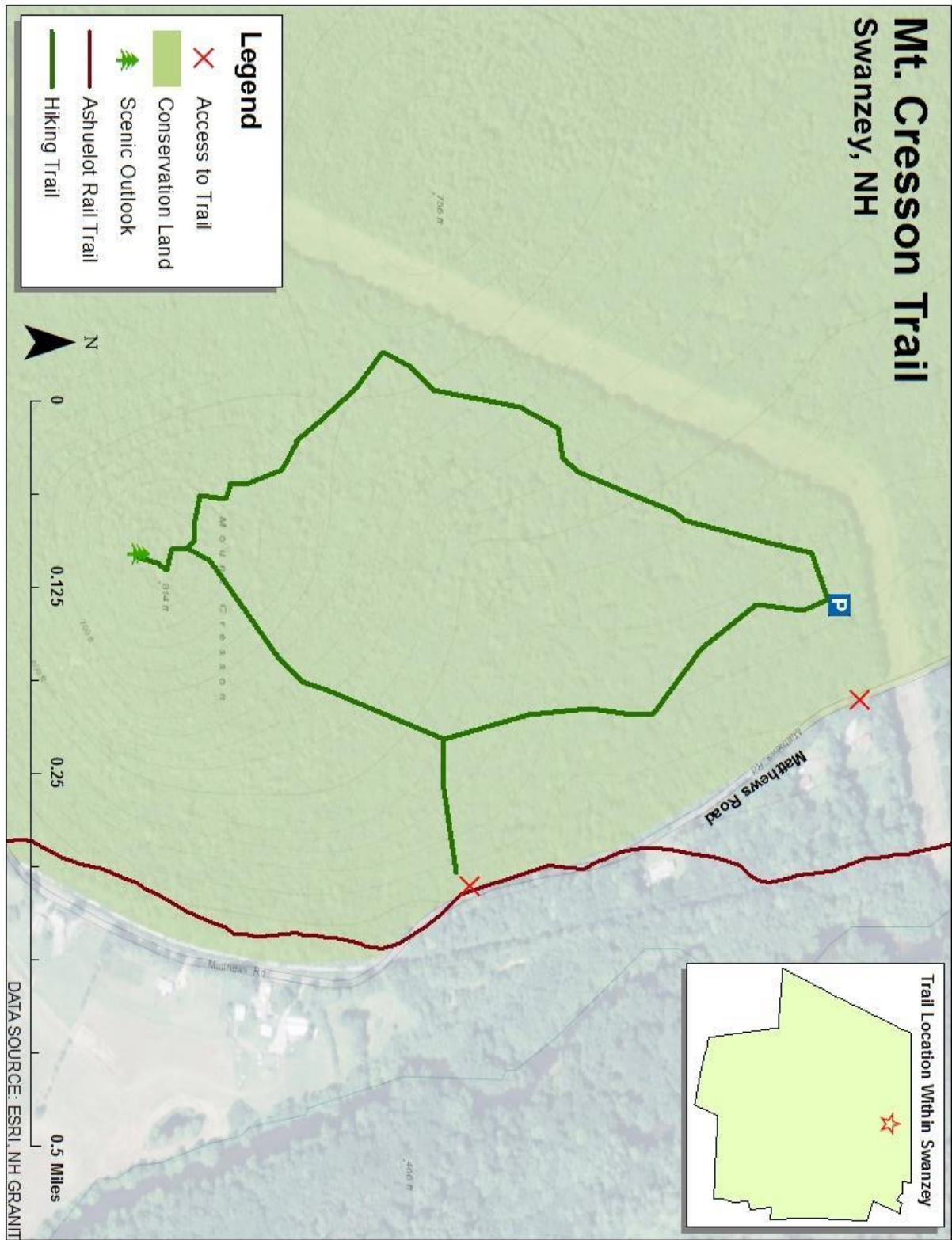


# Mt. Caesar Trail

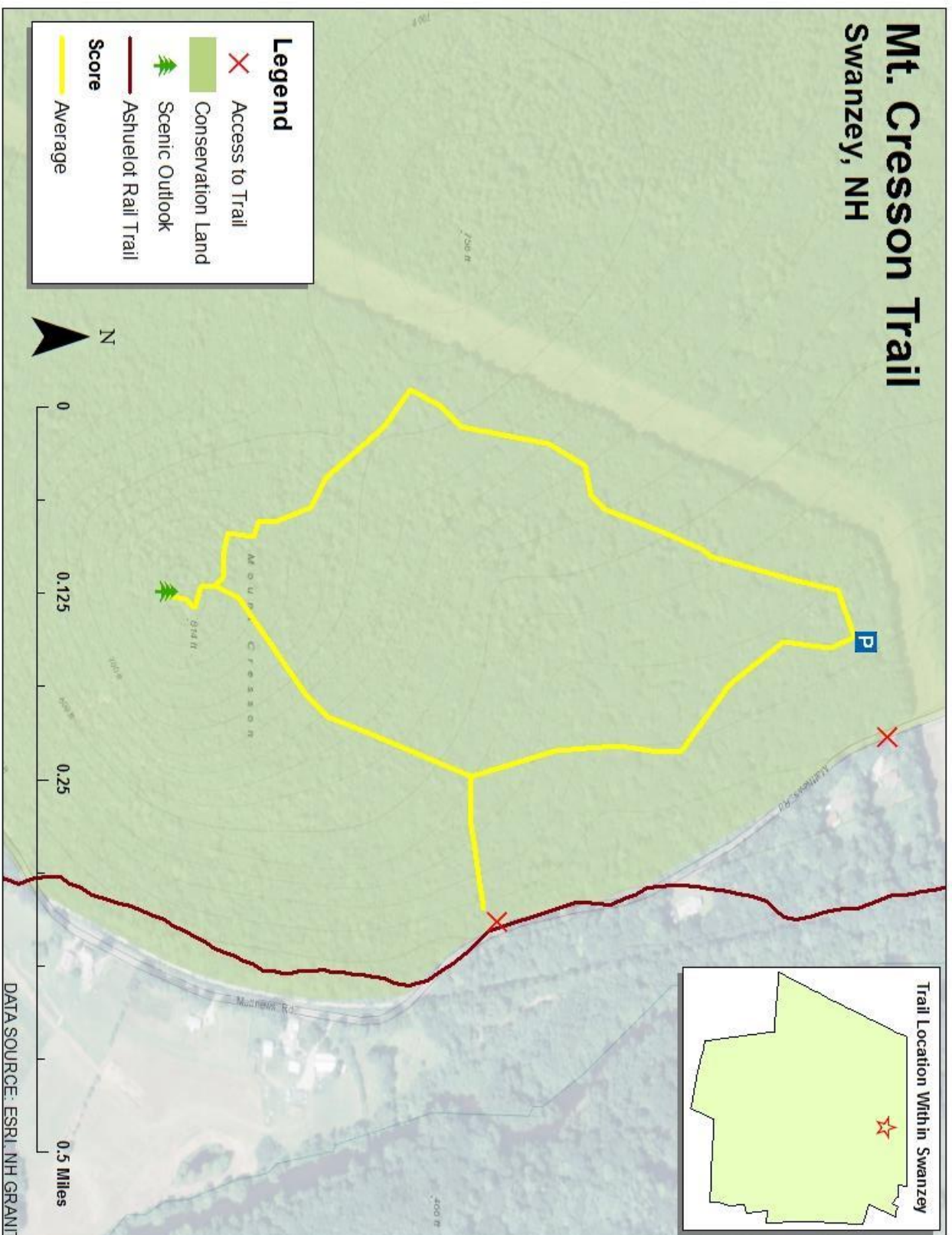
## Swansey, NH



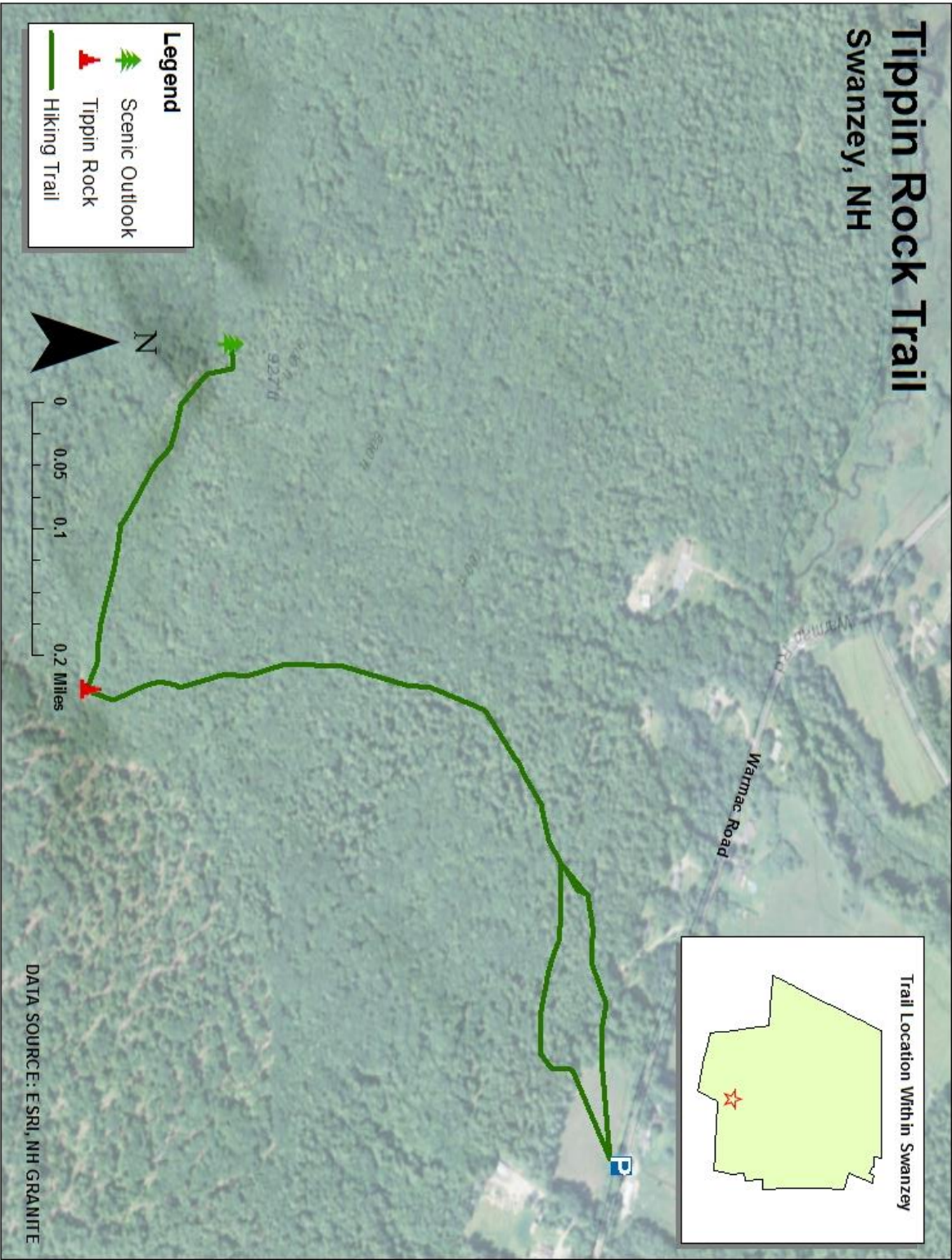
Appendix E-8: Mt. Cresson Trail line and condition maps.



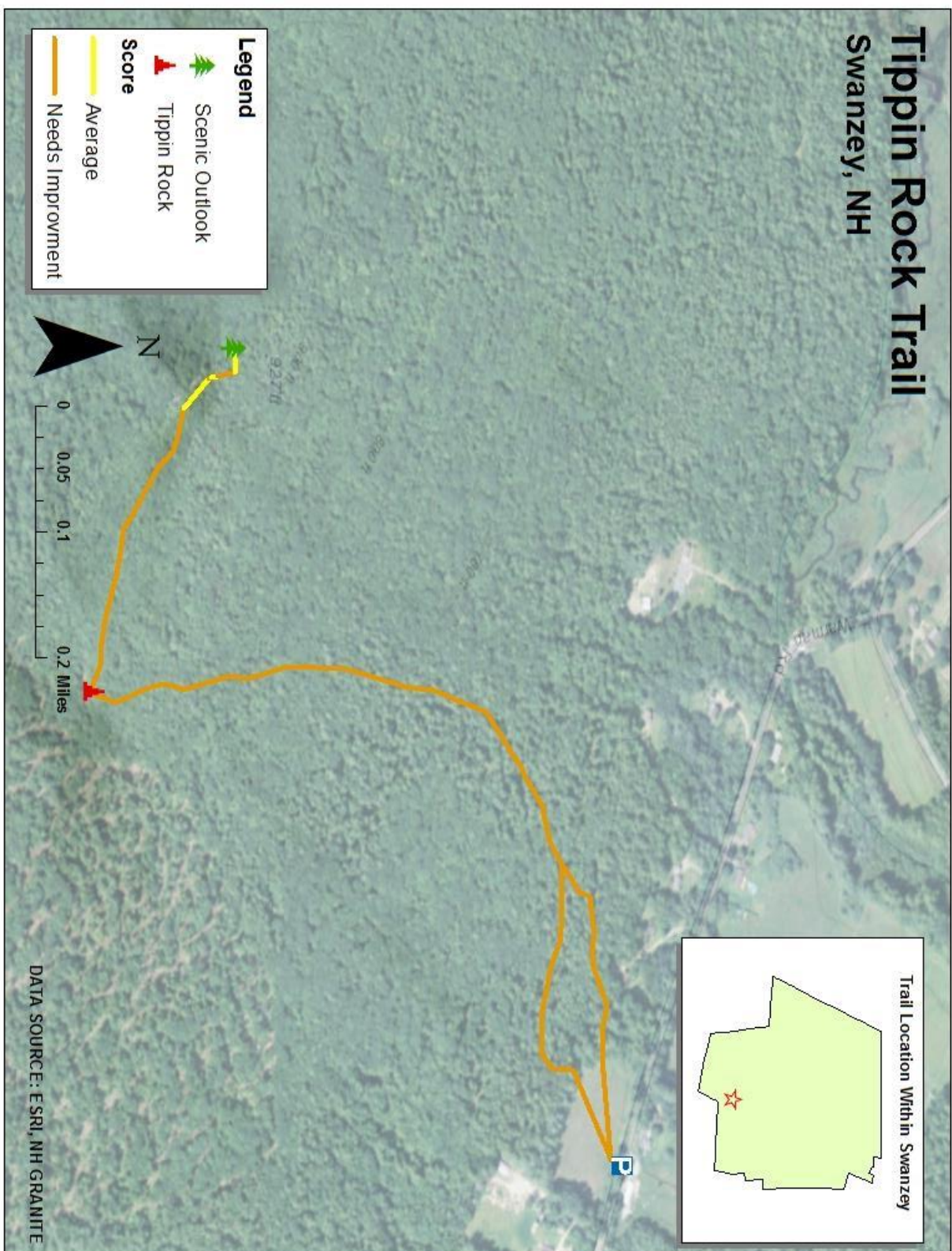
# Mt. Cresson Trail Swanzy, NH



Appendix E-9: Tippin Rock Trail line and condition maps.



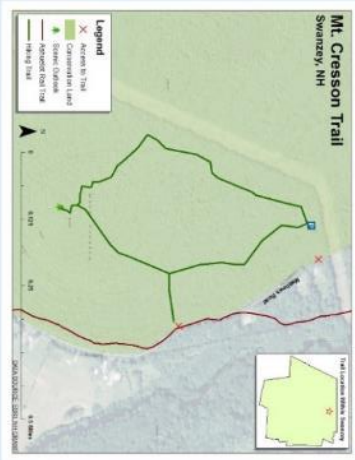
# Tippin Rock Trail Swansey, NH



## Appendix F: Promotional poster for Swanzey trails.

### Trails in Swanzey


Within the town of Swanzey there are a number of opportunities to experience the natural beauty of a rural town. Family-friendly walking trails are located throughout the town.



**Mt. Cresson Trail**  
Swanzey, NH

**Parking:** Off Mathews rd. 1 mile from Route 10 just north of the power lines. There is a short driveway to a small parking area on the left to keep cars from parking on the road.


**Trailhead:** At the top of the drive is the trailhead for the "loop trail."



**Carroll's Hill Trail**  
Swanzey, NH

**Parking:** On Warmac Road around a half mile from Route 32 (across from Chebacco Kennels). Park in the dirt area in front of the field without blocking the entrance.

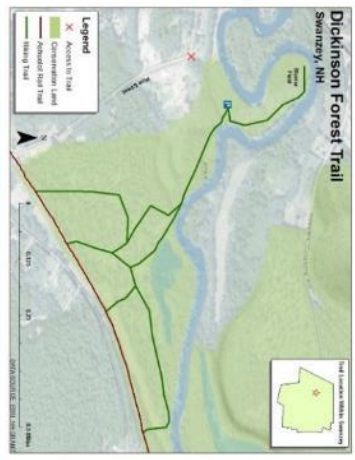
**Trailhead:** Walk to the back right corner of the field.



**Honey Hill Trail**  
Swanzey, NH

**Parking:** 1.6 miles south from the Swanzey Town Hall on Route 32 is a turnoff at a large pasture. Park there without blocking the gate.

**Trailhead:** Walk south along the road to a field on the opposite side of Route 32 with a chain across the entrance. Walk through the middle to the far side of the field.



**Dickinson Forest Trail**  
Swanzey, NH

**Parking:** Off Pine Street, past the Recycling Center's chain link fence on the right. Enter the dirt driveway and park in the small parking area on the left before the river.

**Trailhead:** Begins at the river. Go right for Dickinson Forest or go left to the Muster Field.

PLEASE! Be courteous of the trails, landowners, as well as fellow trail users. Take out what you bring in, and leave what was there. Enjoy!

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