
Feasibility Study for a Multi-Use Path in Philipstown

April 2023



SUBMITTED TO:
TOWN OF PHILIPSTOWN, NY

SUBMITTED BY:
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This Feasibility Study Document was funded in part by the Hudson River Valley Greenway Program.



**Hudson River
Valley Greenway**

Background Materials and GIS data provided by:

Cornell University Geospatial Information Repository (CUGIR)

NYS GIS Clearinghouse

NYS Department of Environmental Conservation

US Fish and Wildlife Service

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April 2023

Final Version

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II – Executive Summary

The purpose of this study is to explore the possibility of creating a path system between the Village of Cold Spring and the Hamlet of Garrison in Philipstown, New York. The project area is approximately 4.0 miles, and would improve connectivity and safely link schools, libraries, parks, commercial and medical centers, public transportation facilities, environmental and historic resources, and other important local landmarks while promoting alternative transportation routes throughout the Town. The Town of Philipstown received a grant from the Hudson River Greenway Grant Program to commission this study. The Philipstown Trails Committee (PTC), a town advisory committee, worked closely with the consultant team to support the study process.

This study was conducted over a period of 19 months, and involved the following tasks:

- A kickoff meeting with the project team, PTC, and key project stakeholders to review project expectations, schedule, public engagement, and provide an overview of the project goals and outcomes.
- Preparation of an existing conditions inventory, including mapping from publicly available GIS information and aerial imagery, to serve as base document for the project. Field reconnaissance and site visits were conducted to observe general site conditions, potential routes, environmental and cultural resources, traffic patterns, and other relevant features. A review of online databases from various state and federal agencies was conducted to identify potential opportunities and constraints throughout the project area.
- An analysis of potential alternative alignments and path facility types, focusing on serving a wide range of potential user groups, safety elements, community connectivity, minimizing impacts to the environment and adjacent private properties, and providing a quality user experience.
- Development of conceptual designs and alignments of the various alternatives identified in previous tasks.
- Public engagement through a series of surveys, public meetings/ events, and key stakeholder coordination to inform the public of the project goals and gather important feedback from the community that was used to guide and shape potential recommendations for path development.
- Preparation of a report summarizing the above tasks and providing guidance on next steps to move the project forward.

Based on the findings of these tasks, this study determined that a path system between Cold Spring and Garrison is feasible and would provide a functional facility for commuting and recreational use alike. Multiple potential routes were determined to be feasible, pending additional coordination with adjacent landowners, permitting agencies, and municipalities. The path would support non-motorized transportation within the Town.

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1 - Introduction

1.1 Overview

In July of 2021, the Town of Philipstown (“Town”) hired Weston & Sampson, PE, LS, LA, Architects, PC (“Consultant”) to study and analyze the feasibility of a path network from the Village of Cold Spring to the hamlet of Garrison within the Town. The scope of work included an assessment of the opportunities and constraints of each alternative, including environmental impacts, directness/desirability of route, feasibility, and order-of-magnitude cost.

1.2 Philipstown Trails Committee

The Philipstown Trails Committee (PTC) is empowered by the Town of Philipstown Board to advise the Town on how to improve the ability for local residents to safely get around the town without recourse by motorized transit. The PTC aims to increase walking and biking connectivity, and enhance mobility for people of all ages and abilities, thereby providing safe, easy, and healthy ways to get residents to the places they need to go.

1.3 Background

Efforts to determine the feasibility and potential alignment of the Philipstown Path have been ongoing for the last several years, led by the Philipstown Trails Committee. The PTC grew out of the Philipstown Community Congress, a 2017 grassroots community-wide prioritization process facilitated by the Ecological Citizen’s Project, in which over 750 Philipstown residents participated. Safe biking and walking trails were ranked by community participants as the top priority. In January 2018, the PTC formed as an all-volunteer, resident-led group to articulate a vision and plan for a building multi-use path network and promoting non-motorized transportation in Philipstown. Later in 2018, the PTC held community brainstorming meetings to determine the types of biking and walking paths community members envisioned. The clear priority community members articulated was for safe, off-road, multi-use paths that would safely link important neighborhood connections.

In the Fall of 2018, the PTC was awarded a technical assistance grant from the National Park Service (NPS) Rivers, Trails & Conservation Assistance Program. From 2018 to 2021, with NPS technical assistance, the PTC worked to increase community interest in a multi-use path, met with stakeholders and local experts, conducted research, and explored possible route alternatives linking Cold Spring to Garrison and important neighborhood amenities in between. These initial explorations focused on routes through institutionally-owned properties, such as conservation lands, non-profit organizations, schools, churches, municipally, and/or state-owned lands. The PTC’s work also identified potential resources and key connection points. In 2021, the PTC collaborated with the Town of Philipstown to apply to the Hudson River Valley Greenway Grant program to fund this feasibility study. In January 2022, the PTC became a Philipstown Town Advisory Committee.

The PTC's initial research served as a starting point for the development of this report, with alternative routes being refined through an iterative process and in conjunction with stakeholder and public input.

1.4 Purpose & Need

The purpose of this project is to complete a feasibility study for a path connection between the Village of Cold Spring and the hamlet of Garrison, as well as important neighborhood amenities in between. The path is intended to be used for both commuting and recreational purposes, but most importantly to provide safe community connections to resources throughout the Town for walking and biking. The pathway will work to extend bicycle and pedestrian facilities for people of all ages and abilities, and provide a convenient non-motorist link within the Town.

The potential path would safely link nearby neighborhoods to schools, parks, libraries, Main Streets, commercial centers, train stations, and some of the area's most important landmarks, including the historic Boscobel House & Gardens (with seasonal Farmers Market), Philipstown Park, the Philipstown Recreation Center, and to establish links to nearby neighborhoods. Additional benefits include:

- Healthier lifestyle for residents
- Increased sense of community
- Encourage foot traffic for economic growth
- Alternative transportation use for commuters
- Increased recreational use
- Safer systems in place for pedestrians and bicyclists

2 – Project Area & Existing Conditions

2.1 Project Area

The study area for the project extends approximately 4 miles from the Village of Cold Spring parallel to the Hudson River and Route 9D to the hamlet of Garrison.

The overall project limits encompass several key areas that were assessed for potential improvements. Prior to the start of the project, the PTC had previously identified potential routes for a new path network. As a result, the Weston & Sampson team, and members of the PTC performed field assessments of potential path corridor areas from the Autumn of 2021 through the Summer of 2022 to analyze the existing conditions of these corridors, identify potential constraints, and assess the possibility of path alignments.

2.1.1 Cold Spring

Cold Spring is a Village located in the northwest corner of the Town of Philipstown. Cold Spring is bordered by Hudson Highlands State Park to the north, Nelsonville to the east, Constitution Marsh and Constitution Island to the south, and the Hudson River to the west. The United States Military Academy at West Point is located southwest across the Hudson River. The Cold Spring Metro-North Railroad (MTA) Station is located in the southwestern corner of the Village adjacent to the Hudson River. The Village is a popular tourist destination for visitors from downstate and New York City, becoming very busy on weekends and over the summer and fall.

The Village is comprised of a mix of commercial, residential, and open space, with an active mixed-use Main Street serving as the central corridor within the Village. The Bear Mountain-Beacon Highway (Route 9D) extends through the Village center, with many of the side streets designated as one-way, narrow rights-of-way with on-street parking. There is substantial elevation change in portions of the Village, with retaining walls and rock outcroppings bordering the roads in several areas. While Main Street contains a strong pedestrian sidewalk infrastructure, many of the side streets contain intermittent sidewalk systems.

The West Point Foundry Preserve is located in the southeast corner of the Village at the end of Kemble Avenue. The Preserve contains a designated parking lot (with gates closing at dusk), a restroom facility, and a series of hiking trails which primarily run north/south adjacent to the Foundry Brook. The remains of a former ironworks that supplied artillery to the United States Military are also located within the Preserve along with historical and informational signage. An unpaved path connects the Preserve to the Cold Spring Metro-North Train Station.

2.1.2 Route 9D Corridor (Cold Spring – Garrison)

New York State Route 9D extends from the Village of Cold Spring south over Foundry Brook and continuing south parallel to the Hudson River. The right-of-way is maintained and operated by the New York State Department of Transportation and varies between approximately 55 and 80 feet in width. The corridor is bordered predominantly by private or institutional lands on both sides of the

road. In several areas, stone walls are aligned directly against or within the right-of-way. A second bridge spans Indian Brook mid-way within the corridor.

Bedrock outcroppings are present on each side of Route 9D throughout the corridor, most notably in the area around Saint Basil Academy. These outcroppings are extensive in size and length and extend into the Route 9D right-of-way at several locations. Overhead utility lines run parallel to and cross over Route 9D throughout the corridor; any pathway or path construction within the right-of-way would require accommodating utility poles and guy wires regardless of which side of the road the facility were to be located on.

2.1.3 Garrison

Garrison is a hamlet located in the southwestern portion of Philipstown. Garrison is bordered by the Route 9D corridor and Philipstown Park to the north, a mixture of residential and forested area to the east, the hamlet of Manitou to the south, and the Hudson River to the west. The United States Military Academy at West Point is located northwest of the hamlet on the opposite side of the Hudson River. The Garrison MTA Station is located on the western edge of the Hamlet along the Hudson River.

The Hamlet is comprised of a mix of commercial, residential, and open space, with Route 9D serving as the central corridor within the Hamlet. The Highlands Country Club, Desmond-Fish Public Library, Garrison Union Free School District, and Saint Philip's Episcopal Church in the Highlands, which has an associated cemetery adjacent to the Church property, are all located along the corridor. The Route 9D right-of-way within Garrison varies between approximately 50 and 65 feet wide, with side streets having much narrower rights-of-way of approximately 30 feet.

Upper Station Road and Lower Station Road, both of which are narrow with limited right-of-way, connect Route 9D to the Garrison MTA Station. Much of the roadway is bounded by fences, stone walls, or other obstructions. Rock outcroppings are also present immediately adjacent to the Garrison MTA station on the eastern side of the road. Both roads contain several sharp or hairpin turns, most notably at the bottom of Upper Station Road. Existing path systems (including Marcia's Mile connecting to the Recreation Center) are present to the south of the Garrison MTA station, terminating at Lower Station Road.

The Metro North railroad tracks run north/south immediately adjacent and parallel to the Hudson River.

2.2 Existing Conditions Inventory & Analysis

The purpose of this section is to identify existing physical, environmental and cultural resources which may influence the development of walking and bicycling facilities within the project area.

The Weston & Sampson team conducted a desktop review, as well as a field reconnaissance on site to confirm information from existing resources and expand the understanding of the environmental factors present within and near the project corridor. Resource areas reviewed included: streams/rivers, floodplains, wetlands, topography, historic architecture and archeological resources, property ownership, and utilities.

Ultimately, development of the project corridor into a multi-use pathway will require measures to avoid, minimize and mitigate impacts of these resources to enable a path to coexist with the resources.

As a part of the existing conditions inventory and analysis phase, with the assistance of the PTC, the Weston & Sampson team developed base mapping for the project area using available GIS and aerial photography data from the Town, State, and other publicly available resources.

Weston & Sampson conducted a site analysis to observe the general site conditions, potential routes, environmental and cultural resources, traffic patterns, and other relevant features. The project team documented existing conditions and identified opportunities and constraints for bicycling and walking within the project area, potential walking and bicycling mode patterns, anticipated travel routes, and user types (recreation / commuter).

The project team reviewed the resources and coordinated with local, regional, state, and federal resource databases and staff to determine whether environmental resources are in the project area and their extent and potential significance; to present issues or concerns; or to provide input on the recommended alternatives.

2.2.1 Property Ownership

Understanding land ownership is important to developing a path network. There are multiple landowners within and adjacent to the project corridor. As noted earlier, properties within the project area consist of multiple landowners, including private ownership, institutions, and public lands (local, state and federal). In addition, the corridor extends within and along several roadway rights-of-way managed by the New York State Department of Transportation or the Town Highway Department.

Private ownership remains an important factor in most project corridors, for it is the decision of these landowners as to whether they would be interested in transferring land or granting a right-of-way for such a path. However, some landowners have expressed interest in granting rights-of-way or easements for the path corridor through their properties. Each specific request should be addressed as planning and development of the corridor progresses. Within this document, "permission", refers to the landowners' willingness to entertain the possibility of a pathway, and to explore the idea further; no formal agreements providing permission for a pathway were created during this study.

Three of the largest institutional/public lands within the corridor include: The Boscobel House and Gardens, Constitution Marsh Audubon Center and Sanctuary, St. Basil Academy, and Philipstown Park. Each are described in further detail below:

The Boscobel House and Gardens (officially Boscobel Restoration, Inc.) is an independent historic site located on the west side of the road immediately north of the intersection of Indian Brook Road and Route 9D. The managing body of Boscobel has expressed support for the potential for a path connection along 9d, with opportunities to expand on and connect to existing path networks within their property, informed by site admission policies. Boscobel has unique traffic challenges that might have an opportunity for mitigation through the PTC path effort. Improved walkability and bikeability on 9D would allow Boscobel to safely

welcome more diverse audiences including guests without vehicle access and those who prefer to arrive on foot or bike. One of Boscobel's existing paths terminates out onto Indian Brook Road, an unpaved, public, vehicular road that leads south to the Constitution Marsh Audubon Center and Sanctuary before continuing east beneath the Route 9D bridge over Indian Brook. Boscobel has become the primary public access point for Constitution Marsh and the Audubon Center in recent years. It also hosts a year-round farmers' market every Saturday with an average of 1,000 daily shoppers, primarily local residents.

The Constitution Marsh Audubon Center and Sanctuary, a property of New York State Parks, is located to the east of Route 9D between private residential properties, Indian Brook, and the Hudson River. The Center stewards and interprets the marsh and its inhabitants. Its boardwalk and trail system at the end of Warren Landing Road are popular for bird watching. Bicycling is prohibited within the Marsh to protect the ecosystem and limit disruption to wildlife. An abandoned carriage trail borders the Marsh along the northeastern edge, connecting private institutional and residential properties from Boscobel House and Gardens to the West Point Foundry Preserve, owned by Scenic Hudson. The carriage trail, currently prohibited from public access, is in fair to good condition, however deteriorates and becomes more difficult to discern and traverse as it approaches Boscobel's property.

Saint Basil Academy is also located on the western side of Route 9D, south of Indian Brook, accessible from two driveways, and operates as a residential school for at-risk youth. The property contains a mixture of fencing and stone walls along the Route 9D right-of-way and contains a steep slope along the eastern edge of the school grounds that drops down to Constitution Marsh. A site visit was conducted by Weston & Sampson and members of the PTC to explore options of constructing a path around the perimeter of the site; any such option would require coordination with the school and additional safety / barricade measures to safeguard the student body.

Philipstown Park is located just outside the northern boundary of Garrison on the western side of Route 9D. The park contains a mix of open space, trails, sports fields, and a gravel parking lot. The trails currently do not permit bicyclists and are primarily grass or natural earth.

2.2.2 – Transportation Network

The roadway network within the project area predominantly consists of State Route 9D (maintained and operated by the New York State Department of Transportation), which extends north to south from the Village of Cold Spring to the hamlet of Garrison.

Many sections of Route 9D between Cold Spring and Garrison, include high speed traffic, and limited road and shoulder space suitable to walking or cycling. In addition, there are limited pedestrian facilities for walkers, strollers and other non-motorized modes of transportation. Figure 2.1 identifies the known traffic and speed data as provided by the New York State Department of Transportation.

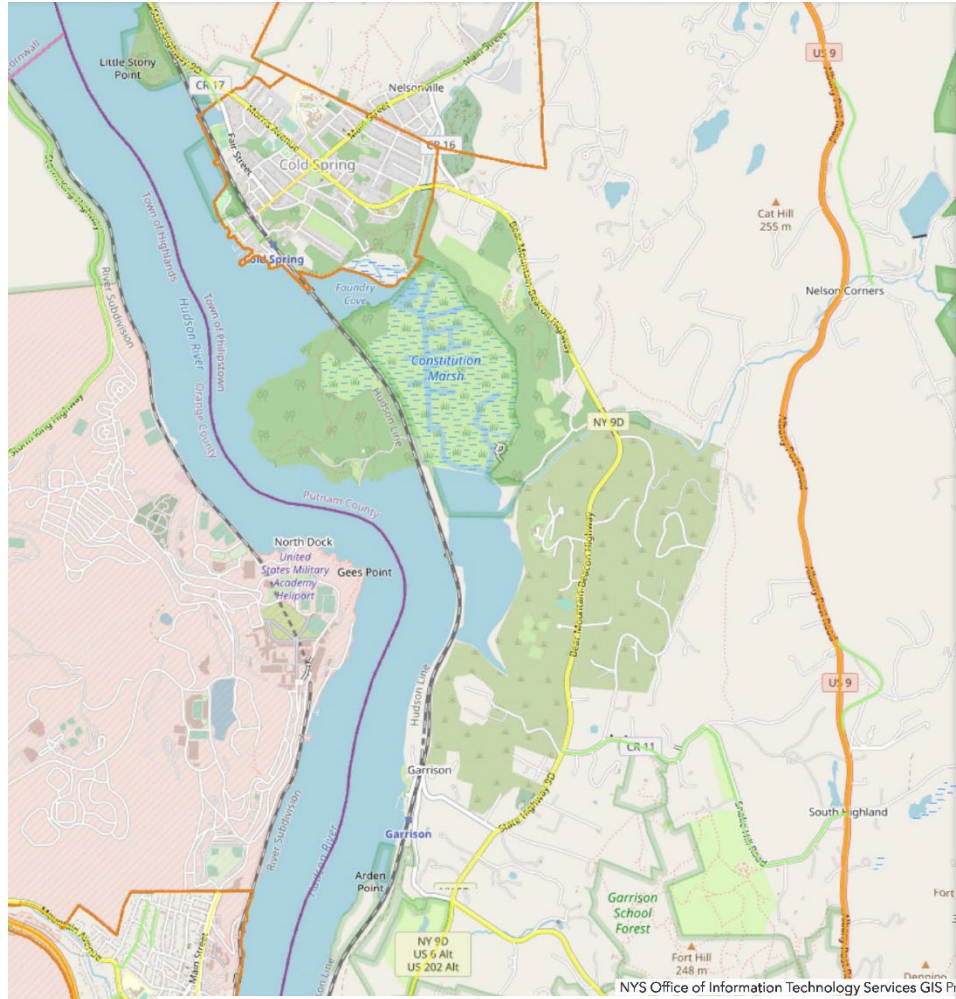
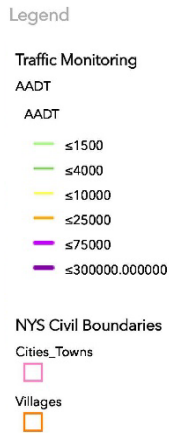


Figure 2.1: AADT Map (NYSDOT, 2023)

Traffic volumes (AADT) and the roadway width are two of the main factors influencing cyclists' comfort for on-road bicycling. Other factors influencing comfort and safety include speed and percentage of truck volume. Figure 2.2 summarizes the comparison of traffic volumes and roadway widths¹. As a result, unless the proposed alignments along roadways include paved shoulders (total width 29 to 30 ft) or wide paved shoulders (total width greater than 31 ft) in nearly every

	Width of Roadway				
	Narrow (≤22')	Moderate (23'-24')	Wide (25'-28')	Paved Shoulders (29'-30')	Wide Paved Shoulders (≥ 31')
Low	Green	Green	Green	Green	Green
Moderate	Red	Red	Red	Green	Green
High	Red	Red	Red	Blue	Blue

The table illustrates, in a generalized fashion, how state and county highways were classified by their conditions for bicycling. Traffic and width of roadways are the two primary variables affecting bicycling conditions. Green – Best conditions; Blue – Moderate conditions; Yellow – Higher Volumes, Wider Paved Shoulders; Red – Undesirable Conditions

Figure 2.2: Traffic and Roadway Width Table (WisDOT, 2006)

¹ Wisconsin Rural Bicycle Planning Guide, 2006

case, the current traffic volumes are not suitable for on-road cycling, walking or running. A separate off-road facility is recommended.

2.2.3 – Topography & Soils

A database and field review of the project site was completed to identify existing topography and soils within the project area. Specifically, these reviews were to determine the presence and general composition of soil types and topographic features within the project corridor.

The general topography of the project corridor is mixed, comprised primarily of moderately to steeply sloped areas. Specific parcels are typically constructed with slopes less than 5%. However, the more natural areas of the corridor, including stream banks, ravines, and forested areas, contain slopes ranging from 5% to greater than 33%. Roadways within the corridor generally follow the slopes of surrounding topography, resulting in a mix of flat and steeply sloped roadways. Several portions of Route 9D include bridges to cross over the steep stream and riverbanks.

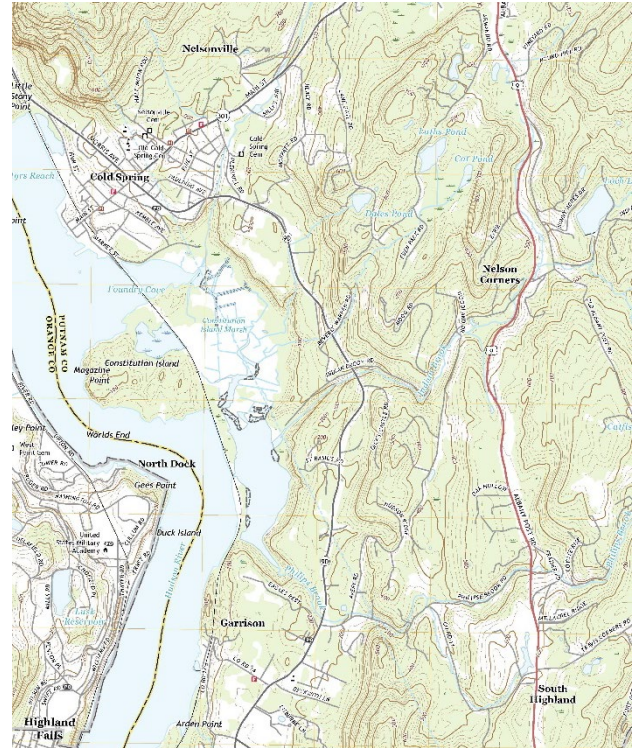


Figure 2.3: Topographic Map of Project Area (USGS, 2019)

Soils within the project corridor vary considerably due to the length of the study area, with multiple characteristics/ layers within the soil profile. The project area contains over 40 unique soil classifications, the most common of which are listed in Figure 2.4.

Soil Classifications Within Project Area						
Soil Name	Abbr.	Slope	Character	Soil Group	% of Area	
Charlton-Chatfield Complex	CrC	0-15%	Very Rocky	B	±23.7%	
Ipswich Mucky Peat	Ip	0-2%	Freq. Flood	A/D	±9.0%	
Riverhead Loam	RhB	3-8%	Well Drained	A	±7.0%	
Charlton Fine Sandy Loam	ChB	3-8%	Well Drained	B	±6.6%	
Urban Land – Charlton Complex	UhB	3-8%	Cemented Material	D	±6.5%	
Hollis-Rock Outcrop Complex	HrF	35-60%	Extremely Rocky	D	±5.3%	
Chatfield-Hollis-Rock Outcrop	CuD	15-35%	Extremely Rocky	B	±5.1%	
Chatfield-Charlton Complex	CsD	15-35%	Very Rocky	B	±4.9%	
Riverhead Loam	RhE	25-50%	Well Drained	A	±4.0%	
Udorthents	Uc	-	Wet Substrate	-	±2.6%	
Udorthents	Ub	-	Smoothed	-	±3.5%	

Figure 2.4: Soil Classifications (USDA, 2023)

Ultimately soil characteristics are much influenced by the “parent” materials of origin (e.g., bedrock, surficial deposits, or organic material), and by topography, climate, hydrology, vegetation, and time. These characteristics provide general guidance in the background material and help identify potential site conditions within the corridor (i.e. steep slopes, outcroppings, and wetlands/drainage areas). A copy of the soil map for the project area from the United State Department of Agriculture (USDA) Web Soil Survey can be found in Appendix H.

2.2.4 - Vegetation

A field review of the project area revealed the majority of the Route 9D corridor between Cold Spring and Garrison extends through mature hardwood forest stands with varied understory. The adjacent Constitution Marsh contains wetlands within varying overstory. Other conditions along the corridor include open / agricultural fields, scrub-shrub vegetation and mowed lawns adjacent to roadways. Residential landscaping and varying understory plantings are found in areas where the path alignment spans residential / developed areas in Cold Spring and Garrison.

2.2.5 - Floodplains

A database review of the project site was completed to identify the presence and general extent of existing floodplains within the immediate corridor.

The review of the FEMA database and Putnam County GIS data indicates a majority of the project area consists of Zone X (minimal flood hazard), with the exception of the areas where Route 9D crosses over Philips Brook, Indian Brook, Foundry Brook, or other bodies of water, which are generally located within Zone A or AE (1 percent chance annual flood event). All of Constitution Marsh is also located within Zone AE. A copy of the floodplain mapping is included in Appendix G.

2.2.6 – Wetlands, Streams & Ponds

A database and field review of the project site was completed to identify existing wetlands, streams, and ponds. Specifically, these reviews were conducted to determine the presence and general extent of the resource areas within the project corridor.



Figure 2.5: View of Constitution Marsh

The database review revealed a majority of the project corridor is located outside of mapped wetland boundaries and associated buffers. Constitution Marsh is classified as a State Regulated Freshwater Wetland (Wetland ID WP-7, Class 1, 279.2 Acres), with an associated 100’ wetland buffer check zone. The Foundry Brook Preserve contains multiple Wetlands listed in the National Wetlands Inventory, classified as Freshwater Forested / Shrub Wetland (PF01S, ±4.8 Acres), Freshwater Emergent Wetland (PEM1S, ±6.55 Acres), Estuarine and Marine Wetland, much of which overlaps with State Wetland WP-7 (E2EM1N6, ±200.20 Acres), and Estuarine and Marine Deepwater (E1ABL6, ±28.20 Acres).

The Hudson River (Regulation 858-1, Standard B, Classification B) borders much of the project area to the west, with several streams crossing through the project corridor including Foundry Brook (Regulation 862-64.1, Standard C(T), Classification C), an unnamed tributary from Dales Pond (Regulation 862-60, Standard B, Classification B), Indian Brook (Regulation 862-53, Standard C(T), Classification C), Philips Brook (Regulation 862-52, Standard B, Classification B), and an unnamed tributary connecting to Philips Brook (Regulation 862-52.1, Standard B, Classification B).

During design, once all of the locations and extents of potential impacts are determined, any applicable environmental permits shall be obtained. If impacts to wetlands are anticipated during design/construction, a NYSDEC and United States Army Corps of Engineers (USACOE) joint application permit for wetland impacts shall be submitted. In addition, various streams throughout the corridor meet NYSDEC’s definition of protected waters; therefore, a NYSDEC Article 15 Stream Disturbance Permit will be required for any disturbance to the bed and banks streams.

2.2.7 – Habitats and Wildlife Species of Conservation Concern

Within the project area, a habitat and wildlife species of conservation concern map/database review was completed. A habitat is a place where a biological community occurs and is defined according to both its biological and non-biological components, e.g., the vegetation, the climate or microclimate, the kind of rock, soil, or water substrate, and the hydrology.

A review of the NYSDEC Environmental Resource Mapper and U.S. Fish and Wildlife Service (USFWS) NY Field Office’s Information, Planning and Consultation (IPaC) system was completed to identify the presence of any New York State threatened and endangered species within the project area. While no Critical Environmental Areas were identified within the project area, several portions of the corridor were within areas designated as Significant Natural Communities or areas designated to potentially contain Rare, Threatened, and Endangered Plants and Animals.

A review of the NYSDEC Environmental Resource Mapper identified the presence of the following species and/or categories within the project area:

NYSDEC Identified Environmental Resources	
Plants / Animals	Significant Natural Communities
Endangered, Threatened or Rare Plants (NYS)	Brackish Tidal Marsh (Constitution Marsh)
Rare Dragonflies and Damselflies (Non-NYS)	Brackish Intertidal Mudflats (Constitution Marsh)
Endangered or Threatened Animals (NYSDEC)	Tidal River (Hudson River Estuary)
Endangered or Threatened Bats (NYSDEC)	
Shortnose Sturgeon – Endangered (NYSDEC)	
Significant Anadromous Fish Concentration Area (NYSDEC)	
Atlantic Silverside (Non-NYS)	
Atlantic Sturgeon (NYSDEC / Federal)	

Figure 2.6: NYSDEC Identified Environmental Resource Table

A review of the US Fish & Wildlife Service IPaC system was also conducted. In addition to rare, threatened and endangered animals, certain birds are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Several birds have been identified of particular concern within the project either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention based upon USFWS Guidance. No critical habitats were identified within the project area. The following species were identified within the project area:

USFWS Environmental Resources	
Common Name	Genus / Species
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-eared Bat	<i>Myotis septentrionalis</i>
Monarch Butterfly	<i>Danaus plexippus</i>
Bog Turtle	<i>Clemmys muhlenbergii</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Black-capped Chickadee	<i>Poecile atricapillus praticus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Canada Warbler	<i>Cardellina canadensis</i>
Cerulean Warbler	<i>Dendroica cerulea</i>
Chimney Swift	<i>Chaetura pelagica</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>
Kentucky Warbler	<i>Oporornis formosus</i>
Northern Saw-whet Owl	<i>Aegolius acadicus acadicus</i>
Prairie Warbler	<i>Dendroica discolor</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Rust Blackbird	<i>Euphagus carolinus</i>
Wood Thrush	<i>Hylocichla mustelina</i>

Figure 2.7: USFWS Identified Environmental Resource Table

A rare and threatened species review should be completed prior to further development within the design process. Depending on the funding source and necessary permits, additional analysis may be required. A copy of the Environmental Resources Mapping is included in Appendix F.

2.2.8 – Historic & Cultural Resources

The project area encompasses lands once occupied by Native Americans and later by European settlers, estate owners and transportation infrastructure. These uses left behind historically

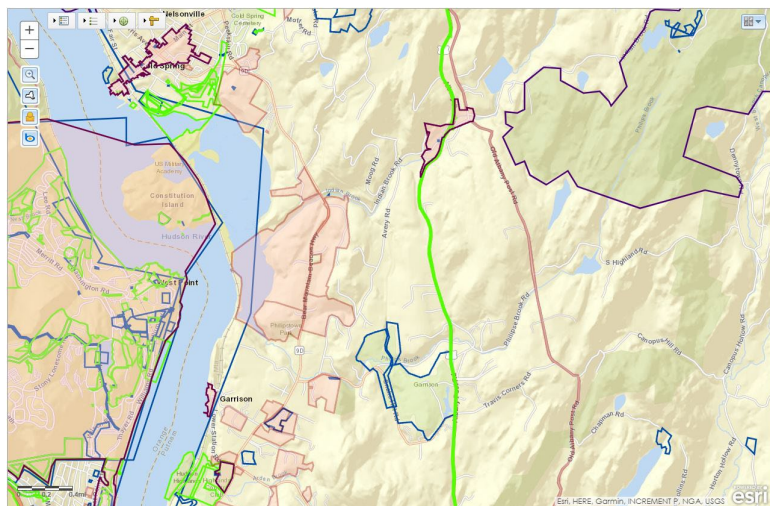


Figure 2.8: CRIS Database Snapshot (NYSOPRHP, 2022)

important archaeological and architectural resources reflecting Putnam County’s rich history. A review of the New York State Office of Parks, Recreation and Historical Preservation (OPRHP) Cultural Resource Information System (CRIS) database was performed to identify recorded cultural and historic resources within the project area (Figure 2.8). Several of the proposed alignments cross through documented resources, including:

NYSOPRHP Identified Resources	
Name	Identification No.
Cold Spring Historic District	NR #: 90NR02385
West Point Foundry	NR #: 90NR02387
Fair Lawn	NR #: 90NR02386
Plumbush	NR #: 91NR00253
Boscobel House & Gardens	USN #: 07904.000012
DeRham Farm	NR #: 90NR02362
DeRham Estate	USN #: 07904.000017
Eagle’s Rest	(NR #: 90NR02365
Jason Ruppert Estate / St. Basil Academy Chapel	USN #: 07904.000044
Dick’s Castle	NYR #: 91NR00062
Dick’s Estate Carriage House; Normandy Grange Socco Residence	USN #: 07904.00052
Woodlawn	NYR #: 90NR02379
Academic Building Malcolm Gordon Boarding School	USN #: 07904.00053
House 1100	USN #: 07904.000074
St. Philip’s Church in the Highlands Rectory	USN #: 07904.000066
St. Philip’s Church in the Highlands Parish Hall	USN #: 07904.000067
St. Philip’s Church in the Highlands Episcopal Church	USN #: 07904.000068
St. Philip’s Church in the Highlands Complex	NR #: 91NR00254
Hurst-Pierrepoint Estate	NR #: 90NR02369
Rock Lawn and Carriage House	NR #: 90NR02375
Garrison Landing Historic District	NR #: 90NR02366
Wilson House	NR #: 90NR02378
Mandeville House	NR #: 90NR02370
Garrison Grist Mill Historic District	NR #: 92NR00349
Alamo Residence	USN #: 07904.000095
The Birches	NR #: 90NR02364

Figure 2.9: NYSOPRHP Identified Resource Table (NYSOPRHP, 2023)

While a majority of these sites and districts are anticipated to remain unimpacted by the proposed path alignments, and the path would not significantly differ from the existing character of the project areas, temporary impacts, easements, and construction is likely to occur within several of the historical districts. Specific parcels that contain historic estates may also be impacted depending on which alignment is ultimately selected for development. As a result, potential impacts to historic or cultural resources should be considered as part of project planning and design process. In addition, cultural resource themes could be included in wayside interpretive programming, which should be coordinated with existing and planned interpretation for other Putnam County parks and paths. A comprehensive Phase 1A, Phase 1B, and Phase 2B archaeological resource survey may be warranted to identify potential path construction impacts as part of the design process.

2.2.9 –Hazardous Materials

A review of the the NYSDEC Environmental Remediation Database revealed that four sites with potential contamination history are located within 2,000 feet of the project area. These areas are as follows:

- Site E340026: 85 Main Street, Cold Spring, NY 10516. Cold Spring Former MGP: Site Classification N. Contaminants of concern include Coal Tar.
- Site 340034: Cold Spring Foundry: Site Classification A. State Superfund Program.
- Site 34006: 53 Kemble Avenue, Cold Spring, NY 10516. Marathon Battery Site: Site Classification 04. State Superfund Program. Contaminants of concern include Cadmium and Nickel.
- Site 546031: Hudson River PCB Sediments. Site Classification 02. State Superfund Program. Contaminants of Concern include Polychlorinated Biphenyls (PCB), PCB Aroclor 1254, PCB Aroclor 1016, Cadmium, Lead, PCB Aroclor 1242.

These are sites that are actively monitored by the NYSDEC and other Local, State, and Federal agencies, and each contains unique environmental and human health assessments. Any development of the path on or substantially contiguous to these sites will need to comply with the applicable land use restrictions in place for the site. Additional remediation measures may be warranted to allow for path construction. A Phase 1 Environmental Assessment (ESA) should be prepared as part of the design process if development is anticipated to occur on or near any of the sites.

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3 – User Group & Facility Analysis

3.1 Anticipated User Groups

The path alignment is anticipated to serve a variety of users, with a particular focus on walkers and bicyclists, who use the path for local alternative transportation. Path width, surface material, and path connectivity are three primary factors which influence the types of path users. Although path use is likely to vary due to surrounding walking and biking network facilities/conditions (i.e. connecting paths, sidewalk extensions, intersection improvements, roadway traffic, etc.), it is anticipated recreational users will be the primary user group in the near future. Path width, surface material, and path connectivity are three primary factors which influence the types of path users.

3.1.1 – Pedestrians

Pedestrians may include walkers, hikers, joggers, runners, bird watchers, snowshoers, and dog walkers. This user group tends to have fewer design requirements than most other users. Most pedestrians prefer softer surfaces (crushed stone) to reduce impacts on joints. Snowshoeing can be accommodated during the winter months with limited snow cover (approximately 6 inches). Benches and drinking fountains are valuable amenities, particularly for users of all ages and abilities. Dogi-pots and dog-friendly drinking fountains are highly encouraged in locations where dogs are permitted.

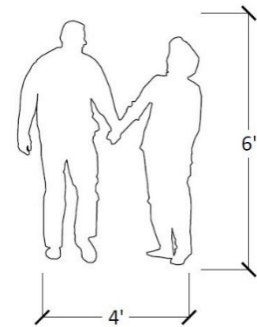


Figure 3.1: Typical Pedestrian Planning Dimensions

3.1.2 – Bicyclists

Bicyclists fall into a number of general categories based upon interest (recreational, commuting, touring) and experience level, which in part influence bicycle types (conventional, recumbent, tricycle) and behavioral uses. As a result, bicycle facilities should be designed to accommodate the appropriate intended use. Amenities suggested for pedestrians typically apply to bicyclists as well, with additional recommendations to include bicycle racks and bicycle lockers at locations such as libraries, schools, and shopping areas.

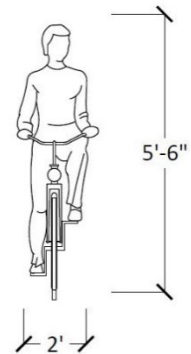


Figure 3.2: Typical Bicyclist Planning Dimensions

3.1.3 – Mobility Users and Strollers

People using strollers, wheelchairs, and mobility scooters typically prefer a hard surface depending on the specific device or distance of travel. Multi-use paths should be designed to be accessible to users with mobility impairments. For example, crushed stone paths can be wheelchair accessible when designed following certain requirements.

3.2 Facility Types

Corridors that effectively accommodate walking and bicycling often combine multiple facility types, where each type is used where appropriate due to various opportunities and constraints. Throughout

the corridor, transitions between facility types should be functional and intuitive. The three facility types considered most appropriate for this study are Multi-use Paths, Shared Lane Markings, and Sidewalks.

Depending on project implementation, phasing, and opportunities to make connections within the greater corridor/network, additional facility types, such as bike lanes, shared lanes (wide outside lanes), paved shoulders, and bicycle boulevards should be considered. Additional guidance on each of the potential facility types can be found in the latest AASHTO Guide for the Development of Bicycle Facilities and the NACTO Urban Bikeway Design Guide.

3.2.1 – Multi-Use Path

The minimum paved width for a multi-use path is 10 feet, however widths can range from 8 to 14 feet. Wider values are applicable to areas with high-use and or wider variety of user groups or at trailheads or wayside locations.

Multi-use paths should have a cross slope in one direction to aid in drainage, and the cross slope can vary along the corridor depending on the topography and adjacent land use. A 1.5 percent cross slope is recommended (2 percent max.), which is the same as a typical sidewalk, and meets Americans with Disabilities Act (ADA) accessibility guidelines.

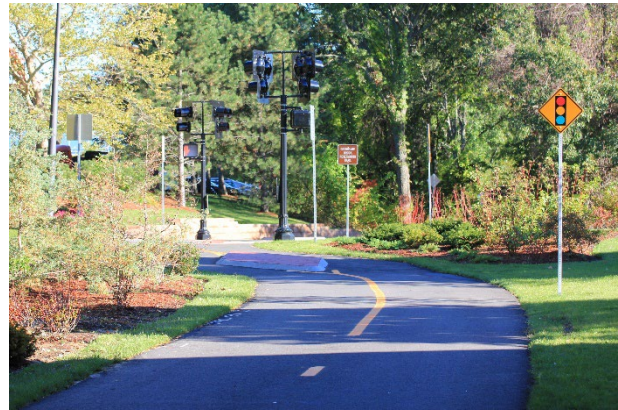


Figure 3.3: Multi-use Path

A minimum 2 foot (3 feet preferred) graded area should be maintained from the edge of the path to any obstructions. This area should have a recommended cross slope of 12:1 and maximum cross slope of 6:1 to provide proper drainage to prevent erosion, as well as provide a recovery zone for path users. This shoulder is not considered part of the travel way and is commonly constructed using soft surface materials such as grass, gravel borrow, stone dust, or other stabilized materials. Low-lying vegetation within 6 feet of the edge of the path may threaten the long-term integrity of the paved surface

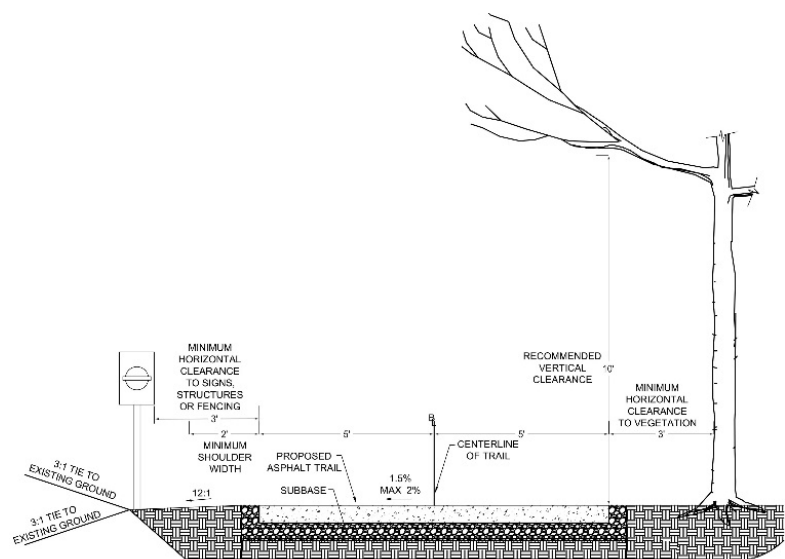


Figure 3.4: Typical Multi-Use Path Section

and as a result, high-density polyethylene root barrier is recommended for installation in these areas. Due to its price, root barrier should only be installed in areas where root damage can be anticipated.

Path surface materials should be provided to enable year-round use of the path corridor and minimize maintenance needs. A hard, all weather, smooth asphalt pavement surface is recommended, though the specific material will be determined based on site considerations and community input. At trailheads, waysides, and other amenity areas, alternative paving materials, such as brick/concrete pavers, colored concrete, stamped concrete, unit pavers, pervious concrete or permeable pavers are sensitive coordinated throughout the path corridor to provide a cohesive network of amenity areas.

A multi-use path is generally suitable for use by pedestrians, runners & joggers, dog walkers, bicyclists, commuters, and other non-vehicular modes of transportation. They are among the most versatile facilities in regards to accommodating a wide range of user groups.

3.2.2 – Shared Lane Markings

Shared Lane markings are roadways that have special bicycle markings to provide a higher level of guidance to bicyclists and motorists. The symbols, called “shared lane markings” or “sharrows,” alert motorists to locations where bicyclists should be expected to ride and encourage safer passing behaviors. Shared lane markings are typically used on streets where right-of-way constraints limit the possibility of providing a shared use path or bike lanes, and should not be used on roads with speed limits greater than 35 mph.

Shared lane markings are for bicyclists only, and can accommodate recreational and commuter users.



Figure 3.5: Shared Lane Marking

3.2.3 – Bike Lanes

On-road bike lanes provide an exclusive space for bicyclists using lines and symbols on the roadway surface. Bike lanes are for one-way travel and are normally provided in both directions on two-way streets and/or on one side of a one-way street. Bike lanes should be a minimum of 5’ wide when adjacent to curb or parking, or 4’ wide when there are no adjacent obstructions.

Buffered bike lanes are created by painting a flush buffer zone between a bike lane and the adjacent travel lane. While buffers are typically used between bike lanes and motor vehicle travel lanes to increase bicyclists comfort, they can also be provided between bike lanes and parking lanes in locations with high parking turnover to discourage bicyclists from riding too close to parked motor vehicles.

As with shared lane markings, bike lanes are limited to bicyclist use only and while they primarily accommodate commuters, recreational cyclists can also make use of this facility.

3.2.4 – Sidewalks

Sidewalks are facilities that typically accompany roadways and on-road bicycle facilities to provide a safe area designated specifically for pedestrians. Sidewalks are typically 5' wide to allow pedestrians to pass one another when travelling in opposite directions. Sidewalks are constructed of concrete or asphalt depending on the surrounding site context. Sidewalks should be ADA compliant, with curb ramps and crosswalks provided at intersections with roadways. A buffer between the edge of sidewalk and adjacent roadway is preferred, and can include vertical curbs, vegetated strips, or a visually distinct pavement. Sidewalk use should be limited to developed areas adjacent to roadways; while this user group tends to have fewer design requirements than others, most pedestrians prefer softer surfaces to reduce impact on joints when walking for extended periods of time.

Bicyclists are generally prohibited from using sidewalks without dismounting, and therefore pedestrians, strollers, and dogwalkers are the primary user groups for this facility.

3.2.5 – Soft Surface / Hiking Path

Soft Surface or hiking paths are constructed of either stone dust or mulch that typically service pedestrian foot travel and can vary between 6' and 8' wide. Slopes are typically relatively flat, and while ADA accessibility is possible, maintaining compliance requires extensive maintenance to ensure the loose surface material is evenly spread. Due to the difficulty to maintain ADA compliance, narrow widths, and inability to safely accommodate some bicycle types, they are not suitable for use as a commuter route, but rather are best utilized as recreational facilities.

3.2.5 – Single Track Path

Single Track Paths are typically natural earth paths (sometimes reinforced with mulch or other granular material) that range between 2' and 4' wide. The narrow width and lack of hard pavement make these paths best suited for recreational use such as hiking, dog walking or mountain biking instead of commuting. In the winter months, snowshoeing is possible with limited snow cover ($\pm 6''$). While paths should generally be constructed with ADA accessibility in mind, the natural materials and narrow width make maintaining compliance nearly impossible.

4 – Public Participation

Throughout the project development process, comprehensive public participation is critical to the long-term success and support of the path project. Public input has been an on-going process since the concept of the path was first considered. As plans become further developed and the path gets closer to construction, it is critical to continue to engage stakeholders and members of the community. As the project continues, public participation should consist of a series of trail committee meetings, public workshops and community meetings, emails, and other methods.

Ultimately if there is state or federal funding, there will need to be several public meetings to identify and address public issues and concerns in each town, a Local Issues Meeting, and a Preliminary Design Public Hearing. At these meetings, abutters can request specific measures. These measures will be added to the design plans and included as part of the construction cost estimate.

Led by the Philipstown Trails Committee (PTC), the project team carried out a broad set of public engagement activities through the study. The following general activities were completed:

4.1 Monthly PTC Meetings

As a town advisory committee, the PTC holds monthly meetings, all open to the public. The meeting agendas and minutes are posted on the PTC website, www.philipstowntrails.org. The meetings are also included in the meeting calendar on the Town of Philipstown website.

4.2 One-on-One Stakeholder Meetings

From August 2021 to October 2022, PTC representatives met with leadership from nine nonprofit organizations and government entities: Constitution Marsh Audubon Center and Sanctuary, Hastings Center, Manitou School, NY State Department of Transportation, NY State Parks Recreation & Historic Preservation, Open Space Institute, Scenic Hudson, St. Basil Academy, and the Town of Philipstown.

4.3 Letters to Residents of Neighboring & Adjoining Properties to Route 9D

Co-chairs and PTC members used the Putnam County E-Parcel database to identify property owners along 9D (between Foundry Brook and the Philipstown Recreation Center), Upper Station Road, and Indian Brook Road (north of Indian Brook). Using the mailing addresses listed on Putnam County E-Parcel, PTC volunteers sent 120 letters to property owners to introduce them to the committee, provide information about the feasibility study, and invite them to two in-person community meetings on October 17 and November 1, 2022, at Garrison's Desmond Fish Library and St. Mary's in the Highlands in Cold Spring.



Figure 4.1: Sample Meeting Advertisement

4.4 Community Meetings

The PTC hosted four community meetings from October 2022 to January 2023 to present initial feasibility study findings and receive community input. The first two meetings (October 17 and November 1, 2022) were designed for property owners and residents neighboring or abutting the potential path. Invitations to these meetings were sent by letter, as described above. The third and fourth meetings (November 10, 2022, and January 18, 2023) were open to the wider community. The meetings were advertised through press releases sent to local newspapers, and quarter-page advertisements were placed in the *Putnam County News & Recorder (PCNR)* and *The Highlands Current* local newspapers. In addition, extensive outreach took place by email, and over 200 flyers were displayed in public locations including libraries, grocery stores, and Main Street businesses. An email notice was sent to an estimated 200 Philipstown residents through the Town email list and was posted on the Town's website.

At each community meeting, Weston & Sampson staff and PTC members delivered a slide presentation describing the history of the Trails Committee, the feasibility study process, and the initial findings and key takeaways. A general question and answer period was followed by open time in which participants could view the potential path alignments on large paper maps, as well as provide feedback and ask questions to PTC members and the consultant. A notetaker captured all feedback provided during the question and answer period, and written feedback was collected and recorded. Over 160 community members participated (not including PTC members or elected officials). The feedback is summarized in the section below.

At each of the three community meetings, PTC distributed sign-in sheets and feedback forms, inviting attendees to complete them. The sign-in sheets collected contact information so attendees could be notified of future activities by the PTC. The feedback forms solicited broad feedback regarding levels of support for the proposed path and recommended alignments, as well as an open comment section. Forty-seven surveys were completed. The following is a list of Community Meetings held throughout the duration of this project.



Figure 4.2: Photograph from Community Meeting #1



Figure 4.3: Photograph from Community Meeting #1



Figure 4.4: Photograph from Community Meeting #3

- Community Meeting #1: October 17th, 2022, from 6:30 to 8:00 pm at St. Mary's Episcopal Church in Cold Spring. Approximately 15 community members attended the meeting.
- Community Meeting #2: November 1st, 2022, from 6:30 to 8:00 pm at the Desmond-Fish Public Library Program Room in Garrison. Approximately 10 community members attended the meeting.
- Community Meeting #3: November 10th, 2022, from 6:30 to 8:00 pm at the Desmond-Fish Public Library Program Room in Garrison. Approximately 62 community members attended the meeting.
- Town Workshop Meeting #4: January 18th, 2023 from 7:30 to 9:00 pm at the Philipstown Town Hall. Approximately 75 community members attending the meeting.



Figure 4.5: Photograph from Town Workshop Meeting #4

4.4.1 – Additional Meetings

PTC representatives also made short presentations to the following stakeholder groups, including: the Village of Cold Spring Planning Board on October 13, 2022; the Village of Cold Spring Board of Trustees on February 8, 2023; and the Cold Spring Chamber of Commerce on February 16, 2023.

4.5 Route 9D Pedestrian Safety Parent Survey

In the fall of 2022, the PTC also launched the 9D Pedestrian Safety Parent Survey to collect data from local families. This survey was shared with parents of children that attend schools and daycares connected to the 9D corridor. PTC leadership reached out to seven schools and education centers connected to 9D including Manitou School, Garrison Union Free School District, Haldane School District, daycares and nursery schools. School leaders were emailed the details and asked to share with the school's parents. The survey closed in January of 2023 with a total of 326 submissions. The complete survey results are available on the Town website (http://philipstowntrails.org/wp-content/uploads/2023/01/Parent-Pedestrian-Survey-Results_-1_10_23.pdf) and are summarized in Appendix E.

4.6 Public Engagement Key Takeaways

The following key takeaways summarize the feedback received from residents and stakeholders during the feasibility study public engagement process.

Participants indicated support to improve pedestrian safety. Of the 160+ people who attended the community meetings, 45 completed a feedback form. Of the 45 that provided written feedback, 93% agreed that there was a need to improve walkability & biking opportunities in Philipstown.

Participants indicated support for opportunities for residents to walk or bike safely to neighborhood points, though there was not full agreement on the specific way to achieve this goal. When asked if they agreed with the proposal for the potential path, from those who completed the feedback survey, 73% strongly agreed, 13% agreed with some reservations, 9% agreed with significant reservations, and 4% said they did not know and needed more information.

Property owners along the proposed route had unique concerns. A main concern was about the potential impact to their personal property. Some also expressed concerns about safety to themselves and path users in the context of traffic speed, traffic volume, blind corners, types of vehicles, and driveway access, etc.

Other residents voiced concern about the potential use and overuse of the proposed path. Participants asked questions such as: Will a path attract more non-residents? Is a path consistent with protecting sensitive ecological areas? Will enough people use the path to warrant the effort to create it?

Some residents were interested in using the entire length of the proposed path, while others expected to use sections of it to connect to different community sites. Some urged that any path to be accessible to a range of ages and abilities.

Some residents stated that they were not yet ready to share an opinion because they are unsure about the specifics of the proposed path. These residents were eager to learn about more granular analysis.

Many were in favor of focusing first on the Cold Spring/Nelsonville to Boscobel connection, though some preferred an initial focus on improving safety & connections in Garrison (Garrison Union Free School District to Desmond-Fish Library & Philipstown Recreation Center).

Much of the feedback centered around the dangerous existing conditions along 9D as well as the lack of safe walking/biking opportunities for Philipstown residents. One path cannot solve all of the greater safety, transportation, and usability concerns; there is a pressing need for a much greater focus on this by the Town.

Some residents shared general support but with specific concerns about the environment and the footprint on the land and existing natural habitats. Several voiced that they would be hesitant to support any path along the Marsh.

Multiple planning and coordination meetings were held throughout the duration of the project. As a result, additional public meetings are encouraged to promote public involvement and support for the project. Copies of the public presentations are included in Appendix E.

5 – Alternatives Analysis

To determine how best to provide a non-vehicular connection between Cold Spring and Garrison, several alternative alignments were developed for consideration. An overview and analysis of the potential alignments can be found in the following sections.

Various path materials & facility types were assessed as part of this analysis. While some alignment areas are more conducive to certain facility types than others, the final facility types may change due to several factors, including varying right-of-way widths (the exact width and layout of which is unknown and would require an extensive boundary survey outside the scope of this study to properly assess) and potential requirements of private property owners and associated easement agreement limitations (the exact nature of which are largely unknown at this time).

The overall project corridor was separated into four project areas; Cold Spring (Area A), Route 9D Corridor North (Area B), Route 9D Corridor South (Area C), and Garrison (Area D). Conceptual alignment plans for each project area can be found in Appendix B.

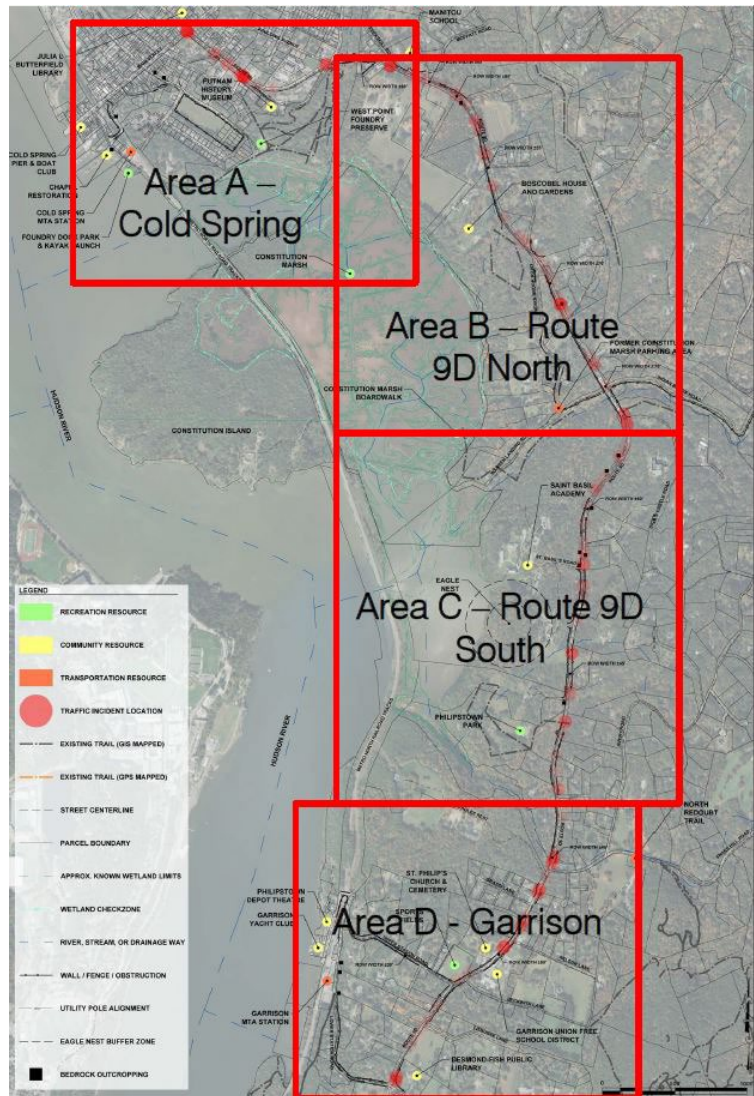


Figure 5.1: Overall Project Area Map

5.1 Area A – Cold Spring

Area A extends from the village center of Cold Spring to the intersection of Route 9D and southern end of Foundry Brook Bridge. Several alternatives were assessed.

5.1.1 – Alignment A1

Alignment A1 begins in the Village of Cold Spring at the entrance to the West Point Foundry Preserve (WFPF) near the train station. The alignment follows the WFPF Blue Marsh Trail along Constitution Marsh until it intersects with the end of Kemble Avenue. The alignment then continues uphill along

the WFPF Red Trail, until reaching Chestnut Street where it meets Alignment A2. Due to environmental concerns, no bicycling is allowed within WFPF. The Alignment would begin along existing streets as shared lane markings and sidewalks, before continuing along the existing soft surface paths. WFPF is owned and managed by Scenic Hudson. PTC conducted early discussions with Scenic Hudson about the potential path; continued discussions and approvals should take place if this alignment were to be pursued.

5.1.2 – Alignment A2

Alignment A2 begins at approximately the Putnam History Museum on Chestnut Street. This Alignment would be

comprised primarily of shared lane markings and sidewalks within the Village to Route 9D, as the existing roadway infrastructure is too narrow to accommodate a separate path or bike lanes, and the lower speed limits within the Cold Spring are conducive to shared lane markings.

5.1.3 – Alignment A3

Alignment A3 identifies existing sidewalks that connect to neighborhoods and community resources, and these sidewalk connections could serve as optional extensions for the proposed path. If funding becomes available, this existing infrastructure could be bolstered by the Village of Cold Spring following Complete Streets principles.

5.2 Area B – Route 9D North

Area B encompasses the Route 9D corridor and surrounding properties between the southern end of the Foundry Brook Bridge and the Indian Brook bridge. Alternatives explored include alignments within the Route 9D right-of-way and alignments that traverse privately owned properties and would require easement agreements with individual property owners. The Philipstown Trails Committee has conducted initial conversations with several landowners within the area to gauge interest and determine feasibility, with the Boscobel House and Gardens expressing interest in supporting a path along 9D, including on their properties. Constitution Marsh Audubon Center and Sanctuary, a non-profit conservation organization that manages Constitution Marsh is also in general support of the project but has indicated that additional studies should be completed before potentially supporting a path along the Marsh.

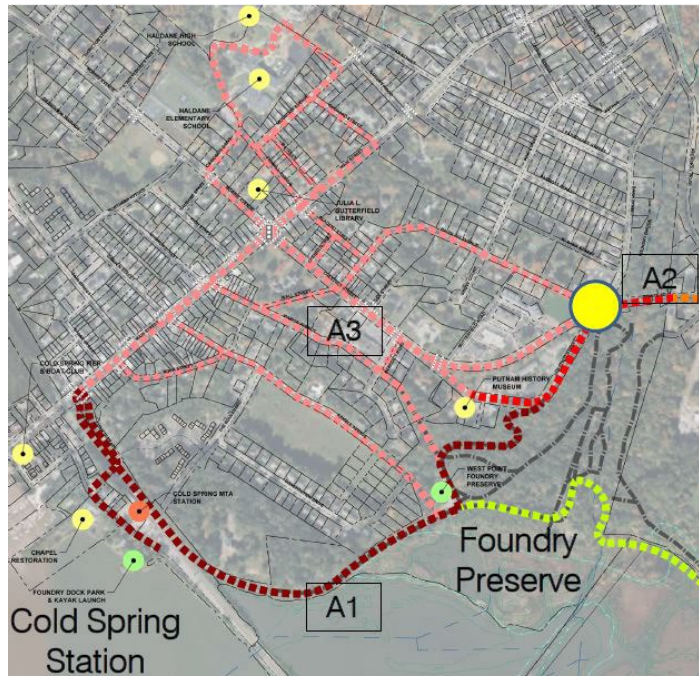


Figure 5.2: Area A Map

5.2.1 – Alignment B1

Alignment B1 begins at the terminus of Alignment A2, near the Foundry Brook. This alignment would cross the Brook via a new pedestrian scale bridge, as the existing bridge is not suited for bicycle or pedestrian traffic. It would continue southeast within Route 9D right-of-way before reaching Boscobel House and Gardens property. Exact property ownership and subsequent easement agreements would be required. Continuing south, the Alignment would remain within/along the eastern portion of the Boscobel properties, possibly utilizing existing or new path systems and continue south within the Indian Brook Road right-of-way before terminating at the former parking area for Constitution Marsh (located at the intersection of the gravel Town road, Indian Brook Road and Warren Landing Road).

The Alignment begins as a shared-use pathway within 9D right-of-way and lands of Boscobel House and Gardens, until reaching Indian Brook Road right-of-way where it transitions to a shared-lane conditions with signage.

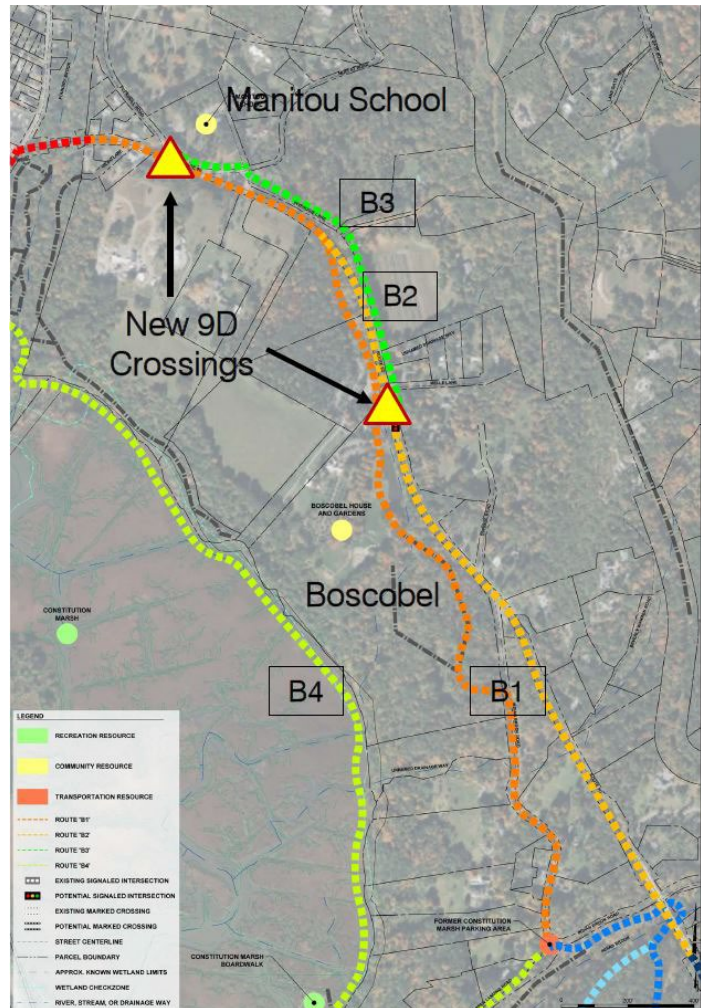


Figure 5.3: Area B Map

5.2.2 – Alignment B2

Alignment B2 diverges from Alignment B1 where the latter enters the Boscobel House and Gardens property, instead continuing with the Route 9D right-of-way. The Alignment continues south within the right-of-way, terminating at the southern side of the Indian Brook Bridge. This Alignment would consist of new bike lanes, potentially requiring widening the roadway to accommodate the additional striping. The existing Indian Brook Bridge is not conducive to pedestrian or bicycle traffic, and due to potential cost, design, and permitting constraints, this Alignment was deemed infeasible.

5.2.3 – Alignment B3

Alignment B3 is an optional spur off Alignment B1, involving two new crossings across Route 9D to connect the path to the Manitou School. The Alignment would involve a new mid-block crossing between Peekskill Road and Moffat Road in front of the Manitou School to facilitate students accessing the path. This crossing is located within a section of Route 9D currently designated with a speed limit of 30 mph and would utilize rectangular rapid flash beacons (RRFB) or other MUTCD-

approved system. The second new crossing would be installed at the main entrance drive of the Boscobel House and Gardens, which is considering a new entrance at this location. Both crossing locations would require formal studies and permitting through NYSDOT to determine their feasibility and conformance with traffic safety standards. The two crossing locations are connected on the north side of Route 9D by a path segment within the rights-of-way of Route 9D, Moffat Road and privately owned Inverugie Lane. This Alignment is comprised of either a paved multi-use path or a combination of shared lane markings & sidewalks.

5.2.4 – Alignment B4

Alignment B4 connects to Alignment A1 at the historic West Point Foundry office building, where it crosses Foundry Brook over an existing pedestrian bridge within the preserve. It continues south along Constitution Marsh, remaining on state owned park lands and utilizing the former carriage road alignment where possible. The alignment then connects to the terminus of Alignment B1 at the former Constitution Marsh parking area. The Alignment would consist of either a boardwalk, soft surface path, or multi-use path depending on environmental, easement, and permitting requirements. Due to landowner, environmental and permitting concerns associated with costly construction of large segments of path within or adjacent to the Constitution Marsh state-owned land, this alternative was ultimately determined to be infeasible.

5.3 Area C – Route 9D South

Area C encompasses the Route 9D corridor and surrounding properties south of the Indian Brook bridge to Philipstown Park. Alternatives explored include alignments within the Route 9D right-of-way and alignments that traverse privately owned properties and would require easement agreements with individual property owners. The Philipstown Trails Committee has conducted initial conversations with several landowners within the area to gauge interest and determine feasibility. Saint Basil Academy discussed potential security concerns associated with having a path extend through their property and were open to further discussion. Philipstown Park currently prohibits bicycling on the paths that run through the park, which are comprised of soft surface material.

5.3.1 – Alignment C1

Alignment C1 begins at the former Constitution Marsh parking area and continues east along an old carriageway trail, utilizing an existing bridge and switchback to cross Indian Brook beneath the Route 9D vehicular bridge. The area around Indian Brook, including the existing bridge, is owned by New York State Office of Parks, Recreation and Historic Preservation. The office expressed being fully supportive of the Philipstown Path project goals, but had concerns around managing visitors and access to protect ecologically sensitive areas at Indian Brook Falls (as well as Constitution Marsh). The Alignment continues south along the eastern edge within the property of Saint Basil Academy, crossing St. Basil's Road before entering the Route 9D right-of-way at the southeastern corner of the property. The exploratory alignment does not represent an agreement by the property owners. PTC recognizes that there are continued discussions around the exploratory alignments, and that the landowners have not granted approval. Security measures such as lighting, fencing, and vegetative screening, could be considered to prevent path users from entering the Academy grounds and

students from leaving the property unattended. Alignment C1 would depart from Saint Basil Academy's property by incrementally moving closer to the 9D corridor. Continuing south within the right-of-way, the Alignment crosses the Philipstown Park driveway and terminates at the corner of the property. This Alignment would be comprised of a paved multi-use path.

5.3.3 – Alignment C2

Alignment C2 begins after Alignment C1 crosses Indian Brook, continuing southwest to cut through the western edge of the Saint Basil Academy property towards Philipstown Park. Security measures such as lighting, fencing, and vegetative screening, could be considered to prevent path users from entering the Academy grounds and students from leaving the property unattended. This area contains a steep slope along the western edge of the school grounds that drops down to Constitution Marsh, which limits the feasibility of a multi-use path.

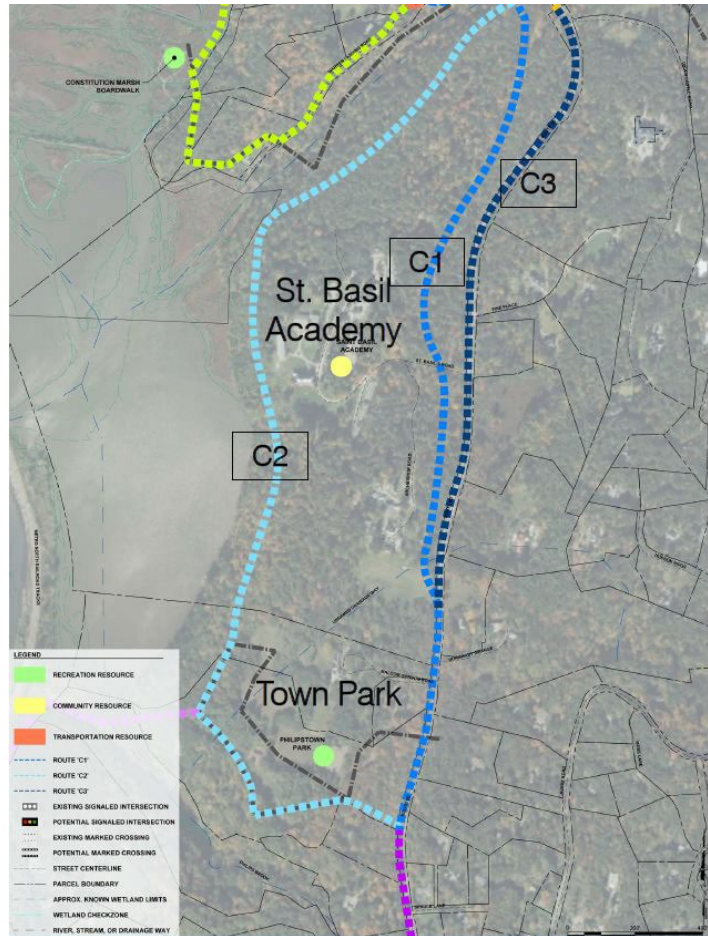


Figure 5.4: Area C Map

Upon entering Philipstown Park, the Alignment would connect to the existing path system within the park, bringing path users through the park and out into the Route 9D right-of-way at the southeast corner of the property. As the Philipstown Park trails currently prohibit bicycle traffic, this segment of the Alignment would either be for pedestrians only or require converting one of the trails (in agreement with the operating body of the Park) into a facility suitable for both pedestrian and bicycle traffic. This Alignment would be constructed as a multi-use path for a majority of the corridor, converting to a soft surface path as needed to comply with zoning, permitting or environmental requirements. Within this alignment, an existing bald eagles nest was located, therefore limiting potential path development options within 300-feet of the located nest. Due to existing environmental resources and concerns associated with costly construction of large segments of path within or adjacent to the steep slopes adjacent to Constitution Marsh, this alternative was ultimately determined to be infeasible.

5.3.2 – Alignment C3

Alignment C3 is a potential route primarily within the Route 9D right-of-way. The Alignment begins at the terminus of Alignment B2 on the southern side of the Indian Brook Bridge. The Alignment continues south along the west side of the Route 9D right-of-way towards Philipstown Park,

connecting to Alignment C1 where it exits the Saint Basil Academy property. This alignment would be comprised of either bike lanes, which similar to Alignment B2 may require widening of the roadway, or a multi-use path. Due to the presence of utility poles on both sides of the road, the presence of stone walls and fencing along the Saint Basil Academy Property, an extensive amount of exposed bedrock within the right-of-way, and the infeasibility of Alignment B2 crossing the Indian Brook Bridge, this option was deemed infeasible due to constructability and cost concerns.

5.4 Area D – Garrison

Area D encompasses the Route 9D corridor and surrounding properties south of Philipstown Park and into the hamlet of Garrison. Alternatives explored include alignments within the Route 9D and other road right-of-way and alignments that traverse privately owned properties and would require easement agreements with individual property owners. Potential alternatives also include alignments within the Metro North railroad track right-of-way, which would require additional safety and security measures to protect path users in addition to coordination with and agreement from the Metro North Transit Authority.

5.4.1 – Alignment D1

Alignment D1 is a continuation of Alignment C3, cutting west towards the Metro North railroad tracks rather than east towards Route 9D. The Alignment involves cutting a path into the eastern bank within the Metro North railroad track right-of-way parallel to the tracks and existing maintenance road. The Alignment continues south parallel to the tracks and exits the Metro North property onto Garrison Landing / Lower Station Road to connect to Alignment D2 just east of the existing bridge over the railroad tracks. This alignment was deemed infeasible due to the steep slopes, higher construction costs, and the MTA requirements for safety. It also did not align with the project goals of being in close proximity to neighborhood connections.

5.4.2 – Alignment D2

Alignment D2 begins at the existing Route 9D crossing between the Garrison Union Free School District and St. Philip’s Episcopal Church in the Highlands &

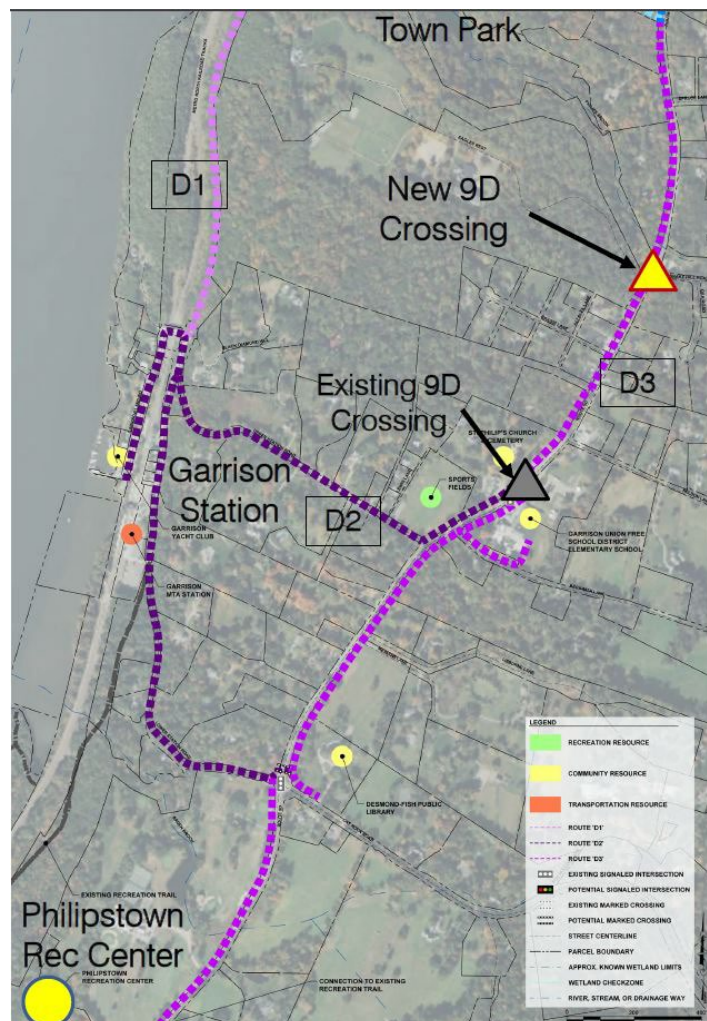


Figure 5.5: Area D Map

Cemetery. The alignment continues south to Upper Station Road before heading west towards the Garrison MTA Station and Garrison Landing and continuing south up Lower Station Road to connect back to Route 9D. The rights-of-way on Upper Station Road and Lower Station Road are too narrow to accommodate pedestrian infrastructure and contains numerous historic stone walls, fencing, and hairpin turns that create an unsafe condition for pedestrians, making this segment suitable for bicycle and vehicle traffic only.

5.4.3 – Alignment D3

Alignment D3 begins at the terminus of Alignment C1 within the Route 9D right-of-way. The Alignment travels south along the western side of Route 9D to the intersection of Route 9D and Upper Station Road. A small bridge or culvert structure would be required to cross over Philips Brook adjacent to the roadway. The Alignment crosses Route 9D at the existing signalized crossing between the Garrison Union Free School and St Philip's Episcopal Church in the Highlands and continues south down the east side of the Route 9D corridor to the Desmond-Fish Public Library. A new crosswalk at the intersection of Route 9D, Lower Station Road, and Cat Rock Road would connect this alignment to the terminus of Alignment D2 before continuing south on the east side of Route 9D to the terminus at the Philipstown Recreation Center. Property owners along this alignment had a range of concerns from potential impact to their personal property to concerns about safety to themselves and path users in the context of traffic speed, traffic volume, blind corners, types of vehicles, and driveway access. In order to understand this more, the Committee should continue analyzing and conversing with these residents.

5.5 Recommended Alternatives

Based on an assessment of existing conditions within the project areas along with potential constraints of each alternative due to right-of-way widths, easement requirements, permitting, or other issues, several of the potential alignments were recommended as the preferred option for further research, design and development.

5.5.1 – Area A – Alignment A2

The recommended alternative for Area A within the Village of Cold Spring is Alignment A2. This alignment was selected because it creates the least number of impacts while providing a direct route to neighborhood connections through the project corridor. Existing infrastructure is predominately used for this alignment, and additional easements or agreements are unlikely to be required. The route connects population centers of Cold Spring and Nelsonville, the nearby shopping areas along Chestnut St. and Main St., and to local schools, daycare centers, medical center, and library. The Putnam History Museum serves as a natural terminus point for the path in the interim while other segments are in progress.

5.5.2 – Area B – Alignment B1

The recommended alternative for Area B along the Northern Route 9D Corridor is Alignment B1. The Boscobel House and Gardens has expressed openness to allowing portions of the path to extend on its properties adjacent to and on either side of 9D, outside of the site's paid access area, making this option an attractive choice to separate the path from Route 9D and acquire easements with an

accommodating property owner. Alignment B1 also benefits from its connection to several other path systems within the Boscobel grounds, increasing options for recreational path users and generating additional interest in the Boscobel from path users (subject to Boscobel admissions policies). While Alignment B1 does contain several challenges, including navigating a narrow right-of-way on Indian Brook Road and the necessity for a new pedestrian bridge over Foundry Brook, this alignment was ultimately determined to best fit the purpose and need of the project and permitting was deemed to be more feasible when compared to the other alignments in the area.

5.5.3 – Area C – No Selection

No recommended alternative was selected at the time of this study.

5.5.4 – Area D – Alignment D3

The recommended alternative for Area D in Garrison is Alignment D3. This alignment was selected because it connects to the most amenities in Garrison, including the Garrison Union Free School, the Desmond-Fish Public Library, Philipstown Recreation Center, and existing recreational paths and trails such as the Glenclyffe Trailhead and Castle Rock. This alignment utilizes existing infrastructure to reduce the need for new crossing locations and installation of new signals and avoids the potential right-of-way issues associated with the other alternatives. While Route 9D can be busier than the roads along the other alternatives, the speed limit is reduced in this area and the right-of-way is wide enough to accommodate a safe pedestrian and bicycle facility.

6 – Path Design, Construction & Maintenance

This chapter outlines path features and amenities, construction considerations, and maintenance needs, which are typically considered when developing a multi-use path. How these concepts are applied to the proposed Philipstown Path should be determined in collaboration with Town officials and through a public engagement process, if the project moves to a design phase.

6.1 Path Features & Amenities

The Town of Philipstown may consider including in the path design certain features and amenities to support path users. Benches at a regular interval along the path increase the path's accessibility to people of all ages and abilities. Bicycle racks located at community sites would allow users to make stops at these locations. An inventory of existing bicycle racks at these sites is an important step in the project design phase.

6.2 Path / Roadway Intersections

Each path/road intersection should be examined individually, as each has unique characteristics. Uniformity in the use of traffic control devices is critical to encourage proper and predictable behavior at intersections. Consistency in design of the path as it approaches an intersection is important to establish proper and safe use. The *Manual on Uniform Traffic Control Devices (MUTCD)* should be followed for size, shape, color and placement of traffic related signage on both the path and the street at intersections. In addition, coordination with the local municipalities, Putnam County and New York State Department of Transportation (NYSDOT) will ensure the proper design and layout of traffic control devices and/or signage necessary to warn users of public streets and potential dangers. Path/road transitions should also be appropriately designed to safely direct path users between facility types.

Preliminary conversations with NYSDOT have been undertaken as part of this report to discuss potential mid-block crossings and pedestrian safety devices required for such crossings, roadway speed limit considerations, and other aspects of the path. While NYSDOT was unable to



Figure 6.1: Crosswalks (Photo Credit: NYSDOT)



Figure 6.2: Crosswalks with Rectangular Rapid Flash Beacon (Photo Credit City of Poughkeepsie, NY)

provide specific recommendations or determinations at this time due to the lack of site survey and design plans/ details, the PTC should continue conversations with NYSDOT as plans are further developed to ensure proposed design options are feasible and meet the necessary safety and design requirements.

6.3 Signage

Path signs may serve a variety of purposes, including controlling pedestrian traffic, warning of potential hazards, and marking the route. Signs should be designed so they are legible, properly placed and made of durable materials. The need for signage must be balanced with aesthetic considerations and should not interfere with the intended use of the path.

6.3.1 – Regulatory Signs & Markings

Warning signs and markings should be sited throughout the path corridor to provide guidance on use, upcoming conditions, intersections, and features along the path. Signs should be retroreflective and conform to the color, legend, shape, and size for the path, per the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*.

6.3.2 – Wayfinding

Directional wayfinding signs help users navigate along the path and provide additional information of the corridor. Location signage also provides a means for emergency personnel to find users in the event of an accident. Location and directional markings should be provided at entrances to the path and at regular intervals along the path.

6.4 Fencing, Screening & Buffers

Whenever possible, landscaping is the first choice for creating separation between the path and adjacent properties. Vegetative buffers have the dual purpose of creating a natural privacy screen, providing habitat for wildlife, and stabilizing slopes. Use of native plants should be prioritized. Landscaping can also be an effective barrier to unwanted access where needed. Fencing may also be considered to serve as fall protection or prevent path users from accessing adjacent private properties. As the path design is developed, coordination with adjacent landowners or property owners who have granted easements should be done to determine what method of screening and buffering is desired, including height, material, and extents.

6.4.1 – Fencing

Fencing and handrails are recommended in locations to protect users from potential hazards such as steep slopes or restricted areas. In general, the greater the height of the drop-off, the greater the need for fencing protection.

Per the American Association of State Highway and Transportation Officials (AASHTO) guidelines, fencing should be set at a height of 3.5 feet (42 inches). Rub-rails are recommended in locations where the fence is immediately adjacent to the path at a height of approximately 3 feet from grade to



Figure 6.3: Timber Fencing

prevent snagging of handlebars. All fences should be smooth and free of protruding objects such as bolts, nails, etc. and materials should reflect the character of the path corridor. Depending on the site conditions, fencing can be either black coated chain-link or split rail wood. Black painted handrails should be installed along ramps and at the top of retaining walls.

To ensure adequate privacy and security for adjacent landowners, screening fence should be six feet in height. A fence height of four feet is sufficient to clearly denote private property ownership and will deter most unwanted access. Should adjacent property owners choose to build fences, a variety of fencing applications can be considered. Solid fencing that does not allow any visual access to the path should be discouraged. Fencing that allows a balance between adjacent residents' privacy and informal surveillance of the path should be encouraged. If fencing is desired purely for privacy reasons, vegetative buffers are recommended.

Boundaries are an important physical element that helps path users stay on the path, protect sensitive areas and provide screening and security. Though guardrails and fencing are often favorably perceived, too much hard screening can impair informal path surveillance. Inappropriate fencing can also degrade the experience of path users, obscure views, and create a “tunnel” effect that makes users feel trapped.

6.5 Maintenance

Path maintenance and management involves a variety of activities, including coordination with various stakeholders to provide maintenance and surveillance support. Maintaining a path is a year around effort and should include a combined effort between permanent maintenance staff support and volunteer/stewardship program efforts. Path maintenance includes on-going regular tasks, such as cleaning and snow plowing, up to reconstruction/resurfacing of path segments as needed.

Within the path corridor specific maintenance activities may be warranted, such as developing an invasive removal strategy for invasive plant species. Below is an outline of typical maintenance activities and frequency of maintenance.

Maintenance Activity	Description	Frequency
Trash Removal	Removal of trash from path corridor and priority areas, including removing ground debris, and emptying trash receptacles.	Daily/Weekly
Vegetation Pruning & Leaf Removal	Pruning of vegetation to maintain adequate sight distances and clearances. Removal of dead trees and leaves along path corridor to maintain path tread way.	Light pruning in Summer. Major pruning of path corridor annually (Oct. to Dec.) Leaf removal monthly (Oct. to Dec./As needed.
Path Sweeping/Plowing	Sweeping of debris and sediment, plowing/sweeping snow from path to maintain tread way.	Weekly/ As Needed
Mowing/Edging	Mowing and edging grass buffers to prevent encroachment of plant materials onto path surface.	Weekly during growing season (Spring-Fall) Annually
Resurfacing, Resealing & Restriping	Resurface, reseal and restripe asphalt path to maintain path tread way.	Resurface – 15 – 20 yrs. Reseal – 5 – 10 yrs. Restripe- As needed Pothole Repair – As needed
Vandalism & Graffiti Removal	Make repairs due to damage or theft, remove graffiti.	Immediately

Figure 6.4: Table of Typical Maintenance Operations

Path patrol/security is an important component of ensuring that the path is safe and secure for path users. Utilizing a combination of municipal and volunteer groups are the heart of almost every path patrolling effort. On-going patrolling and managing of the path operations is important to address any user conflicts that may arise. Volunteer groups such as “friends of the path” or other citizen groups increase voluntary participation, interest, and investment. Organizing regular path cleanup days or events and developing promotional incentives ultimately help increase interest and awareness of the path.

7 – Implementation Strategy

A multi-use path requires multiple phases for development and construction. Several factors influence phasing, including but not limited to overall length of the path project/segment, voluntary easements, level of regulatory permitting required, difficulty of construction, and the amount of available funding. If feasible, to maximize cost and efficiency, it is recommended that the project be implemented in as few phases as possible. However, in most cases, due to funding constraints or approval processes/property acquisitions required for various sections of the project, multiple phases are required.

The phasing recommendations are primarily organized by connecting usable segments of the walking/ bicycling network to create a safe facility and to gain users and momentum to continue future project phases, anticipate approvals, and to identify potential funding. Each phase is intended to attract users from each town and create interest areas. Finally, where possible, phases should be combined with other improvements to leverage and enable efficiency of implementation.

The following are general recommendation for the phasing and implementation of a path project:



Figure 7.1: Multi-use Path with Stone Dust Surface

1. As a first step towards implementing the recommendations of this feasibility study, Town officials should accept and endorse the report.
2. Continue public engagement to determine which segments of path would provide the greatest immediate benefit to the community, ensuring that all affected landowners, businesses, and other key stakeholders have had an opportunity to review the potential alignments, voice their concerns, and ultimately come to an agreement on the preferred alignment(s).
3. Begin identifying and applying for funding opportunities through grants, bonding or other sources considered appropriate.
4. Initiate negotiations with cooperating landowners and public entities (Putnam County Department of Public Works, NYSDOT) from whom land access (right-of-way or easements) are/may be necessary in order to implement the project.
5. Hire a consultant to assist with the planning and design of the initial phase to be implemented when funding is secured through either fundraising or grants. Path development should begin on current publicly owned lands and start/end at logical access points for path users (i.e., Cold Spring to Foundry Brook Bridge, Garrison to Philipstown Park etc.). A topographic and property boundary survey of the initial area of pathway is a critical first step to creating basemapping and identify property ownership within the corridor. This approach would enable a path to be established at a location with existing parking and access from the nearby street network. In addition, implementing the path with logical termini allows the path to gain

momentum within the community prior to reaching areas more challenging to construct because of topography, landownership, or right-of-way constraints.

6. Work to secure required permits/approvals for the path segment(s).
7. Based upon the progress of the initial phases, additional path segments should follow closely. It is imperative to provide logical and safe termini at the start and end of each segment.
8. Continue conversations with adjacent landowners within the project area and revisit periodically (within 5 years) to determine if a connection can be made.

7.1 Initial Phasing Approach

Due to the length of the project corridor, it is unlikely that funding will become available to construct the entire length of the project at one time, and construction will likely need to be broken up across multiple years. Constructing the path in phases will allow for key portions to be constructed first and steady progress can be made as funding becomes available. By constructing key portions first, people will be able to enjoy the path and begin to recognize the benefits offered from greater pedestrian and bicycle connectivity, potentially spurring interest in the path and lead to increased fundraising in the future to expand the path.

7.1.1 – Phase A – Cold Spring to Route 9D North (Boscobel).

The first phase of the project would encompass Alignment A2 and a portion of Alignment B1. This area was selected as the first phase as it will establish a clear start and end point to the path in the short term by connecting key cultural resources – including Manitou School, Boscobel, and the farmers market - provide the greatest impact by highlighting the benefits the path can serve. This segment would involve minimal change to infrastructure in Cold Spring, and a significant portion could be constructed quickly by implementing shared lane markings and making select sidewalk improvements where needed. The new bridge over Foundry Brook would be the most expensive portion of this phase, requiring extensive permitting and structural design.

7.1.2 – Phase B – Philipstown Park along Route 9D to the Philipstown Recreational Center

The second phase of the project would encompass Alignment D3. Similar to Phase A, this segment of the project utilizes several portions of existing infrastructure to minimize impacts and would connect several key institutions or amenities within the corridor. While not directly connected to Phase A at this stage, this segment provides more connections and pedestrian benefits compared to simply extending Phase A down to Philipstown Park and would have a more immediate impact for path users in the area.

7.1.4 – Phase C – Boscobel to Philipstown Park

The final phase of the project encompasses a portion of Alignment B1 and yet to be determined alignment in Area C. This phase would seek to connect the two previously installed segments of path, providing a continuous connection from Cold Spring to Garrison. While less impactful than either Phases A or B, Phase C is critical to achieving the purpose and goals of the project by creating a continuous non-vehicular connection between the two communities.

7.2 Funding Opportunities

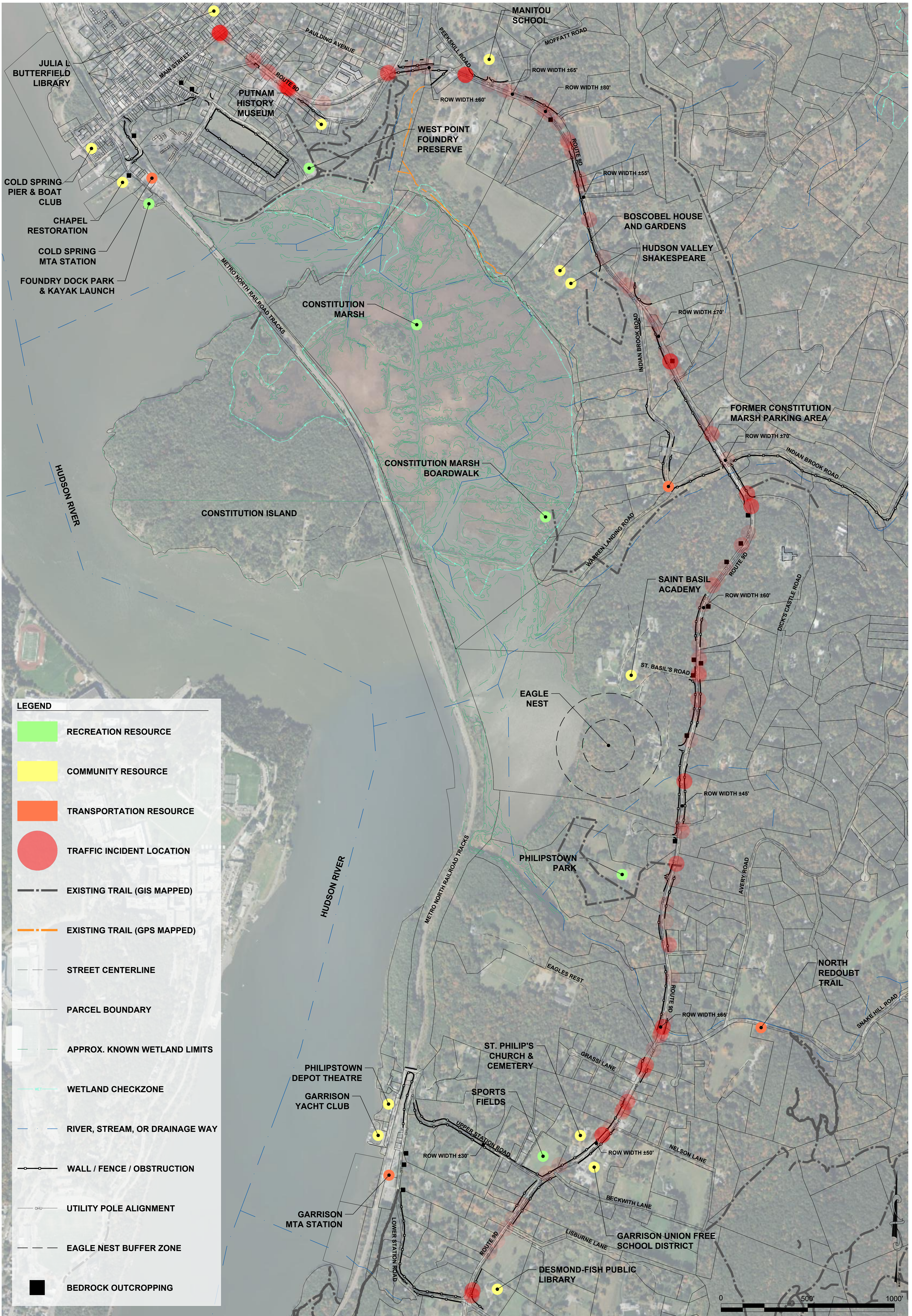
In addition to the County and local municipalities contributing funds for the design and construction of the path (for example, through the creation of the Community Conservation Plan/ Community Preservation Fund that is currently being explored by the Town of Philipstown), funding may potentially be secured from a variety of other sources. Below is a list of various funding sources that could be used to help with the implementation of the recommendations.

- Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants: US Department of Transportation (US DOT) - Office of the Secretary (OST) program available for capital improvement and planning projects.
- Infrastructure for Rebuilding American Discretionary Grant Program (INFRA): OST program for projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and improve critical freight movements.
- Reconnecting Communities Pilot Program (RCP): OST program related to a transportation facility that improves community connectivity.
- Safe Streets and Roads for All (SS4A): OST discretionary program that funds regional, local, and tribal initiatives through grants to prevent roadway deaths and serious injuries.
- Transportation Alternatives Set-Aside (TA): TA funds can be used to increase bicycle and pedestrian mobility. These funds will cover a maximum of 80 percent of the project with the remaining portions most likely coming from the project sponsoring organization.
- Recreational Trails Program (RTP): Funding available for projects with trails and trailhead facilities for any recreational trail use.

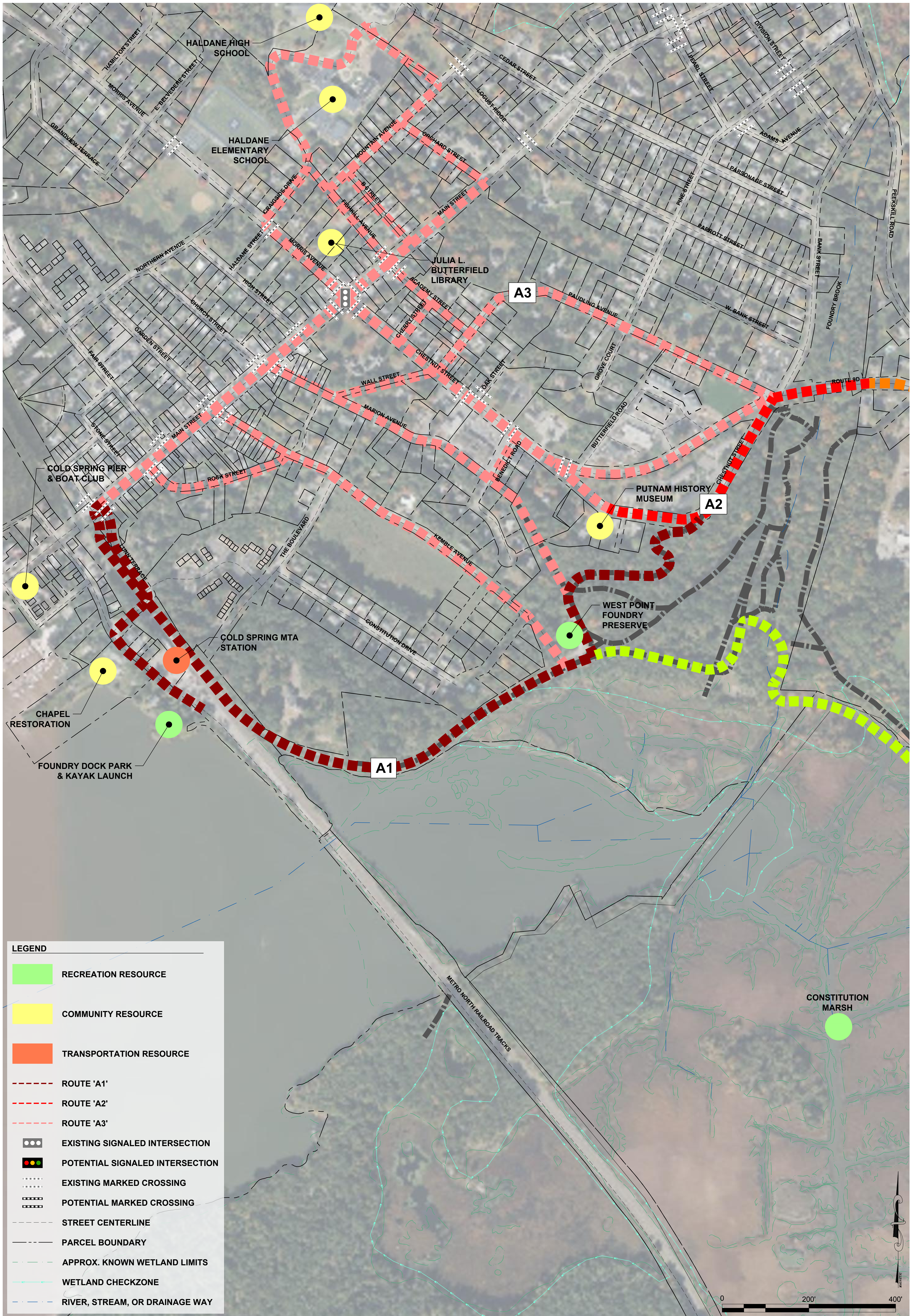
Cost estimates for each project area can be found in Appendix C. A full list of pedestrian and bicycle funding opportunities from the US Department of Transportation Transit, Safety, and Highway Funds is included in Appendix D.

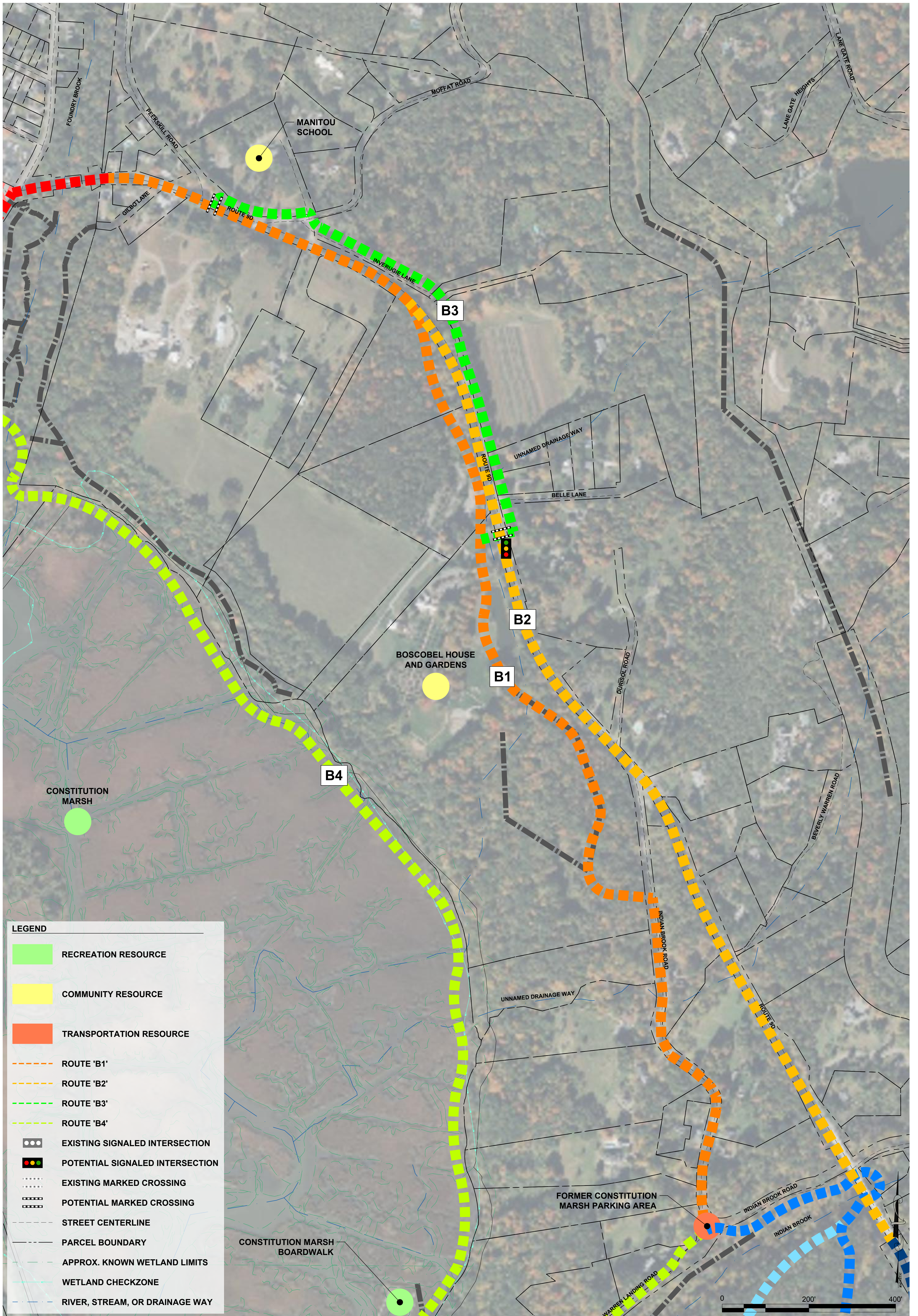
A new online tool developed by a partnership between the Alliance for Biking and Walking and the League of American Bicyclists helps find potential federal funding sources for alternative transportation projects. The site can be reached at www.advocacyadvance.org.

Appendix A – Existing Conditions Map



Appendix B – Alternatives Analysis Maps





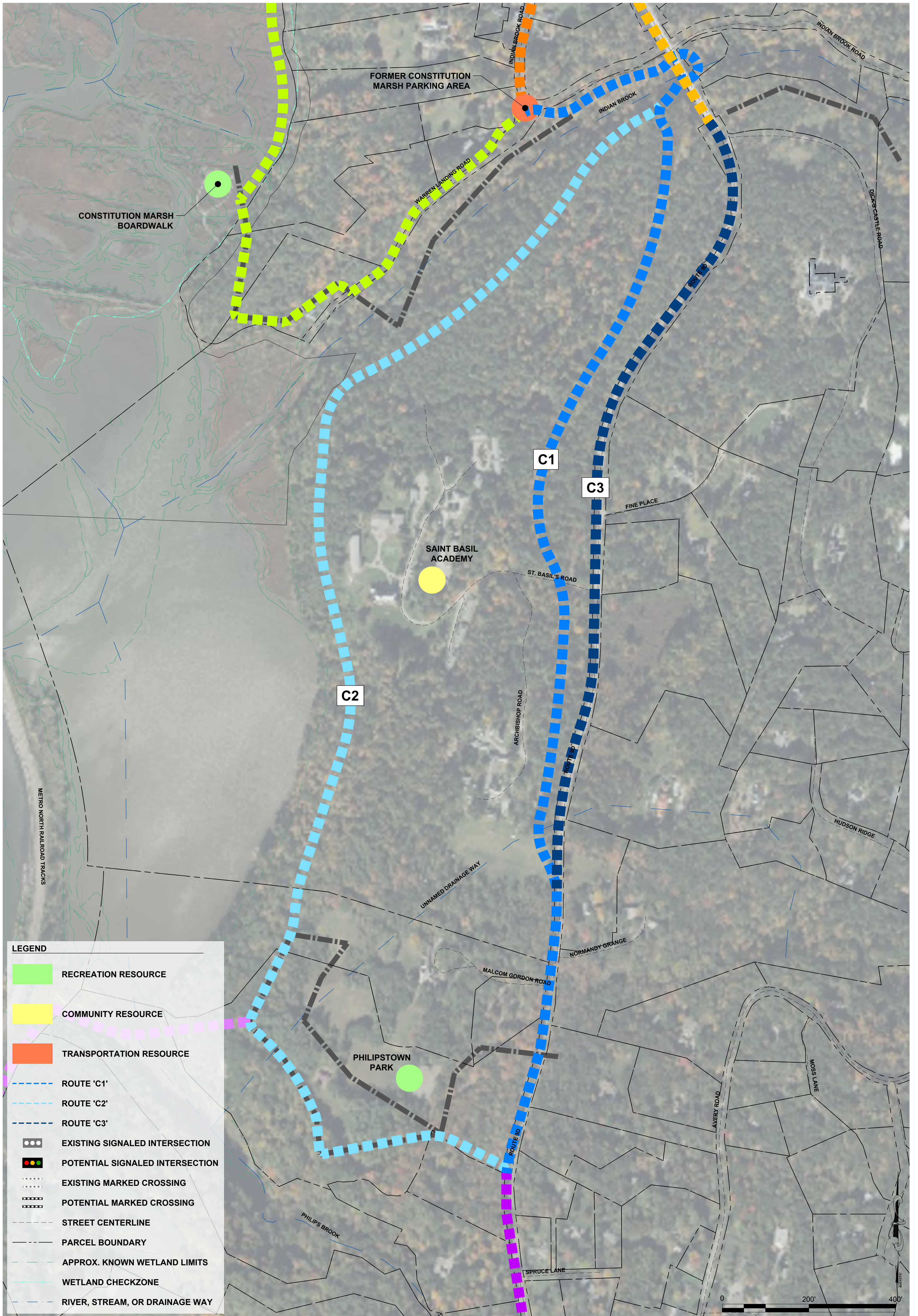
LEGEND

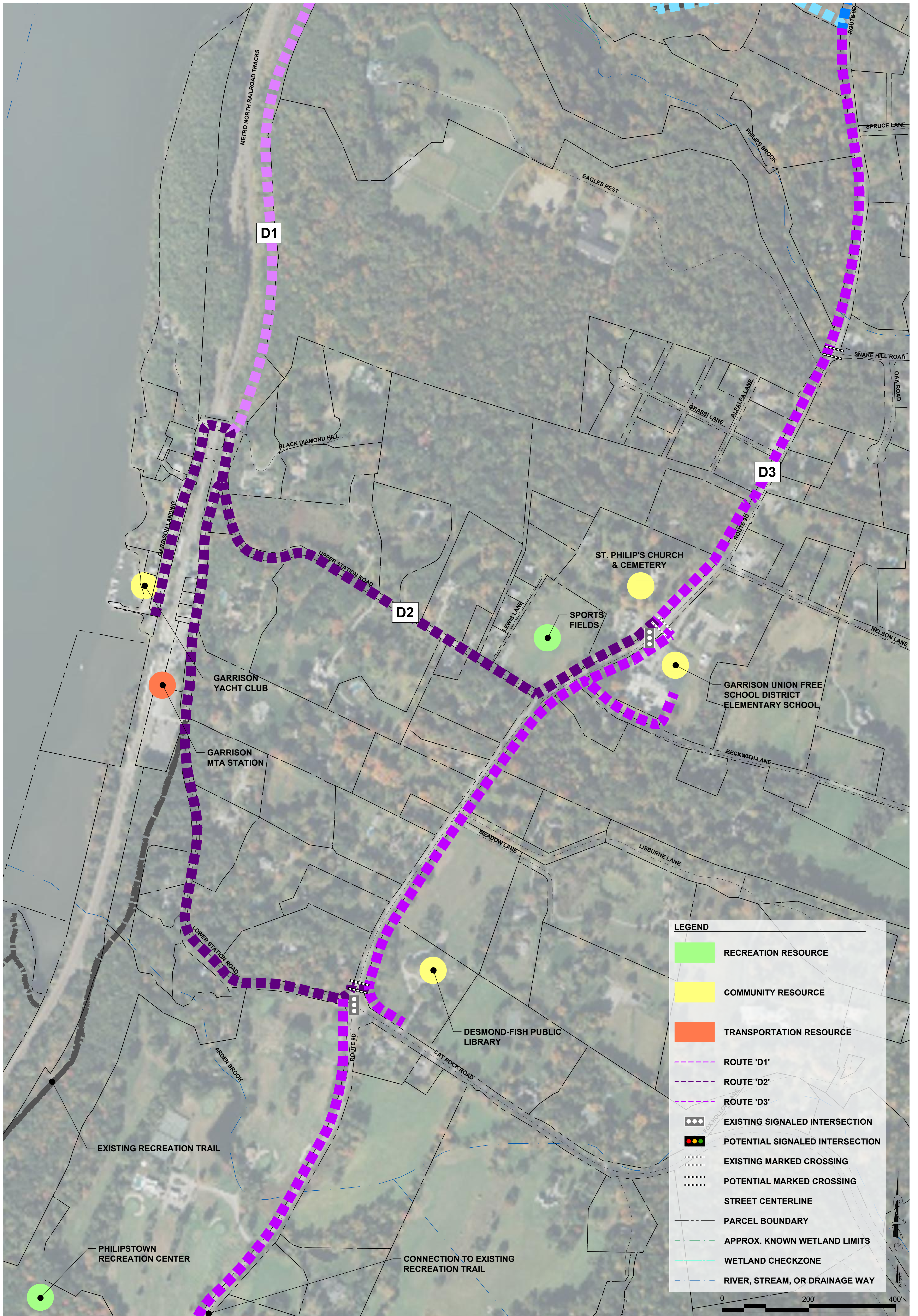
- RECREATION RESOURCE
- COMMUNITY RESOURCE
- TRANSPORTATION RESOURCE
- ROUTE 'B1'
- ROUTE 'B2'
- ROUTE 'B3'
- ROUTE 'B4'
- EXISTING SIGNALLED INTERSECTION
- POTENTIAL SIGNALLED INTERSECTION
- EXISTING MARKED CROSSING
- POTENTIAL MARKED CROSSING
- STREET CENTERLINE
- PARCEL BOUNDARY
- APPROX. KNOWN WETLAND LIMITS
- WETLAND CHECKZONE
- RIVER, STREAM, OR DRAINAGE WAY



Alternatives Analysis - Area B: Route 9D Corridor (North)

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Appendix C – Conceptual Cost Estimate

Prior to engaging a consultant to develop design & construction documents for the path alignments, the Town must ensure adequate funding is set aside for consulting fees, construction, and the ongoing maintenance of the new facilities. To that end, a cost estimate for each project area was developed based upon the preferred / most feasible alternative and conceptual plans developed as part of this study to identify potential costs for budgetary and fundraising purposes.

These estimates should be considered conceptual and can be used to develop budgetary estimates for project phasing, potential requests for qualifications or proposals for future design, and project funding. It should be noted that these costs are subject to change and are based only on the conceptual plans and preferred alternatives developed as part of this study.

As the project moves forward into design, the proposed impacts, easement requirements, property acquisitions, and utility modifications should be further defined and detailed. It is imperative to continue the dialogue with any potentially impacted private property owner to identify constraints early in the process and avoid difficult and lengthy easement or acquisition agreements.

Overall, the conceptual cost estimate is based on similar work by the project team, average unit costs provided by the New York State Department Transportation, and product manufacturers and suppliers. In addition to contingency factors such as erosion control, traffic control, and utility modifications, a 25% design contingency cost has been included to account for specific items of work that will be determined during the preliminary design phase and for annual escalation of costs. Consulting & engineering fees have also been included into the estimates for each area, which includes engineering fees, topographic & boundary survey, plan/section/detail development, and construction administration.

Town of Philipstown, New York
Philipstown Path Master Plan
Conceptual Plan
Preliminary Opinion of Probable Cost

4/5/2023

Area A - Cold Spring (Alignment A2)				
Village of Cold Spring to Route 9D North				
Item	Qty	Unit	Unit Cost	Ext Cost
Site Demolition, Preparation & Earthwork	0	LF	\$ 28.68	\$ -
Clearing & Grubbing	0	LF	\$ 12.75	\$ -
Bike Lanes (5' Width, Painted)	0	LF	\$ 3.04	\$ -
Shared Lane Markings (50' Spacing, Painting)	1,700	LF	\$ 3.31	\$ 6,000.00
Multi-Use Path (10' Width, Asphalt)	0	LF	\$ 66.33	\$ -
Sidewalk (5' Width, Concrete)	0	LF	\$ 76.12	\$ -
Soft Surface Trail (5' Width, Stone Dust / Mulch)	0	LF	\$ 15.81	\$ -
Single Track Trail (2' Width)	0	LF	\$ 1.70	\$ -
Crosswalks (Painted)	0	LF	\$ 19.40	\$ -
Traffic Signage (MUTCD Standard, 500' Spacing)	4	EA	\$ 711.57	\$ 3,000.00
Rectangular Rapid Flash Beacons	0	EA	\$ 2,500.00	\$ -
Pedestrian Bridge	0	LF	\$ 2,818.96	\$ -
Security Fencing / Screening	0	LF	\$ 205.86	\$ -
			Subtotal	\$ 9,000.00
Contingencies				
Drainage & Erosion Control (5%)	1	LS	\$	450.00
Mobilization, Bonds & Insurance (8%)	1	LS	\$	720.00
Maintenance of Traffic (8%)	1	LS	\$	720.00
General Conditions (8%)	1	LS	\$	720.00
Utility Modifications (8%)	1	LS	\$	720.00
Escalation (6%)	1	LS	\$	540.00
Construction / Design Contingency (25%)	1	LS	\$	2,250.00
			CONSTRUCTION TOTAL:	\$ 15,120.00
			SAY	\$ 15,000.00
Consulting & Engineering Fees				
Site Survey (±\$10.00 / LF)	1	LS	\$	17,000.00
Design & Engineering (\$10,000 + 10%)	1	LS	\$	11,500.00
Construction Administration & Oversight (15%)	1	LS	\$	2,250.00
			CONSULTING & ENGINEERING TOTAL:	\$ 30,750.00
			SAY	\$ 31,000.00
GRAND TOTAL (CONSTRUCTION, CONSULTING, & ENGINEERING FEES):				\$ 46,000.00

Town of Philipstown, New York
Philipstown Path Master Plan
Conceptual Plan
Preliminary Opinion of Probable Cost

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Area B - Route 9D (North) (Alignment B1)				
Foundry Brook Bridge to Indian Brook Bridge				
Item	Qty	Unit	Unit Cost	Ext Cost
Site Demolition, Preparation & Earthwork	5,000	LF	\$ 28.68	\$ 143,000.00
Clearing & Grubbing	3,200	LF	\$ 12.75	\$ 41,000.00
Bike Lanes (5' Width, Painted)	0	LF	\$ 3.04	\$ -
Shared Lane Markings (50' Spacing, Painting)		LF	\$ 3.31	\$ -
Multi-Use Path (10' Width, Asphalt)	5,300	LF	\$ 66.33	\$ 352,000.00
Sidewalk (5' Width, Concrete)	0	LF	\$ 76.12	\$ -
Soft Surface Trail (5' Width, Stone Dust / Mulch)	0	LF	\$ 15.81	\$ -
Single Track Trail (2' Width)	0	LF	\$ 1.70	\$ -
Crosswalks (Painted)	0	LF	\$ 19.40	\$ -
Traffic Signage (MUTCD Standard, 500' Spacing)	15	EA	\$ 711.57	\$ 11,000.00
Rectangular Rapid Flash Beacons	0	EA	\$ 2,500.00	\$ -
Pedestrian Bridge (Foundry Brook Crossing)	200	LF	\$ 2,818.96	\$ 564,000.00
Security Fencing / Screening	0	LF	\$ 205.86	\$ -
Subtotal				\$ 1,111,000.00
Contingencies				
Drainage & Erosion Control (5%)	1	LS		55,550.00
Mobilization, Bonds & Insurance (8%)	1	LS		88,880.00
Maintenance of Traffic (8%)	1	LS		88,880.00
General Conditions (8%)	1	LS		88,880.00
Utility Modifications (8%)	1	LS		88,880.00
Escalation (6%)	1	LS		66,660.00
Construction / Design Contingency (25%)	1	LS		277,750.00
CONSTRUCTION TOTAL:				\$ 1,866,480.00
SAY				\$ 1,866,000.00
Consulting & Engineering Fees				
Site Survey (±\$10.00 / LF)	1	LS		53,000.00
Design & Engineering (\$10,000 + 10%)	1	LS		196,600.00
Construction Administration & Oversight (15%)	1	LS		279,900.00
CONSULTING & ENGINEERING TOTAL:				\$ 529,500.00
SAY				\$ 530,000.00
GRAND TOTAL (CONSTRUCTION, CONSULTING, & ENGINEERING FEES):				\$ 2,396,000.00

Town of Philipstown, New York
Philipstown Path Master Plan
Conceptual Plan
Preliminary Opinion of Probable Cost

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Area C - Route 9D (South) (Alignment C1)				
Indian Brook Bridge to Philipstown Park				
Item	Qty	Unit	Unit Cost	Ext Cost
Site Demolition, Preparation & Earthwork	6,900	LF	\$ 28.68	\$ 198,000.00
Clearing & Grubbing	6,900	LF	\$ 12.75	\$ 88,000.00
Bike Lanes (5' Width, Painted)	0	LF	\$ 3.04	\$ -
Shared Lane Markings (50' Spacing, Painting)	0	LF	\$ 3.31	\$ -
Multi-Use Path (10' Width, Asphalt)	6,900	LF	\$ 66.33	\$ 458,000.00
Sidewalk (5' Width, Concrete)	0	LF	\$ 76.12	\$ -
Soft Surface Trail (5' Width, Stone Dust / Mulch)	0	LF	\$ 15.81	\$ -
Single Track Trail (2' Width)	0	LF	\$ 1.70	\$ -
Crosswalks (Painted)	30	LF	\$ 19.40	\$ 1,000.00
Traffic Signage (MUTCD Standard, 500' Spacing)	14	EA	\$ 711.57	\$ 10,000.00
Rectangular Rapid Flash Beacons	0	EA	\$ 2,500.00	\$ -
Pedestrian Bridge	0	LF	\$ 2,818.96	\$ -
Security Fencing / Screening	1,500	LF	\$ 205.86	\$ 309,000.00
Subtotal				\$ 1,064,000.00
Contingencies				
Drainage & Erosion Control (5%)	1	LS	\$	53,200.00
Mobilization, Bonds & Insurance (8%)	1	LS	\$	85,120.00
Maintenance of Traffic (8%)	1	LS	\$	85,120.00
General Conditions (8%)	1	LS	\$	85,120.00
Utility Modifications (8%)	1	LS	\$	85,120.00
Escalation (6%)	1	LS	\$	63,840.00
Construction / Design Contingency (25%)	1	LS	\$	266,000.00
CONSTRUCTION TOTAL:				\$ 1,787,520.00
SAY				\$ 1,788,000.00
Consulting & Engineering Fees				
Site Survey (±\$10.00 / LF)	1	LS	\$	69,000.00
Design & Engineering (\$10,000 + 10%)	1	LS	\$	188,800.00
Construction Administration & Oversight (15%)	1	LS	\$	268,200.00
CONSULTING & ENGINEERING TOTAL:				\$ 526,000.00
SAY				\$ 526,000.00
GRAND TOTAL (CONSTRUCTION, CONSULTING, & ENGINEERING FEES):				\$ 2,314,000.00

Town of Philipstown, New York
Philipstown Path Master Plan
Conceptual Plan
Preliminary Opinion of Probable Cost

4/5/2023

Area D - Garrison (Alignment D3)				
Philipstown Park to Philipstown Recreation Center				
Item	Qty	Unit	Unit Cost	Ext Cost
Site Demolition, Preparation & Earthwork	9,100	LF	\$ 28.68	\$ 261,000.00
Clearing & Grubbing	9,100	LF	\$ 12.75	\$ 116,000.00
Bike Lanes (5' Width, Painted)	0	LF	\$ 3.04	\$ -
Shared Lane Markings (50' Spacing, Painting)	0	LF	\$ 3.31	\$ -
Multi-Use Path (10' Width, Asphalt)	9,100	LF	\$ 66.33	\$ 604,000.00
Sidewalk (5' Width, Concrete)	0	LF	\$ 76.12	\$ -
Soft Surface Trail (5' Width, Stone Dust / Mulch)	0	LF	\$ 15.81	\$ -
Single Track Trail (2' Width)	0	LF	\$ 1.70	\$ -
Crosswalks (Painted)	60	LF	\$ 19.40	\$ 1,000.00
Traffic Signage (MUTCD Standard, 500' Spacing)	19	EA	\$ 711.57	\$ 14,000.00
Rectangular Rapid Flash Beacons	2	EA	\$ 2,500.00	\$ 5,000.00
Pedestrian Bridge (Philips Brook Crossing)	80	LF	\$ 2,818.96	\$ 226,000.00
Security Fencing / Screening	1,500	LF	\$ 205.86	\$ 309,000.00
Subtotal				\$ 1,536,000.00
Contingencies				
Drainage & Erosion Control (5%)	1	LS	\$	76,800.00
Mobilization, Bonds & Insurance (8%)	1	LS	\$	122,880.00
Maintenance of Traffic (8%)	1	LS	\$	122,880.00
General Conditions (8%)	1	LS	\$	122,880.00
Utility Modifications (8%)	1	LS	\$	122,880.00
Escalation (6%)	1	LS	\$	92,160.00
Construction / Design Contingency (25%)	1	LS	\$	384,000.00
CONSTRUCTION TOTAL:				\$ 2,580,480.00
SAY				\$ 2,580,000.00
Consulting & Engineering Fees				
Site Survey (±\$10.00 / LF)	1	LS	\$	91,000.00
Design & Engineering (\$10,000 + 10%)	1	LS	\$	268,000.00
Construction Administration & Oversight (15%)	1	LS	\$	387,000.00
CONSULTING & ENGINEERING TOTAL:				\$ 746,000.00
SAY				\$ 750,000.00
GRAND TOTAL (CONSTRUCTION, CONSULTING, & ENGINEERING FEES):				\$ 3,330,000.00

Appendix D – Funding Opportunities

Cross-cutting notes

This table indicates potential eligibility for pedestrian, bicycle, and micromobility activities and projects under U.S. Department of Transportation surface transportation funding programs. Activities and projects must meet program eligibility requirements. See notes and links to program information below. Although the primary focus of this table is stand-alone activities and projects, programs also fund pedestrian and bicycle facilities as part of larger projects. Project sponsors are encouraged to consider [Complete Streets](#) and Networks that routinely integrate the safety, accessibility, equity, and convenience of walking and bicycling into surface transportation projects. In these instances, the Federal-aid eligibility of the pedestrian and bicycle elements are considered under the eligibility criteria applicable to the larger highway project. Pedestrian and bicycle activities also may be characterized as environmental mitigation for larger highway projects, especially in response to impacts to a Section 4(f) property or work zone safety, mobility, and accessibility impacts on bicyclists and pedestrians.

- See [FHWA Bicycle and Pedestrian Planning, Program, and Project Development](#) (Guidance)
- Bicycle Project Purpose: 23 U.S.C. 217(i) requires that bicycle facilities “be principally for transportation, rather than recreation, purposes”. However, 23 U.S.C. 133(b)(7) and 133(h) authorize recreational trails under [STBG](#) and the [TA Set-Aside](#), therefore, 23 U.S.C. 217(i) does not apply to trail projects (including for bicycle use) using [STBG](#) or [TA Set-Aside](#) funds. Section 217(i) applies to bicycle facilities other than trail-related projects, and section 217(i) applies to bicycle facilities using other programs ([NHPP](#), [HSIP](#), [CMAQ](#)). The transportation requirement under section 217(i) only applies to bicycle projects, not to any other trail use or transportation mode.
- Signs, signals, signal improvements includes ensuring accessibility for persons with disabilities. See [Accessible Pedestrian Signals](#). See also [Proven Safety Countermeasures](#), such as [Crosswalk Visibility Enhancements](#), [Leading Pedestrian Interval](#) signals, [Pedestrian Hybrid Beacons](#), and [Rectangular Rapid Flashing Beacons](#).
- Occasional DOT or agency incentive grants may be available for specific research or technical assistance purposes.
- Aspects of DOT initiatives may be eligible as individual projects. Activities above may benefit safe, comfortable, multimodal networks; environmental justice; and equity.
- The [DOT Navigator](#) is a resource to help communities understand the best ways to apply for grants, and to plan for and deliver transformative infrastructure projects and services.
- FHWA’s [Policy on Using Bipartisan Infrastructure Law Resources to Build a Better America](#).
- FHWA Links to [Technical Assistance and Local Support](#).

Program-specific notes

Federal-aid and other DOT funding programs have specific requirements that projects must meet, and eligibility must be determined on a case-by-case basis. See links to program guidance for more information.

- [RAISE](#) (Infrastructure Investment and Jobs Act (Pub. L. 117-58) (IIJA), also known as the Bipartisan Infrastructure Law (BIL), § 21202): Funds capital and planning grants.
- [INFRA](#) (IIJA § 11110): For projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.
- [RCP](#) (IIJA § 11509 and div. J, title VIII, Highway Infrastructure Programs, para. (7)): See [RCP Program Notice of Funding Opportunity](#) for full details. Planning grants and Capital Construction Grants must relate to a transportation facility that creates a barrier to community connectivity.
- [SS4A](#) (IIJA § 24112): Discretionary program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. Projects must be identified in a comprehensive safety action plan (§ 24112(a)(3)).
- [Thrive](#) (Department of Transportation Appropriations Act, 2022 (Pub. L. 117-103, div. L, title I): Technical assistance, planning, and capacity-building support in selected communities.
- [RRIF](#) (Chapter 224 of title 49 U.S.C.): Program offers direct loans and loan guarantees for capital projects related to rail facilities, stations, or crossings. Pedestrian and bicycle infrastructure components of “economic development” projects located within ½-mile of qualifying rail stations may be eligible. May be combined with other grant sources.
- [TIFIA](#) (Chapter 6 of title 23 U.S.C.): Program offers secured loans, loan guarantees, or standby lines of credit for capital projects. Minimum total project size is \$10 million; multiple surface transportation projects may be bundled to meet cost threshold, under the condition that all projects have a common repayment pledge. May be combined with other grant sources.
- [FTA / ATI](#) (49 U.S.C. 5307): Multimodal projects funded with FTA transit funds must provide access to transit. See [Bicycles and Transit](#), [Flex Funding for Transit Access](#), the [FTA Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law](#), and [FTA Program & Bicycle Related Funding Opportunities](#).
 - Bicycle infrastructure plans and projects must be within a 3-mile radius of a transit stop or station. If more than 3 miles, within a distance that people could be expected to safely and conveniently bike to the particular stop or station.
 - Pedestrian infrastructure plans and projects must be within a ½ mile radius of a transit stop or station. If more than ½ mile, within a distance that people could be expected to safely and conveniently walk to the particular stop or station.
 - FTA funds cannot be used to purchase bicycles for bike share systems.
- [FTA TOD](#): Provides planning grants to support community efforts to improve safe access to public transportation for pedestrians and cyclists. The grants help organizations plan for transportation projects that connect communities and improve access to transit and affordable housing, not for capital purchases.
- [FTA AoPP](#) (Further Consolidated Appropriations Act, 2020 (Pub. L. 116-94); Consolidated Appropriations Act, 2021 (Pub. L. 116-260)): Promotes multimodal planning, engineering, and technical studies, or financial planning to improve transit services in areas experiencing long-term economic distress, not for capital purchases.
- [NHTSA 402](#) (23 U.S.C. 402): Project activity must be included in the State’s Highway Safety Plan. Contact the [State Highway Safety Office](#) for details.
- [NHTSA 405](#) (23 U.S.C. 405): Funds are subject to eligibility, application, and award. Project activity must be included in the State’s Highway Safety Plan. Contact the [State Highway Safety Office](#) for details. The [Bipartisan Infrastructure Law](#) expanded the eligible use of funds for a Section 405 Nonmotorized Safety grant beginning in FY 2024; however, for FY 2023 grants, FAST Act eligible uses remain in place.
- [BFP](#) (IIJA, Div. J, title VIII, para. (1)), [BIP](#) (23 U.S.C. 124), [BRR](#) (Department of Transportation Appropriations Act, 2022): For specific highway bridge projects and highway bridge projects that will replace or rehabilitate a bridge must consider pedestrian and bicycle access as part of the project and costs related to their inclusion are eligible under these programs.
- [CRP](#) (23 U.S.C. 175): Projects should support the reduction of carbon dioxide emissions from on-road highway sources.

- [CMAQ](#) (23 U.S.C. 149): Projects must demonstrate emissions reduction and benefit air quality. See the CMAQ guidance at www.fhwa.dot.gov/environment/air_quality/cmaq/ for a list of projects that may be eligible for CMAQ funds. CMAQ funds may be used for shared use paths, but not for trails that are primarily for recreational use.
- [HSIP](#) (23 U.S.C. 148): Projects must be consistent with a State's [Strategic Highway Safety Plan](#) and (1) correct or improve a hazardous road location or feature, or (2) address a highway safety problem. Certain non-infrastructure safety projects can also be funded using HSIP funds as specified safety projects.
- [RHCP](#) (23 U.S.C. 130): Projects at all public railroad crossings including roadways, bike trails, and pedestrian paths.
- [NHPP](#) (23 U.S.C. 119): Projects must benefit National Highway System (NHS) corridors and must be located on land adjacent to any highway on the National Highway System (23 U.S.C. 217(b)).
- [PROTECT](#) (23 U.S.C. 176): Funds can only be used for activities that are primarily for the purpose of resilience or inherently resilience related. With certain exceptions, the focus must be on supporting the incremental cost of making assets more resilient.
- [STBG](#) (23 U.S.C. 133) and [TA Set-Aside](#) (23 U.S.C. 133(h)): Activities marked “\$SRTS” means eligible only as an SRTS project benefiting schools for kindergarten through 12th grade. Bicycle transportation nonconstruction projects related to safe bicycle use are eligible under STBG, but not under TA (23 U.S.C. 217(a)). There is broad eligibility for projects under 23 U.S.C. 206, 208, and 217.
- [RTP](#) (23 U.S.C. 206): Projects for trails and trailside and trailhead facilities for any recreational trail use. RTP projects are eligible under TA Set-Aside and STBG.
- [SRTS](#) (23 U.S.C. 208): Projects for any SRTS activity. FY 2012 was the last year for dedicated - funds, but funds are available until expended. SRTS projects are eligible under TA Set-Aside and STBG.
- [PLAN](#) (23 U.S.C. 134 and 135): Funds must be used for planning purposes, for example: Maps; System maps and GIS; Safety education and awareness; for transportation safety planning; Safety program technical assessment; for transportation safety planning; Training; bicycle and pedestrian system planning training.
- [NSBP](#) (23 U.S.C. 162): Discretionary program subject to annual appropriations. Projects must directly benefit and be close to a designated scenic byway.
- [FLTTP](#) (23 U.S.C. 201-204): Projects must provide access to or within Federal or tribal lands. Programs include: Federal Lands and Tribal Transportation Programs ([Federal Lands Access Program](#), [Federal Lands Transportation Program](#), [Federal Lands Planning Program](#)) and related programs for Federal and Tribal lands such as the [Nationally Significant Federal Lands and Tribal Projects](#) (NSFLTP) program.
 - [Federal Lands Transportation Program](#) (23 U.S.C. 203): For Federal agencies for projects that provide access within Federal lands.
 - [Federal Lands Access Program](#) (FLAP) (23 U.S.C. 204): For State and local entities for projects that provide access to or within Federal or tribal lands.
- [TTP](#) (23 U.S.C. 202): For federally-recognized tribal governments for projects within tribal boundaries and public roads that access tribal lands.
- [TTPSF](#) (23 U.S.C. 202(e)(1) and 23 U.S.C. 148(a)(4)): Grants available to [federally recognized Indian tribes](#) through a competitive, discretionary program to plan and implement transportation safety projects.

Appendix E – Committee Presentations

Feasibility Study for a Multi-Use Path in Philipstown



Public Presentation

October 17, 2022

Weston & SampsonSM
transform your environment

Agenda

1. The Process
2. Alternatives Analysis & Favored Routes
3. Next Steps
4. Questions & Comments
5. Map Stations

Information and maps provided are drafts and a work in progress.

Purpose & Outcomes: Gather feedback to inform next steps

who we are

- The Philipstown Trails Committee is a Town Advisory Committee.
- Purpose: Advises the Town of Philipstown on how to improve the ability for residents to safely get around Town without recourse to motorized transit.



PHILLIPSTOWN

Trails Committee

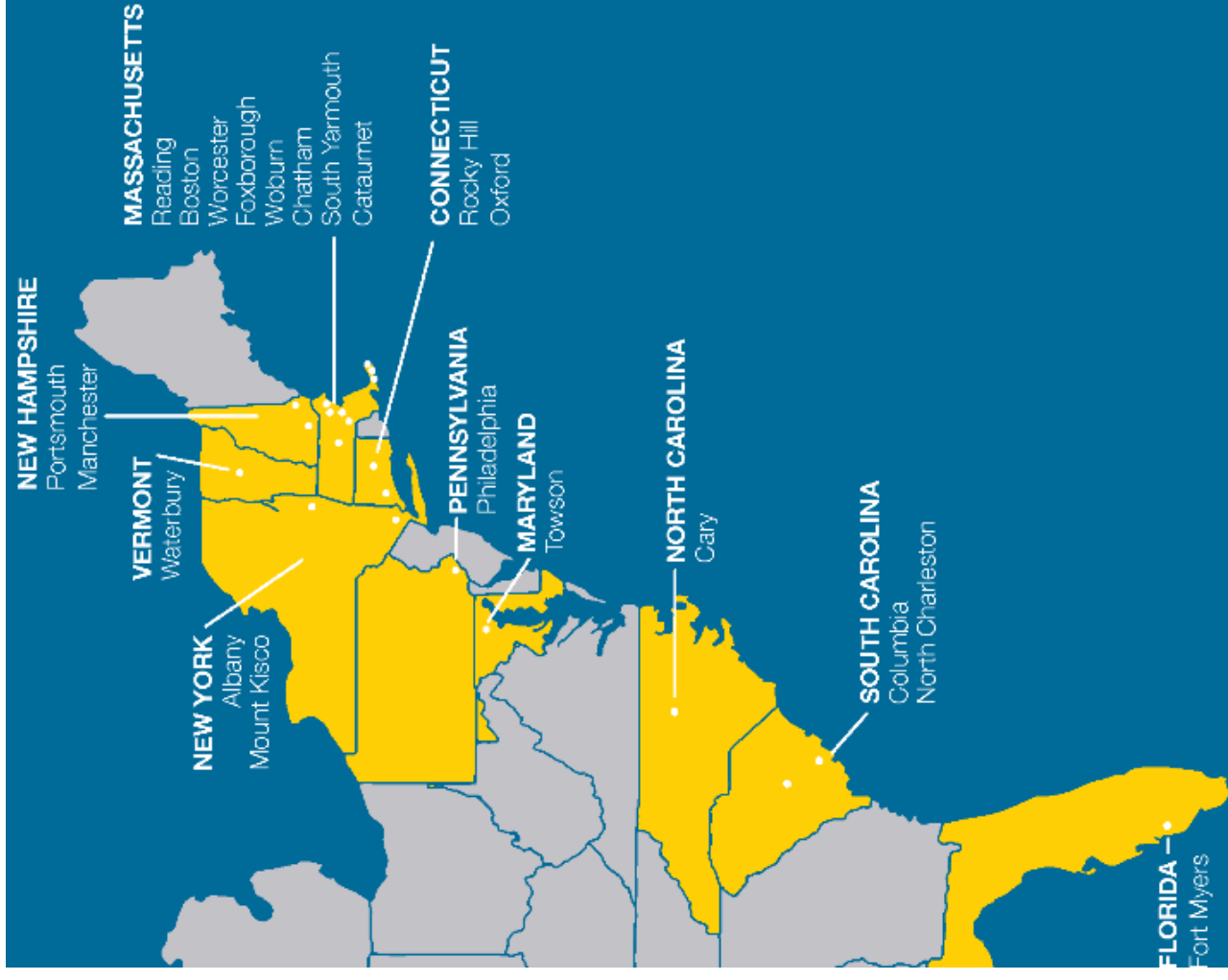
who we are

Established in 1899, **Weston & Sampson** is a full-service **planning, landscape architecture, engineering, and environmental** consulting firm.

Our staff of more than **700 professionals** serves public and private sector clients throughout the **Northeast** and along the **East Coast**.

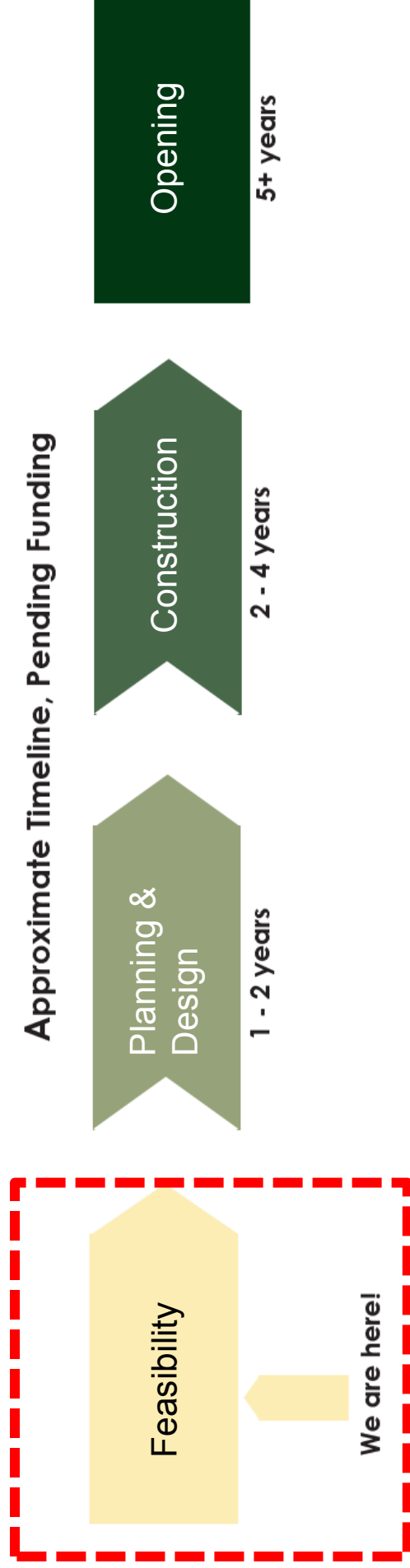
Our Services:

- Surveying & Mapping
- Master Planning
- Landscape Architecture
- Ecological/Environmental Services
- Civil/ Environmental Engineering
- Permitting & Compliance



What is a Feasibility Study?

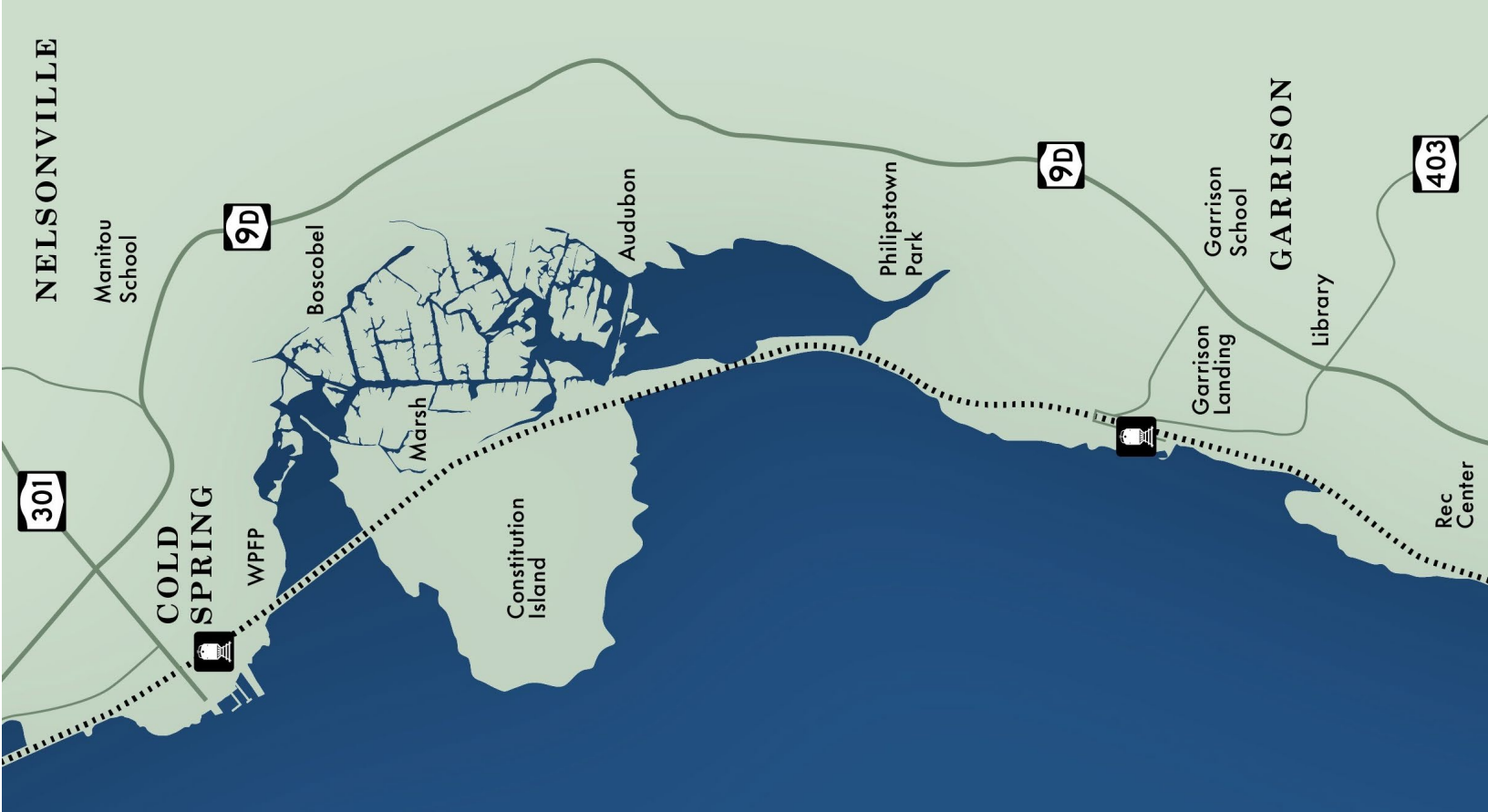
- The purpose of this study is to analyze and examine the feasibility of a path from Cold Spring to Garrison and important neighborhood amenities inbetween.
- The intent of the project is to gather information to assess the opportunities and challenges of route options for a path.



Project Area

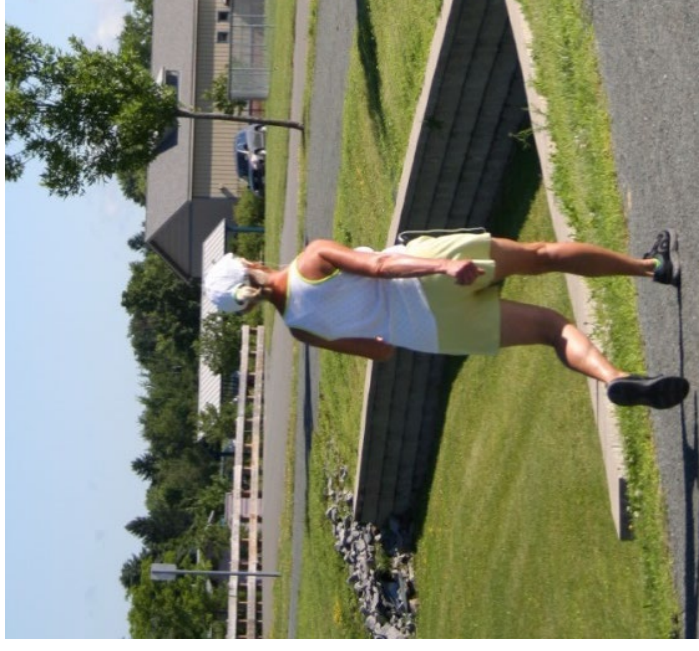
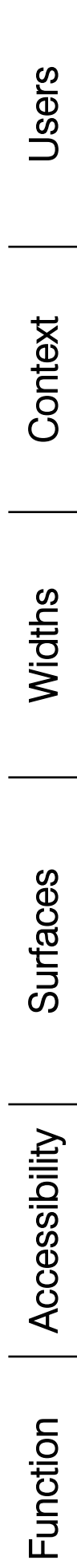
The goal is to link important public + community spaces including:

- Neighborhoods
- Schools
- Libraries
- Grocery Store & Shopping
- Farmers Market
- Train Stations
- Medical + Pharmacy






Facility Types & User Groups

Defined By:



- **Bicyclists** fall into a number of general categories based upon interest (recreational, commuting, touring) and experience level, which in part influence bicycle types (conventional, recumbent, tricycle) and behavioral uses. As a result, bicycle facilities should be designed to accommodate the appropriate intended use.
- **Pedestrians** may include walkers, hikers, joggers, runners, bird watchers, snowshoers, and dog walkers.

Facility Types & Users Groups

<p>Bike Lane</p> 	<p>Shared Lane Markings / "Sharrows"</p> 	<p>Multi-Use Paths</p> 	<p>Sidewalk</p> 	<p>Soft Surface / Hiking Trail</p> 	<p>Single Track Trail</p> 	<p>On-road Bicyclists Commuters</p> <p>Pedestrians Runners Dog Walking Bicyclists Commuters</p> <p>Pedestrians Dog Walking Commuters</p> <p>Pedestrians Hikers Dog Walking</p> <p>Pedestrians Hikers Dog Walking Mountain Biking</p>
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Existing Conditions Summary

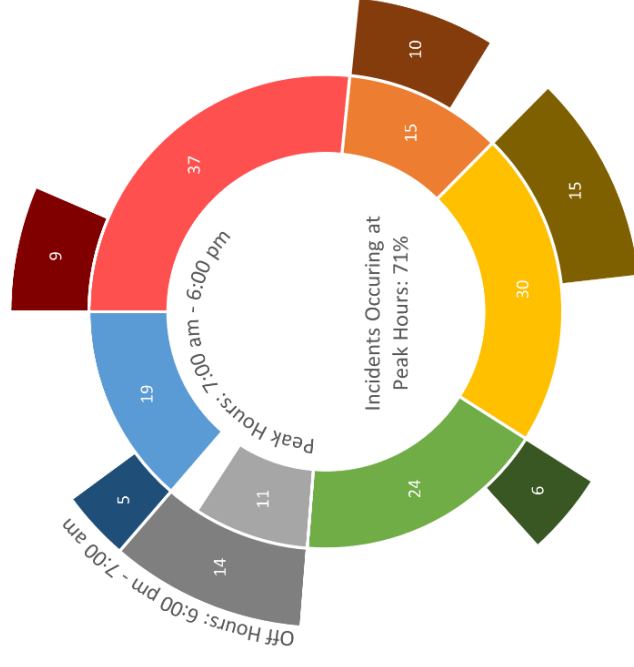
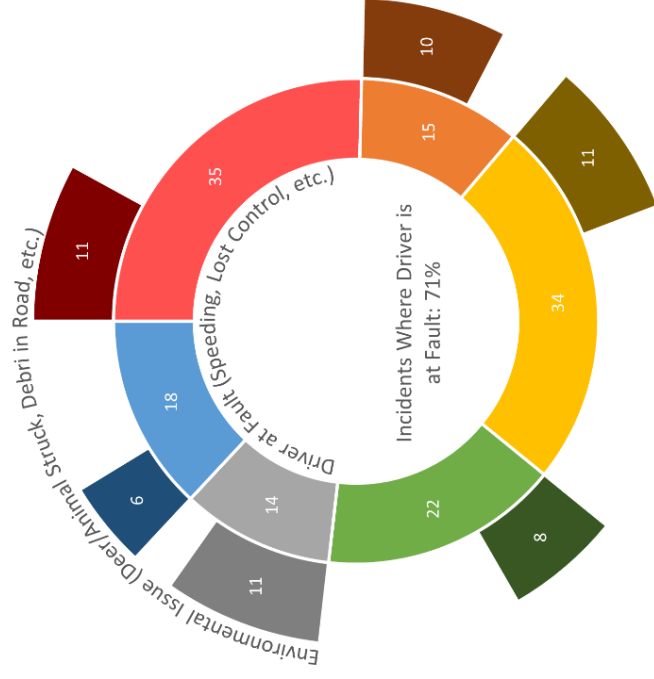
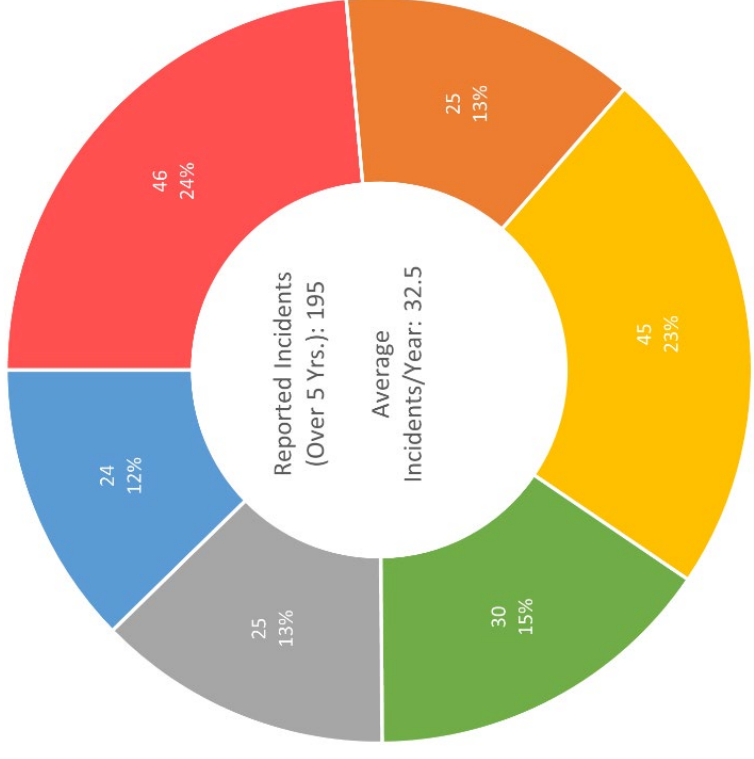
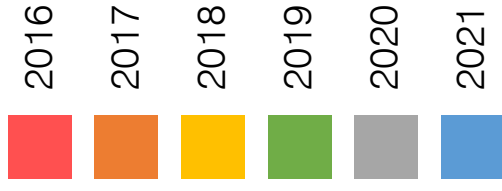
- Parcels, wetlands, streams & topography base mapping (GIS)
- Field Investigation
 - Recreational/community resource areas
 - Variable site context
 - Rock outcroppings
 - Stream crossings
 - Proximity to wetlands, Constitution Marsh
 - Environmental Resources (eagle nest)
 - Variable ROW widths
 - Large areas of fence/ wall obstruction
 - Overhead utilities along both sides of several roads
 - Frequent traffic incidents along Route 9D



9D Traffic Data

High Traffic Volume & Speeds along Route 9D

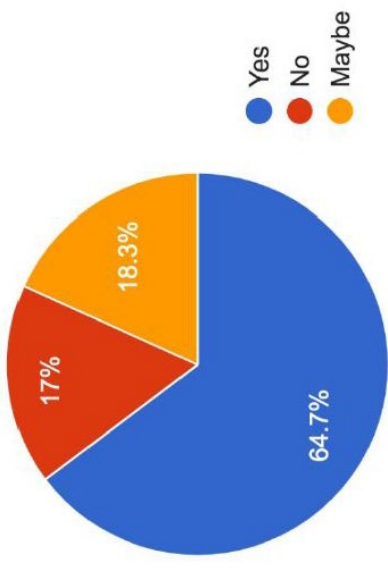
- Average of **32.5** crashes / year over last 5 years
- **71%** of incidents caused by driver error
- **71%** of incidents occurred during peak travel hours (7:00 a.m. – 6:00 p.m.)



Stakeholder Outreach

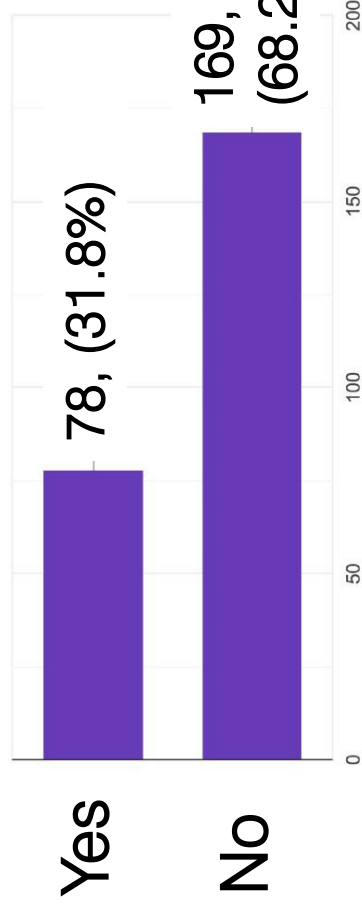
- Community stakeholder meetings with numerous stakeholders including NYS DOT, NYS Parks, Scenic Hudson, Boscobel House & Gardens, St. Basil Academy, Town of Philipstown Staff, Hastings Center & OSI
- Pedestrian Safety Survey Results from Parents of Local Schools & Childcare Centers

If you or your children could walk or bike safely to school using 9D, would you do so?



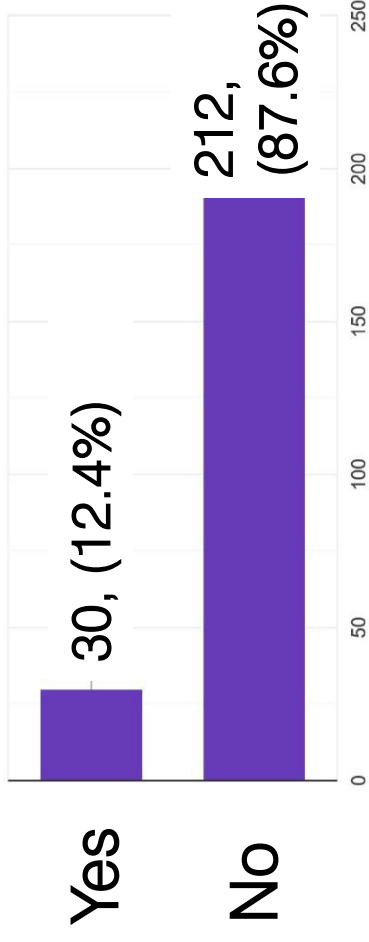
Do you or your children walk along or near 9D in order to get to school?

245 responses



Do you or your children bike along or near 9D in order to get to school?

241 responses



Field Reconnaissance

- Community resources are located throughout the corridor area
- Opportunities to connect to several neighborhoods / community resources

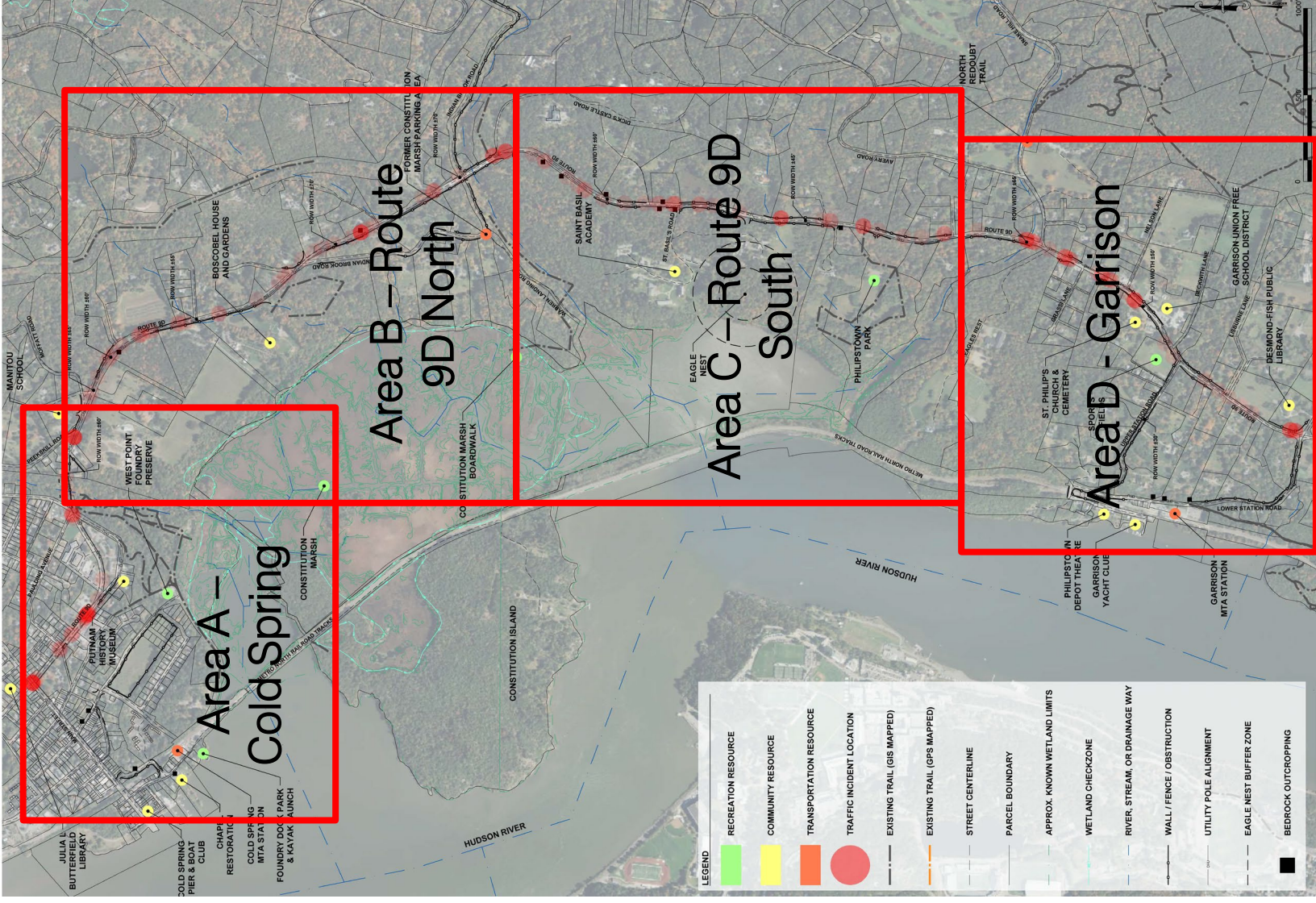


Overview of Corridor


Four Study Areas

1. Cold Spring
2. Route 9D North
3. Route 9D South
4. Garrison

Goal: To serve as many potential users/interests as possible to create community connections between Cold Spring and Garrison.




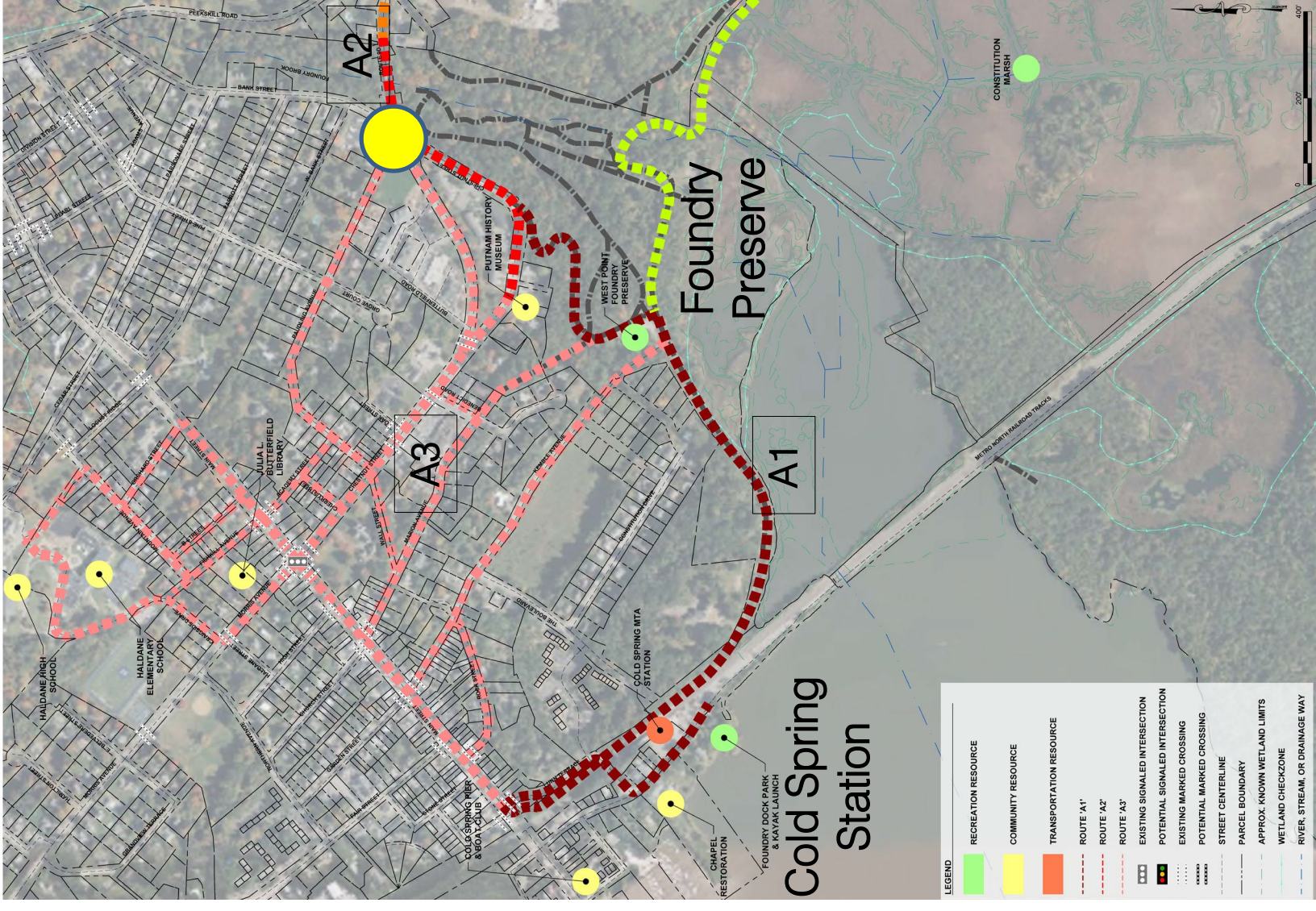
Potential Routes Area A – Cold Spring

-  Route A1
- Multi-Use Path
- Soft Surface

Favored Route

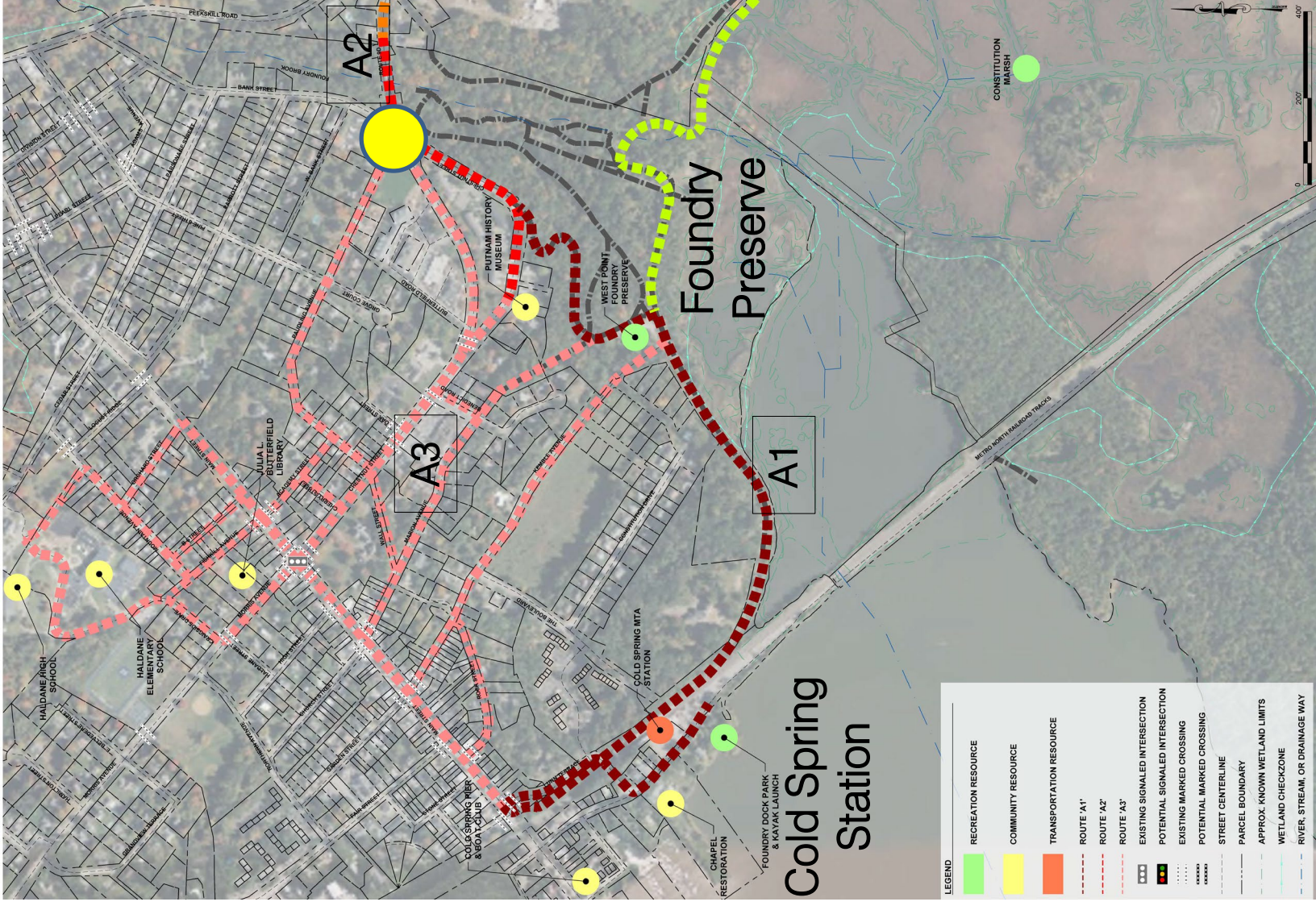
-  Route A2
- Multiuse Path/Bridge
- Sharrows
- Bike Lanes
- Sidewalks

-  Route A3
- Sharrows
- Sidewalks







Potential Routes Area A – Cold Spring

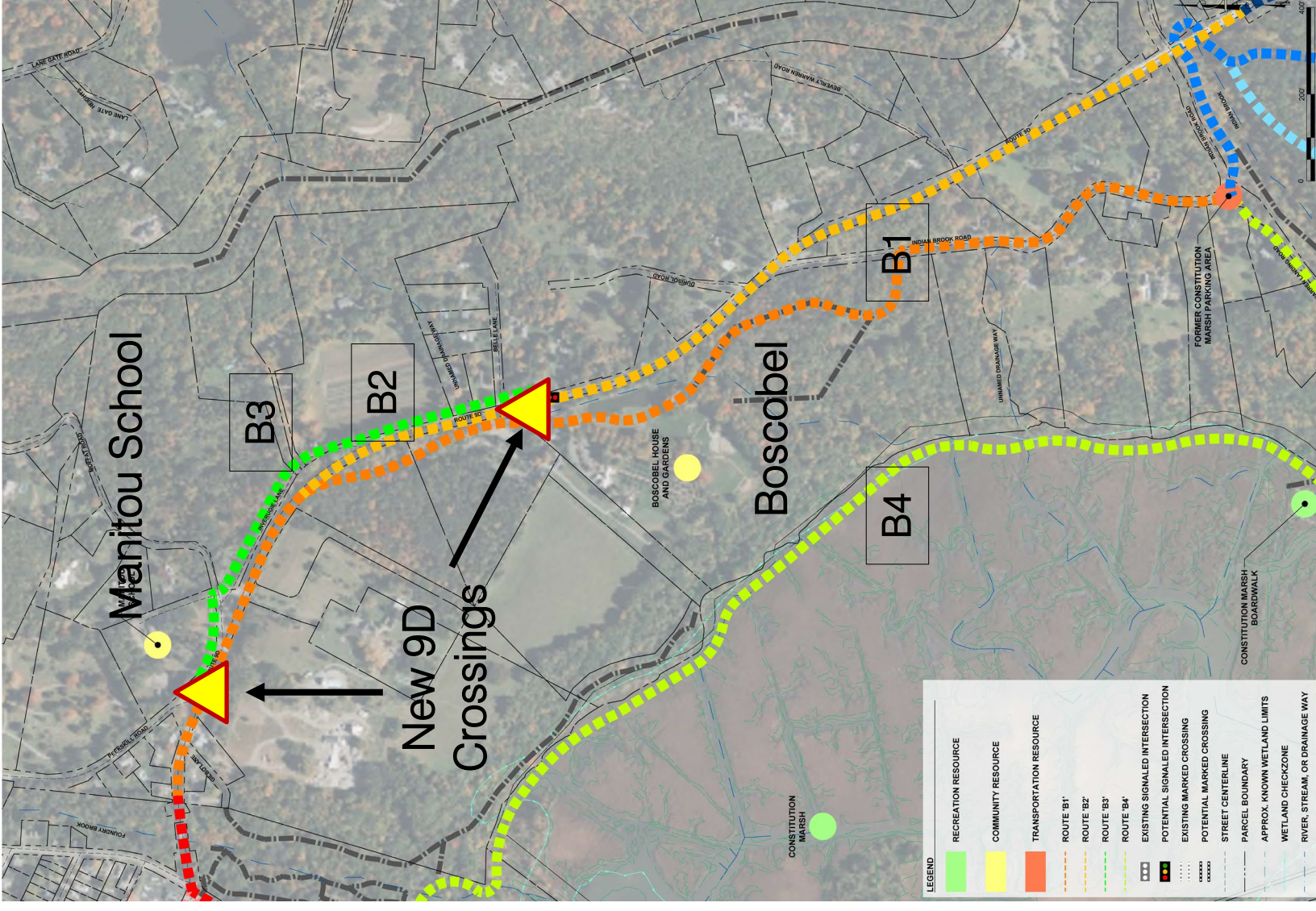
Pros	Cons
Route A1	
Utilizes existing Foundry Preserve Trails	Current Scenic Hudson Rules requires dismounting bicyclists on some trails
Connects to Train Station & Lower Cold Spring Village	
Route A2 (* favored route)	
Connectivity to centers of Cold Spring & Nelsonville amenities	Does not facilitate Complete Streets improvements in Cold Spring
Flatter terrain, promotes accessibility	Requires bridge over Foundry Brook
Route A3	
Provides on-street connectivity within Cold Spring	“Sharrows” don’t provide off-road accommodations
Flatter terrain, promotes accessibility	



Potential Routes Area B – Route 9D Corridor (North)

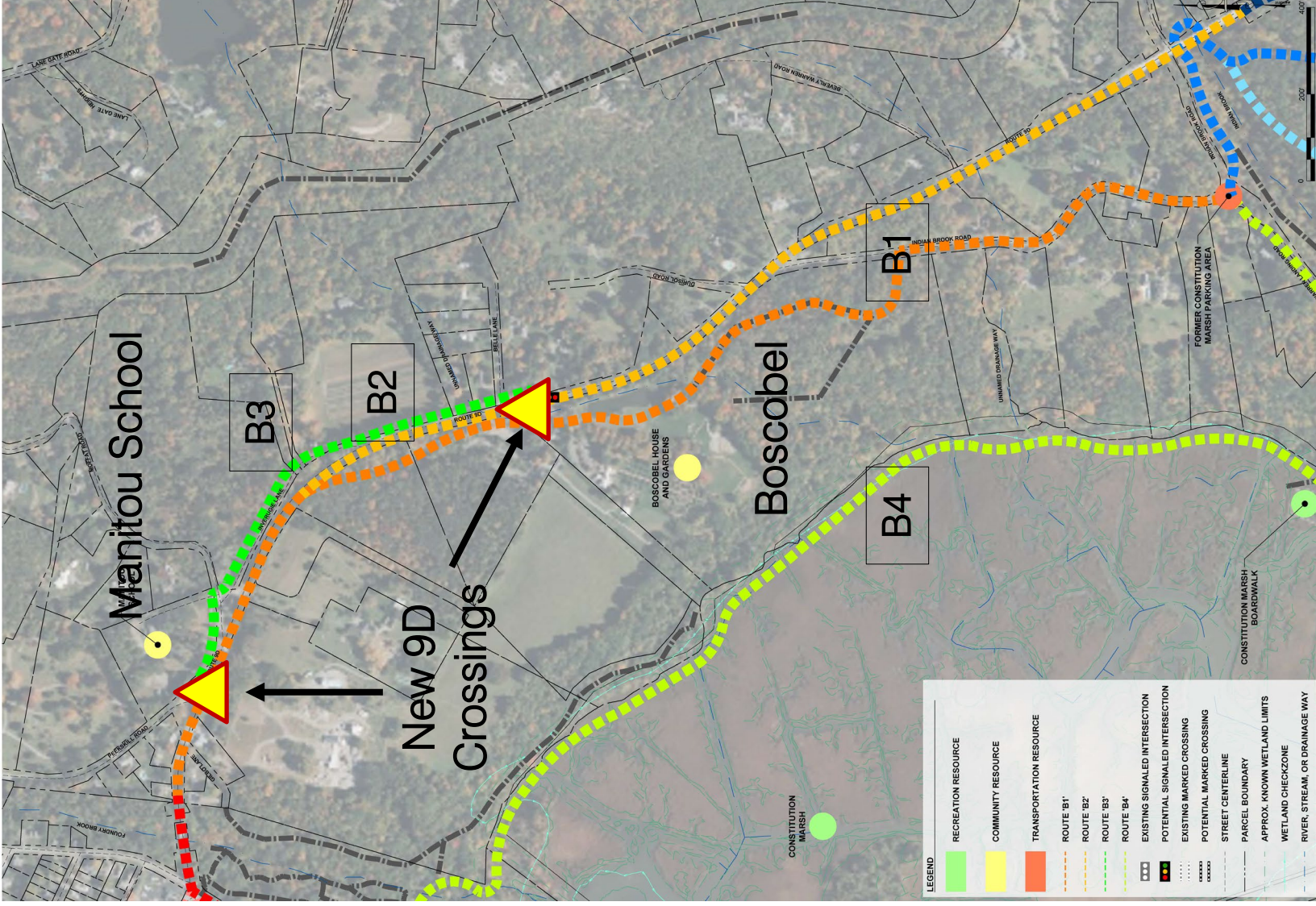
Favored Route

-  Route B1
 - Multi-Use Path
-  Route B2
 - Bike Lanes
-  Route B3
 - Multi-Use Path
 - Sharrows
 - Sidewalks
-  Route B4
 - Multi-Use Path
 - Boardwalk
 - Soft Surface Trail



Potential Routes Area B

Pros	Cons
Route B1 (*favored route)	
Provides connectivity to Manitou School, Boscobel, and neighborhoods	Renovate/Replace Indian Brook footbridge, (Requires restrict access to falls)
Utilizes existing paths within Boscobel	Right-of-Way width unknown
Route B2	
May stay within Route 9D Right-of-Way	Bike Lane would primarily serve experienced cyclists
Provides on-road accommodation on 9D	Insufficient space along 9D Indian Brook Bridge
Route B3	
Utilizes existing roadway (Invergugie Rd.) [private]	Right-of-Way width unknown
	Requires two new crossings of 9D
Route B4	
Scenic Destination	Limited NYS Park land available, boardwalk
Away from Road	No Boscobel connection



Potential Routes Area C – Route 9D Corridor (South)

Route C1

- Multi-Use Path

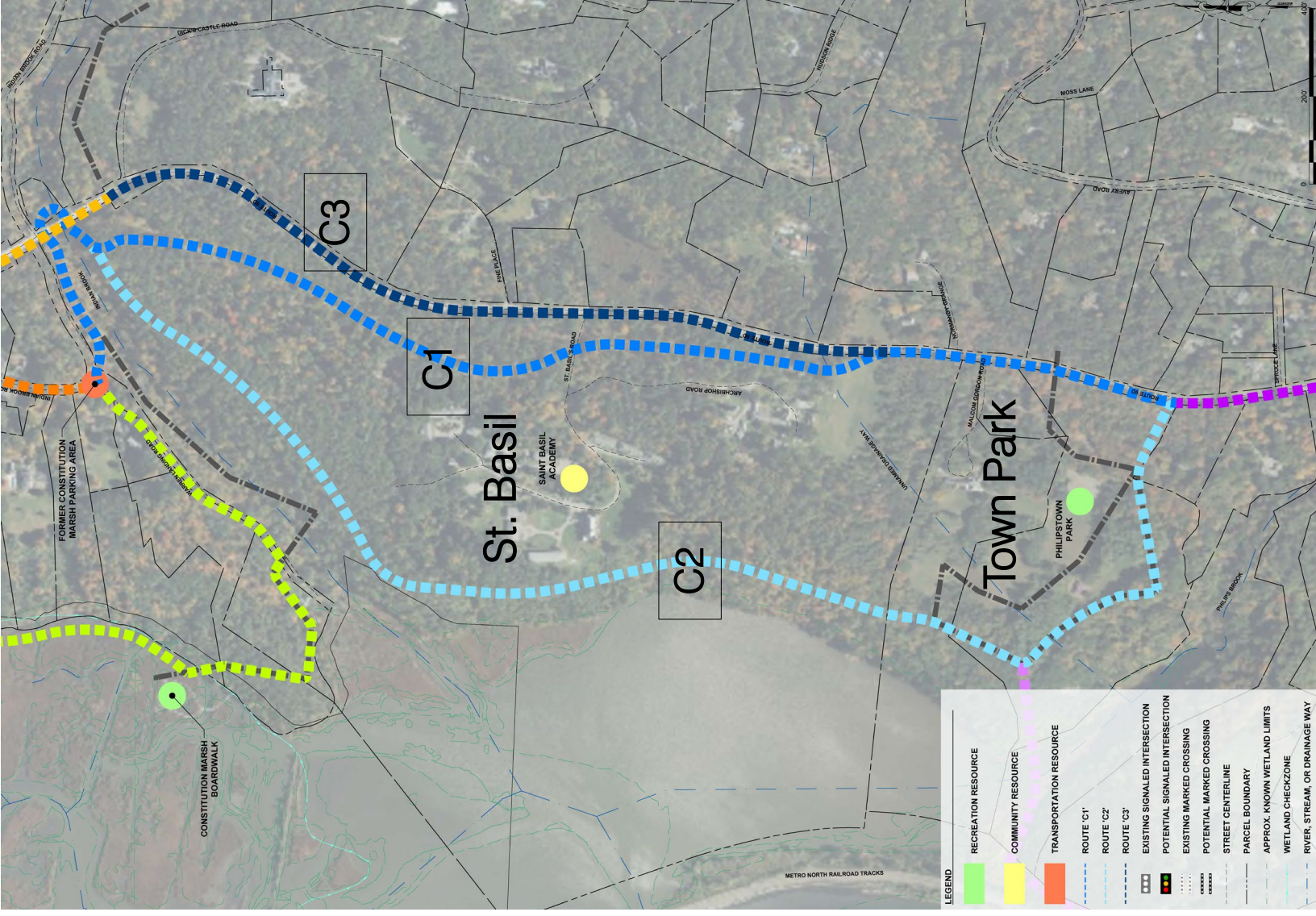
Route C2

- Multi-Use Path

- Soft Surface Trail

Route C3

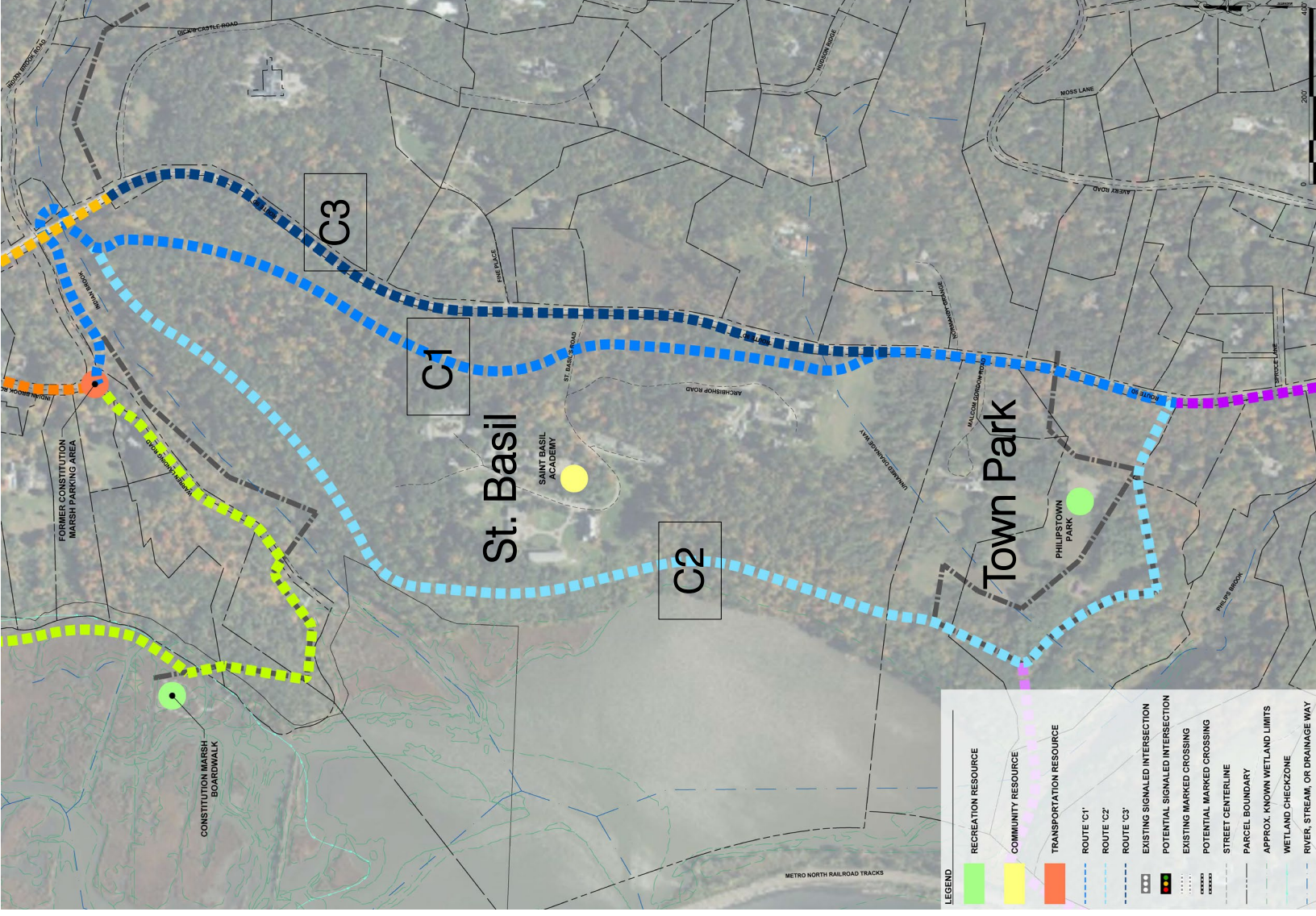
- Multi-Use Path



Potential Routes

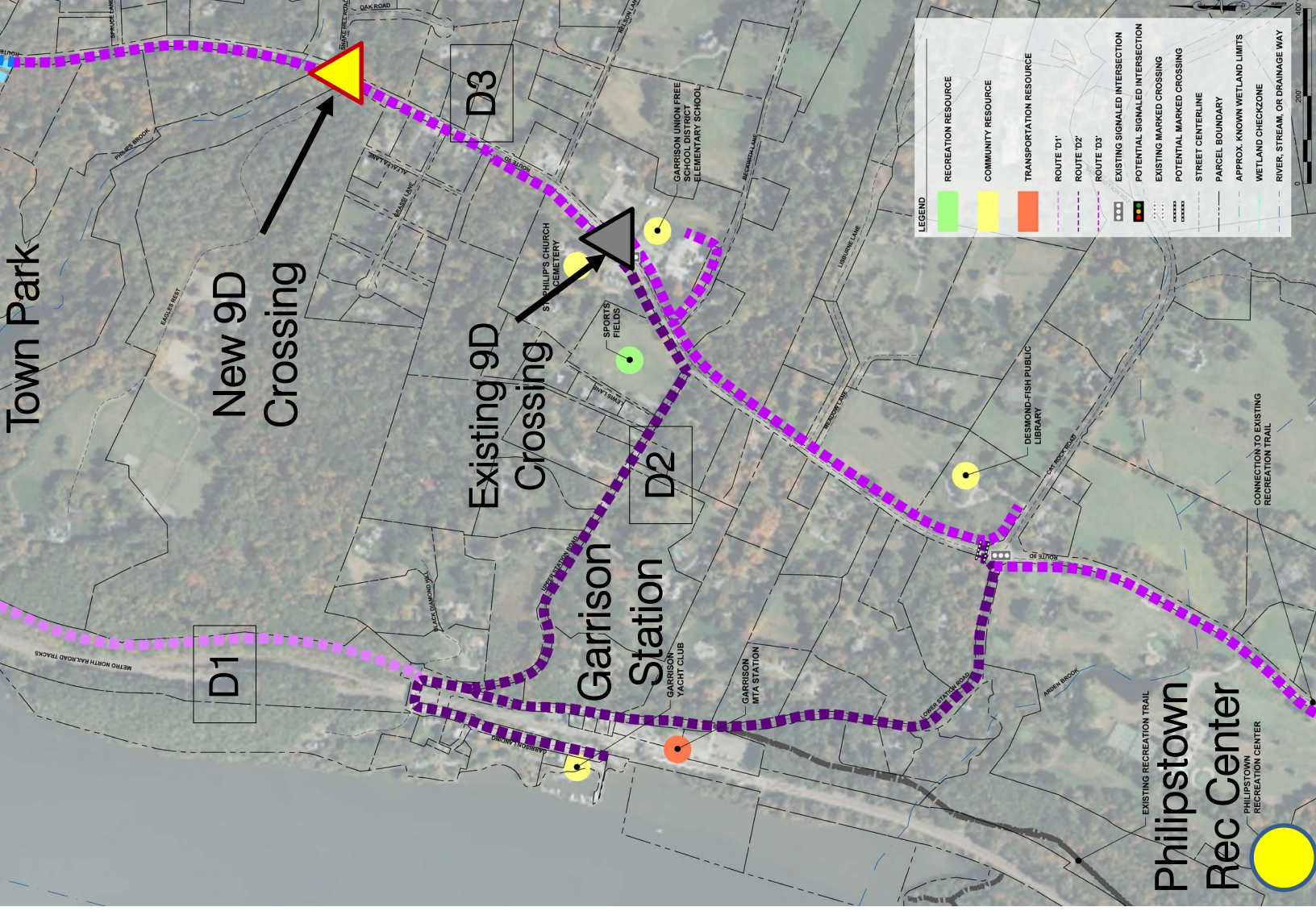
Area C

Pros	Cons
Route C1	
Utilizes existing path (requires landowner permission)	Right-of-Way width unknown
Separate from Route 9D	
Route C2	
Path is further away from St. Basil campus	Difficult terrain (steep, grade changes, bedrock, etc.)
Scenic & separate from Route 9D	Bald Eagle nest restricts potential path routes
Route C3	
May stay within Route 9D Right-of-Way	Route 9D is very narrow in sections, bedrock restrictions
Provides on-road accommodation on 9D	Right-of-Way width unknown



Potential Routes Area D – Garrison

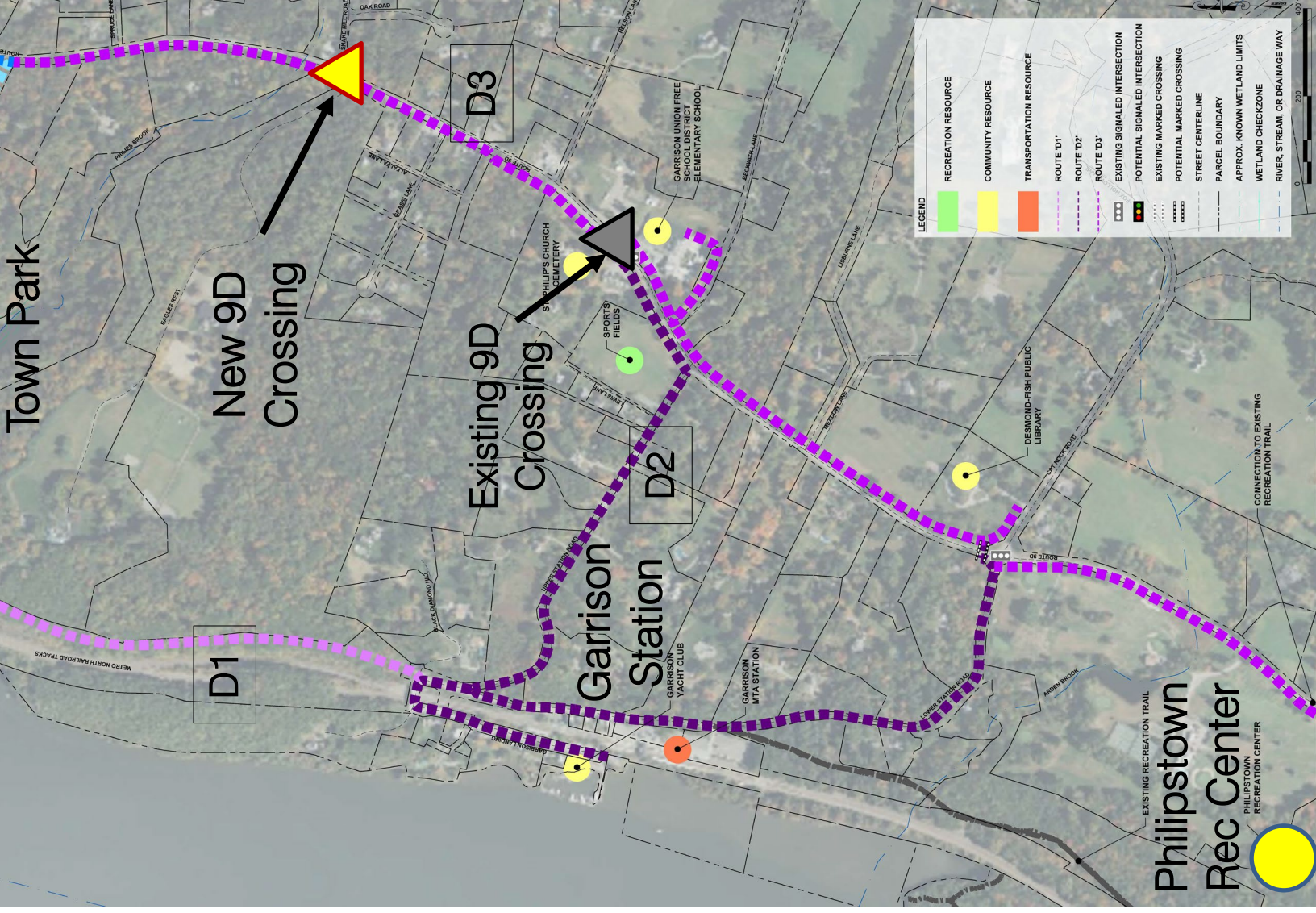
-  Route D1
- Multi-Use Path
-  Route D2
- Sharrows
- *Favored Route***
-  Route D3
- Multi-Use Path
- Sharrows
- Sidewalks



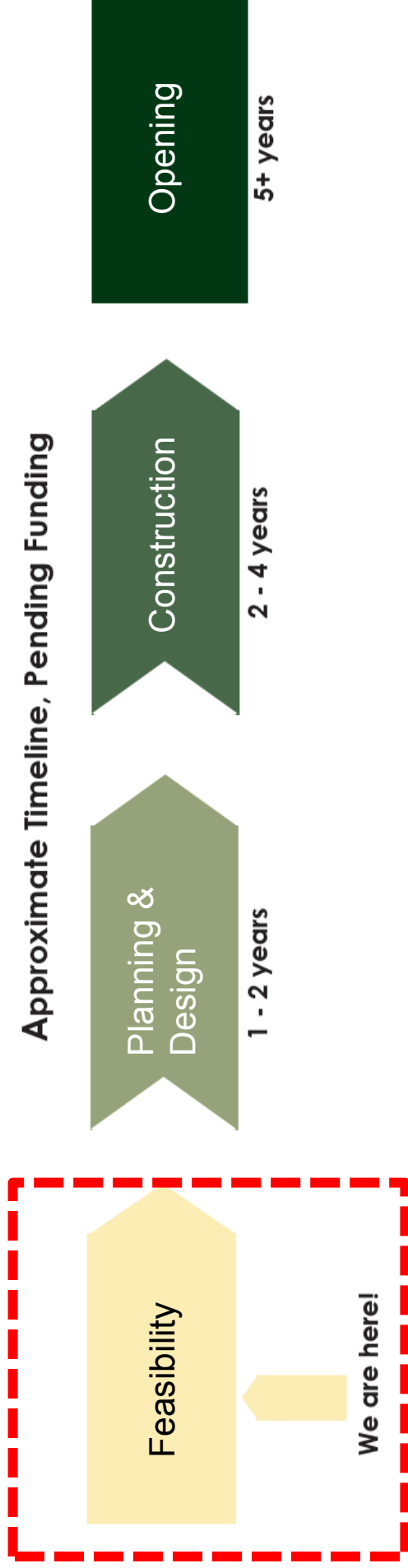
Potential Routes

Area D

Pros	Cons
Route D1	
Scenic & Separate from Route 9D	Far from neighborhoods, school / library
	Limited Space along railroad tracks (requires MTA approval)
Route D2	
Connection to Garrison UFSD	Right-of-Way width unknown
Direct connection to train station for commuters / visitors	Upper & Lower Station Roads ROW too narrow for off-road facility
Route D3 (* favored route)	
Utilizes existing trail (Marcia's Mile) from Rec Center to Garrison Lndg.	Not a direct route to Train Station for commuters
Provides connection to community resources (Rec Center, School, etc)	
Provides safer accommodation along Route 9D	



Project Timeline



Thank You

Questions & Comments

philipstowntrails@gmail.com

www.philipstowntrails.org



Questions & Comments

Ground Rules

1. Step Up & Step Back; ensure that everyone has a change to speak who would like to.
2. Please limit your questions or comments to 2 – 3 minutes.
3. If you've already spoken once, please allow for new speakers to have a turn first.



PHILIPSTOWN
Trails Committee

I. Public Engagement Appendix

A. 9D Pedestrian Safety - Parent Survey Results

As mentioned previously, in the fall of 2022, we conducted a web-based survey of parents whose children attend seven educational institutions (schools or preschools) located along 9D. The survey link was sent out by individual school leaders to their parent communities and it consisted of a mix of closed and open-ended questions. Of the 326 parents who completed the survey, the vast majority were interested in exploring improvements to pedestrian safety in Philipstown (90.2%). 31.5% reported that their children currently walk along 9D to school, however biking by school children is more limited (11.6%). Nearly 70% of parents selected yes when asked: If children could walk or bike safely to school, would they do so? (see charts on X page)

Open-ended questions provided more insight into specific safety concerns and ideas for improvement. 176 parents provided comments in response to the following open-ended question: "Do you have any ideas regarding safety on 9D or in Philipstown? 102 parents provided their email address and signed up to volunteer in response to the question: "Would you be interested in volunteering for efforts to improve pedestrian safety in Philipstown." Analysis of these comments is organized into six general themes discussed below: 1) support for the path concept with suggestions for improvements, 2) better enforcement of existing laws or new laws to improve safety on 9D, 3) improvements to existing infrastructure on 9D, 4) a sidewalk, 5) route alternatives to 9D for a path, and 6) volunteering to help.

Support for the path concept with suggestions for improvements: At least a half-dozen parents offered support for and suggestions specific to a proposed path or trail along 9D. Several parents expressed views like this one, "Wider lanes for bikers/hikers/pedestrians would be welcome." Another said, "We would absolutely love a bike lane and would use it all the time." Several expressed opinions such as this one, "I would be elated to be able to bike safely on 9D in either direction." Several said the idea of a safe walking trail or path along 9D would be "amazing." Several mentioned how they would like to walk to Boscobel. Others expressed opinions such as this one, "crossing the street from Cold Spring Village to go to Haldane can be pretty dangerous, the intersection of 9D and 301 could use some thought." One parent said they'd like such a path for safer running along 9D. Another said that a sharrows-type biking and walking lane would not be effective.

Better enforcement of existing laws or new laws on 9D: A number of parents who responded to the open-ended questions called for better enforcement of existing laws, or new laws to improve safety on 9D. Suggestions included: reducing the speed limit, disallow parking on 9D and instead create parking lots off of the road, ban trucks, and install speed or red light cameras. Some thought that a greater police presence would improve safety, presumably through increased enforcement of existing laws.. One parent said, "Pedestrian and biking trails are needed, but in tandem with stricter vehicle laws and reinforcement. There is speeding and aggressive driving that takes place

in 9d which would still put pedestrians and bikers at risk even with proper lanes/trails.” Some parents encouraged additional signage aimed at both drivers and pedestrians.

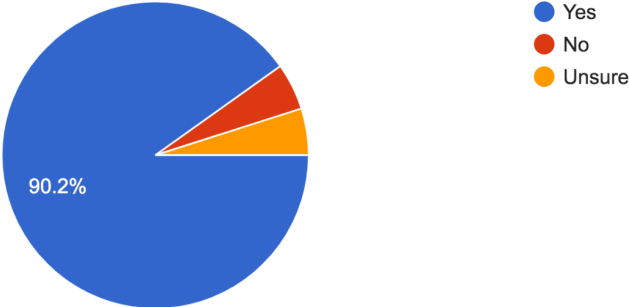
Improvements to Existing 9D Infrastructure to improve safety, such as a crosswalk light, illuminated crosswalks, speed bumps, crossing guards, benches, or a pedestrian bridge was suggested by several parent respondents. For example, one parent wrote, “Possible flashing lights (solar powered) by the crosswalks. No one hardly ever stops!” Several noted dangerous current conditions on 9D such as this one, “The bridge over Foundry Brook on 9D is really dangerous.”

A Sidewalk: Approximately a half-dozen parents recommended more sidewalks to improve pedestrian safety. For example, one parent recommended a, “big sidewalk with hand rails or just metal rails to prevent kids going off the sidewalk.” Another recommended a sidewalk ,in front of the Cold Spring cemetery on Peekskill Road....”

Route Alternatives to 9D were offered by a couple of parents. One parent said, “Would love a sidewalk on Fair Street from Riverview to Little Stony Point, I know this is not 9D but a good alternative.” A couple of parents indicated they were not in support of a new trail or path along 9D. “I don’t think additional infrastructure needs to be created.”

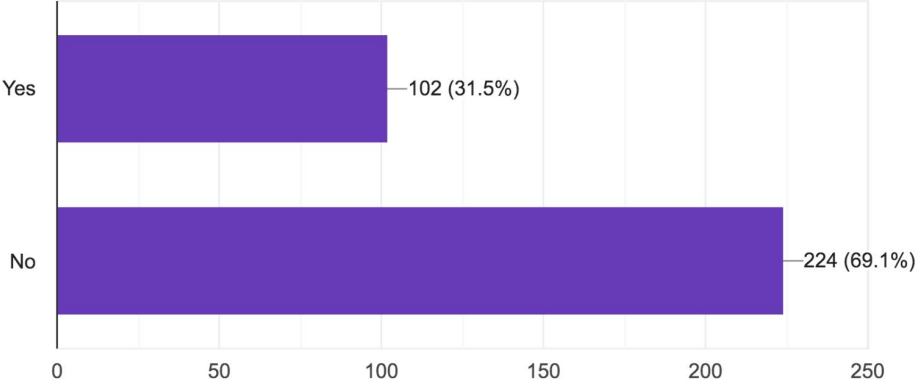
The Philipstown Trails Committee is exploring improving pedestrian safety in Philipstown. Would this be of interest to you?

325 responses



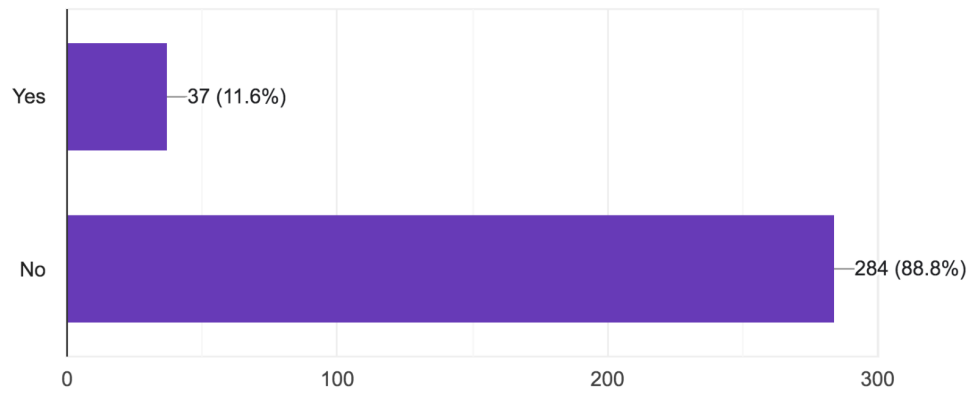
Do you or your children walk along or near 9D in order to get to school?

324 responses



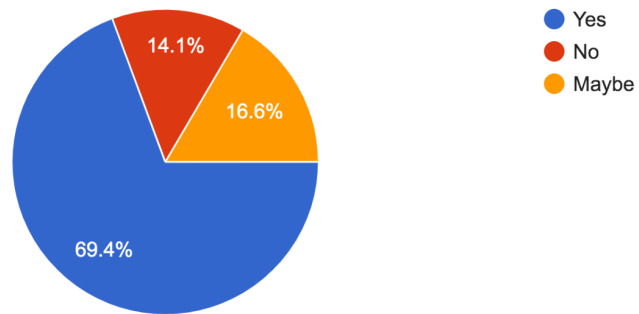
Do you or your children bike along or near 9D in order to get to school?

320 responses



If you or your children could walk or bike safely to school using 9D, would you do so?

320 responses



B. Community Input from Meetings

PTC obtained written input from feedback forms at community meetings, as well as from letters sent via email. In general, the feedback from community input from meetings echoes the themes heard through other feedback mechanisms. Attendees provided a mix of positive comments and comments that express concern about safety, as well as questions about the true feasibility of expanding walking and biking facilities within the 9D corridor. The comments about feasibility generally asked for information that was beyond the scope of this study, such as cost and detailed right of way questions. Concerns about the ecological impacts of a trail along the Hudson River were also raised. Support for the proposed path included comments about the desirability of connecting the community through a path that would provide outlets for walkers, bikers and runners. Others noted that it would provide access for groups of people who are unable to drive, such as young people and the visually impaired. As in the other feedback, safety concerns, both current and future if a path were to be built, were also raised.

Below are the written comments provided through the community meeting feedback form. Each row represents one person's written comments.

Not sure linking the trail to Indian Brook Falls is a good idea. NYS has closed that area.
Very concerned about high volume traffic on Indian Brook Rd., especially around the blind corners - very dangerous.
ROW in CS to Philipstown Foundry Brook needs more of a detailed plan.
for young people, it's needed
would love a bikeable, wheelchair usable path
- feasibility study without budget is not feasibility - width of 9D could be narrower - most children walking to GUFFS use local paths, not Rt 9D - railroad right of way benefits - constitution bat house, Benedict Arnold flight, connects downtown CS with Gar, no topography issues, few accidents, river views, level route, no stone walls or historic properties, access to river shore, width available 100' vs <40' of asphalt, rare views and open space, road accident are burden on GVFD
very interested - I'm a distance runner and I would LOVE an option of one long route in the area. I've run on 9D from my apt to the Bear Mtn Bridge and back, and it was SKETCH! Never again. I'm also a trail maintainer in NY, NJ, CT, a volunteer on the CS Fire Co, and hiking guide. If my experience could be of any use, I'd also love to join the committee.
I like the way this is developing. I look forward to following your work and supporting it.

will email

I like the idea. I prefer the scenic options closer to the river. I ride on 9D on my bike frequently. I question how many people in your survey will actually ride along the 9D corridor to school and grocery store that have indicated they would.

Our Belle Ln neighborhood would love to be able to walk safely to town. We are generally excited about the prospect of doing so. We do walk through neighbor yards and the farm to walk to school (Manitou) and this has been such an outstanding improvement in our lives.

I do not have enough info to comment - because I am not familiar enough with plans yet.

Look at Peekskill Rd in Nelsonville!

there has been a suggestion that the trail not start at dockside. That seems like a reasonable concession.

I am in favor of the path along the train line. Both me and friends of mine would make use of this path, and it would be beneficial to our safety as we often walk between Cold Spring and Garrison when a ride isn't available. This can be dangerous with the drivers on 9D especially at night.

Personally I love the idea of creating the path, but the goal seems pretty impossible.

focus should be placed on route that do not follow existing roads

THANK YOU! Hoorah!

I think this idea is great for connecting the community.

thank you very much for your work in this effort!

I used to work for safe routes to schools. Happy to help@ Interested in getting involved. I recommend passing around a sign in sheet and making your contact info readily available in multiple places. Thanks!

please prioritize Cold Spring to Boscobel

- as long as it does not adversely affect wildlife - so not through the Foundry or the Wetlands at all
- I would ONLY support the path along 9D and NOT through the Foundry or along the Hudson or through the Wetlands.
- This would be SO GREAT if it can be done along 9D. I would not support a path that impacts the Foundry Park or Constitution Marsh or any wetlands or natural resources. I would definitely use a path along 9D, particularly since I cannot drive due to bad eyesight.

I would like to know if the St. Basil route - (the original 9D roadway) remains public (or could Eminent Domain proceedings be effective)

- safety - Xtra path?? Indian Brook route is too narrow.

- Possible option of a bridge (walking bridge) over 9D as a crossing option?

Appendix F – Environmental Resource Review

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Putnam County, New York



Local office

New York Ecological Services Field Office

☎ (607) 753-9334

📠 (607) 753-9699

✉ fw5es_nyfo@fws.gov

3817 Luker Road

Cortland, NY 13045-9385

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> Wherever found	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
<https://ecos.fws.gov/ecp/species/5949>

Northern Long-eared Bat *Myotis septentrionalis*
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Reptiles

NAME

STATUS

Bog Turtle *Glyptemys muhlenbergii*
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6962>

Threatened

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus*
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9743>

Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>

- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the **PROBABILITY OF PRESENCE SUMMARY** at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee <i>Poecile atricapillus praticus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 10 to Jul 31
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 27 to Jul 20
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Golden-winged Warbler *Vermivora chrysoptera*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8745>

Kentucky Warbler *Oporornis formosus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Northern Saw-whet Owl *Aegolius acadicus acadicus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Prairie Warbler *Dendroica discolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rusty Blackbird *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the

Breeds elsewhere

Breeds May 1 to Jul 20

Breeds Apr 20 to Aug 20

Breeds Mar 1 to Jul 31

Breeds May 1 to Jul 31

Breeds May 10 to Sep 10

Breeds elsewhere

Breeds May 10 to Aug 31

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Northern Saw-whet Owl BCC - BCR	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
Prairie Warbler BCC Rangewide (CON)	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
Red-headed Woodpecker BCC Rangewide (CON)	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
Rusty Blackbird BCC - BCR	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
Wood Thrush BCC Rangewide (CON)	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#), and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#), and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

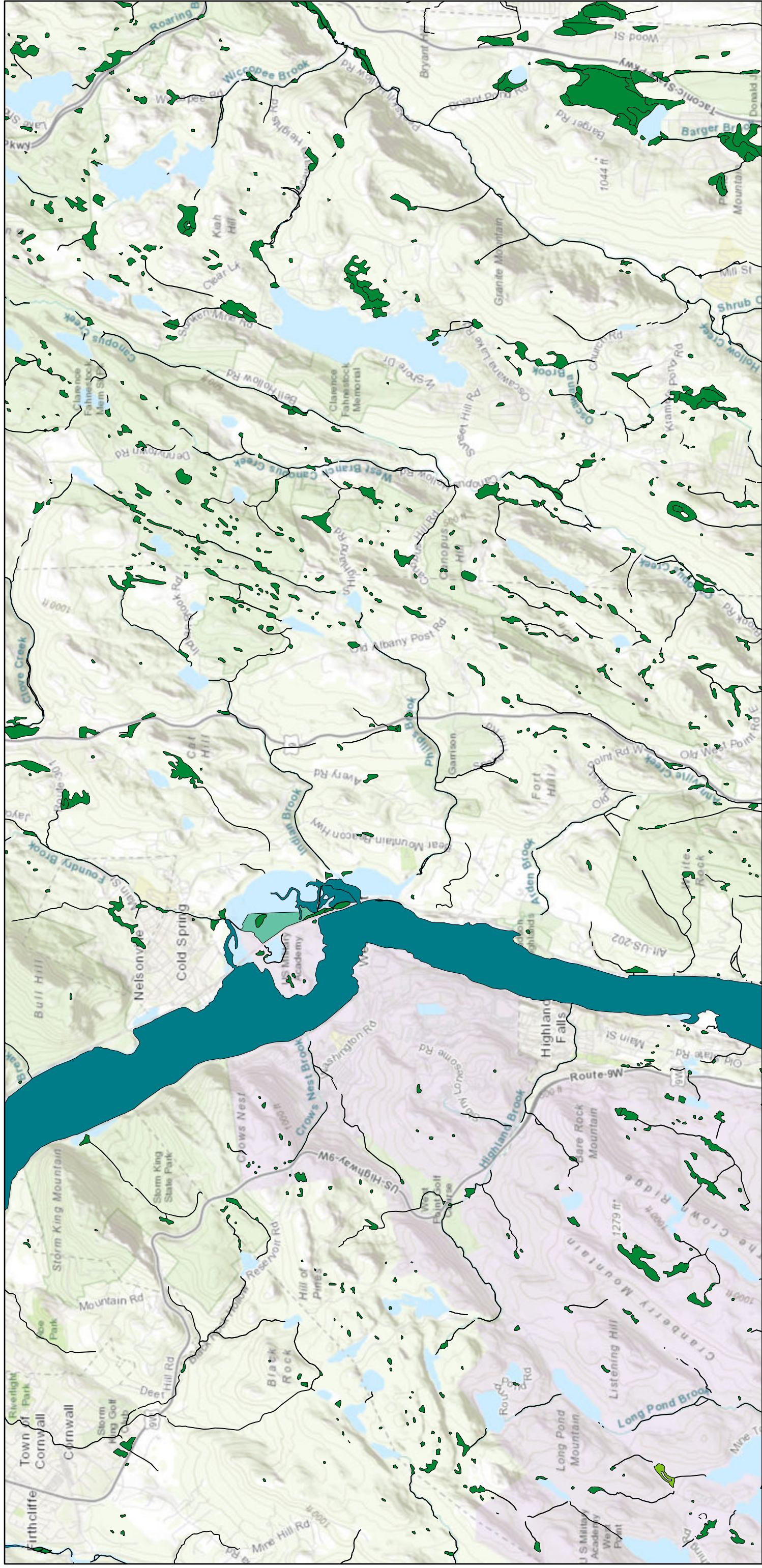
Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

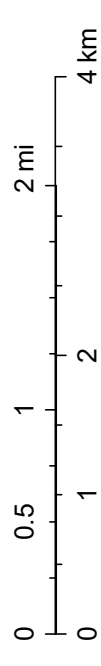
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

National Wetlands & Waterbodies



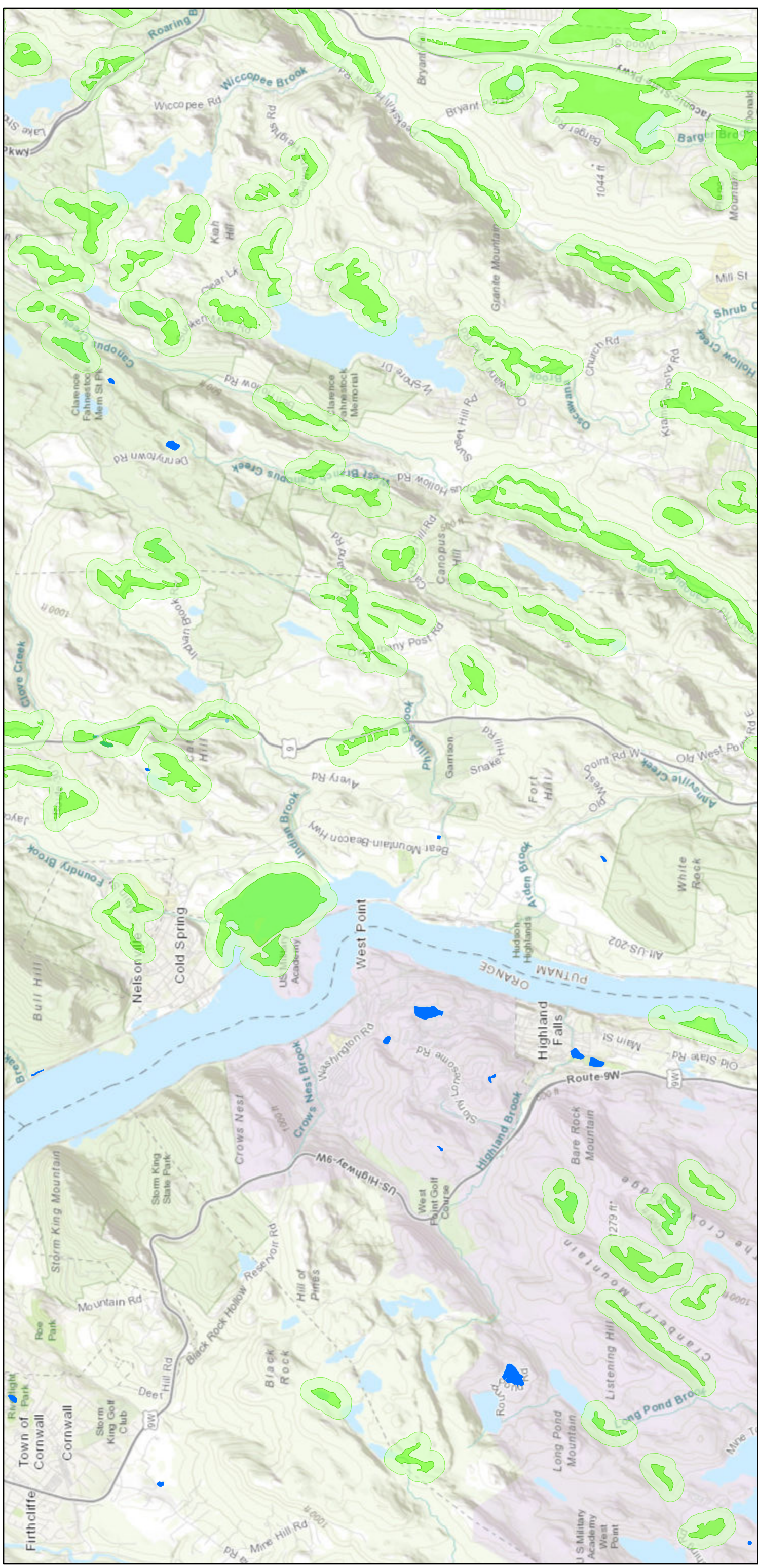
October 25, 2021

1:72,224



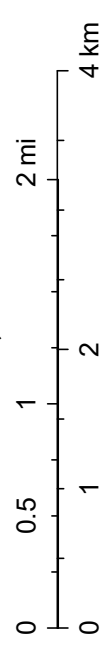
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

State Regulated Wetlands & Lakes



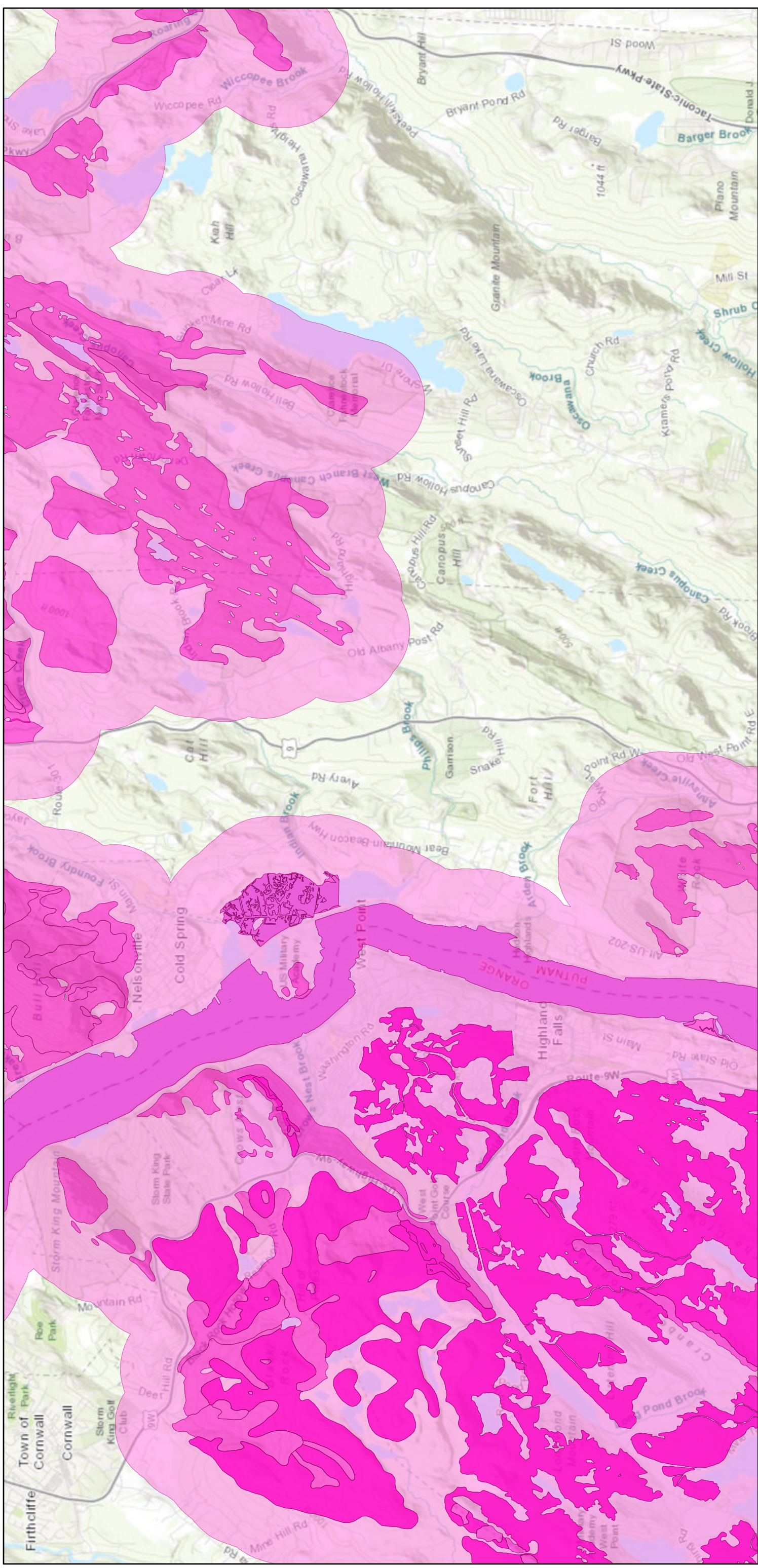
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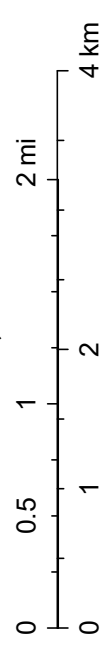
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Significant Natural Communities



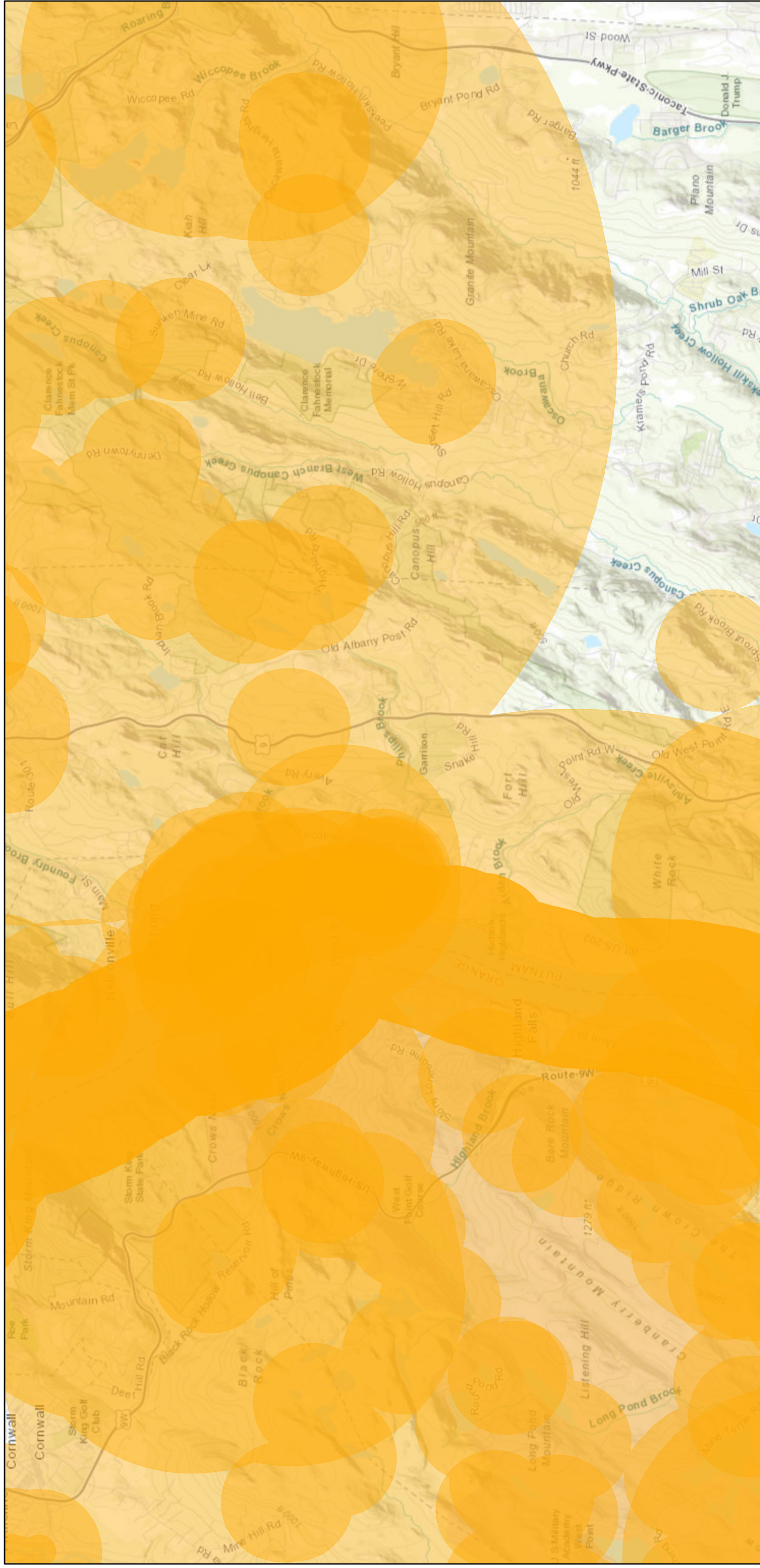
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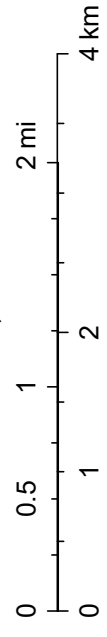
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Rare Plants and Animals



October 25, 2021

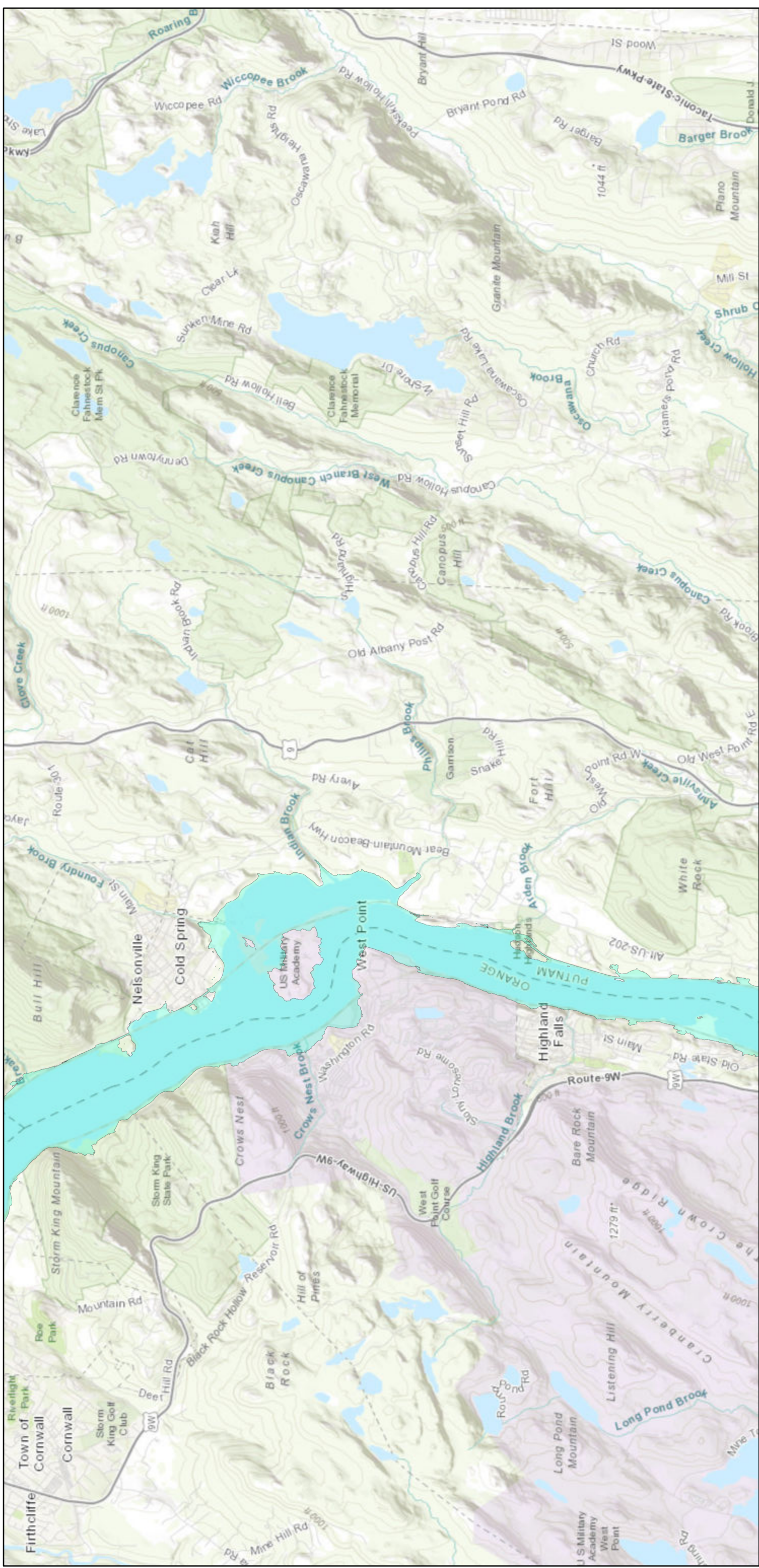
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

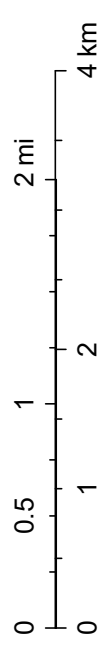
Appendix G – FEMA Mapping

Base Flood Elevation + 72" SLR



October 25, 2021

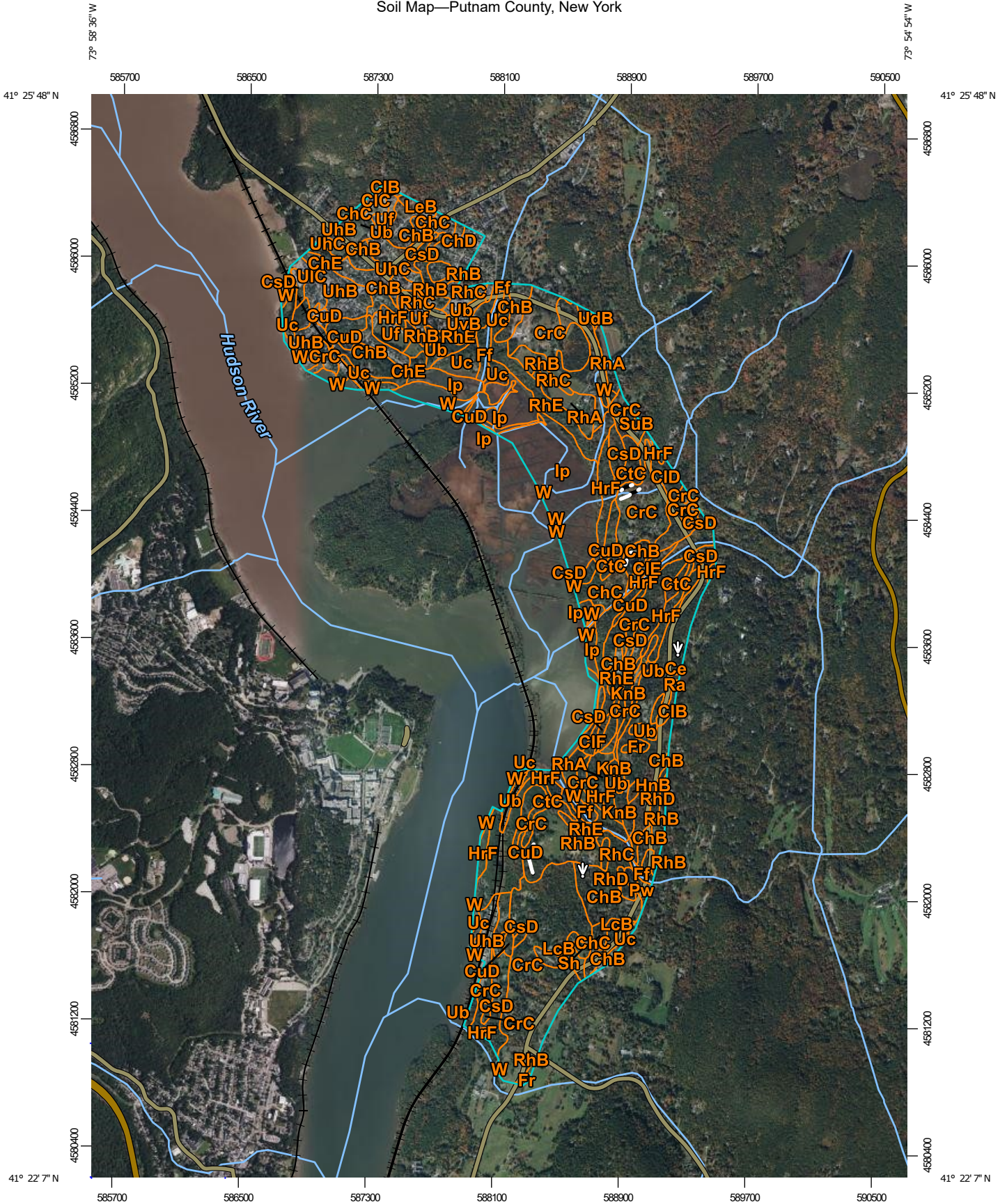
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Appendix H – Soil Map

Soil Map—Putnam County, New York



Map Scale: 1:33,200 if printed on A portrait (8.5" x 11") sheet.









































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

2/15/2023
Page 1 of 4

MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Putnam County, New York
 Survey Area Data: Version 19, Sep 10, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 8, 2020—Aug 15, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ce	Catden muck, 0 to 2 percent slopes	0.4	0.0%
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	87.4	6.6%
ChC	Charlton fine sandy loam, 8 to 15 percent slopes	6.7	0.5%
ChD	Charlton fine sandy loam, 15 to 25 percent slopes	1.4	0.1%
ChE	Charlton loam, 25 to 35 percent slopes	10.3	0.8%
CIB	Charlton fine sandy loam, 3 to 8 percent slopes, very stony	2.3	0.2%
CIC	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	0.6	0.0%
CID	Charlton loam, 15 to 25 percent slopes, very stony	9.0	0.7%
CIE	Charlton loam, 25 to 35 percent slopes, very stony	5.2	0.4%
CIF	Charlton loam, 35 to 45 percent slopes, very stony	2.4	0.2%
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	313.6	23.7%
CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	64.5	4.9%
CtC	Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes	26.3	2.0%
CuD	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	67.4	5.1%
Ff	Fluvaquents-Udifulvents complex, frequently flooded	14.2	1.1%
Fr	Fredon silt loam	3.3	0.2%
HnB	Hinckley loamy sand, 3 to 8 percent slopes	3.1	0.2%
HrF	Hollis-Rock outcrop complex, 35 to 60 percent slopes	70.5	5.3%
Ip	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	119.2	9.0%
KnB	Knickerbocker fine sandy loam, 2 to 8 percent slopes	8.2	0.6%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LcB	Leicester loam, 3 to 8 percent slopes, stony	15.2	1.1%
LeB	Leicester loam, 2 to 8 percent slopes, very stony	0.3	0.0%
NcA	Natchaug muck, 0 to 2 percent slopes	2.8	0.2%
Pw	Pompton silt loam, loamy substratum	3.0	0.2%
Ra	Raynham silt loam	2.3	0.2%
RhA	Riverhead loam, 0 to 3 percent slopes	31.1	2.3%
RhB	Riverhead loam, 3 to 8 percent slopes	92.4	7.0%
RhC	Riverhead loam, 8 to 15 percent slopes	17.6	1.3%
RhD	Riverhead loam, 15 to 25 percent slopes	11.6	0.9%
RhE	Riverhead loam, 25 to 50 percent slopes	52.5	4.0%
Sh	Sun loam	2.1	0.2%
SuB	Sutton loam, 3 to 8 percent slopes	0.6	0.0%
Ub	Udorthents, smoothed	46.6	3.5%
Uc	Udorthents, wet substratum	35.1	2.6%
UdB	Unadilla silt loam, 2 to 6 percent slopes	0.5	0.0%
Uf	Urban land	17.5	1.3%
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	86.4	6.5%
UhC	Urban land-Charlton complex, 8 to 15 percent slopes	35.4	2.7%
UIC	Urban land-Charlton-Chatfield complex, rolling, very rocky	8.2	0.6%
UvB	Urban land-Riverhead complex, 2 to 8 percent slopes	5.4	0.4%
W	Water	43.2	3.3%
Totals for Area of Interest		1,325.9	100.0%

