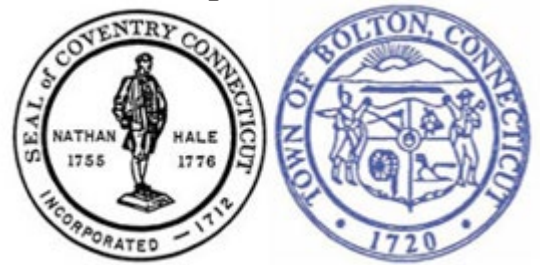


Nathan Hale Greenway

Feasibility Report

May 22, 2019

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Prepared For:



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1.0 Introduction and Overview

In This Section

- a. Project Background
- b. The Nathan Hale Greenway
- c. The Process

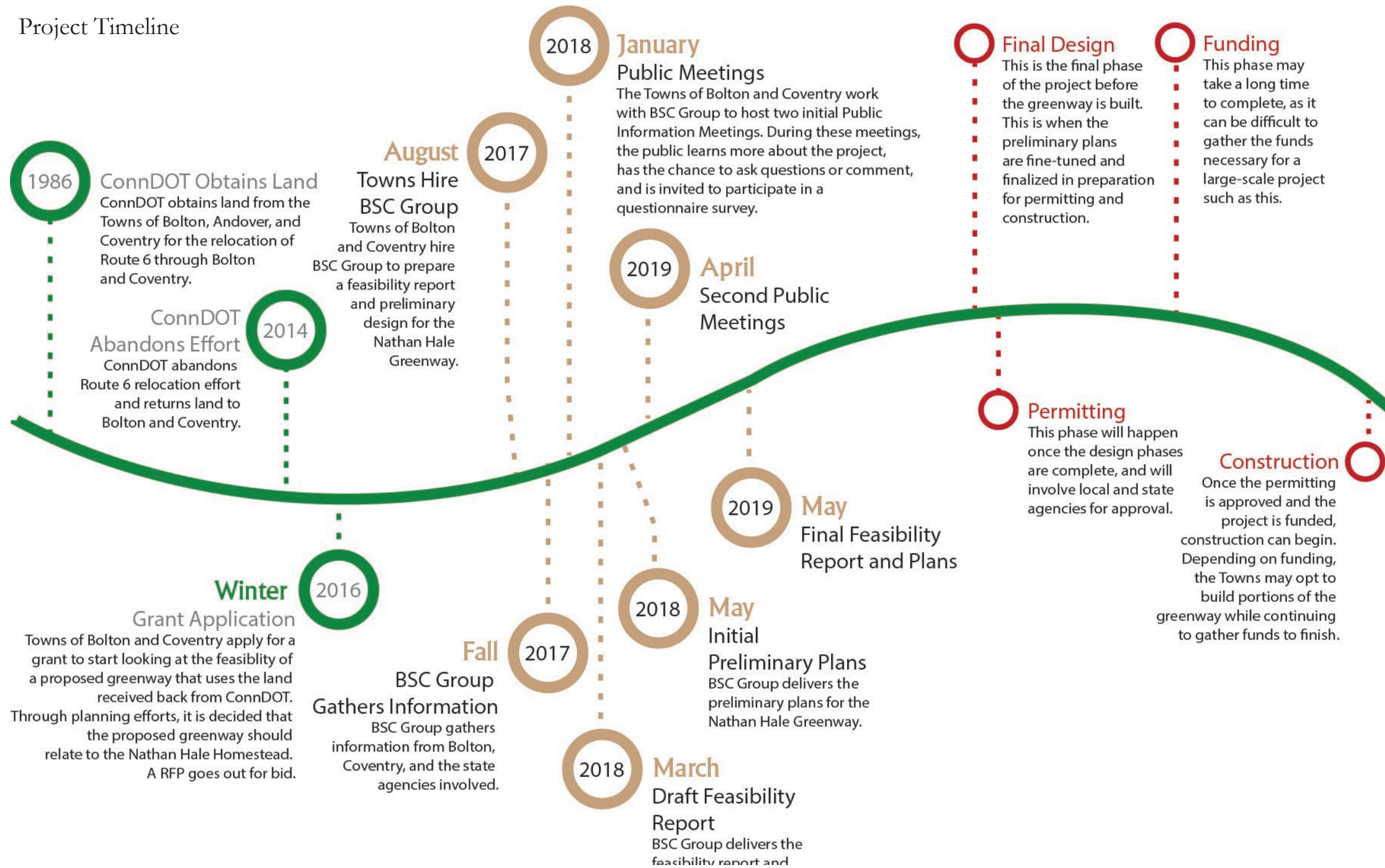
Project Background

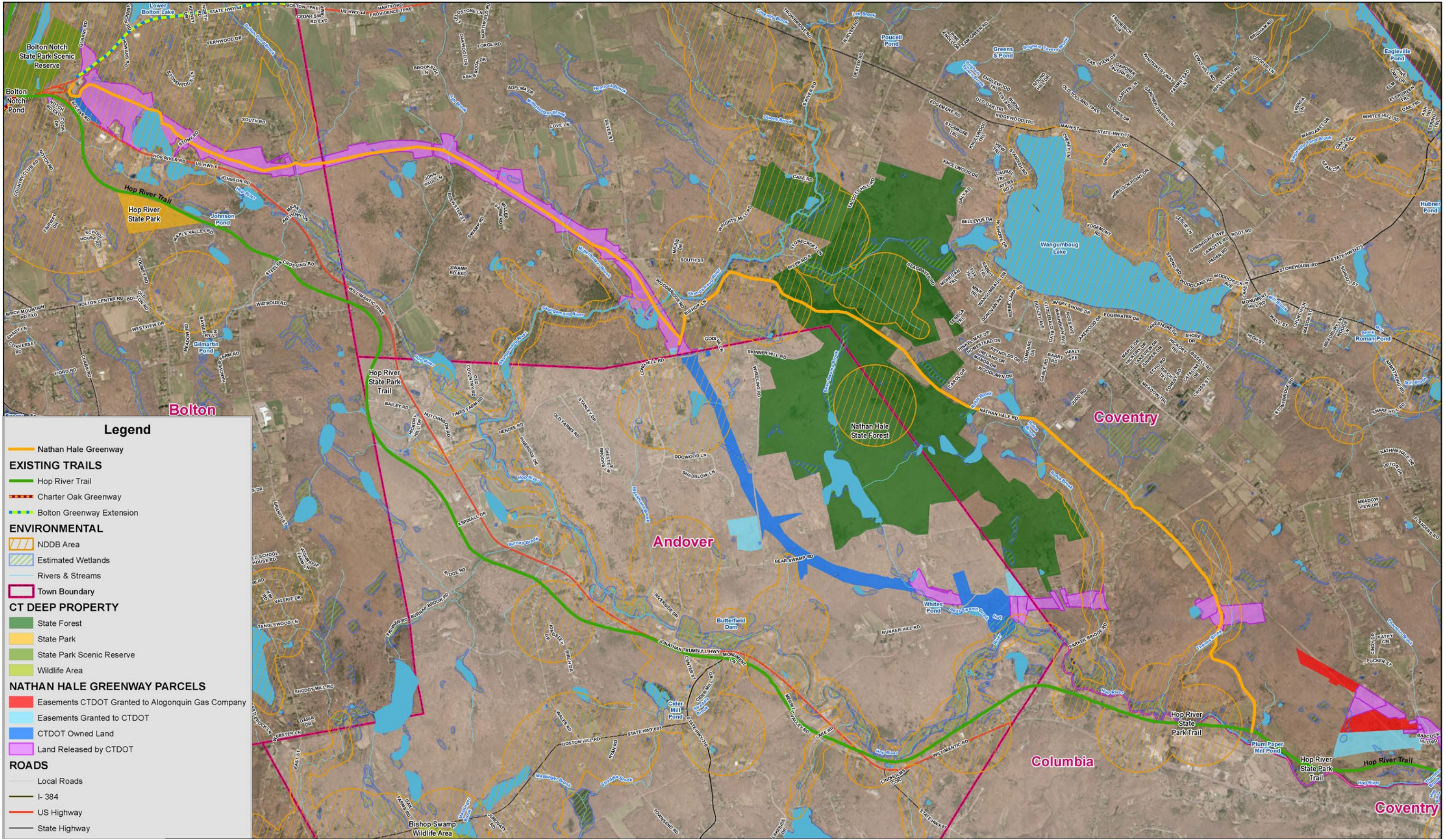
The Nathan Hale Greenway project has been evolving for over 20 years. Circa 1986 the Connecticut Department of Transportation (CTDOT) purchased numerous parcels of land in the towns of Bolton, Coventry, and Andover with the intention of relocating and upgrading Route 6 (Figure 1). The proposed Route 6 facility was proposed to be a 4-lane limited access highway (freeway) that would connect from the termination of Route 384 in Bolton to the beginning of "Super 6" in Columbia. After completing various studies and design-treated tasks during the late 1980's and 1990's, including public outreach that recognized considerable public opposition, CTDOT abandoned efforts to move the project forward. In 2014, CTDOT transferred ownership of select portions of the ROW to the host towns. Specifically, the portion of the Right-of-Way (ROW) in the Town of Bolton has been conveyed to the Town of Bolton, and the portion of the ROW in the Town of Coventry has been transferred to the Town of Coventry. The ROW within the Town of Andover has not been conveyed, and as of this study is still the property of CTDOT. The property land transfer process included a condition that the land be retained as open space and not sold.

In December of 2016, the Towns of Bolton and Coventry, in concert with the Capitol Region Council of Governments (CRCOG), applied for a Connecticut Department of Energy and Environmental Protection (DEEP) Recreational Trail Grant to fund a study to determine the feasibility of constructing a shared-use path or greenway through the available open space corridor. Greenways provide a multitude of benefits to a community. People use greenways for active recreation, access to scenic views, exercise, and in some cases, commuting. The addition of a greenway to the local community can boost the culture, economy, and tourism attraction of a town or region.

Greenways generally follow and/or connect with visually appealing natural features such as rivers, ponds, hillsides, and valleys. Beyond pure recreational use, they provide linkages between community centers, schools, and residential areas. People who spend time in these areas also utilize greenways to access public open space.

Project Timeline





Legend

- Nathan Hale Greenway
- EXISTING TRAILS**
 - Hop River Trail
 - Charter Oak Greenway
 - Bolton Greenway Extension
- ENVIRONMENTAL**
 - NDDB Area
 - Estimated Wetlands
 - Rivers & Streams
 - Town Boundary
- CT DEEP PROPERTY**
 - State Forest
 - State Park
 - State Park Scenic Reserve
 - Wildlife Area
- NATHAN HALE GREENWAY PARCELS**
 - Easements CTDOT Granted to Alogonquin Gas Company
 - Easements Granted to CTDOT
 - CTDOT Owned Land
 - Land Released by CTDOT
- ROADS**
 - Local Roads
 - I-384
 - US Highway
 - State Highway

The Nathan Hale Greenway

The Nathan Hale Greenway offers an exciting opportunity to take advantage of a readily-available linear corridor and promote non-motorized travel in the region for recreational and potential commuter use. The Nathan Hale Greenway is envisioned as a multi-use greenway traversing the Towns of Bolton, Coventry, and potentially Andover along the primary project corridor derived from the CTDOT Route 6 project. The total distance of the proposed greenway is 7.5 miles.

Notwithstanding its stand-alone benefit, the Nathan Hale Greenway would also connect users to a much larger network of trails. The Hop River Trail, the East Coast Greenway, and Charter Oak Greenway are all examples of trails in the Towns of Bolton, Coventry, and the surrounding region that would be accessible from the Nathan Hale Greenway. The East Coast Greenway is envisioned to stretch across 2,900 miles, connecting Florida to Maine. The prospect of linking the Nathan Hale Greenway into a larger system of greenways/trails could establish a recreational facility network of such a substantial magnitude that it would attract users from outside the region, promoting local tourism.

Development of the Nathan Hale Greenway will evolve over time, with origins as a simple pathway. In its ultimate configuration, the Nathan Hale Greenway is envisioned as a "shared-use" (multi-use) path. Shared-use paths attract bicyclists with a wide range of skill levels, including young children. A shared-use path, even if designed primarily as a bike facility, is also intended to attract a mix of other user types including pedestrians, joggers/runners, in-line skaters (if paved), and others, depending on location and access. In contrast with a simple "blazed trail," the greenway's final configuration would be a well-established, generally uniform and graded pathway, which accounts for a multitude of users, user types, and user skill levels, with consideration of safety and overall enjoyment. Additionally, a greenway has a defined set of amenities, structures, and pathway surfacing (preferably a natural material) which enforces a consistent theme or feeling throughout the entire trail.

It is also recognized that the Nathan Hale Greenway presents several challenges associated with existing conditions that must be addressed. These include water crossings (rivers, streams, or wetlands), roadway crossings (the proposed project corridor navigates large segments of green space but must cross several local roads), and "land gaps" that will require select portions of the greenway to utilize local roads. As indicated previously, based on the scale of the project and the aforementioned challenges, the ultimate configuration of the greenway as a "shared-use" (multi-use) path will likely occur over time, in segments and phases, based on public support and available funding. It is realistic to envision the greenway beginning as a simple pathway through the corridor, with its location generally defined by a plan and the physical path defined by its actual use (e.g. a "beaten path"). This early genesis of the greenway can occur with essentially no funding. Over time, segments of the



path can be converted to a "blazed trail", with more definition, enhanced surfacing, grading, some crossings, etc. Transformation to the "blazed trail" could be facilitated, in part, through a joint-town forestry management program that includes the creation of "skid trails" for access and select timber harvesting. This can provide a feasible approach to proper stewardship and a means to begin the development of the more formalized trail in a cost-effective manner. Additionally, civic and community groups could play a large role in the creation and maintenance of the blazed trail. This could occur through adoption and stewardship of trail sections by volunteer groups, organized and empowered to assist with maintenance needs. Across the United States, many trail systems are maintained in part or whole, in this manner. Each town will ultimately define its own approach with regards to specific work activities and how they are implemented, with consideration given to specific goals, standards, work agreements, waivers/liability issues, etc. Ultimately, the "blazed trail" could be further formalized in a phased manner, segment-by-segment, based on community support and the availability of funding, into the "shared-use" (multi-use) path in an iterative or segmented manner.

The typical section of the Nathan Hale Greenway will vary depending on the specific configuration ultimately selected. The "off-road" portions of the greenway are envisioned as shared-use path, consisting of a ten-foot travel-way with approximately two-foot shoulders on either side. This configuration will allow for two-way pedestrian/bicycle/other type users. This configuration will also provide a satisfactory experience for bicyclists and safe sharing of the facility with a variety of users of differing speeds and abilities. On-road portions of the greenway are envisioned as a "share-the-road" configuration based on the width of existing roadway infrastructure. Bike lanes could be considered in some areas if sufficient town ROW is available.

The Process

Following award of the DEEP Recreational Trail Grant in early 2017, BSC Group (BSC) was retained (August 2017) to complete a study and design process towards the following goals:

- Establish existing conditions / base mapping
- Determine likely right-of-way needs and impacts
- Determine likely environmental impacts
- Establish a preferred route alignment for the Trail
- Provide concept plans and drawings
- Estimate construction costs
- Facilitate the ability to pursue and obtain funding

In general, the study and design process was planned as two steps:

- 1) A feasibility study to assess the viability of constructing the greenway along the former corridor (in Bolton and Coventry only), and
- 2) Preparation of a preliminary design to illustrate a proposed greenway layout and associated amenities based on the results of the feasibility study.

This Feasibility Study Report compiles the information associated with Step 1. The preliminary design will be completed once the feasibility study process is finalized. Overall, the purpose of the effort is to develop a preferred alignment for the greenway, followed by a preliminary design that has been publicly vetted and supported by stakeholders. The resulting product will provide the information necessary to compete for future construction funding and bring the vision of a complete Nathan Hale Greenway to reality if and when the communities are ready to take that step. It is recognized that evolution of the project within each town may occur at different rates based on town-specific public support and available funding.

2.0 Feasibility Study

In This Section

- a. Overview
- b. Feasibility Study Process
 - i. Base Map Development
 - ii. Segmenting the Greenway
 - iii. Greenway Criteria
- c. Feasibility Study
 - i. Potential Alignments
 - ii. Existing Conditions Review
- d. Permitting Review
 - i. Local Permitting
 - ii. State Permitting
 - iii. Federal Permitting

Overview

As previously stated, BSC was retained to complete a feasibility study and preliminary design of the Nathan Hale Greenway. The feasibility study was intended to assess the viability of constructing a greenway along the available corridor in Bolton and Coventry. The feasibility study encompasses the proposed Nathan Hale Greenway corridor from its starting point in Bolton to just north of the Andover town line, at which point three Alternatives are generally considered viable. Alternative 1 allows the greenway to continue through Bolton, Andover, and Coventry via the former Route 6 corridor. Alternative 2 bypasses Andover and allows the greenway to travel through Coventry via town roads and/or the Nathan Hale Forest. Alternative 3 allows for an on-road approach over town roads in Coventry. Each Alternate ultimately provides a direct connection to the Hop River Trail in Coventry. As previously-indicated, Andover did not participate in the study and design process, therefore Alternative 1 was not explored.

Feasibility Study Process

The feasibility study process was generally comprised of three major elements:

- 1) Base mapping
- 2) Establishment of potential alignments
- 3) Review/documentation of existing conditions.

Base Map Development

The base map was compiled to establish a visual/graphical depiction of the project corridor and provide a basis for identifying potential alternate routes and constraints. Base mapping is included herein as Figure 1. Mapping was based on the North American Datum of 1983 (NAD 83) Connecticut grid system. This will facilitate the compatibility of compiled information with future surveys and additional data gathering, greenway design efforts, global positioning system (GPS) tools, and existing/future GIS data.

The base mapping process began with compilation of CTDOT Route 6 taking and construction maps, which utilized a mathematical centerline and baseline geometry identified by CTDOT in the Connecticut State Plane grid system North American Datum of 1927 (NAD 27). All deeds of acquisition

as well as documents of conveyance of land to the towns were also obtained from CTDOT and the land records of Bolton and Coventry.

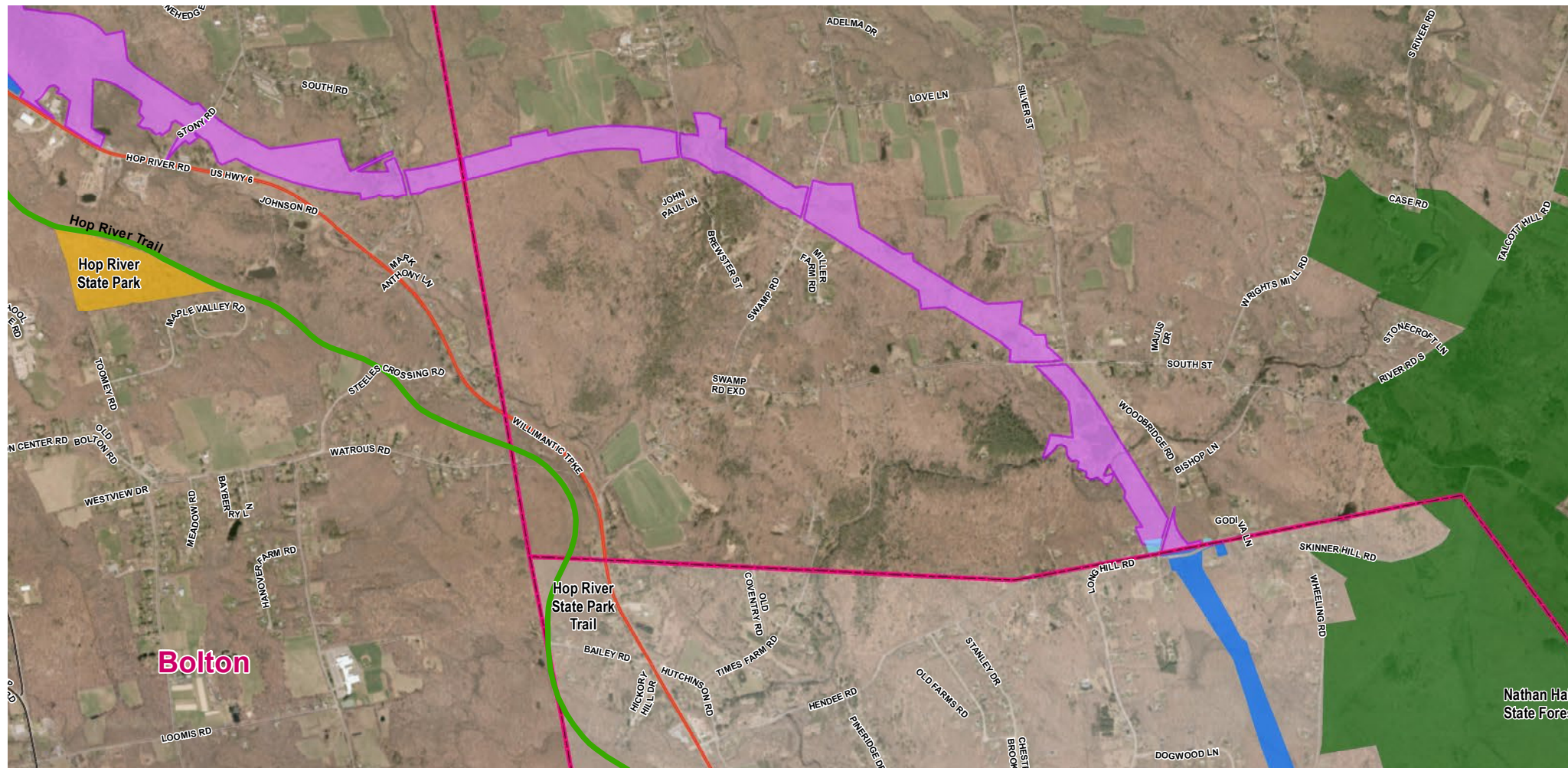
GIS information was obtained from the towns, and 2016 digital orthometric imagery was obtained from the University of Connecticut's Connecticut Environmental Conditions Online (CT ECO) database as a base overlay, depicting three-inch digital pixel resolution of the project corridor. CTDOT information from closing reports was reviewed and used to confirm alignments. Additional surveys previously completed by BSC along Route 44 and by other recorded surveys (by others) were also reviewed to confirm data. A review of the abutting land deeds was also completed in an additional effort to confirm boundary locations. It should be noted that this boundary confirmation is not based on a full title search and is limited to the best available data. Independent resurvey of the corridor will be necessary for future design endeavors.

Using project coordinates as provided by CTDOT, two baseline alignments were mathematically re-established to evaluate the consistency of the CTDOT taking maps. These alignments were used as the basis for deed acquisitions of fee interest, easements, eminent domain takings, and the establishment of non-access highway rights. These alignments were originally created by CTDOT as new Eastbound and Westbound lanes of the Route 6 highway. They serve as a legacy to the project boundaries and can be incorporated to mathematically recreate the baselines for the new greenway alignment.

Since the alignments were created by CTDOT on an older Cartesian coordinate system, BSC applied a single-point conversion to the alignments from NAD 27 to NAD 83. This conversion was field determined at Route 44 utilizing subcentimeter GPS measurements and compared with United States Army Corp of Engineers Corpscon 6 conversion software. Ultimately, increased precision and accuracy with a "best fit" scenario would be achieved by a comprehensive field survey evaluating all the deed and field measurement information. Given that the project involves several hundred acres of land and a review of over a hundred parcels of land, a comprehensive field survey was not included in the scope of the feasibility study.

Base mapping was enhanced with additional data compiled from a variety of sources which included Town of Bolton and Town of Coventry GIS data, Town of Bolton and Town of Coventry tax assessor data, Google Earth/Microsoft Bing mapping, data from the University of Connecticut's Mapping and Geographic Information Center (MAGIC), and DEEP Natural Diversity Database mapping (NDDDB) which defines approximate locations of endangered, threatened and special concern species and significant natural communities. Both towns also provided information regarding existing and proposed trails already present within each town.

The majority of work in compiling available information was completed in GIS format using ArcMap software. This allowed subsequent data to be geo-referenced. Print mapping and analysis of alternative alignments was processed using AutoCAD software. Since most of the project does not involve construction or tree clearing immediately adjacent to property lines, the goal of the base mapping effort was to provide a "Class D" survey analysis, using the best available evidences to establish project information.



Base mapping was generated through the process described



Segmenting the Greenway

The proposed greenway was divided into zones and segments to allow for better management of the large amounts of data along the corridor. This allows for the presentation of data in a segmented manner, showing different parts of the greenway at a smaller scale if desired. The method for segmenting the greenway alignment was simplified by breaking the alignment into zones and segments generally by town (zones) and at each roadway intersection (segments). As a general rule, a new segment starts when the greenway alignment crosses a road. There are two exceptions: there is a segment break at both locations where the alignment crosses the Coventry – Andover line. Additionally, the zone associated with the Nathan Hale Forest is unique in that there are several alternate routes available. The five zones each represent several segments, and were divided and named from north to south, while considering the scope of the project. The Andover Zone was numbered last as it is not under the scope of the feasibility report or preliminary design process. A summary of the greenway segments are as follows and are depicted on Figure 4 - Segment and Analysis Map.

Zone A – Bolton

Segment 1 starts in the vicinity of the Route 44/Route 6 interchange.

The area is wooded and is within a mapped NDDB (National Diversity Database) area. As the proposed alignment moves easterly, closer to Stony Road, the topography, which is generally 2% to 6% grade, changes to 17% and 23% grades. These steep slopes will make grading in these areas more difficult. There are also some potential wetlands located around the halfway point of this segment.

Segment 2 starts from Stony Road to the Coventry Town Line.

Most of this segment is not within a NDDB area, and potential wetlands are not marked in this area. There are some steep slopes in this segment, however, the proposed alignment generally runs parallel to the slopes, making grading more feasible.

Zone B – Coventry North

Segment 3 starts from the Coventry Town Line to Brewster Street.

This segment is mostly wooded, with the exception being an 800' stretch of open field to the north of the ROW. There are no areas defined as NDDB or wetland areas on the map, and the topography is fairly flat over the entire segment. There is one steep area between the open field and Brewster Street.

Segment 4 starts from Brewster Street to Swamp Road.

This segment is wooded, and the topography is hilly, but still feasible for grading. There are no areas of NDDB or wetlands shown within this segment.

Segment 5 starts from Swamp Road to South Street.

This segment is wooded, with no marked areas of NDDB or wetlands within the project area. The challenging factor for this segment will be the grading of the greenway, since there are steep slopes identified in this area.

Segment 6 starts from South Street to Woodbridge Road.

This is the final segment of the original CTDOT alignment before the Town

of Andover. It is a wooded segment with the Skungamaug River and associated wetlands that run through it. There is also NDDB area across the southern portion of this segment, which will make permitting more challenging. The topography in this segment is very flat and would not be expected to pose significant grading challenges.

Zone C – Nathan Hale Forest

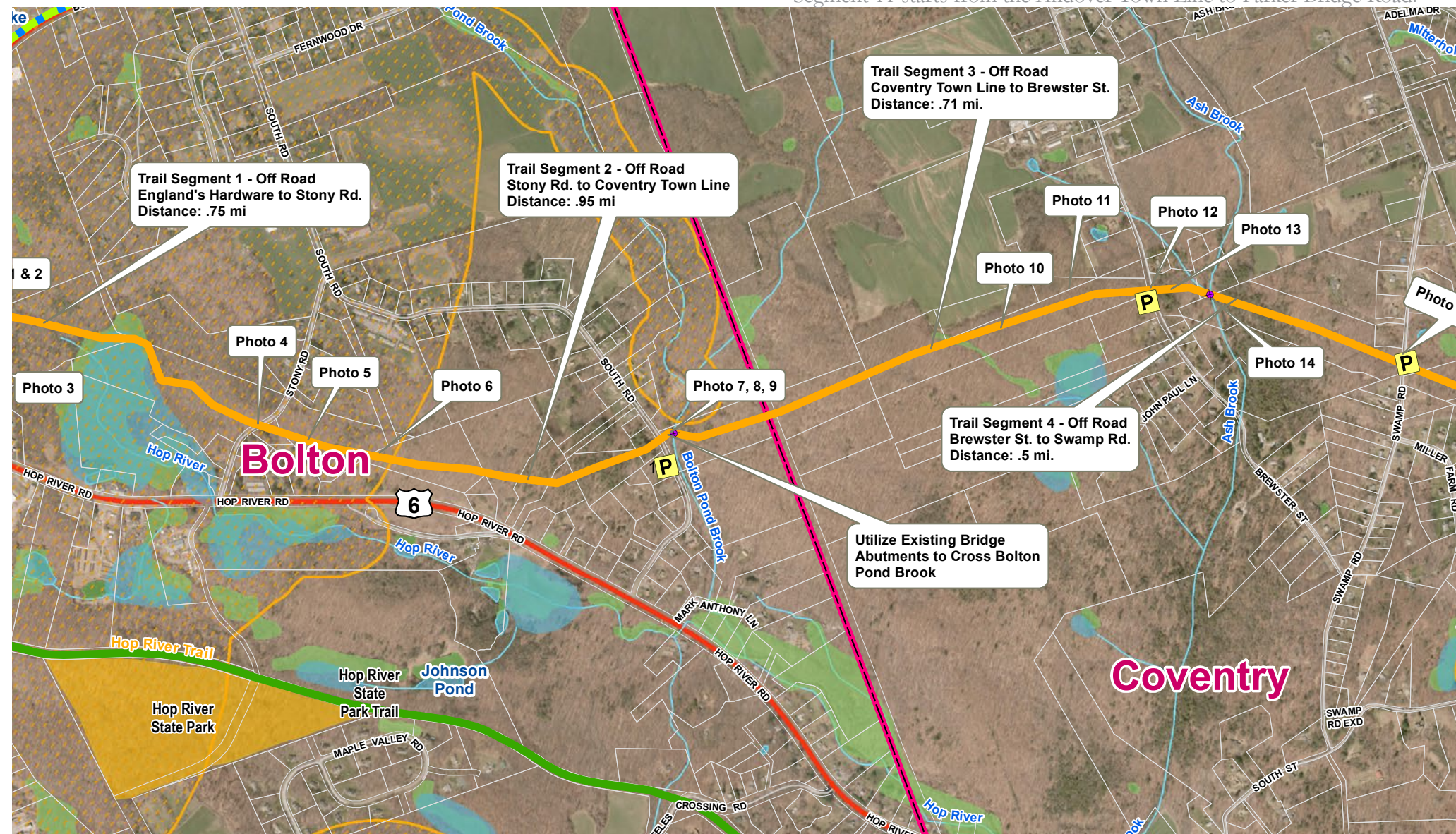
This zone represents the feasible path options that connect Zone B and Zone D, without traveling through Andover. There are multiple options for the greenway to travel through this area, however, the main objective is to provide alternate routing around Andover and a connection to the nearby Nathan Hale Homestead. There are no sanctioned DEEP trails within the forest, however, there is a recreational right-of-way that the Town of Coventry owns through the Forest over Nathan Hale Road. This right-of-way has been confirmed via a legal opinion from the Town Attorney. Additionally, the Town of Coventry has received a legal opinion from the Town Attorney regarding Bear Swamp Road and Judd Lane, which are located to the south

of the Nathan Hale Forest, from the Andover town line to Nathan Hale Road (see Figure 1). The opinion states that Bear Swamp Road has a Town-owned recreational right-of-way over Bear Swamp Road. Judd Lane was noted in the opinion to be a 'pent road', which means the Town has closed it to public use but has not discontinued it.

Based on information from DEEP, the will of the original grantor, George Dudley Seymour, states that "the fields and woodland of the Hale Farm... be managed as a state forest by the State Park and Forest Commission in accordance with the principles of scientific forestry, with special reference also to wildlife conservation, including appropriate provision for bird and game sanctuaries." "Skid trails" and interior forest roads exist within the forest and are open to the public for passive recreation. However, creating access, parking areas, and additional recreational trails is not a goal or objective of the DEEP Divisions of Forestry and Parks. Therefore, construction of a formal greenway through the Nathan Hale State Forest is not considered feasible.

Zone D – Coventry South

Segment 11 starts from the Andover Town Line to Parker Bridge Road.



Mapping showing the segmentation of the alignments

This segment is mostly wooded, and Rufus Brook runs through it, with the associated NDDDB areas. There are no wetland areas shown, but topography in this segment will present grading challenges.

Segment 12 starts from Parker Bridge Road to Babcock Hill Road.

As one of the longest segments of the proposed greenway alignment, it is also the most variable. There are several scattered wetland areas, the Theims Brook, and an NDDDB area that cross the alignment. For the most part, the proposed alignment is wooded, with a few scattered open field areas. There are flat areas and steep areas, however, the proposed alignment generally runs parallel to the steep slopes and will not pose significant grading challenges.

Zone E – Andover

As previously indicated, Andover did not participate in the study and design process and therefore this zone is not under the scope of this report. Segments 7 through 10 are represented under this zone and may be included under a future effort.

Greenway Criteria

Once base mapping had been completed and the greenway was divided into manageable segments, a set of key design criteria was established that could be assessed and/or measured as part of the feasibility study process. These key criteria were essentially divided into opportunities and constraints. Ultimately, when considering the design of the greenway, different opportunities and constraints will promote, limit, and shape where the final alignment will be placed. Opportunities represent positive attributes that benefit the greenway in terms constructability, access to points of interest, unique features, cost, etc. Constraints were identified based on their potential impact to the physical layout of the greenway and impact on the ultimate cost of construction.

Opportunities:

Key Access Points/Parking/Trail Heads - These features are necessary for adequate public access.

Cultural, Historical, and Environmental Points of Interest - These attributes provide focused or casual points of interest and an enhanced user experience.

Scenic Areas - These attributes provide focused or casual points of interest and an enhanced user experience.

Educational Opportunities - These attributes provide specific and/or encountered educational opportunities and may create appeal to additional or “non-typical” user groups.

Constraints:

ROW Constraints or Private Land - Availability of land to “host” the corridor is required. Gaps in state-owned or town-owned land create a discontinuous corridor and may require on-road segments. Even with available land, the proximity of greenway infrastructure to nearby residences can be a concern of the respective property owners.

Steep Slopes/Irregular Topography - Variable changes in topography present challenges to attaining appropriate grading of the greenway surface

to provide a safe and satisfactory experience for bicyclists as well as safe sharing of the facility with a variety of user groups of differing speeds and abilities. Establishing suitable greenway topography given existing topography is primarily a consideration associated with construction complexity and cost.

Wetlands and Watercourses - The combination of physical and regulatory requirements for traversing wetlands and spanning watercourses presents challenges, primarily driven by permitting requirements and construction complexity and cost.

Sensitive or otherwise regulated habitats (NDDDB, etc.) - The presence of endangered, threatened, special concern species, and significant natural communities may prohibit greenway construction or present significant permitting challenges.

Roadway Crossings - Several locations throughout the proposed greenway corridor will intersect existing roadways. Accommodating these crossings with a focus on user safety can present challenges depending on roadway type and localized conditions.

Utilities - Existing utilities could affect location of the greenway and/or location or configuration of associated amenities. When mitigating these conflicts, consideration is given to cost implications.

Once base mapping was completed, segments defined, and greenway criteria established, BSC initiated development of potential alignments and a review of existing conditions along the potential greenway corridor.

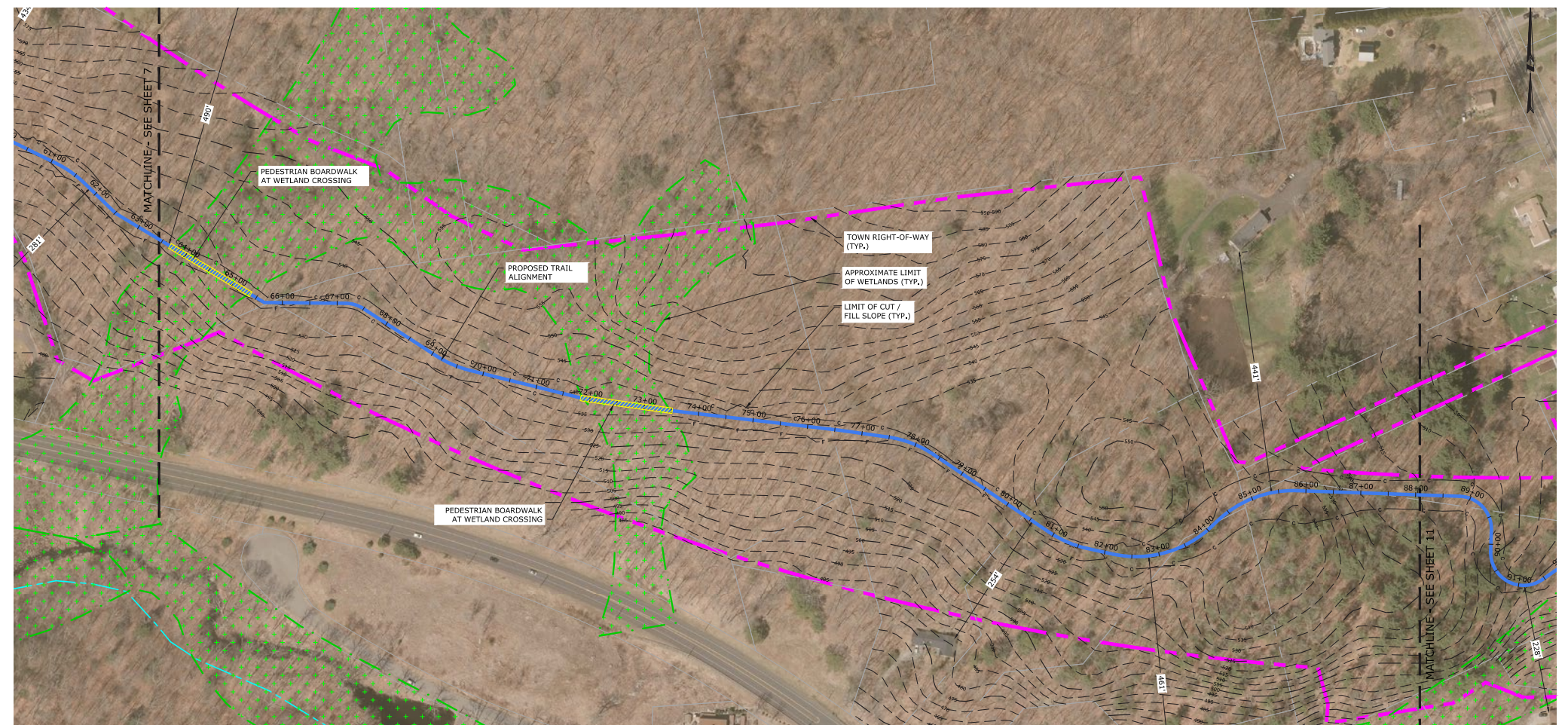
Potential Alignments

To define potential alignments of the greenway, BSC performed a GIS review using the most applicable, publicly available data layers. An aerial imagery base was used to overlay topography, environmental resources, and physical constraints related to wetlands, hydric soils, streams, waterbodies, and rare, threatened, and endangered species. The following list represents some of the key data used in the analysis:

- 2011 DEEP Connecticut 2-foot Contours (Revised)
- 2016 CT ECO LIDAR topography data
- 2012 Open Street Map Roads
- DEEP 2005 Connecticut Hydrography Line
- 2009 Natural Resource Conservation Service SSURGO Soils Database
- 2017 DEEP NDDDB Areas

The data layers were applied to the Route 6 corridor between Bolton Notch in Bolton and Woodbridge Road in Coventry, along with several options to

Feasibility Study



Potential alignments were considered through review of existing conditions



continue the route along local roadways in Coventry. Ultimately, two trail routes were identified as “Alignment A” and “Alignment B” within the corridor (refer to Appendix 8.2) using the following route selection criteria:

Local topography

Data analysis (as previously discussed, wetlands, watercourses, NDDDB areas, etc.)

Route location within the right-of-way and proximity to adjacent private property

User access points to the greenway

Road crossing locations

Proximity to probable points of interest

The various environmental permitting documents prepared for the previous CTDOT Route 6 project were also reviewed. A portion of the proposed Nathan Hale Greenway generally aligns with the Route 6 alternative identified as 133 and/or its revisions R133 and 133A. Therefore, a significant amount of research and analysis is available for the study area. The review included the 1994 U.S. Route 6 Bolton, Coventry, Andover and Columbia Draft Environmental Impact Statement (DEIS) and Draft Section 4(f) Evaluation as well as the 1998 Section 404 permit application to the U.S. Army Corps of Engineers for the discharge of dredged or fill material into waters of the United States for U.S. Route 6 Bolton, Coventry, Andover, and Columbia, Connecticut. Both applications were prepared under the direction of the CTDOT in conjunction with the Federal Highway Administration (FHWA). While the evaluations were extremely detailed and provided valuable summaries of the environmental and cultural resources present, their purpose was to compare geographically distinct corridors being considered for the Route 6 improvements. The current Nathan Hale Greenway review looks at micro-scale route differences within the selected project corridor. Therefore, the documents provided excellent background information on notable resources that are in the vicinity of both Alignment A and B, but the GIS review provides details on the slight differentiation between the two.

Contours and slope analysis are shown on their own map as Figure 3 since this information would confuse the other information shown on the Segment and Analysis Map (Figure 4). The slope analysis map depicts colored areas which represent topographic high and topographic low areas within the corridor. This information is vital for future preliminary design, as it will be necessary to avoid excessive longitudinal grading and grading across steep slopes. Excessive longitudinal grading can become impractical and unsafe, limit enjoyment of the greenway by some user groups, and does not pursue ADA compliance. Grading across steep slopes can be very costly since it requires extensive slope stabilization, a greater volume of cut or fill, and may even require building retaining walls.

The two alignments reside in the same corridor, and although local topography may vary for each, both are expected to be generally within similar

resources described in subsequent sections of this report. Ultimately, the preferred alignment shown on Figure 5 was selected as a hybrid of Alignments “A” and “B”.

Existing Conditions Review

The existing conditions review was intended to gather data regarding the physical attributes along the corridor (generally focused along Alignment A and Alignment B; Appendix 8.2) and compare existing conditions against the previously-defined opportunities and constraints. In general, this process included:

- 1) A review step, utilizing previous data and the previously-discussed GIS review, and
- 2) An “on-the-ground” field review of existing conditions, which included observation and documentation of opportunities and constraints.

Using a rough measurement tool on the GIS map interface, the number of crossings or intersections with a constraint were summarized for each alignment. For wetlands, all estimated linear footage crossings were totaled and compared between alignments. Wetlands were measured at their greatest extent, whether mapped hydric soils extended past the field-estimated boundary or the estimated boundary indicated a larger crossing was necessary. A similar analysis was performed for the NDDDB habitat polygons. Each stream crossing and stone wall were tallied as single intersections. Linear footage crossing estimates were also made for obvious agricultural interests such as maintained fields and the Hunt Christmas Tree Farm.

The field review included observation of distinct topographical breaks, points of interest, stone walls, potential habitat features, and invasive species along the routes. BSC also confirmed or expanded the mapped areas of apparent hydric and floodplain soils by providing estimated wetland boundaries. Watercourses were also noted. Documentation during this effort was geo-located using GPS methods, which subsequently allowed data entry into a GIS database via ArcMap software. Screen images of the ArcMap GIS database are included in the appendices of this report for reference. The towns of Bolton and Coventry have access to the GIS database via a web-based portal. The resulting data set was summarized graphically on Figure 4 - Segment and Analysis Map.

Right-of-Way

The ROW for the Nathan Hale Greenway must provide sufficient width to accommodate the proposed linear improvements and other supporting amenities. The ROW should be large enough to contain the greenway width, grading, amenities, and enough room to provide a buffer or for potential future expansion. It’s not practical to set the ROW against the greenway boundary. Based on the existing land ownership, sufficient ROW exists within the available parcels for the majority of the greenway. Gaps in available ROW, primarily due to lack of continuity in state/town-owned land, would be accommodated with on-road shared-use segments.

Previous Environmental Documentation

As stated in the DEIS and 404 Permit Application, the Project corridor is in



Nathan Hale Homestead

the major drainage basin for the Hop River and its tributaries. Named stream crossings along the cross-country route include the headwaters of Hop River, Bolton Pond Brook, Ash Brook, and the Skungamaug River. The majority of wetlands consist of moist woodlands and wet hillside seeps, depressional wetlands, and riverine floodplains and complexes bordering on the various streams. The DEIS and 404 discuss several notable wetlands located in the proposed corridor. The systems include the Hop River headwater complex located near the western terminus of the route at Bolton Notch and the Skungamaug River Floodplain near the eastern end of the route where the on-road portion begins. Another notable wetland is a scrub-shrub wetland complex located west of Pucker Road in the potential Coventry Alignment, following the on-roadway portion. The on-roadway portion of the route would use existing crossings over Rufus Brook, as well as two crossings over the Hop River. The subsequent Andover Alignment would cross Rufus Brook while the Coventry Alignment would cross Theims Brook and Thornton Brook.

Surrounding land uses include low-density residential, agricultural fields and farms, light commercial uses, and forested blocks. The DEIS and 404

application evaluated existing forested blocks of greater than 100 acres along the alternative routes and assumed their importance to wildlife. A minimum of 100 acres of forest is often used as a benchmark for analysis since this size provides interior habitat for species (particularly birds) that are sensitive to fragmentation and edge effects. According to the DEIS and 404 mapping, the cross-country alignment crosses up to three (3) of these notable habitat blocks, while the on-roadway and subsequent potential alignments cross three (3) more. Both Alignments A and B traverse the forested area identified by the environmental documentation as Block 1 located at the western terminus near Bolton Notch. This is followed by Block 3, a large expanse of land including Bolton Pond Brook and Ash Brook, northeast of Hop River. If the cross-country option to span the Skungamaug River is selected, the route would skirt Block 5 associated with the river floodplain and wetland complex. The on-roadway route continues through Nathan Hale Forest (identified as Block 10), and the potential Coventry Alignment traverses Block 13 (associated with Theims Brooks). The alignment also appears to be near Block 18, which includes some of the notable wetlands west of Pucker Road.

The DEIS and 4(f) Evaluation in particular describe a number of historical properties and historical and pre-historical archeological resources that were identified along the various Route 6 study corridors. Several homes and buildings are either listed or recommended as eligible for listing with the National and State Registers for Historic Places. The properties would all be located along existing roadways. In addition, the DEIS includes one historical archeological site and twelve prehistoric archeological sites that had the potential to be impacted by alignments similar to 133. The historic site Bolton Notch Dam was subjected to Phase II intensive archeological testing and determined not to be eligible for the National Register of Historic Places. The prehistoric sites were listed as the PR Howard Site, Stavens II, England Site, Bolton Notch Rock Shelter, Bolton Spring, Lawrence Green, Tiger Lee III, RS Site, Last Site, Miller Site, Lawrence Green V, and Lawrence Green VI. All were investigated as part of the Route 6 study. Some were subject to Phase II intensive archeological testing and determined not to be eligible for the National Register. Phase III intensive archeological excavation and data recovery were performed for more significant sites, providing mitigation for potential impacts.

Wetlands

Potential impacts to wetlands were quantified for each alignment by



Wetlands and Watercourses

measuring the length of the intersection of the route through the areas of soil mapped as poorly drained, very poorly drained, alluvial, or floodplain by the 2009 SSURGO Soils Database. This was enhanced by the field review which recorded estimated boundaries at the wetland edges. The largest extent was used for measurement to provide the most conservative scenario, or greatest likely amount of linear crossing impacts for both state and federal jurisdictional wetlands. However, wetlands were not formally delineated in the field, and exact impact numbers are expected to change as the design is finalized. Since the State of Connecticut and the U.S. Army Corps of Engineers have different definitions for wetlands/waters of the U.S., it is also possible there will be different impact totals for the respective permits. The total estimated linear crossing through wetlands for each alignment were generally similar, at approximately 5,000 linear feet (lf).

Watercourses

Stream crossings were counted for each alignment through the corridor. Stream channels included features mapped by DEEP hydrography line GIS datalayer and supplemented with smaller channels observed and recorded during the field review. In general, each alignment crosses the same watercourses (Alignment A is 16; Alignment B is 15). The most significant crossing would be a 45- to 50-foot bridge necessary at the Skungamaug River if that section were to be included in the final route.

Floodplains

Digitized FEMA Flood Hazard data was not available to overlay in the study area, so impacts to the 100-year floodplain were not specifically quantified. However, little difference is expected between the two alignments since they both cross the same general floodplain areas depicted in the Flood Insurance Rate Maps (FIRM). The streams with mapped floodplain include the Hop River headwaters between Bolton Notch and Stony Road, a narrow corridor along Ash Brook, and the Skungamaug River.

Rare, Threatened, and Endangered Species

Similar to the wetland analysis, rough impacts to state-listed rare species habitat were quantified for each alignment by measuring the length of the intersection of the route through the areas mapped by the DEEP NDDDB. Both alignments crossed two distinct mapped habitat polygons. However, several alignment intersections occurred on the same extensive polygons since they included multiple fingers along stream corridors. The total estimated linear crossing through NDDDB habitat for Alignment A is 7,780 lf compared to 6,940 lf for Alignment B. When the cross-country section over the Skungamaug River is removed from analysis, the total for each alignment is reduced by almost 2,000 feet. Impacts become 5,820 lf for Alignment A versus 5,150 lf for Alignment B. In either scenario, Alignment B appears to have lower overall impacts to state-listed species habitat. However, this difference is largely eliminated by selecting Alignment B between Bolton Notch and Stony Road and remaining on Alignment A for the rest of the route.

The DEIS describes a series of state-listed species potentially located in the Route 6 study area, however, it is unclear exactly which section of the corridor was implicated in the findings. Several plant species such as few-flowered nutrush (*Scleria pauciflora* var. *caroliniana*) and golden club (*Orontium aquaticum*) had not been observed in 50 years at the time of the study in the 1990s. Blazing star (*Liatris borealis*) and dwarf bulrush (*Lipocarpa micrantha*) were added as potential occurrences but the DEIS concluded that the construction was unlikely to adversely affect these species. The Eastern hognose snake (*Heterodon platirhinos*) and Eastern ribbon snake (*Thamnophis sauritis*) were both observed in the vicinity of the Route 6 Alternative 133. The wood turtle (*Glyptemys insculpta*) is also associated with streams in the area. Consultation with NDDDB will identify the species directly in the current Nathan Hale Greenway Alignment and will determine which should be a consideration in design and construction techniques.

The US Fish and Wildlife Service Online Information for Planning and Consulting (IPaC) viewer was used to determine the presence of any federally-listed threatened or endangered species. In recent years, the majority of the range of the Northern long-eared bat (*Myotis septentrionalis*) has been mapped due to the decline of the now federally-threatened species. Therefore, any forested areas along the selected alignment will constitute potential habitat with construction timing restrictions or required due diligence as part of federal permitting.

ADA Compliance

ADA compliance is a consideration of the greenway to make it accessible to all user groups to the extent practicable. Based on existing conditions within the corridor, topographic constraints in some areas are not conducive to ADA compliance. Since the whole of the greenway cannot be configured for full handicapped accessibility, select locations/segments can be ultimately selected as such during the trails evolution from a “beaten path” into a more formal configuration. In these designated locations/segments, the directional slope of the greenway should be no greater than 5% with a consistent width to accommodate two wheelchairs passing each other. The greenway surface would also be free of obstructions such as tree roots and rocks. The surfacing material in these locations/segments would also be selected to accommodate handicapped accessibility (e.g. stabilized earth material, bituminous pavement, etc.). In addition to topography, selection of these locations/segments would also consider opportunities for handicapped parking at points of access.

Points of Interest and Natural Features

On the Segment and Analysis Map (Figure 4), several trails and points of interest are shown. Existing trails such as the Hop River Trail, the Charter

Oak Greenway, and the Bolton Greenway are shown as separate colored lines. Different points of interest are marked using icons that denote what type of users the location may draw. Wetlands and waterbodies are shown on the map by colored overlay, and the NDDDB is shown by orange hatching. These natural features have been delineated and plotted using GPS and GIS data, and it should be noted that this information is planning-level only. Detailed delineation of wetlands and watercourses will be required for subsequent design efforts.



Points of interest along the potential alignment corridor

Agricultural Land

While analysis was not performed at a prime/farmland soil level, linear footage in active or obvious agricultural uses were quantified. Both alignments have an equivalent impact of approximately 1,330 lf through Hunt’s Christmas Tree Farm. This impact would be eliminated if the cross-country section across the Skungamaug River was removed. Finally, Alignment B would incur an estimated 655 lf of impact across an active agricultural field in the roadway section between South Street to Brewster Street. However, this is one of the sections where it is recommended the route follow Alignment B to reduce overall impacts to wetlands. If local interest in maintaining the edge of the agricultural land is greater than reducing wetland impacts, this must be considered in route selection.

On-Roadway and Eastern Alignment Resources

While the proposed on-road route will likely be a shared road scenario with little to no alteration of existing conditions, adjacent resources were assessed for information purposes. Additional cross-country alignments past the eastern terminus in Coventry were also evaluated, although it is unlikely that they will be developed at this time. Table 4 provides a simple quantification of the resource crossings, similar to the analysis of Alignments A and B.

The on-road option includes 3,775 lf of crossing through adjacent wetlands and up to seven (7) stream channel crossings. The named streams include Rufus Brook and two crossings of the Hop River. The alignment also includes 8,550 lf of roadway through mapped NDDDB habitat. The potential Andover Alignment is a brief cross-country section that heads west from the eastern terminus of the on-roadway route to the Andover town line. It traverses 165 lf of wetlands, crosses the channel of Rufus Brook, and impacts 805 lf of NDDDB habitat. The potential Coventry Alignment continues east of the on-roadway route. It includes 2,670 lf of wetland crossing and up to six (6) stream channels. Named stream crossings include Theims Brook and Thornton Brook. According to the DEIS, this area also includes significant forested blocks and a notable wetland complex west of Pucker Road. The route also traverses 930 lf of NDDDB habitat. Finally, a vernal pool feature was observed near a steep existing pipeline corridor near the alignment.

Utility Conflicts

Existing utilities will most likely not be present at most points along the greenway, and it will be necessary to design the connections or minimal rerouting associated with building the path. When mitigating these conflicts, it should be considered whether the path should be rerouted to avoid unnecessary utility connection costs. It should be noted that many utility companies require all work to be completed by their own contractors, which could potentially lengthen construction time.

Permitting Review

Local Permitting

Wetlands: Impacts to wetlands will require permitting at local, state and federal levels. The Bolton and Coventry Inland Wetlands Commissions maintain jurisdiction over the alteration of wetlands and watercourses through the Connecticut Inland Wetlands and Watercourses Act. The Town of Bolton Inland Wetlands and Watercourse Regulations also requires notice of activities within the Upland Review Areas which are located up to 100 feet horizontally from all wetland boundaries. In the Nathan Hale Greenway study area, the Inland Wetlands and Watercourses Regulations for the Town of Coventry would establish a 150-foot Upland Review Area from the crest line of the bank of the Hop River and Skungamaug River, and a 75-foot Upland Review Area from the crest line of all other watercourses or wetland boundaries. An Inland Wetlands Application would be filed with each municipality for the anticipated impacts.

State Permitting

Wetlands: Filing under Section 404 requires a Section 401 Water Quality Certification with DEEP Land and Water Resources Division. In some scenarios, 401 WQCs have been conditionally granted for activities covered under the Section 404 Connecticut General Permit. However, the proposed trail crossings in areas mapped by NDDDB and any direct, indirect or secondary to state-listed species require filing an individual (regular) 401 WQC application.

State (or Local) Permit - Stormwater: Coverage under the DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities is required for projects that disturb greater than 5 acres of land. For projects that disturb between 1 and 5 acres of land, coverage can be gained through compliance with local erosion control ordinances and regulation. A Stormwater Pollution Control Plan (SWPCP) is typically developed to establish the best management practices and sediment controls the project will employ.

State Permit - Flood Management Certification: Actions taken by state agencies require a Flood Management Certification for changes in the 100-year floodplain. Although the project is a municipal project, the regulations indicate a certificate is also required for any grant or loan which effects land use in the floodplain. It will have to be confirmed whether DEEP will be the responsible party for ensuring compliance with the Flood Management Program since they provided the project with funding from a Recreational Trails Grant.

State Permit - CEPA: Actions either taken by or funded by state agencies require review under the Connecticut Environmental Policy Act. Similarly, it will have to be confirmed whether the project has any responsibility for ensuring compliance with CEPA since the project received funding from a DEEP Recreational Trails Grant.

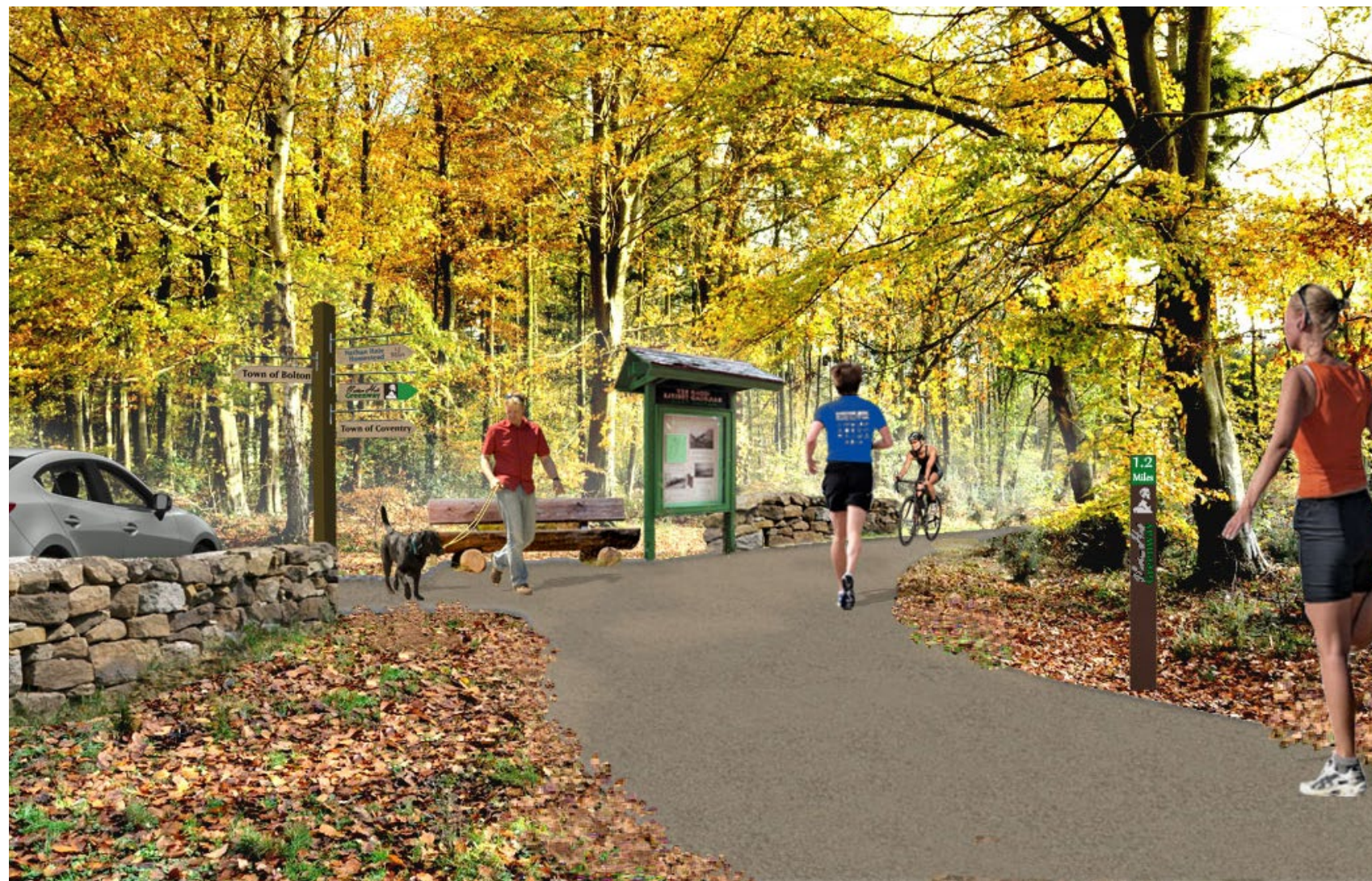
State Consultation - NDDDB Wildlife: As part of the state wetland permitting process, the NDDDB would be consulted and a wildlife habitat report would be prepared. The NDDDB will provide recommendations and conditions for minimizing potential impacts to state-listed species in the mapped habitat.

Federal Permitting

Wetlands: Direct impacts to Waters of the US (wetlands/watercourse) necessitate either self-verification/notification, pre-construction screening, or individual permit coverage through the US Army Corps of Engineers Section 404 of the Clean Water Act Program. Less than 5,000 square feet of impacts is typically a Self-Verification. However, the amount of linear wetland impact, even under the minimal alignment, indicates impacts would exceed this threshold unless significant amounts of boardwalk are used. Alternatively, it is likely that some of the single and complete wetland crossings encountered by the alignment will also be greater than 5,000 sf. Therefore, a Pre-Construction Notification (PCN) is assumed. Stream crossings should also meet the Connecticut Stream Crossing standards to the greatest extent feasible. This includes limited streambank stabilization, appropriate openness ratios, and bridges or open bottom spans on streams with a watershed greater than 1 square mile.

Federal Consultation for Historical/Cultural: As part of federal permitting and in compliance with Section 106 of the National Historic Preservation Act, project activities must avoid adverse effect or provide mitigation for impacts to historical or archeological properties. Coordination with the State Historic Preservation Officer and the Tribal Historic Preservation Officer is typically required. The extensive investigations previously performed along the study corridor should greatly reduce the level of effort necessary at this time.

Federal Consultation for Wildlife: As part of federal permitting and in compliance with the Endangered Species Act, project activities must avoid adverse effect to federally-listed species. Since the project activities are located in the extensive range of the Northern long-eared bat, and some tree clearing is likely, a form letter to the USFWS should provide appropriate due-diligence.



3.0 Proposed Amenities and Infrastructure Design Considerations

In This Section

- a.** Greenway Components
 - i.** Major and Minor Trailheads
 - ii.** Roadway Crossings
 - iii.** Suggested Locations
- b.** Amenities and Wayfinding
 - i.** Logo Theming
 - ii.** Suggested Greenway Amenities
 - iii.** Mapping and Wayfinding
 - iv.** Sign Families
- c.** Greenway Infrastructure
 - i.** Basic Trail Structures
 - ii.** Boardwalk Structures
 - iii.** Bridge Structures
- d.** Anticipated Maintenance Costs

Proposed Amenities and Infrastructure

Greenway Components

Major and Minor Trailheads

Major and minor trailheads are vital elements of the greenway. A trailhead is any place where a user can access the greenway. These are so important because they can determine the success and usability of the greenway. Trailheads must be located conveniently for users to stop and rest, find information about the greenway, and safely enter the path. The locations of trailheads are determined based on population and users, vehicular travel ways, connections to other trails, and natural features.

Major trailheads occur at prominent locations along the path, where the most users will enter the greenway. A major trailhead should accommodate at least 15 cars (based on available space), seating, an overall map of the greenway and wayfinding signage. If desired, major trailheads could include bicycle racks, public bicycle toolboxes, or other amenities.

A minor trailhead will occur more frequently along the greenway, and is intended to accommodate fewer users at a time. This size trailhead would accommodate parking based on available space and safety considerations. Minor trailheads would include minimal improvements such as an overall greenway map, and could potentially include seating and wayfinding signage.



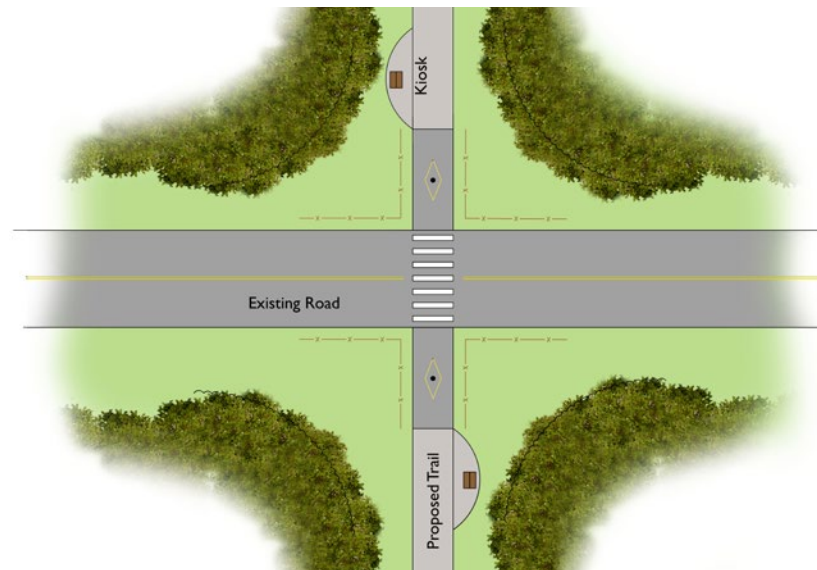
Typical Layout of a Major Trailhead



Typical Layout of a Minor Trailhead

Roadway Crossings

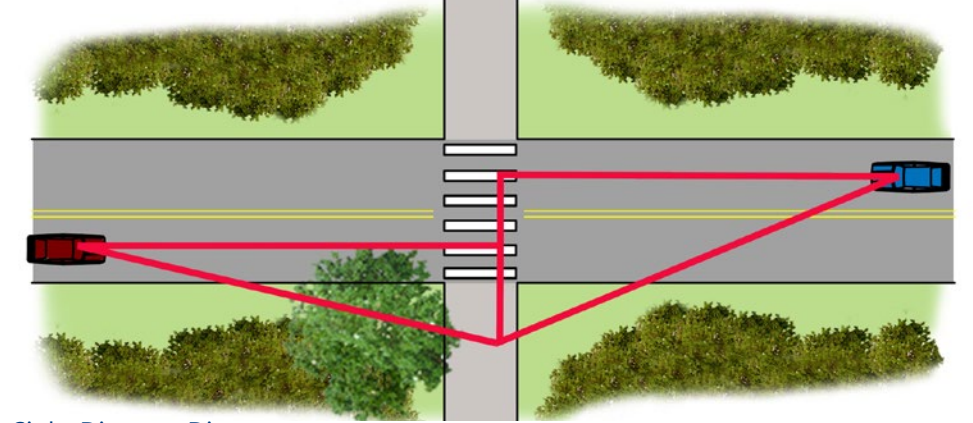
There are several locations throughout the greenway where it will intersect an existing roadway. It is important to establish a precedent for these crossings during the planning phase that will be used during the final design phase. Safety is the primary concern at roadway crossings. There are many important aspects to consider for the optimum roadway crossing, including number of traffic lanes, traffic speed along the road, sight distances for both driver and trail users, nearby intersections, and pedestrian safety.



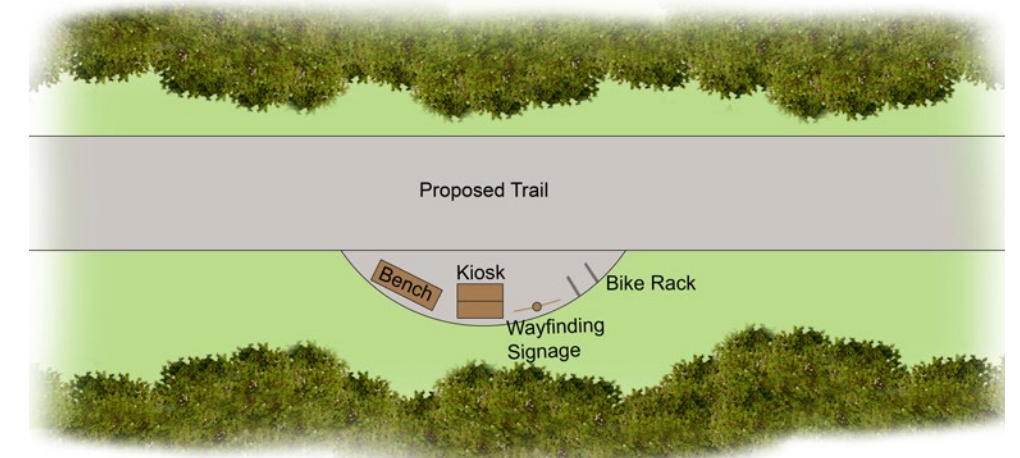
Typical Layout of a Roadway Crossing

Suggested Locations

Major Trailhead - Based on current property ownership, coupled with the anticipated area required to accommodate a major trailhead, there is one location depicted. The location has been selected near the southern end of the greenway. This is an appropriate location that could be refined in the future but is appropriate in general terms because of its proximity to other trails. Other major trailheads may be deemed appropriate since there may be locations where user demands require additional parking capacity. Potential locations include the northernmost portion of the greenway in the vicinity of



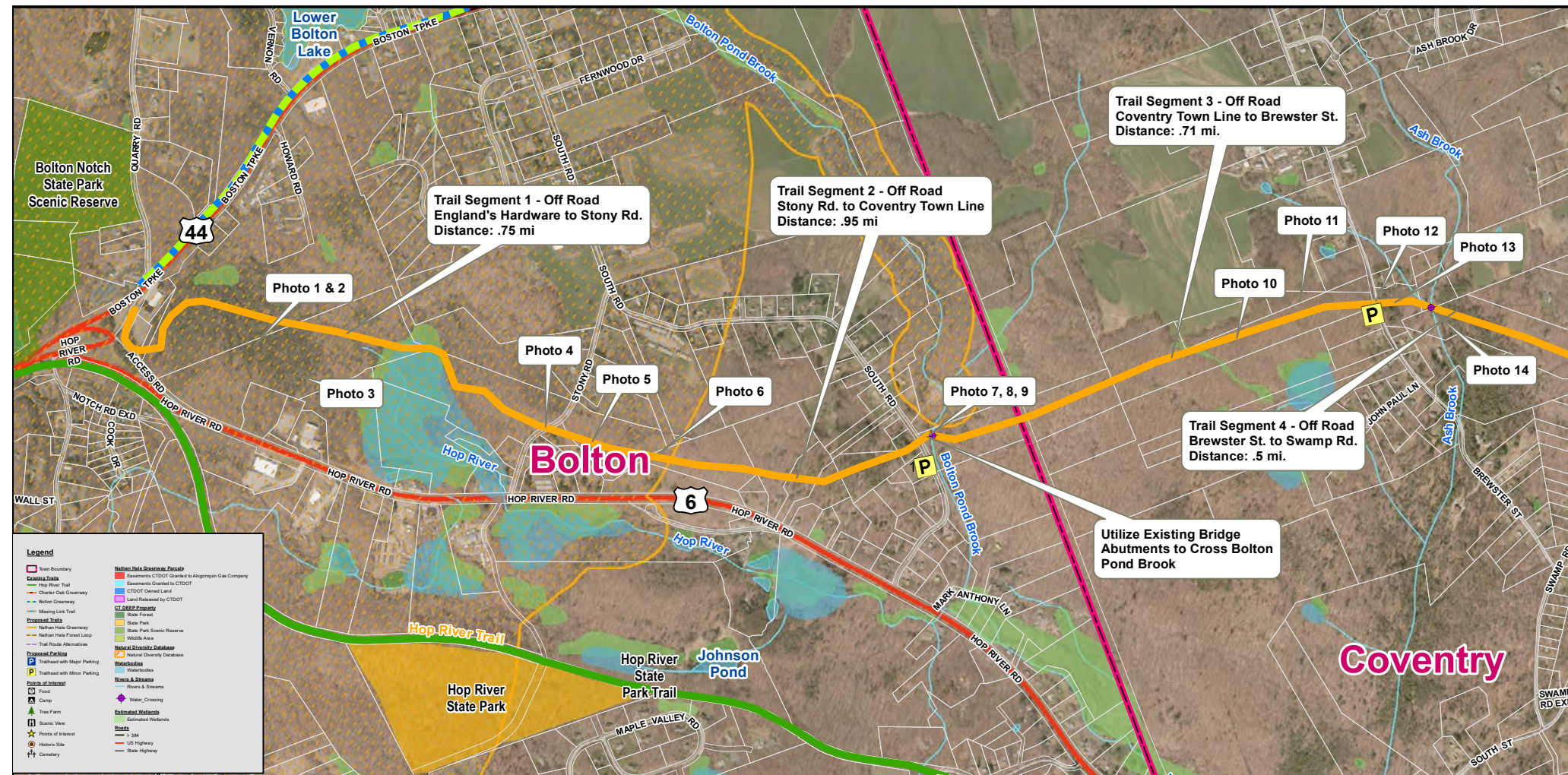
Sight Distance Diagram



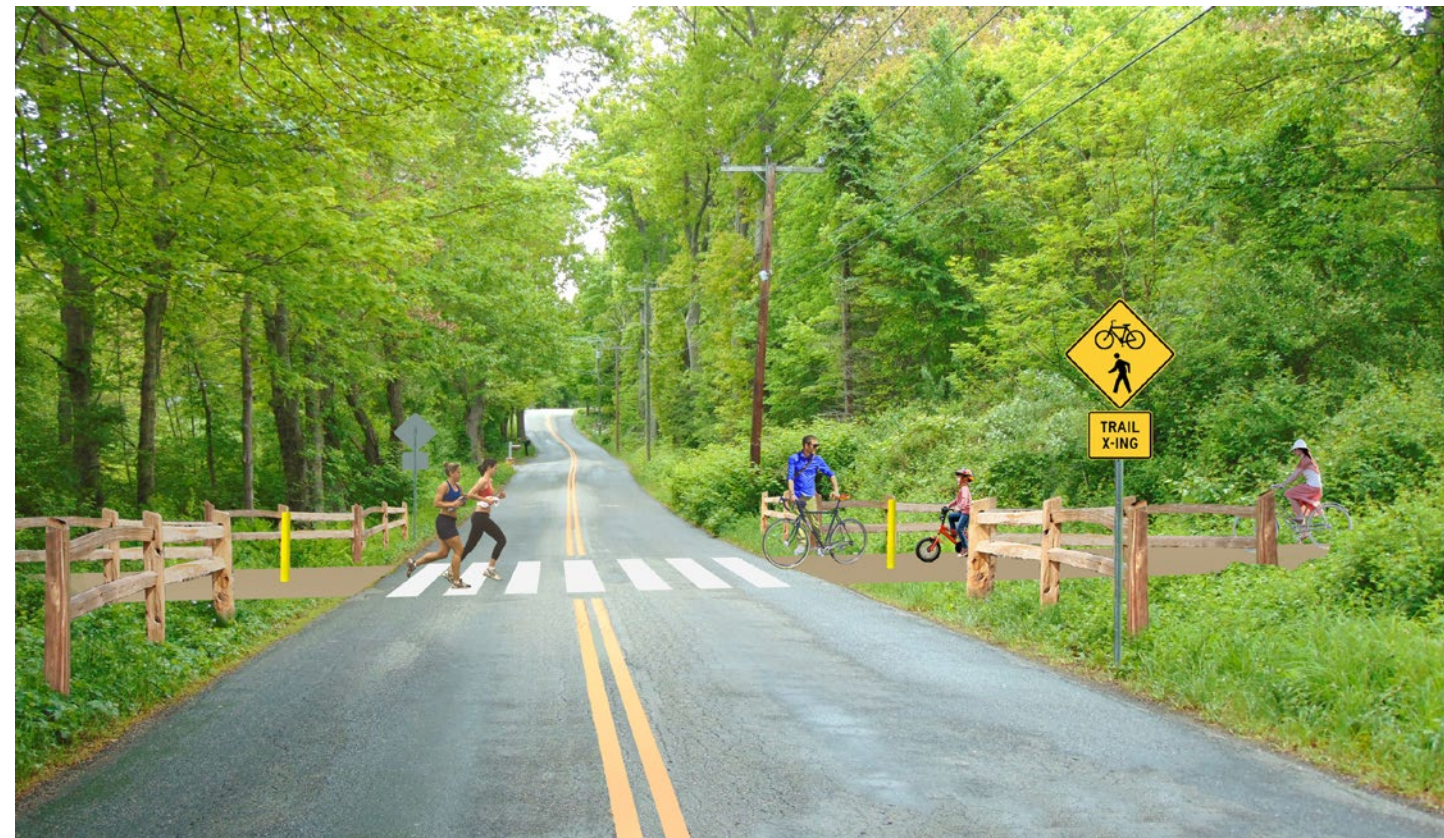
Major Trail Node with Amenities

Route 44 in Bolton. This location is appropriate given its proximity to other trails. If the greenway connects to the Nathan Hale Homestead as proposed, it's possible that it could become a major trailhead. This may be a good location for an additional major trailhead since it's between the other major trailheads and because it is the heart of the Nathan Hale Greenway. The final location and construction of major trailheads will likely occur over time based on public support and available funding.

Minor Trailhead - There are seven proposed minor trailhead locations. Most of the minor trailheads are located where the path intersects a roadway. The first location is off South Road in Bolton, which is a good location since it's a good distance from the two major trailheads at this end. The second minor trailhead is located on Brewster Street in Coventry, and the third is located near it along Swamp Road. The fourth location is at South Street in Coventry, which is close to a few points of interest. The fifth minor trailhead is right before the Andover town line and would provide access to the alternate trail route to the Nathan Hale Homestead. The sixth minor trailhead is located close to the Andover town line and reconnects the alternate Nathan Hale Forest Loop with the main path. The seventh minor trailhead is located where the corridor crosses Hop River Road. This could potentially become a larger trailhead if surrounding land cannot be acquired to connect parts of the trail, as pieces of the original CTDOT ROW alignment were never acquired.



Mapping showing several proposed parking locations



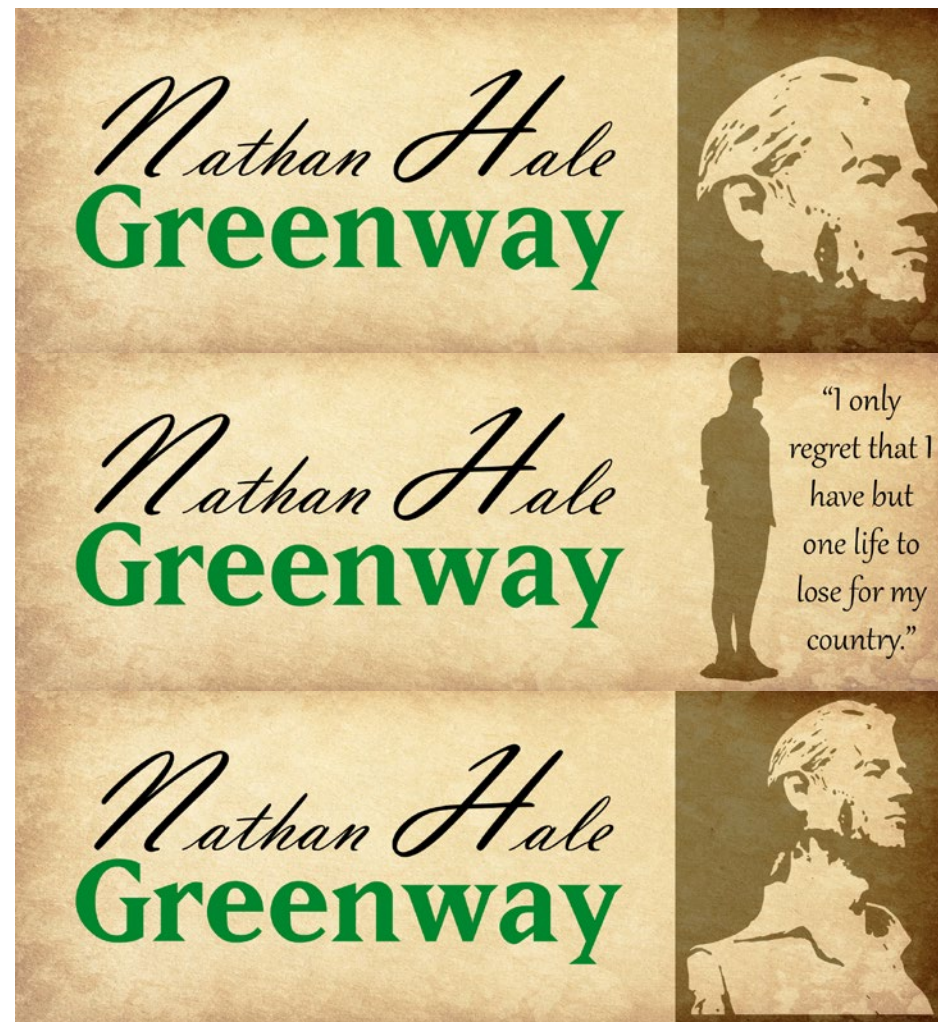
Amenities and Wayfinding

Logos and Theming

The main purpose of creating logos and themes for the Nathan Hale Greenway is to establish a united aesthetic that users will appreciate. The title of the greenway itself, “Nathan Hale Greenway,” promotes the greenway as a path that has a connection to history and creates some interest or curiosity for potential users.

The proposed logo for the greenway was created with that in mind. The word “greenway” is highlighted in a green color to establish positive feelings about the route. The script text for “Nathan Hale,” parchment paper background, and silhouette of the Nathan Hale statue in Coventry hints that the greenway is related to the history of Nathan Hale. Potential users can be attracted to the greenway just by looking at the logo.

In keeping with the idea of promoting history and culture, it will be important to carry the same theme and aesthetic throughout the Nathan Hale Greenway. All selected amenities should relate to the rustic aesthetic theme that will associate the user with the historical and cultural significance of Nathan Hale to the area. Use of wood or metal elements is most likely to be an effective way to achieve this aesthetic.



Nathan Hale Logo Examples

Suggested Greenway Amenities

It is intended that amenities would follow the theme and aesthetic established throughout the Nathan Hale Greenway, but that each town would select their own type as deemed appropriate. Potential amenities include:

- Mapping Kiosk
- Wayfinding Signage
- Interactive Signage
- Mile Markers
- Natural Benches

Amenities that will not be considered

Other amenities such as restrooms, drinking fountains, and lighting have been determined as not feasible to include for the Nathan Hale Greenway. These amenities require additional utility connections and maintenance concerns, which are not currently supported by the towns.



Mapping Kiosk

Interactive Signage



Wayfinding Signage

Interactive Signage



Natural Bench

Importance of Mapping and Wayfinding

Mapping and wayfinding is a key focus of the amenities. Kiosks located at trailheads will showcase a map of the entire greenway and will show points of interest, parking areas, connections to other trails, and current location. This type of mapping provides the user with a simple way to identify their current location and make decisions regarding subsequent desired locations, and how to get there.

Wayfinding signage works in conjunction with kiosk mapping, while giving a more visual and directional approach. The wayfinding signage visually shows the user which direction certain points of interest are, and how far they are from the current location. This type of signage allows users to quickly assess their location and/or be assured they are on the right path.

Sign Families

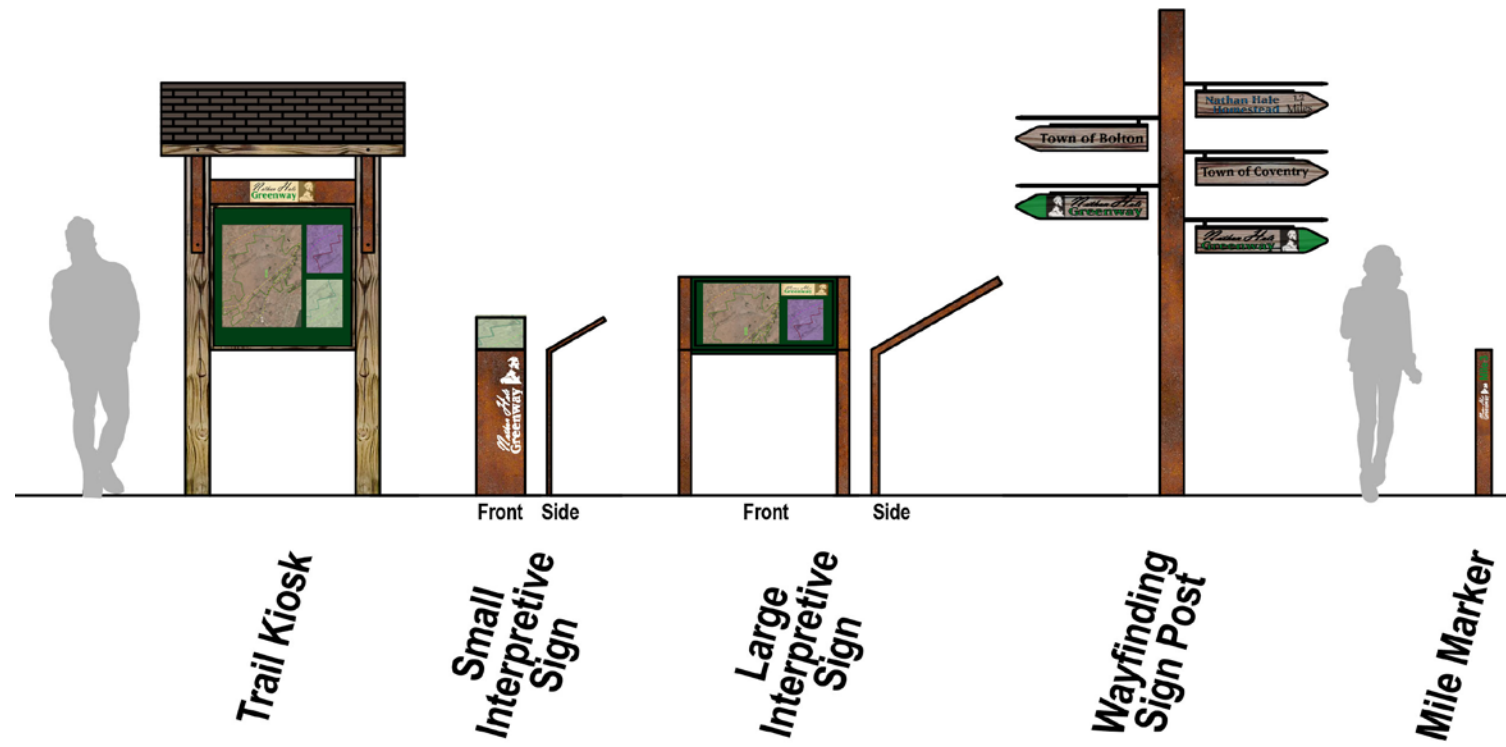
Along with the kiosk mapping and wayfinding, other amenities need to match the same theme to give the greenway a sense of cohesiveness. One way to do that is by using sign families, which suggest certain styles and materials that the signage and amenities should have. Two sign family examples have been listed in this report. These sign families have been suggested as they would follow the rustic theme which it has been determined the Nathan Hale Greenway should have. They also have been suggested because the materials and construction are simple to construct, install, and maintain.

The metal sign family consists of mainly weathering-type steel components, with elements of wood to satisfy the rustic theme. Corten steel is metal designed to form a rust-like appearance, which eliminates the need for painting and maintains strength. This sign family would be initially costlier than the alternative, however, the maintenance costs are lower over time.

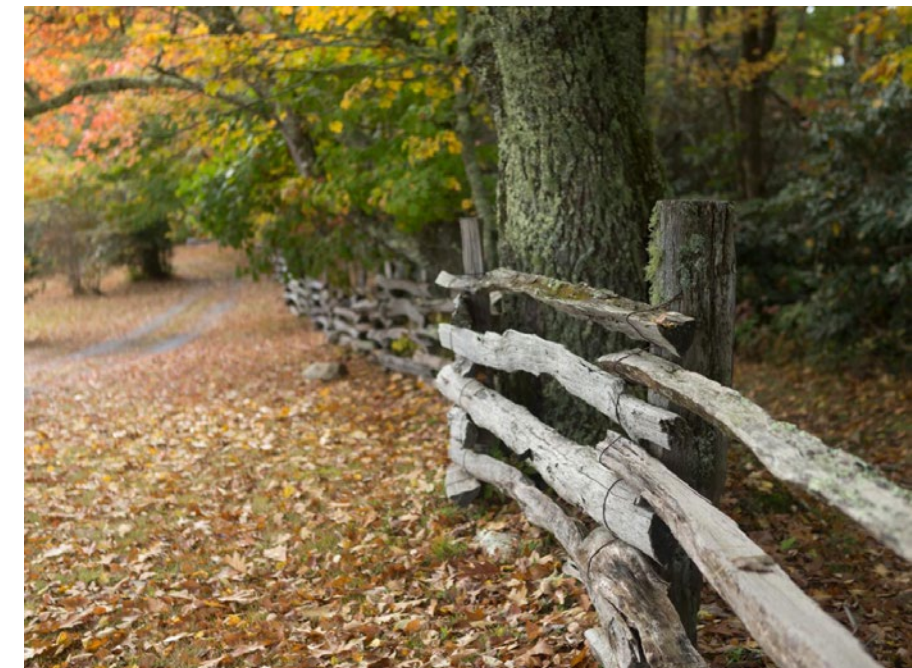
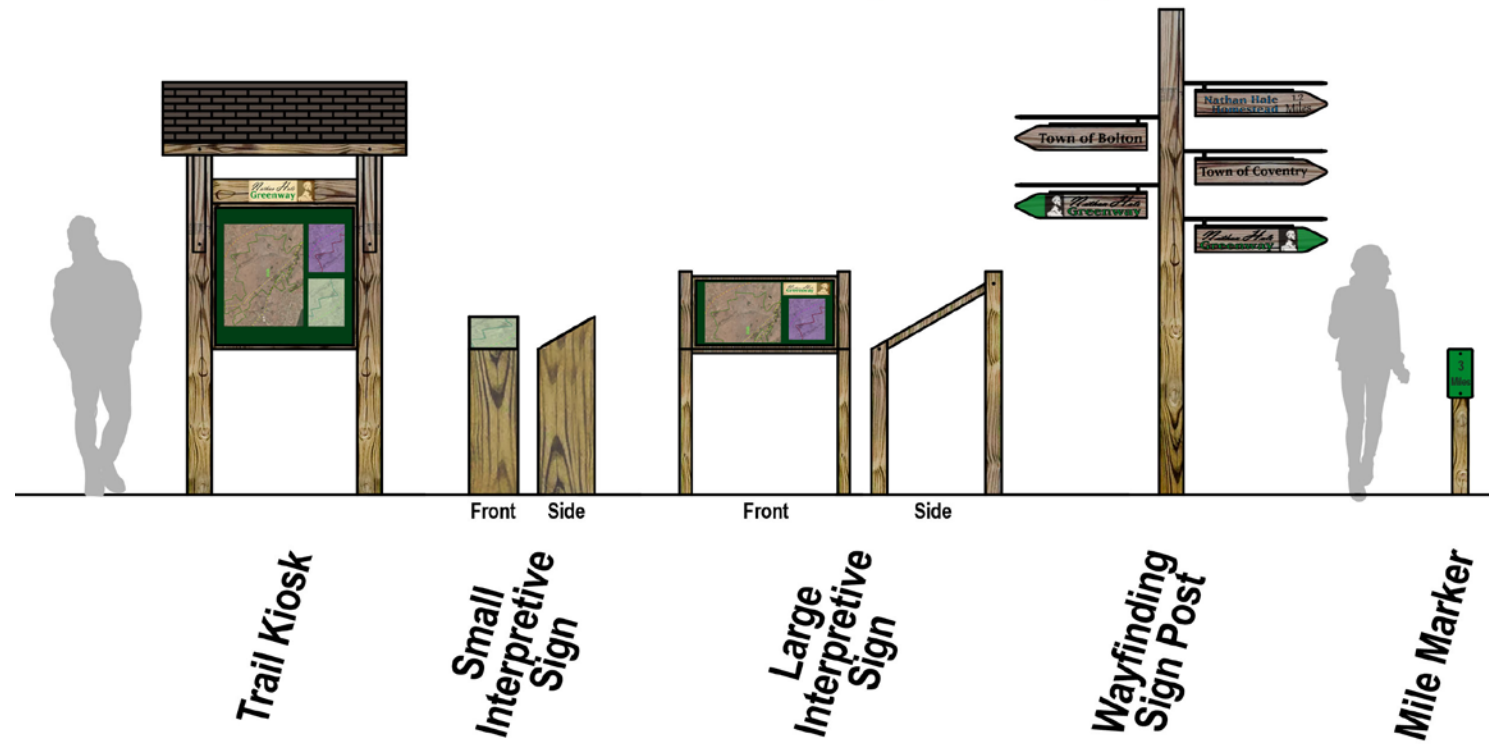
The wood sign family is similar to typical town park signage and is simpler than the metal sign family. This option is less expensive to install, but the wood requires more maintenance over time than metal.



Metal Sign Family



Wood Sign Family



Greenway Infrastructure

Basic Trail Structures

As indicated in Section 1.0 of this report, it is envisioned that the greenway would begin as a simple pathway through the corridor, with its location generally defined by a planned route and the physical path defined by its actual use (e.g. a “beaten path”). Over time, the path can be converted to a “blazed trail”, with more definition, enhanced surfacing, grading, some crossings, etc. In this scenario, the only structural elements required would be to accommodate wetland and watercourse crossings. Several options exist that are basic in their construction, which is reasonable/viable in the early stages of the greenway’s evolution. These elements do not require a formal design, do not require a foundation, use predominantly natural materials, like existing rocks, stones, or logs. These include:

- Corduroy - This technique involves laying a bridge on the ground where the soil cannot support a road. Two log stringers or beams are placed on the ground, with small-diameter logs or half logs placed on the stringers, spanning them. The logs become the surface of the path.
- Turnpikes - This element is used to elevate the trail above wet ground. The technique uses fill material from parallel side ditches and other areas to build the trail base higher than the surrounding water table. Turnpike construction is used to provide a stable trail base in areas with a high-water table and fair- to well-drained soils.
- Causeway - Similar to the turnpike, but less disruptive, is a causeway, essentially a turnpike without side ditches. Causeways filled with broken rock can create an elevated, hardened tread across seasonally wet areas. Causeways tend to create less environmental impact than turnpikes because they do not require ditches that lower the water table. In highly saturated soils, geotextiles can provide additional support to prevent causeways from sinking into the ground.
- Bog Bridge - A bog bridge is a simple structure comprised of one or more flat planks resting on log sleepers. The tread of a bog bridge is usually treated, rough-sawn plank. The plank parallels the centerline of the trail and rests on the sleepers. This means that the tread of the bog bridge can be closer to the ground, perhaps only 6 to 12 inches above it, providing 3 to 9 inches of clear space below the tread.
- Gadbury - A Gadbury is a simple log bridge that uses two half logs as sleepers (foundation). The two half logs are placed on each side of the crossing, two (or more) half logs are placed to form the span and surface, and two full logs are placed outside of each of the half logs to form an edge “curb”.

Boardwalk Structures

Boardwalk structures are defined as elevated pedestrian walkways installed through wetland areas. Generally, these structures are utilized through portions of the greenway corridor where the typical, at-grade section cannot be practically constructed due to the low strength of organic soils typically found throughout these areas. Boardwalk structures are typically composed of individual, short span (10 to 12 feet) superstructure segments supported at each end by a substructure system. Individual superstructure segments and supporting substructure systems are placed in multiples, as required to accommodate the total length of wetland crossing.

Superstructure segment components include the pedestrian walkway surface, supporting floor system, and protective railing. The superstructure segments can be furnished, prefabricated, or built onsite from a range of materials including timber, concrete, steel, or composites to complement the selected greenway aesthetic.



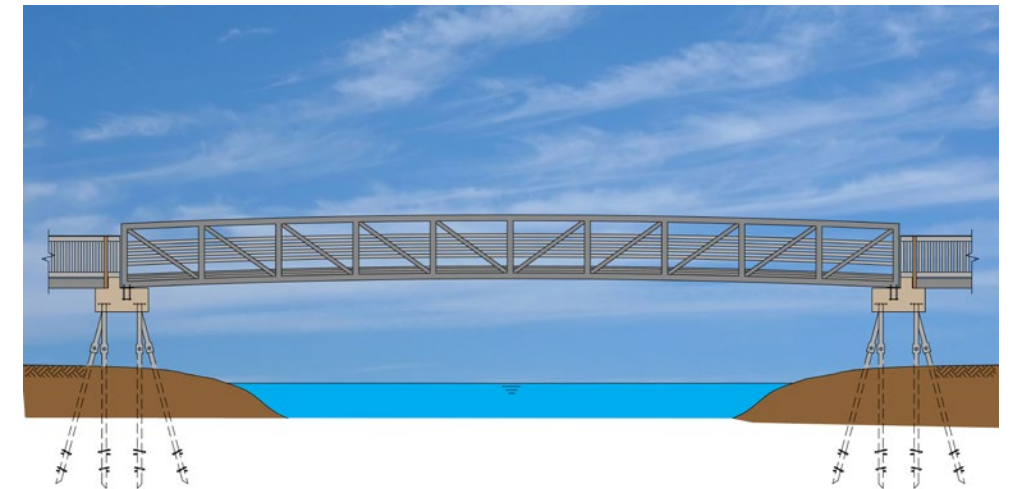
Boardwalk Section Diagram

Substructure system components include a cross member to support the superstructure segments and deep foundations to transmit the design loads to a suitable subsurface soil layer with increased strength characteristics. Similar to the superstructure segments, the substructure system can vary to incorporate preferred materials and effectively accommodate onsite soil conditions.

Costs for boardwalk structures can fluctuate based on the selected materials, localized conditions, permitting, and construction access. A unit cost of approximately \$150 per square foot of walkway surface area is an appropriate programming-level rate for installation of a standard, modular superstructure system, with a basic protective railing and “typical” shallow post/pile foundation system.



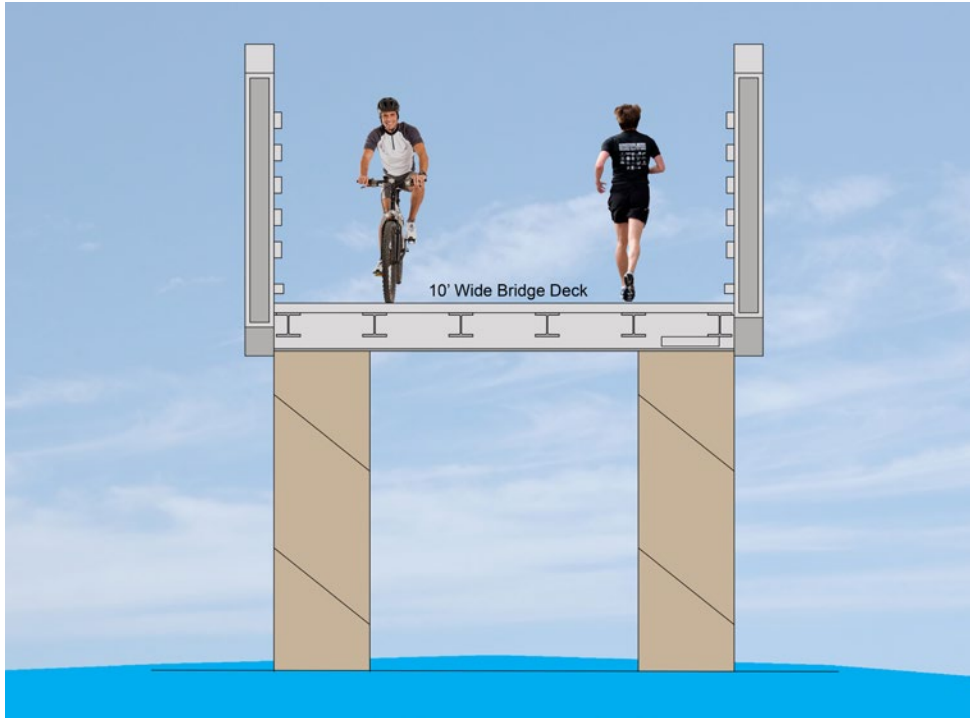
Example of Corduroy through wet area



Pedestrian Bridge Section Diagram

Bridge Structures

Bridge structures are defined as pedestrian bridges installed at significant water crossings. Generally, these structures are installed where a stipulated vertical clearance over the existing water surface must be provided to satisfy project hydraulic design criteria. Bridge structures are typically composed of a single, short-to-intermediate span (40 to 100 feet) prefabricated steel truss superstructure erected onsite and supported at each end by a substructure system.



Pedestrian Bridge Section Diagram

The prefabricated steel truss superstructure typically includes the supporting floor system and can be furnished to include a pedestrian walkway surface and protective railing. Alternatively, these features may be optioned and built onsite from preferred materials.

Substructure system components include a precast or cast-in-place concrete abutment seat and deep foundations. In addition to transmission of the design loads to suitable subsurface soils, the deep foundations are extended to depths adequate to protect the structure from undermining during flood events.

Costs for bridge structures can fluctuate widely based on the selected materials, localized conditions, permitting, and construction access, and required water control during construction. A unit cost of approximately \$350 per square foot of walkway surface area is an appropriate programming-level rate for installation of a standard, prefabricated steel truss superstructure, with a timber pedestrian walkway surface, basic protective railing, and typical deep foundation system.

Anticipated Maintenance Costs

Greenway Surface

In its early configuration as a pathway through the corridor (e.g. a “beaten path”) surfacing would be native, natural materials. As the path is converted to a “blazed trail” over time, granular materials can be installed to provide more definition and enhanced surfacing. Like many multi-use trails in Connecticut, in its ultimate configuration the greenway could be finished with a selectively-graded granular surficial cross-section configured for stability and drainage within reasonable cost parameters. However, bituminous concrete is not a desired surfacing for the Nathan Hale Greenway.

Forestry Management

There are two main forestry management costs that will affect the greenway year to year. Forest management teams will need to access the greenway to perform selective cutting. There will also be a cost associated with maintaining greenway visibility and usability. This will include any mowing, brush pruning, and invasive plant removal within the greenway ROW. Discussions with DEEP indicate that other trails such as this require one or two mowings per year along the entire ROW.

Amenities

Because they are exposed to the elements, amenities utilized for the greenway will deteriorate and eventually need to be replaced. Material choice is important, considering theme, aesthetic quality, functionality, and durability. Material choices affect not only the initial installation cost, but also the life-cycle cost based on routine (ongoing) maintenance and the frequency/cost of replacement. For example, greenway amenities constructed with wood may have more aesthetic appeal, but will require more ongoing maintenance over their lifetime relative to other materials such as plastic or metal. It would also be anticipated that wood amenities would be need replacement at a greater frequency. Alternately, some synthetic materials can be manufactured to appear like natural wood, with reduced maintenance demands and longer lifetime. Regardless of the material used for greenway amenities, some maintenance will be required to keep them in a state of good repair and functional. Vandalism will also factor into the maintenance and replacement costs for greenway amenities.

Infrastructure

Like the greenway amenities, major structures will have an associated maintenance cost with them as well. Bridges and boardwalks must have regular inspections to ensure they are safe. Material choice will again play a factor, as some materials will deteriorate faster and require more frequent maintenance than others. These major structures should be built to have a minimum lifespan of 50 years.





4.0 Public Outreach

Public Outreach

Public Information Meetings

Four public informational meetings were conducted during the feasibility study and preliminary design process:

In January of 2018, the Towns of Coventry and Bolton worked with BSC to host two public informational meetings. These meetings were conducted on January 18, 2018 in Coventry and January 25, 2018 in Bolton (See Appendix 8.4 and Appendix 8.5). During April and May of 2019, the Towns worked with BSC to host two additional public informational meetings. These meetings were conducted on April 25, 2019 in Coventry and May 1, 2019 in Bolton (See Appendix 8.4 and Appendix 8.5).

During these public meetings, the public was presented with information including an overview of multi-use paths and greenways; project background and goals; project components and process; and findings and design considerations. The process of the project was defined for the public to and to convey that the feasibility study and preliminary design represent the beginning stages of what could ultimately be a completed greenway. Project challenges were summarized to explain the difficulties that may arise during the planning and construction phases. The January 2018 meetings included a questionnaire survey (print copies and on-line access). The April and May 2019 meetings presented the routing as defined by the Preliminary Design.

Each meeting included a question and answer period where attendees could ask questions of the consultant team and town representatives.

Public Survey

The nine-question questionnaire survey was open to the public from January 16, 2018, to February 12, 2018. It received 81 responses during this time. Data from the public survey is included herein in Appendix 8.6.



5.0 Cost Estimates

In This Section

- a. Costs Estimates
- b. Table 1: Feasibility Study Cost Estimate - Preferred Alignment

Cost Estimate

As previously indicated, one goal of the feasibility study process was development of a conceptual or planning level cost estimate for the Nathan Hale Greenway in its ultimate configuration, i.e. a “shared-use” (multi-use) path. These estimates are purely conceptual, as it is not the intent of either town to pursue funding for a “full-build-out” of the greenway into its ultimate configuration. As previously-indicated, based on the scale of the project and the various challenges discussed in previous sections of this report, the ultimate configuration of the greenway as a “shared-use” (multi-use) path could occur over time, but its evolution will be based on public support and available funding.

The greenway will begin as a simple pathway through the corridor, with its location generally defined by a plan and the physical path defined by its actual use (e.g. a “footpath” or “beaten path”). This early genesis of the greenway can occur with essentially no cost to either town. Over time, the path can be converted to a “blazed trail”, with more definition, enhanced surfacing, grading, crossings, etc. Transformation to the “blazed trail” could be completed in smaller, defined segments as public support dictates and funding allows, facilitated through joint-town forestry management programs, volunteer efforts, and similar endeavors.

In general, cost estimates for construction projects are based on the unit quantity method, whereas costs are based on the material types and quantities included in the project. The project is divided into the various individual operations or items that collectively “build” the finished product, with quantities and item costs assigned and tabulated.

Development of a cost estimate at the feasibility study phase is significantly affected by the limited data available for specific material types and quantities and should be considered conceptual. Assumptions must be made to establish this data, recognizing that as additional project detail is developed as the project moves into Preliminary Design, the project cost estimate can be refined as data becomes available.

To develop the conceptual or planning-level cost estimate for the Nathan Hale Greenway, Table 1 was developed (based on the preferred alignment) to divide the greenway into cost line items. This allows for a clear delineation of cost items and up-to-date estimated quantities. The cost estimate is based on the stationing depicted on Figure 5 (Preferred Alignment) and additional existing conditions data as summarized on Figures 3 and 4 (cuts/fills, stream crossings, wetlands, trail heads, etc.). Unit costs for different components of the greenway have been compiled into basic cost categories such as linear foot cost of the greenway or cost per watercourse crossing. It is recognized that costs will vary along the greenway based on the specific, localized existing conditions, for example, flat topography versus steep topography. In these early stages, the unit costs utilized are intended to represent an average across the project. As the project moves forward to preliminary design, these basic cost categories can be further refined with more detail.

Table 1 - Feasibility Study Cost Estimate

Sheet No.	Segment Description	Start	Stop	Length (ft)	Unit Cost	Units	Cost
Bolton							
PLN-01/SHEET 05	Shared-Use Trail, Off-Road	10+00	40+25	3,025	\$100	lf	\$302,500
PLN-01/SHEET 05	Shared-Use Trail, Off-Road Wetland Crossing	40+25	42+75	250	\$300	lf	\$75,000
PLN-02/SHEET 07	Shared-Use Trail, Off-Road	42+75	55+50	1,275	\$100	lf	\$127,500
PLN-02/SHEET 07	Road Crossing, Stony Road	55+50	56+00	50	\$30,000	ea	\$30,000
PLN-02/SHEET 07	Shared-Use Trail, Off-Road	56+00	63+75	775	\$100	lf	\$77,500
PLN-02/SHEET 07	Shared-Use Trail, Off-Road Wetland Crossing	63+75	65+40	165	\$300	lf	\$49,500
PLN-03/SHEET 09	Shared-Use Trail, Off-Road	65+40	71+75	635	\$100	lf	\$63,500
PLN-03/SHEET 09	Shared-Use Trail, Off-Road Wetland Crossing	71+75	73+50	175	\$300	lf	\$52,500
PLN-03/SHEET 09 PLN-04/SHEET 11	Shared-Use Trail, Off-Road	73+50	94+75	2,125	\$100	lf	\$212,500
PLN-04/SHEET 11	Trailhead with Minor Parking				\$25,000	ea	\$25,000
PLN-04/SHEET 11	Road Crossing, South Road	94+75	95+25	50	\$30,000	ea	\$30,000
PLN-04/SHEET 11	Shared-Use Trail, Off-Road	95+25	96+25	100	\$100	lf	\$10,000
PLN-04/SHEET 11	Watercourse Crossing at Bolton Pond Brook, Bridge	96+25	96+75	50	\$100,000	ea	\$100,000
PLN-04/SHEET 11	Shared-Use Trail, Off-Road (Bolton Line)	96+75	110+00	1,325	\$100	lf	\$132,500
Subtotal Bolton:							\$1,288,000



Table 1 - Feasibility Study Cost Estimate (Continued)

Sheet No.	Segment Description	Start	Stop	Length (ft)	Unit Cost	Units	Cost
Coventry							
PLN-05/SHEET 11	Shared-Use Trail, Off-Road (Coventry Line)	110+00	155+60	4,560	\$100	lf	\$456,000
PLN-06/SHEET 15	Trailhead with Minor Parking				\$25,000	ea	\$25,000
PLN-06/SHEET 15	Road Crossing, Brewster Street	155+60	156+10	50	\$30,000	ea	\$30,000
PLN-06/SHEET 15	Shared-Use Trail, Off-Road	156+10	161+50	540	\$100	lf	\$54,000
PLN-07/SHEET 17	Watercourse Crossing at Ash Brook, Bridge	161+50	162+00	50	\$100,000	ea	\$100,000
PLN-07/SHEET 17	Shared-Use Trail, Off-Road	162+00	181+25	1,885	\$100	lf	\$188,500
PLN-07/SHEET 17	Trailhead with Minor Parking				\$25,000	ea	\$25,000
PLN-07/SHEET 17	Road Crossing, Swamp Road	181+25	181+75	50	\$30,000	ea	\$30,000
PLN-07/SHEET 17 PLN-08/SHEET 19	Shared-Use Trail, Off-Road	181+75	218+60	3,685	\$100	lf	\$368,500
PLN-09/SHEET 21	Shared-Use Trail, Off-Road Wetland Crossing	218+60	219+25	65	\$300	lf	\$19,500
PLN-09/SHEET 21	Watercourse Crossing at Mitterholtzer Brook 1, Bridge	219+25	219+75	50	\$100,000	ea	\$100,000
PLN-09/SHEET 21	Shared-Use Trail, Off-Road Wetland Crossing	219+75	221+50	175	\$300	lf	\$52,500
PLN-09/SHEET 21	Watercourse Crossing at Mitterholtzer Brook 2, Bridge	221+50	222+00	50	\$100,000	ea	\$100,000
PLN-09/SHEET 21	Shared-Use Trail, Off-Road Wetland Crossing	222+00	222+75	75	\$300	lf	\$22,500
PLN-09/SHEET 21 PLN-10/SHEET 23	Shared-Use Trail, Off-Road	222+75	242+50	1,975	\$100	lf	\$197,500
PLN-10/SHEET 23	Trailhead with Minor Parking				\$25,000	ea	\$25,000
PLN-10/SHEET 23	Road Crossing, South Street	242+75	243+25	50	\$30,000	ea	\$30,000
PLN-10/SHEET 23	Shared-Use Trail, Off-Road	243+25	248+50	80	\$100	lf	\$8,000
PLN-10/SHEET 23	Shared-Use Trail, Off-Road Wetland Crossing	248+50	249+50	100	\$300	lf	\$30,000
PLN-10/SHEET 23	Shared-Use Trail, Off-Road	249+50	262+75	1,325	\$100	lf	\$132,500
PLN-11/SHEET 25	Shared-Use Trail, Off-Road Wetland Crossing	262+75	263+40	65	\$300	lf	\$19,500
PLN-11/SHEET 25	Watercourse Crossing at Skungamaug River, Bridge	263+40	264+40	100	\$200,000	ea	\$2,000,000
PLN-11/SHEET 25	Shared-Use Trail, Off-Road Wetland Crossing	264+40	266+75	235	\$300	lf	\$70,500
PLN-11/SHEET 25	Shared-Use Trail, Off-Road	266+75	280+00	1,325	\$100	lf	\$132,500
PLN-11/SHEET 25	Trailhead with Minor Parking (at Woodbridge Road)	280+00	NA		\$25,000	ea	\$25,000
PLN-11/SHEET 25	On-Road, Woodbridge Road to Bishop Lane		0.15	0.15	\$2,000	miles	\$300
PLN-11/SHEET 25 PLN-12/SHEET 27	On-Road, Bishop Lane to South Street		0.38	0.38	\$2,000	miles	\$760
PLN-12/SHEET 27 PLN-13/SHEET 28	On-Road, South Street to Nathan Hale Homestead		1.24	1.24	\$2,000	miles	\$2,480
PLN-14/SHEET 29	Nathan Hale Road (Path)		0.86	0.86	\$2,000	miles	\$1,720
PLN-14/SHEET 29 PLN-15/SHEET 30	On-Road, Nathan Hale Road to Bunker Hill Road		0.81	0.81	\$2,000	miles	\$1,620
PLN-15/SHEET 30	On-Road, Bunker Hill Road to Hop River Road	582+00	587+50	0.10	\$2,000	miles	\$208
PLN-15/SHEET 30 PLN-16/SHEET 31 PLN-19/SHEET 36	On-Road, Hop River Road to Hop River Trail	587+50	629+00	1.76	\$2,000	miles	\$3,521
Subtotal Coventry:							\$4,252,609
TOTAL							\$5,540,609



6.0 Figures

In This Section

- a. Figure 1: Project Area
- b. Figure 2: Nathan Hale Greenway Overview Map
- c. Figure 3: Slope Analysis Map
- d. Figure 4: Segment and Analysis Map
- e. Figure 5: Preferred Alignment

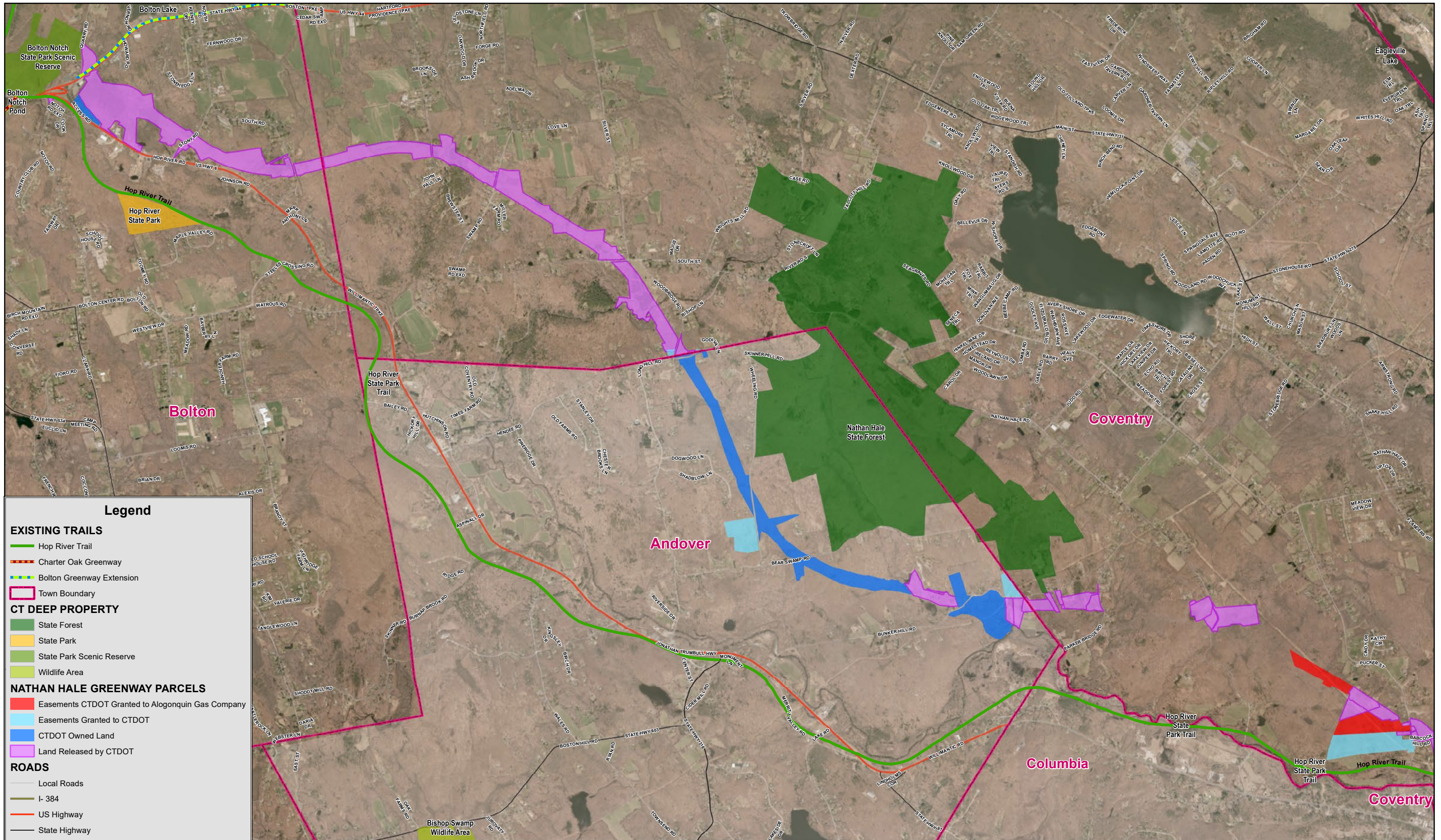
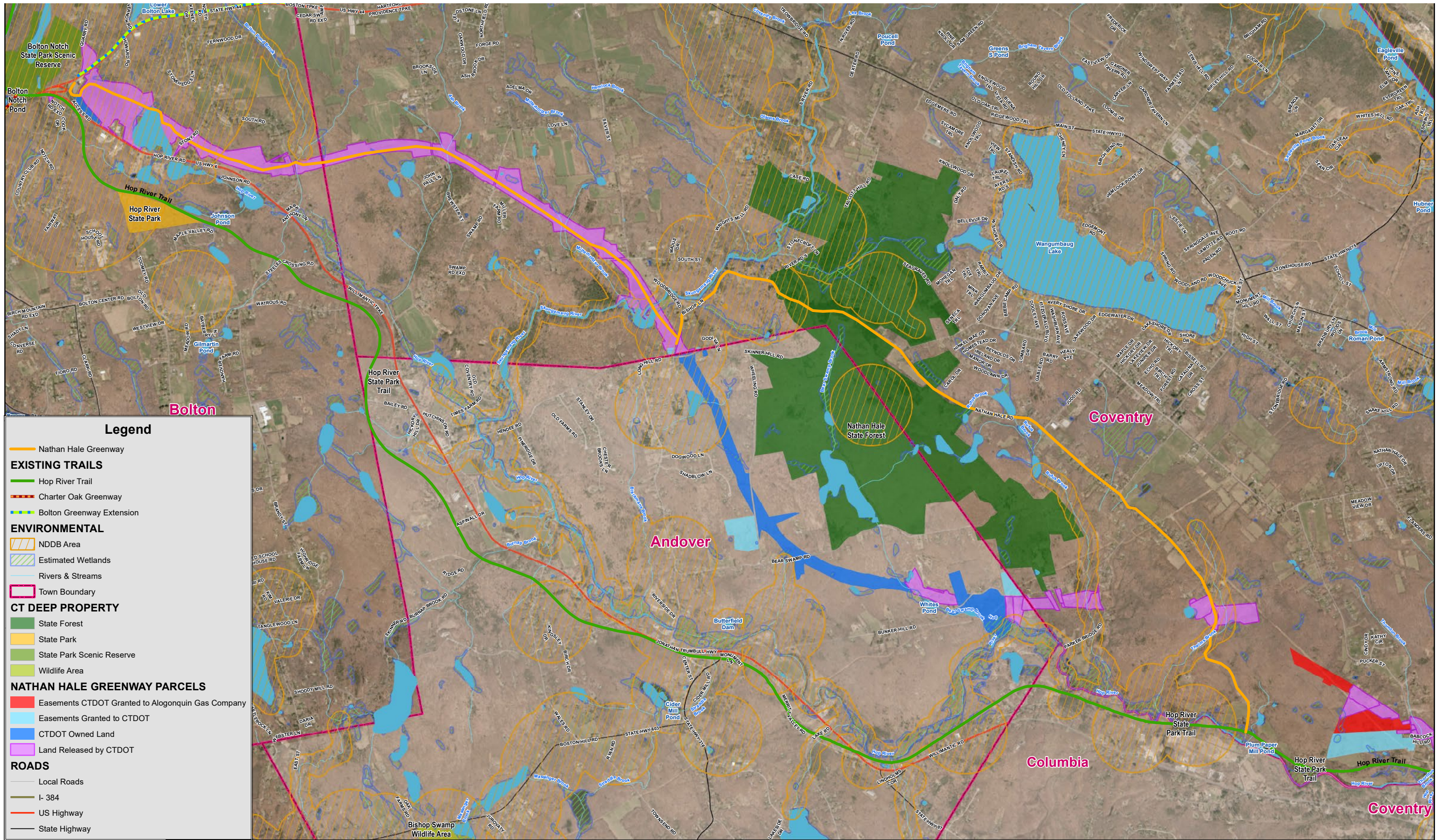


Figure 1: Project Area

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

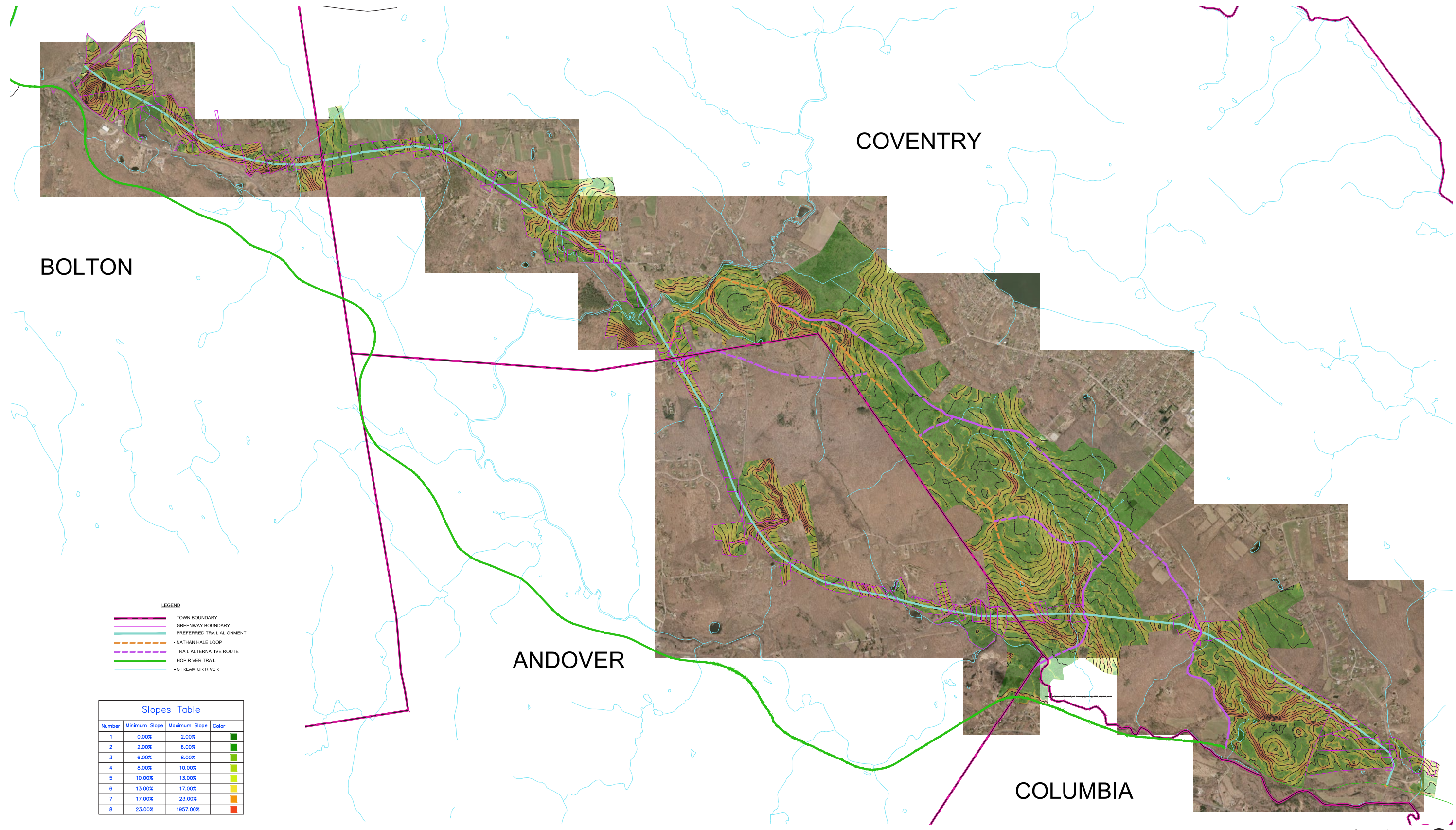




Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 2: Nathan Hale Greenway Overview Map





LEGEND

- TOWN BOUNDARY
- GREENWAY BOUNDARY
- PREFERRED TRAIL ALIGNMENT
- NATHAN HALE LOOP
- TRAIL ALTERNATIVE ROUTE
- HOP RIVER TRAIL
- STREAM OR RIVER

Slopes Table			
Number	Minimum Slope	Maximum Slope	Color
1	0.00%	2.00%	Dark Green
2	2.00%	6.00%	Green
3	6.00%	8.00%	Light Green
4	8.00%	10.00%	Yellow-Green
5	10.00%	13.00%	Yellow
6	13.00%	17.00%	Orange
7	17.00%	23.00%	Red-Orange
8	23.00%	1957.00%	Red

SCALE: 1" = 1,320'
 0 660 1320 2640 feet

NATHAN HALE GREENWAY
 SLOPE ANALYSIS
 BOLTON & COVENTRY, CT

Source: ECO Aerial Imagery, LIDAR Topography



Figure 3: Slope Analysis Map



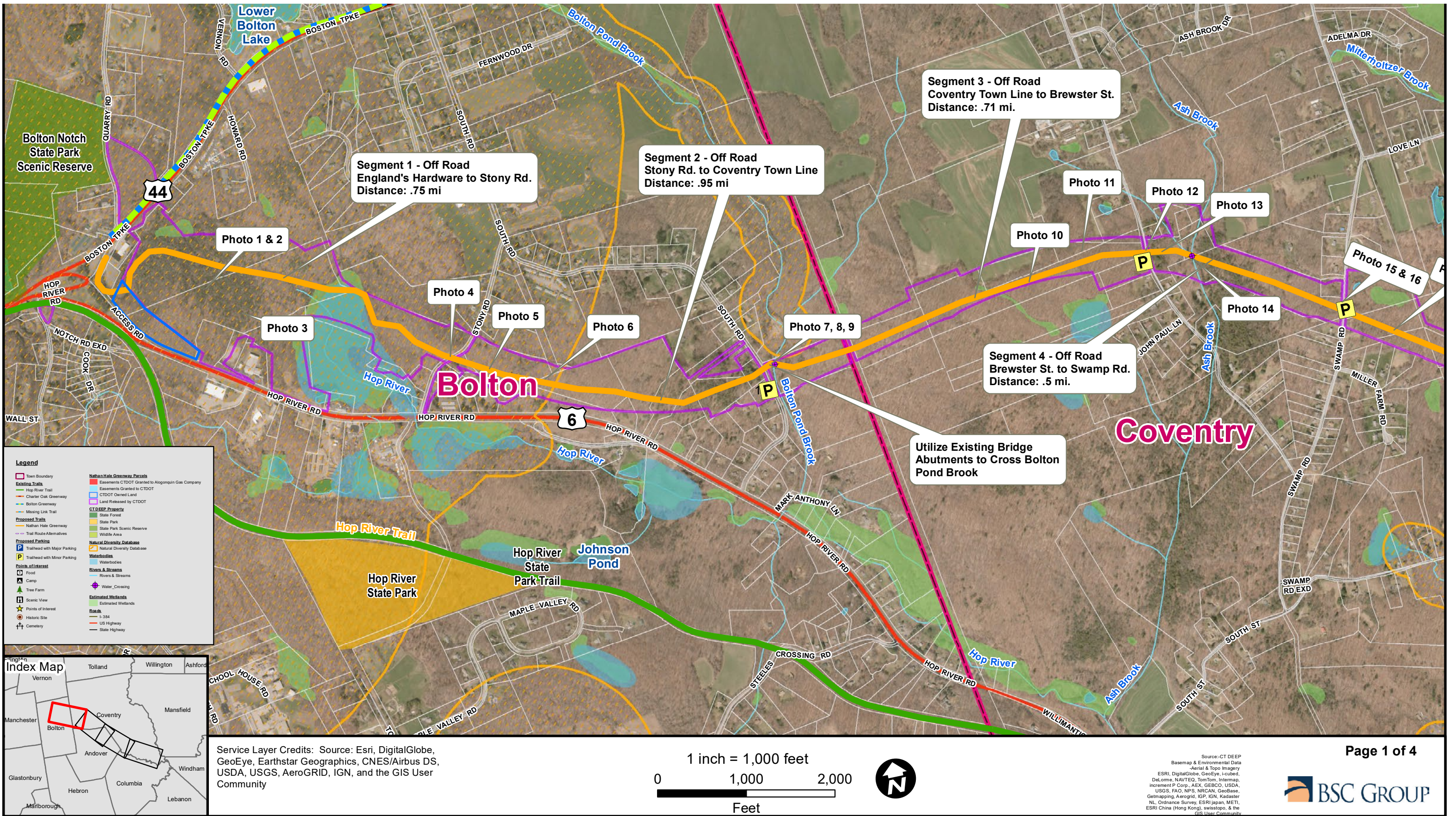
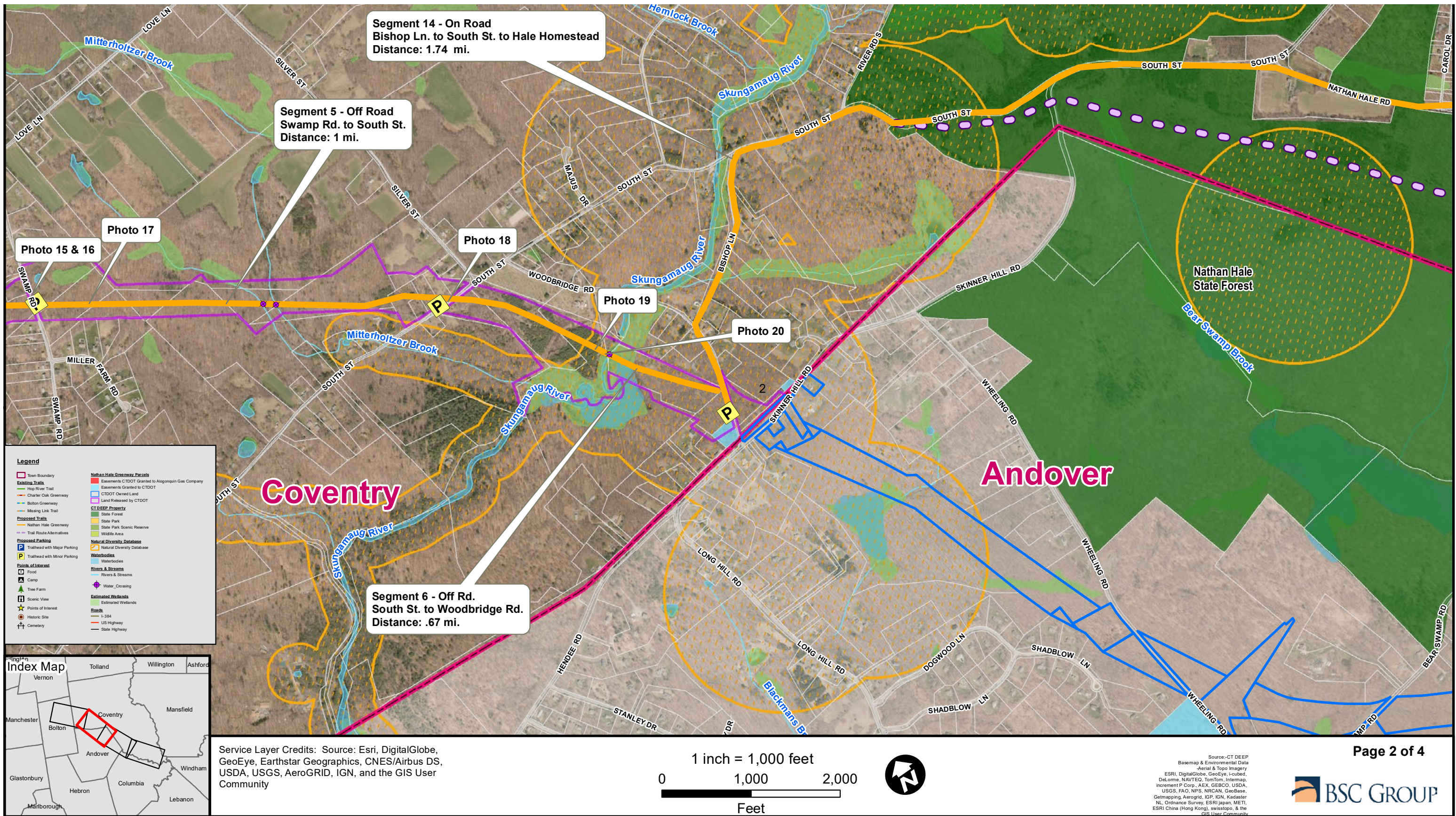


Figure 4: Segment and Analysis Map





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 4: Segment and Analysis Map

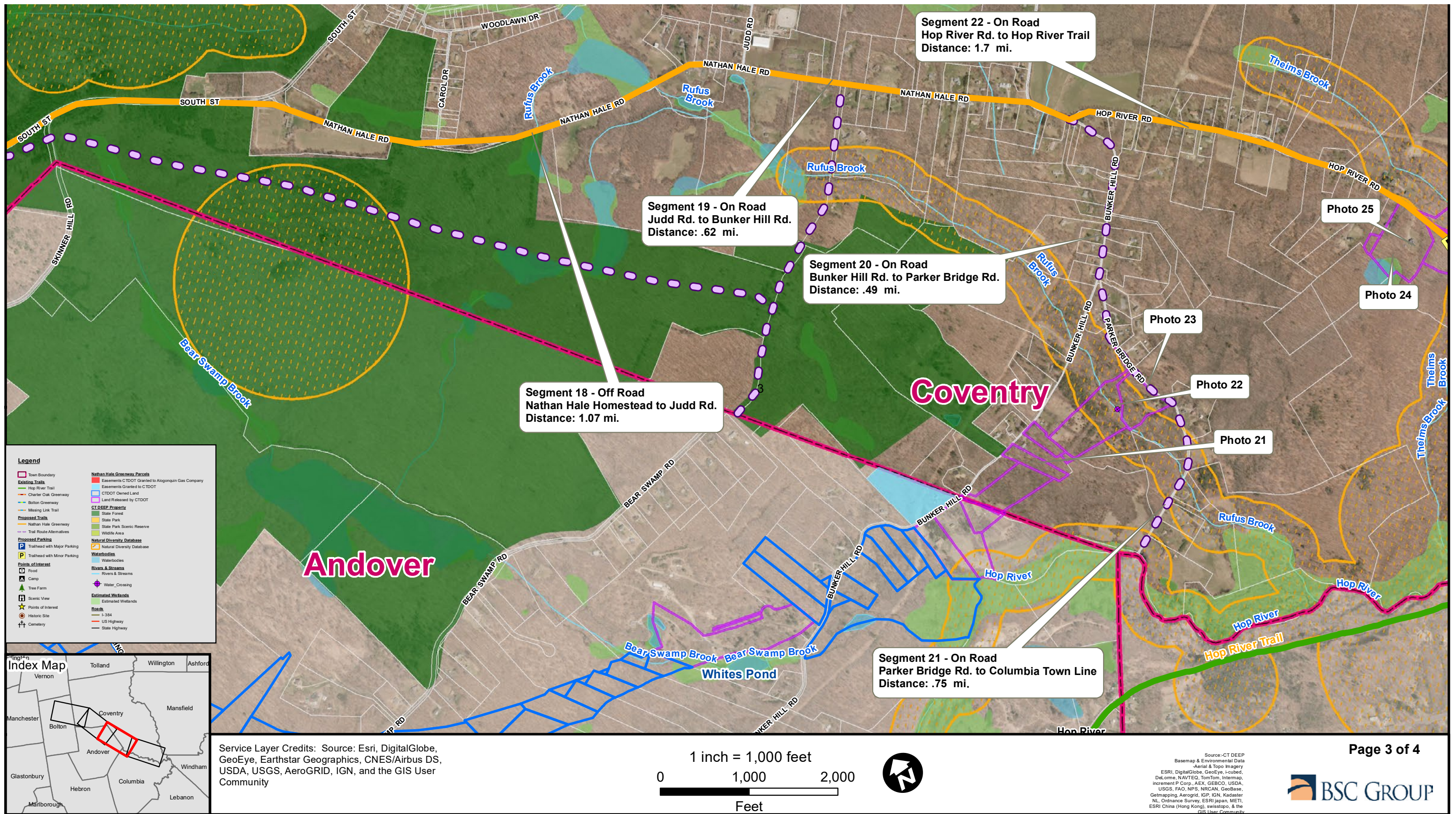
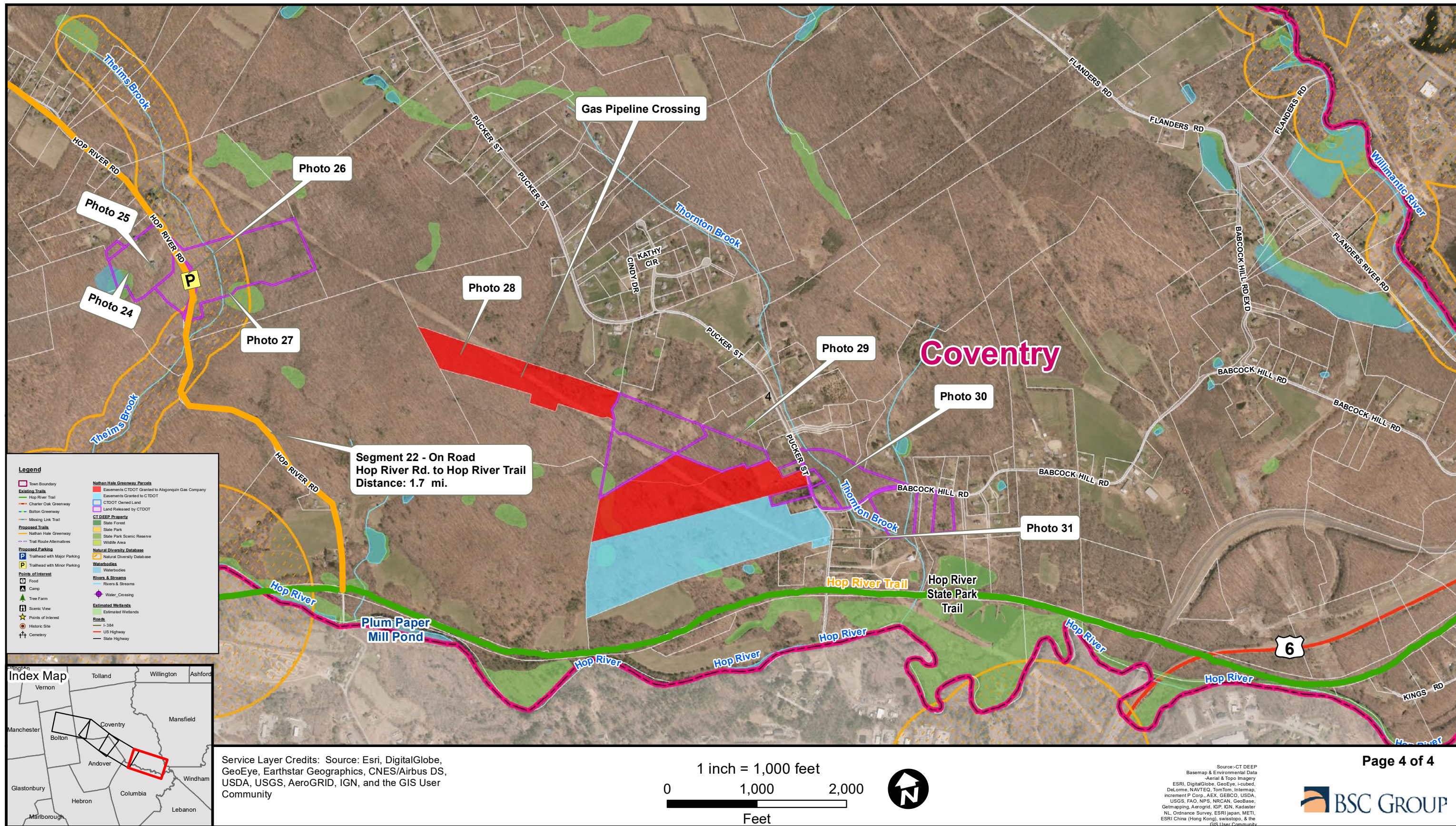


Figure 4: Segment and Analysis Map

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 4: Segment and Analysis Map

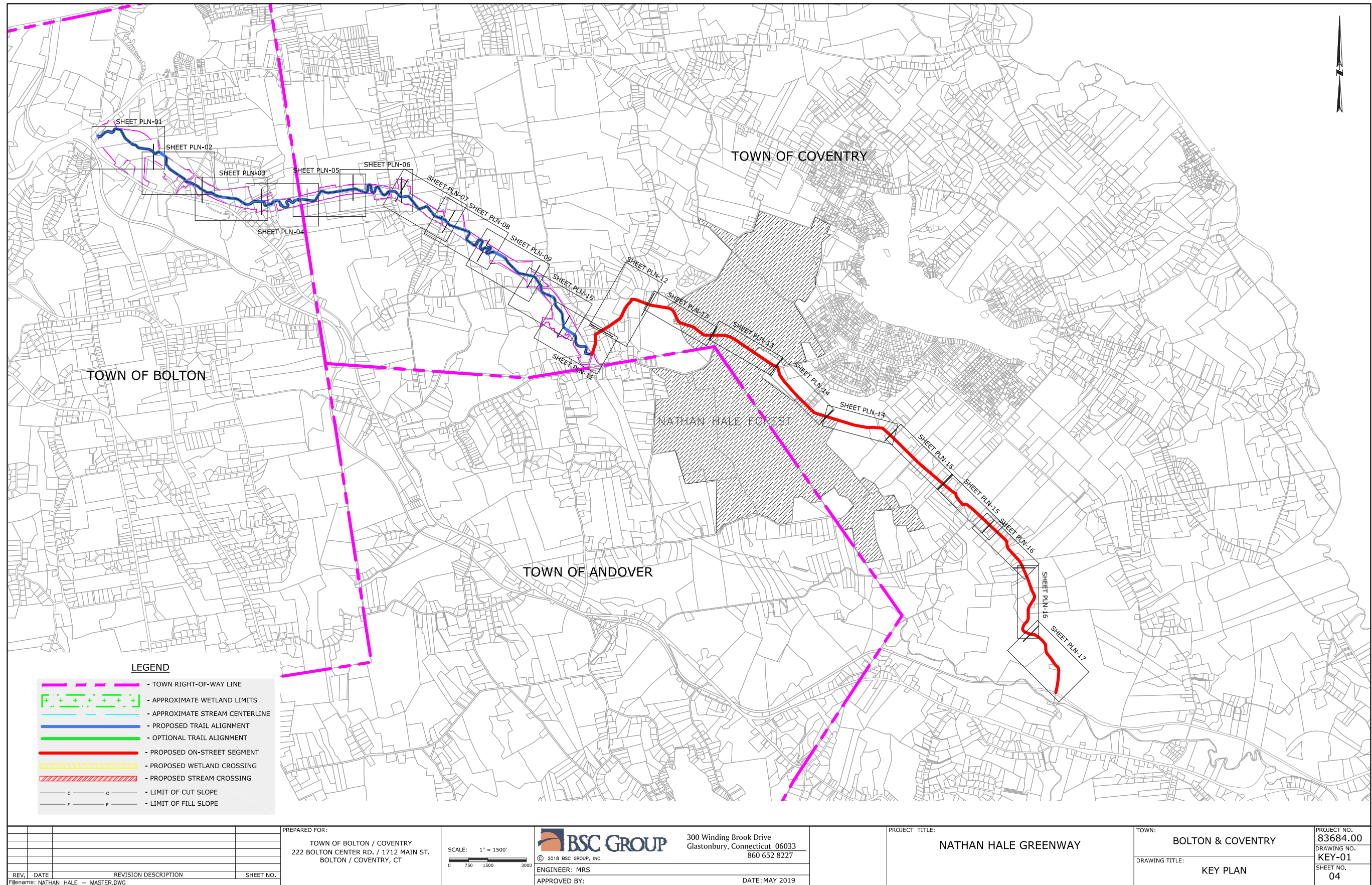
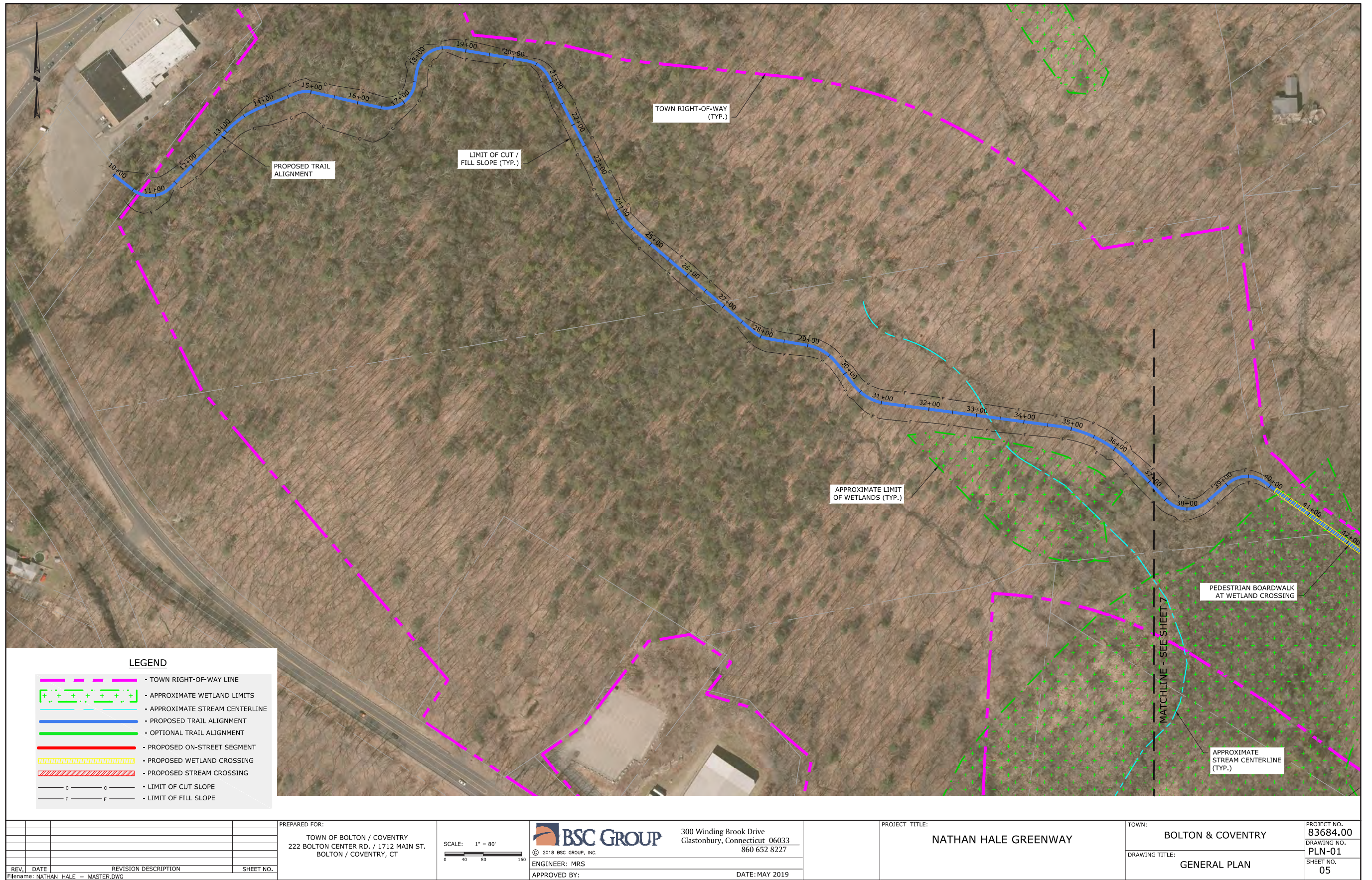


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment

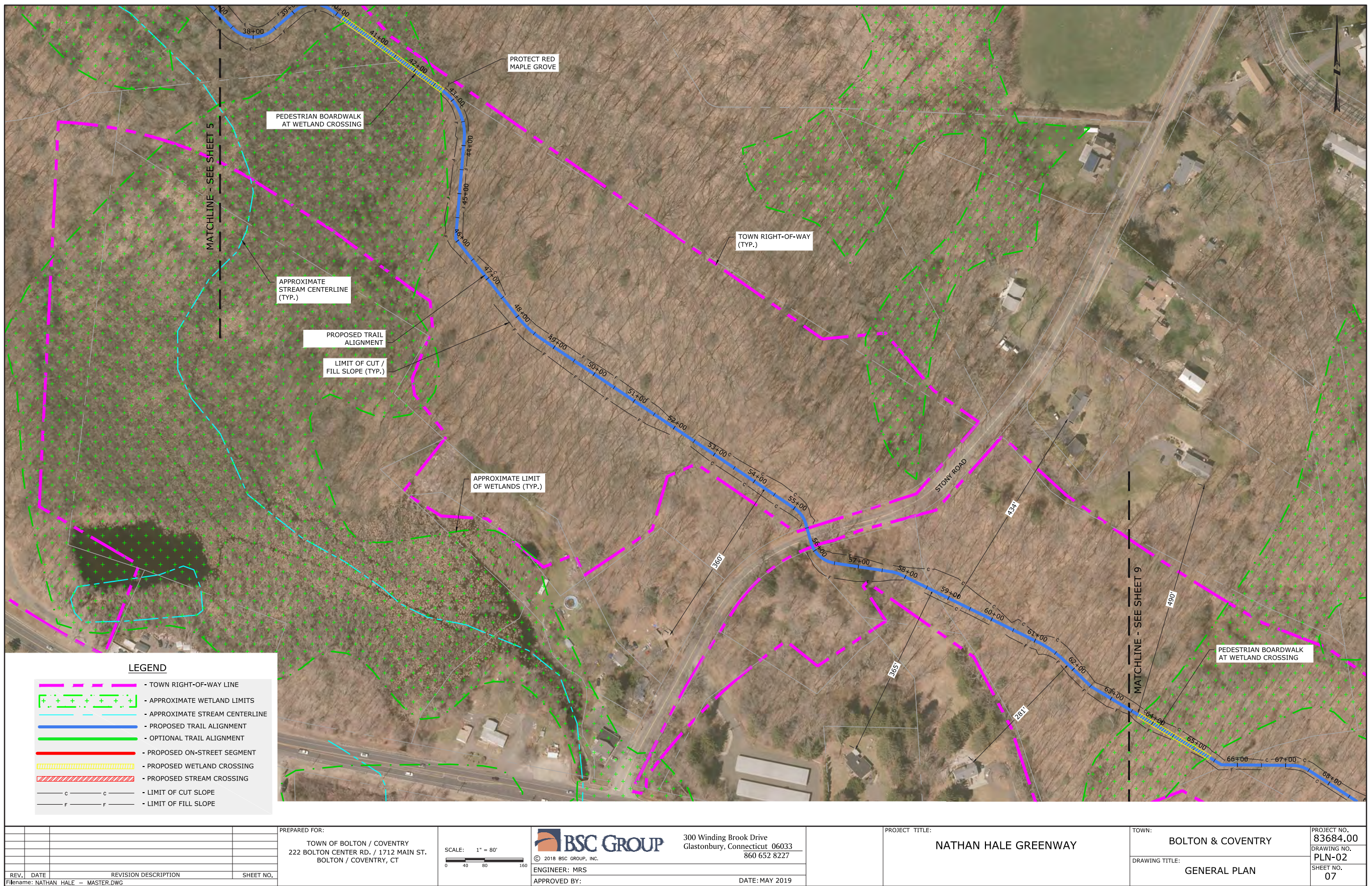
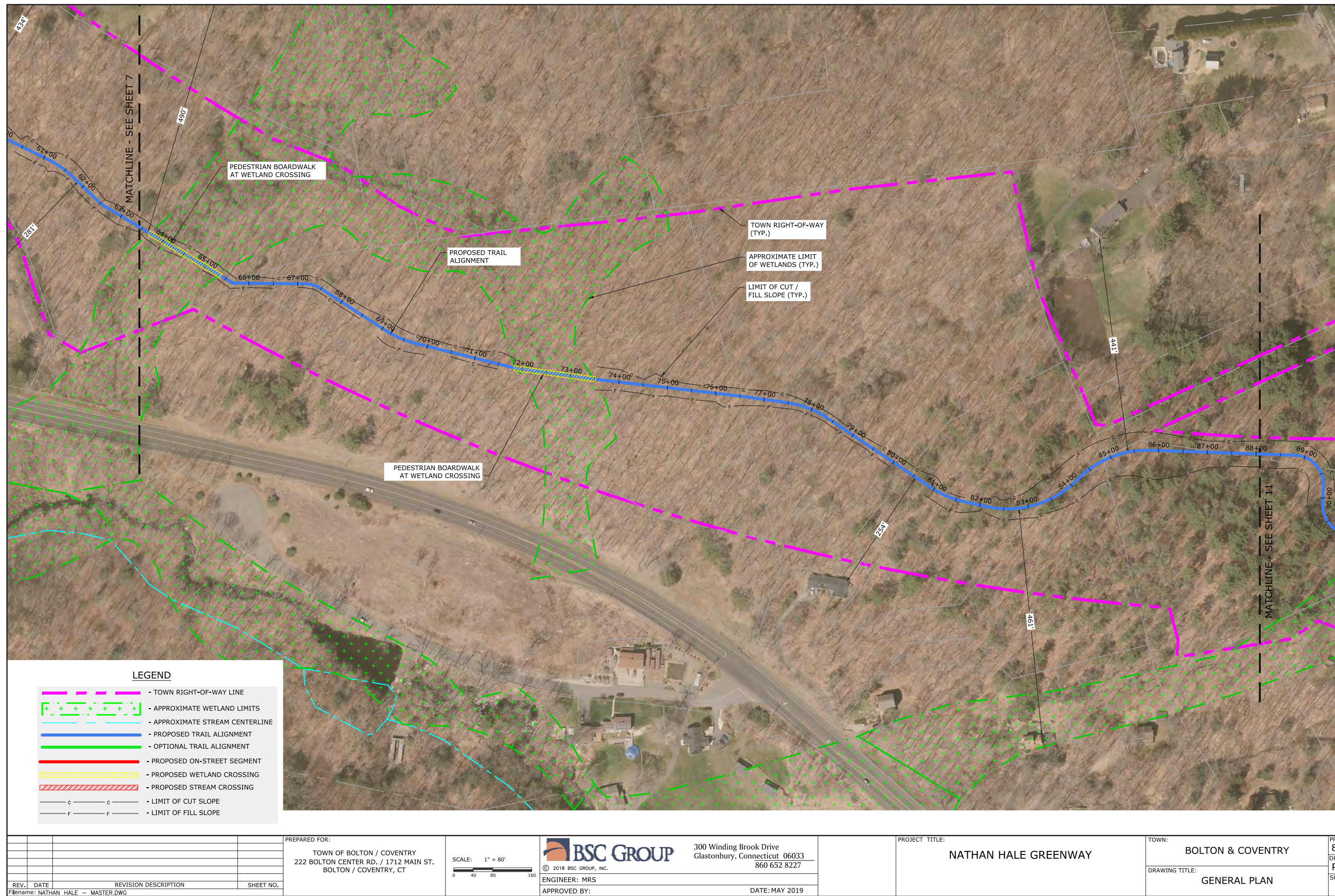


Figure 5: Preferred Alignment

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Figure 5: Preferred Alignment

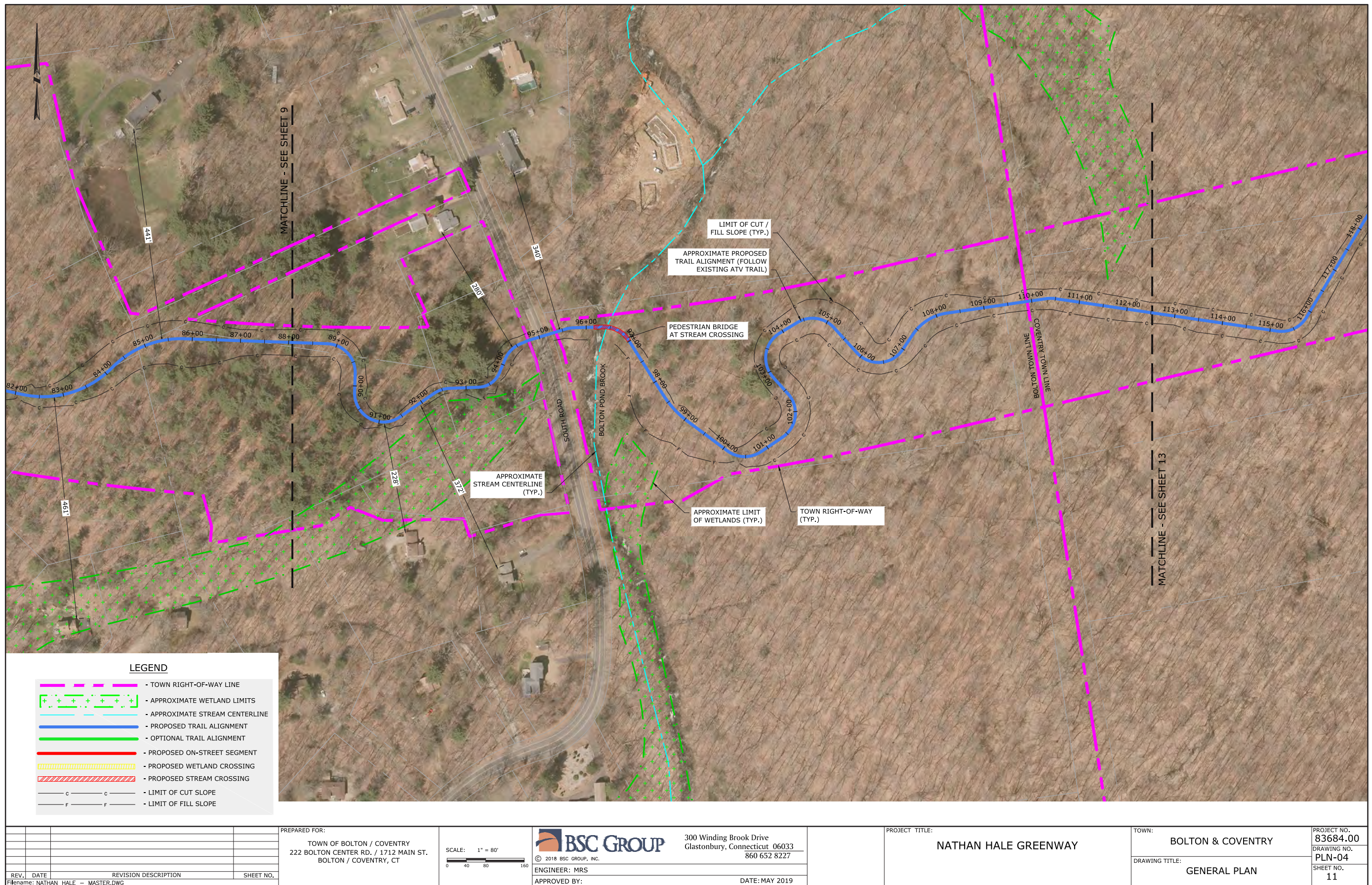
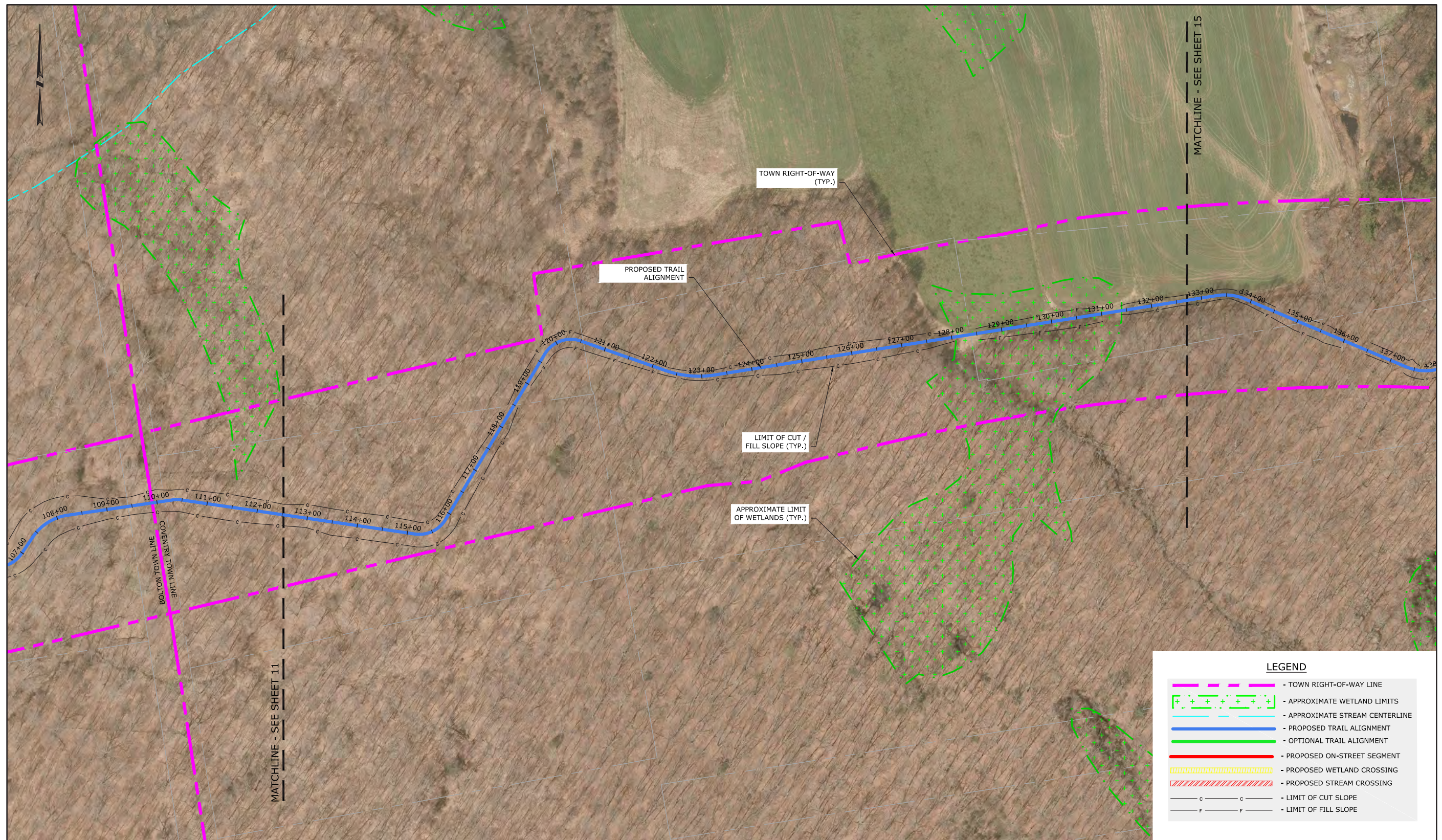


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





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				DATE: MAY 2019		DRAWING TITLE: GENERAL PLAN	

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

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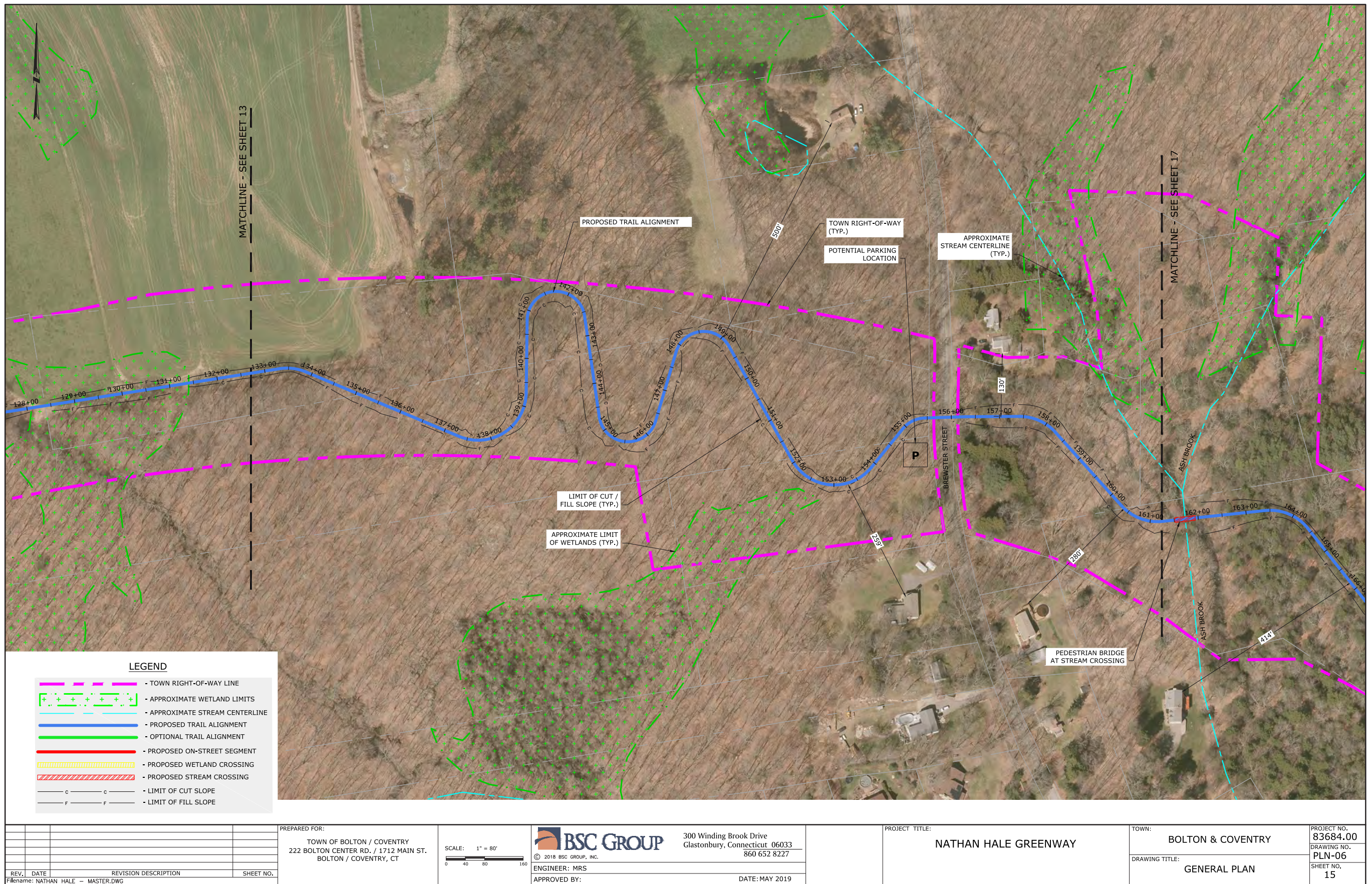
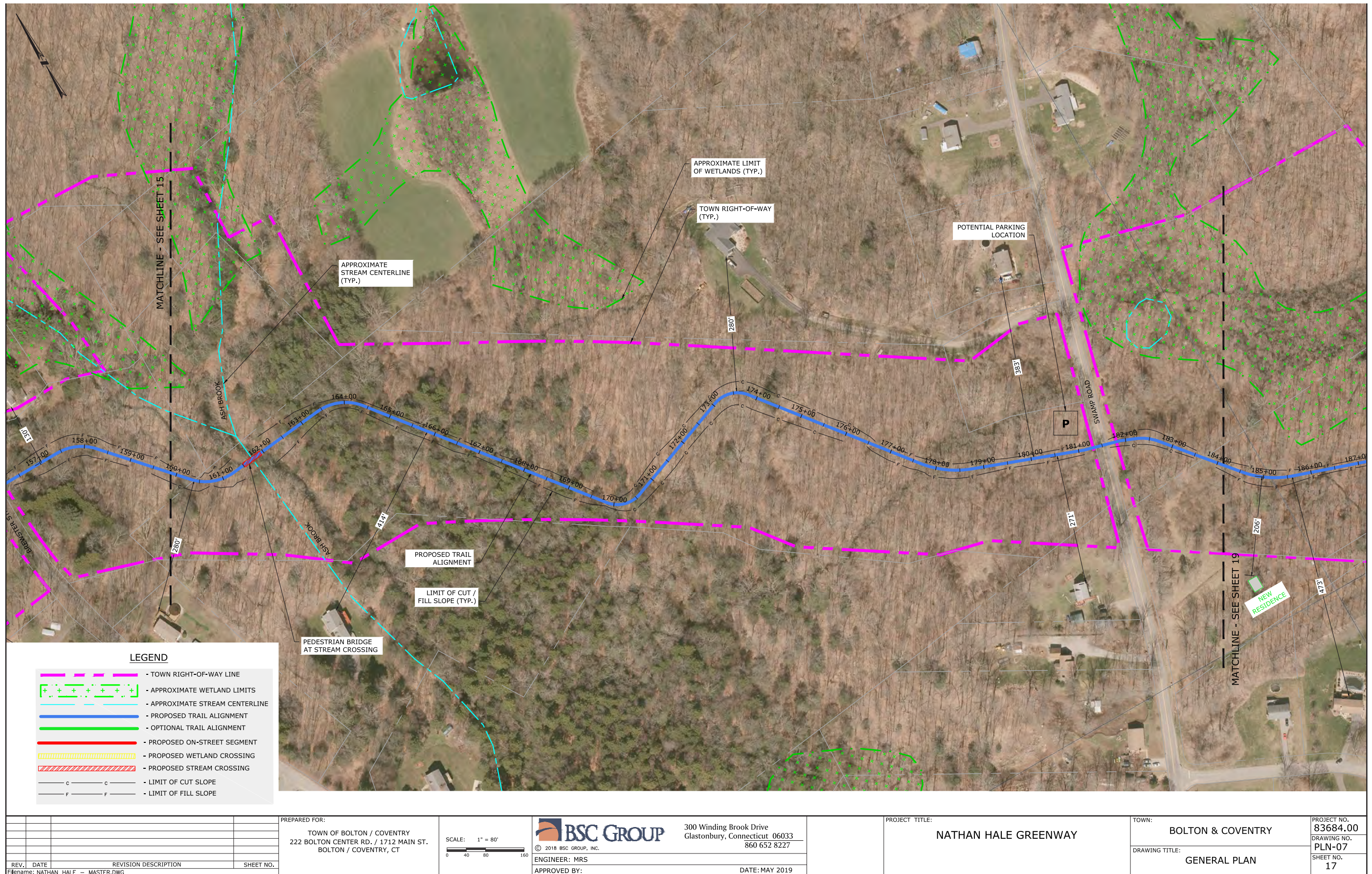


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment

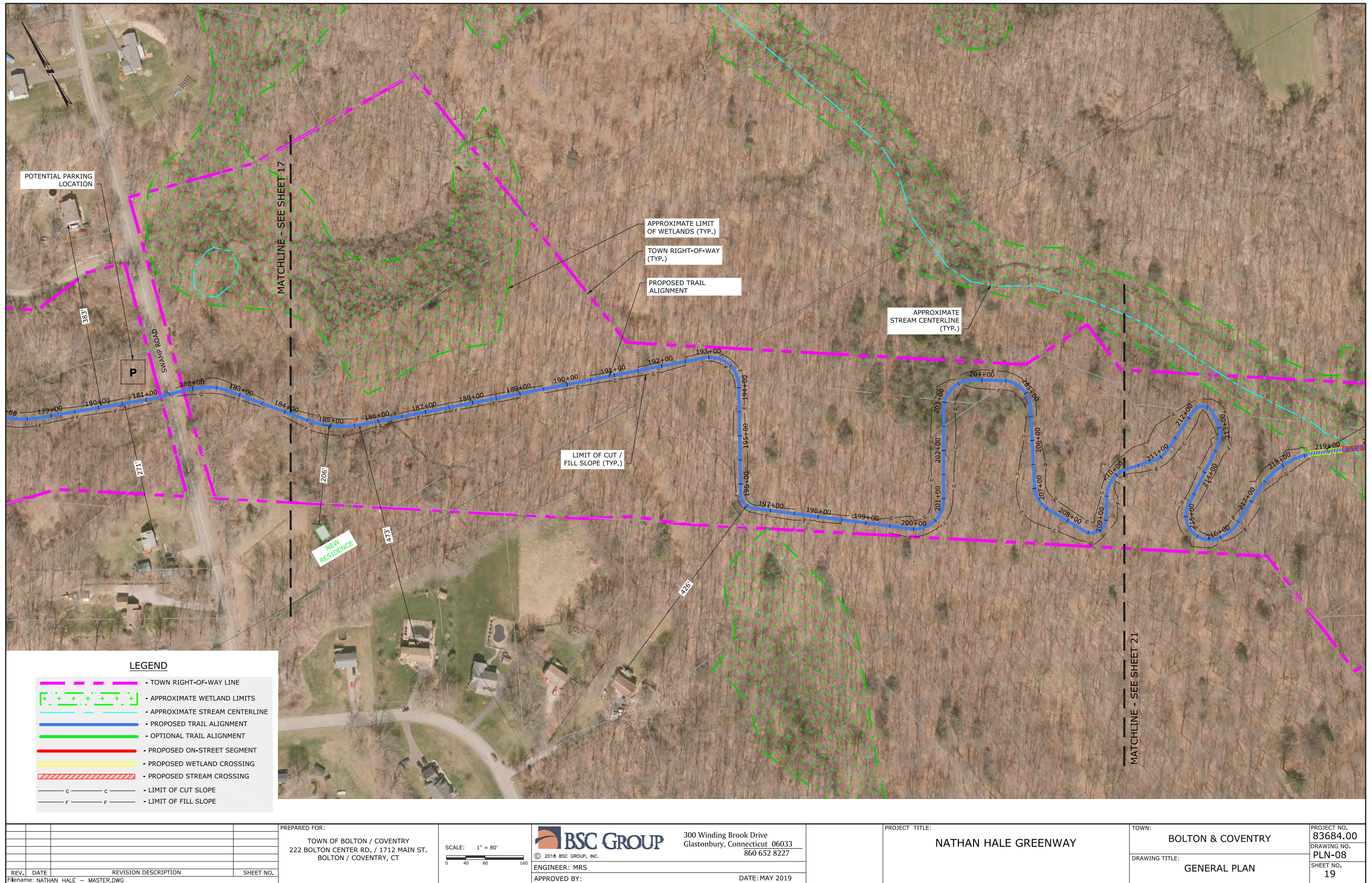
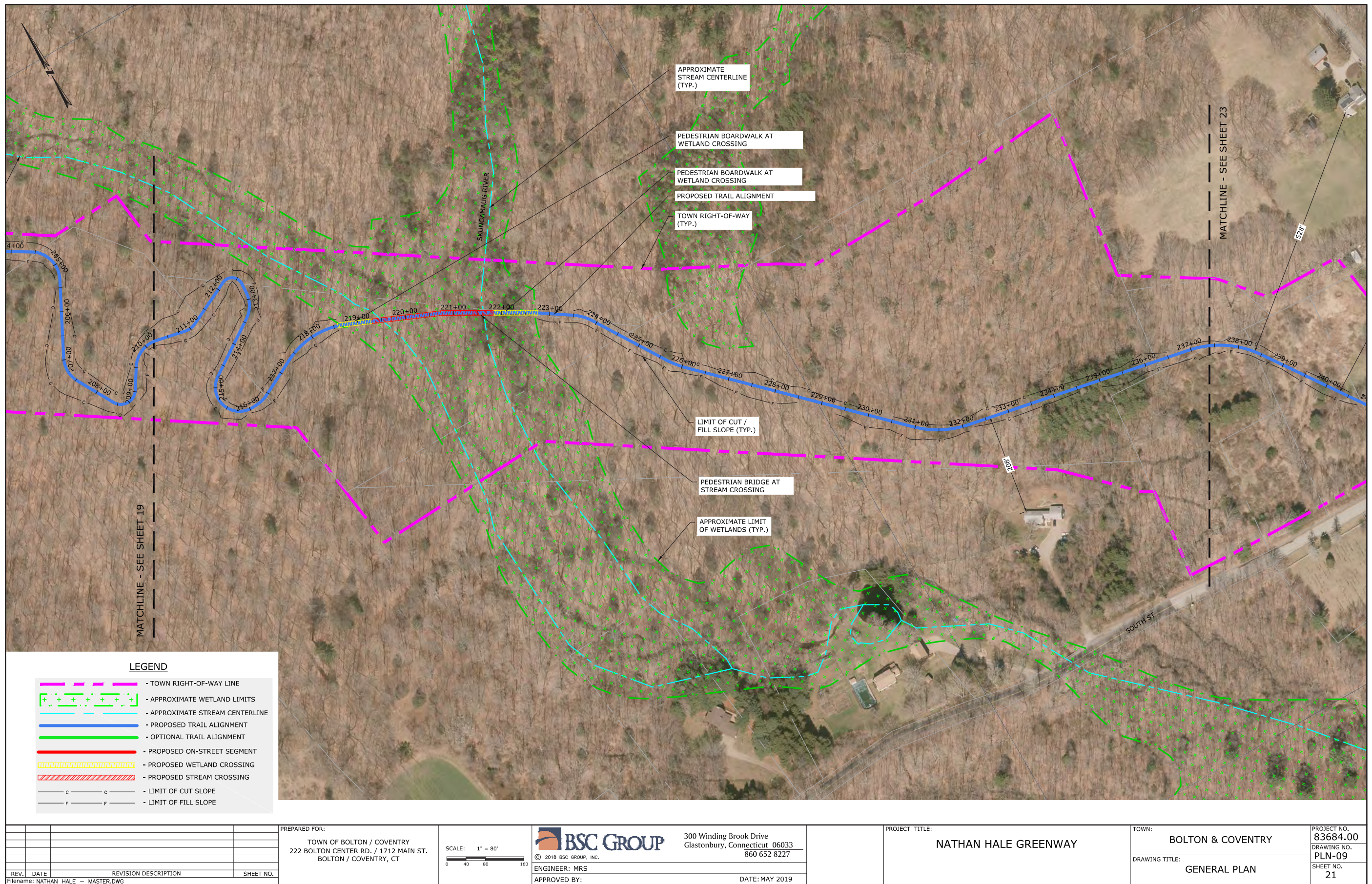


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Filename: NATHAN_HALE - MASTER.DWG

PREPARED FOR:
 TOWN OF BOLTON / COVENTRY
 222 BOLTON CENTER RD. / 1712 MAIN ST.
 BOLTON / COVENTRY, CT

SCALE: 1" = 80'
 0 40 80 160

BSC GROUP
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 ENGINEER: MRS
 APPROVED BY:

300 Winding Brook Drive
 Glastonbury, Connecticut 06033
 860 652 8227

DATE: MAY 2019

PROJECT TITLE:
NATHAN HALE GREENWAY

TOWN:
BOLTON & COVENTRY

DRAWING TITLE:
GENERAL PLAN

PROJECT NO.
83684.00

DRAWING NO.
PLN-09

SHEET NO.
21

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment

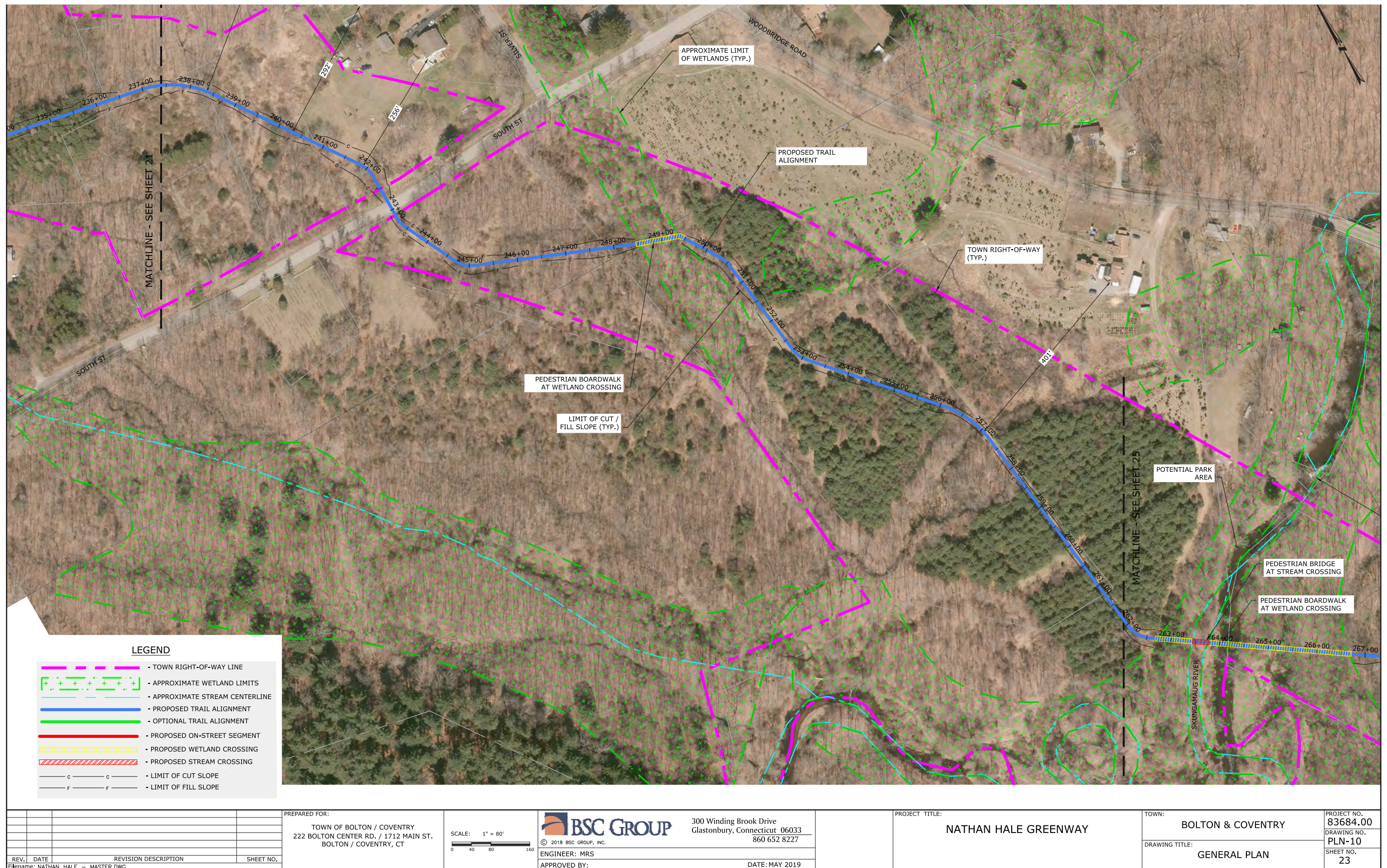
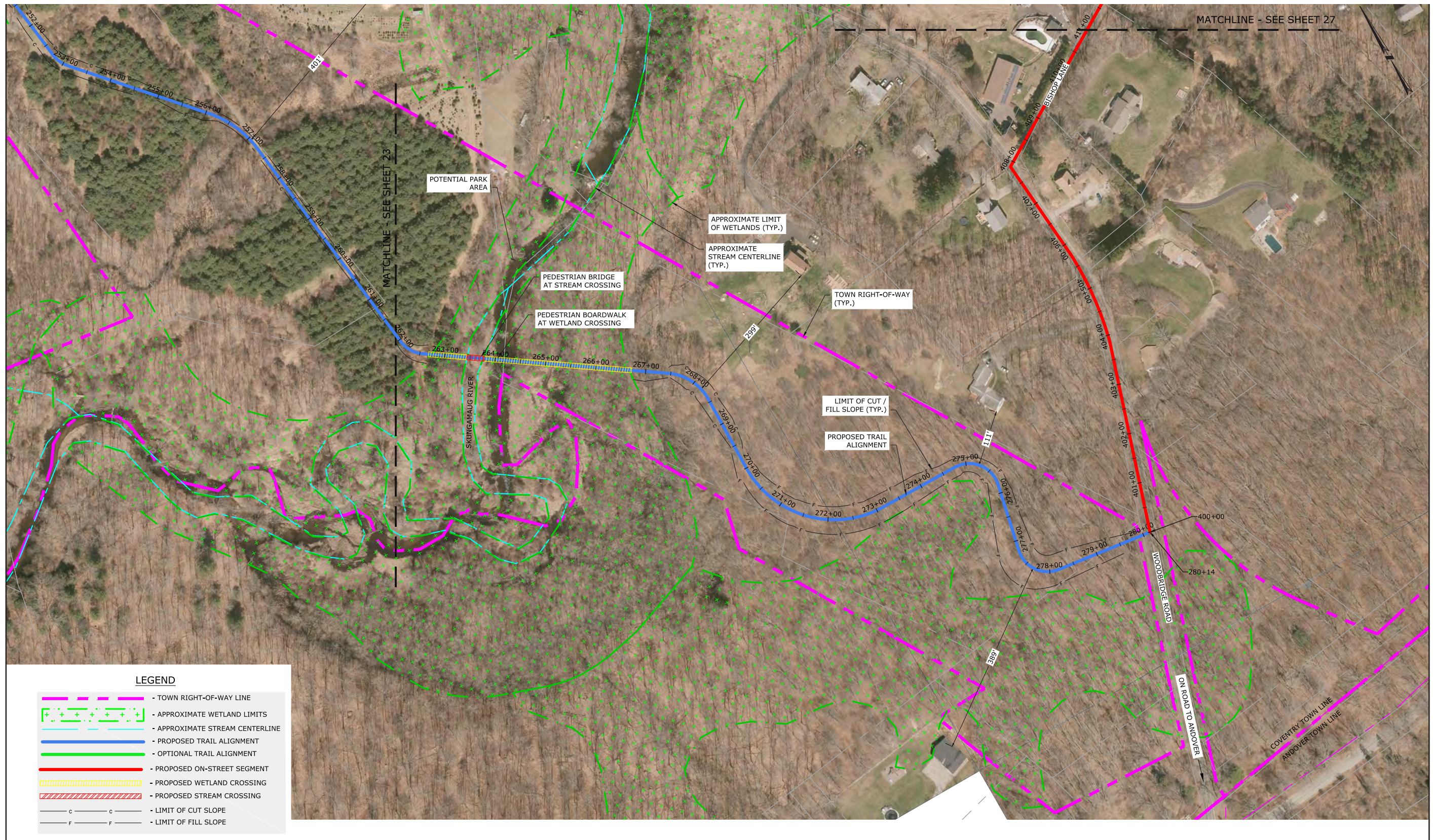


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





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Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment



Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





LEGEND

- TOWN RIGHT-OF-WAY LINE
- APPROXIMATE WETLAND LIMITS
- APPROXIMATE STREAM CENTERLINE
- PROPOSED TRAIL ALIGNMENT
- OPTIONAL TRAIL ALIGNMENT
- PROPOSED ON-STREET SEGMENT
- PROPOSED WETLAND CROSSING
- PROPOSED STREAM CROSSING
- LIMIT OF CUT SLOPE
- LIMIT OF FILL SLOPE

REV. DATE REVISION DESCRIPTION SHEET NO. Filename: NATHAN_HALE - MASTER.DWG		PREPARED FOR: TOWN OF BOLTON / COVENTRY 222 BOLTON CENTER RD. / 1712 MAIN ST. BOLTON / COVENTRY, CT	SCALE: 1" = 80' 	300 Winding Brook Drive Glastonbury, Connecticut 06033 860 652 8227 © 2018 BSC GROUP, INC. ENGINEER: MRS APPROVED BY:	PROJECT TITLE: NATHAN HALE GREENWAY	TOWN: BOLTON & COVENTRY DRAWING TITLE: GENERAL PLAN	PROJECT NO. 83684.00 DRAWING NO. PLN-13 SHEET NO. 28
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Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment



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Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment

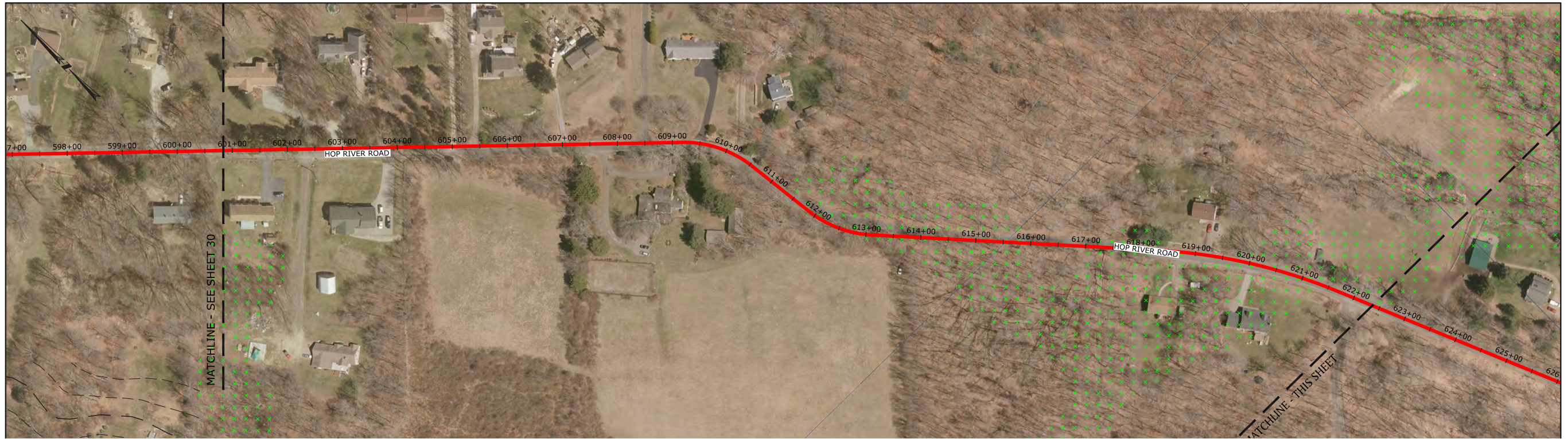


Figure 5: Preferred Alignment

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT





Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

Figure 5: Preferred Alignment





7.0 Photographs

In This Section

- a. Existing Conditions Photos



Photo 1
Trail Segment 1 - Example of rock outcropping/natural point of interest and significant topographic change



Photo 3
Trail Segment 1 - Possible wetland resource



Photo 6
Trail Segment 2 - Example of rock outcropping/natural point of interest



Photo 2
Trail Segment 1 - Example of woodlands and localized topographic variation



Photo 4
Trail Segment 1 - Approximate crossing at Stony Road



Photo 7
Trail Segment 2 - Looking west at approximate crossing of South Rd. at Bolton Pond Brook (in background). Possible watercourse crossing

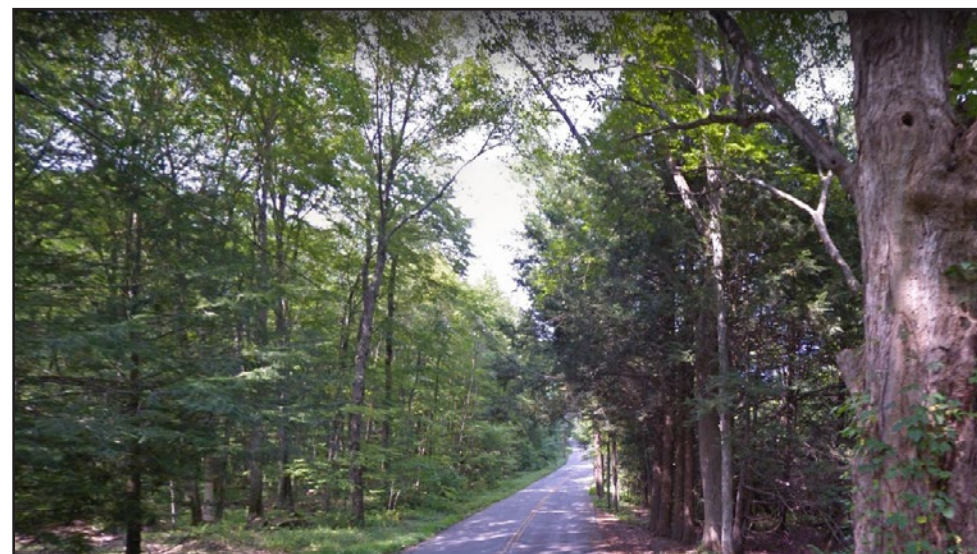


Photo 5
Trail Segment 2 - Example of woodlands along potential trail route



Photo 8
Trail Segment 2 - Example of rock outcropping/natural point of interest at Bolton Pond Brook near South Rd.



Photo 10
Trail Segment 3 - Remains of stone wall along potential trail route in heavily-wooded area



Photo 12
Trail Segment 3 - Approximate crossing at Brewster St.



Photo 9
Trail Segment 2 - Concrete abutments on east side of South Rd. at Bolton Pond Brook. Watercourse crossing



Photo 11
Trail Segment 3 - Typical woodlands with rock outcropping/natural point of interest west of approximate crossing at Brewster St.



Photo 13
Trail Segment 4 - Well structure on west side of Brewster St. near approximate crossing



Photo 14
Trail Segment 4 - Natural point of interest and possible watercourse crossing at Ash Brook



Photo 16
Trail Segment 4 - Culvert beneath Swamp Rd. near approximate crossing area



Photo 18
Trail Segment 6 - Approximate crossing area at South St.



Photo 15
Trail Segment 4 - Approximate crossing area at Swamp Rd. looking north



Photo 19
Trail Segment 6 - Deteriorated bridge along potential route on east side of right-of-way to the west of Woodbridge Rd.



Photo 17
Trail Segment 5 - Seasonal watercourse (dry in photo) east of Swamp Rd. Possible watercourse crossing



Photo 20
Trail Segment 6 - View of Skungamung River in vicinity of approximate crossing area



Photo 22
Trail Segment 11 - Rufus Brook. Required watercourse crossing and steep terrain



Photo 24
Trail Segment 12 - Example of woodlands and topographic change along potential route



Photo 21
Trail Segment 11 - Example of woodlands and topographic change along potential route



Photo 23
Trail Segment 11 - Parker Bridge Rd. in vicinity of approximate crossing area



Photo 25
Trail Segment 12 - Woodlands and wetlands/watercourses (unnamed) west of Hop River Rd. Required watercourse crossing



Photo 26
Trail Segment 12 - Hop River Rd. in vicinity of approximate crossing area



Photo 28
Trail Segment 12 - Example of woodlands and topographic change along potential route



Photo 30
Trail Segment 12 - Greenway connection/transition to share-the-road at Pucker St.



Photo 27
Trail Segment 12 - Theims Brook looking north in vicinity of approximate crossing area. Required watercourse crossing



Photo 29
Trail Segment 12 - Example of woodlands and topographic change along potential route west of Pucker St.



Photo 31
Trail Segment 12 - Share-the-road on Pucker St. for final connection to Hop River Trail



8.0 Appendices

In This Section

- a. GIS Database Images
- b. Alignments "A" and "B"
- c. Typical Trail Cross Section
- d. Public Meeting Announcements
- e. Public Presentation
- f. Public Survey Data and Results

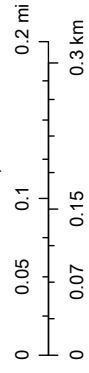
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October 10, 2018

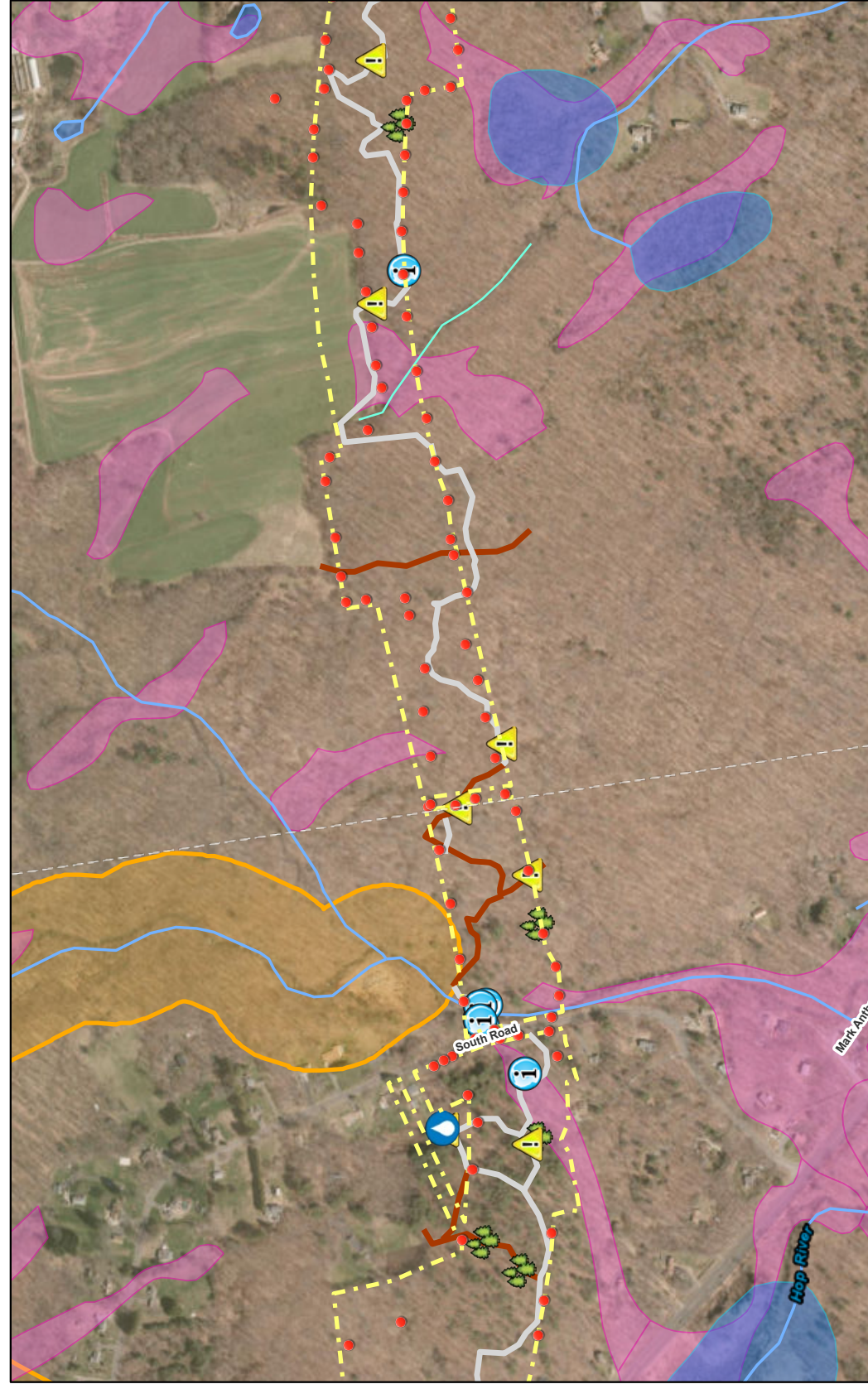
- Conservation Markers
- Route 6 Parcel
- i Points of Interest
- ! Road Intersection Point
- Water Crossing

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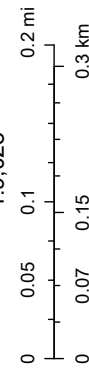
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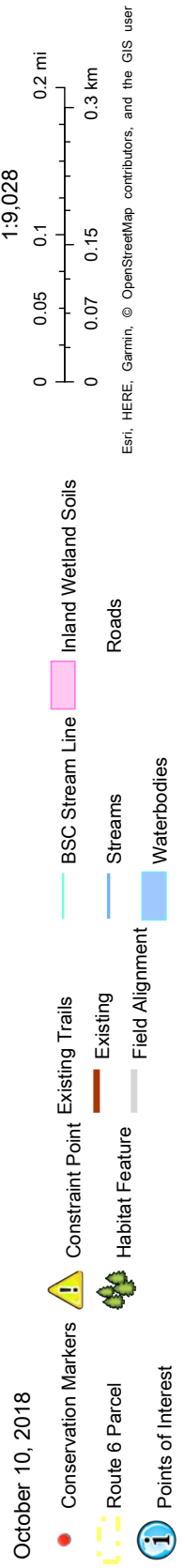
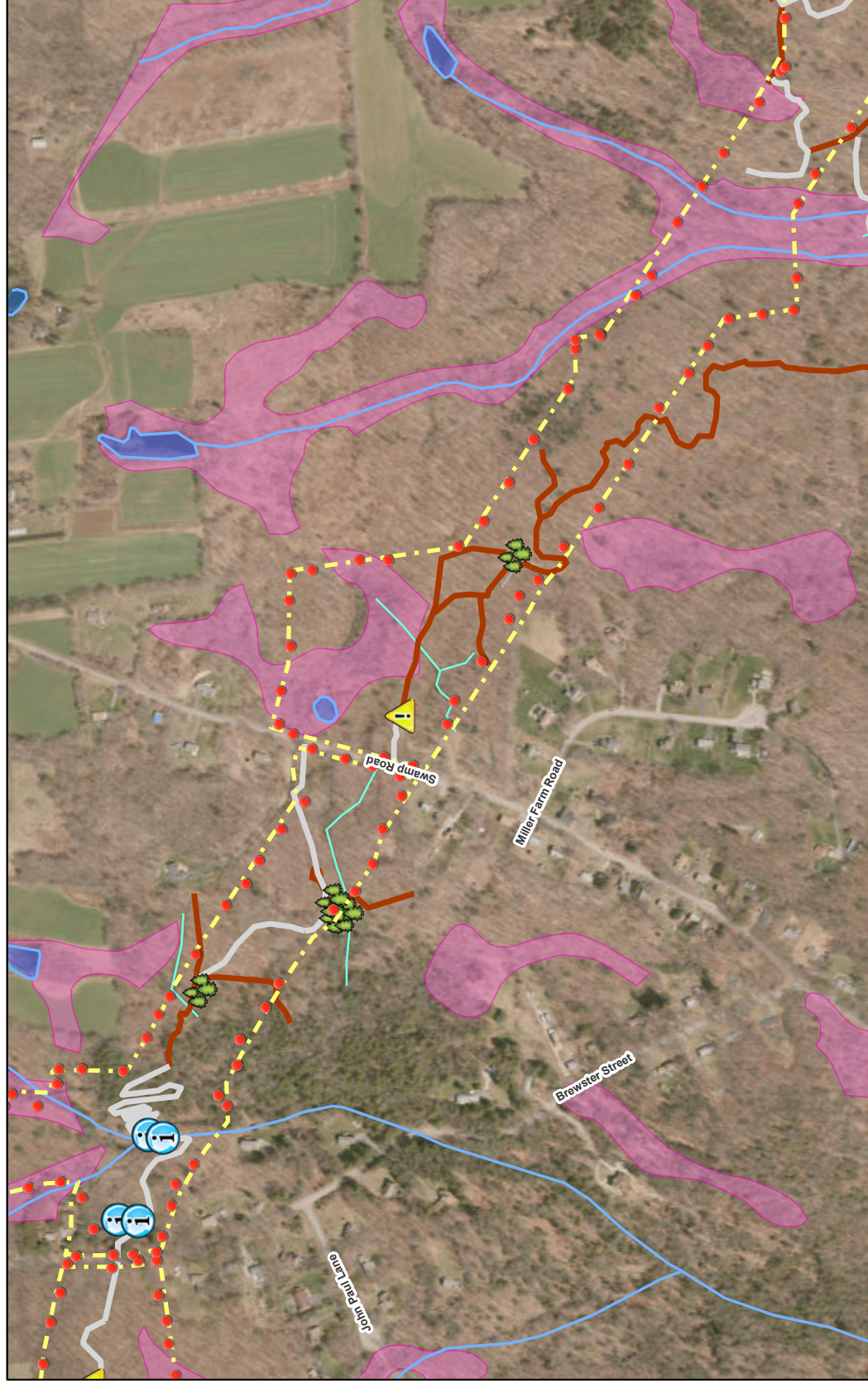
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- Water Crossing

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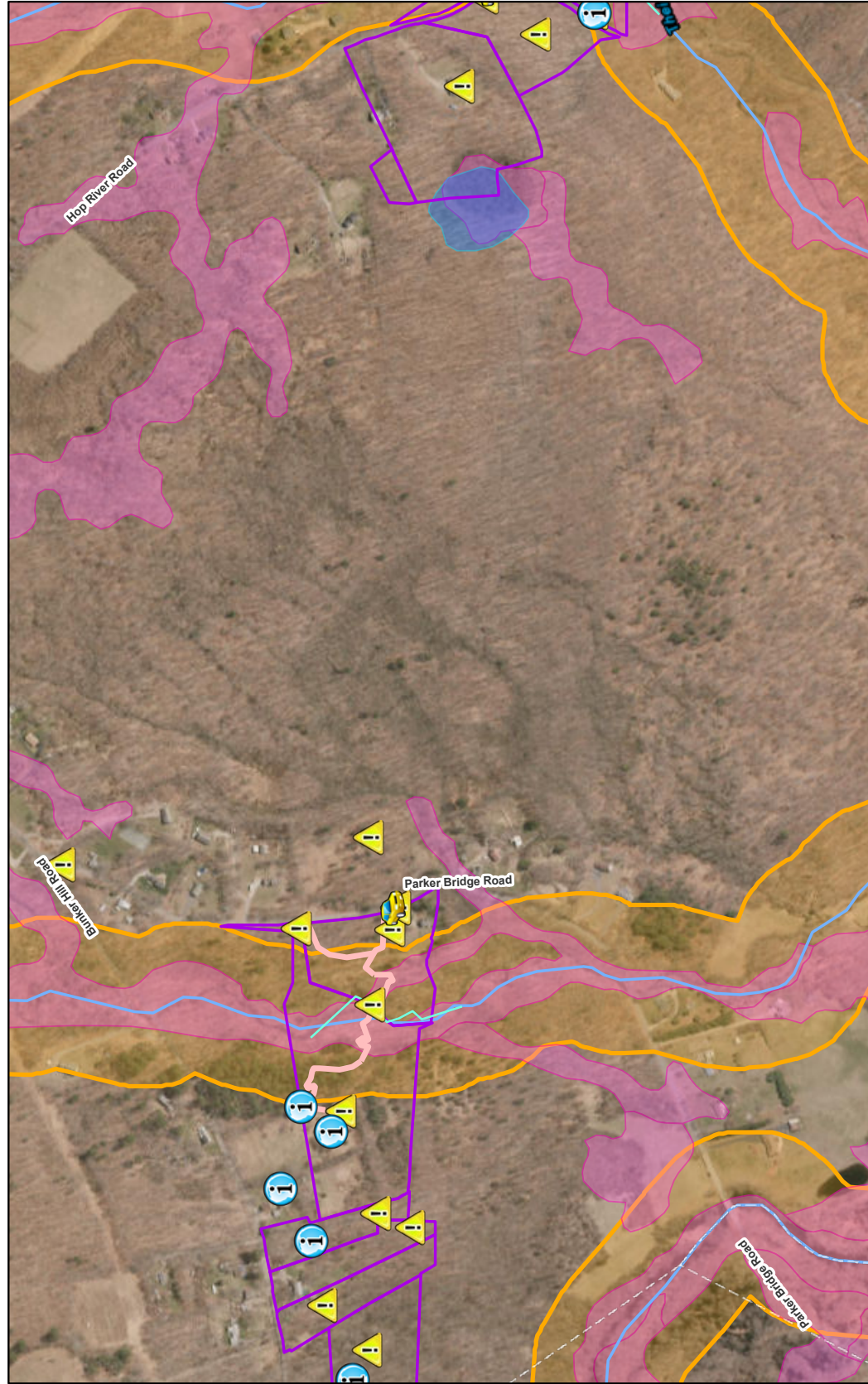


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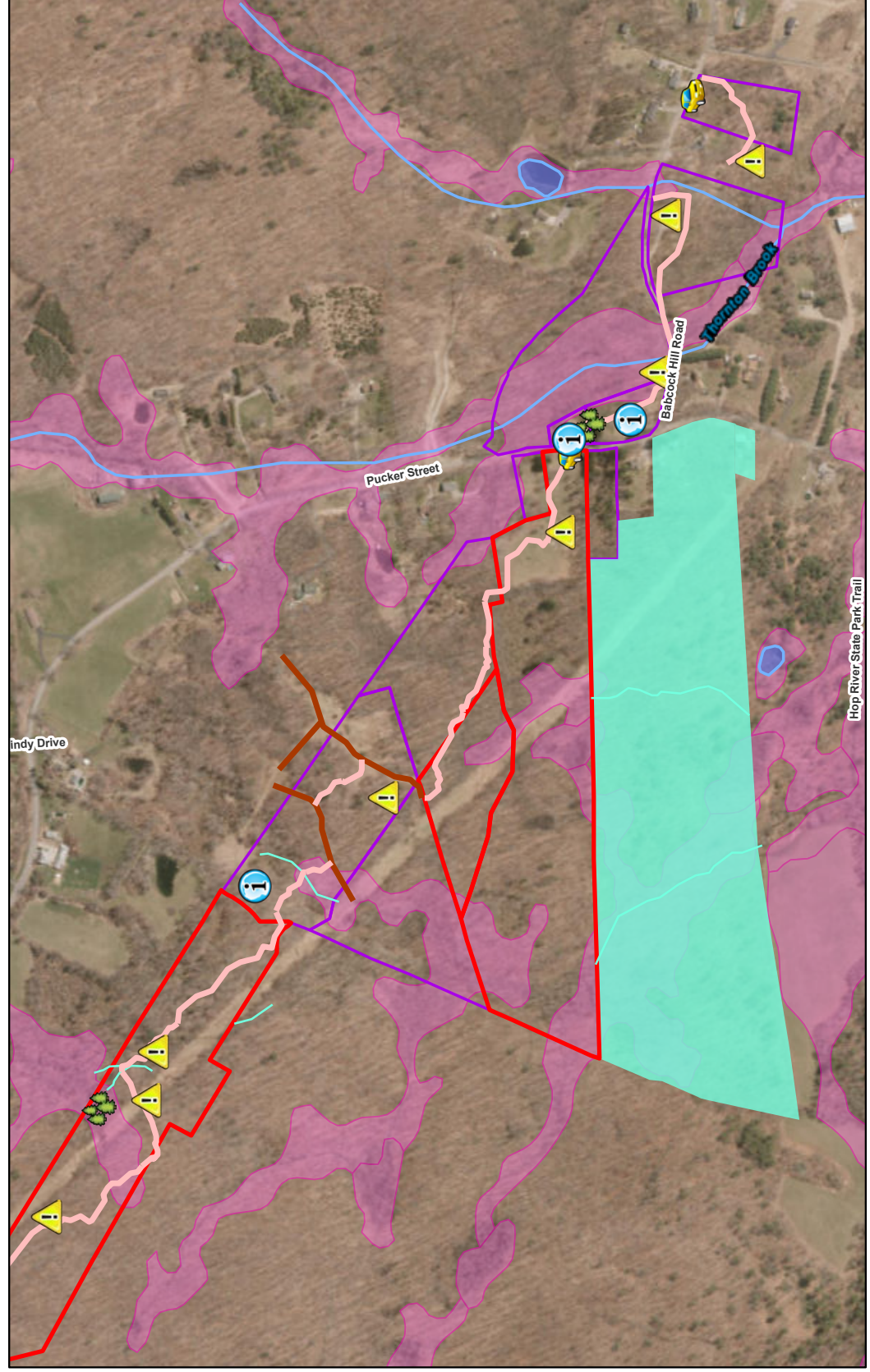


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8.1 GIS Database Images

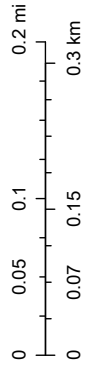
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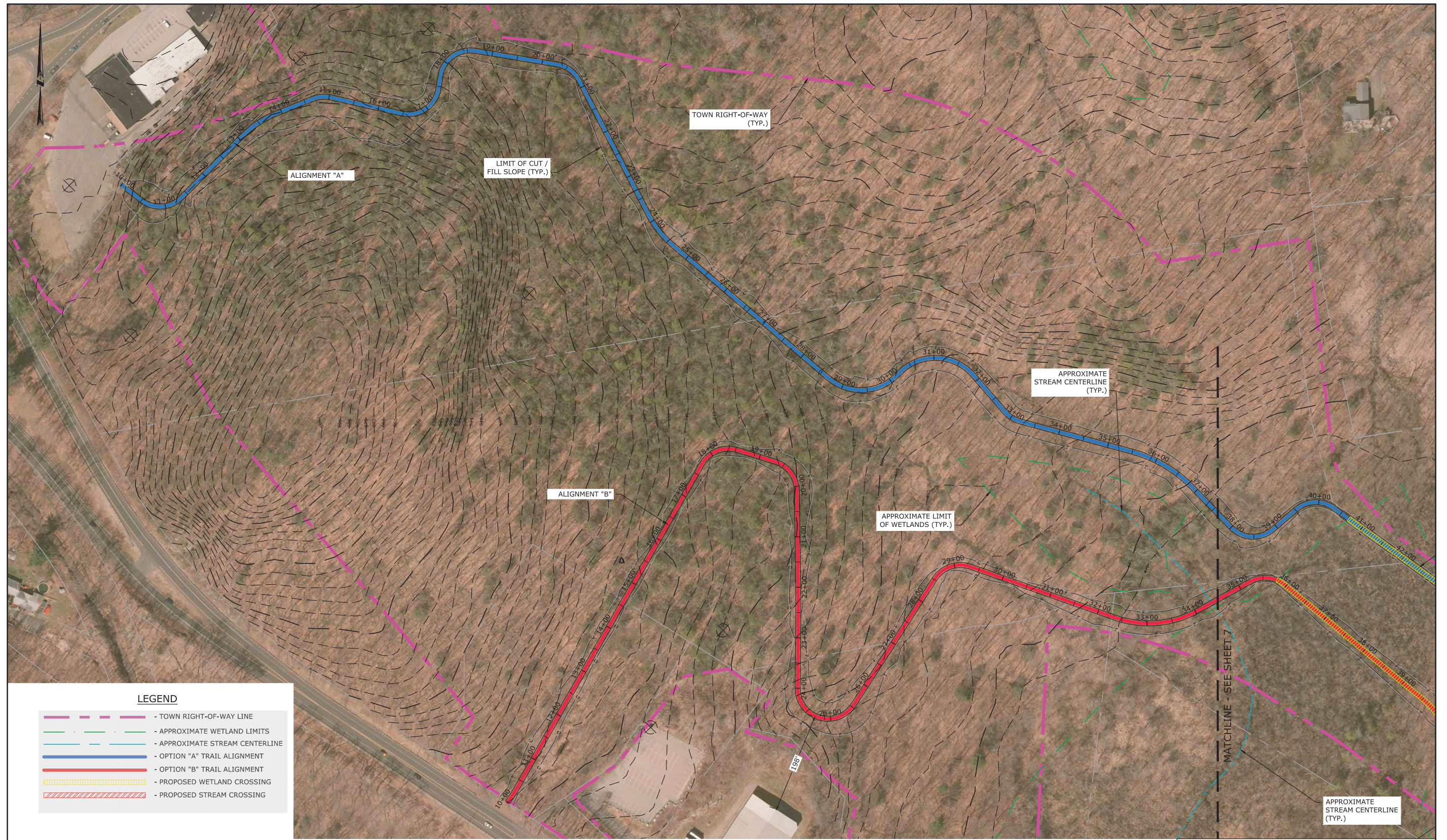
- Points of Interest
- Road Intersection Point

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8.2 Alignments "A" and "B"



LEGEND

- TOWN RIGHT-OF-WAY LINE
- APPROXIMATE WETLAND LIMITS
- APPROXIMATE STREAM CENTERLINE
- OPTION "A" TRAIL ALIGNMENT
- OPTION "B" TRAIL ALIGNMENT
- PROPOSED WETLAND CROSSING
- PROPOSED STREAM CROSSING

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Filename: NATHAN_HALE - MASTER.DWG

PREPARED FOR:
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SCALE: 1" = 80'

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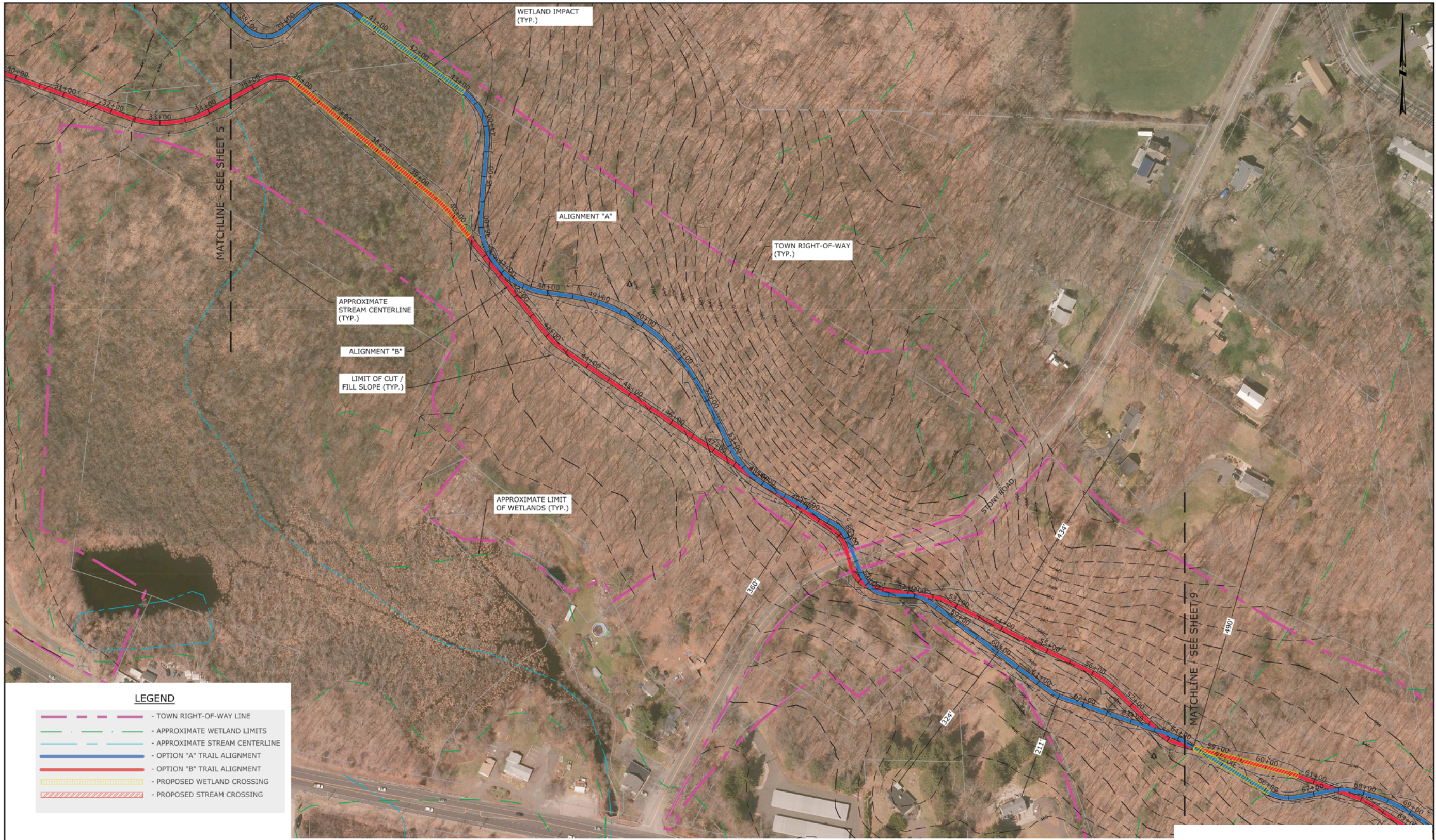
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TOWN:
 BOLTON & COVENTRY
 DRAWING TITLE:
 GENERAL PLAN

PROJECT NO.
 83684.00
 DRAWING NO.
 PLN-01
 SHEET NO.
 05

Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

8.2 Alignments "A" and "B"

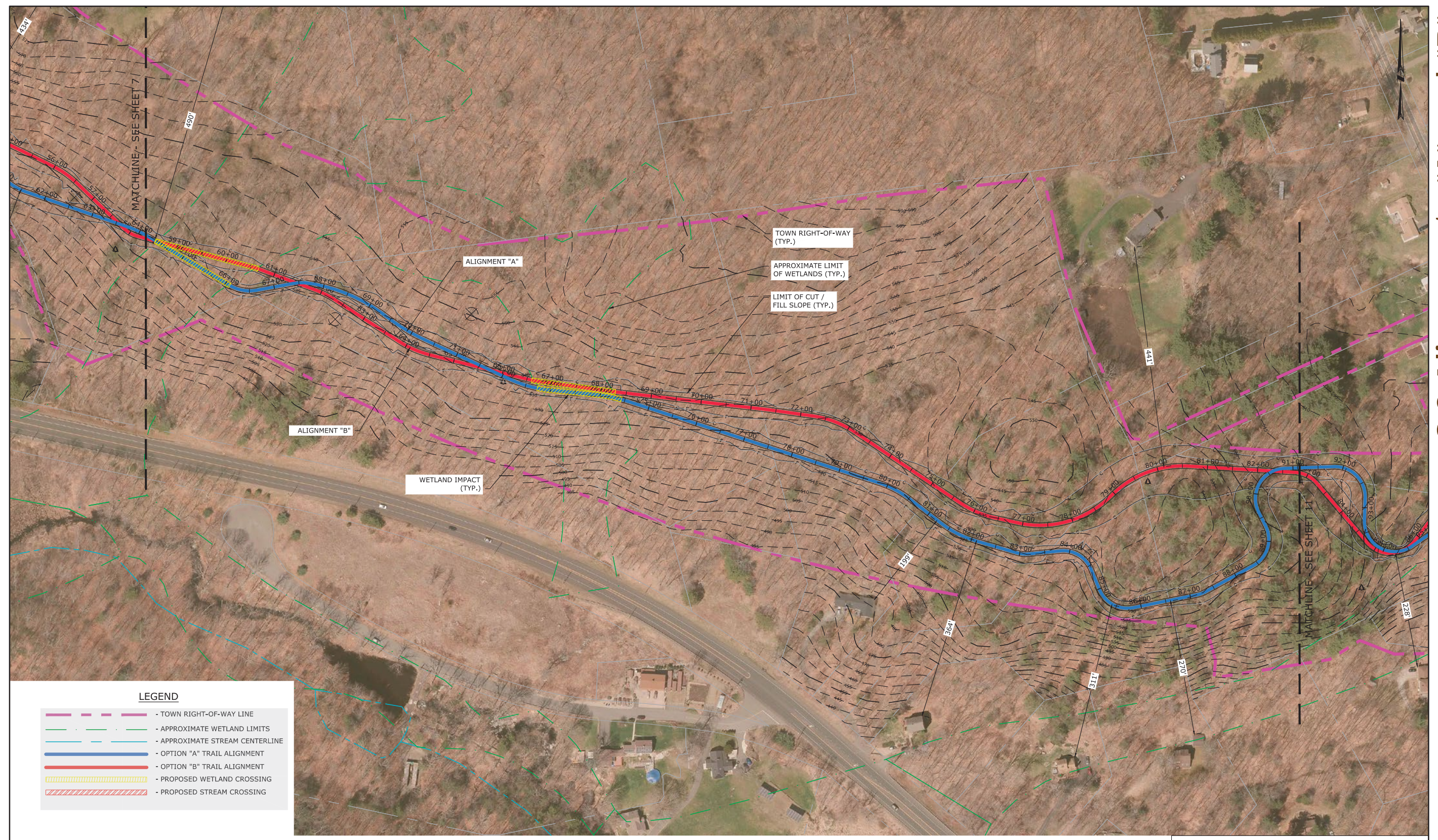


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8.2 Alignments "A" and "B"



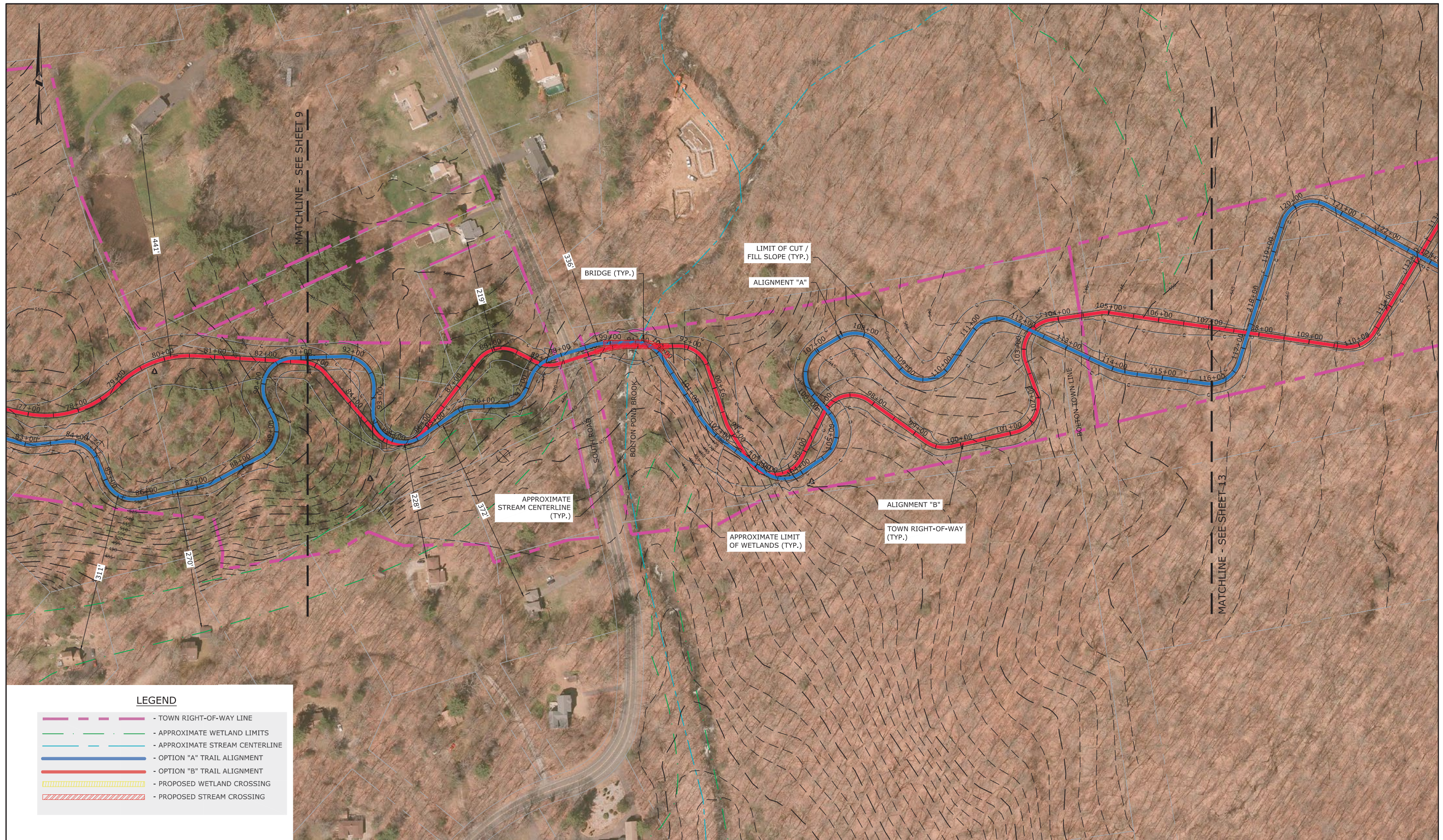
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- PROPOSED STREAM CROSSING

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Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

8.2 Alignments "A" and "B"



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0 40 80 160

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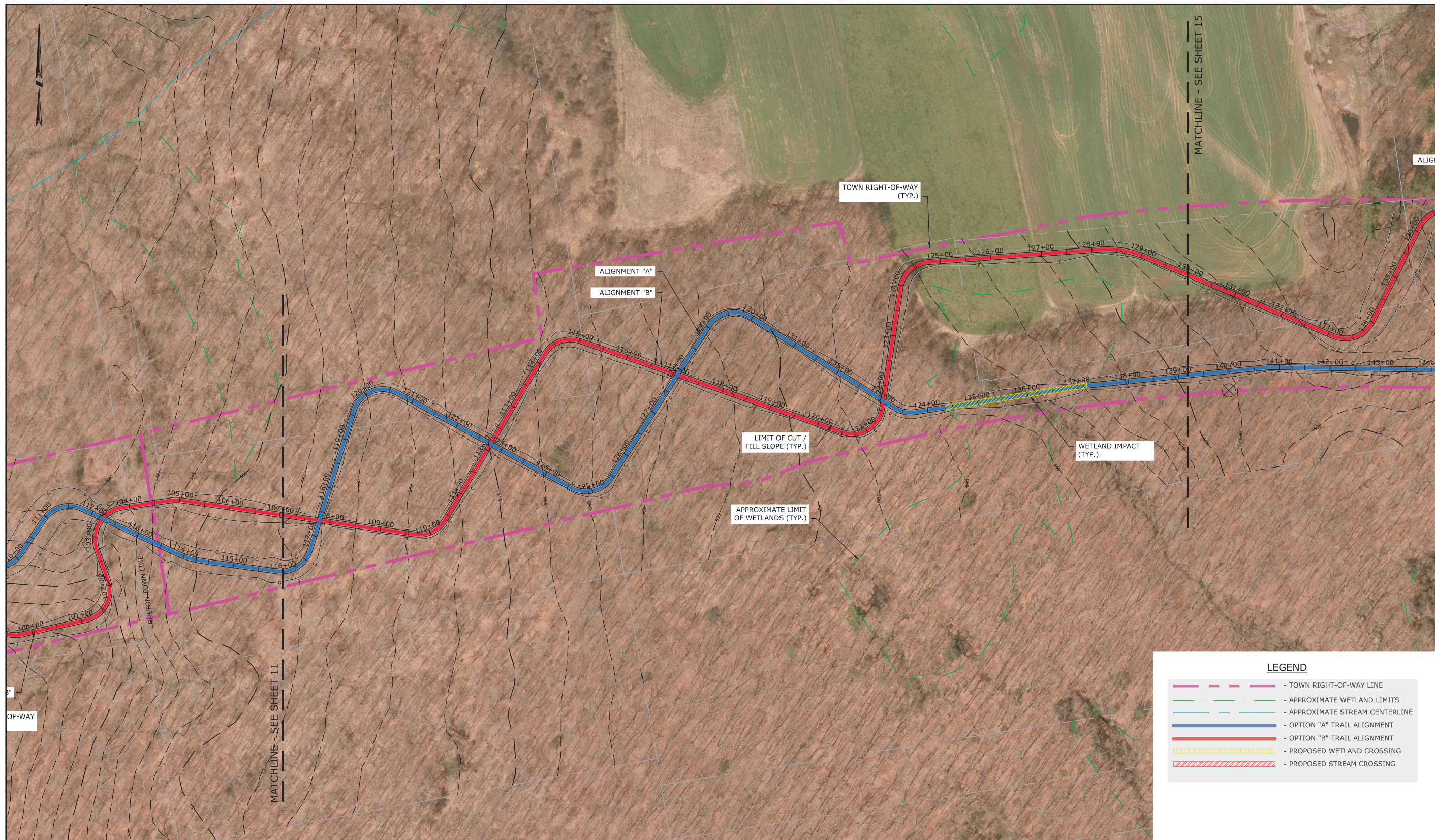
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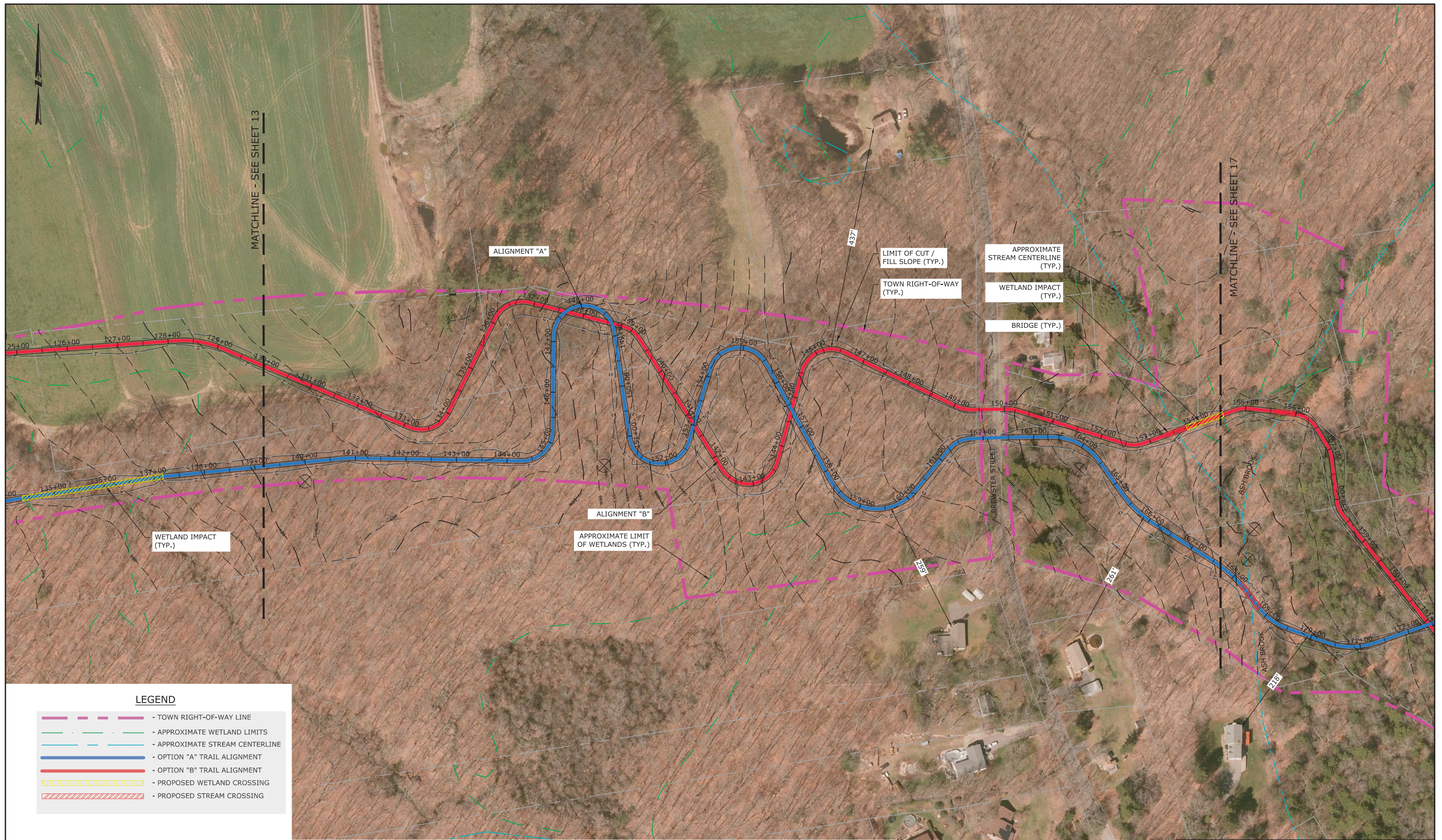


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8.2 Alignments "A" and "B"

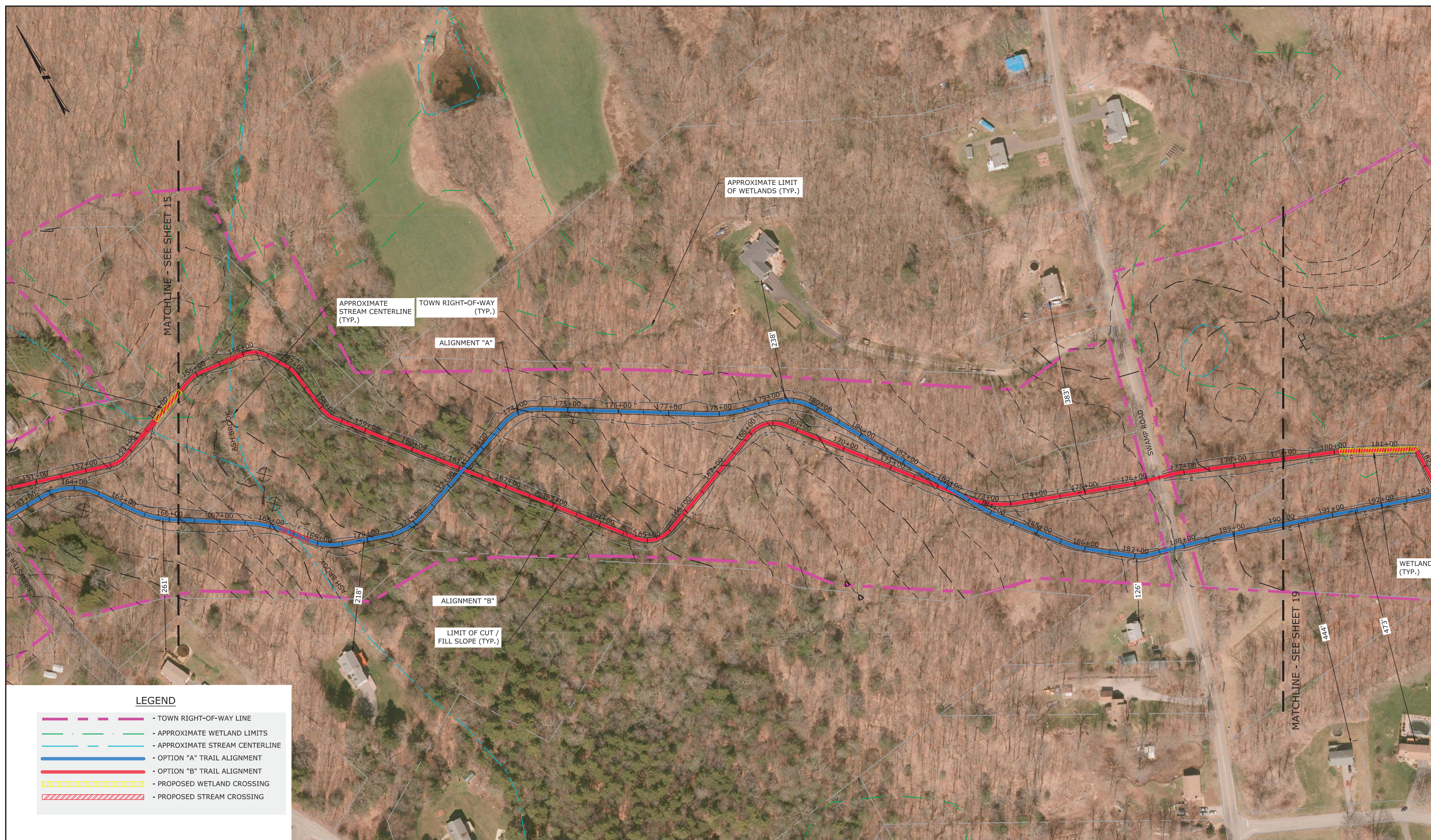


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8.2 Alignments "A" and "B"



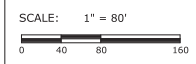
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TOWN:
BOLTON & COVENTRY

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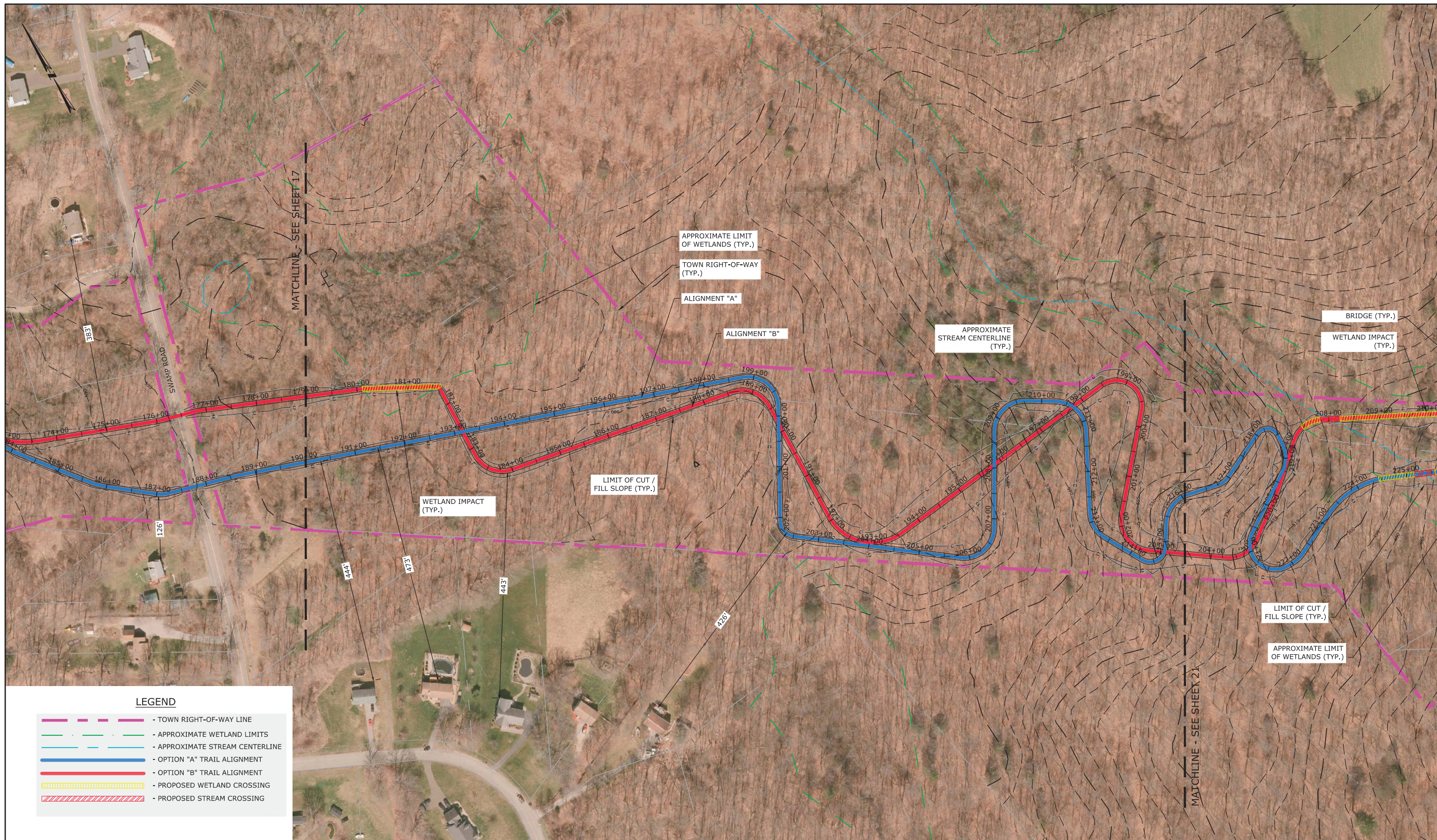
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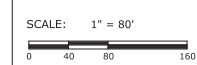
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PROJECT TITLE:
NATHAN HALE GREENWAY

TOWN:
BOLTON & COVENTRY

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PROJECT NO.
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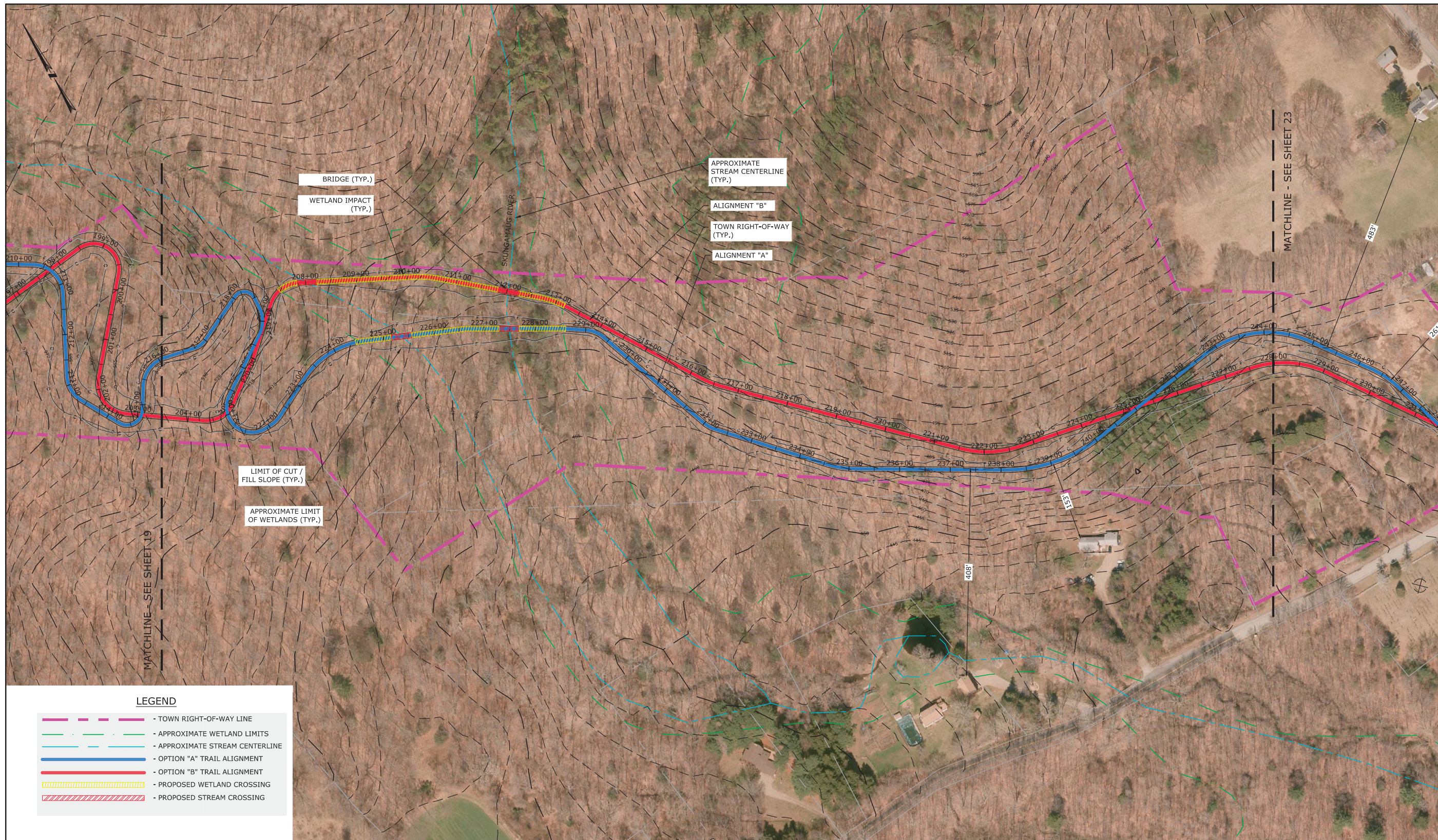
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8.2 Alignments "A" and "B"



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REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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SCALE: 1" = 80'
 0 40 80 160

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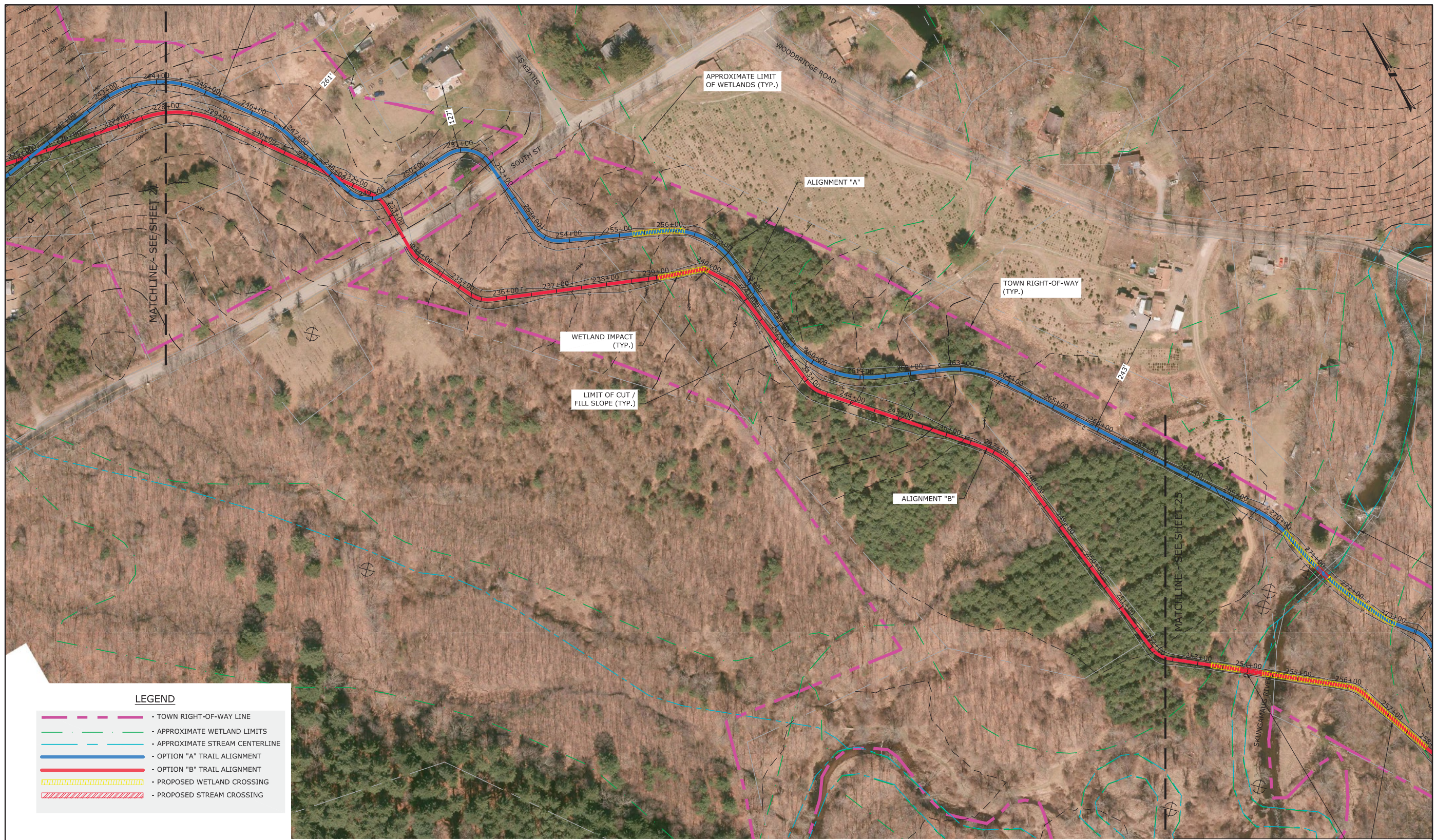
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8.2 Alignments "A" and "B"



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TOWN:
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PROJECT NO.
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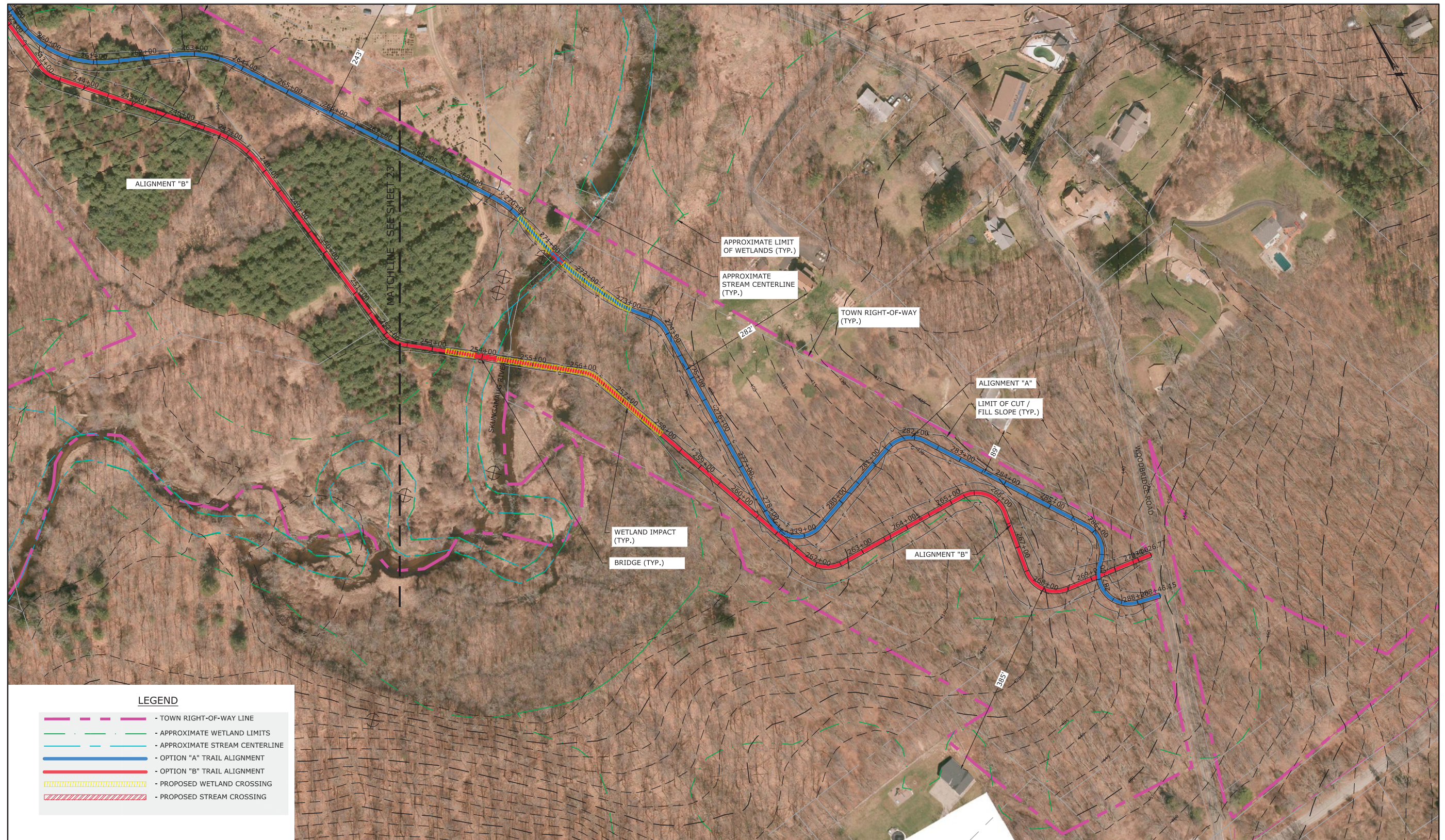
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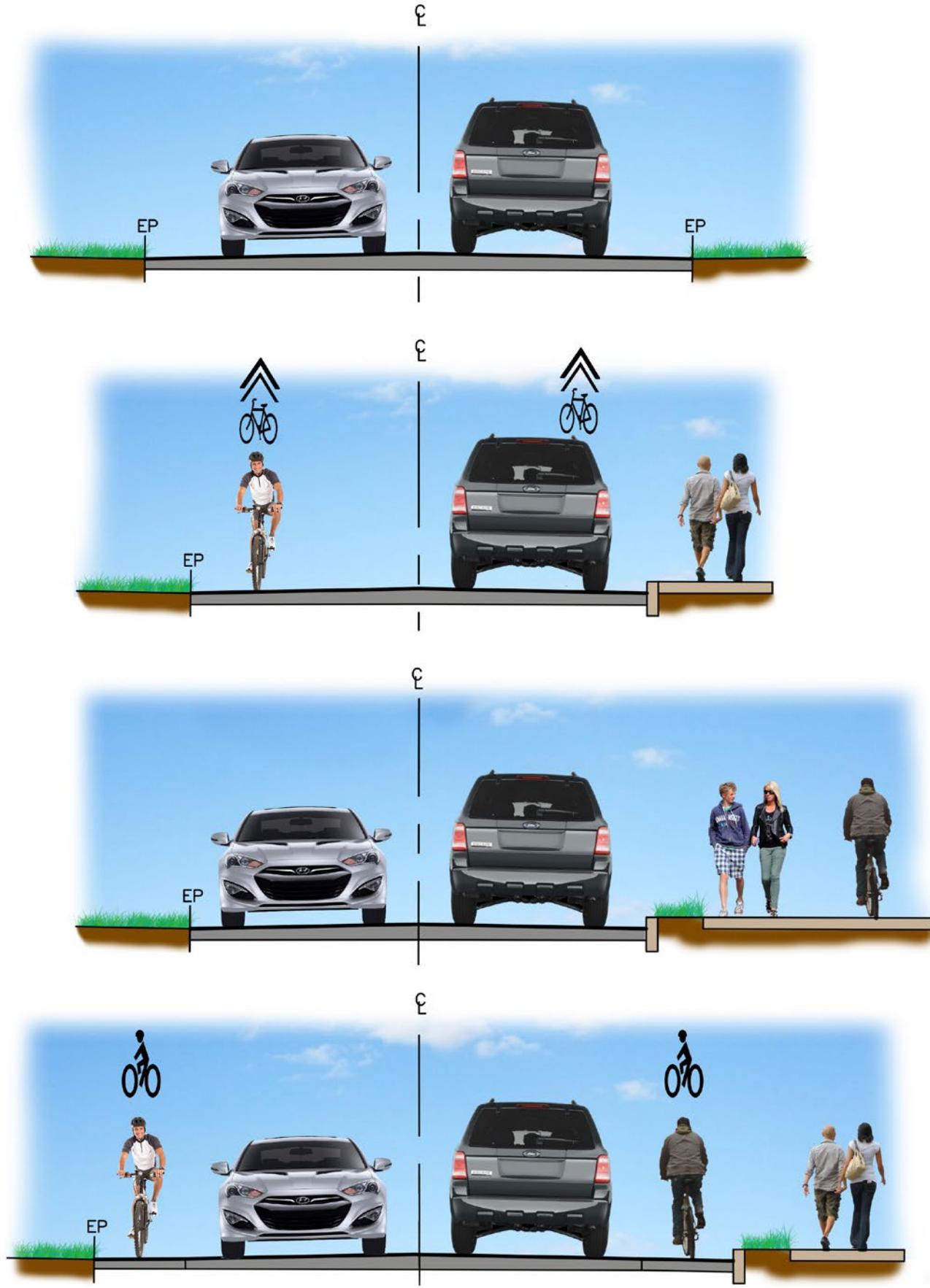


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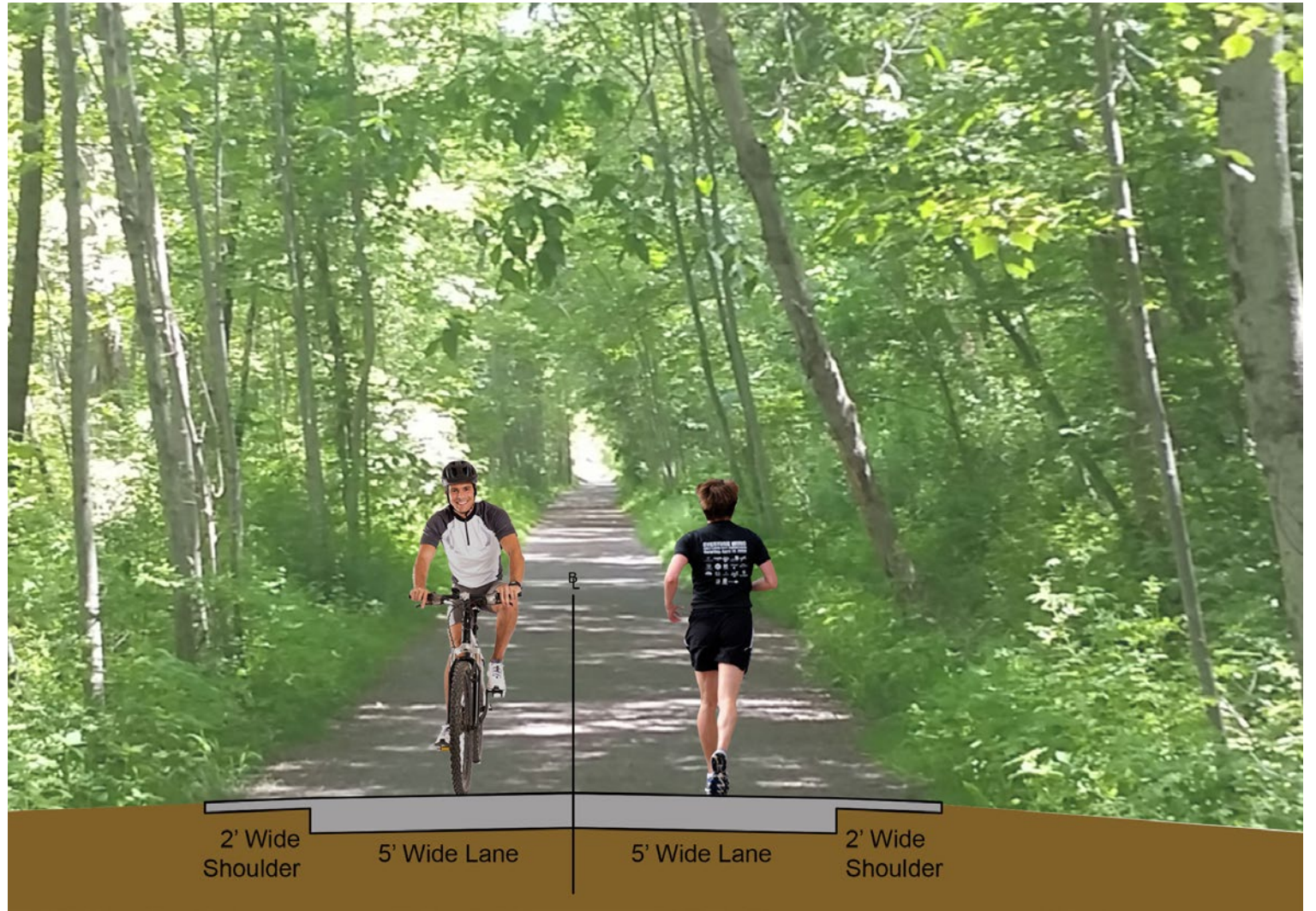
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Source: ESRI World Imagery, Town of Bolton, Town of Coventry, CTDOT

8.3 Typical Cross Sections



Roadway



Formalized Multi-Use Trail

Join us for a Public Information Meeting
for the Upcoming
Nathan Hale Greenway



Thursday
January 25, 2018
7:00 – 9:00 pm



*@ Bolton Town Hall
222 Bolton Center Road*

The BSC Group will give a brief presentation about
the development of the Nathan Hale Greenway.



Join us for a Public Information Meeting
for the Upcoming
Nathan Hale Greenway



Thursday
January 18, 2018
7:00 – 9:00 pm



*@ Coventry High School
78 Ripley Rd, Coventry, CT*

The BSC Group will give a brief presentation about
the development of the Nathan Hale Greenway.



Join us for the Final Public Information Meeting about the Nathan Hale Greenway



Wednesday
May 1, 2019
7:00 – 9:00 pm



@ Bolton Town Hall
222 Bolton Center Road

BSC Group will give a brief presentation about development of the Nathan Hale Greenway and the public will have the opportunity to review and comment on the project.



Join us for the Final Public Information Meeting about the Nathan Hale Greenway



Thursday
April 25, 2019
7:00 – 9:00 pm



Coventry High School
Lecture Hall
78 Ripley Rd, Coventry, CT


BSC Group will give a brief presentation about development of the Nathan Hale Greenway and the public will have the opportunity to review and comment on the project.

For more information, please contact: Eric M. Trott, Coventry Director of Planning and Development, 860-742-4062, etrott@coventryct.org



Nathan Hale Greenway

Public Information Meeting



January 18, 2017 - Coventry & January 25, 2017 - Bolton

BSC GROUP

Nathan Hale Greenway

Survey / Questionnaire

Please complete the Nathan Hale Greenway Questionnaire!

(Paper & Electronic Versions available)

<https://www.surveymonkey.com/r/NathanHaleGreenway>

BSC GROUP

Nathan Hale Greenway

Meeting Agenda & Goals

Agenda

- Brief Overview of Multi-Use Paths & Greenways
- Project Background and Goals
- Project Components and Process
- Initial Findings and Design Considerations
- Feedback / Q&A

Public Meeting Goals

- Provide Project Information
- Solicit Feedback
- Answer Questions
- Build Project Support

BSC GROUP

Nathan Hale Greenway

Hidden

So let's start-off in very broad terms and talk for a few minutes about multi-use trails and greenways

BSC GROUP

Nathan Hale Greenway

Multi-Use Trails and Greenways

10,000 foot overview of multi-use trails (educational feel)

- What is a multi-use trail
- Why are they popular
- Why should we care
- People, bikes, horses, atv's?
- Paved, unpaved
- Where are they
- Who uses them
- Where are other trails in CT
- Maybe some generic photos but no critical

- Hop River Trail usage ranks amongst the highest in the state!

BSC GROUP

Nathan Hale Greenway

What is a Greenway?

Corridors of protected open space managed for conservation and recreation purposes.

- Often follow natural land or water features
- Link reserves, parks, cultural features, historic sites with each other and with populated areas such as downtowns, neighborhoods, community centers and schools



BSC GROUP

Nathan Hale Greenway

Greenway Goals

- Increase Community Health & Wellness
- Provide a safe experience for all users to enjoy the trail
- Provide Recreational Opportunities
- Promote Local Economy
- Preserve Cultural & Environmental Resources
- Enhance Sense of Community – "Sense of Place"

- Connectivity / Link points of interest
 - Environmental Resources
 - Cultural / Historic Resources
 - Open Spaces
 - Additional trail spurs that link points of interest
 - Scenic Vistas
- Educational Opportunities
 - Environmental Resources
 - Cultural Resources
 - Historical Resources



BSC GROUP

Nathan Hale Greenway

Greenway Benefits

- Increased property value
- Strengthening local economy (tourism)
- Promote healthy living
- Improve air and water quality
- Transportation alternative - pedals and feet
- Hands on environmental classrooms
- Connects people and places



"Trails and greenways provide what many Americans seek — close to-home recreational areas, community meeting places, historic preservation, educational experiences, natural landscapes and beautification. Both trails and greenways help communities build pride by ensuring that their neighborhoods are good places to live, so that children can safely walk or bike to a park, school, or to a neighbor's home. Trails and greenways help make communities more attractive and friendly places to live." CT DEEP

BSC GROUP

Nathan Hale Greenway

Hidden


Now let's talk about the Nathan Hale Greenway. What was the genesis of the project. Where does it fit-in within the greater context of other multi-use trails nationally and in CT. Why is this such a unique opportunity for the Coventry and Bolton.

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Nathan Hale Greenway - Background

History of the Project

- ConnDOT originally purchased land for the relocation of Route 6 in Bolton, Coventry, and Andover in 1986.
- When CTDOT abandoned the project it was decided to give most of the land that was purchased back to the Towns.
- The only condition was that this land needs to be utilized as "open space" and not sold.




Nathan Hale Greenway

The proposed **Nathan Hale Greenway** will utilize a portion of the land purchased by the State to relocate Route 6. The ROW purchased from the State was transferred to the respective towns.

This trail will create further opportunities to link the Nathan Hale Greenway with the Hop River Trail / East Coast Greenway and would establish a recreational facility network of **such substantial magnitude** that it would attract users from outside the region, promoting local tourism.


Part of a Bigger Network

- East Coast Greenway
- Hop River Trail
- Charter Oak Greenway
- "Missing Link"
- Bolton Greenway Extension





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Here is some mapping that illustrates what I just said. This shows where the Nathan Hale Greenway fits-in nationally and locally

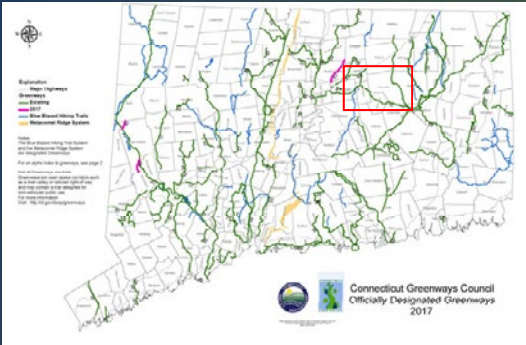


National – East Coast Greenway

- Bike Route from Maine to Florida
- The **East Coast Greenway** vision is for a long-distance, urban, shared-use trail system linking 25 major cities along the Eastern Seaboard between Calais, Maine, and Key West, Florida.
- It will serve non-motorized users of **all abilities and ages**. A 2,900-mile long spine route will be accompanied by 2,000 miles of **complementary routes** that link in key cities, towns, and areas of natural beauty. This green travel corridor will provide cyclists, runners, walkers, and other active transportation users with a low-impact way to explore the Eastern Seaboard.
- "In December 2017, our Greenway Council approved 22 new segments as official stretches of East Coast Greenway. The segments total nearly 40 miles and include pieces of trail in nine states, from half-mile additions in Connecticut and Massachusetts to an eight-mile stretch in Titusville, Florida." ECG website





State – Connecticut Greenways

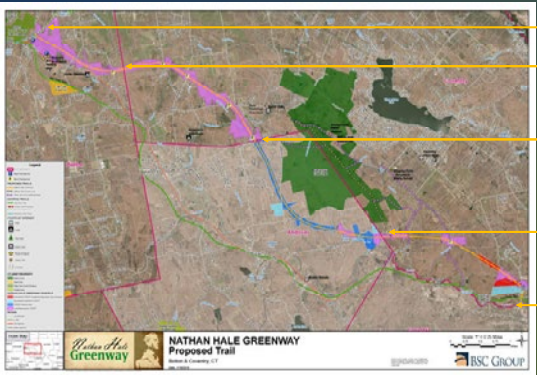


Connecticut Greenways Council
Officially Designated Greenways
2017


[Connecticut Greenways Map](#)



Local – Project Limits




- Bolton
• 1.8 miles
- Coventry – North
• 2.8 miles
- Coventry – Nathan Hale Forest
• 2.4 miles
- Coventry – South
• 3.3 miles





Hidden

Now let's talk about some of the specific goals of the project. After that we'll discuss the process, meaning, what are the various steps required to achieve those goals. Who gets involved in the various steps. We'll also talk about some of the challenges that a project of this type deals with as we move through the process to ultimately achieve the goals.




Goals of the Nathan Hale Greenway Study

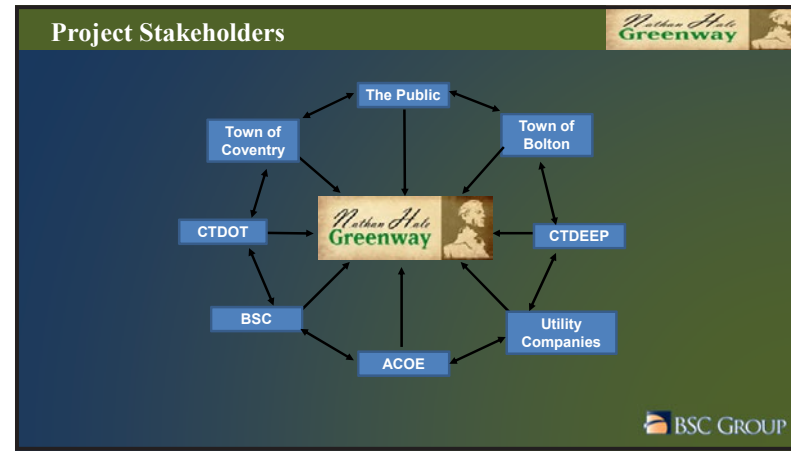
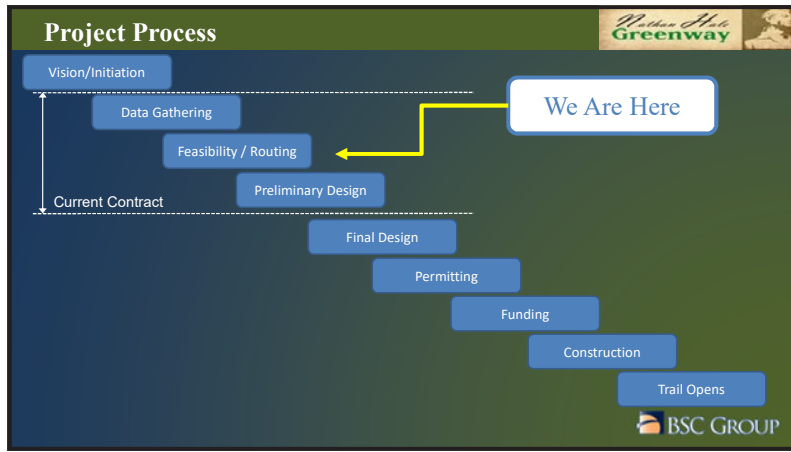
- Establish existing conditions / base mapping
- Determine likely right-of-way needs and impacts
- Determine likely environmental impacts
- Estimate construction costs
- Link points of interest
 - Scenic Views / Vistas
 - Provide Educational Opportunities for Cultural / Historical / Environmental Resources
- Establish a preferred route alignment for the Trail
- Provide concept plans and drawings
- Facilitate the ability to pursue and obtain funding

Hidden

Transition to process, There's a lot of steps required to bring something like this to fruition. There are also a lot of stakeholders involved in the process.

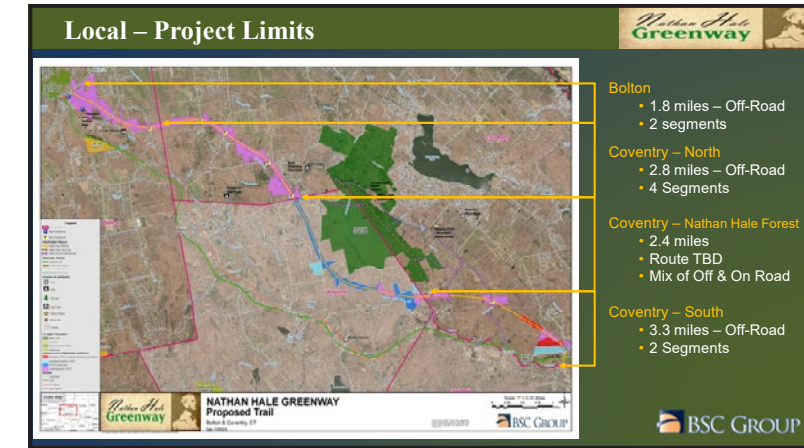




- ### Project Challenges
- Water Crossings – Bridges & Boardwalks
 - Rivers & Streams
 - Wetlands
 - Roadway Crossings
 - Intersection Sight Distance
 - Advanced Warning Sign Options
 - On-Road Portion
 - Pedestrian and Bicycle Accommodations
 - Narrow existing roads
- BSC GROUP

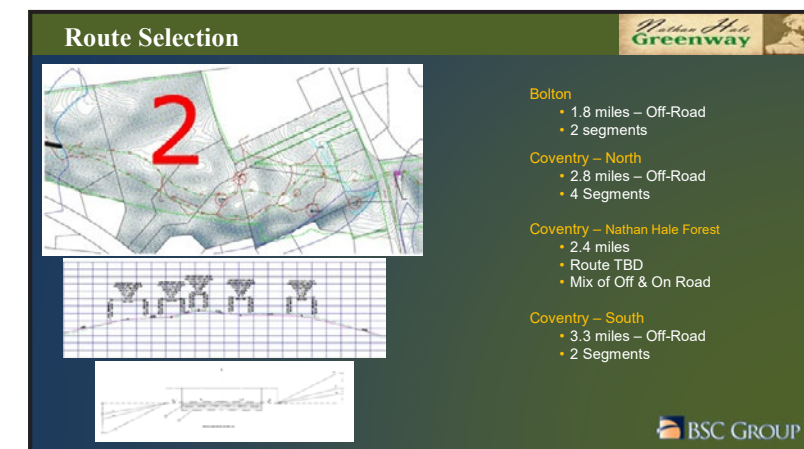
- ### Project Approach
- Data Gathering**
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 - Define a preferred route based on constraints and input from the community
 - Preliminary Design**
 - Survey as required
 - Prepare Preliminary Design Plans
 - Provide a Cost Estimate
- BSC GROUP

- ### Project Approach
- Site Walk / GPS Data collection**
 - Real time data collection
 - Cloud based / Shareable
 - Identify & Record:
 - Historic and natural resources
 - Points of interest
 - Existing trails
 - Points of potential conflict
-
- BSC GROUP



- ### Route Selection Criteria
- | | |
|--------------------------------|-----------------------------------|
| ↓ Construction Cost | ↑ Cultural and Natural Resources |
| ↓ Constructability | ↑ Recreational Opportunities |
| ↓ Right of Way Concerns | ↑ Scenic Value |
| ↓ Environmental Constraints | ↑ Accessibility |
| ↓ Potential Permitting Impacts | ↑ Proximity to Points of Interest |
| ↓ Stakeholder Concerns | – Inside corridor |
| ↓ Public Concerns | – Within close proximity |
| | ↑ Safety |
| | ↑ Security |
- BSC GROUP


- ### Route Selection
- Unique Project since the corridor is predefined
 - It is the most Feasible Alternative!
 - Determination of segments to aid in analysis
 - Review of Points of Interest or Constraint within each Segment
 - Determine alignment alternatives within corridor
 - Challenging topography
 - Balancing environmental impacts with scenic value
 - Determine construction costs
- BSC GROUP



Project Approach

Early Coordination Efforts

- ConnDOT
 - Project 32-130 - Route 31 Project in Coventry
- Bolton Greenway Extension
- BSC Environmental On-Call
- CTDEEP
 - Trails Coordinator - Laurie Giannotti
 - State Forest




Route Selection Criteria

Categories and Goals



- Off-road: Higher percentage of off-road facilities is more favorable
- Safety: Lower potential for vehicular conflicts is more favorable
- Connectivity: Nearby residential population, and greater number of recreational amenities is more favorable
- Security: Greater access and egress potential is more favorable
- Environment: Fewer impacts to natural or cultural resources is more favorable
- Right-of-way: Fewer constructability challenges, and lower impacts to the community is more favorable
- Cost: Fewer major cost elements is more favorable

Weights and measures were assigned to each category and data was collected for each measure.



Project Corridor

Establishing Corridor Theme & Texture

Off-Road Option

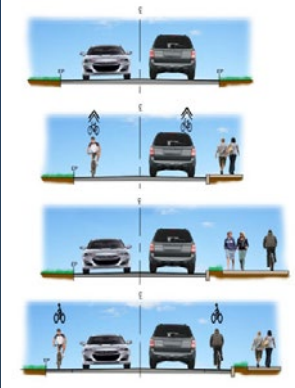


- Similar to Hop River Trail & Airline Trail
- Approximate Cost:
 - \$350,000 / mile to
 - \$500,000 / mile




On-Road Options

Increasing Cost / Increasing ROW Impacts



- Existing Road**
- Option 1**
Bike - Shared Road
Pedestrian - Bituminous Sidewalk
- Option 2**
Bike & Pedestrian - Shared Use Side Path
- Option 3**
Bike - Road Widening / Dedicated Bike Lane
Pedestrian - Bituminous Sidewalk



On-Road Options

Shared Lanes

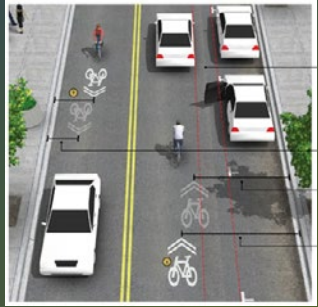

- Bike may be operated on all roadways except where prohibited by statute.
- There are no bicycle specific designs for shared roadways but various features can make shared lanes more compatible for bicycling.

Shared Lane Marking – “Sharrow”

- The shared lane marking is not a facility type, it is a pavement marking with a variety of uses to support a complete bikeway network.
- Not appropriate on roads with speeds over 35 mph

Benefits

- Road markings used to indicate a shared lane environment for bicycles and automobiles.
- Reinforce the legitimacy of bicycle traffic on the street.
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On-Road Options

Conventional Bike Lane

- Bike lanes are most helpful on streets with $\geq 3,000$ motor vehicle average daily traffic.
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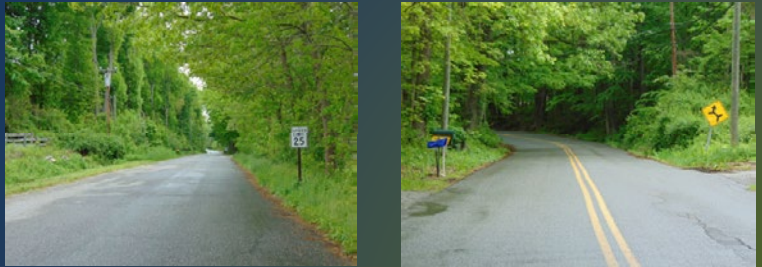
On-Road Options

Shared Use Side Path


- Minimum 10' wide path recommended
- Minimum 5' separation distance recommended
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- Maintain consistent path width and features
- Follow existing road alignment

On-Road – Potential Roadways



Nathan Hale Road Bunker Hill Road



Access & Safety

- Coordination with Fire, Police, & Maintenance to understand protocols and access needs for equipment
- Mix of Off-Road & On-Road Facilities
- Pavement Markings, Signage, Pedestrian Activated Signals
- Need for Rail / Fencing

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Typical Trail / Roadway Crossing

BSC GROUP

Typical Trail / Roadway Crossing

BSC GROUP

Trailhead – Major

Potential Locations

- Route 44 – Connection to Missing Link / Hop River Trail
- Route 6 - Vicinity of Munson's Chocolate
- Nathan Hale Forest - TBD
- Pucker Street – Connection to Hop River Trail

- 10+ Parking Spaces
- Dedicated drive
- Gathering location / destination
- May include additional amenities such as picnic area

BSC GROUP

Trailhead – Minor

Potential Locations

- South Road
- Brewster Street
- Swamp Road
- South Street
- Woodbridge Road
- Bunker Hill Road
- Hop River Road

- 3-6 Parking Spaces
- Pull-in Parking
- Convenient access
- Limited amenities

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Trailhead

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Greenway Branding / Logo Options

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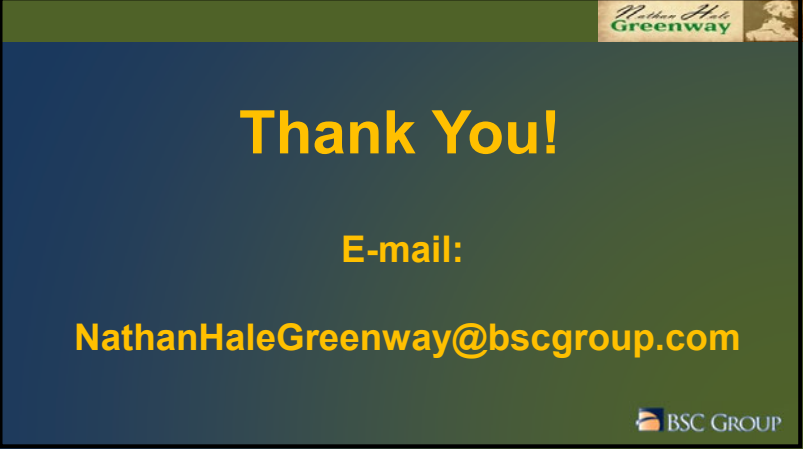
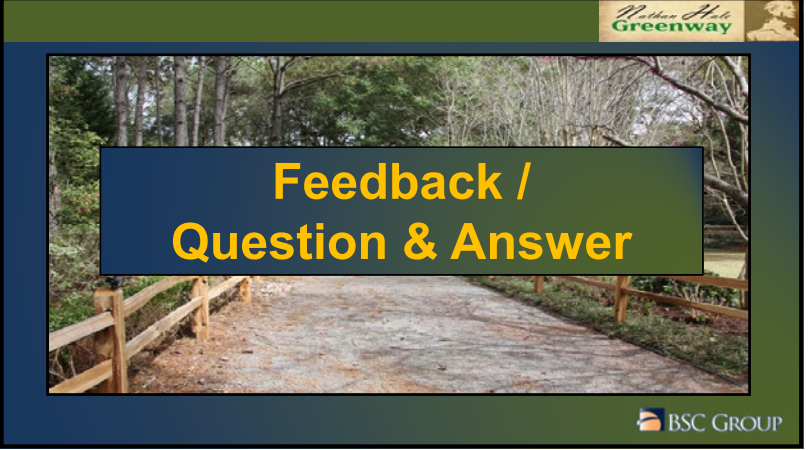
Enhancements and Amenities

- Benches
- Bike racks
- Bike repair stations
- Gates
- Trash and recycling
- Interpretive signing
- Informational kiosks
- Wayfinding
- Docks
- Landscaping
- Trailheads
- Parking areas
- Seating nodes
- Corridor consistency for ease of maintenance

BSC GROUP

Wayfinding Options

BSC GROUP



Nathan Hale Greenway

Public Information Meeting

April 25, 2019 - Coventry & May 1, 2019 - Bolton

Meeting Agenda & Goals

Agenda

- Brief Overview of Multi-Use Paths & Greenways
- Project Background and Goals
- Project Components and Process
- Findings and Design Considerations
- Feedback / Q&A

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- Provide Project Information
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What is a Greenway?

Corridors of protected open space managed for conservation and recreation purposes.

- Often follow natural land or water features
- Link reserves, parks, cultural features, historic sites with each other and with populated areas such as downtowns, neighborhoods, community centers and schools

Greenway Goals

- Increase Community Health & Wellness
- Provide a safe experience for all users to enjoy the trail
- Provide Recreational Opportunities
- Promote Local Economy
- Preserve Cultural & Environmental Resources
- Enhance Sense of Community – “Sense of Place”
- Minimize neighbor impacts

- Connectivity / Link points of interest
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- Educational Opportunities
 - Environmental Resources
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 - Historical Resources

Greenway Benefits

- Increased property value
- Strengthening local economy (tourism)
- Promote healthy living
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- Transportation alternative - pedals and feet
- Hands on environmental classrooms
- Connects people and places

“Trails and greenways provide what many Americans seek — close to-home recreational areas, community meeting places, historic preservation, educational experiences, natural landscapes and beautification. Both trails and greenways help communities build pride by ensuring that their neighborhoods are good places to live, so that children can safely walk or bike to a park, school, or to a neighbor’s home. Trails and greenways help make communities more attractive and friendly places to live.” CT DEEP

Greenway Benefits

TOWN OF COVENTRY PLAN OF CONSERVATION AND DEVELOPMENT

SECTION 5 - ENVIRONMENTAL AND OPEN SPACE

- Maintain and increase interconnected, linear open spaces, greenways, trails and wildlife corridors, and when appropriate, link with other town, regional or state greenways.
- Utilize the Open Space Plan to guide town land acquisition strategies and acquire more open space and coordinate the plan with recreational needs as expressed in the Parks & Recreation section.

SECTION 9 – TRANSPORTATION

- Continue and expand inter-municipal cooperation for trail systems such as the Hop River Rail trail and the Willimantic River Greenway.

Nathan Hale Greenway - Background

- ConnDOT originally purchased land for the relocation of Route 6 in Bolton, Coventry, and Andover in 1986.
- When CTDOT abandoned the project it proceeded to give most of the land that was purchased back to the Towns.
- The only condition was that this land needs to be utilized as “open space” and not sold.
- The proposed **Nathan Hale Greenway** will utilize a portion of the former Route 6 ROW that was transferred to the respective towns.

This trail will create further opportunities to link the Nathan Hale Greenway with the Hop River Trail / East Coast Greenway and would establish a recreational facility network that enables increased usership and attracts users from outside the region, promoting local tourism.

Nathan Hale Greenway - Background

Nathan Hale Greenway

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Part of a Bigger Network, Including:

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- Charter Oak Greenway
- The “Missing Link” in Bolton
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East Coast Greenway
A Trail Connecting Cities
Maine to Florida
Proposed Route Corridor
Apr. March 2018

Legend: State Route, Alternate Route, Bike Center, Major City

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State – Connecticut Greenways

Connecticut Greenways Council
Officially Designated Greenways
2018

Connecticut Greenways Map

BSC GROUP

Local – Project Limits

- Bolton • 2 miles +/-
- Coventry – North • 3 miles +/-
- Coventry – Nathan Hale Forest • 2.5 miles +/-
- Coventry – South • 3.5 miles +/-

NATHAN HALE GREENWAY
Proposed Trail

BSC GROUP

Goals of the Nathan Hale Greenway Study

- Establish existing conditions / base mapping
- Determine likely right-of-way needs and impacts
- Determine likely environmental impacts
- Estimate construction costs
- Link points of interest
 - Scenic Views / Vistas
 - Provide Educational Opportunities for Cultural / Historical / Environmental Resources
- Establish a preferred route alignment for the Trail
- Minimize/mitigate impacts to neighbors
- Provide concept plans/drawings (Preliminary Design)
- Facilitate the ability to pursue and obtain funding

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Project Process

Possible Future Activity

BSC's Scope

Timeline: Vision/Initiation, Data Gathering, Feasibility / Routing, Preliminary Design (We Are Here), Final Design, Permitting, Funding, Construction, Trail Opens

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Update

Since the January 2018 public meetings...

- Attempted to define the least environmentally impactful route.
- Held three small group citizen meetings with direct abutters to conduct more of an up-close dialogue to review the plans and gain feedback.
- Refined the plans to address the concerns that were heard, for example – create more buffer and distance between residences and the path as well as parking/trailheads.
- Created a rational and cost effective approach to be a responsible steward of nearly 300 acres of land that requires land management. This includes forest management and feasible access to property in case of emergency service is needed since property is open to the public.

BSC GROUP

Project Stakeholders

The Public, Town of Coventry, Town of Bolton, CTDOT, CTDEEP, Nathan Hale Greenway, BSC, ACOE, Utility Companies

BSC GROUP

Project Approach

Data Gathering

- Analyze existing plans / Compile GIS
- Investigate and review existing conditions and possible routes
- Perform a site walk along the entire corridor / GPS Data collection

Feasibility / Routing Study

- Analyze practicability of potential routes / Prepare Initial Layout Plans
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- Determine amenities (kiosks, benches, signs, etc.)
- Define a Preferred Route based on constraints and input from the community

Preliminary Design

- Survey as required
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- Provide a Cost Estimate

BSC GROUP

Project Approach

Site Walk / GPS Data collection

- Real time data collection
- Cloud based / Shareable
- Identify & Record:
 - Historic and natural resources
 - Points of interest
 - Existing trails
 - Points of potential conflict

BSC GROUP

Route Selection Criteria

- Accessibility
- Constructability
- Construction Cost
- Cultural and Natural Resources
- Construction Cost
- Environmental Constraints
- Potential Permitting Impacts
- Proximity to Points of Interest
 - Inside corridor
 - Within close proximity
- Public Concerns
- Recreational Opportunities
- Right of Way
- Safety
- Scenic Value
- Security
- Stakeholder Concerns

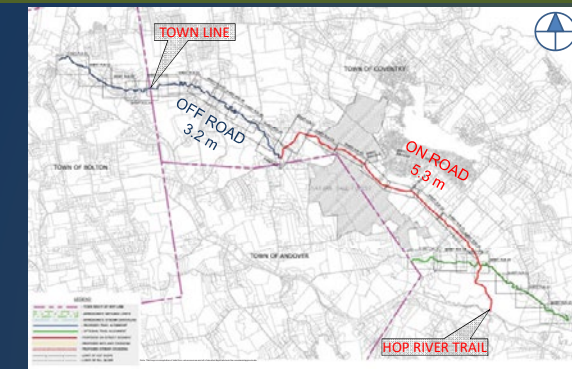


Route Selection

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- Determination of Segments to aid in analysis
- Reviewed Points of Interest or Constraint within each Segment
- Determined alignment alternatives within corridor
 - Challenging topography
 - Balancing environmental impacts with scenic value
- Estimated construction costs



Route Selection



- The Route:
- Off-Road (3.2m):
 - Town Line to Woodbridge Road
 - On-Road (5.3):
 - Woodbridge Road (0.15 m)
 - Bishop Lane (0.38 m)
 - South Street (1.24 miles)
 - Nathan Hale Road 1 (0.86 m)
 - Nathan Hale Road 2 (0.81 m)
 - Bunker Hill Road (0.1 m)
 - Hop River Road to Hop River Trail (1.76 m)
 - Future Consideration
 - Off-Road (3.45 m)



Route Selection



Project Corridor

Establishing Corridor Theme & Texture

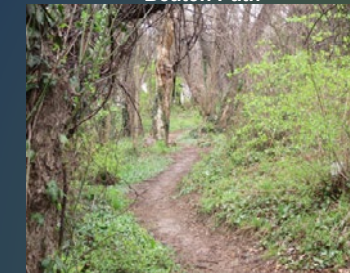
Evolution: Development of the Nathan Hale Greenway will evolve over time, with origins as a simple pathway.

- Beaten Path
- Blazed Trail
- Shared-Use Path



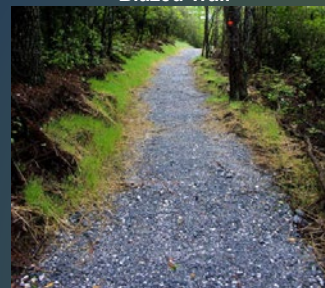
Project Corridor

Beaten Path



Project Corridor

Blazed Trail

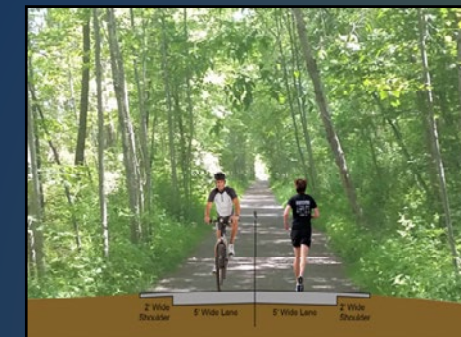


Project Corridor

Shared-Use Path (Possible Future Scenario)



Off-Road Option



- Similar to Hop River Trail & Airline Trail
- Approximate Costs:
 - \$300,000 / mile
 - to
 - \$500,000 / mile
- Bridges and wetlands crossings vary widely



On-Road Options

Nathan Hale Greenway

Increasing Cost / Increasing ROW Impacts

Existing Road

Option 1
Bicycle - Shared Road
Pedestrian Accommodations

Option 2
Bicycle & Pedestrian - Shared Use Side Path

Option 3
Road Widening / Dedicated Bicycle Lane
Pedestrian Accommodations

BSC GROUP

On-Road Options

Nathan Hale Greenway

Shared Lanes

- Bike may be operated on all roadways except where prohibited by statute.
- There are no bicycle-specific designs for shared roadways but various features can make shared lanes more compatible for bicycling.

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BSC GROUP

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Nathan Hale Greenway

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Nathan Hale Greenway

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BSC GROUP

On-Road – Potential Roadways

Nathan Hale Greenway

Nathan Hale Road

BSC GROUP

Access & Safety

Nathan Hale Greenway

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BSC GROUP

Typical Trail / Roadway Crossing

Nathan Hale Greenway

BSC GROUP

Typical Trail / Roadway Crossing

Nathan Hale Greenway

BSC GROUP

Trailhead – Major

Nathan Hale Greenway


Potential Locations

- Route 44 – Connection to Missing Link / Hop River Trail
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- Pucker Street – Connection to Hop River Trail
- Ultimate location, scale and configuration to be determined in the future....

- 10+ Parking Spaces
- Dedicated drive
- Gathering location / destination
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BSC GROUP


Trailhead – Minor



Potential Locations

- South Road
- Brewster Street
- Swamp Road
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- Woodbridge Road
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- 3-6 Parking Spaces
- Pull-in Parking
- Convenient access
- Limited amenities
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Trailhead




Greenway Branding / Logo Options





Enhancements and Amenities

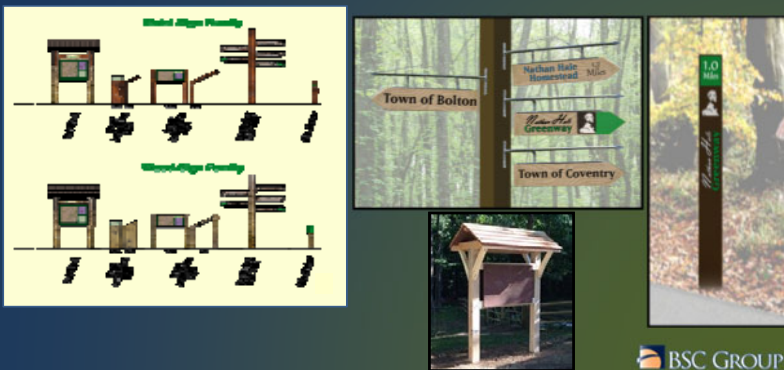



Potential Amenities

- Wayfinding
- Distance Markers
- Gates
- Natural Benches
- Interpretive signing
- Informational kiosks
- Trailheads
- Parking areas
- Seating nodes
- Corridor consistency for ease of maintenance



Wayfinding Options

Informational/Educational Signing





Water & Wetland Crossings




Stone Walls & Split Rail Fences




Thank You!



Nathan Hale Greenway

Public Information Meeting

April 25, 2019 - Coventry & May 1, 2019 - Bolton

BSC GROUP

Meeting Agenda & Goals

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BSC GROUP

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BSC GROUP

Nathan Hale Greenway - Background

BOLTON COVENTRY

BSC GROUP

Nathan Hale Greenway

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BSC GROUP

National - East Coast Greenway

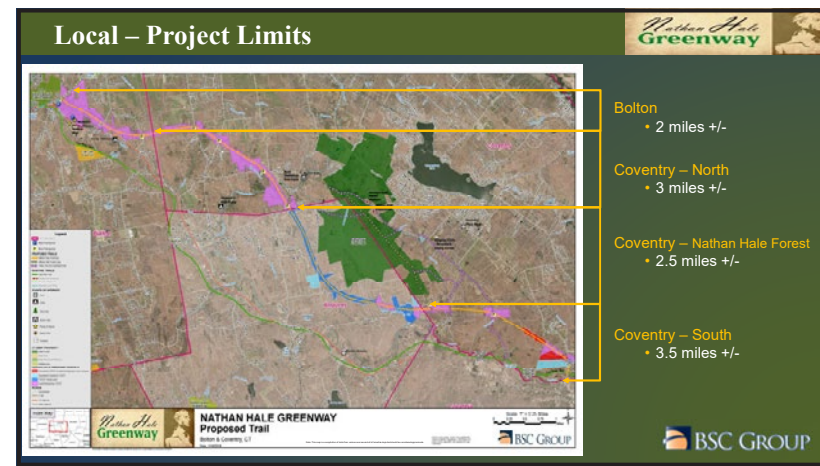
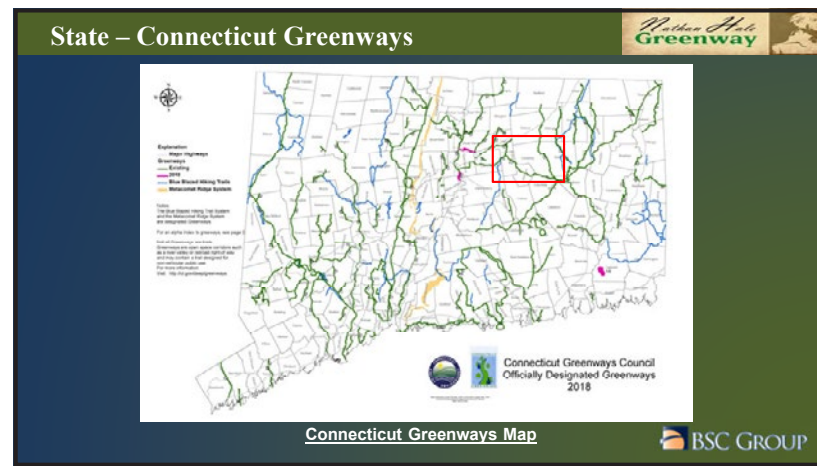
- Bike Route from Maine to Florida**
- The **East Coast Greenway** vision is for a long-distance, urban, shared-use trail system linking 25 major cities along the Eastern Seaboard between Calais, Maine, and Key West, Florida.
- It will serve non-motorized users of all abilities and ages. A 2,900-mile long spine route will be accompanied by 2,000 miles of complementary routes that link in key cities, towns, and areas of natural beauty. This green travel corridor will provide cyclists, runners, walkers, and other active-transportation users with a low-impact way to explore the Eastern Seaboard.
- "In December 2017, our Greenway Council approved 22 new segments as official stretches of East Coast Greenway. The segments total nearly 40 miles and include pieces of trail in nine states, from half-mile additions in Connecticut and Massachusetts to an eight-mile stretch in Titusville, Florida." ECG website

East Coast Greenway
A Trail Connecting Cities
Maine to Florida
Proposed Route Corridor

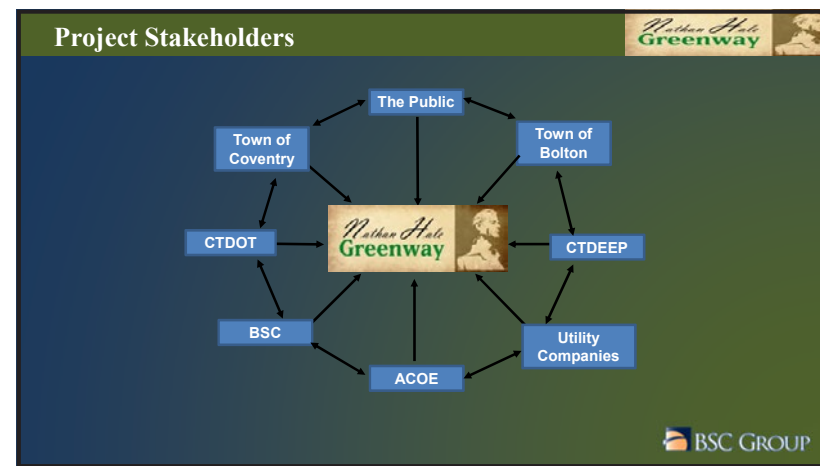
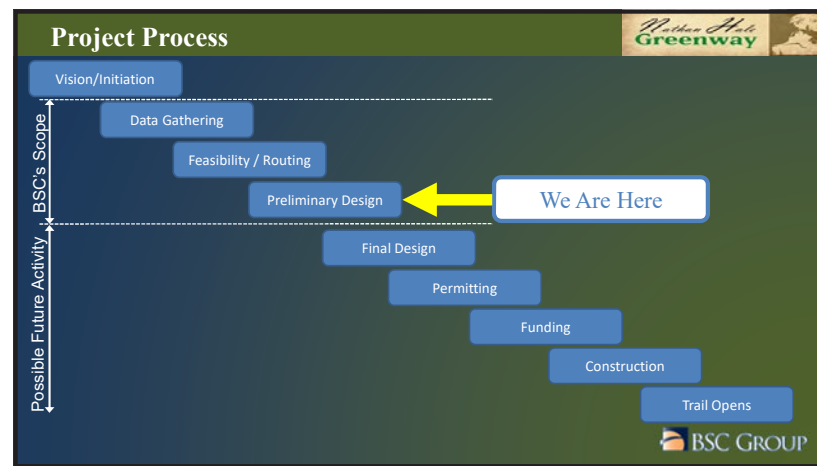
Legend: Spine Route, Complementary Route, Water, Road, etc.

BSC GROUP





- ### Goals of the Nathan Hale Greenway Study
- Establish existing conditions / base mapping
 - Determine likely right-of-way needs and impacts
 - Determine likely environmental impacts
 - Estimate construction costs
 - Link points of interest
 - Scenic Views / Vistas
 - Provide Educational Opportunities for Cultural / Historical / Environmental Resources
 - Establish a preferred route alignment for the Trail
 - Minimize/mitigate impacts to neighbors
 - Provide concept plans/drawings (Preliminary Design)
 - Facilitate the ability to pursue and obtain funding
-



- ### Project Approach
- Data Gathering**
- Analyze existing plans / Compile GIS
 - Investigate and review existing conditions and possible routes
 - Perform a site walk along the entire corridor / GPS Data collection
- Feasibility / Routing Study**
- Analyze practicability of potential routes / Prepare Initial Layout Plans
 - Perform an opportunities and constraints analysis
 - Determine amenities (kiosks, benches, signs, etc.)
 - Define a Preferred Route based on constraints and input from the community
- Preliminary Design**
- Survey as required
 - Prepare Preliminary Design Plans
 - Provide a Cost Estimate

Project Approach

Site Walk / GPS Data collection

- Real time data collection
- Cloud based / Shareable
- Identify & Record:
 - Historic and natural resources
 - Points of interest
 - Existing trails
 - Points of potential conflict

- ### Route Selection Criteria
- Accessibility
 - Constructability
 - Construction Cost
 - Cultural and Natural Resources
 - Construction Cost
 - Environmental Constraints
 - Potential Permitting Impacts
 - Proximity to Points of Interest
 - Inside corridor
 - Within close proximity
 - Public Concerns
 - Recreational Opportunities
 - Right of Way
 - Safety
 - Scenic Value
 - Security
 - Stakeholder Concerns

- ### Route Selection
- Unique Project since the corridor is predefined
 - It is the most Feasible Alternative
 - Determination of Segments to aid in analysis
 - Reviewed Points of Interest or Constraint within each Segment
 - Determined alignment alternatives within corridor
 - Challenging topography
 - Balancing environmental impacts with scenic value
 - Estimated construction costs

Route Selection

The Route:

- Off-Road Bolton (2.3m)
- Off-Road Coventry (3.2m):
 - Town Line to Woodbridge Road
- On-Road Coventry (5.3):
 - Woodbridge Road (0.15 m)
 - Bishop Lane (0.38 m)
 - South Street (1.24 miles)
 - Nathan Hale Road 1 (0.86 m)
 - Nathan Hale Road 2 (0.81 m)
 - Bunker Hill Road (0.1 m)
 - Hop River Road to Hop River Trail (1.76 m)
- Future Consideration
 - Off-Road Coventry (3.45 m)

BSC GROUP

Route Selection

BSC GROUP

Route Selection

BSC GROUP

Route Selection

BSC GROUP

Route Selection

BSC GROUP

Project Corridor

Establishing Corridor Theme & Texture

Evolution: Development of the Nathan Hale Greenway will evolve over time, with origins as a simple pathway.

- Beaten Path
- Blazed Trail
- Shared-Use Path

BSC GROUP

Project Corridor

Beaten Path

BSC GROUP

Project Corridor

Blazed Trail

BSC GROUP

Project Corridor

Shared-Use Path (Possible Future Scenario)

BSC GROUP

Off-Road Option



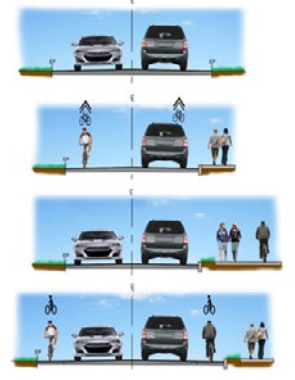
- Similar to Hop River Trail & Airline Trail
- Approximate Costs: \$300,000 / mile to \$500,000 / mile
- Bridges and wetlands crossings vary widely

2' Wide Shoulder 1' Wide Lane 6' Wide Lane 2' Wide Shoulder



On-Road Options

Increasing Cost / Increasing ROW Impacts




Existing Road

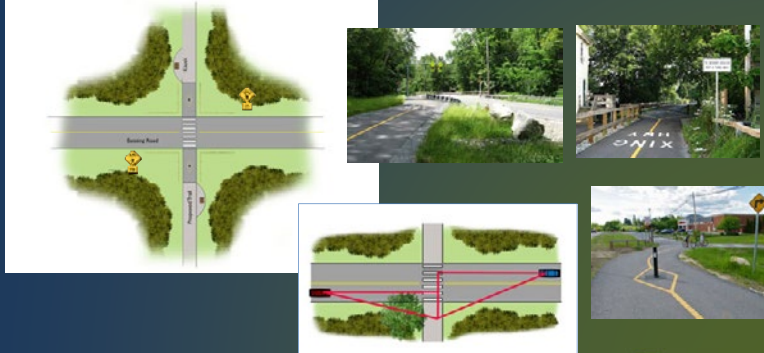

Option 1
Bicycle - Shared Road
Pedestrian Accommodations

Option 2
Bicycle & Pedestrian - Shared Use Side Path

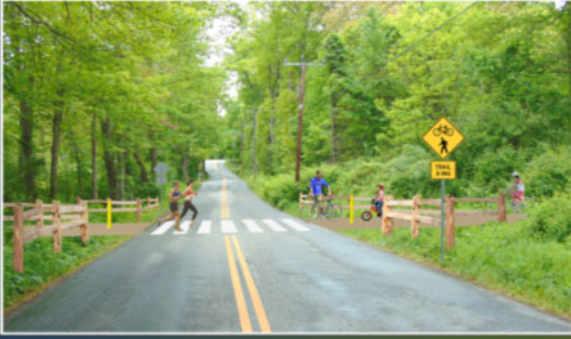

Option 3
Road Widening / Dedicated Bicycle Lane
Pedestrian Accommodations




Typical Trail / Roadway Crossing

Typical Trail / Roadway Crossing

Trailhead - Major



Potential Locations

- Route 44 - Connection to Missing Link / Hop River Trail
- Nathan Hale Forest - TBD
- Pucker Street - Connection to Hop River Trail
- Ultimate location, scale and configuration to be determined in the future....

- 10+ Parking Spaces
- Dedicated drive
- Gathering location / destination
- May include additional amenities such as picnic area
- Public safety is key



Trailhead - Minor





Potential Locations

- South Road
- Brewster Street
- Swamp Road
- South Street
- Woodbridge Road
- Bunker Hill Road
- Hop River Road
- Ultimate location, scale and configuration to be determined in the future....

- 3-6 Parking Spaces
- Pull-in Parking
- Convenient access
- Limited amenities
- Public safety is key



Trailhead

Greenway Branding / Logo Options



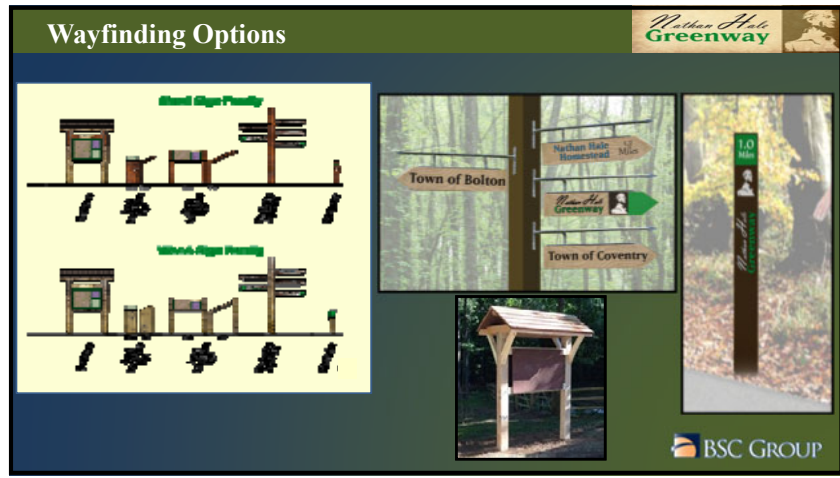

Enhancements and Amenities



Potential Amenities

- Wayfinding
- Distance Markers
- Gates
- Natural Benches
- Interpretive signing
- Informational kiosks
- Trailheads
- Parking areas
- Seating nodes
- Corridor consistency for ease of maintenance





Survey Data Analysis

Public Survey

The nine-question questionnaire survey was open to the public from January 16, 2018, to February 12, 2018. It received 81 responses during this time. The following summary provides a glimpse of the general public perception of the Nathan Hale Greenway.

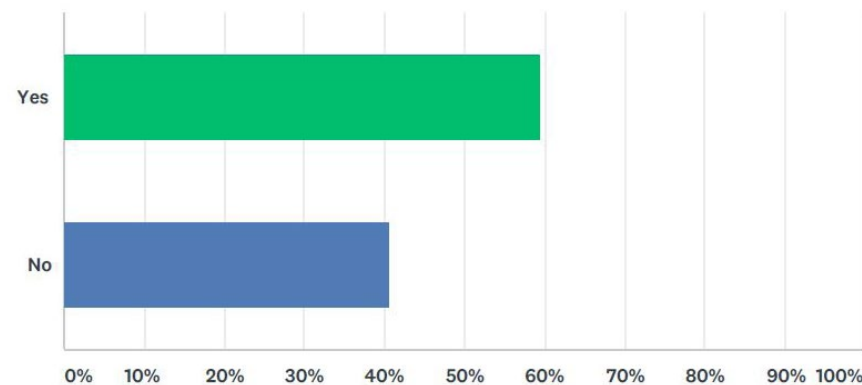
Question 1: Do you currently use any greenways on a regular basis?

60% of responders said **YES**

40% of responders said **NO**

Question 2: If response to Question 1 is “yes,” please share

Answered: 79 Skipped: 2



why.

53% of responders use the Hop River trail.

More than half of the responders use greenways on a regular basis, and most of the people using greenways on a regular basis are using existing trails in the area such as the Hop River Trail, the Airline Trail, the Charter Oak Greenway, and various surrounding Rails to Trails.

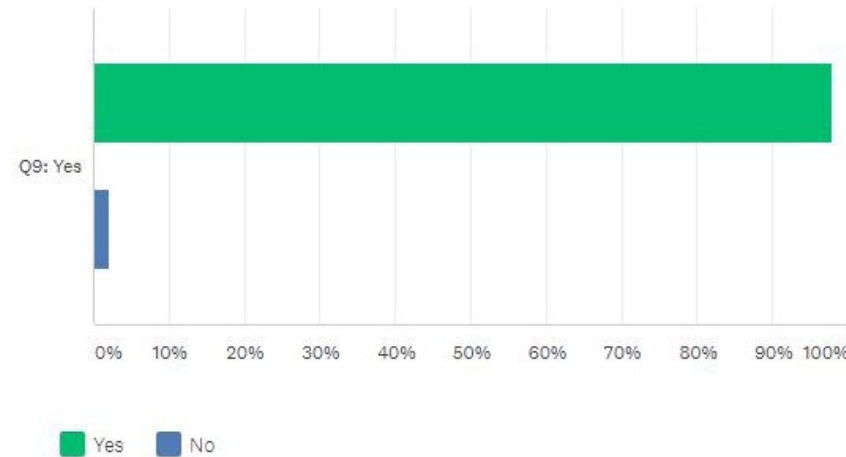
Question 3: Would you use the Nathan Hale Greenway?

68% of responders said **YES**

32% of responders said **NO**

The majority of responders are in support of using the greenway if it is built. But the most interesting thing about this information is that an additional 8% of responders would use greenways if the Nathan Hale Greenway is built. This might not seem like a huge increase, but that represents 40% of people who said they don't use greenways on a regular basis. Furthermore, the system of loops the Nathan Hale Greenway could provide would attract other users from other nearby trails. This system of options could potentially increase use on all the trails in the area.

Question 4: If response to question 3 is “yes,” what would



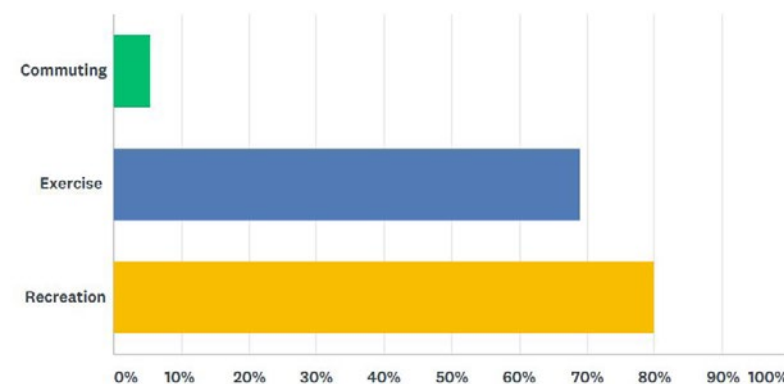
be the main purpose in using the path? Select all that apply.

80% of responders said **RECREATION**

70% of responders said **EXERCISE**

5% of responders said **COMMUTING**

This question indicates that most people using the Nathan Hale Greenway would use it for either recreation or exercise. People who commented on this question mentioned that they want to see the trail built for exercise and recreational uses such as nature observation, hiking, running, biking, and even cross-country skiing. One person mentioned that they hope to use the trail for “Transit to do errands and attend Bolton events.” The additional option of commuting is especially attractive to some users since it provides a healthy and safe alternative for commuting between towns. It's important to note that 32% of people responding to the survey state they wouldn't use the Nathan Hale Greenway since they are not frequent users of other trails in the area.



Question 5: What are some amenities that you would like to see along the greenway? Check all that apply.

85% of responders said **PARKING AREAS**

57% of responders said **BENCHES**

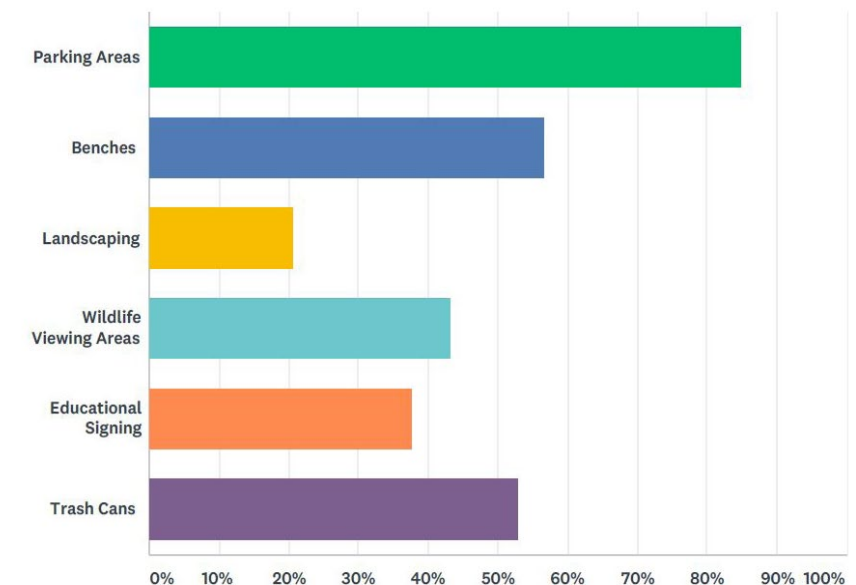
53% of responders said **TRASH CANS**

43% of responders said **WILDLIFE VIEWING AREAS**

38% of responders said **EDUCATIONAL SIGNAGE**

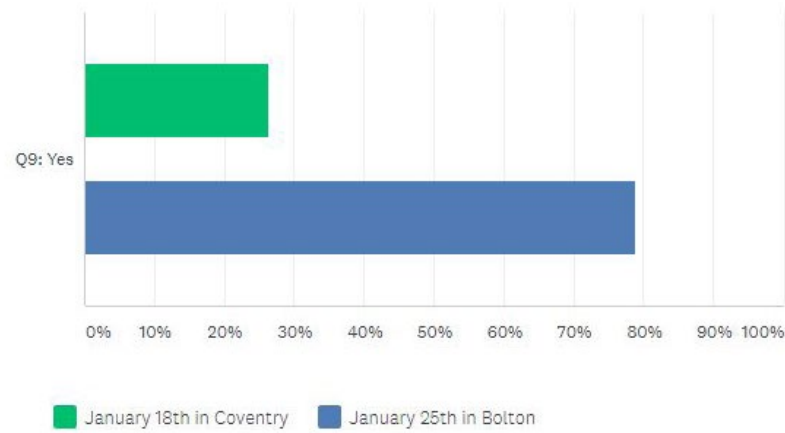
70% of responders shared their opinion on this question. 43% of the comments on this question asked for low impact with little to no amenities. 31% wanted mileage markers, wayfinding, and bicycle care stations. This question shows the importance of providing amenities, but also that the trail shouldn't be “polluted” by them. Strategically placed parking areas, benches, and trash cans will be essential to the success of the Nathan Hale Greenway. In general, potential users of the trail want to have an easily accessible path network, with minimal distractions from their enjoyment of the natural environment around them.

Answered: 53 Skipped: 28



Question 6: If you were able to attend either of the Public Information Meetings, please select which one(s) you attended.

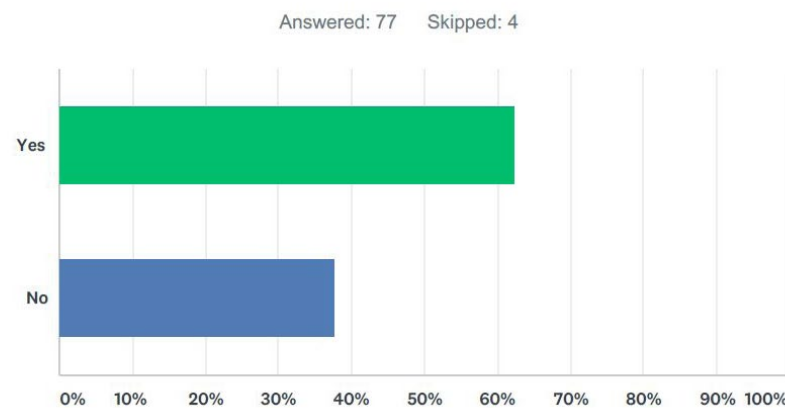
- 27% of responders said **BOLTON**
- 17% of responders said **COVENTRY**
- 58% of responders did not attend the public information meetings.



Question 7: Do you have any concerns regarding establishing the Nathan Hale Greenway?

- 62% of responders said **YES**
- 38% of responders said **NO**

With nearly 40% of responders not voicing a concern with establishing the greenway, we can see that these people are in general support of establishing the path. Some of the people who have concerns are in support of establishing the greenway as well, or show conditional support, and some people with concerns are not in support of the project.



Question 8: If response to question 7 is “yes,” please explain.

- 67% of responders said they are either concerned or against the project.
- 25% of responders said they are concerned with minimal impact to the natural environment, and cost.
- 6% of responders said they are excited for the project or want the project to be fully accessible.

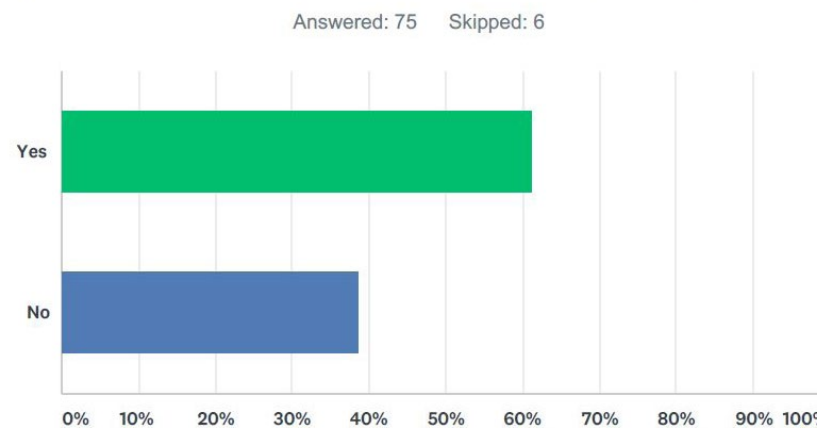
Of the 60% of people who responded to this question, two-thirds said they were concerned to a varying degree whether the project should be built. A quarter of the responders were minimally concerned, with the remainder mentioning their excitement and hope for the project. Most of the people concerned or against the project mentioned that they were concerned by cost of construction and maintenance, impact to the natural environment or abutters property, and whether the greenway is necessary.

Question 9: Do you support establishing the Nathan Hale Greenway?

- 61% of responders said **YES**
- 37% of responders said **NO**

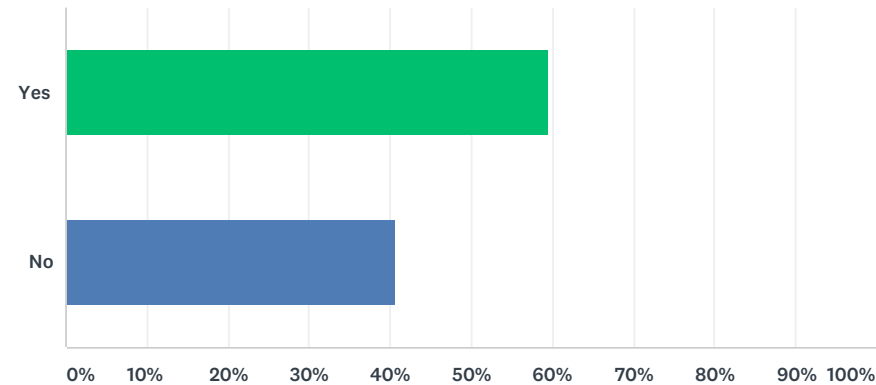
The majority of the people who participated in the survey are generally in support of building the Nathan Hale Greenway. Although many of these people are understandably concerned about cost of construction and maintenance and/or impact to the natural environment or abutter’s property, they can see the benefits of building the greenway. These people may not agree on how extensive the greenway should be or even what it should look like, but they like the idea, and most of them would use it.

It should be noted that a very small percentage of the population of the towns of Bolton and Coventry participated in this survey. The data may not accurately represent the interests of the public, as it is solely based on information gathered from the people who elected to participate. A detailed report of the survey data is included in the appendix.



Q1 Do you currently use any greenways on a regular basis?

Answered: 79 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	59.49%	47
No	40.51%	32
TOTAL		79

Q2 If response to question 1 is "yes," please share which ones.

Answered: 49 Skipped: 32

#	RESPONSES	DATE
1	Hop River	2/8/2018 8:05 PM
2	Goodwin Trail from East Haddam to East Lyme, the Airline Trail	2/7/2018 7:24 AM
3	Hop River Trail, Airline Trail, Charter Oak Greenway	2/6/2018 1:26 PM
4	none	2/5/2018 8:24 PM
5	Hop River Trail, Air Line Trail, Charter Oak Trail, and FHCT	2/4/2018 5:34 PM
6	Hop river	2/3/2018 6:14 PM
7	Andover, and Manchester	2/2/2018 12:45 PM
8	The Rail Trail	2/2/2018 9:54 AM
9	Bolton rail trail/Rose Farm trails	2/1/2018 2:30 PM
10	Rail trail through Bolton	2/1/2018 1:44 PM
11	East Coast, Hop River. Several sections in the North Hampton MA Area	2/1/2018 10:32 AM
12	Hop River	2/1/2018 9:02 AM
13	One by highland park	1/31/2018 9:44 PM
14	Hop River Linear Park	1/31/2018 8:25 PM
15	Most frequently, Hop River. Also other rail trails in CT and MA	1/31/2018 8:17 PM
16	Hop river	1/31/2018 7:31 PM

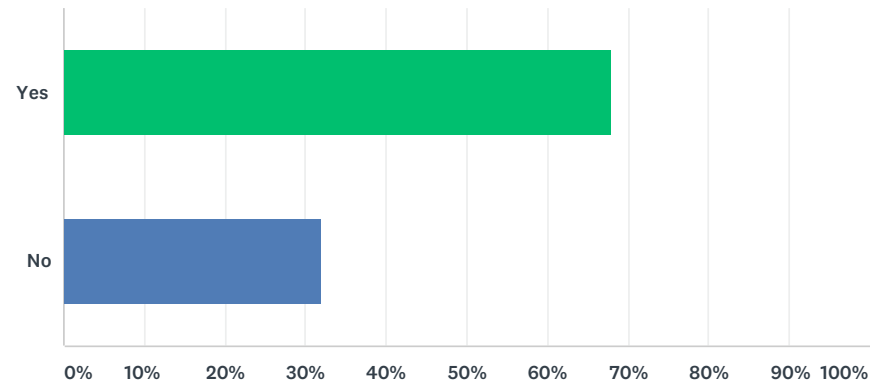
17	Bolton rail trail between Steel's Crossing and the Notch	1/31/2018 6:22 PM
18	Bolton nitch	1/31/2018 6:09 PM
19	Rails to Trails	1/31/2018 6:09 PM
20	Hop River	1/31/2018 4:27 PM
21	All accessible in town as well as Andover	1/31/2018 4:04 PM
22	Rail Trail from Steele Crossing to the Notch in Bolton	1/31/2018 4:00 PM
23	Rails to Trails	1/31/2018 3:36 PM
24	rails to trails for biking	1/31/2018 3:10 PM
25	hop river	1/31/2018 10:35 AM
26	Hop river trail and numerous off-shoot trails from it	1/30/2018 3:03 PM
27	Hop River Trail, Airline Trail, East Coast Greenway	1/30/2018 1:59 PM
28	Hop River Trail, Charter Oak Greenway, Air Line Trail, Farmington Valley Trail	1/27/2018 11:08 PM
29	Charter Oak and Hop River	1/27/2018 6:32 PM
30	Hop River Linear Park, Bolton Greenway Extension, East Coast Greenway	1/26/2018 2:03 PM
31	Rail Trail	1/26/2018 1:55 PM
32	East Coast Greenway	1/26/2018 1:55 PM
33	Rails to Trails/East Coast Greenway	1/26/2018 1:54 PM
34	Bolton Andover bike path	1/26/2018 11:52 AM
35	BOLTON Andover Vernon airline	1/26/2018 4:43 AM
36	Hop river	1/25/2018 10:23 PM
37	Hop River, Airline Trail, Charter Oak	1/25/2018 9:36 PM
38	Rails trails	1/25/2018 9:12 PM
39	Hop River airline	1/25/2018 9:07 PM
40	Hop river trail	1/25/2018 7:09 PM
41	Hop River State Park Trail	1/25/2018 1:09 PM
42	Rails to Trails	1/25/2018 1:08 PM
43	Hop River Trail	1/25/2018 1:05 PM
44	East Coast, Hop River	1/25/2018 1:04 PM
45	East Coast one	1/25/2018 1:03 PM
46	Hop River rails to trails	1/20/2018 3:43 PM
47	Across Thompson and Sons and Rails to trails. Nathan hale homestead trails as well	1/19/2018 12:00 PM
48	Rails to Trails	1/19/2018 11:33 AM
49	Hop river at Parker bridge Road	1/18/2018 10:18 AM

Q3 Would you use the Nathan Hale Greenway?

Answered: 81 Skipped: 0

Nathan Hale Greenway Questionnaire

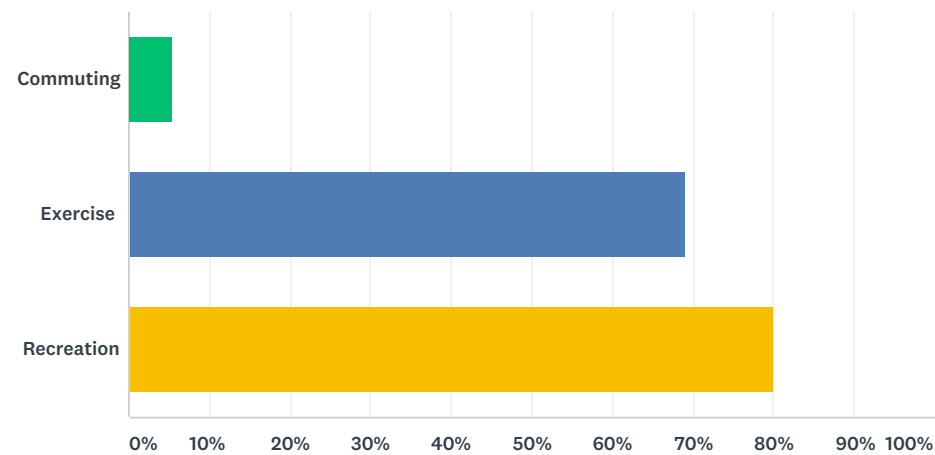
SurveyMonkey



ANSWER CHOICES	RESPONSES	
Yes	67.90%	55
No	32.10%	26
TOTAL		81

Q4 If response to question 3 is "yes," what would be the main purpose in using the path? Select all that apply.

Answered: 55 Skipped: 26



ANSWER CHOICES	RESPONSES	
Commuting	5.45%	3
Exercise	69.09%	38
Recreation	80.00%	44
Total Respondents: 55		

#	OTHER (PLEASE SPECIFY)	DATE
1	Mountain biking, trail running, hiking	2/8/2018 8:05 PM
2	Mountain biking, hiking, trail running, dog walking	2/7/2018 7:24 AM

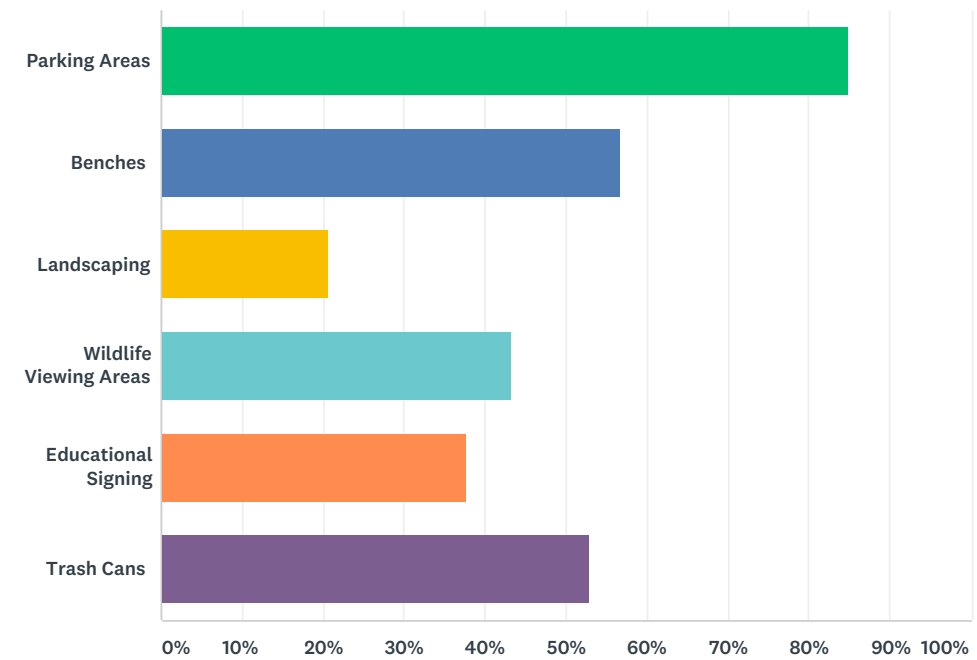
Nathan Hale Greenway Questionnaire

SurveyMonkey

3	Enjoy outdoors	2/6/2018 9:27 PM
4	none	2/5/2018 8:24 PM
5	Enjoying another part of Bolton.	2/2/2018 9:54 AM
6	More options to enjoy and explore the area	2/1/2018 10:32 AM
7	Enjoying being in a wooded, undeveloped area	2/1/2018 9:02 AM
8	Segway	1/31/2018 9:44 PM
9	Hiking and X-C Skiing	1/31/2018 8:25 PM
10	I would want to avoid areas next to a lot of car traffic	1/31/2018 6:09 PM
11	Waste of money we don't have	1/30/2018 11:43 AM
12	Transit to do errands and attend Bolton events.	1/27/2018 11:08 PM
13	Wildlife	1/26/2018 1:53 PM
14	Passive recreation: hiking, walking, running	1/25/2018 9:36 PM
15	Nature	1/25/2018 9:12 PM
16	fishing access/fisheries, resources, maintenance/enhancement	1/25/2018 1:09 PM
17	Not if it is not handicap accessible	1/25/2018 1:07 PM
18	N/A	1/20/2018 3:43 PM
19	N/A	1/19/2018 11:33 AM

Q5 What are some amenities that you would like to see along the greenway? Check all that apply.

Answered: 53 Skipped: 28



ANSWER CHOICES	RESPONSES	
Parking Areas	84.91%	45



Nathan Hale Greenway Questionnaire

SurveyMonkey

Benches	56.60%	30
Landscaping	20.75%	11
Wildlife Viewing Areas	43.40%	23
Educational Signing	37.74%	20
Trash Cans	52.83%	28
Total Respondents: 53		

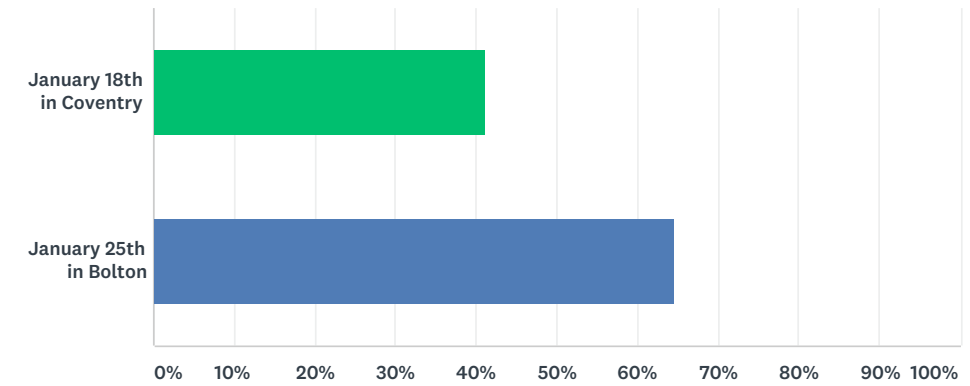
#	OTHER (PLEASE SPECIFY)	DATE
1	Bike care stations, map kiosks	2/7/2018 7:24 AM
2	Add parking for trail access but little to no "amenities" to trail	2/6/2018 9:27 PM
3	None! Keep it low impact!	2/6/2018 1:26 PM
4	none	2/5/2018 8:24 PM
5	Nothing. Just make it a trail.	2/2/2018 12:45 PM
6	mileage posts	2/1/2018 10:32 AM
7	Kiosks with Maps showing where you are	1/31/2018 8:25 PM
8	For areas that are built up, zoning and encouragement of related services, e.g. coffee shops, ice cream	1/31/2018 8:17 PM
9	Mile markers, water fountains, nearby shops	1/31/2018 3:36 PM
10	i would prefer it kept as natural as possible	1/31/2018 10:35 AM
11	single track mountain bike trails	1/30/2018 4:14 PM
12	I don't need any of these amenities	1/30/2018 3:03 PM
13	I do not need any of these things - just a trail	1/30/2018 1:59 PM
14	safe and legal access to the trail from the neighborhoods that are near the trail and for all potential users who would like to access on foot or bike.	1/27/2018 11:08 PM
15	Single track trail.	1/26/2018 11:52 AM
16	Hunting	1/25/2018 1:08 PM
17	N/A	1/20/2018 3:43 PM
18	N/A	1/19/2018 11:33 AM

Q6 If you were able to attend either of the Public Information Meetings, please select which one(s) you attended.

Answered: 34 Skipped: 47

Nathan Hale Greenway Questionnaire

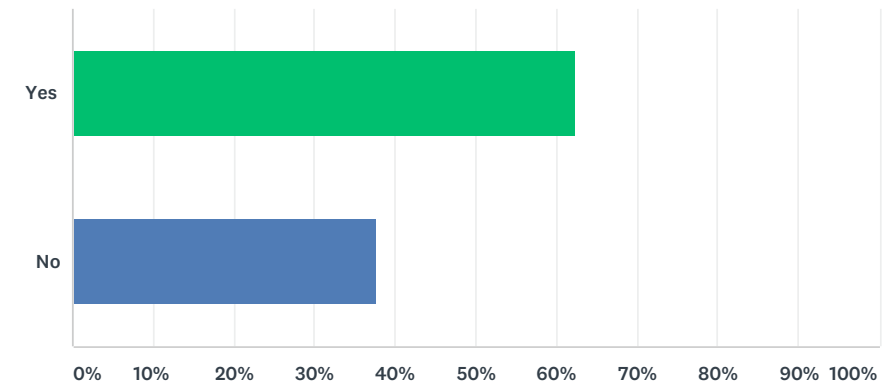
SurveyMonkey



ANSWER CHOICES	RESPONSES
January 18th in Coventry	41.18% 14
January 25th in Bolton	64.71% 22
Total Respondents: 34	

Q7 Do you have any concerns regarding establishing the Nathan Hale Greenway?

Answered: 77 Skipped: 4



ANSWER CHOICES	RESPONSES
Yes	62.34% 48
No	37.66% 29
TOTAL	77

Q8 If response to question 7 is yes, please explain.

Answered: 49 Skipped: 32

#	RESPONSES	DATE
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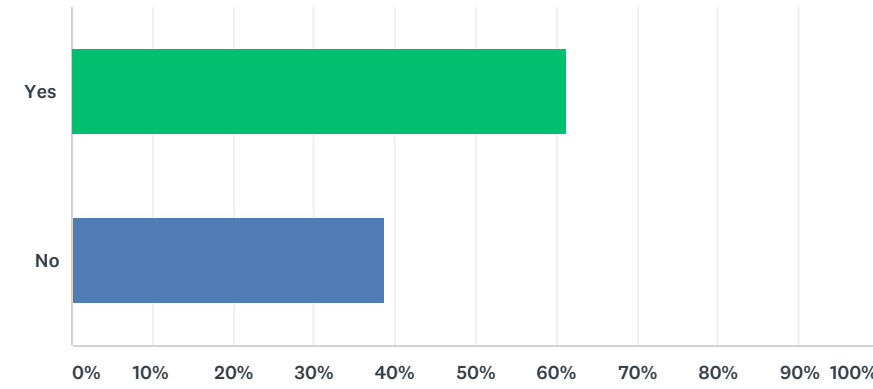
Nathan Hale Greenway Questionnaire		SurveyMonkey
1	I will only support this project if it is not a rail trail but a wilderness path. I would hope this trail was more of a hiking trail or mountain bike trail. Low impact. More natural.	2/8/2018 8:05 PM
2	The recommendation of "blue blaze" style trails restrict the potential recreational uses on the trail. Per legislation, blue blaze trails supported by CFPA are restricted to foot traffic only. In order to have a Greenway, it is essential to support multiple recreational uses, including mountain biking and potential equestrian uses. The trails must be built to support these uses, and the organization must be careful not to restrict use through blue blaze st the initial development of the system.	2/7/2018 7:24 AM
3	Not leaving the trail as just a trail and making it another rails to trails, don't make it a paved level path bulldozed through the woods, plus concern over the costs	2/6/2018 9:27 PM
4	Impact to forest and mountain biking trails, also costs	2/6/2018 2:42 PM
5	Very strongly disagree with making trails to and within the NH Forest. I live 2 miles in the forest and regularly hike run and bike there – the increase in traffic over the years presumably due to increased publicity from the farmers market has been crazy. I don't think the forest can handle any more pressure. I've personally seen nesting good cock and other significant wildlife there and I would hate for those populations to be further impacted.	2/6/2018 1:26 PM
6	I think this a bad idea, many of these properties were taken by force thru eminent domain by the State, now the town is getting them and you want to put a public bike path thru these peoples property. It's bad enough the properties were FORCEFULLY taken in the first place, but at least no highway was put in. The landowners or their kin should be able to buy back the properties at a reduced rate under the condition that they can't develop them, the town or state would receive the income and be able to collect taxes. If the state won't allow this you should still not develop a public trail though our neighbors properties. There is already plenty of public land and a beautiful trail on the old railroad tracks that is right next to your proposed trail. The town or state also shouldn't be wasting money on projects like these in the current fiscal climate.	2/5/2018 8:24 PM
7	1) There is nothing in the plan to protect the abutting private property and prevent trespassing. 2) Coventry has made no effort to engage people whose property abuts the Town property. 3) The Town of Coventry has not done due diligence regarding the costs to build, and costs to maintain any greenway. 4) The BSC Group provide no objective evidence of the economic value of a greenway, let alone another greenway in close proximity to the Andover rail trails and the Nathan Hale State forest trails. And, so on.	2/2/2018 12:45 PM
8	Too expensive	2/2/2018 9:20 AM
9	Is it really necessary?	2/2/2018 2:18 AM
10	ABSOLUTE WASTE OF TAXPAYER MONEY AND TOTALLY UNSAFE!	2/1/2018 11:26 AM
11	I feel the design as shown is inappropriate for the area. The trail should be a narrow path that requires little or no Earth-moving. It should be placed along existing trails where possible, follow the high ridges at the north end of the property for spectacular high views downward, cross one of the streams using the small footbridge that is there now. When you are on the property you feel that you are in the middle of nowhere, and the trail should reflect that, not be a 10-foot-wide engineered path which would disregard the aesthetics and resources of the area. One parking area is enough for the Bolton parcel, perhaps behind England Hardware. This vision for a trail could be executed by volunteers and therefore would not cost Bolton anything.	2/1/2018 9:02 AM
12	cost to the towns involved	2/1/2018 6:54 AM
13	spend the money onreducing property taxes NOT THIS!!	1/31/2018 10:08 PM
14	How expensive	1/31/2018 9:44 PM
15	Don't want it over developed. Keep it WILD!	1/31/2018 8:25 PM
16	Cost and maintenance	1/31/2018 8:17 PM
17	Where is the money coming from for this when our normal infrastrutor needs so much work?	1/31/2018 7:31 PM
18	I am concerned about encroaching on the front yards of people next to the proposed greenway, the impact on wetlands, the proximity to heavy traffic.	1/31/2018 6:09 PM
19	cost, environment	1/31/2018 5:15 PM
20	Cost	1/31/2018 5:08 PM
21	No concerns, excited for the possibility	1/31/2018 4:04 PM

Nathan Hale Greenway Questionnaire		SurveyMonkey
22	It's not needed	1/31/2018 2:39 PM
23	I would like to see minimal impact on the open space in Bolton. There isn't an existing trail like there is on the old railways	1/31/2018 10:35 AM
24	There are already allot of options for large open bike roads in the area. maintain natural areas with rugged hiking and mountain bike trails for recreation.	1/30/2018 4:14 PM
25	Ongoing maintenance of trails, limiting access, preventing "overflow" onto private adjacent lands, inappropriate use of Greenway	1/30/2018 12:44 PM
26	Don't Waste of money we don't have	1/30/2018 11:43 AM
27	Property's	1/29/2018 6:07 PM
28	waste of publics money, plenty of paths already	1/28/2018 9:51 AM
29	I have no concerns and am thrilled about this vision which will make Bolton and other towns along this corridor a better place to live.	1/27/2018 11:08 PM
30	aACCESS AND USE FOR ELDERLY AND DISABLED	1/27/2018 9:43 PM
31	Cost is very high. Would prefer to see more of a blaze trail, with a footpath rather than a wide trail. There are several developed trails in the area and few rustic trails. The topography and scenery on this site make it an outstanding opportunity for a more rustic trail.	1/27/2018 6:32 PM
32	Long-term stewardship by town (1/2-man year, at least), parking must be safe regarding Rte. 6 ingress/egress. Must not be an attractive nuisance after dark (automatic gate?). I request that the entire boundary of the Bolton parcel be visibly marked, for the benefit of visitors and abutters. Yes, the boundary was marked as part of the planning study with metal markers about 2" x 4", but at only half or less the frequency needed to fully delineate the boundary for an observer/visitor. I am grateful for the marking that has taken place. Parking necessary, none currently exists. Visitors at this time might park on Rt. 6 or across Rt. 6--both of these options are dangerous! Neighborhood access walking trails are highly desirable. Connection to a "circle route" in Coventry would be very desirable. Are there any brownfields in the Bolton segment? Trail: I desire low impact, low cost trail that follows the terrain, doesn't alter the terrain. Richard Treat 860.649.8347	1/26/2018 2:03 PM
33	Vandalism	1/26/2018 1:55 PM
34	Cost	1/26/2018 1:53 PM
35	Seems redundant & expensive!!! A single track type trail would be easy to implement & maintain.	1/26/2018 11:52 AM
36	I do not foresee the need a for a multi use trail, a single track or hiking trail, would be well received, and greatly reduce the costs. With the Hop River Trail running parallel, a hiking trail would offer something new to a greenway blessed corridor.	1/25/2018 9:36 PM
37	There is no parking to access the trail. Who will maintain it?	1/25/2018 9:07 PM
38	Erosion, hazard trees, maintenance, domestic animal feces, gates, stonedust surface	1/25/2018 1:09 PM
39	stay out of Nathan Hale Forest; cost--not good for abutting landowners; do not own all land to connect	1/25/2018 1:08 PM
40	should not be built; no parking on Woodbridge Road	1/25/2018 1:07 PM
41	hoodlum night-time beer drinking	1/25/2018 1:05 PM
42	first, the cost, maintaining costs, endangered species, loss of hunting land	1/25/2018 1:04 PM
43	Hindering the preservation/conservation of the town; cost taxes	1/25/2018 1:04 PM
44	worry about infrastructure first	1/25/2018 1:03 PM
45	How will the Town maintain the trails?	1/21/2018 6:50 PM
46	It's not needed	1/20/2018 3:43 PM
47	Based from the 1/18 meeting I understand their maybe hunters in nearby areas	1/19/2018 12:18 PM
48	I moved to Coventry specifically because there is open space and privacy. The Greenway expansion would go right near/through my property. Of all the challenges our town (and state) is facing, I don't think we should be wasting valuable time/resources on a greenway!	1/19/2018 11:33 AM
49	Cost, maintenance (overall, including trash removal), safety	1/18/2018 8:28 PM



Q9 Do you support establishing the Nathan Hale Greenway?

Answered: 75 Skipped: 6



ANSWER CHOICES	RESPONSES
Yes	61.33% 46
No	38.67% 29
TOTAL	75

