

Design Connect Cornell



**Town of Dryden
Rail Trail Concept Plan
Spring 2015**

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Introduction

About Design Connect

Design Connect is a multi-disciplinary, student-run, community design organization based at Cornell University. We are rooted in collaborative, democratic, and sustainable principles for the advancement of towns in upstate New York.

Project Aims

In late 2014, the Town of Dryden approached Design Connect for assistance in creating a conceptual design for the conversion of abandoned Lehigh-Valley rail beds into a trail.

The goals established for this project include a baseline assessment of existing conditions, development of a trail cost estimate and information on funding sources, the creation of graphics and diagrams with information on materials, signage, upgrades for specific segments, stream crossings, and road crossings, and an assessment of opportunities and barriers to trail development.

Project Support

Dryden's Town Board, Conservation Board, and other community groups have expressed their support for and interest in the development of a trail concept plan for this segment. Other partners throughout the region, including Cornell Plantations, the Finger Lakes Land Trust, and the Tompkins County Planning Office have expressed support and a willingness to contribute knowledge and resources to the trail planning effort.

Site Description

Extending from Mt. Pleasant Road in Varna to Route 38 in the Village of Freeville, the Varna-Freeville rail-trail measures 6.25 miles. Development of this segment into trail is one of the final barriers remaining in an effort to integrate Varna, Freeville, Etna, and the Village of Dryden into greater Ithaca's trail system. Abandoned in 1976, these rail beds traverse land with multiple owners and a variety of land uses including residential, agricultural, institutional, commercial, industrial, and recreational /vacant. Immediately west of this segment is a portion of the proposed Ithaca-Dryden trail that traverses DEC and Cornell Plantations property, which could connect the network to the East-Hill Recreation Way. To the east of this segment is the proposed Dryden-Freeville segment which could connect to the popular Jim Schug trail.



Introduction

Local History

The charter for the Ithaca and Cortland Railroad was filed on July 21, 1869, with the building contract signed on April 25, 1870. By the end of July, rails were laid. The Lehigh Valley Railroad's most profitable passenger route was the Ithaca branch, which provided a three-hour trip to Buffalo and an eight-hour trip to New York City. The Black Diamond Express, Lehigh Valley's flagship, ran from Easton, Pennsylvania to Ithaca and westward from May 18, 1896 to May 11, 1959.

Cornell University's sports teams relied on these railroads for away games against Dartmouth and Harvard. It became a tradition for the school band and students to welcome the team home on Sunday mornings at the East Ithaca station.

By the 1970s, only 200 train cars a year passed through the Freeville-Cortland branch. On April 1, 1976, service was officially discontinued on this branch. Freight traffic was moved to the Freeville-East Ithaca branch, which had 250-300 cars of coal passing through yearly to Cornell University's heating plant. However, in June 1972, a portion of the track near Varna was lost due to heavy rain, and railroad service was discontinued.

The transformation of these historic railroads into walking trails will not only provide many environmental and economic benefits to Ithaca, but also preserve a historical site of Central New York.



Photo Source: A History Of Railroads In Tompkins County (2008)

Methodology

Research

In preparing to design the trail concept plan and craft this report, the team undertook a variety of research in order to inform ourselves and our work about the Town of Dryden, the recreational network in the region, and the specific requirements of this proposed section of trail.

Site Visits

Our first meeting to begin research on the project took place at Dryden's Town Hall on February 7, 2015. All members of the Design Connect team, as well as Dryden Town Supervisor Mary Ann Sumner, Conservation Board chair Bob Beck, and several other members of the Conservation Board were present. This initial visit was instrumental in beginning to understand the area and the larger civic context of the trail as well as the regional trail network. After having an informational meeting in which we discussed expectations, aspirations for both our report and the trail as part of Dryden's existing recreational network, and anticipated challenges, members of the Conservation Board led Design Connect on a site visit of locations where the existing rail bed crosses a road, both to visually assess as many parts of the proposed trail as possible and to assess safety concerns related to road crossings. This included visual inspection of several of the bridges and stream crossings. Our team was able to take pictures of features of the trail, familiarize ourselves with the route, and learn more about the history of the area from Conservation Board Members.



Methodology

Research

Precedent Studies

In addition to research on the condition of the trail itself, the team conducted research related to trail and recreation networks in the Southern Tier of New York and around the country. The research on the history of this proposed trail is reflected in the proceeding sections. Especially useful in shaping our understanding of the task at hand was the Draft Design Report for the Dryden/Freeville Trail Project completed by the Town of Dryden, a publication by the Town of Caroline on “Developing a Public Use Trail” published in 2008, and a Cumberland County, NJ Rails to Trails feasibility study published in 2010. These served as precedents not only for rail-trail planning and design, but also for how to organize and implement the early stages of planning such a trail. Instrumental to our understanding and analysis of trail owner/trail neighbor concerns was a survey conducted by the Ithaca Trails Committee and the Ithaca Planning Department on property owners near the South Hill Recreation Way, the East Ithaca Recreation Way, and the Northeast Ithaca Recreation Way. This information was summarized and is included as techniques for managing impacts of trail development.

Compliance and Regulations

The team consulted manuals published by the national organization Rails to Trails Conservancy on design of former rail beds, as well as information published by the organization American Trails, on how to design ADA accessible trails in a variety of site conditions. Several webinars prepared by these organizations cover compliance issues surrounding federal ADA regulations in terms of materials, grading, and drainage. Preliminary research into steps the Town would need to take to meet SEQR regulations were completed using resources specific to New York State.

Conditions Assessment

After completing the preliminary site visit, precedent studies, and compliance and regulations research, the team divided the trail into segments. Each team member completed an assessment relying on field visits and aerial imagery to establish a baseline conditions assessment for the trail. The team used ground cover and other GIS data from the NYGIS Clearinghouse as a basis for these maps and for further understanding of the region. The results of this assessment are in the ‘Results’ section of this report (Table 1 and Figure 1).

Methodology

Outreach & Design

The team conducted outreach to the Dryden Conservation Board, representatives of the Town Board, local trail groups, and neighboring landowners who occupy land within 200 feet of the rail bed to gain insight into existing uses, desired design features, potential trail users, and other relevant considerations.



The team held two outreach meetings to gain targeted user and landowner feedback pertaining to physical design elements and the perceived strengths, weaknesses, opportunities, and threats to trail development. At the initial outreach meeting, approximately thirty local trail and conservation advocates convened to learn about the project, participate in a conceptual design activity and brainstorm strengths/opportunities and weaknesses/threats. At the second outreach meeting, the team engaged Dryden residents who either own or occupy lands abutting the rail bed. Approximately twenty residents offered insight concerning existing uses, desired locations of reroutes, desired types and location of buffer materials, and additional strengths, weaknesses, opportunities, and threats. The insights gained during these meetings are the foundation of the 'Results' section of this report. The team maintained a working relationship with the client throughout the course of the project by attending various Town Board meetings and monthly Conservation Board meetings.

Design

The Design Connect Dryden team divided into sub-teams to conduct a thorough assessment of the materials, buffering, parking, road crossings, and potential reroutes necessary for this section of trail. Using the insight gained during the research and outreach phases of the project, each sub-team created a comprehensive list of feasible alternatives and design recommendations based upon national best practices and consultation with the local community. Considerations including width, grade, surface materials, vegetative and constructed buffers, the location of parking areas and rest areas, existing uses and users, and navigating various road and water crossings are included in the results section below.

Research Results

Existing Conditions

Mount Pleasant Road – Pinckney Road

This segment of trail is approximately 2 miles long and traverses residential, recreational, institutional, industrial and commercial land uses. Throughout the length of the trail, properties on or within 200 feet of the trail include single family residences, DeBell Apartments, Pine Ridge Residence Apartments, the Varna Fire Station, Cornell Plantations, Vanguard Printing LLC , a NYSEG electrical substation, and a cement and gravel company. Many of the residences, especially near Hall Woods Road, are within 100 feet of the rail bed.

From Mount Pleasant Road to the Monkey Run Road area, the rail bed is informally used as a trail. The width of the rail bed in this location spans about 3 - 6 feet and has a steep drop off in some areas. The F. H. Fox Bridge offers a safe crossing for Route 366.



Looking east at trailhead on Monkey Run Road



Moving northeast over F. H. Fox Bridge

Moving northeast from Monkey Run Road to Route 13, the rail bed is well maintained by Cornell Plantations and other adjacent property owners. Width varies from 4 - 15 feet, is relatively cleared of brush, and has a relatively flat and stable grade. Parking exists off of Monkey Run Road for Cornell Plantations. Road crossings include Monkey Run Road, not a significant safety concern, and Route 13, which is a significant safety concern.



The periphery of the rail bed is informally used as parking at the Monkey Run Road entrance.



The rail bed behind Pine Ridge Apartments includes about 3 feet of paved surface, lights, benches, picnic tables, and charcoal grills for resident's use.

Research Results

Existing Conditions

Mount Pleasant Road – Pinckney Road Cont.

Moving east from Route 13 to Pinckney Road, the rail bed is not discernible due to overgrown brush and traversing this area makes assessing width, grade, and other conditions extremely difficult. There are many houses and structures adjacent to the rail bed near Hall Woods Road. Some community members have voiced concerns about this area being inappropriate for public access. The NYSEG substation and mine/quarry area on the eastern portion also pose aesthetic and safety concerns. Road crossings/skirtings include Hall Woods Lane, not a significant safety concern, and Pinckney Road, a moderate safety concern.



Looking east from Route 13



Looking west on Hall Woods Road

Pinckney Road – Kirk Road

This segment of rail bed is approximately 2.05 miles long and traverses residential, commercial, agricultural, rural recreation, and vacant rural land. Road crossings include Route 366, a significant safety concern, Etna Lane and Kirk Road, minor safety concerns.

Immediately east of Pinckney Road, the rail bed is overgrown and only about 4 feet wide. According to information gathered at community meetings, a beaver dam has washed out the rail bed approximately 1800 feet east of Pinckney Road.



Looking west on Pinckney Road



Looking east from Pinckney Road

Research Results

Existing Conditions

Pinckney Road – Kirk Road Continued

Crossing Route 366, the location of the rail bed is barely discernible due to overgrown brush. A small stream follows Route 366 on the west side of the road; it is likely that the rail bed must cross this stream. The speed limit on Route 366 where the rail bed crosses the road switches from 35 mph to 55 mph, which is a high concern for future trail development.



Looking west on Route 366



Looking east on Route 366

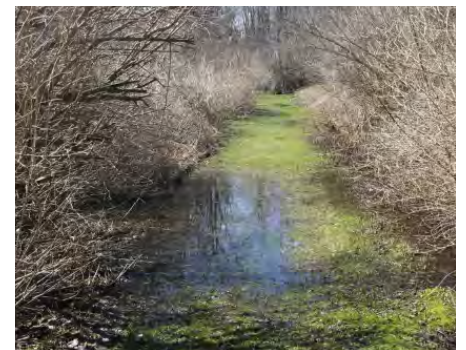
In between Route 366 and Etna Lane, the rail bed skirts along the edge of the Etna Nature Preserve. This section is overgrown with brush and rail ties are still in place. This section will likely require widening, brush clearing, and the addition of buffering materials, especially in the sections with close adjacent structures. Approximately 20 feet east of Etna Lane, the rail bed is washed out and a significant grade change exists on either side of a small creek. East of this wash out, the trail is overgrown and has standing water issues until about 150 feet west of Kirk Road. A formal conditions assessment is necessary to derive specific information on culvert conditions, beaver populations, trail width, elevation, and slope.



Looking west from Etna Lane behind the Nature Preserve



The washout just east of Etna Lane



Standing water issues west of Kirk Road

Research Results

Existing Conditions

Kirk Road – Route 38

This segment of trail is approximately 2.15 miles long, ranges from 5 – 12 feet wide, and traverses residential, vacant rural, vacant residential, agricultural, commercial, vacant community, rural recreation, manufacturing, and community services land uses.

The first 1.6 miles east of Kirk Road traverse agricultural land, and although it is an adequate width and well cleared, the owner of the property has expressed disapproval of trail development because of active use by agricultural equipment. This section also includes portions that appear to be marshy, which could potentially be an impact caused by plugged culverts or beaver activity. 1 mile east of Kirk Road, the rail bed is overgrown and narrows for about 975 feet.



Looking east on Kirk Road



Looking west, one mile east of Kirk Road

Along the remaining 1200 feet of rail bed west of Johnson Road, the rail bed is about 10 - 15 feet wide, a fairly level grade, and relatively free from encroaching brush. Immediately west of Johnson Road, a neglected former railroad trestle bridges a stream. This historic structure will require a visual and structural engineering assessment.



Looking west from Johnson Road



The Johnson Road Trestle

Research Results

Existing Conditions

Kirk Road – Route 38 Cont.

After the rail bed crosses Johnson Road, it travels along Freeville-Depot Road moving east before it enters recreational/vacant land. This segment is currently informally used a trail. It varies from 5 - 10 feet in width, has a relatively level grade, and would require only minor brush clearing.



Looking east along Freeville-Depot Road



Looking east at the end of Freeville-Depot Road

As the rail bed nears and crosses Union Street, it runs within close proximity to the Freeville Village Hall and Fire Department, which offers the potential for a limited amount of parking for trail users. As the former rail bed moves toward Route 38, it passes within very close proximity to adjacent residential structures.



Looking west from Union Street



Looking east from Union Street

Research Results

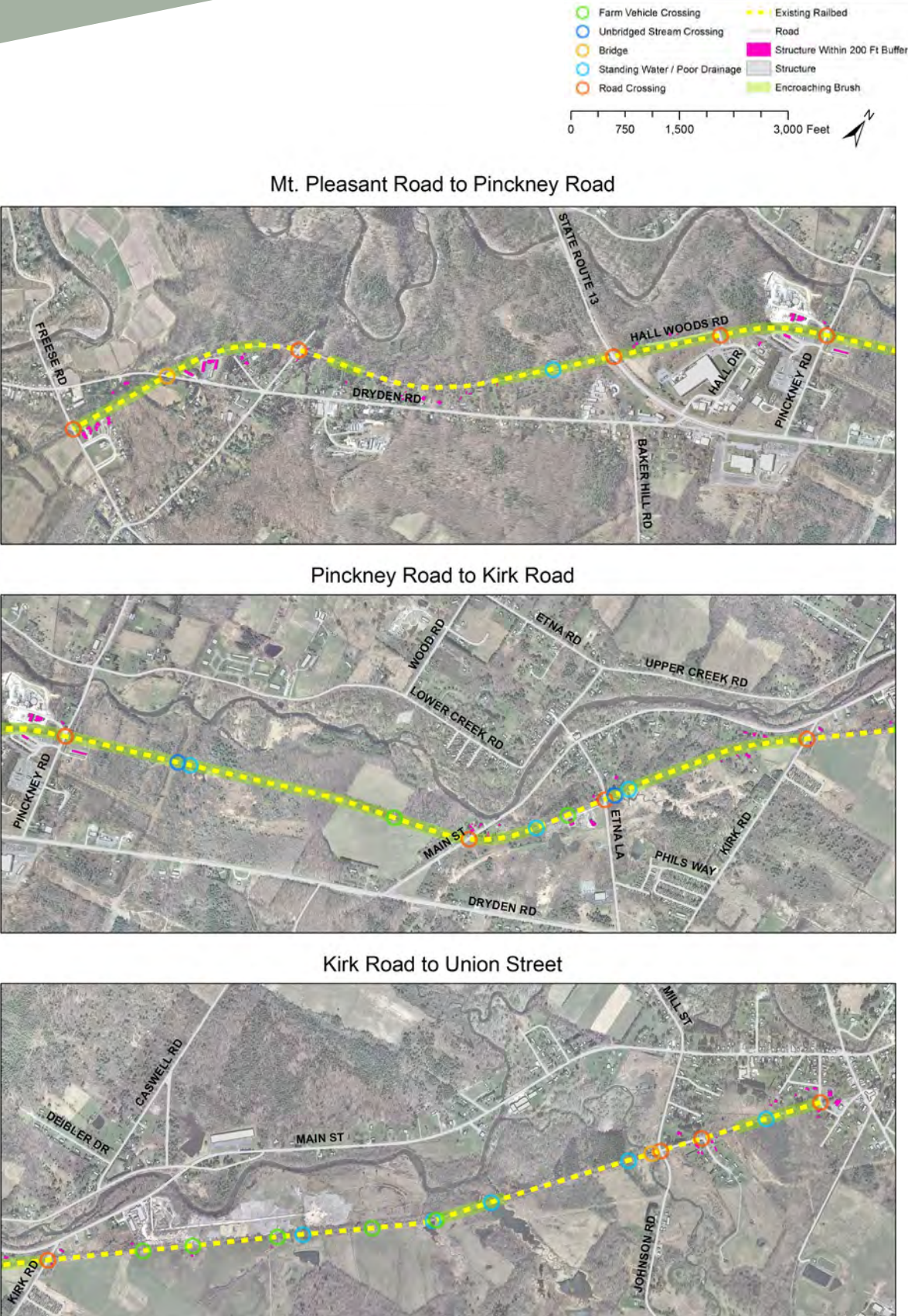
Existing Conditions

Segment	Approximate Length & Width	Vegetation	Property Use	Concerns	Existing Use
Mt. Pleasant Road -Monkey Run Road	3300 ft long; 3-6 ft. wide	Partially overgrown	Residential & Residential Vacant Land	F H Fox Bridge	Informal trail use; steep drop off near some edges
Monkey Run Road - Route 13	4400 ft long; 4-15 ft. wide	Relatively cleared	Residential, Insitutional	Monkey Run Road Crossing	Informal trail use
Route 13 - Pinckney Road	3000 ft. long; not discernable	Overgrown	Residential, Commercial & Industrial	Route 13 crossing, Hall Woods Road properties, NYSEG substation	N/A
Pinckney - Route 366	1.10 miles long; 4-12 ft. wide	Varies from overgrown to relatively cleared	Agricultural, Commercial & Institutional	Pinckney Road crossing, beaver dam	N/A
Route 366 - Etna Lane	1940 ft., varies from 3-12 ft. wide	Varies from relatively cleared to overgrown	Residential, Commercial & Recreational/Vacant	Route 366 crossing, rail ties in place	N/A
Etna Lane - Kirk Road	2900 ft., not discnerable	Overgrown to relatively cleared	Recreational/Vacant & Residential	Etna Lane crossing, wash out, standing water	N/A
Kirk Road - Johnson Road	1.6 miles long; 6-12 feet wide	Relatively Cleared	Residential, Agricultural, Commercial & Recreational/Vacant	Existing use by farm equipment, standing water	Private use, informal trail use
Johnson Road - Route 38	0.55 miles; 5 - 12 Feet	Varies from relatively cleared to overgrown	Residential, Rural Recreation, Vacant Community, Manufacturing, Police/Fire, Residential	Johnson road crossing and trestle, following Freeville- Depot Road, Union Street crossing, beaver habitat, adjacent properties	Informal trail use

Table 1

Research Results

Existing Conditions



Research Results

SWOT Analysis

Strengths, Weaknesses, Opportunities, Threats

Before this project can be implemented, it is necessary to analyze the strengths and weaknesses as they apply to the social, economic and environmental factors surrounding the project. The team summarized information gathered from local leaders and residents at community meetings in the form of a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Matrix (Table 2), supplemented by additional information from national trail-building literature and other locally-oriented research. The resulting matrix serves as a shorthand framework to guide the development of a responsive, locally-appropriate design.

Social

Conversion of the rail bed to a recreational trail offers increased connectivity between Varna, Etna, and Freeville, improving travel patterns and accessibility. This connectivity will provide an increased sense of community, offering Dryden residents easier access to the different villages and hamlets, expanding their sense of cohesion.

There will be no displacement impact on residences or businesses because there is no existing need for relocation as a result of the trail construction.

Historical and natural attributes of the area can be promoted through interpretative signage, which could be developed through a practical partnership between schools, civic groups and other community members and the planning committee.

Fragmented ownership of the rail bed is a weakness of the project and a threat to implementation. Concerns among community members include the potential misuse of the trail by motorized vehicles, maintenance and safety issues.

Economic

Conversion of the rail bed to a recreational trail poses an opportunity for ecotourism. Short-term economic benefits include job production while the trail is being constructed: a trail built by Dryden residents using local materials could stimulate the economy. If the trail attracts users from outside of Dryden, it could increase tourism revenue. Local businesses could benefit in the long run as increased traffic generates more demand for rest stops, food establishments, or recreational equipment.

Research Results

SWOT Analysis

Environmental

Conversion of the rail bed to a recreational trail increases non motorized mobility, which promotes environmental sustainability and human health. Increasing access to natural areas creates an opportunity to foster a greater appreciation for conservation and environmental issues. This trail will further enhance the aesthetic value of the scenery, complementing historic and cultural value to the heritage of the area.

There are no immediate and evident environmental threats or liabilities as a result of the proposed trail development. According to the NYSDEC list of Critical Environmental Areas, there are no such areas in Tompkins County. The creation of the trail will have no impact on any historical or cultural resources in Tompkins County. Rather, it will reinforce the aesthetic value of the proposed areas and its surroundings. According to the New York State Wild, Scenic and Recreational River System Act, there are no landmarks that will be affected by the creation of this trail.

However, as is the case whenever an ecologic project is designed, there is the possibility of impacting environmentally vulnerable areas due to increased access and use. The project should thoroughly evaluate any and all natural resources that will be affected, protected or not, to help shape rules and regulations that preserve natural integrity.

Strengths <ul style="list-style-type: none">Existing rail bedHighly desired by many peopleDedicated Conservation board and trail advocatesTrails targeted as a Priority in county and local planning documents	Weaknesses <ul style="list-style-type: none">Varying conditions of rail bedMaintenance issuesAnimal wasteTrash removalIllegal dumpingSeasonal upkeepPatrolsRoad crossings
Opportunities <ul style="list-style-type: none">Country-wide trail network improves economics, tourism, health, and transportationIncrease value of adjacent propertiesCreate regional connectionsIncreased commuting optionsConservation tourismCreates opportunity to add protected land/open spaces along corridor	Threats <ul style="list-style-type: none">Potential for trail user conflictsExisting usesFragmented ownershipFunding

Table 2

Managing Impacts

Trail Neighbor Concerns

While plans for trail development have sometimes been interpreted as problematic by neighboring landowners, both local surveys and national-level studies indicate that many common concerns about trail impacts never materialize or are significantly less impactful than neighbors fear. One particularly useful study, conducted locally by the Town of Ithaca Trails Committee and the Town of Ithaca Planning Department in 2009, surveyed property owners living alongside the South Hill Recreation Way, the East Hill Recreation Way, and the Northeast Ithaca Recreation Way. Neighbors within 500 feet of the trail were contacted by mail with a multiple choice survey, and expressed their feelings about impacts they had experienced since the trails were completed.

In this survey, residents were asked to rate how frequently they had experienced a number of problems, and how significantly those issues impacted their experience as trail neighbors. The survey evaluated experiences with unleashed pets, dog waste, litter, noise, trespassing, loitering, traffic and parking issues, encounters with users, after-hours use, trail vandalism, illegal motor vehicle use, and several other problems which neighbors felt were concerning prior to trail planning and development. The results of the survey are particularly relevant since this list represents a relatively comprehensive set of potential community concerns surrounding the trail, and these recreation trails resemble the proposed new trail in many ways.

The results of the survey indicate that neighboring landowners have had a very positive experience with nearby trails, and that many concerns and fears expressed during early phases of the trail projects did not present significant problems once the trails were in use. More than 85% of neighbors surveyed indicated that they were satisfied or very satisfied with the trail as a neighbor, 81% felt that the trail improved or much improved their neighborhoods, and more than 91% believed that the trail met their expectations or was better / much better than they expected.

Neighbors, many of whom were skeptical at the start, were also among the trails most frequent users and beneficiaries. 96% of respondents in the survey indicated that they used the trail, with 59% saying they used the trail more than four times per week. Popular activities with neighbors included recreation, commuting, and travel for social visits and errands, with primary uses including running, walking, and biking.

National literature on trail development echoes these positive impressions from trail neighbors of all types, and also elaborates on two additional issues that sometimes concern trail neighbors - property values and liability. While trail neighbors sometimes fear a loss in property values as a result of trail development, many studies of trail projects around the United States indicate that both the financial value and perceptual value of properties near trails increases in the wake of trail-building activities. One study, conducted by the National Park Service and reviewing trail projects in Colorado, Ohio, Pennsylvania, and elsewhere, indicates that realtors feel homes near trails are easier to sell than comparable homes elsewhere, and that real property values increase in proportion to a home's proximity to a trail. Other studies, conducted by the National Trails Planning Partnership, have found that housing with accompanying preserved green space appreciates at higher rate than similar housing

Managing Impacts

elsewhere. Still more studies, particularly surveys of trail neighbors by groups like The Conservation Fund and the Colorado State Trails Program, have found that homebuyers who moved in since trail development were positively influenced by the presence of the trail when deciding on a home to purchase.

While liability issues surrounding injuries and accidents that occur on the trail often represent a major concern of trail neighbors, precedents from a range of trail projects around the country indicate that neighboring landowners have negligible liability for problems that occur. Trespassing laws, recreational use statutes, and other laws typically protect landowners from claims in the event a user is injured on the trail or near a neighboring property. A study by the Rails to Trails Conservancy indicates that the minimal liability costs of trails are typically absorbed by the community through existing insurance policies. Signage, fencing, buffers, and other design tools can also be used to further limit dangerous activities and protect landowners from questions of accident liability.

Mitigation Measures

Representation

In the past, successful trail projects have enlisted trail neighbors to participate in a local trail advisory committee or similar group. Neighbors possess unique and detailed knowledge of the trail area that is fundamental to the creation of a strong plan, and promoting neighborhood participation in advisory roles gives neighbors a voice in the ongoing planning and maintenance of the space. The more neighbors can be included, the more responsive design and maintenance plans will be to their wants, needs, and concerns.

Mutual Learning

Some communities have brought together trail skeptics to participate in walking tours of the town's existing trails. By conducting walking meetings with trail neighbors along one of the community's popular existing paths, such as the Jim Schug Trail, stakeholders can experience what a future trail might look and feel like, and compare features of the existing trail to the proposals for their area. Former trail skeptics who now consider nearby trails an asset also have a unique understanding of the planning process from a neighbor's perspective - if neighbors of other Tompkins County trails can be identified and are willing to participate, they may be able to speak to the needs and concerns of the rail bed's neighbors more effectively.

Community Support

A healthy relationship between the new trail, trail neighbors, and other user groups from the community requires ongoing stewardship and engagement efforts. Activities like regularly-scheduled trail cleanups, which could bring together student groups, athletic clubs, religious organizations, and others, help to engage many different constituencies to foster a sense of ownership. Community support and ownership strengthens perceptions of a trail as a community asset and could help neighbors feel more confident that their concerns will be addressed through planning, design, and operation of the path.

Managing Impacts

Responsive Amenities and Features

A trail design that eases concerns about trail uses and conflicts is important in creating a comfortable environment for both neighbors and the community at large. Trail buffers including plantings, fences, berms, and other creative interventions can improve neighbors' perceptions of privacy, peace and quiet, security, and trail appearance. Wherever possible, the design for this trail will incorporate features oriented toward addressing particular concerns raised by neighboring landowners. In addition, design elements are incorporated to directly address certain use issues. For example, the use of fencing and bollards at trail entrances will help to prevent problematic motorized uses without the need for enforcement. If interest exists, the community could identify art elements and other features to incorporate that would further improve the trail atmosphere and strengthen the perception that the trail is a community asset.

Regular and Responsive Maintenance

After the trail is constructed, it is important that the town work together with neighbors to develop plans for maintenance of the trail's built and natural features. Fencing, plants, grass, and the trail surface itself will all experience a degree of wear and tear from both weather events and regular use. Trail neighbors in Ithaca and around Tompkins County have indicated that proactive maintenance based on feedback from trail neighbors is one of the most effective ways to protect community support for a trail on the long term. By working with neighbors early on to develop clear plans for mowing lawns, clearing brush, emptying trash cans, maintaining trail surfaces, and repairing buffer fencing, the town and trail planners can directly address important concerns and control common fears about trail appearance.

Clear Rules

As the trail planning process continues, trail neighbors and the community can work together to further clarify how rules and regulations can limit impactful uses and respond to the concerns of neighbors. Signage, community education, and enforcement of trail rules can reduce conflicts between user groups and dramatically limit behaviors that are damaging to perceptions of the trail. Trail neighbors elsewhere have indicated that clear rules and regulations, when they are enforced and widely understood, help to improve trail quality and limit unwanted activities.

Eyes on the Street

Whether to enforce rules or simply assess conditions on the trail, it is important that town employees, volunteer monitors, or police patrols occasionally travel the path to check for compliance with leash laws, hunting restrictions, motorized vehicle rules, and other regulations that the community has established during the planning process. These walks can help deter impactful uses and monitor trail conditions at the same time, and improve neighborhood relations by demonstrating that the needs of abutters are a high priority for both the town and regular users of the space.

Managing Impacts

Controlled Parking

Thoughtful and controlled parking availability and design are especially important in maintaining healthy relationships between the trail and its neighbors. The town must work to manage parking availability outside of official parking areas and to monitor unauthorized parking at trailheads. Surveys of trail neighbors throughout Tompkins County indicate that parking issues are not a frequent problem. Still, some degree of monitoring and enforcement may be necessary. This design incorporates bollards, plantings, and other features to control unauthorized vehicle uses, but the town and trail advisory committee could work with neighbors to develop more detailed rules for parking including time limits, closing hours, or seasonal controls.

Additional Resources

Rail-Trails and Liability: A Primer on Trail-Related Liability Issues & Risk Management Techniques:
<http://www.railstotrails.org/resource-library/resources/rail-trails-and-liability-a-primer-on-trail-related-liability-issues-risk-management-techniques/>

The Impact of Rail-Trails: A Study of Users and Nearby Impacts
http://www.nps.gov/ncrc/programs/rtca/helpfultools/impact_railtrail_final.pdf

Trail Effects on Neighborhoods: Home Value, Safety, Quality of Life
<http://www.americantrails.org/resources/adjacent/sumadjacent.html>



Design

General Guidelines

Designing for Multiple Users

Recreational trails are designed to accommodate multiple users including hikers, mountain bicyclists, equestrians, and cross country skiers. The decision on what uses the trail will be designed for should be made in the future after more in-depth outreach and analysis has been conducted. It is suggested that if equestrian users are permitted to use the trail, separate 'lanes' and additional signage concerning how to share trails with equestrians should be provided. If cross country skiing is permitted, this will disallow bikers from using the trail during the winter months, unless a portion of the trail is plowed. A notable community concern is the use of the trail by motorized vehicles. Trail access points should be designed to prohibit motorized use, with the exception of emergency vehicles, through signage, penalties for misuse, and removable bollards.

The guidelines for accessible recreational trails are, in general, the same as those for accessible hiking trails. In general, when considering the feasibility of constructing a new accessible trail, making improvements to increase accessibility on an existing trail or providing accessible trail features must comply with ADA regulations that pertain to surface materials, and width and grade of trail, among other specifications.

In case of an emergency along the trail, it is necessary that emergency responders have access. Given the frequency of road crossings, opportunities for emergency vehicle access are abundant. Access points include Monkey Run Road, Route 13, Hall Woods Road, Pinckney Road, Route 366, Etna Lane, Kirk Road, Johnson Road, Union Road, and Route 38. The longest stretch of trail in between access points exists between Kirk Road and Johnson Road, a segment of approximately 1.6 miles.

In order to allow people to give specific location information to responders in the case of an emergency, it is recommended that quarter mile markers be placed along the trail to orient trail users to their location.

Trail Surface, Width and Grade

The surface of an ADA trail is defined as "firm" and "stable". A firm surface resists deformation by indentations. During the planning process, firmness must be evaluated for noticeable distortion or compression during the seasons for which the surface is managed, under normally occurring weather conditions. A stable surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected use(s) of the area, between planned maintenance. Acceptable materials for these trails include crusher fines (crushed rock or limestone screenings) because it compacts well and provides good drainage, granular stone (also referred to as crusher fines or decomposed granite) or recycled materials. Crushed bluestone, which is locally available, has less of an impact on soil pH than the more commonly used crushed limestone.

The width of accessible recreational trails can vary, but are mainly within the range of 8 feet to 14 feet wide. The optimum trail bed width is 8 feet to 10 feet (Figures 2 and 3). The minimum width of accessible trails is generally 3 feet in areas considered exceptions to the guidelines. According to national literature, the following conditions would be considered as exceptions to the guidelines for an accessible trail: 1. Where compliance would cause substantial harm to cultural, historic, religious or significant natural features or characteristics, 2. Where compliance would substantially alter the nature

Design

General Guidelines

of the setting or the purpose of the trail, 3. Where compliance would require construction methods or materials that are prohibited by law, 4. Where compliance would not be feasible due to terrain or

Recreational trails for use by hikers, mountain bicyclists and equestrians should be designed with more moderate grades than challenging hiking trails might have. The recommended maximum sustained running slope for multi use trails with equestrian use should be 1:10 (10 percent), with a maximum slope of 1:5 (20 percent) for stretches of trail less than 50 yards long. The cross slope for equestrian trails should not exceed 1:25 (4 percent). No more than 30 percent of the total length of a designated accessible trail can exceed a running slope of 1:12 (8.3 percent) or have a cross slope greater than 1:20 (5 percent). In general, the running slope of an accessible trail would be 1:20 (5 percent).

The maintenance of trees and shrubs should offer a 300 foot sight clearance for safety and aesthetic reasons. Other design and maintenance considerations should aim to reduce obstacles including: openings in trail surfaces that allow the passage of a 13 mm diameter sphere or elongated openings that are parallel to the dominant direction of travel that allow the passage of a 6.5 mm diameter sphere, protruding objects that are lower than 80 inches above the trail surface, where vertical clearance of a trail is reduced to less than 80 inches a barrier to warn blind and visually impaired persons should be provided, tread obstacles greater than 2 inches high, and tread obstacles should not be greater than 3 inches high on trails with running slopes and cross slopes less than 1:20 (5 percent).

Design

General Guidelines

Standard Cross Sectional Diagrams

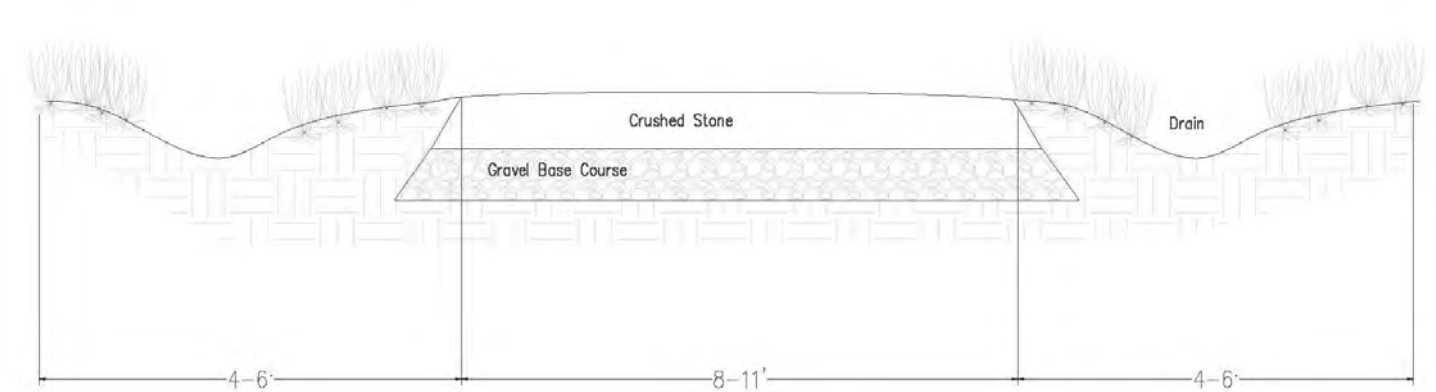


Figure 2

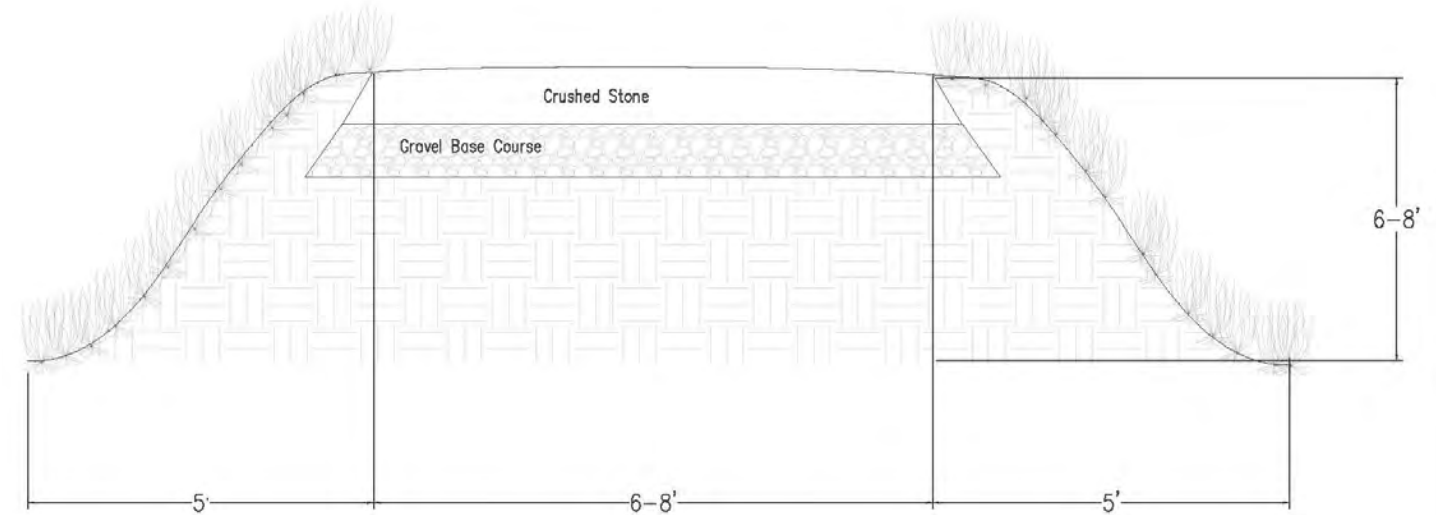


Figure 3

Design

Features and Materials

Buffering

Buffering the trail could allay a variety of concerns and design problems. We identified three main types of buffers that could be deployed in different circumstances. Desired locations cited during community meetings as well as cross sectional diagrams are included in figures 7 through 9.

Vegetative Buffer:

A vegetative buffer could screen adjacent lots from the trail visually, either to provide privacy to a private residence or visually mask non-scenic areas (Figure 4). Native, low-maintenance and easy to obtain plants are a priority. If the Town decides to maintain this trail in the winter, salt-sensitivity could be a concern about plant species as well, though there may be environmental issues to consider surrounding the use of melting salts. Suitable native plants are listed in Table 3. A total of 11,385 feet of vegetative buffer is recommended in the following locations: 1000 ft east of Monkey Run Road, along the entire length of Hall Woods Road, parallel to the trail for 850 feet west of Etna Lane, and just west and east of Kirk Road.

Berm:

A berm can be used if more than just a visual barrier is required, or if noise exclusion is also desired. Berms could prevent trespass from the trail onto private property or a sensitive area, or simply offer more screening if screening is desired for reasons listed above. They could also divide the trail from a road (Figure 5). A total of 3150 feet of vegetated berm is recommended in the following locations: just north of the trail immediately east of Monkey Run Road, and just south of the sewage company and mining operation in between Kirk Road and Johnson Road.

Fence:

A fence can be used if it is important that trail users not access an adjacent area, such as in the case of a wetland or other sensitive area, or active farm field, for example, but when precluding visibility is not a priority (Figure 6). Using fencing around a parking area also ensures that parking only occurs where desired and provides visibility to the trailhead. A total of 1930 feet of fencing is recommended in the following locations: parallel to the proposed trail behind Pine Ridge Apartments, perpendicular to Route 13 on the north and south side (in the case of a re-route), parallel to the trail on either side of Route 366, and parallel to the trail for 850 feet west of Etna Lane.

Design

Features and Materials

Parking

Parking areas can be constructed using various materials, preferably made of similar materials as of the trail (crushed fine stone) or, in the natural area, compacted earth. No changes would be required to existing parking lots, except perhaps the addition of signage or information kiosks. Smaller parking areas proposed adjacent to existing trailheads could be small (2-3 cars). If a larger trailhead or potential rest area is desired, a larger parking lot made of permeable paving would be a possibility, though a more natural and low impact parking area would be sufficient for the needs of the trail.

Although the trail is designed for pedestrian, cyclists, and multiple non-motorized users, parking areas are necessary to ensure proper accessibility along the trail. The team has identified sections along the trail that are currently utilized as informal parking (on the west side of the rail bed at the intersection of Monkey Run Road, under the Route 13 bridge, and the west side of Johnson Road just east of the railroad trestle) as well as a section near the trailhead that could be an added alternative (vacant recreational land on the west side of Mt. Pleasant Road). These proposed areas are currently owned by a variety of property owners. Other identified sections of existing parking areas that could be shared include a parking area near the intersection of Dryden Road and Mt. Pleasant Road, the Monkey Run parking area, the Etna Nature Preserve spaces on the side of Route 366, and the Freeville Village Hall (Figures 10 and 11). Additional parking locations may be necessary depending on usage and demand.

Signage

Signage is recommended along the trail and the highway to mark the presence of the trail, assist in wayfinding, and warn/educate users about multiple use considerations and hazards. Trail head signage should be included at the Mt. Pleasant Road and Route 38 entrances. At each access point, the trail logo sign and informational signage of acceptable and non acceptable trail uses should be included. Stop signs should face trail users prior to road crossings. To increase safety and way finding, quarter-mile markers should be included throughout the length of the trail. Signs warning drivers of the presence of trail users should be placed on roads that the trail crosses (Tables 4, 5 and 6; Figure 12).

When signing the trail, caution must be taken in order to not oversign. Too many signs can lead to the possibility of trail users ignoring rules and oncoming hazards. Signage should also utilize the least amount of text as possible. Symbols are strongly recommended for regulatory and cautionary signs. This is also an opportunity to create a logo or brand for the trail to be recognized throughout the region.

Design

Features and Materials

Buffering: Vegetative

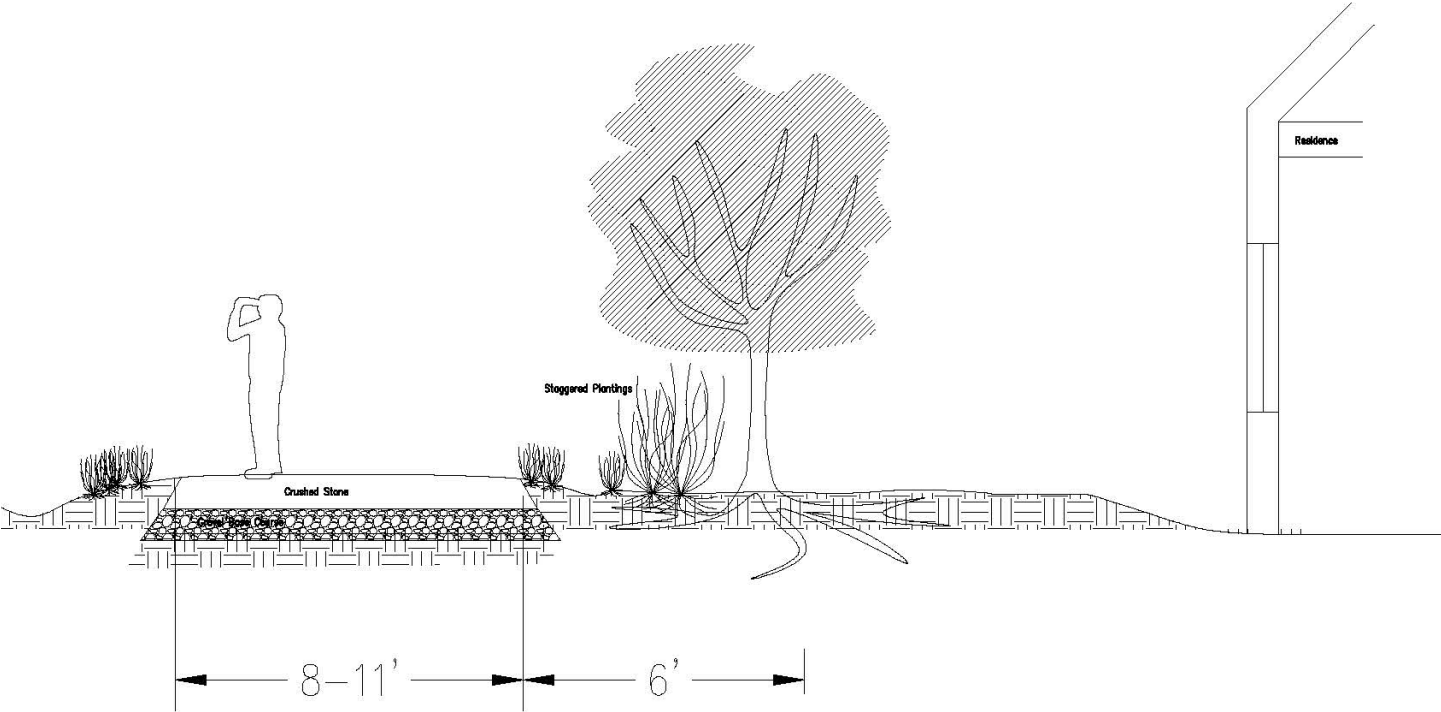


Figure 4

Plant	Common name	sun/shade	moisture	salt?	size	unit price	notes
Baccharis halimifolia	Eastern Baccharis	full sun	wide range	tolerates	mid/tall shrub		fall flowering
Cornus racemosa	Grey Dogwood	full sun, part shade	wide range	tolerates	mid/tall shrub		birds
Morella pensylvanica	Bayberry	full sun, part shade	wide range	tolerates	mid shrub	\$19 for #3	semi-evergreen
Aronia arbutifolia	Red Chokeberry	full sun, part shade	wetter	tolerates	mid shrub		winter interest, birds
Aronia melanocarpa	Black Chokeberry	full sun	wetter	tolerates	mid shrub		winter interest, birds
Ceanothus americanus	NI Tea	full sun, part shade	midrange		short shrub		spring flowering
Cercis canadensis	Eastern Redbud	full sun, part shade	dry		small tree		spring flowering
Cornus sericea	Redtwig Dogwood	full sun, part shade	wetter	tolerates	mid/tall shrub		spring flowering, winter interest
Hypericum prolificum	Shrubby St. Johnswort	full sun	dry		short shrub	\$19 for #3	fall flowering
Juniperus virginiana	Eastern Red Cedar	full sun	dry		tree		evergreen
Lindera benzoin	Spicebush	part shade	midrange		tall shrub		fall interest, birds
Physocarpus opulifolius	Common Ninebark	full sun, part shade	wetter		mid/tall shrub		fall interest
Rhus copallina	Flameleaf Sumac	Full sun	wetter	tolerates	tall shrub		fall interest
Rhus typhina	Staghorn Sumac	full sun, part shade	midrange	tolerates	tall shrub		winter interest, birds
Rubus occidentalis	Blackcap Raspberry	full sun, part shade	midrange		mid/tall shrub		barrier: thorny
Sambucus canadensis	American Elder	full sun, part shade	wetter	tolerates	tall shrub		summer flowering, bird
Shepherdia argentea	Buffaloberry	full sun	wetter	tolerates	tall shrub		spring flowering
Viburnum lentago	Nannyberry	full sun, part shade	wetter		tall shrub	\$18 for #3	spring flowering
Viburnum prunifolium	Blackhaw Viburnum	full sun, part shade	midrange		tall shrub	\$18 for #3	spring flowering
Picea glauca	White Spruce	full sun	midrange	tolerates	tree	\$65 for 4'-6'	evergreen

Table 3

Design

Features and Materials

Buffering: Berm

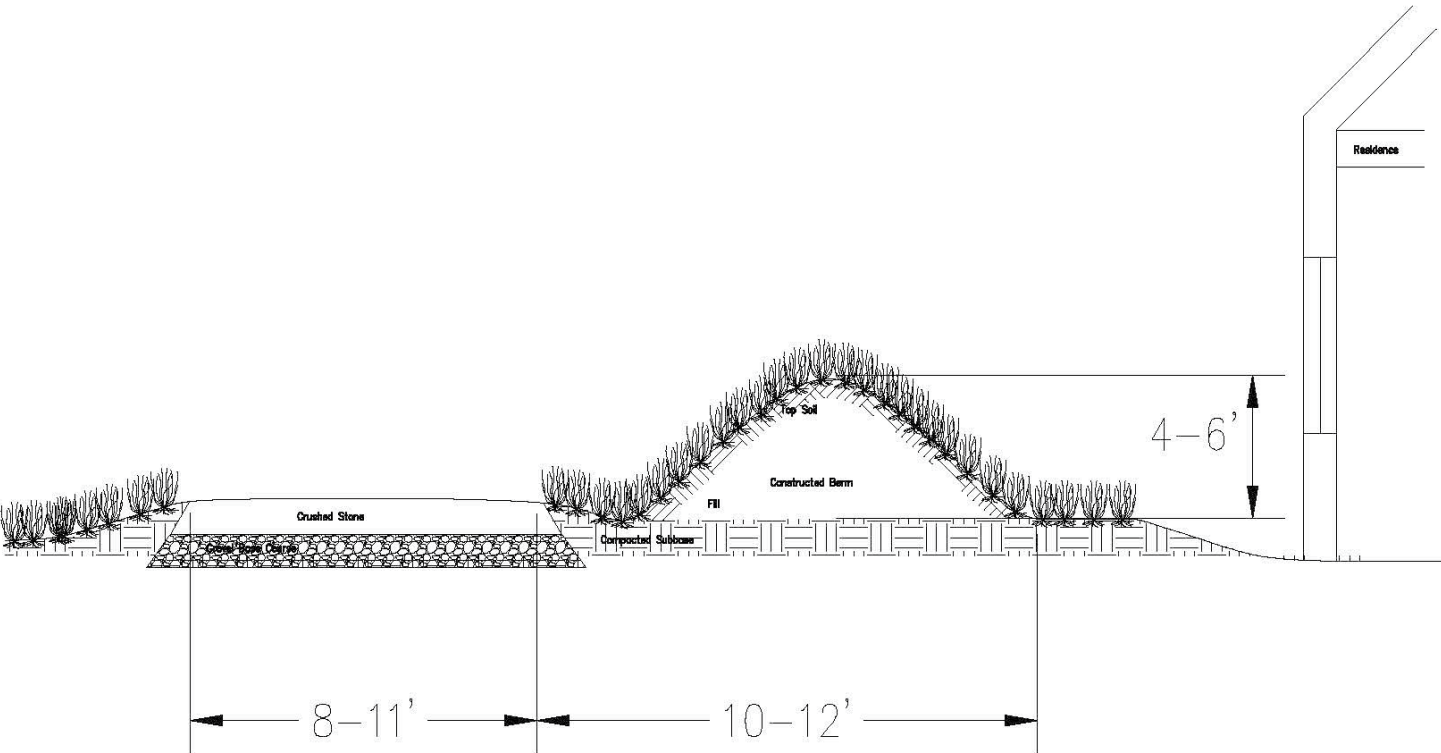


Figure 5

Buffering: Fence

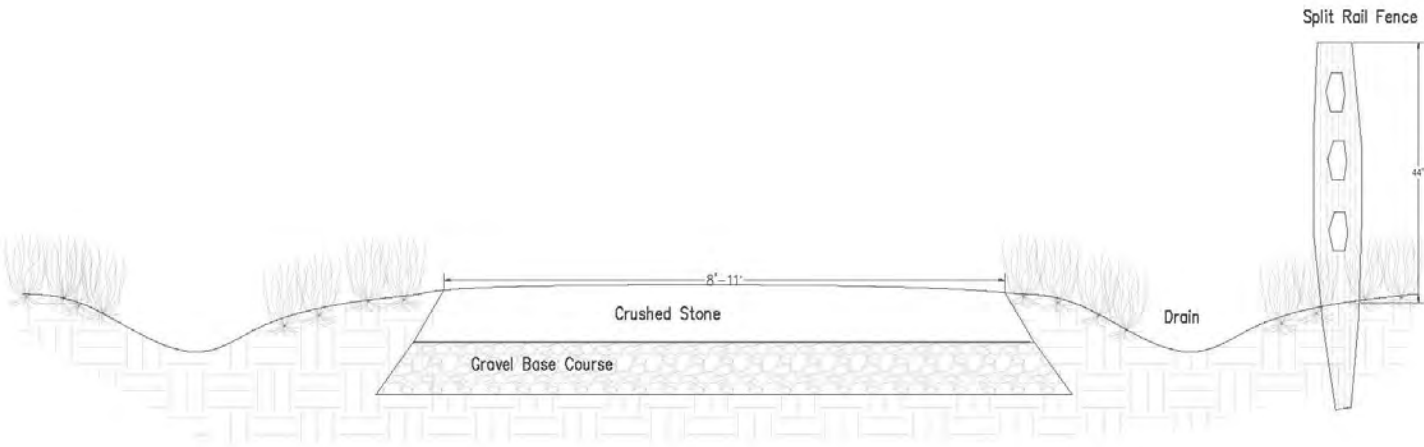


Figure 6

Design

Features and Materials

Buffering Recommendations

Mt. Pleasant Road to Pinckney Road



1 The adjacent apartment complex has a private outdoor area near the trail, as well as private parking. To avoid public access, we propose a 280 foot long split rail fence with a gate for use by building residents.



2 The railbed is elevated above the adjacent residence, so we recommend a 150 foot long vegetated berm for privacy and restricted access.



3 The railbed runs along this lawn. For privacy we recommend a 125 foot long vegetated buffer.



4 In the case that the trail is rerouted to avoid crossing Route 13, we recommend 100 feet long split rail fences on either side of the highway (200 total feet of fencing) so that users are not tempted to cross the busy highway.



5 Residents of Hall Woods Road have expressed the importance of the visual buffer between them and the adjacent commercial property; if the railbed were cleared of existing vegetation, we suggest that new vegetative buffers be planted for 2900 feet on either side (5800 total feet of buffer) to maintain resident privacy and visual screening.

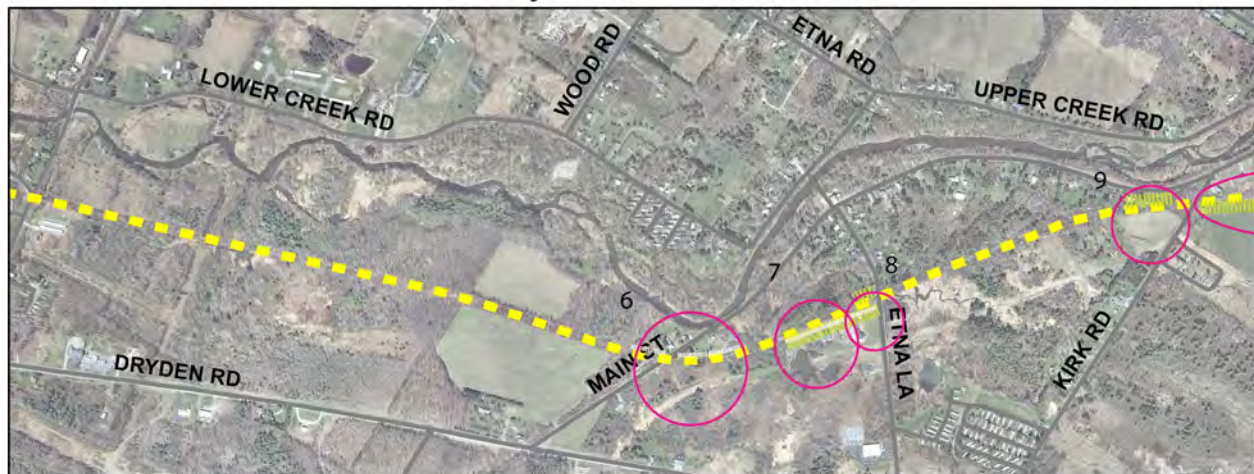
Figure 7

Design

Features and Materials

Buffering Recommendations

Pinckney Road to Kirk Road



- 6 Residents in this area would prefer fencing (6' chain link) if the railbed is converted into a trail, for 630 feet.



- 7 For safety and visual screening we recommend both a fence (42" split rail is sufficient) and a vegetative buffer for 820 feet.
- 8 The railbed runs immediately adjacent to this residence. We recommend 180 feet of vegetative screening for privacy reasons.



- 9 Due to the close proximity of these residences to the railbed we recommend 260 feet of vegetative buffering.

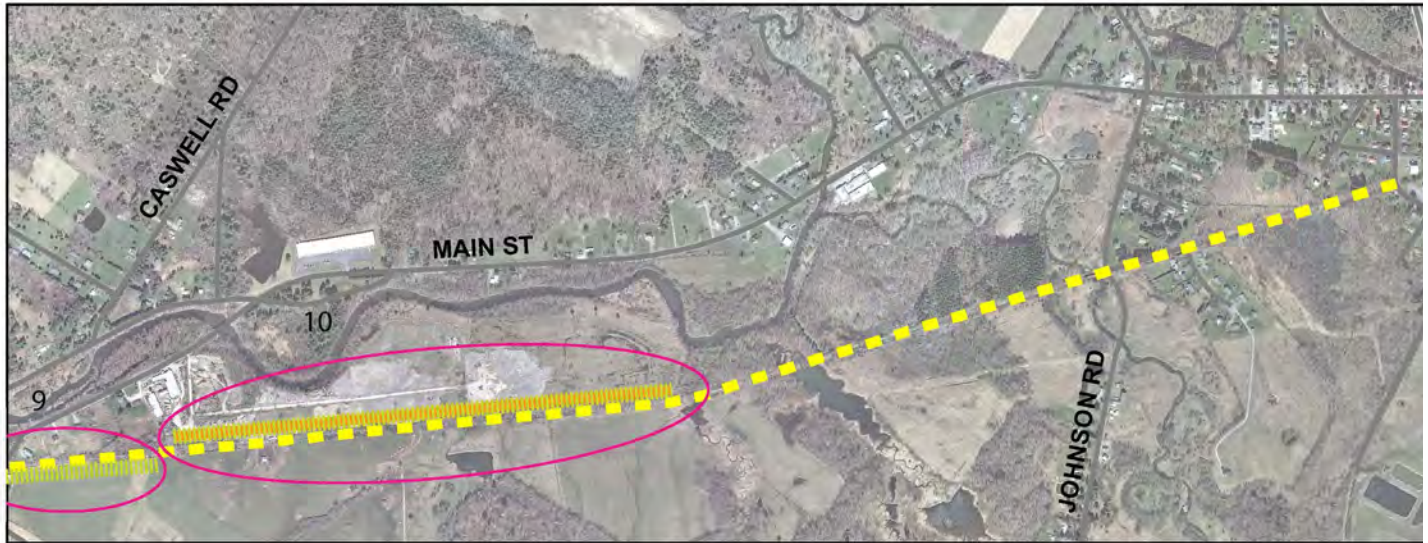
Figure 8

Design

Features and Materials

Buffering Recommendations

Kirk Road to Union Street



- 9 The property adjacent to this portion of the trail is active agricultural land. The land owners have expressed their concerns for privacy. We recommend using a vegetative buffer in order to encourage hikers to remain on the trail, while also allowing farm vehicles to access the road if needed.



- 10 This portion of the trail is bordered to the North by a sewage company and mining operation. To address safety and aesthetic concerns, we recommend constructing a vegetated berm.

Figure 9

Design

Features and Materials

Parking Recommendations

Mt. Pleasant Road to Pinckney Road



P1. and P2.



P1.

Location: Dryden Rd. and Mt Pleasant Rd.

Details: Large pre-existing lot near a vacant auto shop, and an apartment building.
Number of potential spots: 10+

P2.

Location: Mount Pleasant Road and the trailhead

Details: Currently a field area on Cornell property. Would need to be constructed.
Number of potential spots: 10+

P3. and P4.



P3.

Location: End of Monkey Run Road

Details: Small pull-off area on the side of Monkey Run.
Number of potential spots: 3

P4.

Location: End of Monkey Run Road

Details: Small parking lot on Cornell property; used for Monkey Run natural area
Number of potential spots: 4-5

P5.



P5.

Location: Route 13 and

Details: Pull-off area by bridge; currently used as an area for boat launches
Number of potential spots: 4-5

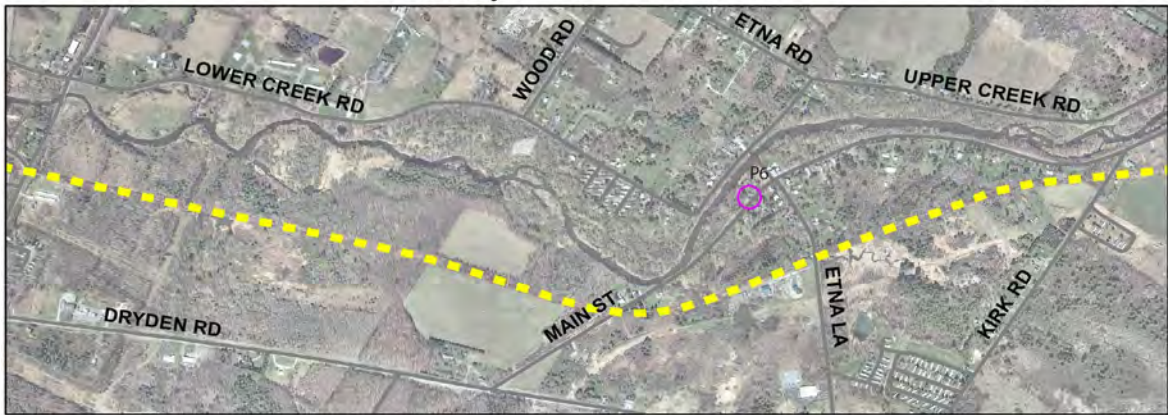
Figure 10

Design

Features and Materials

Parking Recommendations

Pinckney Road to Kirk Road



P6.



P6.
Location: Main St. and Etna Rd.
Details: Small area used for nearby nature preserve. Connection to the proposed trail from this area would be via the nature preserve trails
Number of potential spots: 3

Kirk Road to Union Street



P7.



P7.
Location: Johnson Road
Details: Pull-off area near railroad trestle.
Number of potential spots: 3

P8.



P8.
Location: Factory St and Route 38
Details: Preexisting lot at the Freeville Town Hall
Number of potential spots: 5-7

Figure 11

Design

Features and Materials

Signage Recommendations












	Type	Purpose	Location	Urgent?
	Boundary Marker Signs	to keep trail users on the railbed/trail	anywhere that is not buffered	Yes
	Destination Signs	to allow users the option to diverge off the trail	before upcoming attractions or trails	No
	Entrance/Trailhead Sign	a larger sign to designate the railbed	by parking areas at trailhead	Yes
	Highway Trail Sign	to notify drivers of upcoming trailhead	on the highway	No
	NO MOTOR VEHICLES	to keep any motor vehicles, including ATVs, off the trail. recommended to state a fine and/or jail time	every crossing	Yes
	Quarter Mile Marker	states the current distance away from the trailhead	every quarter mile of the trail	Yes
	Regulatory sign	depicts acceptable and common unacceptable behavior.	every crossing	Yes
	Stop	to tell pedestrians to stop before every crossing	every crossing	Yes
	Tractor Crossing Sign	to designate that the portion of the trail is used by tractors	any crossings that connect to a path used by tractors	Yes

Table 4

Design

Features and Materials

Signage Recommendations

	Trailhead Information Kiosk	provides general and specific information about the trail and the area	by parking areas or rest stops	Yes
	Trail Crossing or Pedestrian Crossing	in conjunction with a painted crosswalk, to tell oncoming vehicles of the presence of a trail crossing	every crossing on road	Yes
	Trail Logo Sign	to designate the railbed	every crossing	Yes

* attached signs are only examples, no official signage for the trail has been created

Table 5

Design

Features and Materials

Signage Recommendations

	Location	Signage needed
S1	Mount Pleasant Road Union Street	Stop sign on the trail Removable bollards Painted crosswalk Trail/Bicycle/Pedestrian Crossing on the road Trailhead entrance sign Information Kiosk Regulatory Signs
S2	Monkey Run Road Hallwoods Road Main Street/ Route 366 Etna Lane Johnson Road Tanbark Circle – Route 38	Stop sign on the trail Removable bollards Painted crosswalk Trail/Bicycle/Pedestrian Crossing on the road Trail logo Regulatory Signs
S3	Route 13	Stop sign on the trail Removable bollards Painted crosswalk Trail/Bicycle/Pedestrian Crossing on the road Trail logo Regulatory Signs
S4	Pinckney Road-Route 366 Kirk Road	Stop sign on the trail Removable bollards Painted crosswalk Trail/Bicycle/Pedestrian Crossing on the road Trail logo Regulatory Signs Tractor crossing sign
S5	Every quarter mile	Quarter mile marker

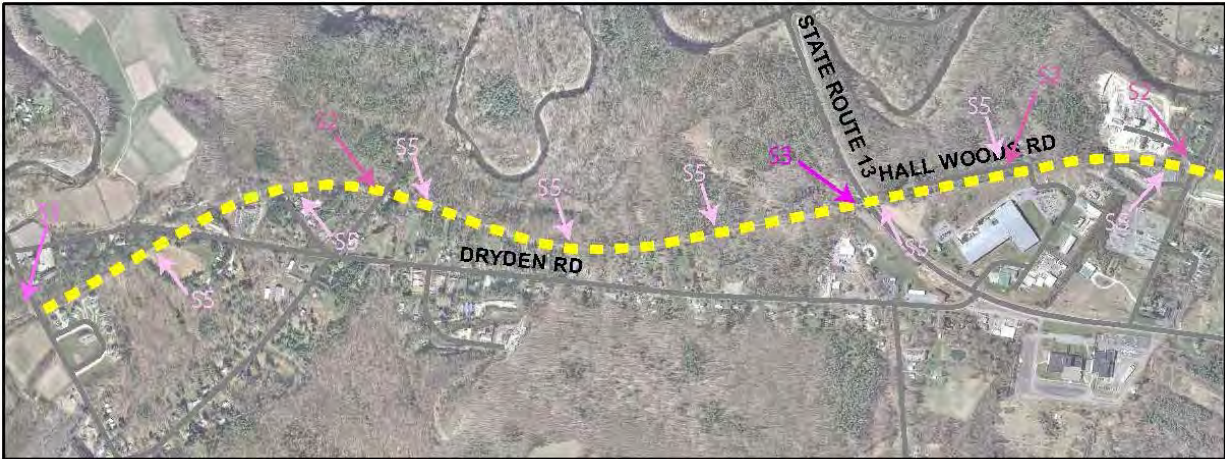
Table 6

Design

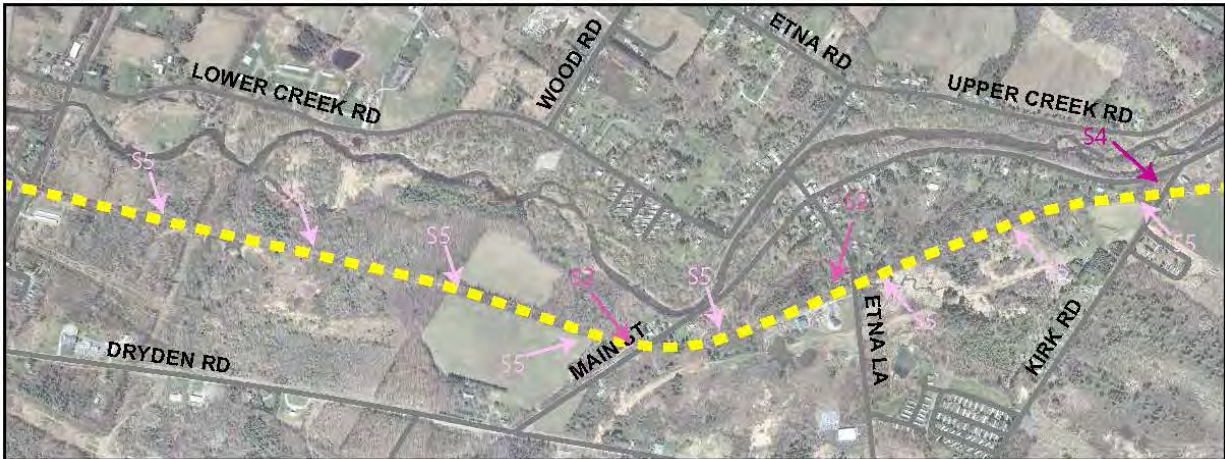
Features and Materials

Signage Recommendations

Mt. Pleasant Road to Pinckney Road



Pinckney Road to Kirk Road



Kirk Road to Union Street

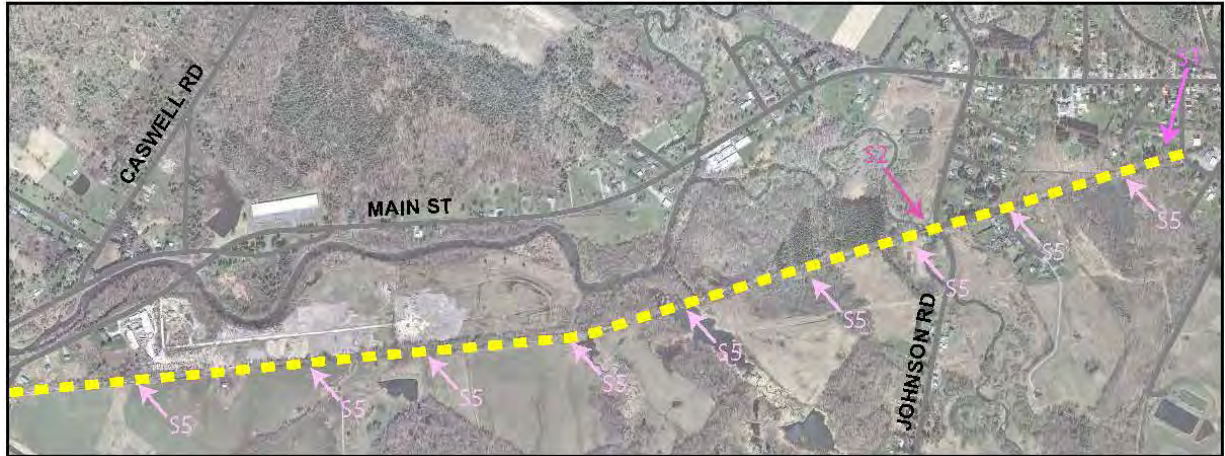


Figure 12

Design

Alternative Routes and Intersections

Treatment at Typical Road Crossing

The majority of road crossings along the trail are categorized as uncontrolled intersections per the federal Manual on Uniform Traffic Control Devices. The treatment recommended at this type of road crossing includes painted crosswalks, signage at both the roadway and on the trail, and removable bollards at the trail opening. The intention is to notify both drivers and trail users of the upcoming crossing; drivers are expected to yield to trail users, and trail users are expected to stop. The distance for advance notification, ie. “Yield Ahead” signage, on the roadway varies per the posted speed limit at that area. Signage and removable bollards are included at the trail opening in both directions to restrict the use of motorized vehicles on the trail, while allowing access for emergency vehicles and all approved trail users.

Road Crossing Diagram

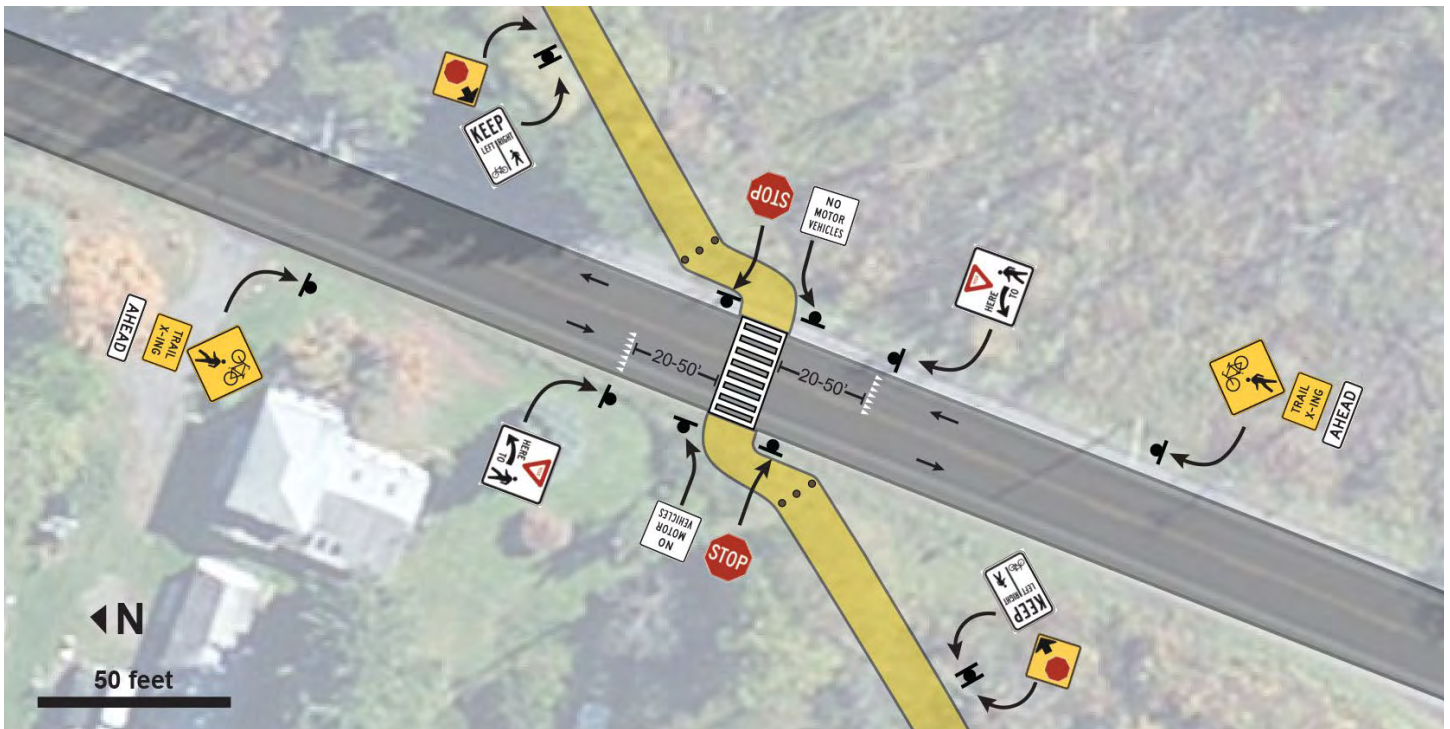


Figure 13

Design

Alternative Routes and Intersections

Mount Pleasant Road

The proposed trail begins at Mount Pleasant Road, about 600 feet south east of Dryden Road/Route 366, and is currently used as an informal footpath. East of the rail bed is a group of apartments on Observatory Circle about 300 feet away. Based upon existing conditions, it is recommended that the trailhead signage be installed and brush clearing be completed to widen the trail to about 12 feet. In order to prohibit use by motorized vehicles, three removable bollards should be placed at the trailhead access point and informational signage on acceptable uses should be installed.

Dryden Road

The trail crosses over Dryden Road by the FH FOX Bridge, which is about 80 feet long. A detailed structural assessment of the bridge is necessary to determine if issues exist. The addition of railings and upgraded surface material are recommended for safety reasons.

Monkey Run Road

Monkey Run Road is a dead-end street ending with a small parking lot used for Monkey Run Natural Area. Along the road are a group of private properties, one close to the intersection. Cornell Natural Area is located adjacent to the intersection, creating ample opportunity for trail connectivity into the Natural Area and possible opportunity to share the small parking area located there. In order to increase safety, signage and a painted crosswalk should be installed to warn both the trail users and drivers of each other's presence. In order to prohibit use by motorized vehicles, removable bollards should be placed at the trailhead access point and informational signage on acceptable uses should be installed.

Route 13 Crossing

The trail crosses Route 13, a state highway spanning about 90 feet, approximately a mile and half east from the trailhead at Mt. Pleasant Road. According to traffic counts conducted by the Ithaca Tompkins County Transportation Council, Route 13 sees upwards of 7,000 cars a day. This, combined with the high speed limit of 55 miles per hour, qualifies this road crossing as a significant safety concern.

Design

Alternative Routes and Intersections

Route 13 Alternative Route (Figure 14)



Alternative 1 (Cross the road): If the trail crosses the road, it is recommended that intervention be divided into two phases. The first phase should include the addition of small stop signs on both sides of the trail oriented toward users. Creating a rest area with benches on either or both sides might encourage people to stop prior to crossing this busy thoroughfare. If a rest area is constructed, this would be an appropriate area to add a kiosk with instructional signage on sharing the trail with different types of users and interpretative information on the local ecology of the area. During this phase, striping on the road is necessary to indicate pedestrian crossing. The second phase of this alternative is optional; the trail committee can collaborate with the Town to submit requests to NYS Department of Transportation in order to reduce the speed limit, install a pedestrian-actuated traffic signal, and/or install a raised crosswalk. These interventions encourage slower driving speeds and further delineate the trail from the road.

Alternative 2 (Reroute the trail at Route 13, to pass under the bridge): Moving east, on the southwestern portion of the trail, skirt the trail west to follow 13 on the southern end of the road for approximately 1800 feet on Cornell property. A cleared and relatively level area, owned and maintained by Cornell, exists about 130 feet south west of Route 13 that could possibly be used. Then, the trail would connect to the existing footpath underneath the bridge, to emerge on the north side of route 13. The trail will move back south east for another 1800 feet, also owned by Cornell but without a formal pathway, to meet the rail bed. Due to the steepness of the grade and width considerations when the trail travels underneath the bridge, this segment may need to be exempted from ADA compliance. It is important to consider the possibility that trail users might forgo the reroute and cross Route 13 to save time, which is a safety risk to both trail users and drivers.

Alternative 3 (Monkey Run Reroute West, to pass under the bridge): The Cayuga Trails Club has a trail network throughout Monkey Run Natural Area. In order to discourage people heading east from crossing Route 13, the trail could be rerouted so it skirts north approximately two hundred feet west of Route 13 to eventually connect with the path underneath the Route 13 bridge.

Design

Alternative Routes and Intersections

Hall Woods Road (Figure 14)

This segment of rail bed runs adjacent and parallel to Hall Woods Road and is within close proximity to adjacent residential structures. Some community members have expressed concern or general disapproval for trail development. Concerns listed included removal of the existing evergreen trees, privacy, and safety issues.

Alternative 1 (stay on rail bed): If the trail stays on the rail bed, significant tree and shrub removal, widening, and grading work is necessary. It is recommended that buffers and signage instructing users to stay on the trail be installed to increase privacy.

Alternative 2 (skirt the trail just south of the rail bed): The trail can continue east of Route 13, but skirt south, adjacent to the rail bed, avoiding the residential area north of the road.

Alternative 3 (Monkey Run Reroute East): If the trail is rerouted to avoid Route 13, it is possible to continue the trail along Fall Creek to avoid Hall Woods Road. From aerial imagery and site visits, it appears the area south of Fall Creek approximately 500 feet from the Route 13 bridge is relatively clear of brush and shrubs. This portion of the creek bank is of adequate elevation to not be in a flood zone. The trail could connect back with the rail line immediately east of Hall Woods Road, to exit onto Pinckney Road near the NYSEG substation.

Pinckney Road

The rail bed crossing at Pinckney Road is located approximately 1,500 feet North of the of Route 13/ Dryden Road, in between a NYSEG substation and an industrial area on the western side and a mini-storage complex to the east. Trail users must cross part of the opening of the driveway into the industrial area, though it appears visibility of oncoming traffic and pedestrians would be adequate at this location. On the east side of Pinckney Road, the trail opening is visible and appears to be used for vehicle traffic. In order to increase safety, pedestrian crossing and speed limit signage, as well as a painted crosswalk, should be installed to warn both the trail users and drivers of each other's presence. In order to prohibit use by motorized vehicles, three removable bollards should be placed at the trailhead access point and informational signage on acceptable uses should be installed.



Design

Alternative Routes and Intersections

Pinckney Road to Route 366 (Figure 14)

This section of trail is a little over a mile and appears to have agricultural equipment crossing the rail bed about 1,500 feet east of where the rail bed intersects Pinckney Road, standing water exists perpendicularly across the rail bed due to a beaver dam.

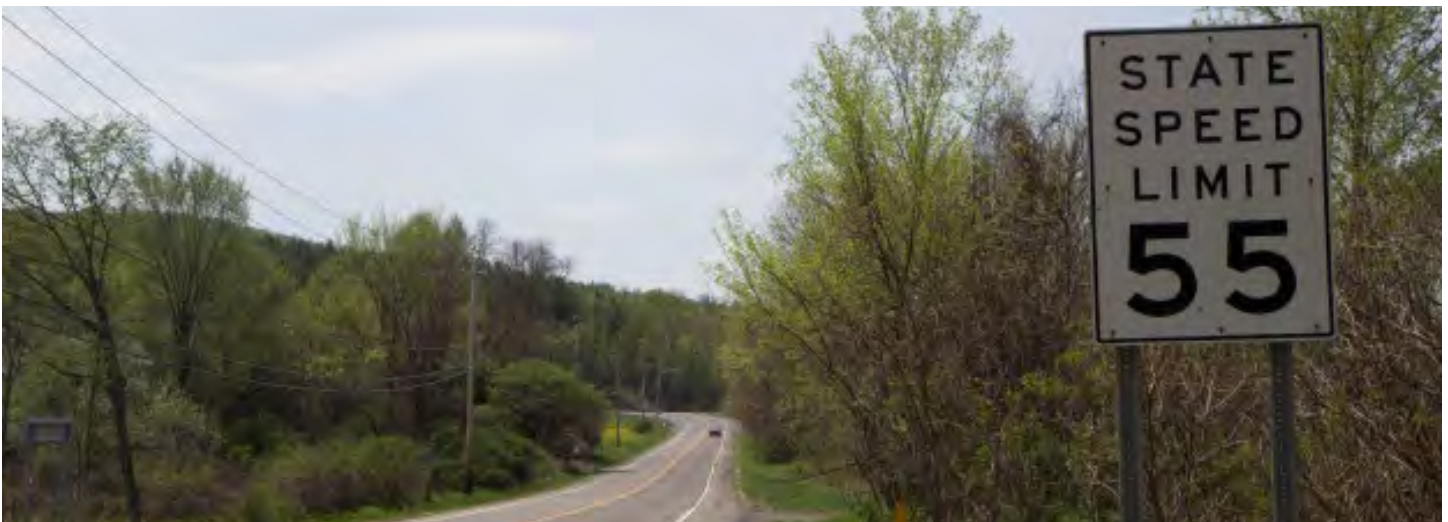
Alternative 1 (Share the trail): If consensus is reached with the landowner, there is the potential to share the rail bed at the crossing site. The crossing will require signage to ensure the safety of the trail users and owner's land.

Alternative 2 (Southern Entrance): Construct a separate entrance just south of the existing rail bed on the Hermann's self storage property. Extend the trail about 1,500 feet, and rejoin the rail bed at the NYSEG property line.

Alternative 3 (Monkey Run/Fall Creek Reroute): If the trail is rerouted from Route 13 or Hall Woods Road north to Monkey Run Natural Area, it is possible to continue the trail just south of Fall Creek to avoid existing use issues.

Main Street/Route 366

The rail bed crosses Route 366 about 1,400 feet north of where Route 366 splits from Route 13. The posted speed limit changes at the point of crossing from 55 mph to 35 mph as drivers enter the Hamlet of Etna. However, community members have stated that people often speed through the 35 mph area. If possible, the location of the speed limit reduction signs could be relocated slightly to the south in order to achieve full traffic speed reduction by the point of trail crossing. A painted or raised crosswalk is recommended at this location and pedestrian-crossing signage should be posted in both directions on Route 366. Clearing and marking of the trail opening in both directions is recommended for improved visibility for both pedestrian and vehicle traffic. In order to prohibit use by motorized vehicles, two removable bollards should be placed at the trailhead access point and informational signage on acceptable uses should be installed.



Design

Alternative Routes and Intersections

Kirk Road (Figure 14)

The rail bed opening for Kirk Road is 300 feet south of Route 366. To the west, the rail bed is somewhat overgrown and requires widening. To the east, the rail bed is loosely paved with gravel and actively used for farm equipment. This intersection includes a TCAT bus stop served by 40 and 41. During the second community meeting, the landowner in between Kirk Road and Johnson Road strongly disapproved of trail development. There is also an area 3200 feet southwest of Johnson Road that has standing water across the rail bed. From orthoimagery, it appears that a culvert needs to be inspected and repaired at this location.

Alternative 1 (Share the trail): This requires extensive outreach with the landowner. However, if consensus is reached, there is the potential to share the rail bed. Pedestrian crossing will need to be painted on Kirk Road and signage needs to be installed to warn trail users and drivers due to the proximity to Route 366, which has a speed limit of 40 miles per hour. If the rail bed is shared, additional signage is recommended near the Kirk Road and Johnson Road entrances to warn users of active vehicle use and instruct users on how to properly share the rail bed.

Alternative 2 (Fall Creek Reroute): The owner of this parcel suggested rerouting the trail to turn left at Kirk Road, heading north and east. The trail would follow Route 366 for approximately 1,700 feet until it meets Fall Creek. Then the trail would follow the creek for approximately 4,800 feet, traveling due south for the last to eventually follow the creek on the southern bank for the last 850 feet to meet the rail bed.



Etna Lane

The trail crossing at Etna Lane is located approximately 900 feet South of Main Street. This road crossing is not a high safety concern due to the relatively low traffic and speed limit of 35 mph. Recommendations include a painted crosswalk and pedestrian-crossing signage to alert oncoming traffic to trail users. Clearing and marking of the trail opening in both directions is necessary for improved visibility for both pedestrian and vehicle traffic. In order to prohibit use by motorized vehicles, three removable bollards should be placed at the trailhead access point and informational signage on acceptable uses should be installed.

Design

Alternative Routes and Intersections

Johnson Road

Immediately west of the Johnson Road crossing is the railroad trestle that requires a structural assessment. Johnson Road sees an average of 910 cars per day. Appropriate signage to warn trail and road users should be installed. Road striping should be added at the road crossing to demarcate the trail. The rail bed shares Freeville Depot Road to the east; it might be advisable to continue road striping and signage to further demarcate the trail while the trail follows the road. Once the rail bed crosses Tanbark circle, it appears that it is currently informally used as a trail.



Union Street - Route 38 (Figure 14)

The rail bed opens onto Union Street which leads into a mixed use residential, community and commercial area including the Freeville Village Fire Station, 240 feet away from the trailhead. Signage and road striping should be installed to demarcate the trail. The eastern trailhead falls on Route 38, approximately 85 feet north west of Factory Road. This stretch of rail bed runs within very close proximity to adjacent properties.

Alternative 1 (Stay on existing rail bed): Allow the trail to run the length of the historic rail bed, using various types of buffer to increase the privacy of adjacent property owners.

Alternative 2 (End trail at Union Street): To avoid proximity issues of adjacent landowners, the trail could terminate at Union Street. Trail users might utilize the Freeville Village Hall to park and be guided toward the Union Street trailhead by strategically placed way finding signage and trail markers.

Alternative 3 (Reroute to potentially connect with Dryden-Freeville Trail): Community members suggested rerouting this portion of the trail to accommodate joining the Dryden-Freeville trail, which might need rerouting to avoid non-participating landowners. This alternative would likely require the construction of a long boardwalk as it would traverse what appears to be a low lying wetland area. Signage should be included at the junction where the two trails are delineated, informing users of any regulations or conditions that significantly vary between the two trail segments.

Design

Alternative Routes and Intersections

- Existing Railbed
- Alternative Route
- Road

Mt. Pleasant Road to Pinckney Road



Pinckney Road to Kirk Road



Kirk Road to Union Street



Figure 14

Design

Bridges

A detailed engineering inspection is necessary for the Johnson Road Trestle and the F.H. Fox Bridge, which is typically conducted by a town or county engineer. In order to be accessed by emergency vehicles and plows, these bridges require a load bearing capacity of 5-10 tons. The Johnson Road Trestle needs handrails on both sides and the area's surrounding bank would benefit from landscaping to serve as a buffer from the steep drop off.



Design

Bridges

Along the rail bed there are multiple bodies of water, ranging from creeks, streams, possible plugged culverts, and reported standing water due to beaver dams. Streams intersecting the rail bed will likely require bridge features in the final design. Beavers can lead to flooding by blocking culverts and often damage or remove trees. If there is any buffering around the beaver dams, these trees are subject to beaver damage. To contain beavers and keep them off the trail, a three to four foot high fence can be used to block their path. Signage indicating beavers near the trail is recommended. Although signage may draw out nature hikers, it will also warn trail users of the wildlife present along the trail. Another design possibility is a raised walkway or boardwalk if the trail traverses marshy areas.



Figure 15

Design

Amenities and Connections

Rest Areas

Community members expressed a strong desire for rest areas along the trail. It is recommended that small rest areas with benches be dispersed evenly throughout the trail, especially within ADA compliant sections and near natural areas. It is recommended that benches be placed every ½ mile, mimicking the popular design of the nearby Jim Schug trail.

More formal rest areas including amenities such as information kiosks, wayfinding signage, benches and/or picnic tables, and restrooms could be coupled with access and parking areas. However, since nearly all access/parking areas are adjacent or within close proximity to roads, it is recommended that these rest areas be situated near roads with lower speed limits and daily traffic volume. If the rest areas are located near high traffic roads, it is important to create a buffer between traffic and trail users.

On the western side of Mt. Pleasant Road, Cornell property might be utilized as a trail entrance rest area. There is also extra space on either side of the trail near the west side of the Monkey Run Road crossing area. If the trail is rerouted under the Route 13 bridge, space on either side of the bridge would offer an aesthetically pleasing rest area on the creek. Likewise, many community members cited the desire for the trail to run along the creek as opposed to across private property. If this is the case, the creek would offer an abundance of scenic areas to rest. A final rest area could be included at the trail termination at the end of Union Street.

Connections

Monkey Run Natural Area: The rail bed runs just south of the Monkey Run Natural Area for approximately 4,500 feet. There are ample opportunities to connect to the network of trails in this area.

Etna Nature Preserve: The rail bed borders the Etna Nature Preserve. There is ample opportunity to connect the rail bed to the trail within the Preserve.

Campbell Meadow Park: Campbell Meadow Park is about 1,000 feet north and across Fall Creek from of the rail bed at Pinckney Road. If the trail is rerouted to avoid crossing Route 13 and follows Fall Creek to avoid Hall Woods Road, the trail would lie just across the Pinckney Road bridge from Campbell Meadow Park.



Next Steps

Detailed Conditions Assessment

Due to limited access and deep snow cover during the conditions assessment phase, it was not possible for the team to conduct a detailed in-person conditions assessment throughout the entire length of the trail. In order to assess the extent and type of work to be completed, the town or county engineer should conduct the conditions assessment. This assessment should guide the final design of the trail and inform regulatory compliance reports such as the State Environmental Quality Review and the Americans with Disabilities Act.

Community Organization and Support

To guide the project process, it is recommended that a diverse steering committee be created to represent the many different stakeholders involved. Representatives of the Town of Dryden, Dryden Conservation Board, Village of Freeville, Hamlet of Varna, Hamlet of Etna, and community members should be represented to ensure that the process is democratic and representative of all community interests.

It is also recommended that members of the steering committee continue the relationship with landowners and neighbors of the trail that Design Connect initiated. The possibility of right of ways and land easements needs to be explored to determine the feasibility of trail development along the rail bed.

Lastly, it is important to determine who maintains responsibility for the proposed trail into the future. The steering committee can collaborate with interested community groups to develop plans for ongoing trail maintenance and stewardship.

Cost Estimate

The following cost estimate (Table 7), while somewhat imprecise, approximates the cost of building the full 6.25 miles of trail along the abandoned rail bed. A variety of sources were consulted to construct this estimate. To the fullest extent possible, the materials included in the estimate match the materials which the community expressed a preference for during the trail design process. The estimate also includes a lower and upper range, which approximates costs should total cost of construction be over- or under-budget.

This cost estimate does not include land acquisition costs, costs of constructing alternative routes, engineering inspection costs for existing bridges, and ongoing maintenance costs, each of which could have a significant impact on the overall cost of building the trail. In addition, while the team made several site visits during the creation of this plan, a portion of the existing conditions assessment was created solely from aerial imagery and community input. A more detailed existing conditions assessment could reveal additional challenges to trail development which could influence the overall cost of construction. This estimate must be adapted by a professional to reflect changes in the total trail cost if significant deviations from this trail proposal are incorporated before construction begins.



Cost Estimate

Item	Quantity	Units	Unit Price- (Materials and Labor)	Total Price	Comments
1. Buffers					
Vegetative Buffers	11385.00	Linear Feet	\$85.00	\$967,725.00	Assume five foot wide planted strip with 6" of topsoil and 4 plants of varying sizes per linear foot
Vegetative Berms	3150.00	Linear Feet	\$40.00	\$126,000.00	Assume 4 foot high berm (6 feet wide at base) made of fill, covered with 6" of topsoil, stabilizing netting, and grass seed.
Chain link fence (6' high)	630.00	Linear Feet	\$11.50	\$7,245.00	Assume 6' high fence.
Split rail fence (3.5' high)	1300.00	Linear Feet	\$10.00	\$13,000.00	Assume 3.5' high fence, which is ADA minimum for safety on bridges etc.
2. Signage and Features					
Stop Signs	18.00	Each	\$110.00	\$1,980.00	Reflectorized Signs per OSHA standards including post- Stop 24"x24"
Pedestrian Crossing Signs	18.00	Each	\$219.00	\$3,942.00	Reflectorized steel, with a high strength U-channel galvanized steel pipe post 10' long set 2' into the ground. Includes digging of hole with a manual auger and backfill, 24"x24"
Miscellaneous Signs	86.00	Each	\$84.00	\$7,224.00	Allowance for miscellaneous trail signs.
Crosswalks	6.00	Each	\$770.00	\$4,620.00	Striped painted crosswalk. Source: UNC Highway Safety Research Center
Benches	12.00	Each	\$318.87	\$3,826.44	Park bench, for public and commercial use. Cast aluminum with treated 1-1/2 by 2-1/4 pine wood slats. Central Park or Victorian style, 6' Length. Source: 2015 National Cost Estimator
Removable Bollards	48.00	Each	\$140.00	\$3,826.44	36" steel bollard mounted on removable or fold-down mounting. Source: Reliance Foundry
Footings for Removable Bollards	48.00	Each	\$189.43	\$6,720.00	Source: 2015 National Cost Estimator
3. Parking					
Parking Area Surfaces	3645.00	Cubic Feet	\$6.02	\$21,942.90	Source: 2015 National Cost Estimator
Handicap Symbol	2.00	Each	\$27.95	\$55.90	Source: 2015 National Cost Estimator
Handicap parking	2.00	Each	\$186.80	\$373.60	Source: 2015 National Cost Estimator (12' x 18')
4. Trail Surface					
Bush Clearance (medium density)	2.12	Acres	\$8,210.00	\$17,386.88	Clear wooded area -Medium Density
Crushed Stone	5500.00	Cubic Yards	\$41.75	\$229,625.00	8250 tons of locally-quarried crushed stone.
Trail Grading	3666.67	Cubic Yards	\$4.47	\$16,390.00	10% percent grade, cut and fill, with 4 in depth of cut.
5. Bridges					
Resurfacing of Existing Bridges	640	Square Feet	\$50.00	\$32,000.00	Approximate cost for re-decking existing former rail bridges. Source: Indiana DOT
Railings for Existing Bridges	360.00	Linear Feet	\$100.00	\$36,000.00	Average cost of pedestrian-appropriate, outdoor-grade railing types. Includes 4 90' railing segments for the FX Fox Bridge and Johnson St Railroad Trestle. Source: UNC Highway Safety Research Center
New Bridge/Boardwalk Features	60	Linear Feet	\$1,200.00	\$72,000.00	3 20' long by 10' wide prefabricated pedestrian bridges. Includes design, engineering, and installation costs. Source: North Carolina Department of Transportation

Total Estimated Cost \$1,571,883.16

Low Range (80% of cost) \$1,257,506.53
High Range (120% of cost) \$1,886,259.79

Sources:

RS MEANS

2015 National Cost Estimator

UNC Highway Safety Research Center

http://www.fhwa.dot.gov/bridge/nbi/unit_cost.cfm

http://www.calwater.ca.gov/content/Documents/library/Storage/InDeltaStorageReports_2003/Engineering/Construction%20Methods%20&%20Cost%20Estimation/Earthworks/Earthwork%20Construction%20Cost%20Estimate%20Report.pdf

<http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm>

<http://www.reliance-foundry.com/bollard/all-bollards/R-7902-Bollard>

http://www.nirpc.org/media/3539/appendix_b__trailcosts.pdf

<http://www.americantrails.org/resources/structures/ChooseBridgeBuild.html>

Table 7

Funding Sources

Funding Source:	Administered by:	Webpage:	Additional Information:
Transportation Alternatives Program	NY Department of Transportation	https://www.dot.ny.gov/divisions/operating/opdm/local-programs-bureau/tap/guidance	Provides funding for on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, and community improvement activities.
Transportation Enhancements Program	NY Department of Transportation	https://www.dot.ny.gov/programs/tep	NYSDOT-administered funds for provision of facilities for pedestrians and bicyclists, including preservation of abandoned rail corridors for trail uses. Reimburses up to 80% of project costs.
Recreational Trails Grant Program	NY Parks, Recreation, and Historic Preservation	http://parks.ny.gov/grants/recreational-trails/default.aspx	The Recreational Trails Program is a State-administered, Federal assistance program to provide and maintain recreational trails for both motorized and non-motorized recreational trail use.
Community Transportation Grants	Centers for Disease Control and Prevention	http://www.cdc.gov/nccdphp/dch/programs/community-transformation/	Provides funds for projects, including transportation-related investments, that support active living, healthy & safe physical environments, and physical activity.

Funding Sources

Consolidated Local Street and Highway Improvement Program	NY Department of Transportation	https://www.dot.ny.gov/programs/chips	Administered by NYSDOT, and supports bicycle, pedestrian, and traffic calming measures. Could potentially support trail crossing improvements.
Community Development Block Grants	US Department of Housing and Urban Development	http://portal.hud.gov/hudportal/HUD?s-rc=/program_offices/comm_planning/communitydevelopment/programs	In the past, the CDBG program has provided funds for trail projects in areas with particularly pronounced urban development needs.
Land and Water Conservation Fund	US National Park Service	http://www.nps.gov/lwcf/index.htm	The LWCF Program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities.
Campaigns and Donations	Various		Many local communities around the country have generated support for trail construction and funds for ongoing maintenance through local fundraising campaigns originating within the community.
Preservation League of New York Technical Assistance Grants	Preservation League of New York State	http://www.preserve-nys.org/grants.html	Provides smaller grants for architectural and engineering assessment of historic structures, which could potentially include bridges along the rail bed.

Funding Sources

Public Art Grants	Various	http://www.american-trails.org/resources/art/index.html	Many grant programs provide funding for art along public trails and on bridges. These programs could potentially support creative screening efforts for trailside properties.
Community Grants	People for Bikes	http://www.peopleforbikes.org/pages/community-grants	The PeopleForBikes Community Grant Program provides funding for projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, and large-scale bicycle advocacy initiatives.

Table 8

