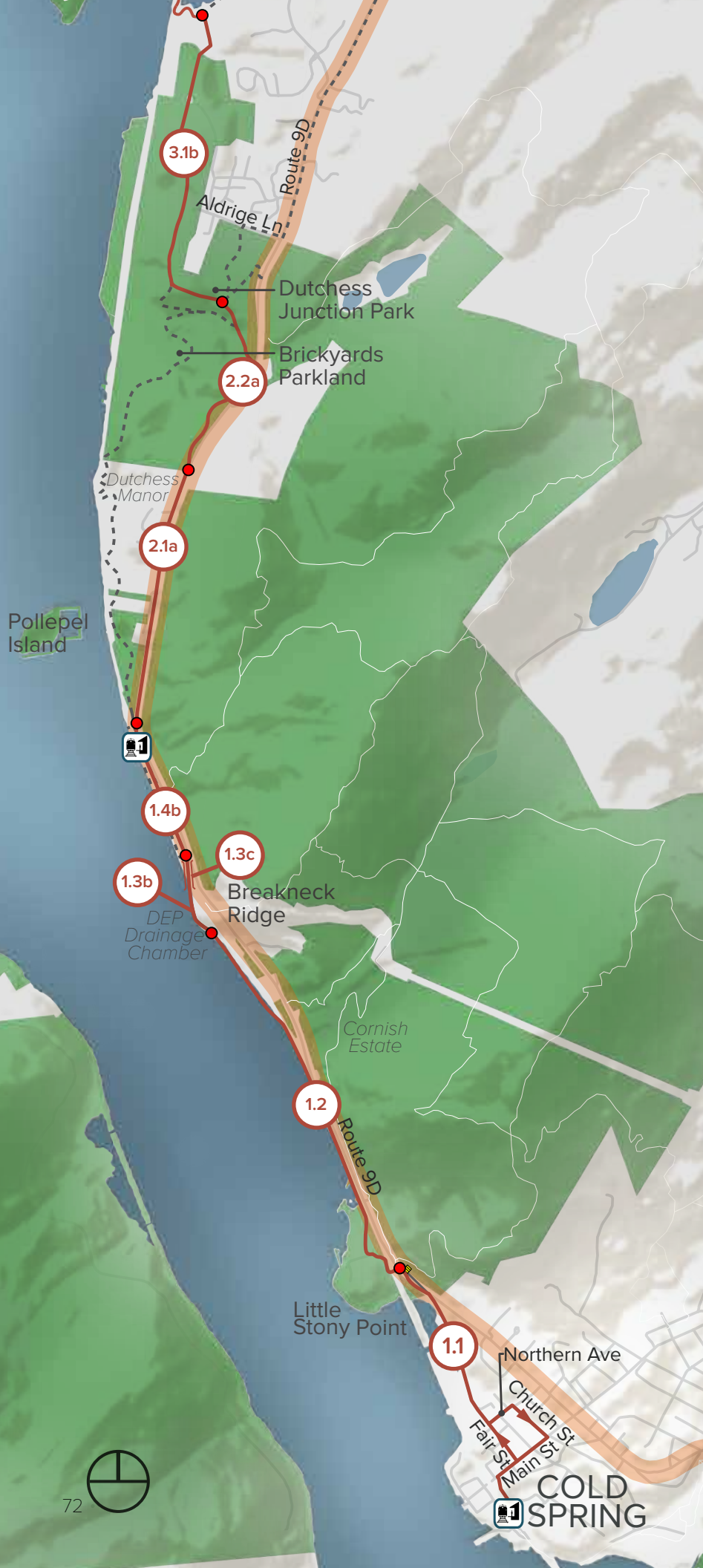


Implementation





Implementation Overview

The overall route is broken down into discrete segments with cost and anticipated regulatory requirements. Where there was more than one alternative considered, additional alignments were included to include cost and construction feasibility.

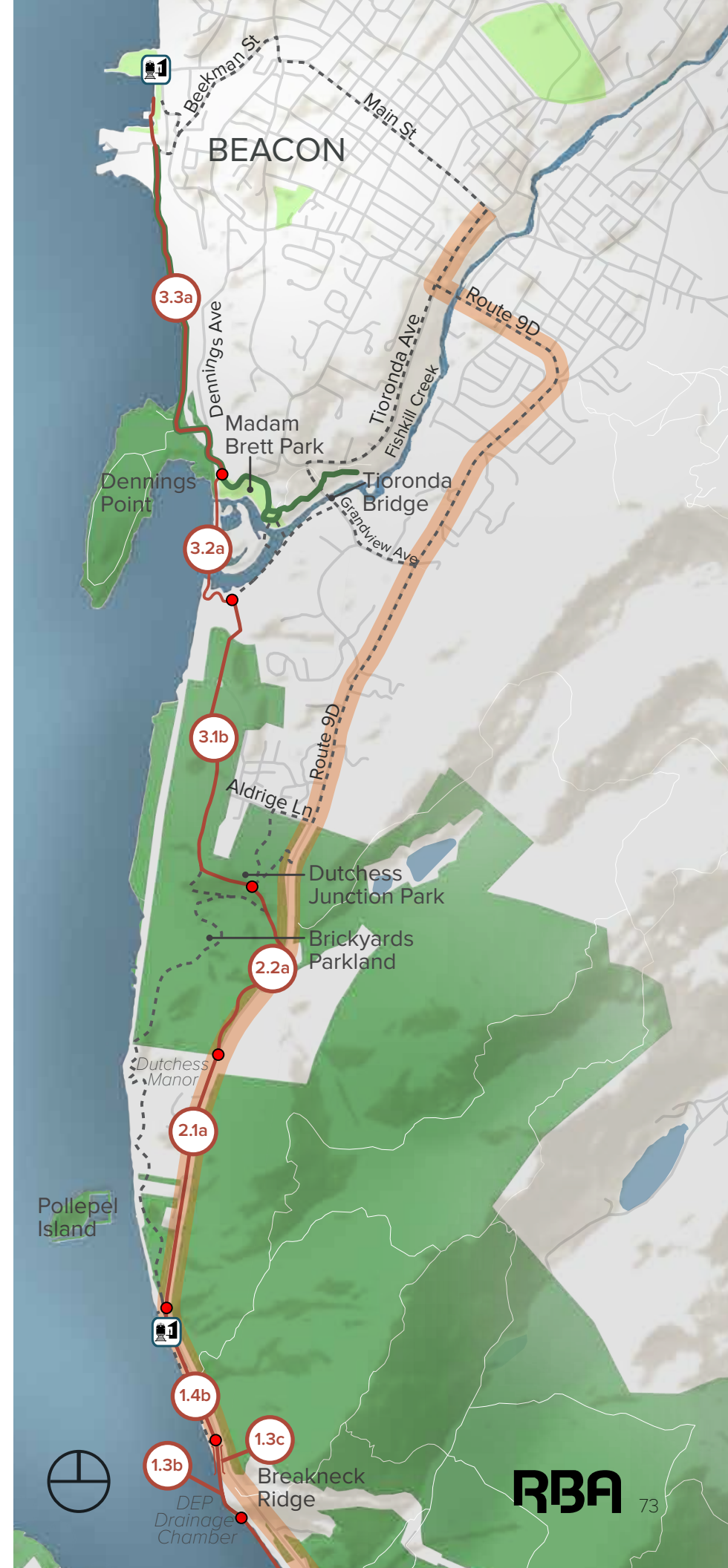
Route Segment	Route Begins	Route Ends	Overview	Distance (linear ft)	Estimated Cost	Involved Agencies	Regulatory Requirements
1 Cold Spring Station to Breakneck Station							
1.1 Cold Spring Station to Little Stony Point							
Train Station area and Main Street	Cold Spring train station at western terminus of Main Street	Fair Street and Route 9D	Shared lane markings, sidewalks, signage	1,470 ft	\$5,000	MNR, Village of Cold Spring	SEQR, SHPO
Fair/Garden Streets to Route 9D/Little Stony Point	Main Street and Garden Street	Intersection of Fair Street and Route 9D	Shared lane markings, sidewalks, signage	3,387 ft	\$35,000	Village of Cold Spring, Town of Phillipstown, DOT	SEQR
Little Stony Point trail	Northwest corner of Fair Street and Route 9D	Pedestrian bridge to Little Stony Point	Multi-use path at grade	642 ft	\$120,000	OPRHP (SHPO)	SEQR, SHPO
1.2 Little Stony Point to Breakneck Ridge							
Shoreline between Little Stony Point and Breakneck Ridge	Little Stony Point pedestrian bridge	Breakneck Ridge headlands	Multi-use path along river's edge including at-grade asphalt path and structures over water	6,600 ft	TBD	MNR, DEC, DOS, ACOE	SEQR, DEC, SHPO, ACOE, DOS, USFWS, NMFS
1.3 Through/Around Breakneck Tunnel/Headlands							
A Breakneck Tunnel	South entrance to Breakneck Tunnel	North entrance to Breakneck Tunnel	Multi-use side path through tunnel with narrowed driving lanes	590 ft	\$200,000	DOT	SEQR, SHPO
B Breakneck Headlands/Shoreline	Beginning of old road bed south of Breakneck Point	North side of Breakneck Ridge headlands	Multi-use path at grade; scramble and/or stair connection to Breakneck Ridge trail	950 ft	\$175,000	MNR, DEC, DOS, ACOE, DEP	
C Bike-Ped bridge over railroad tracks	North side of Breakneck Ridge headlands	Breakneck Ridge trailhead	ADA compliant crossing over the railroad tracks	150 ft	\$600,000	MNR, DOT, DEP	SEQR, SHPO
1.4 Breakneck Connector: Breakneck Tunnel/Headlands to Breakneck Ridge Station pedestrian bridge							
A Shoreline north of Breakneck Ridge	North side of Breakneck Ridge headlands	Breakneck Ridge Station pedestrian bridge	Multi-use trail mostly at grade with some living shoreline segments	2,750 ft	TBD	MNR, DEC, DOS, ACOE	SEQR, DEC, SHPO, ACOE, DOS, USFWS, NMFS
B Along Route 9D (separated)	North entrance to Breakneck Tunnel	Breakneck Ridge Station pedestrian bridge	Multi-use trail partly on structure and partly at grade (2014 CFA Application)	3,113 ft	\$3.7M	MNR, DOT, DEC (wetlands)	SEQR, DEC, SHPO, ACOE, DOS, USFWS, NMFS

Route segments in red indicate preferred alignment

LEGEND

- Routes considered
- Preferred route
- End of route segment
- Traffic calming: widened shoulders (4-5'), coordinated banners/gateway/wayfinding signage

Route Segment	Route Begins	Route Ends	Overview	Distance (linear ft)	Estimated Cost	Involved Agencies	Regulatory Requirements	
2 Breakneck Ridge Station to Dutchess Junction Park								
2.1 Breakneck Ridge Station to Brickyard Parkland								
A	From Breakneck Ridge Station to Brickyard Parkland on Route 9D (eastern upland route)	Breakneck Ridge Station pedestrian bridge	Brickyards Parkland	Multi-use trail along west side of Route 9D, requires shoulder widening	4,440 ft	\$7 Million	DOT	SEQR, DEC, DOT, SHPO
B	From Breakneck Ridge Station to Brickyard Parkland via forest and wetlands (western lowland route)	Breakneck Ridge Station pedestrian bridge	Brickyards Parkland	Multi-use trail traversing steep slopes, partially on structure over wetlands and benched into slopes or on structure over extremely steep grades* Encroaches on private property	4,900 ft	TBD	DEC, Private property owners	SEQR, DEC, DOT, SHPO, ACOE
2.2 Brickyard Parkland to Dutchess Junction Park								
A	Brickyard Parkland to Dutchess Junction Park (eastern upland route)	Southern boundary of Brickyards Parkland adjacent to Route 9D	Dutchess Junction Park	Multi-use trail benched into slopes (or on structure at streams) adjacent to Route 9D and along old roads*	3,520 ft	\$2 Million	OPRHP, DOT	SEQR, SHPO, ACOE
B	Brickyard Parkland to Dutchess Junction Park (western lowland route)	Brickyards Parkland adjacent to Hudson River and wetlands	Dutchess Junction Park	Multi-use trail at grade and on bridges, across wetlands and over extremely steep and heavily forested terrain*	5,920 ft	\$3.5 Million	OPRHP, DOT	SEQR, SHPO, ACOE
* cut and fill, re-grading, retaining walls and/or tree removal required								
3 Dutchess Junction Park to Beacon Train Station								
3.1 Dutchess Junction Park to Fishkill Creek								
A	Brickyards Parkland	Dutchess Junction Park	Historic railroad bed at South Avenue	Multi-use trail through wooded area	6,500 ft	\$2 Million	OPRHP, Private property owners	SEQR, SHPO, ACOE, DOT
B	Route 9D (via Mount Beacon trailhead)	Dutchess Junction Park/Aldridge Lane	Historic railroad bed at South Avenue	Widened shoulder for bicyclists, no continuous pedestrian amenity south of Beacon city limits	13,000 ft	TBD	DOT, Private property owners	SEQR, SHPO
3.2 Fishkill Creek Crossing								
A	MNR causeway	Historic railroad bed at south end	Madam Brett Park trail	Multi-use trail through wooded area, over existing MNR causeway	2,680 ft	TBD	MNR, OPRHP, Town of Fishkill	SEQR, SHPO, ACOE, DOT
B	Bridge across Wetlands	Historic railroad bed at south end	Madam Brett Park trail	Multi-use trail along utility easement, new bridge crossing wetlands	1,350 ft	TBD	DEC, DOS, ACOE, Town of Fishkill	SEQR, SHPO, ACOE, DOT
C	Bridge across Fishkill Creek Mouth	Historic railroad bed at south end	Madam Brett Park trail	Multi-use trail along utility easement, new bridge crossing mouth of Fishkill Creek	1,410 ft	TBD	DEC, DOS, ACOE, Town of Fishkill	SEQR, SHPO, ACOE, DOT
D	Tioronda Bike-Ped bridge crossing	Historic railroad bed at South Avenue	Madam Brett Park parking area	Multi-use trail along utility easement, deck over and restore crossing to meet bicycle and pedestrian guidelines	150 ft	\$400,000	DEC, DOS, ACOE, City of Beacon	SEQR, SHPO
3.3 Madam Brett Park to Beacon Train Station								
A	Existing Trail Network	Fishkill Creek	Beacon Train Station	Route trail along existing paths in Madam Brett Park, Dennings Point and the Beacon Waterfront; informational and wayfinding signage	8,180 ft	\$20,000	Scenic Hudson	SEQR, SHPO
B	Tioronda Ave	Tioronda Avenue and South Avenue	Tioronda Avenue and Main Street	Shared lane markings, no pedestrian amenities	5,690 ft	\$35,000	City of Beacon	SEQR, SHPO
	Main Street, Beacon	Tioronda Ave and Main Street	Route 9D and Beekman Street	Shared lane markings and sidewalks (existing), restripe intersection of Route 9D at Main Street and Beekman Street	4,745 ft	\$40,000	City of Beacon	SEQR, SHPO
	Beekman Street to Beacon Train Station	Route 9D and Beekman Street	Beacon Train Station	Pavement markings and signage for cyclists, sidewalks (existing)	2,340 ft	\$15,000	City of Beacon	SEQR, SHPO



Implementation

Due to the length and technical complexity of this trail, it will be constructed in phases. The phasing will be based in part on available funding for design and construction, the permitting process, and the resolution of jurisdictional issues. However, it is recommended that work begin with the Breakneck Connector segment of the preferred route (Segment 1.4B), as this is where the highest level of activity currently takes place and where on-road safety concerns are greatest. In addition, a portion of the funding applied for in the 2014 Consolidated Funding Application (CFA) process was awarded. This and other segments will be implemented opportunistically over time. Given the complexity of the existing conditions and need for a trail, project partners will attempt to advance additional segments as resources allow, until the trail is complete.

After Breakneck Connector, it is recommended that connections south to Little Stony Point be made, specifically Segments 1.2, 1.3B and 1.3C, the Breakneck Headlands and Shoreline trails. It is believed private funding may be available to cover much of the cost associated with building these two segments. The private funding can be used to leverage government grant funding.

While the shoreline trail south of Breakneck Connector is being designed and permitted (estimated to be a 2-year process) funding for the route segment north of the Breakneck Connector should be pursued, as well as funding for improvements to Dutchess Junction Park. The portion immediately north of the Breakneck Connector involves realigning Route 9D, which is also a lengthy process to survey, design, excavate and build the new section of roadway to the east of the existing road. Improvements in Dutchess Junction Park are minimal and could be implemented in the short- to medium-term. While the parking and park amenities are being completed, arrangements to have trolley service begin in advance should be considered. This multi-phase planning and implementation process should continue until connections to each train station (Cold Spring and Beacon) are made.

In order to obtain the necessary environmental permits, the project as a whole will need to go through the SEQR process. It is recommended that the next step be a Generic Environmental Impact Statement (GEIS), evaluating impacts for the entire route (as opposed to individual segments). As such, an alternatives analysis with many or all of the segments considered in this master plan will be undertaken. The SEQR process will identify a preferred alternative, thereby dictating the segments to be implemented with environmental approvals in place.

An engineering feasibility analysis should be undertaken in cooperation with NYS DEC to accurately determine the full impacts of the shoreline trail between Little Stony Point and Breakneck Ridge. After a detailed engineering survey and geotechnical analysis along with detailed site investigations, the team can make a determination about the feasibility of this alignment.

Route 9D Corridor Improvements

Phasing for the implementation of the Route 9D corridor improvements will likely take place in two parts. Banners, wayfinding and gateway signage can be installed once the public process is complete and a logo and design decided upon. The corridor-wide shoulder widening should be planned and executed by NYSDOT to improve the shoulder condition from the average 1-4' width that currently exists. Once the shoulder widening takes place, it is recommended that Route 9D be considered for re-designation as State Bike Route 9.

Maintenance and Stewardship

The surface material for each segment of trail will be determined during preliminary design. However, there are a number of possibilities to consider that would fit within the environmental and physical conditions along the trail and with the character of individual route segments. As the trail will be open to multiple users, the surface of those segments designed to accommodate cyclists must be suitable for bicycles.

The likely maintenance partner will be the NY-NJ Trail Conference (NYNJTC). The *NYNJTC Trail Maintenance Manual* would allocate a trail crew and individual maintainers using the same system as other trails in their mission area. The standards and methods for patrolling, reporting and clearing will apply to this trail, particularly in segments of the trail in wooded areas. Basic trailway rehabilitation may be conducted by individual maintainers or trail crews, with the sponsor/owner responsible for larger projects or restoration requiring specialized materials or equipment.

The maintenance requirements will depend on whether the trail is at-grade or on a structure, as well as the surface material. Some segments may have additional requirements. These may include gathering scattered compacted gravel, sweeping permeable concrete or unit pavers to maintain maximum permeability, and reporting damage to structures or paved trail surfaces.

In keeping with the goals of the trail design and the *NYNJTC Trail Maintenance Manual*, all maintenance should respect the natural environment to avoid damage to surrounding habitats and other adverse impacts such as erosion.

Trail blazing maintenance may be required at times when trail signage is damaged. Trail signage type and placement will be determined under the Signage and Wayfinding plan and will be implemented as portions of the trail are built. Replacement trail markers should be installed by the sponsor/owner or appointed agency.

Much like the more heavily used hiking trails along the route, trash-can placement and removal will need to take place on a regular basis, and more often during peak season. It is recommended that this regular trash removal be consolidated under a single agency or under local municipalities.

For portions of the trail that are built to ADA standards, damage to the trail surface that would impede access should also be reported.

If overhead utility lines are relocated underground for any portion of the trail, Central Hudson, the local power authority, will be required to access the lines via manhole covers to test annually for stray voltage. If manhole covers are located on the trail itself, this would result in a temporary closure and should be scheduled for off-peak times for non-urgent maintenance.

Educating trail users will instill a sense of environmental consciousness. Educational information on maps and trailhead kiosks can be combined with the NY-NJ Trail Conference Trail Stewards that are currently stationed at major trailheads during peak season.

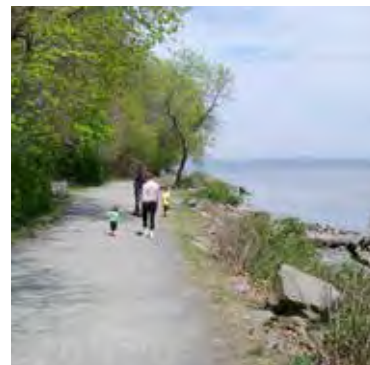
Possible Trail Surface Materials

- Dirt
- Compacted Gravel
- Asphalt
- Concrete
- Permeable Concrete
- Permeable Unit Pavers
- Wood/Composite Plank
- Metal
- Fiberglass

On Structure At-Grade



Dirt/gravel trail in Madam Brett Park



Compacted gravel trail along the Hudson River, Haverstraw State Park



Asphalt trail at-grade



Installation of Storm-crete™ permeable unit pavers



Concrete structure on piles



Fiberglass trail over a wetland

