

ALBANY-HUDSON ELECTRIC TRAIL

AUGUST 2017 DRAFT CONCEPT PLAN



NEW YORK
Empire State
Trail



NEW YORK
STATE OF
OPPORTUNITY

Hudson River
Valley Greenway



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EXECUTIVE SUMMARY

The purpose of this study is to provide a planning-level assessment for constructing a shared-use pedestrian and bicycling path along the Albany-Hudson Electric Trolley/National Grid corridor from Hudson, NY to Rensselaer, NY, approximately 35 miles in length. While two partial studies have been previously completed, this plan provides a comprehensive review of the entire corridor and identifies opportunities, constraints, alternatives, and costs for construction of a shared-use path along its length. This corridor is an important part of the Empire State Trail and has the potential to serve as a key connection for the statewide trail system, provide important transportation and recreation benefits, and help connect people to the Hudson River Valley landscape. More information about the Albany-Hudson Electric Trail is available at: www.AHETrail.org

Nassau Village Park - Nassau

The right-of-way through Nassau Commons Park in the Village of Nassau.

There are many benefits associated with trail development including health and well-being, transportation, safety, economic, environmental, and community benefits. All these benefits will be realized within the Hudson River Valley, and across the State of New York, once the trail is constructed.



The former Albany-Hudson Electric Trolley line offers enormous opportunity to leverage a former railway, now utility corridor, into a vital community and regional asset. Once complete, the trail is expected to provide considerable benefits to the region, attracting visitors to the scenic landscapes and community centers dotting the corridor. Due to a mix of engineering challenges, such as overlapping highways, missing trolley bridges, and terrain, the trail must deviate from the former rail bed and utilize local and state roads in several locations. Opportunities and constraints include:

- Historic sites and scenic views
- Public parks and community centers
- Terrain and bridges
- Power lines
- Technical challenges such as varying roadway conditions and steep slopes

An existing conditions inventory for the Albany-Hudson Electric Trail (AHET Trail) was compiled to document the following attributes along the entire corridor:

- Right-of-way
- Missing trolley bridges
- Challenges to trail development
- Roadway crossings

The existing conditions inventory was a key element in determining the proposed trail route of the AHET Trail.



Existing AHET/NG Right-of-Way North of Old Miller Road - Schodack



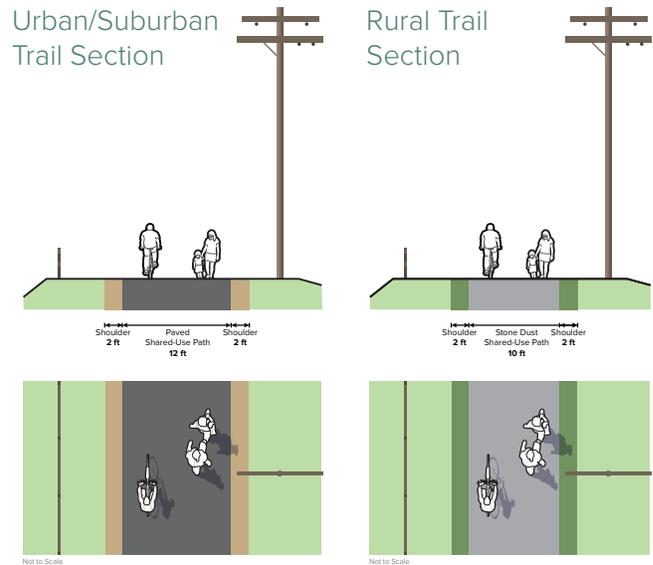
Right-of-Way South of the Village of Nassau

The proposed trail route for the AHET Trail runs through two counties, passing through eight towns, two cities, and three villages in Upstate New York. The proposed route primarily follows the alignment of the historic Albany-Hudson Electric Trolley line. Beginning in the City of Rensselaer, the AHET Trail starts on Broadway near the Dunn Memorial Bridge and ends at Stottville Park in Stottville, just north of the City of Hudson. In areas where there are substantial challenges to building the trail off-road, a number of on-road routes have been proposed and evaluated as alternatives. In total, the proposed trail has 25 miles of off-road routes and 10 miles of on-road facilities.

This plan proposes two cross-sections for the shared-use path portions of the AHET Trail: A twelve-foot wide asphalt trail to be used in the urban/suburban areas of the alignment where higher trail use is expected as well as in locations which present a risk of erosion; and a ten-foot wide stone dust trail for the more rural and less heavily used sections.

Along the off-road trail alignment, there are five locations where bridges will be required to span waterways or other obstructions. The design intent at these locations is to provide a functional, efficient, and cost effective solution to re-establish the continuity of the trail corridor.

Facility recommendations for each on-road route and each trail roadway crossing were determined using the On-Road Bicycle Facility Selection and EST Crossing Treatment Selection tables included in the Empire State Trail Design Guide (currently under development). Roadway treatments consider roadway characteristics



such as the functional classification, speed limit, average annual daily traffic (AADT), and number of lanes of each roadway to determine appropriate on-road facilities and crossings. On-road routes are recommended for various reasons such as missing trolley bridges that are too costly to replace and constrained rights-of-way. Safe transition and crossing recommendations are provided at on-road/off-road transition locations as well as at all at-grade crossings along the shared-use path alignments. Road crossings have been divided into two categories; major crossings and minor crossings. Major crossings tend to experience higher traffic volumes and speeds while minor crossings are typically local roads. In total, there are 15 major crossings and 53 minor crossings along the proposed AHET Trail route.

Eight trailheads are proposed to provide users a place to easily access the trail. Trailheads include parking areas, wayfinding signage, and various amenities such as bike repair stations, benches, picnic tables, and bike racks.

A preliminary opinion of probable cost has been prepared for the project. Basic trail construction costs were assumed for the shared-use path portion of the AHET Trail. Added to these costs were:

- Replacement of missing bridges
- Trail amenities such as trailheads, site furniture, wayfinding signage, fencing, and other improvements
- Drainage and utility work, including relocation of National Grid poles and guy wires in selected locations where required to accommodate the trail
- Improvements at road crossings
- The on-road segments of the trail

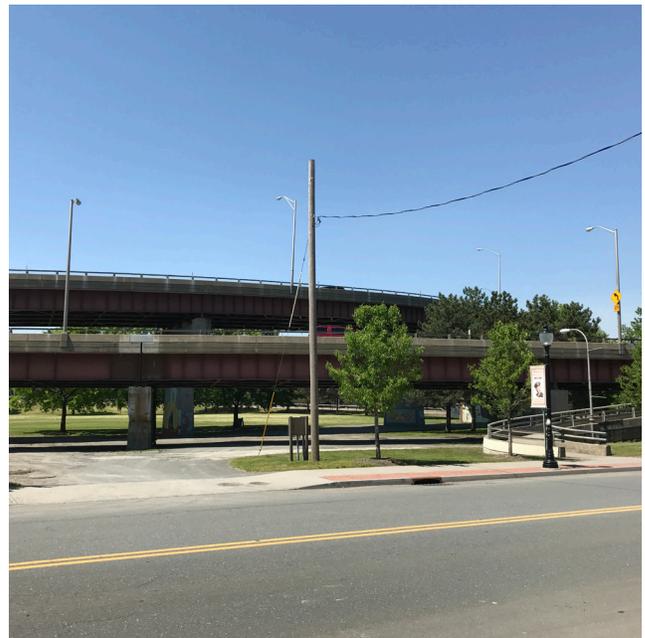


Rice Road Crossing - Schodack

The estimate also includes a number of multipliers to reflect the hard and soft costs of the total project as follows:

- Escalation on Construction: 5% per year for two years
- Engineering and Project Oversight: 19%
- General Contingency: 25%

The total cost for the AHET Trail, including the above multipliers, is currently estimated at \$35-\$40 million.



Rensselaer Riverfront Park and Dunn Memorial Bridge Shared-Use Path

This study is designed to provide a baseline concept plan to inform local officials, involved organizations, and residents interested in the AHET Trail. The development of a comprehensive public involvement process will be a high priority for the next phase of work. This process will involve two tracks of meetings:

- Public Workshops
- Stakeholder Meetings

The proposed schedule for design and construction of the AHET Trail is as follows:

- Project design and permitting: August 2017 - October 2018
- Bidding and contract award: November 2018 - March 2019
- Construction: April 2019 - October 2020
- Project completion: November 2020

Right-of-Way North of Sweets Crossing Road - Nassau



01 INTRODUCTION



INTRODUCTION

The purpose of this study is to provide a planning-level assessment for constructing a shared-use bicycling and pedestrian path along the 35 mile Albany-Hudson Electric Trolley corridor from Hudson, NY to Rensselaer, NY. The corridor is owned by National Grid, and is used by the utility for two electric power distribution lines. The Albany-Hudson Electric Trail (AHET Trail) is an important part of the Empire State Trail, providing a key link between the Capital Region and the Mid-Hudson Valley. While two partial studies have been previously completed, this plan identifies opportunities, challenges, alternatives, and costs for construction of a shared-use path along the entire trail corridor.

Since the AHET Trail is being developed along electrical power lines, this plan incorporates design guidelines addressing safety and operational concerns, including clearances (from utility poles, guy wires, and overhead lines) as

well as routine maintenance, trail surface and emergency access. There are many examples of trails in New York State and across the country built along power lines, and best practices from these examples will be used as an integral part of the AHET Trail.

It is important to note the former trolley line operated along this corridor between 1899 and 1929. The original rails, bridge structures and railroad features no longer remain. There are washouts in some locations as well as other challenges, including two crossings of Interstate Highway I-90. Due to cost considerations and right-of-way constraints, there are areas where on-road alternatives are more viable and are identified in this plan. At the same time, the majority of the corridor can be developed as an off-road, shared-use path with level grades suited to trail users of all ages and abilities.



South of Longview Avenue - Nassau



Southern Avenue - East Greenbush

TRAIL BENEFITS

HEALTH AND WELL-BEING

The AHET Trail will improve the health and well-being for local resident and visitors as access to outdoor activities increases participation in healthy lifestyles and improves the academic performance of children. Regular exercise reduces the likelihood of heart and respiratory disease. People with access to trails exercise more regularly than those without access to similar recreational opportunities.

TRANSPORTATION

Trails provide alternatives for getting around for those without access to cars or transit as well as for those wanting to choose a healthier transportation alternative. Construction of the AHET Trail will increase mobility and accessibility by providing a new recreational opportunity.

SAFETY

Trails provide safer recreational opportunities for all users. They provide a designated space for bicyclists and pedestrians and minimize interactions with motor vehicle traffic. This is especially important for children.

ECONOMIC

The positive economic impacts of trails include recreation-based tourism, an increase in property values, an enhanced ability to attract new employers and employees, and development of new industries, such as visitor services and outdoor related product sales, to accommodate the increase in recreational opportunities in the area.

EDUCATION

Not only do trails provide outdoor learning opportunities, but children with access to open space resources demonstrate higher academic achievement, better attendance, and higher levels of concentration. They also provide children with the opportunity to discover local natural and cultural heritage.

ENVIRONMENT

Trails benefit the environment as well as the people they serve. Trails provide opportunities for habitat protection and enhancement, stormwater and flood retention, improved water and air quality, conservation of natural and cultural resources, and scenic views.

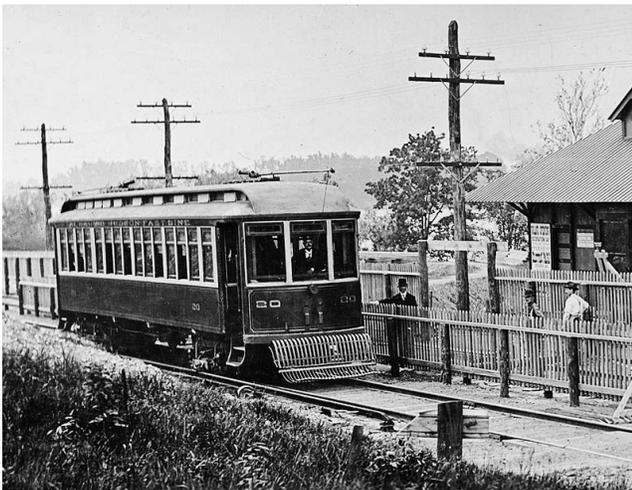
CIVIC ENGAGEMENT

Greenways provide opportunities for diverse groups of people to discover common interests and form a sense of community. Whether as a means of improving quality of life, our health, our children's well-being or our natural places, civic leadership springs from community engagement. When neighbors are engaged, employers are enthused, and visitors are attracted, the vitality of a community is boosted.

TROLLEY HISTORY

The trolley was an interurban third rail system that operated along 35 miles from the City of Albany to the City of Hudson from 1899 to 1929. The trolley was powered by electricity supplied by the Stuyvesant Falls hydro-electric power plant. The 12,000 volt output of the dam was converted to 600 volts at three substations located in the City of Hudson, North Chatham, and East Greenbush.

The trolley line transported millions of passengers over its three decades of service. In the late 1920's, railroads saw a decline in ridership due to the growing popularity of personal automobile travel. This, coupled with the beginning of the Great Depression, lead to the closure of the trolley line in 1929.



Source: Gino's Rail Museum

Albany-Hudson Electric Trolley

NATIONAL GRID

Today, the former trolley line corridor is owned by National Grid, which maintains utility improvements on the right of way:

- National Grid operates an intermediate electrical transmission line along the entire length of the right of way, from the City of Rensselaer to the City of Hudson. The long-distance line (technically referred to as a 34.5 kv line) consists of three transmission wires affixed to single wooden poles. The 34.5 kv line connects to substations at several locations on the right of way, including sites in East Greenbush, East Schodack, and Nassau.
- In some sections of the right of way, National Grid also operates a second parallel set of local electrical transmission poles, to provide regular electric service to nearby users.
- National Grid maintains informal gravel roads and pathways along most of the AHET right of way, to provide access for its administrative vehicles for periodic inspections, vegetation management, and any needed line repairs.

National Grid has indicated it is willing to authorize the Hudson Greenway to construct the proposed AHET Trail on its ROW. National Grid will retain ownership of the right of way and will continue to operate and maintain its electrical transmission lines and facilities. The Hudson River Valley Greenway will be responsible for constructing the AHET Trail utilizing state funding. The AHET Trail will be operated and maintained by a collaborative partnership including the Hudson Greenway, local county, town and village governments, and interested trail groups and volunteers.

STUDY AREA OVERVIEW

The Albany-Hudson Electric Trail (AHET Trail) crosses through two counties (Rensselaer and Columbia), eight towns, and five cities and villages. At the northern end, the trail begins near the Albany-Rensselaer Amtrak station, across the river from the state capital in Albany. At the southern end, the City of Hudson provides a trail destination with shops, galleries and restaurants in an historic downtown. Along the route, the trail goes through historic communities in the rural landscape of the Hudson Valley, including orchards, village Main Streets, shops and restaurants, historic sites, and other locations.

The history of the electric trolley and its conversion to a modern power line provides a unique opportunity for education and interpretation in communities along the trail. The trolley was originally run on electricity generated from hydro power at the dam in Stuyvesant Falls. The railway ran from the city of Hudson to Albany, making stops every few miles at a total of fourteen villages and at an amusement park on Kinderhook Lake. Today, National Grid distributes electricity along that same line.

This concept plan identifies the proposed location of the trail, bridges, roadway crossings and related features. While the goal is to keep as much of the trail off-road as possible, there are areas where the proposed trail route is located on existing roads. Trailheads and key destinations are identified, along with a planning-level cost summary. In order to easily view the details of

Counties

- Rensselaer County
- Columbia County

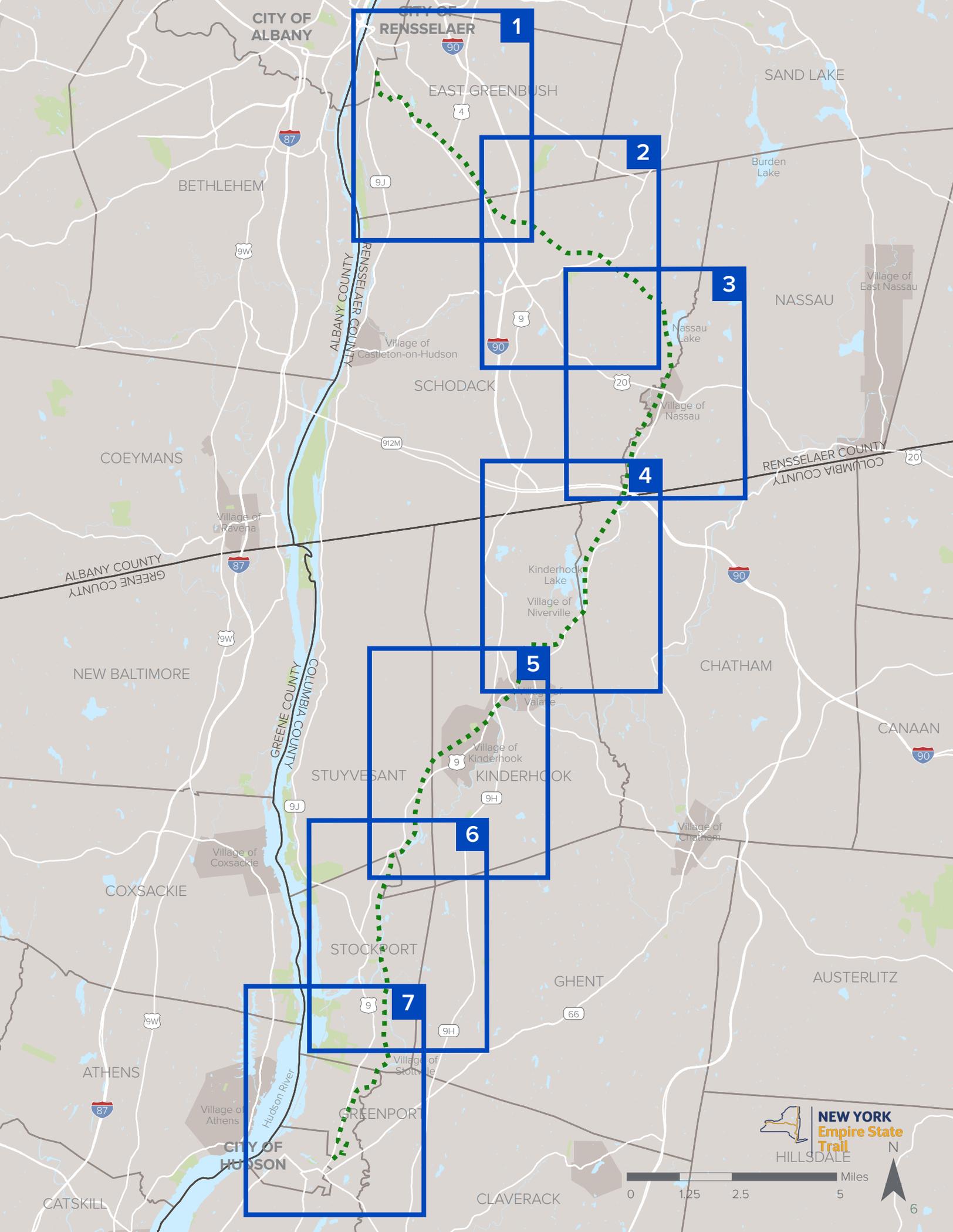
Towns

- East Greenbush
- Schodack
- Nassau
- Chatham
- Kinderhook
- Stuyvesant
- Stockport
- Greenport

Cities & Villages

- Rensselaer
- Hudson
- Nassau
- Valatie
- Kinderhook

the right-of-way, it is presented in seven sections throughout the remainder of this document. The seven sections are shown on the locator map on the adjacent page.



1

CITY OF ALBANY
RENSSELAER
EAST GREENBUSH
SAND LAKE
Burden Lake

90
4
9J

2

RENSSELAER COUNTY
Village of Castleton-on-Hudson
SCHODACK
NASSAU
Nassau Lake
Village of Nassau

90
9
20

3

RENSSELAER COUNTY
Village of East Nassau
COLUMBIA COUNTY

20

4

Kinderhook Lake
Village of Niverville
CHATHAM

90

5

STUYVESANT
KINDERHOOK
Village of Kinderhook

9
9H

6

COXSACKIE
STOCKPORT
GHENT
AUSTERLITZ

9J
9H
66

7

ATHENS
CITY OF HUDSON
GREENPORT
CLAVERRACK

87
9W
9
9H

Hudson River

NEW YORK
Empire State
Trail

HILLSDALE



SUMMARY OF PREVIOUS PLANS AND INITIATIVES

ALBANY-HUDSON ELECTRIC TRAIL (AHET) FEASIBILITY STUDY (2011)

The Albany-Hudson Electric Trail (AHET) Feasibility Study was completed in May 2011. The planning effort was initiated by the Towns of East Greenbush, Schodack, Nassau and the Village of Nassau to study the feasibility of connecting the Rensselaer County municipalities with a shared-use path. The trail proposed by this particular feasibility study runs from the City of Rensselaer to the Rensselaer/Columbia County border. The project aimed to:

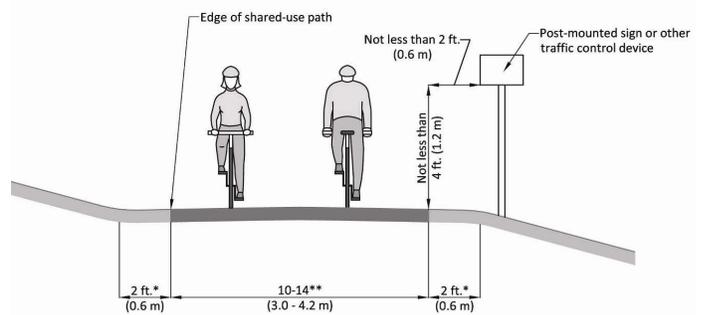
- Better define the proposed trail alignment
- Identify appropriate crossing locations and types
- Identify constraints and major conflicts
- Develop a conceptual cost estimate
- Prioritize implementation
- Identify potential funding sources

The plan identified four bridges which needed to be constructed as well as eight major road crossings and 29 minor road crossings needing pedestrian and bicycle crossing treatments. Completion of the 15-mile shared-use path was estimated to cost between \$5.5 million and \$9.4 million (2011 dollars).



Proposed AHET Alignment

Source: Albany-Hudson Electric Trail Feasibility Study



*6:1 Maximum Slope (typ.)

** More if necessary to meet anticipated volumes and mix of users, per the Shared Use Path Level of Service Calculator (4)

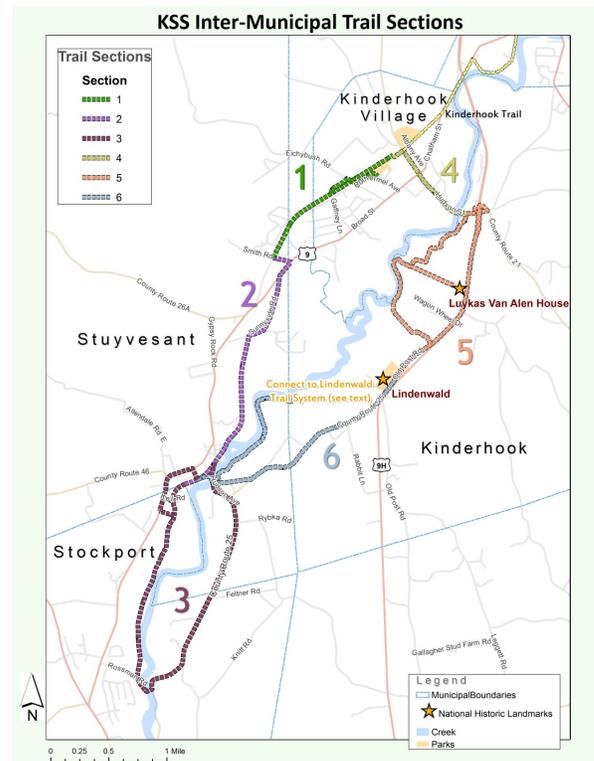
Proposed Trail Cross Section
(Photo from Draft AASHTO Bike Guide Feb 2010)

Proposed AHET Cross-Section

Source: Albany-Hudson Electric Trail Feasibility Study

KSS INTER-MUNICIPAL TRAIL FEASIBILITY STUDY (2010)

This report examined the feasibility of developing a multi-use trail, to have been called the Kinderhook-Stuyvesant-Stockport Intermunicipal Trail (KSS trail system), through the Village of Kinderhook and the towns of Kinderhook, Stuyvesant, and Stockport in New York. The KSS trail system consisted of two proposed routes: National Grid Right-of-Way (ROW) Trail and Kinderhook Creek Trail. The proposed National Grid ROW Trail runs for 5.6 miles and would be appropriate for pedestrians, bicyclists, and equestrians. Spanning a length of 4.82 miles, the Kinderhook Creek Trail would begin in the Village of Kinderhook and end at Stuyvesant Falls. This trail would be appropriate for pedestrians, but some segments could eventually accommodate bicyclists and equestrians. This report built upon a previous study that was conducted in 2003 by the Town of Kinderhook to examine the feasibility of developing a multi-use recreational trail along the same stretch of the National Grid ROW. In 2011, the Kinderhook Trail Committee signed a licensing agreement with National Grid to begin developing the Kinderhook Trail project in three phases. The study evaluated the feasibility of the six trail sections, documented existing conditions, performed a site analysis, and prepared schematic designs for the proposed trail.



Proposed KSS Intermunicipal Trail

Source: KSS Inter-Municipal Trail Feasibility Study

OPPORTUNITIES AND CHALLENGES

The former Albany-Hudson Electric Trolley line offers enormous opportunity to leverage a former railway, now existing utility line, into a community and regional asset. Once complete the trail is expected to provide considerable benefits to the region and attract visitors to the scenic landscapes and community centers dotting the corridor. The legacy of the railway, including its associated infrastructure, surrounding environment, and land use present a host of variables and challenges to construction. Due to a mix of overlapping highways, missing bridges, and challenging terrain in selected locations, the trail must deviate from the former railway and utilize local and state roads. The following highlights some of those opportunities and constraints:

Historic sites and scenic views – The proposed trail corridor meanders past historic sites, working farms, and the vestiges of early industrial development, such as Stuyvesant Falls.

Public parks and community centers – An enormous advantage, the proposed trail capitalizes on existing features and resources available at the many parks and community centers the trail will cross.

Terrain and bridges – The early bridges of the former trolley line have been removed. In some locations, the remaining abutments provide opportunity for the construction of a new bridge. Several sections span watercourses and challenging terrain that make bridges cost-prohibitive.

Power lines – There are some segments along the corridor with one utility line while others have two utility lines. Location of utility poles will need to be considered during the design of the trail.

Technical challenges – There are various technical challenges along the corridor, including roadway conditions and right-of-way constraints which need additional attention during the design phase.



Scenic Views of Horse Farm - Nassau



Greenport Conservation Area - Hudson

Source: AllTrails/Becca Van K.



Stuyvesant Falls - Kinderhook

Source: Foursquare/Marsha R.

02 PROPOSED TRAIL ROUTE



INTRODUCTION

The proposed trail route for the Albany-Hudson Electric Trail (AHET Trail) connects two counties in the Hudson River Valley and primarily follows the alignment of an old electric trolley line. There is significant potential for historical interpretation along the corridor: the trolley was powered by electricity generated by a small hydro power dam at the southern end of the line, and the corridor still provides regional service as a National Grid power line. Beginning in Rensselaer, the bike portion of the multi-use trail starts on Broadway near the Dunn Memorial Bridge and the pedestrian route starts at Broadway and Third Avenue Extension. The shared-use path ends at Stottville Park in Stottville, just north of the City of Hudson. In areas where there are substantial challenges to having the trail built off-road, a number of on-road routes have been proposed and evaluated as alternatives. In total, the proposed trail has 25 miles of off-road routes and 10 miles of on-road facilities.

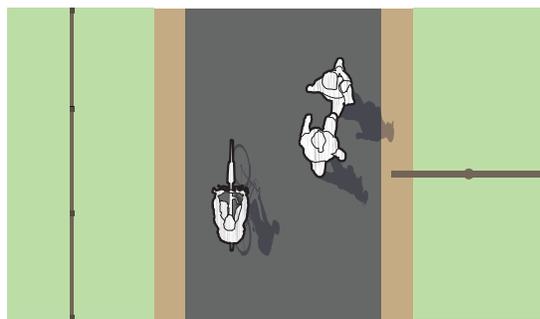
TRAIL ELEMENTS

CROSS-SECTIONS

Two cross-sections are proposed for the trail: A twelve-foot trail width to be used in the urban/suburban areas of the alignment, where higher usage is anticipated; and a ten-foot trail width for the more rural and less heavily used sections. The urban/suburban trail is proposed to be asphalt paved, while the rural trail is proposed

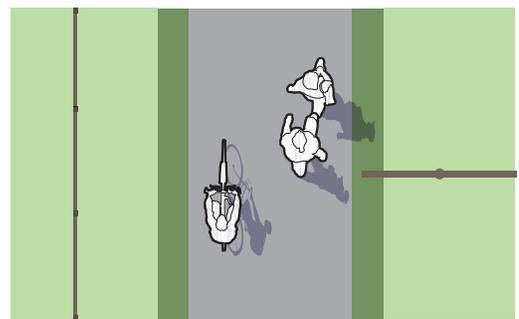
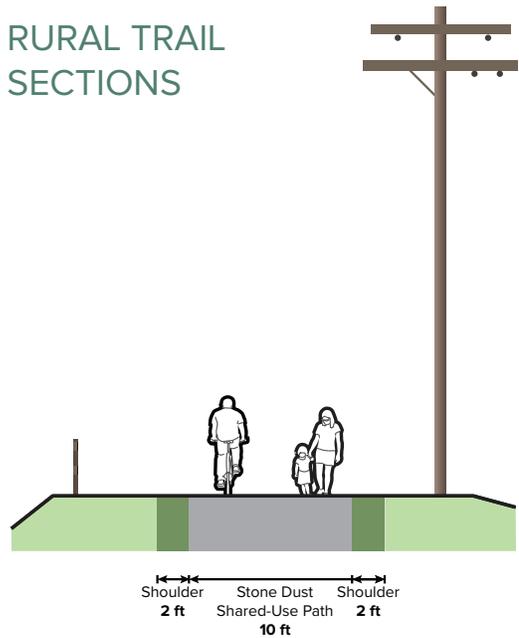
as a stone dust surface. The sections will also include shoulders on both edges of the path that will be a minimum of two feet in width; these will provide clearance to adjacent obstacles, such as utility poles, guy wires, equipment enclosures, and similar objects along the route.

URBAN/SUBURBAN TRAIL SECTIONS



Not to Scale

RURAL TRAIL SECTIONS



Not to Scale

SURFACE MATERIALS

The shared-use path portions of the AHET Trail will vary between a paved asphalt surface and a stone dust surface. It is recommended the trail be paved in higher-use areas, such as cities and villages, as well as in areas at risk of erosion. For more rural locations along the right-of-way, which will experience less use, it is recommended the shared-use path be comprised of a stone dust surface. The adjacent images show typical applications of both paved asphalt and stone dust shared-use paths.

DRAINAGE

In general, the trail will be constructed on top of the former rail prism, which drains to its edges. The trail will be constructed to maintain this drainage pattern, with the trail surface crowned to drain to each side, and the areas adjacent to the trail graded to maintain water flow all the way to the edge of the embankment. Where this drainage pattern cannot be maintained due to the edge conditions along the trail, the trail surface will be cross-pitched to one side and water collected in a swale and then transferred to a release point. Due to the nature of the trail's narrow width, usage, and construction, the runoff should not require treatment prior to entering adjacent water bodies.

Existing Washout along AHET/National Grid right-of-way (due to a failed culvert)



Asphalt Shared-Use Path



Stone Dust Shared-Use Path



BRIDGES

Along the off-road trail alignment, there are five locations where bridges will be required to span waterways or other obstructions. The design intent at these locations is to provide a functional, efficient, and cost effective solution to re-establish the continuity of the trail corridor. The bridges will be designed for pedestrian, bicycle, and light equipment uses (e.g. mowing equipment). In addition, the design and construction of the bridges must minimize incursions into the waterways and their banks to minimize a potentially expensive and time-consuming permitting process. Based on these goals, a pre-engineered, modular, pre-fabricated weathering steel truss bridge will be utilized. The bridges will be fitted with pressure treated wood decking and structurally integral railings. In several locations, the abutments for the previous bridge have been removed or are in poor condition. Where abutments remain, new abutments to support the bridge will be installed behind (further from the stream bed) the existing abutments. No work will be required within the stream bed for the construction of the crossings. New abutments could consist of cast-in-place concrete or a combination of cast-in-place concrete and precast structures.



Pre-Fabricated Bridge Examples



Gully behind Fun Plex - East Greenbush



First Missing Trolley Bridge South of Nassau



Missing Trolley Bridge North of Nassau



Second Missing Trolley Bridge South of Nassau



Missing Trolley Bridge between Valatie and Niverville

PROPOSED ON-ROAD ROUTES

There are a variety of on-road recommendations along the AHET Trail alignment. On-road recommendations were made based on an analysis of the roadway characteristics. On-road routes are recommended for various reasons such as missing trolley bridges, steep slopes, and constrained rights-of-way.

Recommendations for each roadway were determined using the On-Road Bicycle Facility Selection table included in the Empire State Trail Design Guide (currently under development). Roadway treatments consider the functional classification, speed limit, and average annual daily traffic (AADT) of each roadway to determine appropriate on-road facilities.



Shared Roadway



Paved Shoulder

ROADWAY CROSSINGS

There are many road crossings throughout the proposed AHET Trail route. These crossings have been broken down into two categories; major crossings and minor crossings. Those categorized as major crossings were identified as needing additional attention as they tend to have higher traffic volumes, higher speeds, and limited sight distances. Minor crossings primarily consist of local roads and driveways. Minor crossings include pavement markings while major crossings require additional treatments such as signage and lights. There are 15 major crossings and 53 minor crossings.



Rapid Rectangular Flash Beacon (RRFB)



Marked Crosswalk with Yield Lines

*Detailed descriptions of all on-road facilities and roadway crossings can be found in the Empire State Trail Design Guide.

TRAILHEADS

Eight trailheads are proposed to provide users easy access to the trail. Trailheads include parking areas, wayfinding signage, and various amenities such as bike repair stations, benches, picnic tables, and bike racks. The following locations provide examples of potential trailheads. Additional study is needed to refine final trailhead locations. The locations of these trailheads are tentative and based on current knowledge of the corridor. Exact locations will depend on factors such as existing rights-of-way, consultation with involved local officials, and public input.

- Rensselaer Riverfront Park, Rensselaer
- Hampton Road, East Greenbush
- Reno Road, Schodack
- Nassau Lake, Schodack
- Nassau Village Commons Park, Nassau
- Main Street, Niverville
- Mills Park, Kinderhook
- Stottville Park/Atlantic Ave, Stottville

PROPOSED TRAIL ROUTE

The proposed trail route largely follows the historic trolley route (National Grid utility corridor). Due to constraints along the alignment, various on-road segments are recommended for the AHET Trail. Safe crossing and transition recommendations are provided at these on-road/off-road crossings as well as at all at-grade crossings along the shared-use path alignments. Intersections are highlighted at locations where bicycles and pedestrians will make a turn from one road to another while using recommended on-road facilities. Specific recommendations have not been made for the intersections in this report. Future plans and designs should refer to the Empire State Trail Design Guide (under development) to determine safe and appropriate intersection treatments.



Reno Road

There may be an opportunity for a trailhead on Reno Road.

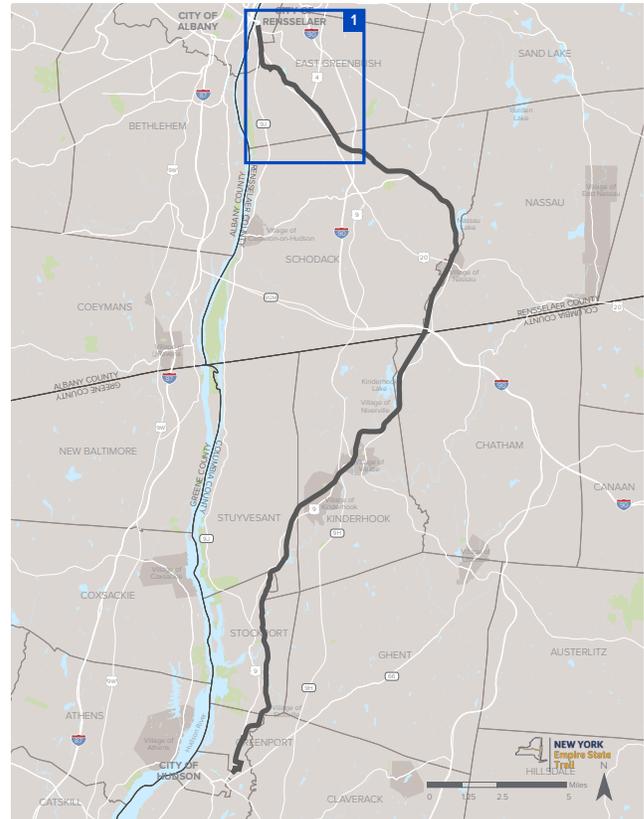
SECTION 1

The recommended AHET Trail begins at the Dunn Memorial Bridge. There is a proposed trailhead at the Rensselaer Riverfront Park near the Hudson River. Pedestrians will continue along the existing sidewalks on Broadway and Columbia Turnpike (Route 20) to reach the northern end of the paved shared-use path. The northern entrance to the off-road trail is proposed to start where Hampton Road intersects with Columbia Turnpike (Route 20). New sidewalks are recommended on Columbia Turnpike (Route 20) from the southern end of the bridge to Riverview Terrace to close the gap in pedestrian facilities along this roadway.

On-road bicycle facilities are recommended on Broadway, 3rd Avenue, Barracks Road, Red Mill Road, Sherwood Avenue, Muriel Avenue, and Hampton Avenue to connect bicyclists from the Dunn Memorial Bridge and proposed Rensselaer Riverfront Park trailhead to the northern end of the proposed paved shared-use path where Hampton Road intersects with Columbia Turnpike (Route 20). This route follows State Bike Route 5 until the turn onto Sherwood Avenue.

Trail users will follow the proposed shared-use path to Point View Drive, where they will transition to recommended on-road facilities on low volume local streets (Berkshire Drive, Highland Drive, and Greenwood Drive) for a short distance due to stormwater installations on the right-of-way. The proposed paved shared-use path will continue south from Greenwood Drive.

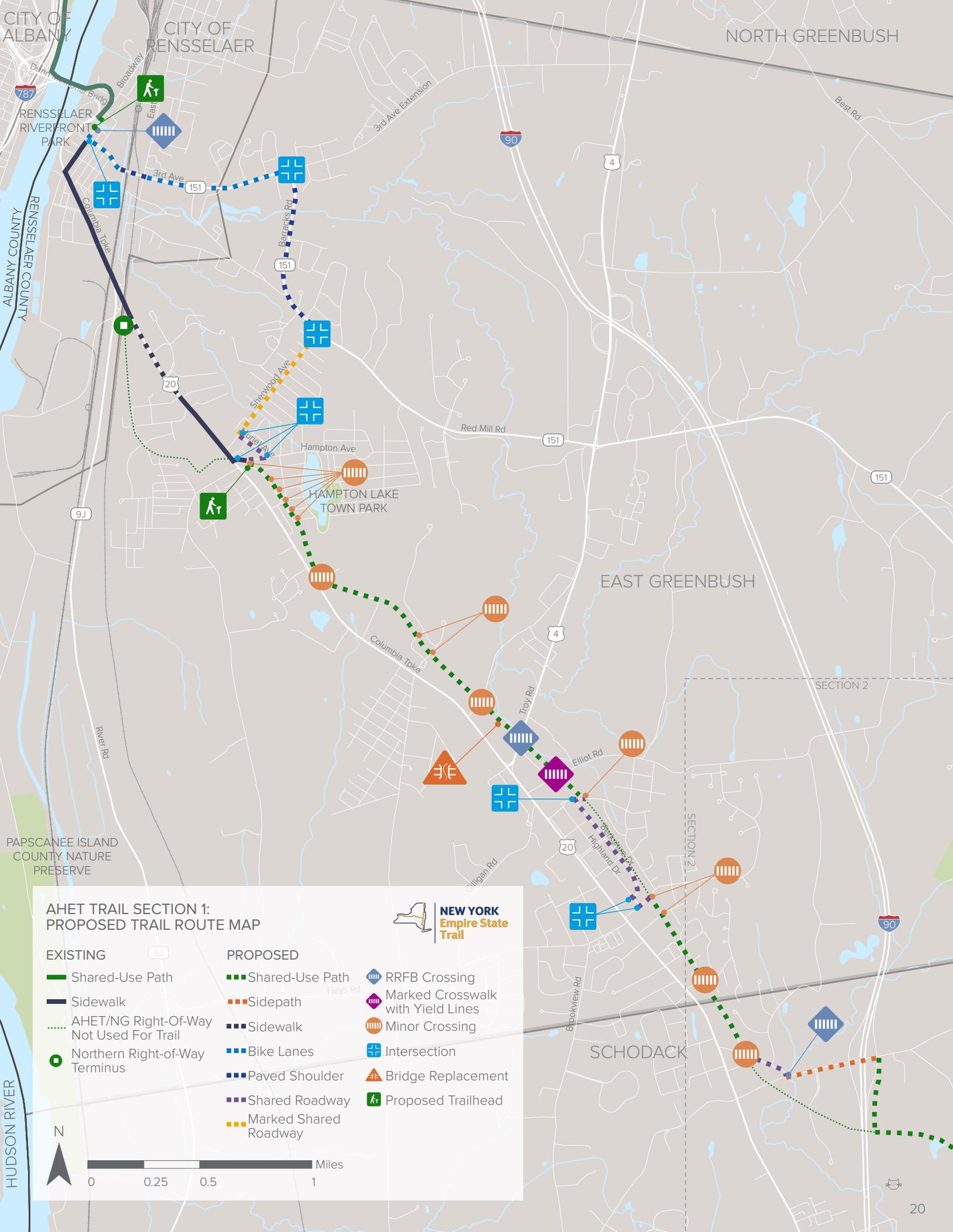
A trail bridge will need to be constructed between Old Troy Road and Troy Road to enable trail users to cross a gully behind the Fun Plex in East Greenbush.



In addition to multiple minor crossings, four major crossing recommendations are made to provide safe road crossings for bicyclists and pedestrians on the trail:

- Broadway, Rensselaer: RRFB Crossing
- Troy Road (Route 4), East Greenbush: RRFB Crossing
- Elliot Road, East Greenbush: Marked Crosswalk with Yield Lines
- Miller Road, Schodack: RRFB Crossing

In addition to the proposed trailhead at Rensselaer Riverfront Park, a second trailhead is recommended at the beginning of the shared-use path at Hampton Road.



**AHET TRAIL SECTION 1:
PROPOSED TRAIL ROUTE MAP**



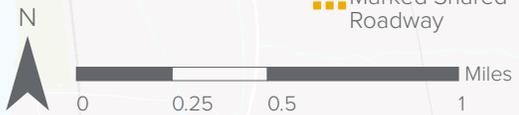
EXISTING

- Shared-Use Path
- Sidewalk
- AHET/NG Right-Of-Way Not Used For Trail
- Northern Right-of-Way Terminus

PROPOSED

- Shared-Use Path
- Sidepath
- Sidewalk
- Bike Lanes
- Paved Shoulder
- Shared Roadway
- Marked Shared Roadway

- RRFB Crossing
- Marked Crosswalk with Yield Lines
- Minor Crossing
- Intersection
- Bridge Replacement
- Proposed Trailhead



SECTION 2

Due to slope constraints and Interstate 90 (I-90), the proposed trail will transition to on-road facilities at Old Miller Road. A shared roadway and sidepath are recommended on Old Miller Road and Miller Road, respectively.

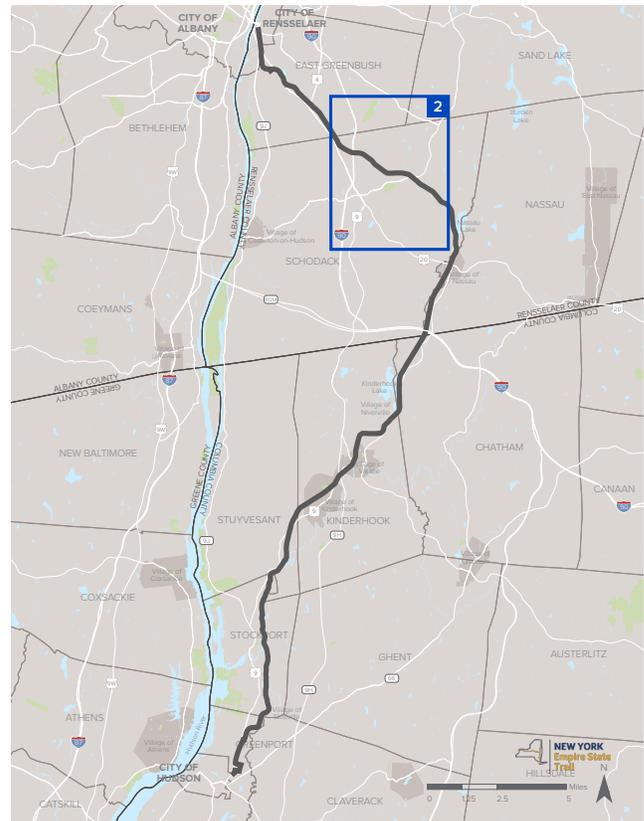
A paved shared-use path is recommended on the eastern side of I-90, within the I-90 right-of-way, to connect back to the AHET Trail corridor within the Albany-Hudson Electric Trolley/National Grid right-of-way. It is important to note that there may be grading issues in this section which will need to be examined during the design phase. The paved shared-use path will continue to the trolley right-of-way, where the surface will switch to stone dust.

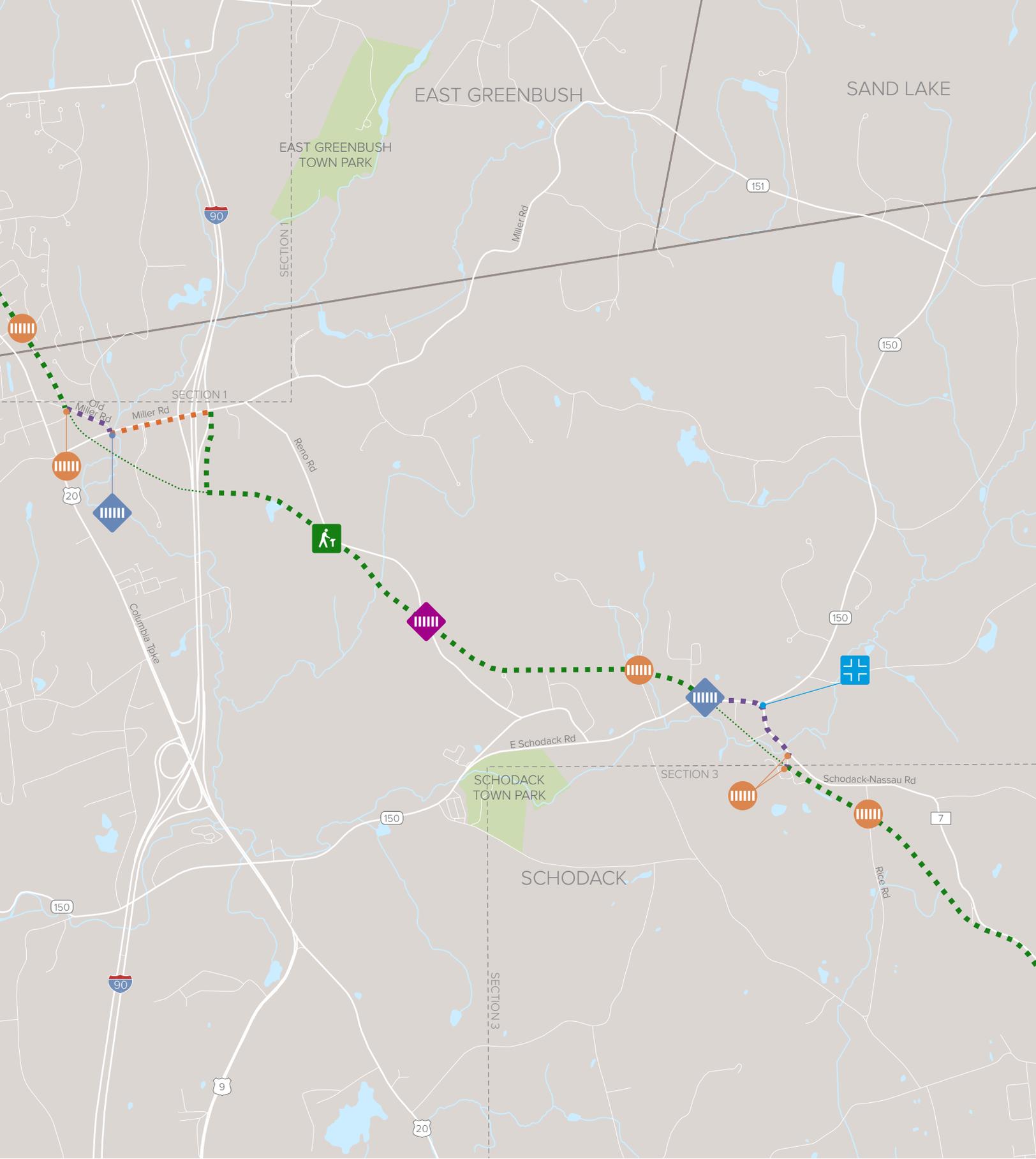
On-road facilities are recommended farther south, on East Schodack Road (Route 150) and Schodack-Nassau Road (Route 7) to avoid grading issues as well as constructing a new bridge over Moordener Kill and bypass a National Grid substation.

In addition to multiple minor crossings, two major crossing recommendations are made to provide safe road crossings for bicyclists and pedestrians on the trail:

- Reno Road, Schodack: Marked Crosswalk with Yield Lines
- East Schodack Road (Route 150), Schodack: RRFB Crossing

A trailhead is recommended on Reno Road.





AHET TRAIL SECTION 2: PROPOSED TRAIL ROUTE MAP

- - - Shared-Use Path
- - - Sidepath
- - - Shared Roadway
- - - AHET/NG ROW Not Used For Trail
-  RRFB Crossing
-  Marked Crosswalk with Yield Lines
-  Minor Crossing
-  Intersection
-  Proposed Trailhead



SECTION 3

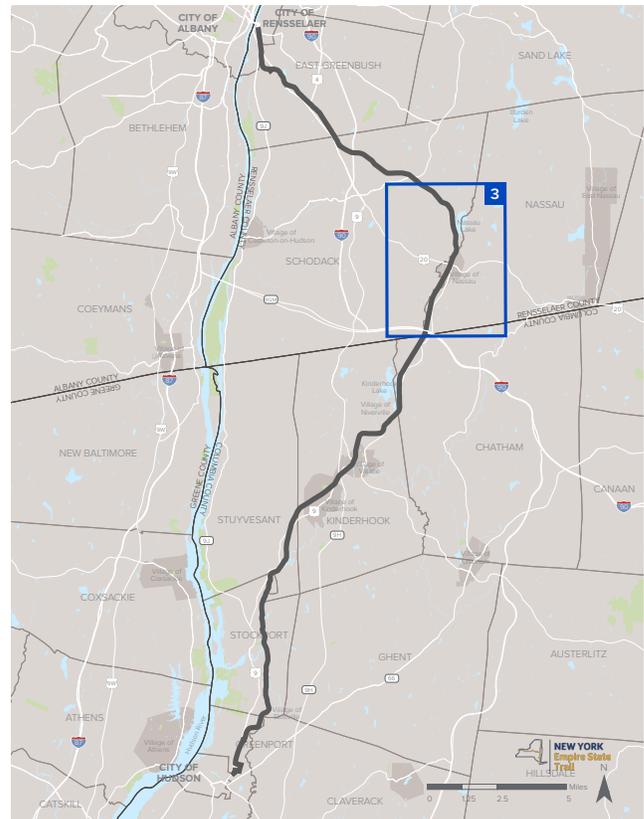
In this section, it is recommended that the AHET Trail utilize proposed on-road facilities in two locations where the right-of-way has been converted into roads: Trolley Way and an informal access road south of Albany Avenue (Route 20) in Nassau. The two segments have low speed limits and experience little traffic, qualifying them as shared roadways. It is recommended the trail be paved through the Village of Nassau to increase accessibility as well as in any areas at risk of erosion along the corridor. The remainder of the trail in this section is proposed as a stone dust shared-use path.

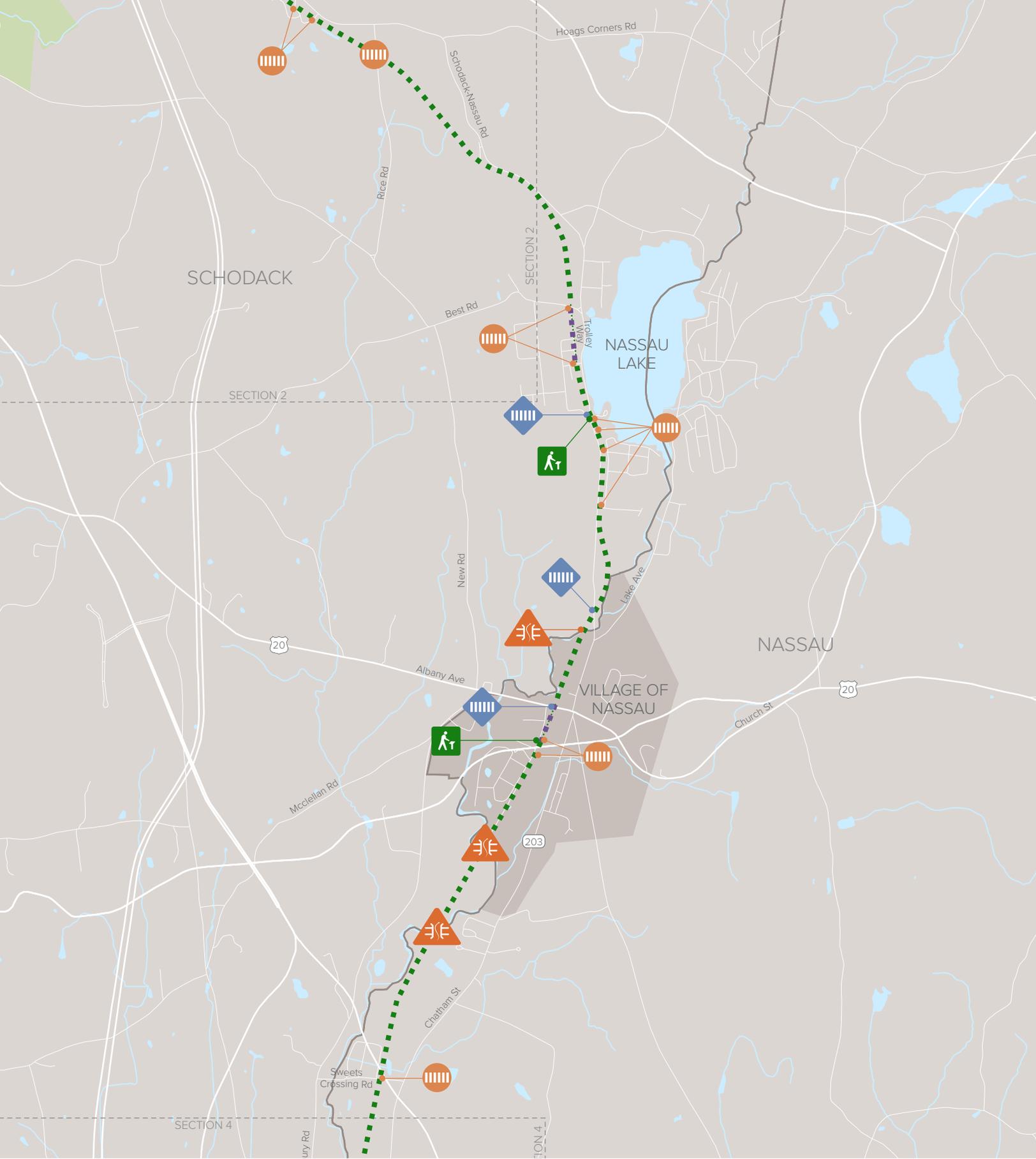
In addition to multiple minor crossings, three major crossing recommendations are made to provide safe road crossings for bicyclists and pedestrians on the trail:

- Schodack-Nassau Road (Route 7) North, Schodack: RRFB Crossing
- Schodack-Nassau Road (Route 7) South, Schodack: RRFB Crossing
- Albany Avenue (Route 20), Nassau: RRFB Crossing

Three new trail bridges are required along the corridor in this section in order to keep the trail within the right-of-way.

One trailhead is recommended at the Village Commons Park in Nassau. A second trailhead is recommended at the southern end of Nassau Lake.





AHET TRAIL SECTION 3: PROPOSED TRAIL ROUTE MAP

- Shared-Use Path
- Shared Roadway
- ⋯ AHET/NG ROW Not Used For Trail
- ◆ RRFB Crossing
- Minor Crossing
- + Intersection
- ▲ Bridge Replacement
- ▲ Proposed Trailhead



CHATHAM

SECTION 4

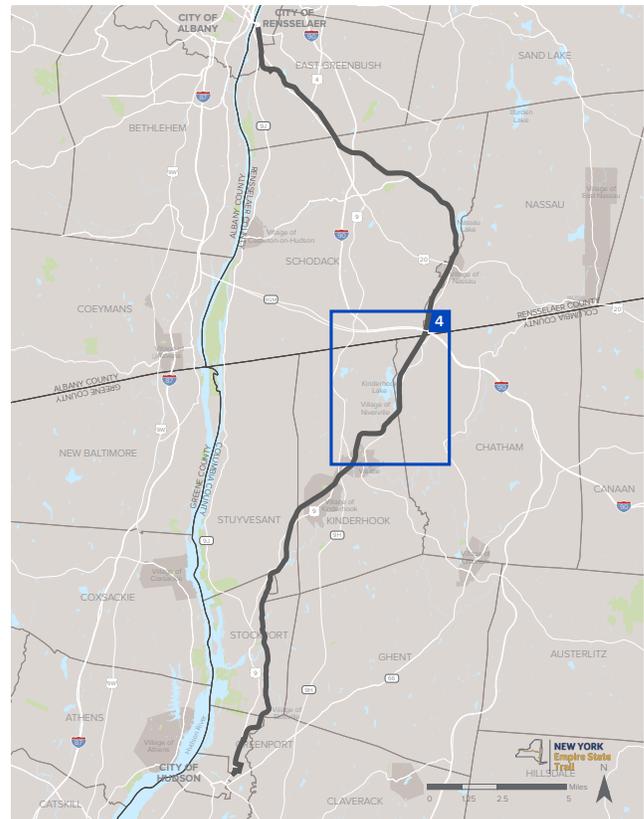
The AHET Trail right-of-way intersects with I-90 again near the Rensselaer/Columbia County line. Constructing a tunnel or bridge over the interstate highway is cost-prohibitive, this plan recommends a paved shared-use path (to avoid erosion) be constructed within the interstate right-of-way heading east along the north side of I-90 to Route 203. Here, bicyclists and pedestrians will utilize the recommended shared roadway treatments on Route 203 and Route 32, respectively.

In North Chatham, a stone dust path will be constructed running south from the historic trolley depot building to Little Lake Road.

Due to grading issues and a missing bridge, it is recommended that the trail not follow the right-of-way south of Little Lake Road. Users will instead utilize Little Lake Road as a shared roadway. This will connect them to a recommended sidepath along Route 203 to Electric Park Road. Here, the plan proposes that bicyclists and pedestrians use Electric Park Road and Niagara Mohawk Road as shared roadways to connect back to the proposed stone dust shared-use path south of East Shore Drive.

Just north of Main Street in Niverville at Kinderhook Lake, the AHET Trail corridor crosses underneath the active railroad track. In this instance, it is recommended users take existing paths on either side of the railroad and utilize a proposed sidepath on the east side of Route 203 beneath the train bridge.

In addition to six minor crossings, two major crossing recommendations are made to provide

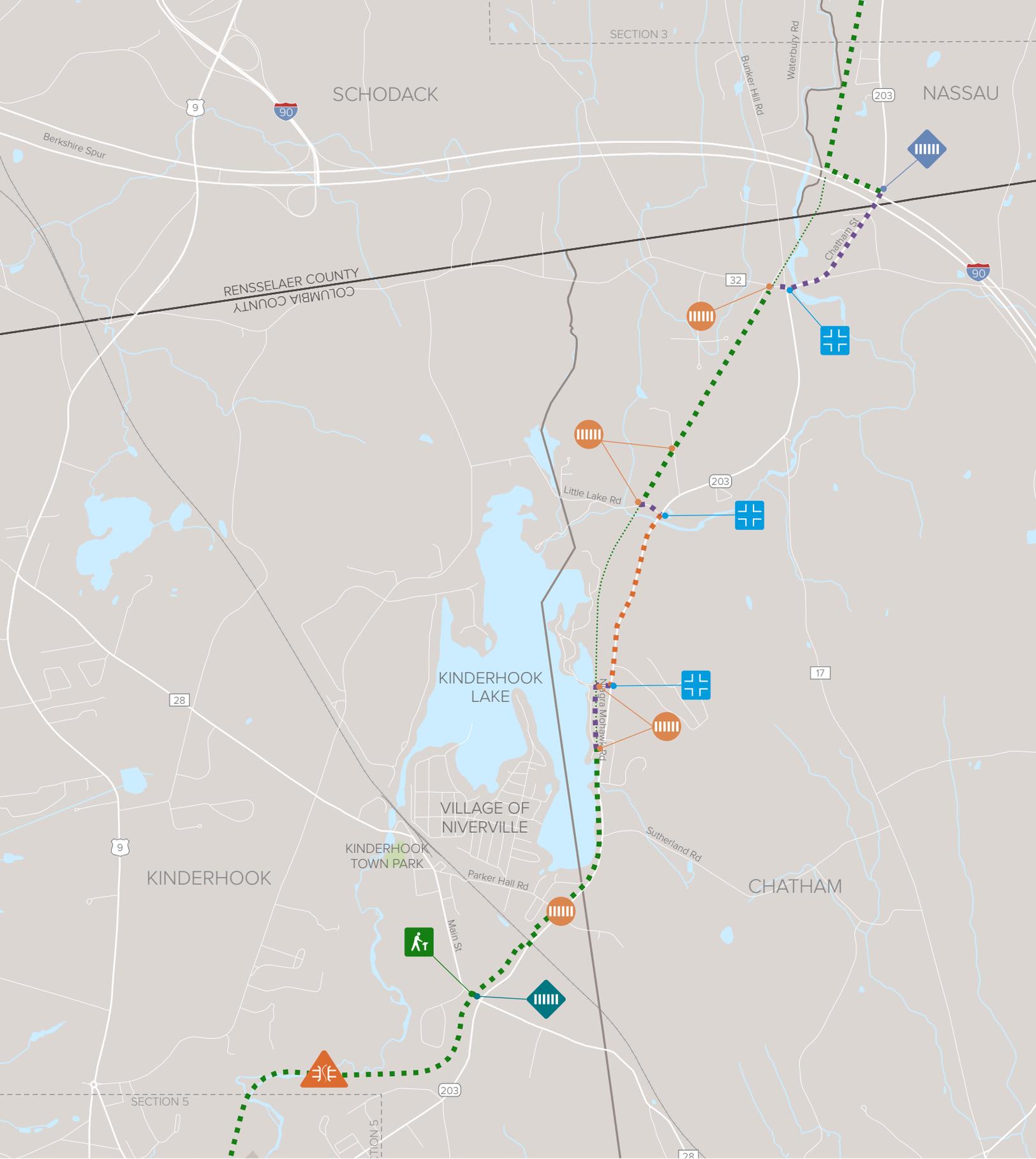


safe road crossings for bicyclists and pedestrians on the trail:

- Route 203, Nassau: Pedestrian Hybrid Beacon Crossing
- Main Street, Niverville: Marked and Signed Crosswalk

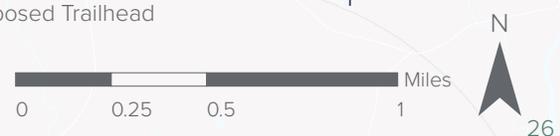
One new trail bridge is recommended along the corridor in this section in order to cross the Valatie Kill.

One trailhead is recommended at Main Street in Kinderhook.



AHET TRAIL SECTION 4: PROPOSED TRAIL ROUTE MAP

- - - Shared-Use Path
- - - Sidepath
- - - Shared Roadway
- - - AHET/NG ROW Not Used For Trail
- RRFB Crossing
- Marked and Signed Crosswalk
- Minor Crossing
- Intersection
- Bridge Replacement
- Proposed Trailhead



SECTION 5

Trail users will utilize the recommended stone dust shared-use path traveling from Niverville to Valatie. The trail reaches Valatie where Main Street crosses Route 9. Additional analysis is needed to design the trail route at this location.

The recommended stone dust shared-use path continues until just south of Route 9H, where the trail users will utilize recommended bike lanes and an existing sidewalk along Chatham Street (Route 9) due to a lack of space along the right-of-way which runs between the roadway and Kinderhook Creek.

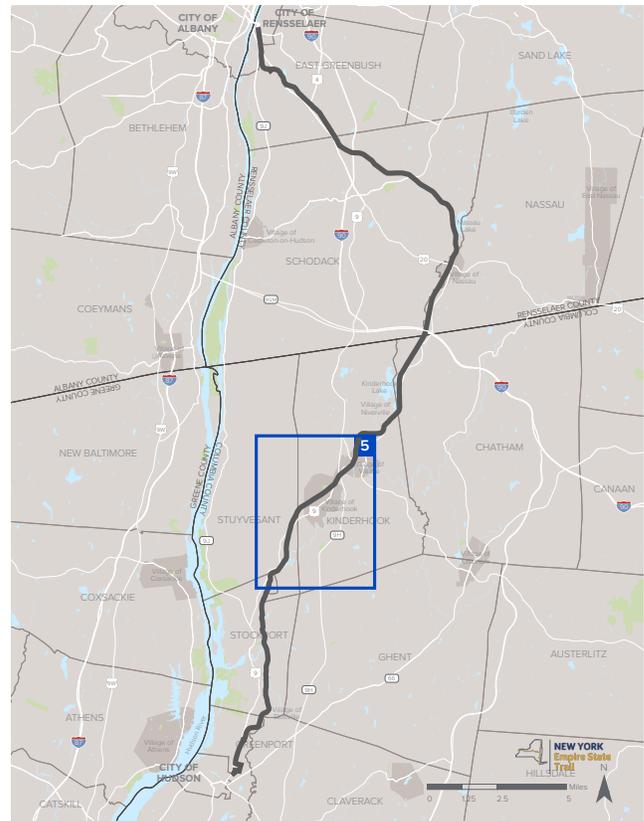
The proposed stone dust shared-use path crosses over the west side of Route 9 and continues to Albany Avenue in Kinderhook. The precise crossing location at Albany Avenue needs to be identified heading south to the Village Park.

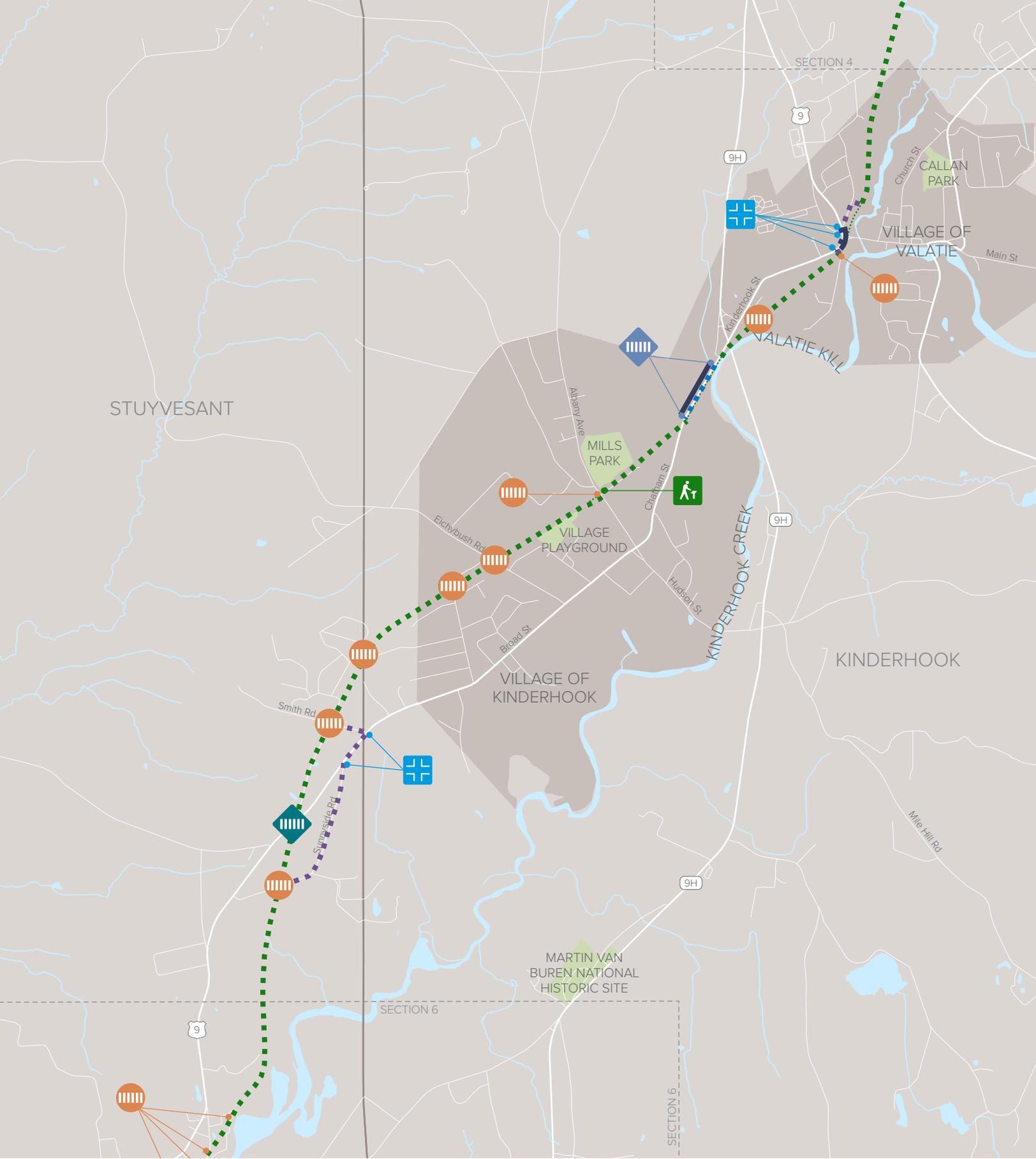
There are two alternatives being considered in the area of Sunnyside Road. One alternative utilizes the AHET Trail right-of-way as a stone dust shared-use path while the other alternative proposes on-road facilities along Smith Road, Route 9, and Sunnyside Road.

In addition to multiple minor crossings, three major crossing recommendations are made to provide safe road crossings for bicyclists and pedestrians on the trail:

- Kinderhook Street, Valatie: RRFB Crossing
- Chatham Street, Kinderhook: RRFB Crossing
- Route 9, Stuyvesant: Marked and Signed Crosswalk (with Median)

A trailhead is recommended at Mills Park in the Village of Kinderhook.





AHET TRAIL SECTION 5: PROPOSED TRAIL ROUTE MAP

- Existing Sidewalk
- Shared-Use Path
- Bike Lanes
- Shared Roadway
- AHET/NG ROW Not Used For Trail
- Marked and Signed Crosswalk (with Median)
- RRFB Crossing
- Intersection
- Minor Crossing
- Proposed Trailhead

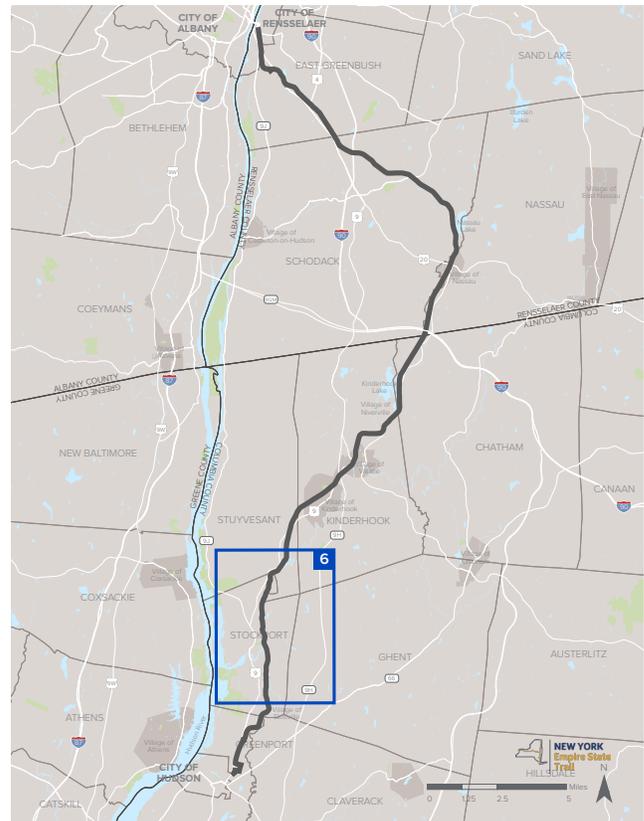


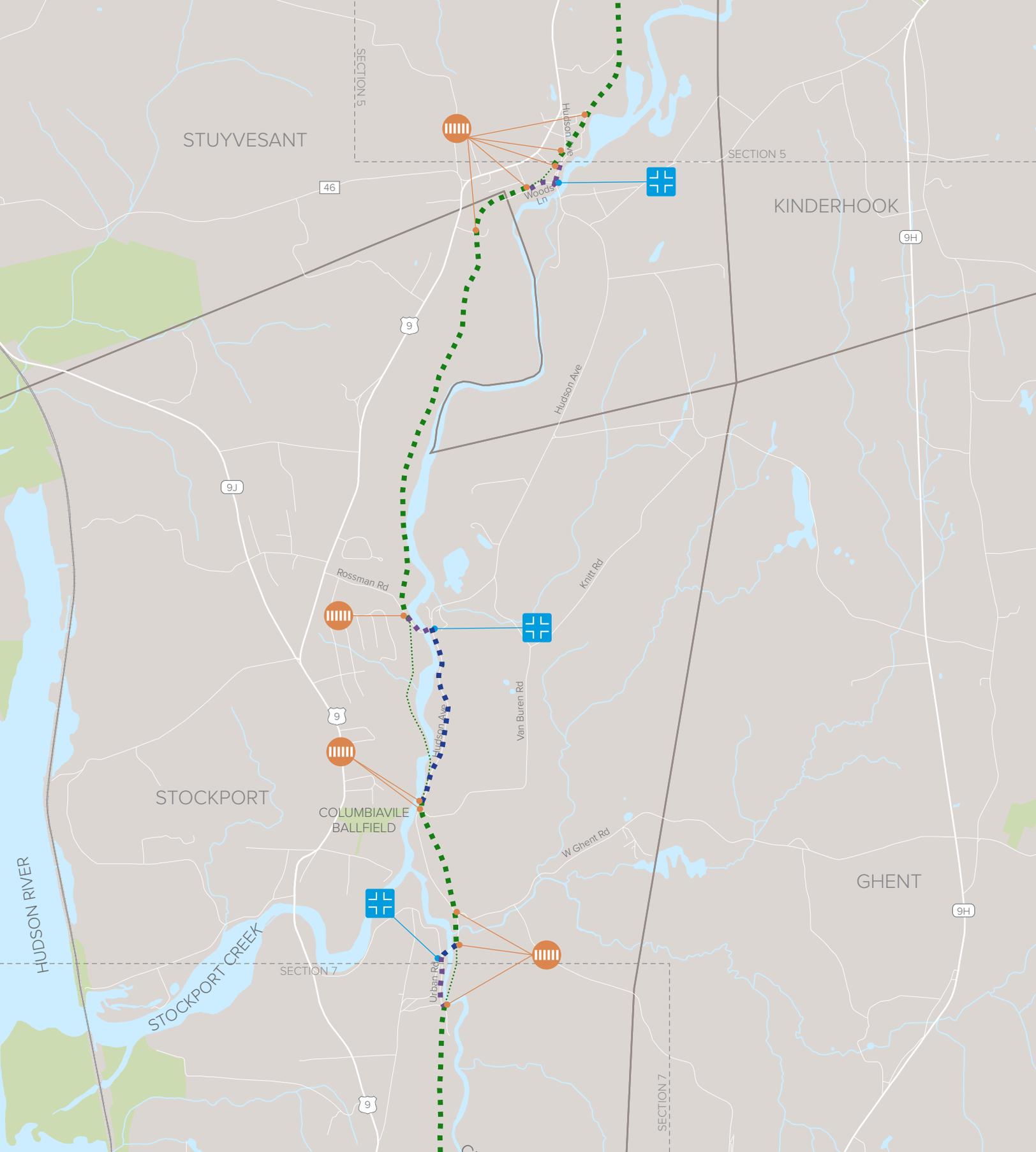
SECTION 6

Due to slope challenges in Stuyvesant Falls, the AHET Trail transitions to proposed on-road facilities on Hudson Avenue (Route 25A) and Woods Lane from where the trail meets Hudson Avenue to New Street. The recommended stone dust shared-use path continues south from New Street until Rossman Road in Stockport. Due to a missing bridge over Kinderhook Creek, the trail will transition to recommended on-road facilities on Rossman Road and Hudson Avenue (Route 25) until the proposed stone dust shared-use path begins again at Van Buren Road.

In order to avoid construction of a new bridge over Claverack Creek, the AHET Trail will use proposed paved shoulders and a shared roadway on Hudson Avenue and Urban Road, respectively. The recommended stone dust shared-use path continues south from the intersection of Urban Road and Loomworks Road.

Multiple minor crossing recommendations were made in this section of the AHET Trail. Due to the characteristics of the roadways in this area, such as low traffic volumes, there are no major crossing recommendations made in this section map.





AHET TRAIL SECTION 6: PROPOSED TRAIL ROUTE MAP

- - - Shared-Use Path
- - - Paved Shoulder
- - - Shared Roadway
- - - AHET/NG ROW Not Used For Trail
- Minor Crossing
- Intersection



SECTION 7

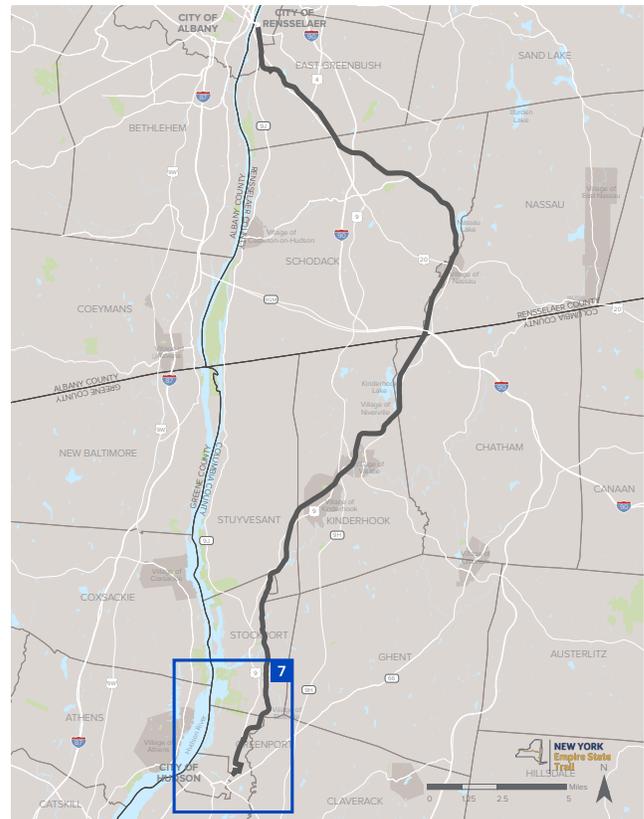
Section 7 depicts the southern end of the AHET Trail. Due to the character of the area coming into the City of Hudson and the location of the Albany-Hudson Electric Trolley/National Grid right-of-way, Atlantic Avenue in Stottville was deemed the most appropriate southern endpoint of the recommended stone dust shared-use path portion of the AHET Trail.

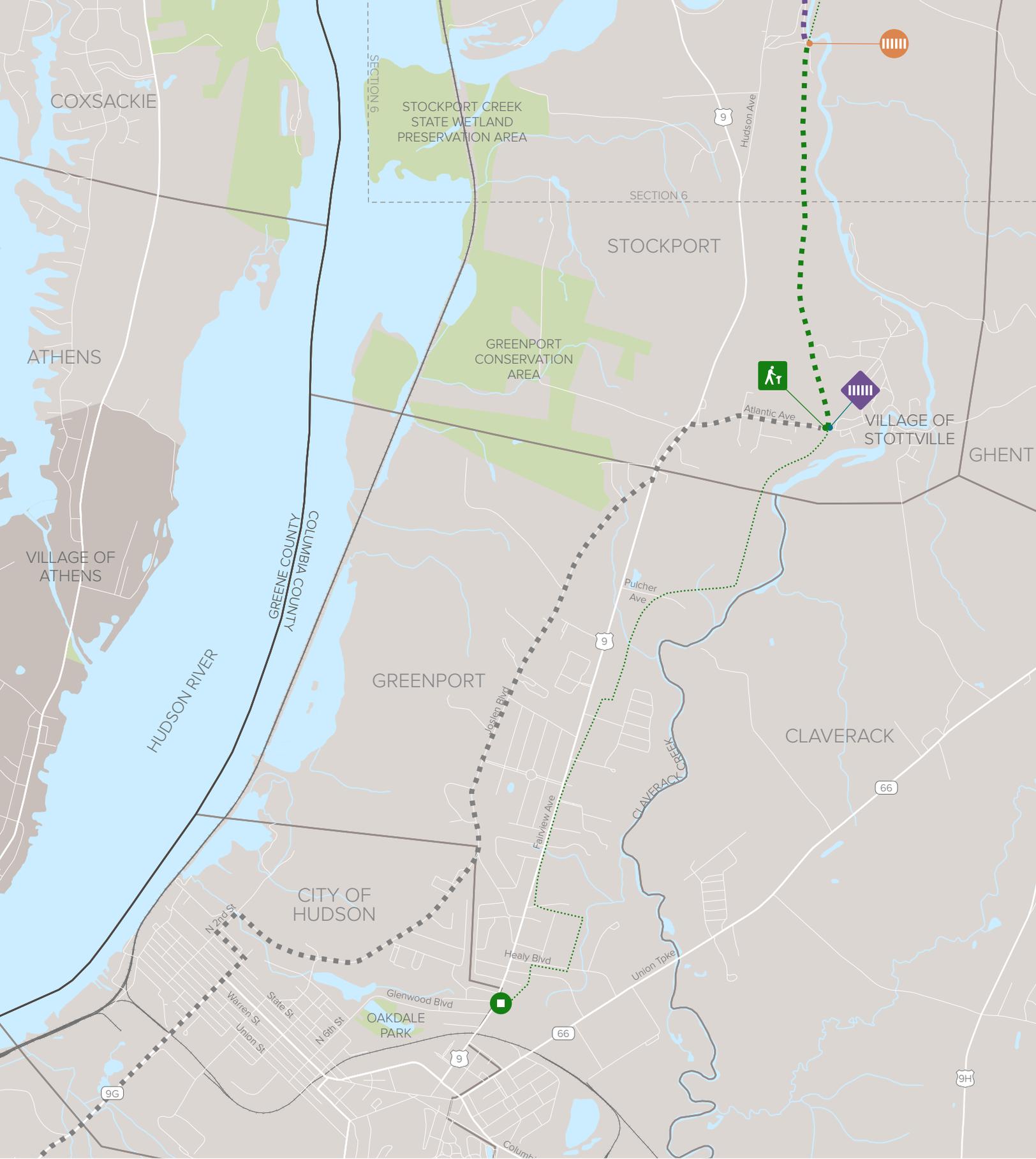
To make the connection into the City of Hudson, this plan recommends bicyclists and pedestrians use the trail route proposed by the NYSDOT Region 8 Empire State Trail Plan. This includes on-road facilities on Atlantic Avenue, Stottville Village Road (Route 9), Joslen Boulevard, and Harry Howard Avenue, ending in historic downtown Hudson.

In addition to multiple minor crossings, one major crossing recommendation is made to provide safe road crossings for bicyclists and pedestrians on the trail:

- Stottville Park/Atlantic Avenue, Stottville:
Marked Crosswalk with Yield Lines

One trailhead is recommended at the southern terminus of the shared-use path at Stottville Park in Stottville.





AHET TRAIL SECTION 7: PROPOSED TRAIL ROUTE MAP

- Existing Shared-Use Path
- - - Shared-Use Path
- - - Shared Roadway
- NYSDOT Region 8 Proposed Trail Route
- · - · - AHET/NG ROW Not Used For Trail
- ◆ Marked Crosswalk with Yield Lines
- Minor Crossing
- Proposed Trailhead

■ Southern Right-of-Way Terminus



COST ESTIMATE

A preliminary opinion of probable cost has been prepared for the project, based on the level of design information and existing conditions data available at the time of the concept plan. The estimate assumes two different levels of earthwork to fit the trail into the existing corridor: a simple section, where only a footprint of approximately twice the width of the trail is disturbed with minimal excavation and grading; and a complex footprint, which assumes a footprint of four times the trail width with greater excavation and filling requirements. These cross-sections were developed for 10-foot and 12-foot wide trails using both asphalt and stone dust surfacing. Added to these basic trail construction costs were:

- Replacement of the missing bridges;
- Trail amenities such as trailheads, site furniture, wayfinding signage, fencing, and other improvements;
- Drainage and utility work, including relocation of National Grid poles and guy wires;
- Improvements at road crossings; and
- The on-road segments of the trail.

A summary of the major items is provided below. The estimate also includes a number of multipliers to reflect the hard and soft costs of the total project as follows:

Construction Escalation - 5% per year: This allows for inflation of costs due to the overall timeline for project delivery. Escalation is calculated at the midpoint of construction, which is assumed to be mid- to late-2019; hence 10% escalation has been applied to the total contract price.

Engineering and Project Oversight - 19%: include survey, geotechnical explorations and analysis and consultant fees for design, permitting, and construction phase services.

General Contingency - 25%: This reflects the basis of the estimate; at this point, only concept-level information is available for the trail design and existing conditions. The contingency will be reduced at each progressive stage of the design, ultimately being eliminated at the time of bidding.

The AHET Trail is estimated to cost between \$35 and \$40 million.

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03 ACTION PLAN



NEXT STEPS

At this point, sufficient information is known about the nature of the trail, the route that it will follow, and the activities required for full implementation to move forward into a preliminary design phase. Discussions between the Hudson River Valley Greenway (the Greenway) and National Grid (NG) are advancing on resolution of use of the right-of-way and design standards for the trail and its components; pending finalization of that discussion, design work can begin in earnest. The Greenway and NG will work together closely to share information about the proposed trail plan and establish an achievable schedule with clear milestones to allow for the monitoring of progress on project delivery. The Greenway has already issued an RFQ for a final engineering design consultant. Early milestones in that schedule should include:

- Procurement of final design services
- Procurement of topographical survey services
- Permit scoping based on feasibility study

Another key step will be determining how the on-road segments will be designed and implemented. Including these in the final design consultant's scope is appropriate. The Greenway should work directly with the involved counties, towns, villages, and NYSDOT to develop an implementation process and schedule for these critical pieces.

PUBLIC OUTREACH

The development of a comprehensive public involvement process will be a high priority for the next phase of work for the AHET Trail. This process will involve two different tracks of meetings: public workshops and stakeholder meetings.

PUBLIC WORKSHOPS

Meetings will be scheduled in Rensselaer and Columbia Counties to solicit input from the citizens of communities along the trail corridor regarding the routing and alignment of the trail. This includes interested residents, neighborhood leaders, business owners, property owners, trails organizations, and others. The meetings can be held in open-house or formal meeting styles.

STAKEHOLDER MEETINGS

An ongoing series of meetings will be held to keep elected officials, city and county staff, state and federal officials, civic leaders, and other identified individuals and groups up to date with the progress of the project.

The strategy sessions should include stakeholders from the communities and agencies involved in the delivery of the project.

ENVIRONMENTAL REVIEW AND PERMITTING REQUIREMENTS

STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) COMPLIANCE

Prior to issuance of permits, approvals, or award of construction contracts for construction of the trail, compliance with the regulations implementing the New York State Environmental Quality Review Act (SEQRA; regulations at: 6NYCRR Part 617) is required. The concept plan provides sufficient information for the Greenway, which will serve as the lead agency under SEQR, to initiate environmental review, starting with completion of the SEQR Environmental Assessment Form (EAF). The SEQR process must be concluded with either a negative declaration or preparation of an EIS and the preparation of a findings statement.

PRIOR SEQR REVIEW - STATEWIDE TRAILS PLAN

The New York Statewide Trails Plan and Generic Environmental Impact Statement prepared in 2010 addressed the route that essentially comprises the entire Empire State Trail. The AHET TRail is depicted as a “proposed greenway trail” in the 2010 Plan. Since the statewide trails plan was a general plan, the identification of program-specific or site-specific adverse impacts, including those which are unavoidable, would be accomplished during future planning and environmental review of programs and projects. Minimization of conflicts and adverse impacts of future trails is to be accomplished through planning, environmental review, public participation and priority rating systems.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

Currently no federal funding is anticipated for the AHET Trail, However, if federal permits or approvals are required, compliance with NEPA must also be addressed.

ACTION PLAN FOR SEQR AND NEPA COMPLIANCE

The Greenway will send formal notice to all involved and interested agencies, including local governments, that it proposes to serve as lead agency under SEQR. The Greenway will prepare a comprehensive environmental assessment of the Empire State Trail through a long-form EAF and determine whether the project can be issued a negative declaration or if an amendment or supplement to an applicable existing generic EIS (as described above) would be required (e.g., for the statewide trails plan). The Greenway will coordinate this review through involved state/local agencies (to comply with SEQR requirements) and with interested federal agencies (to comply with NEPA requirements).

PERMITS

The following is a list of the permits that were identified as potentially applicable for the project at the current stage of planning:

STATE/AUTHORITY/UTILITY PERMITS

- Protection of Waters (Article 15) administered by NYSDEC (if stream bed/bank disturbance is involved).
- Freshwater Wetlands Permits administered by NYSDEC (if disturbance to state-regulated wetlands or their associated buffer zones (usually 100-feet from wetland boundary) is proposed).
- State Pollution Discharge Elimination System under the federal Clean Water Act administered by NYSDEC including stormwater management pollution prevention plan (and any local municipality operating a state-designated municipal separate storm sewer system).
- Solid Waste Permit or a Beneficial Use Determination as administered by NYSDEC for disposition of fill removed from a trail site.
- Protection of historic resources under the federal Historic Preservation Act of 1966 (administered by State Historic Preservation Office (SHPO) NYSOPRHP).
- Highway work permit for any work near/affecting highway ROW operated by NYSDOT.
- Project work permit/license from National Grid/Niagara Mohawk Power Corporation.
- Consistency review under the NYS coastal zone program as administered by NYSDOS (and any local municipality with an adopted local waterfront revitalization program).

COUNTY/LOCAL CONCURRENCE

- The Greenway will collaborate with the involved county and local governments to seek their concurrence for road crossings and on-road trail sections.

FEDERAL PERMITS

- At this time, there are no known federal permits but this will be reviewed and addressed as needed.