BEACON-HOPEWELL
RAIL TRAIL
STUDY

Beacon-Hopewell Rail Trail Feasibility Study

FINAL Recommendations

DUTCHESS COUNTY
TRANSPORTATION COUNCIL
Better ways from here to there

October
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DUTCHESS COUNTY
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Better ways from here to there

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Executive Summary

This Feasibility Report builds upon the study's Existing Conditions Report and describes the feasibility of constructing a trail along a 12.5-mile stretch of Metro-North Railroad's Beacon Line, extending from the Hudson River in the City of Beacon to the hamlet of Hopewell Junction in the Town of East Fishkill. Specifically, the report discusses the benefits and challenges of two design options: Rail To Trail and Rail With Trail.

Based on our assessment of existing conditions, constructability, and cost, the most feasible option for this corridor is Rail To Trail: converting the existing rail bed to a multi-use trail.

This option is the most practical and least disruptive: not only would it cost much less than the Rail With Trail option, but it would impose significantly fewer environmental impacts. Importantly, the Rail To Trail option would not preclude future rail use.

Construction of a trail could be done in phases, as noted in the Estimated Costs and Suggested Phasing sections. This would allow segments of the trail to be constructed as other segments are designed. Ideally, segments would be bookended by trailheads, allowing parking and access to the trail from both ends and avoiding a dead-end section.

This report includes concepts for a potential trail, along with considerations for future design work and possible solutions to several design and operational challenges. Key topics include:

- General design characteristics and requirements for a trail.
- Planning level suggestions for bridge rehabilitation and drainage improvements.
- Road crossing options, including ways to navigate Route 9 and the nearby industrial area in Fishkill.
- Proposed connections to existing and future trails, trailhead/access locations, and trail amenities.
- Ways to address environmental constraints, especially related to the Fishkill Creek.
- Planning level cost estimates, including costs associated with tree removal, track and tie removal and disposal, trail construction, road crossings, drainage improvements, bridge construction and rehabilitation, and trailhead improvements.
- Suggested phasing options to construct a trail as funds become available.
- Recommendations for additional assessments to be completed during preliminary design work.

This feasibility assessment included a public outreach campaign to gauge public interest and concerns related to development of a trail within this corridor. The outreach efforts included an online survey, two pop-up engagement sessions at local events, presentations at municipal meetings, and two online public information meetings. In addition to the public outreach efforts, a Study Advisory Committee comprised of key stakeholders such as the local municipalities and involved agencies met at key milestones during the study. The outreach found overwhelming support for a trail and a strong preference for the Rail To Trail option.

Background & Context

The Beacon Line is currently owned by Metro-North but has not supported rail activity for more than thirty years. The corridor was recently abandoned by Metro-North and designated for "Interim Trail Use" by the Surface Transportation Board, meaning the corridor can be converted to a rail trail. The corridor was also "Rail-Banked", meaning it could be converted to a railroad corridor again in the future if the need arises.

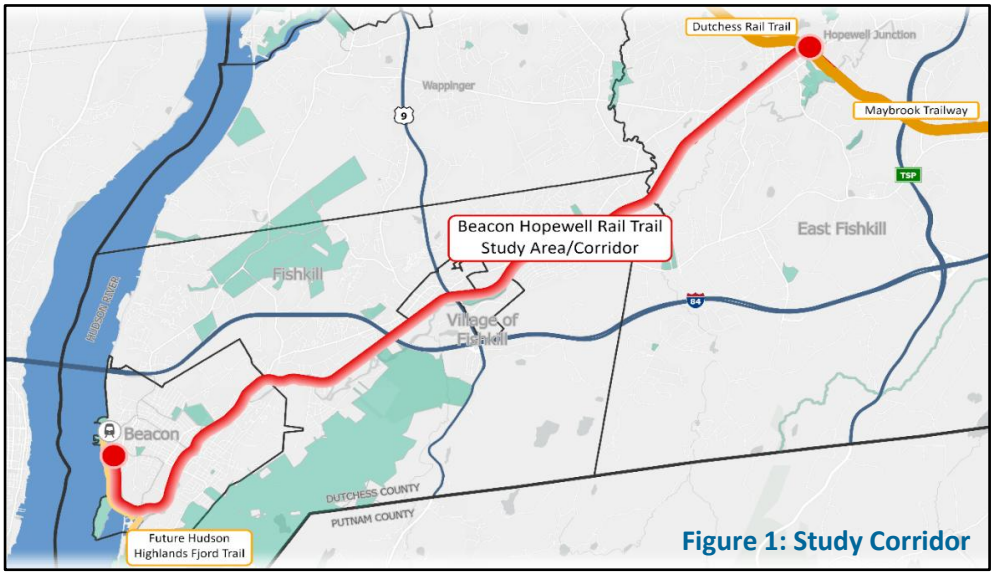


Figure 1: Study Corridor

The corridor travels through the downtown area of the City of Beacon, adjacent to Main St where it meets the Fishkill Creek. Moving east, it runs parallel to Routes 52 and 82 – two major highways in Southern Dutchess – and parallel to the Fishkill Creek. A multi-use trail would offer a non-motorized transportation alternative from the Hudson River-City of Beacon to points east like the Village of Fishkill, and Towns of Fishkill and East Fishkill. It passes by several parks and residential neighborhoods, creating an opportunity to connect residents and visitors with a safe and efficient, non-vehicle alternative. Nearly five miles of the corridor are within the Creek floodplain, and there are several long stretches of the corridor that run along the shore of the Creek.

The Existing Conditions Report details the current infrastructure along the corridor, which includes steel rails and hardware, wooden railroad ties, ballast stone, drainage pipes and culverts, and nine bridge structures (six bridges and three underpasses). It also includes an assessment of natural resources such as streams, wetlands, threatened and endangered species, hazardous materials, floodplain determinations, and historic and cultural resources. That report finds that overall, the corridor is in good condition and conversion to a trail appears feasible.

If construction of a trail were pursued, permits would likely be required from the New York State Department of Conservation (NYSDEC), New York State Department of Transportation (NYSDOT), United States Army Corps of Engineers, and affected local municipalities (City of Beacon, Town of Fishkill, Village of Fishkill, and Town of East Fishkill). Utilities within or adjacent to the corridor and their potential impact on a trail also must be addressed.

Dutchess County is home to several rail trails, such as the WRS Dutchess Rail Trail, Maybrook Trailway (both part of the Empire State Trail), Harlem Valley Rail Trail, and the Northside Line. A Hudson Highlands Fjord Trail is planned along the Hudson River from Beacon to Cold Spring. A trail along the

Beacon Line would complement this network of trails and provide a much-desired trail connection across Southern Dutchess.

Trail Standards & Concepts

This report discusses the benefits and challenges of two design options – Rail To Trail and Rail With Trail – along a 12.5-mile stretch of Metro-North Railroad's Beacon Line, extending from the Hudson River in the City of Beacon to the hamlet of Hopewell Junction in the Town of East Fishkill. Included are a review of trail design standards, road crossing and bridge rehabilitation needs, recommended trailheads, and other design considerations. The report builds upon the Existing Conditions Report and recommends ways to address the challenges associated with the construction of a trail along this corridor.

Multi-Use Trail Design Standards

Trail Design Standards

Design standards for any multi-use trail on this corridor, including either the Rail To Trail or Rail With Trail option, should follow the *Empire State Trail Design Guide (EST Design Guide),* consistent with the connecting trail system in Hopewell Junction (Town of East Fishkill). The EST Design Guide includes standards from other references, such as:

- American Association of State Highway and Transportation Officials (AASHTO) 2012 *Guide for the Development of Bicycle Facilities 4th Edition*
- *Manual on Uniform Traffic Control Devices for Streets and Highways, 2009* (MUTCD)
- New York State Department of Transportation (NYSDOT) *Highway Design Manual* ("HDM")

Standards from these guides were also used to assess the corridor to determine the feasibility of constructing a trail in place of the railroad tracks or adjacent to the tracks.

Additionally, the Americans with Disabilities Act (ADA) requires that new pedestrian facilities be accessible for people with a mobility impairment, such as those who use a wheelchair. ADA standards applicable to the trail design include having no greater than a 2.0% cross slope and a 5.0% running slope, while also providing a trail surface that is firm and stable. Asphalt is the recommended surface for this trail as it is relatively inexpensive and durable and is generally preferred over crushed stone by trail users and for maintenance activities, including winter plowing. Table 1 below shows the recommended design standards for a trail on this corridor, based on the various design guidelines.

Table 1: Recommended Trail Design Standards for the Study Corridor

Element	Standard
Minimum Design Speed	18 MPH
Multi-use Trail Width:	10 ft. (Min.)* 12-14+ ft. (Rec.)
Multi-use Trail Shoulder Width (without railings) **Slope of 1V:6H** **Slope of 1V:3H**	2 ft. (Min.) 3-5 ft. (Rec.) 5.0 ft.
Distance between edge of trail and top of slope without barrier	5 ft.
Maximum Grade (ADA Compliance)	5% (Max.)
Minimum Horizontal Curve Radius	120 ft.
Path Cross Slope (ADA Standard):	2.0% (Max.)
Stopping Sight Distance	300 ft.
Lateral Clearance (from edge of trail)	1.0 ft. (to fence) 2.0 ft. (to obstruction)
Vertical Clearance	8.0 ft. (Min.) 10.0 ft. (Rec.)
Bridge Structure Capacity (Emergency vehicles)	H-20 (40,000 lbs; 20 tons)
Pedestrian Safety Rail Height	42 inches (Min.) 54 inches (Rec. over water feature)

* The established design standard is a 10 ft. width; however, short segments with an 8 ft. width may be adequate in areas of limited physical width or other obstructions. A 10 ft. wide trail should only be used in areas with low to moderate use and low levels of mixed pedestrian and bicyclist use. A 12 ft. or wider trail should be considered in heavily traveled areas, typically near trailheads or in areas of particular interest where gatherings may occur. These areas should be evaluated on a case-by-case basis.

Bridge Loading Standards

New or rehabilitated bridges (including pedestrian bridges over roadways) should follow NYSDOT and AASHTO standards for bridge design. The recommended minimum loading for a trail, both for new and rehabilitated structures, is H-10 for vehicle and pedestrian loading (90-pounds per square ft.). The H-10 loading standard refers to a two-axle, 20,000-pound (10 ton) vehicle, with 16,000 pounds loaded on the rear axle and 4,000 pounds on the front axle. Structures designed to carry an H-10 loading can support light maintenance vehicles (pick-up trucks) and emergency service vehicles (such as ambulances). For pedestrian crossings over roadways, H-10 loading should be sufficient, as access to the trail can be provided by maintenance roads connected to the main road and loaded construction vehicles should not have to cross the bridge.

If a particular bridge is necessary for access to a remote section of the corridor, a greater minimum loading should be used, such as H-20 (20 Ton, 40,000-pound) or greater, depending on the expected

load needed to cross the bridge. It may also be necessary for large vehicles to cross one of the bridges during construction or trail maintenance. A loaded tri-axle dump truck could easily exceed 35 tons (a fully loaded tri-axle truck typically has a 20-ton load combined with an unloaded weight of 15-20 tons).

The minimum loading for new and rehabilitated bridges should be discussed and confirmed with the municipality or agency that will be responsible for trail maintenance.

Trail Width Standards

During the design phase of a potential trail, the number of anticipated users by type (e.g., pedestrians, bicyclists, etc.) should be estimated to select the appropriate trail width, with due consideration of existing conditions. Additionally, during design, the use of pavement markings or other features to separate user types should be investigated. Segments with lower volumes could use a minimum combined width of 10 ft.; however, widths of at least 12 ft. are desirable where possible. A width of more than 12 ft. should be considered in heavily traveled areas, such as near trailheads or areas of particular interest where gatherings may occur. For example, where a trail segment is expected to accommodate high numbers of pedestrians and bicyclists, the trail could include two 5 ft. bicycle lanes and a 6 ft. pedestrian path, for a total width of 16 ft. All three lanes would have pavement markings and could accommodate a high volume of users. These areas should be evaluated on a case-by-case basis during design. The FHWA's *Shared Use Path Level of Service Calculator Guide* provides further guidance on widths.

Mixed pedestrian/bicyclist use is more common around trailheads (usually within one mile) and other destination points, such as at scenic overlooks. One such scenic area is at Bridge #3 looking down at the Fishkill Creek valley. In this area, the trail width from the trailhead at Van Pelt Park to the bridge should be at least 12 ft., with 14-16 ft. preferred to accommodate the anticipated mixed use.

Safety Railing Standards

A safety railing should be considered at specific locations along a trail. AASHTO recommends that a safety railing with a minimum height of 42 in. be included when a clear area of 5 ft. at a maximum slope of 1:6 cannot be achieved and one of the following conditions is present:
Slope is equal to or steeper than 1:3 for a vertical drop greater than 6 ft.

Figure 2: Example of Safety Railing

- Slope is equal to or steeper than 1:2 for a vertical drop greater than 4 ft.
- Slope is equal to or steeper than 1:1 for a vertical drop greater than 1 ft.

- Slope is equal to or steeper than 1:3 adjacent to a parallel body of water or other substantial obstacle.

Engineering judgement should be used when determining the placement of safety railings, balancing the cost to install and maintain the railing with the safety of trail users, particularly in areas with steep slopes.

Option 1: Rail To Trail

Introduction

The Rail To Trail option consists of re-purposing the railroad corridor by removing the railroad tracks and installing a multi-use trail within the former footprint of the tracks. Essentially, this option uses the existing railroad corridor footprint to build the trail. In general, the Rail To Trail option has the following benefits and challenges:

Benefits:

- The trail would be built within the existing footprint of the railroad tracks, requiring minimal to no Right of Way impacts or acquisitions.
- Much of the corridor is in good condition, with only a few areas requiring repair work. Approximately nine miles (75%) of the ballast stone is in very good or excellent condition and would need little work to reuse as a base for a trail, reducing costs and material hauling needs.
- The existing drainage systems and bridges/structures could be more easily rehabilitated to support a trail. 19 of the existing culverts under the railroad could be re-used with little to no modifications.
- A minimal construction footprint would reduce environmental impacts.
- Minimal to no impacts to the adjacent electric utilities.
- Lower cost to build than the Rail With Trail option.

Challenges:

- Some major road crossings would require grade separated structures.
- Removing the existing railroad tracks and ties would require special handling and disposal requirements, since railroad ties contain creosote.
- The communications conduit within the ballast stone must remain functional after construction and may be challenging to build around.
- Eight of the existing culverts would need to be rehabilitated or replaced.

Figure 3: Possible Rail-to-Trail design with a 10-ft bike path and 6-ft pedestrian path within the former rail corridor.

The width of a multi-use trail generally ranges from 12-14 ft., with a 5 ft. shoulder or graded area on each side when adjacent to steep slopes, for a total graded width (trail + shoulders) of 22-24 ft. However, the exact width needed for the trail surface and shoulders will vary based on location (e.g., 12-16 ft. in Beacon vs. 12-14 ft. in East Fishkill) and the physical characteristics adjacent to the trail. A section that is in a 'cut' (where the ground rises above the trail) does not require a 5 ft. shoulder next to the trail, so a narrower shoulder could be used.

Approximately 60% of the railroad corridor averages about 20 ft in width, and the Right-of-Way (ROW) along the corridor is wide enough to support the Rail To Trail option. According to Dutchess County GIS data, the average ROW width along the corridor is 100 ft., which is ample to construct a trail within the existing footprint of the tracks. The corridor does narrow to as little as 12 ft. within the City of Beacon. However, this is directly adjacent to the City-owned ROW of Main St., meaning the trail may include both the ROW owned by Metro-North Railroad and the City. No other ROW acquisitions or requirements are projected to be necessary for the Rail To Trail option.

Structure Modifications

There are six railroad bridges and three overpasses along the study corridor. Each structure carries timber railroad ties and steel rail tracks, and a utility line owned by Metro-North Railroad. To accommodate a multi-use trail, work on each structure would require removing the existing railroad ties and tracks and constructing a new concrete deck with a pedestrian railing. The following section describes the expected scope of work and site limitations for each bridge structure for the Rail To Trail option. Further investigations would be required to determine the full structural capacity of each

bridge to support a multi-use trail. Environmental permitting would be required for any rehabilitation of bridge foundations that would involve in-stream work. See the Existing Conditions Report (Appendix A) for more information on these structures.

Bridge No. 1 (BEA-0.63)

This bridge consists of a 107-foot span through-girder superstructure with a combination stone masonry/steel sheet pile bridge foundation. A through-girder superstructure consists of traffic passing between the girders, as seen in the photo below. This structure is carried over the active Metro-North Railroad Hudson Line.

Figure 4: Existing through-girder structure over Metro-North Hudson Line.

Because of the existing through-girder layout, the total deck width would be limited to a maximum of 13 feet, requiring a narrow trail section on the bridge. Further design investigation should be conducted to maximize the trail width over the bridge, while maintaining the existing bridge configuration. The steel girders and bridge foundations are in fair condition and would only require location-specific steel plate repairs and repairs to the stone masonry.

As this structure is carried over an active railroad line, coordination with Metro-North Railroad and Amtrak would be necessary throughout design and construction, especially concerning any elements of work that may interfere with the railroad activity below the structure. This work is typically done through coordination with the railroad and various divisions of their organizations. Flagging operations, design reviews, construction observation, and limited working time periods are part of the coordination efforts typically required. This work is often referred to and implemented as a Railroad Force Account. These force accounts can be time consuming and would incur a cost that should be addressed during the planning or design phase of a project.

Bridge No. 2 (BEA-0.98)

This bridge consists of stone masonry bridge foundations, with a 19’-6” simple span steel multi-girder superstructure carrying the existing timber rail ties and steel rail tracks.

Figure 5: Stone masonry bridge with steel girders.

The structure would carry a 10 to 12-foot trail with a total deck width of approximately 13 to 15 ft. Further investigation would be necessary to determine the limiting deck width. The bridge foundations are in fair condition and would require only location-specific repairs to the stone masonry.

Bridge No. 3 (BEA-3.74)

This bridge consists of a 78-foot single span concrete arch with concrete bridge foundations; the total structure length is approximately 171 feet.

Figure 6: Existing concrete arch bridge.

On this bridge, the trail could be placed directly on the existing structure with a pedestrian railing along its length and approaches. Further investigation, possibly including an underwater inspection and retrieving concrete samples, would be necessary to determine the strength and stability of the existing concrete arch and bridge foundations. The bridge appears to be in fair condition, with some areas needing concrete repair within the arch, as seen from above the bridge deck and approaches. A full-depth inspection of all accessible elements of the bridge would be required to determine the full extent of necessary repair areas.

Bridge No. 4 (BEA-4.21)

This bridge consists of a three span, 156-foot superstructure with concrete/stone masonry bridge foundations, including two piers. Spans 1 and 3 have steel girders carrying the existing deck from underneath, while Span 2 consists of a through-girder layout, where the deck is carried between the girders, as seen in the photo below.

Because of the existing through-girder layout on Span 2, which would be maintained, the total deck width would be limited to 11 ft., requiring a narrower trail section on the bridge. Further design investigations would be needed to maximize a potential trail section over the bridge. The steel girders are in fair condition, with areas needing location-specific repairs in Span 2 and Span 3. It is recommended to remove and replace the concrete at the top of the piers and bridge foundations, as well as the steel bearings where the girders sit due to their existing state of deterioration. Additional concrete and stone masonry repairs at specific areas along each foundation and pier would also be required.

Figure 7: Existing three-span structure with through-girder section.

Bridge No. 5 (BEA-9.51)

This bridge consists of a two span two-girder superstructure with stone masonry bridge foundations and one steel pier. The total structure length is approximately 99 ft.

Figure 8: Existing two-span bridge with steel pier and stone masonry foundations.

The structure could carry a 10-12-foot trail with a total deck width of approximately 13 to 15 ft., though further investigation would be necessary to determine the limiting deck width.

The steel girders are in fair condition and would require location-specific repairs. Steel plate repairs could be completed on the steel pier, in addition to clearing out the debris caught within the stream. Each of the stone masonry foundations would require repointing the mortar across nearly the entire surface of each foundation. The stream flow against the base of the west side stone foundations have eroded the mortar, and the foundations are undermined by up to 1.5 ft. It is recommended that the bottom 2 to 3 ft. of the west side foundation be encased in concrete and the stream banks across each foundation be armored with stone fill to protect against future damage from stream flows.

Bridge No. 6 (BEA-12.03)

This bridge consists of stone masonry abutments and wingwalls with a 19-foot simple span steel multi-girder superstructure. The structure could carry a 10-12-foot trail with a total deck width of approximately 13-15 ft., though further investigation would be necessary to determine the limiting deck width.

Figure 9: Stone masonry foundation as seen on Bridge 6.

It is recommended to remove and replace the concrete at the top of the bridge foundations, as well as the steel bearings where the girders sit due to their existing state of deterioration. Additional concrete/masonry repairs at specific areas along each foundation and pier would also be needed. Each of the stone masonry foundations would require repointing the mortar across nearly the entire surface of each foundation.

The stream flow against the base of the east side stone foundations have eroded the mortar, and the foundations are undermined by up to 1.5 ft. It is recommended that the bottom 2 to 3 ft. of the east foundation be encased in concrete and the stream banks across each foundation be armored with stone fill to protect against future damage from stream flows.

Option 2: Rail With Trail

Introduction

The Rail With Trail option would build a trail parallel to the adjacent railroad bed. The existing steel rails, timber railroad ties, stone ballast, and any additional railroad infrastructure would remain in place. None of the existing railroad bridges could be modified to accommodate both a trail and train, so new pedestrian/bicycle-only bridges would need to be built. Narrow sections, such as along the Fishkill Creek and through urban areas in the City of Beacon, would require specialized designs and property acquisition to accommodate the needed widths. Tree clearing, culvert extensions, rock blasting, and significant earthwork (excavation and fill) would also be required. In general, the Rail With Trail option has the following benefits and challenges:

Benefits:

- The railroad tracks and bridges would remain.
- The communications conduit within the ballast stone would be undisturbed.
- Simpler process to re-integrate potential future train use into the corridor.

Challenges:

- Significantly higher cost to build than the Rail To Trail option.
- Large construction footprint with significant impacts to areas adjacent to the corridor.
- Several large property acquisitions would be required.
- No re-use of the existing materials or footprint of the railroad. All new materials (stone, asphalt, fill) would be used to build a trail.
- Areas in need of repair within the existing corridor (bridges, culverts, washouts) would remain untouched and continue to deteriorate.
- All 27 existing culverts under the railroad tracks would require extensions to carry the existing streams below the trail.
- Construction of five new bridges would be needed (assuming Bridge 2 crossing is at-grade) totaling over 550 ft. of new bridges.

- Potential impacts to the adjacent electric utilities, as relocations of poles and wires would be needed for the offset between the trail and railroad tracks.
- Significant environmental impacts to streams, wetlands, floodplains, and potential threatened and endangered species habitat.
- Significant disturbance to the floodplain, floodway, and banks of the adjacent Fishkill Creek (five miles of the corridor is located within the floodplain of the Fishkill Creek).
- The timber railroad ties saturated with creosote would remain within the corridor.
- Large area of tree clearing.
- Potential for significant areas of rock removal including hammering and blasting of rock cuts.
- Some segments of the trail may need to be located away from the existing corridor to avoid significant constraints (such as rock cuts), adding cost and construction challenges.

A clearance of 25 ft. from the railroad tracks to the trail is recommended to ensure that the trail is built with future rail operations in mind. Although clearance-width requirements can vary based on the type of train use (i.e., passenger rail vs. freight vs. tourist), the trail would be positioned to remain functional with a train operating at the same time. The width must be sufficient for the tracks and supporting ballast, the buffer space, and the trail. This equates to at least 48 ft., meaning that significant work would be required to extend flat areas to nearly 30 ft. to accommodate the required buffer space and the trail. Approximately 40% of the corridor (five miles) has a flat area centered on the railroad tracks that is less than 20 ft. wide. The Beacon line was primarily constructed as a single-track railroad corridor, meaning there are locations where the clearance between obstacles, such as rock cuts, is as narrow as 14 ft.

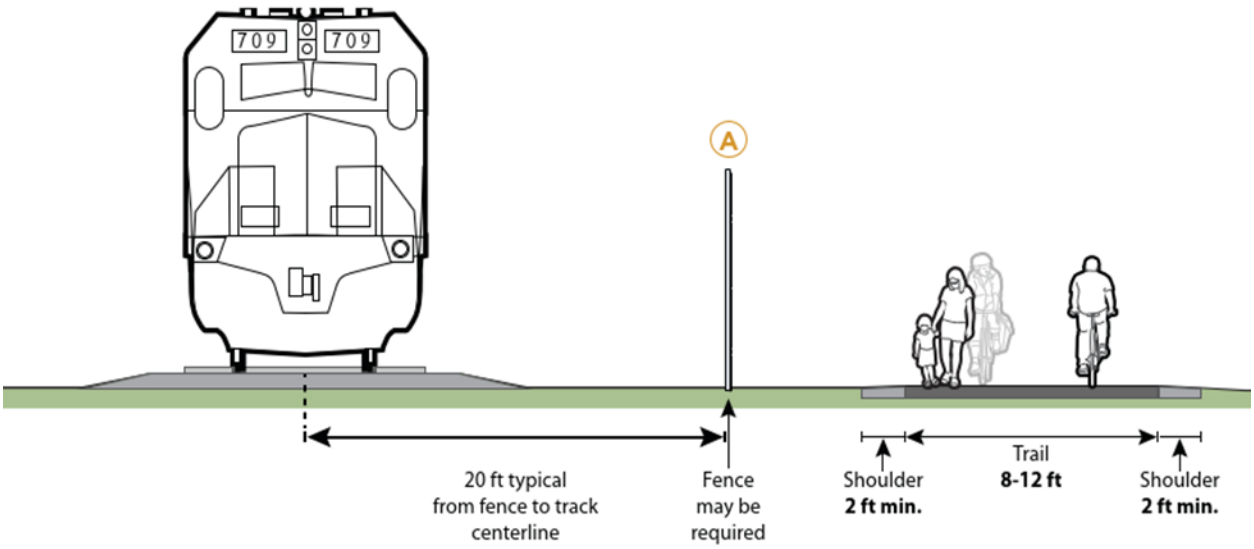


Figure 10: Typical Rail With Trail cross-section showing required 25-ft offset and minimum 8–12 ft trail width with shoulders.

Maintaining this offset would pose numerous challenges along the 13-mile study corridor, especially within the City of Beacon, where the corridor is narrower and physical constraints such as buildings, roadways, and the Fishkill Creek are more prevalent (see examples below in Beacon).

Figure 11: Examples of narrow corridor sections in Beacon with limited space.

Structure Modifications

The Rail With Trail option involves maintaining the railroad bridges in their current locations and constructing either a cantilever structure on each bridge or a standalone bridge next to it to carry trail users. However, the cantilever structure option is not feasible given the significant increase in eccentric (off-center) loading that the bridges would experience. A standalone bridge for trail use is possible at each bridge location; however, there are significant costs associated with this, and there are likely to be significant ROW and environmental impacts as well.

Over 550 ft. of new pedestrian/bicycle-only bridges would need to be constructed adjacent to the existing railroad bridges with this option. One such location is Bridge No. 3 in the Town of Fishkill, which is a concrete arch bridge that crosses the Fishkill Creek. Challenges associated with constructing an additional bridge (offset and parallel to the existing bridge) include rock removal, which would extend more than 400 feet west of the bridge.

Figure 12: Bridge 3 - Town of Fishkill Looking West

All the existing underpass structures could accommodate the Rail With Trail option, but a reduced buffer space between the trail and the railroad tracks would be needed.

Summary of Options

While both options are technically feasible, the Rail With Trail option is much more challenging compared to the Rail To Trail option. Overcoming these challenges, such as the additional ROW, fill, and bridges required, would add significant cost to the Rail With Trail option. The figure below summarizes the two options.

Rail To Trail	Rail With Trail
• Re-use existing ballast stone & bridges • Minimal impacts to environmental features (wetlands, floodplains, established forests) • Remove railroad steel rails & wood ties • Adaptive re-use of a transportation corridor • Little to no property acquisitions required	• Railroad tracks/ties remain in place • Trail offset from tracks 20-25 ft • Significant construction costs due to new bridges, culvert extensions, & significant fill • Extensive environmental impacts to wetlands, floodplains & tree clearing • Physical constraints such as rock cuts, buildings, Fishkill Creek, roadways • Property acquisitions required

Figure 13: Comparison of Rail To Trail and Rail With Trail options

Recommended Concept

Rail To Trail is the most feasible option to construct a trail along the study corridor. This is based on numerous factors including the lower cost and significantly fewer environmental impacts compared to the Rail With Trail option. Dividing the corridor into logical segments, as noted in the Estimated Costs and Suggested Phasing sections, would allow portions of the trail to be built as design and construction funding is applied for and obtained. Ideally, each segment would be bookended by trailheads, allowing parking and access to the trail from both ends and avoiding a dead-end segment.

Funding should be sought as early as possible from federal and state grant opportunities. These funding sources are typically available every few years, which could allow for different segments to be funded by the same source.

Due to the extremely high construction costs, environmental impacts (especially to wetlands and the Fishkill Creek), and added right-of-way needs, the construction of a trail adjacent to the tracks (Rail With Trail) is not recommended. In addition, based on the study's public engagement work, there is less public support for the Rail With Trail option.

Implementation

Suggested Phasing

Based on the existing conditions report and the challenges and recommendations discussed in this report, the conversion of the study corridor to a multi-use trail is feasible from an engineering and environmental perspective. However, since the cost of constructing a trail likely exceeds what any single funding source could provide, trail development could be phased, so that segments of the trail are designed and constructed at different times. This would allow for some trail segments to be built while funding for other segments is secured.

Construction should occur in logical phases based on the amount of funding that is obtainable, the length of the segment, accessibility to potential trail users and connections to other trail networks. This will provide the greatest benefit while funding is sought for other segments of the trail. Trail segments (i.e., phases) should have logical end points with a trailhead to avoid dead-ends for trail users. Suggested segments include the following, from west to east:

- Klara-Sauer Trail at the Hudson River (City of Beacon) to Jean Van Pelt Park (Town of Fishkill): This segment is 3.6 miles long, includes three bridges, and has logical trailheads at both ends. This is likely to be the most heavily used section of the trail due to the high population density in the City of Beacon.
- Jean Van Pelt Park (Town of Fishkill) to Jackson St/Chips Ln (Village of Fishkill): This 2.0 mile segment has potential trailheads at both ends, one bridge, and would include a temporary

trailhead/parking area near Jackson St/Chips Ln and the Village of Fishkill Sewage Treatment Plant.

- Route 9 Crossing and Industrial Area (Village of Fishkill): This 0.4 mile segment includes a route through or around the Industrial Area owned by Montfort Bros., Inc. and a bridge over Route 9, ending at Sarah Taylor Park.
- Sarah Taylor Park (Village of Fishkill) to Doug Phillips Park (Town of Fishkill): This segment is approximately 1.7 miles long and does not involve major design challenges. However, it is almost entirely within the 100-year floodplain of the Fishkill Creek. Doug Phillips Park (Town of Fishkill) to Hopewell Depot (Town of East Fishkill): This 4.1 mile segment includes two bridges and encroaches into the floodplain of the Fishkill Creek.

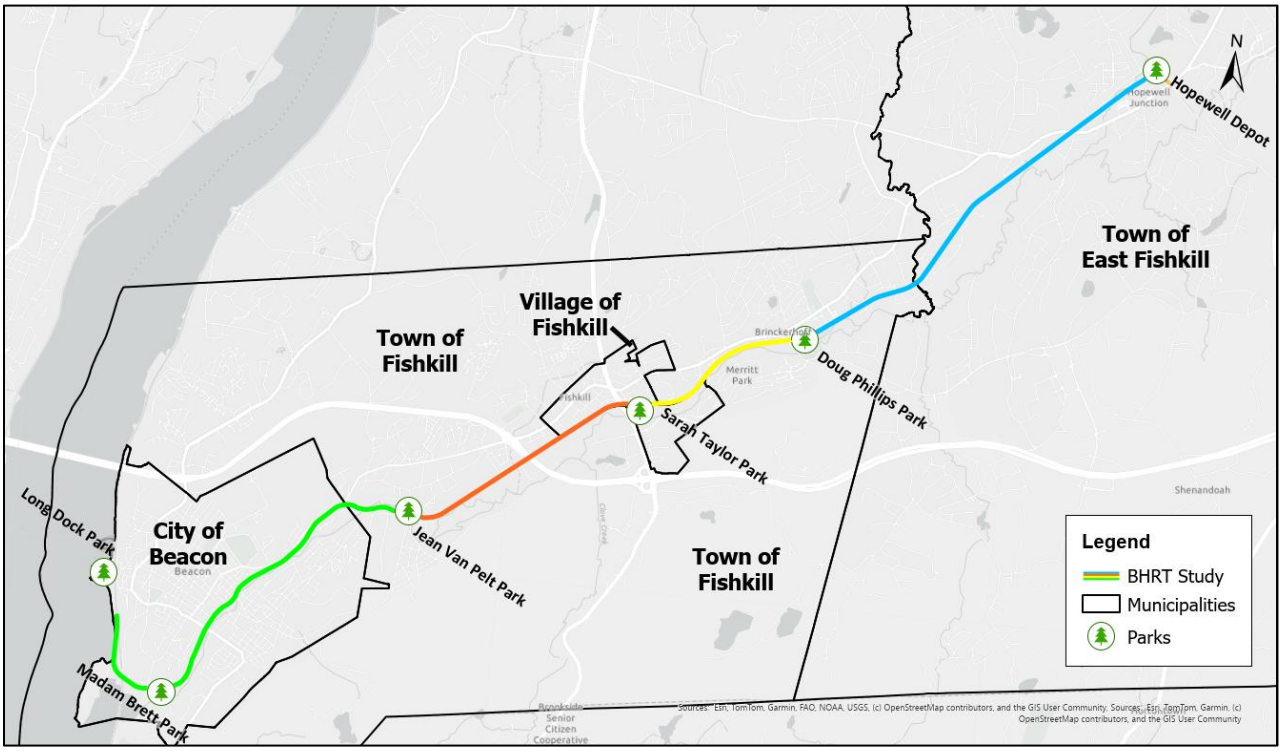


Figure 14: Suggested trail construction phases by segment, from Beacon to Hopewell Junction, aligned with logical trailheads.

Estimated Costs

Based on the assumptions listed below, the Rail To Trail option is estimated to cost about $46-$56 million, while the Rail With Trail is estimated to cost $130-$150 million. The estimated construction costs for each option (by phase) are detailed in Tables 3 and 4 at the end of the report. The estimates include recommended trailhead improvements at existing parks, major and minor road crossings, bridge rehabilitations, and new bridge constructions (for Rail With Trail). Cost estimate assumptions for both options are outlined below:

Rail To Trail:

- Minor clearing and grubbing activities.

- Steel railroad tracks and other steel materials are salvageable and will offset the cost of removal and recycling.
- No extensive excavation or fill activities are needed.
- 3 inches of subbase (crushed) stone is placed on top of the existing ballast course.
- 4 inches of asphalt pavement is placed at varying widths as recommended in this report.
- 25% of the corridor will need new drainage swales.
- 2 new drainage pipes will need to be installed for every mile of trail.
- The trail can be built adjacent to the Route 9 Industrial Area.
- Each of the trailheads includes a parking expansion for 20 vehicles.
- Trailheads include amenities such as an informational kiosk, signs, benches, picnic tables, and access from the parking area to the trail.
- Estimates include bridges over Routes 9, 52 and 82 with a fill type retaining wall to establish the ramps up to the bridge over the roadway.
- Existing railroad bridges can be rehabilitated according to the recommendations listed in this report.

Rail With Trail

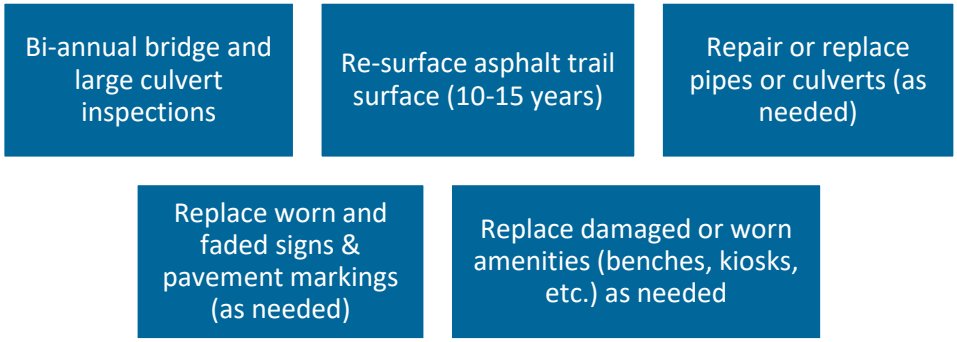
- Significant clearing and grubbing activities.
- An asphalt trail would be constructed on the south side of the railroad tracks, offset 20-25 ft. from the tracks.
- The trail width varies as recommended and includes 6 inches of subbase and 4 inches of asphalt.
- Significant fill and excavation activities are required to establish the required buffer space between the tracks and the trail.
- Rock removal is required in any area where the railroad passes through a rock cut.
- The trail can be built adjacent to the Route 9 Industrial Area.
- All existing drainage pipes and culverts will need to be extended by 40 ft.
- Major and Minor Road Crossing treatments are the same as the Rail To Trail option.
- New bridges would be built adjacent to the existing railroad bridges and assume heavy vehicle loading for construction and maintenance purposes.
- Trailhead costs and improvements are the same as the Rail To Trail option.

Maintenance

In addition to construction costs, a trail would entail ongoing labor and materials costs for maintenance items. Maintenance activities for a trail range from mowing shoulders during the summer to snowplowing during the winter, as well as bi-annual inspections of the bridges and re-surfacing the asphalt (approximately every 15 years). Below is a list of typical maintenance activities for trails.

Continuous Maintenance Activities:

Semi-Annual and Long-Term Maintenance Activities:



Funding Opportunities

There are several potential funding sources for multi-use trails. Most federal transportation funding comes from the multi-modal federal transportation law in effect at the time. To use federal transportation funding, a project must be consistent with an overall transportation plan, such as Moving Dutchess Forward, and be added to the DCTC's Transportation Improvement Program (TIP). For more information, see the DCTC's webpage on Federal Highway Funding and the USDOT Grants webpage.

The project sponsor should be aware that the sources listed below are reimbursement programs, which require the sponsor to first instance costs and then request reimbursement. Most of the programs also require the sponsor to provide a portion of the total grant amount as a local match.

Transportation Alternatives Program (TAP), Congestion Mitigation Air Quality (CMAQ), and Carbon Reduction Program (CRP): Federal funds are available for the construction of pedestrian and bicycle facilities and pedestrian related improvements. NYSDOT manages these programs through a

competitive, statewide application process, typically every two years. Program elements include:

- 20% local match
- Federal-aid procedures apply
- Design & Construction costs: Minimum = $500,000; Maximum = $5 Million

In 2023, $98 million was distributed across the state in TAP, Congestion Mitigation (CMAQ) and Carbon Reduction Program (CRP) funds.

DCTC Transportation Improvement Program (TIP): The DCTC periodically opens a call for projects when funding is available for specific federal programs. Project sponsors would need to provide a 20% local match and follow federal aid procedures as with the above TAP, CMAQ, and CRP programs.

Active Transportation Infrastructure Investment Program (ATIIP)*:* This FHWA funding program supports projects that connect active transportation networks, accelerating local plans to create safe and convenient walking and biking routes to everyday destinations and fill gaps in trails. In 2024, construction grants had a minimum total cost of $15 million and required a 20% local match. This program may change based on federal priorities.

Congressional/State Appropriations or Earmarks can be sought from federal or state congressional representatives. For federal appropriations, sponsors would need to follow the federal-aid process.

NYSOPRHP Recreational Trails Program (RTP) provides funding for the development and maintenance of recreational trails or trail-related facilities. RTP funding is available through the FHWA and administered by the New York Office of Parks, Recreation and Historic Preservation (NYSOPRHP). RTP funds can be applied for through the NYS Consolidated Funding Application (CFA). $3 million was available statewide during the 2025 CFA application period. Program elements include:

- 20% local match
- Federal-aid procedures apply
- Design & Construction costs: Minimum = $25,000; Maximum = $300,000

NYSOPRHP Environmental Protection Fund (EPF) provides funding for the development and planning of public parks and recreational facilities. EPF projects can be applied for through the NYS CFA. $26 million was available statewide during the 2025 CFA application period. Program elements include:

- EPF will fund up to 50% of total project cost
- Design & Construction costs: Minimum = $25,000; Maximum = $675,000

Potential Project Sponsors

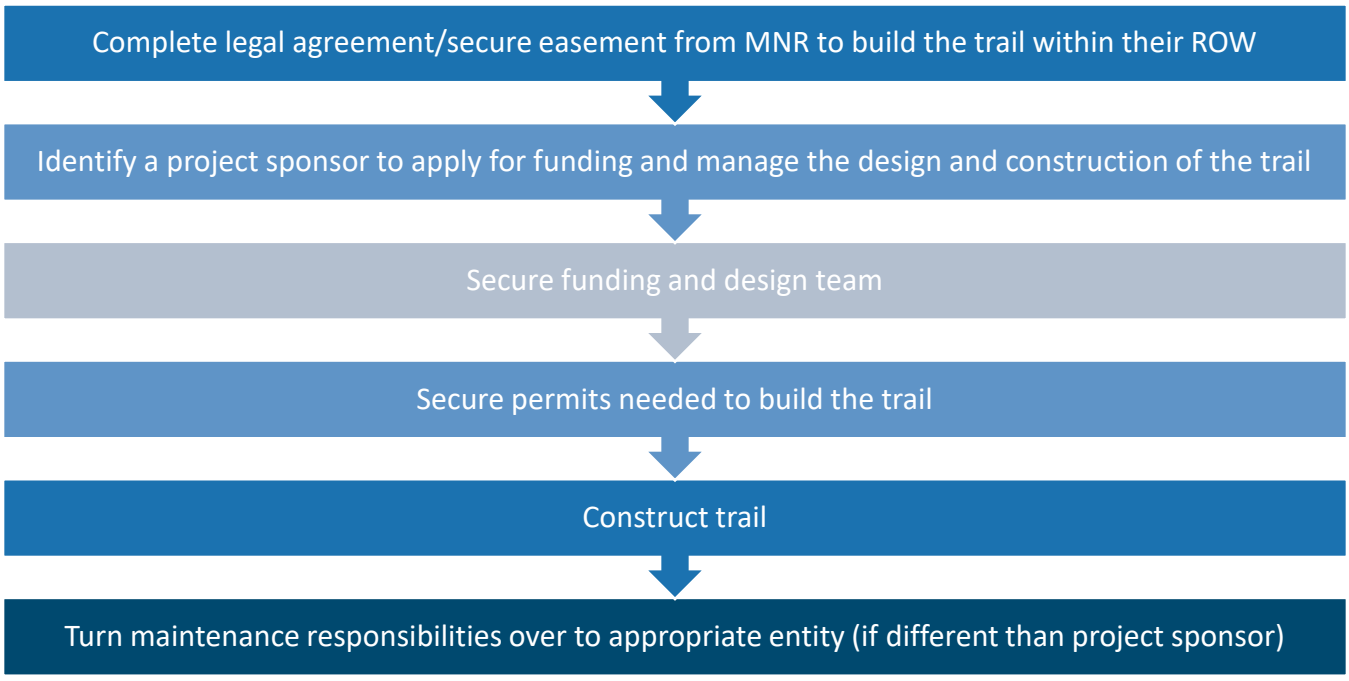
A project sponsor is the municipality, public agency, or private entity responsible for securing funding and approvals for the project, communicating the intent of the project to the community and

stakeholders, and managing the project's design and construction. Equally important, the sponsor often assumes maintenance responsibility for the finished project. For this potential trail, entities could be sponsors for the entire trail or for certain segments. Potential sponsors could include the NYS Office of Parks, Recreation and Historic Preservation (NYSOPRHP), Dutchess County, or private entities such as Scenic Hudson or the Open Space Institute.

Local municipalities along the corridor (the City of Beacon, Town of Fishkill, Village of Fishkill, and Town of East Fishkill) could also act as project sponsors for phases or segments of the trail. However, if the trail segments are connected, one entity should oversee the entire trail to maintain continuity and consistency between the phases, including consistent trail materials and design standards.

Next steps

The next steps to transform this corridor into a trail revolve around the availability of construction funding. There is significant support for a trail from the public and elected officials. The major milestones to transform this corridor into a trail are outlined below.



Additional Design Considerations

In addition to the Rail To Trail and Rail With Trail options assessed for the study corridor, several other challenges, opportunities, and potential solutions were evaluated that are applicable to both trail options. These include overpass structures, roadway crossings, trailhead locations, trail amenities, and connections to communities and other trail networks.

Overpass Structures

There are three overpass structures on the study corridor. There is adequate horizontal and vertical clearance available at each structure to construct a trail in place of the tracks or adjacent to the tracks. The horizontal and vertical clearance for each structure is listed below:

- Overpass 1 (BIN 1006350) carries Wolcott Ave (NYS Route 9D) over the Beacon Line in the City of Beacon. The vertical clearance between the tracks and the low chord of the bridge is greater than 15 ft. The clear span between the bridge foundations is approximately 37 ft.
- Overpass 2 (BIN 1032480) carries I-84 over the Beacon Line in the Town of Fishkill. The vertical clearance between the tracks and the low chord of the bridge is at least 15 ft. The clear span between the bridge foundations is approximately 80 ft.
- Overpass 3 (BIN 1032300) carries NYS Route 82 over the Beacon Line in the Town of East Fishkill. The vertical clearance between the tracks and the low chord of the bridge is at least 15 ft. The clear span between the bridge foundations is approximately 100 ft.

Figure 15: Overpass Structures 1 (Left), 2 (Center), and 3 (Right).

Road Crossing Alternatives

This study categorizes roadway crossings as Major or Minor based on the volume of vehicles at each location, known as the Average Annual Daily Traffic (AADT). Major Crossings have more than 1,000 vehicles per day and Minor Crossings have fewer than 1,000 vehicles per day. The study corridor crosses seven major roads and 21 minor roads. The Existing Conditions Report (see Appendix A) provides more information on these crossings, including a technical memo that was reviewed by NYSDOT (their comments were incorporated into this report). Note: the cost estimates discussed later in this report assume bridges over Routes 9, 52, and 82.

Trail user safety is of the utmost importance at a roadway crossing. There are generally two methods for a trail to cross a roadway: At-grade or grade-separated. At-grade is where the trail crosses the roadway using the same surface, such as with a crosswalk. Grade-separated crossings are where the trail crosses over or under the road using a bridge or tunnel. Grade separation is the safest, as it separates trail users from vehicles. However, these types of crossings are the most expensive. Currently, all of the crossings are at-grade except for the three overpasses that carry Wolcott Ave, I-84, and Route 82 over the railroad tracks.

As most of the crossings are at-grade, the most practical solution would be to provide features and treatments to warn both trail users and road users that there is a crossing present. An ideal at-grade roadway crossing has a variety of features to warn trail users that there is a roadway crossing present, and to warn roadway users that pedestrians and bicyclists may be crossing the roadway. Roadway crossings should include each of the following components:

- Emphasis on safety for both roadway and trail users.
- Clear visibility and sight lines for vehicles and trail users near the crossing.
- Trail crossing at a right angle to the roadway and conspicuous to both drivers and trail users.
- Appropriate traffic control (signs, pavement striping, RRFB's, etc.) at the crossing.
- ADA compliant features.
- Speed reduction for path users and motorists.
- Trail entrance control.

The typical trail-road crossing would include, at a minimum, a marked crosswalk and pedestrian/cyclist (W11-15) warning signs at the crossing point with the downward pointing diagonal arrow (W16-7P) and in advance of the crossing with an "Ahead" plaque (W16-9P) below it. Additional measures to warn road users that a crossing is present include Rectangular Rapid Flashing Beacons (RRFBs), a traffic signal, or a Pedestrian Hybrid Beacon, also known as a High-intensity activated crosswalk beacon (HAWK signal). The images below were extracted from the EST Design Guide and depict the four most common crossing treatments from the perspective of a vehicle approaching a trail crossing (signage, RRFBs, traffic signal, and HAWK signal):

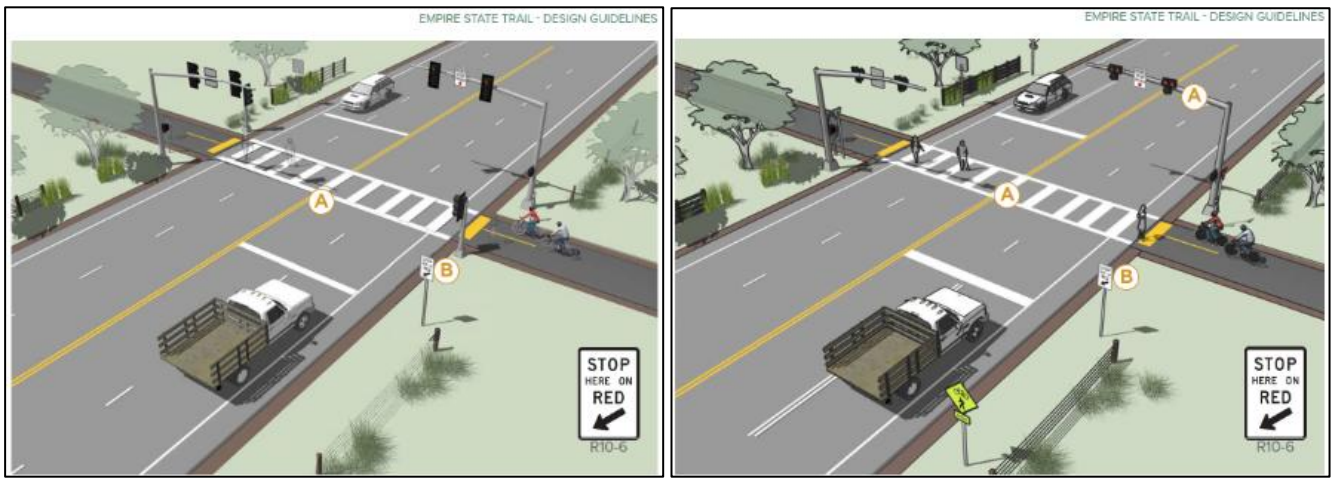


Figure 16: Typical Traffic Signal (left) and HAWK Signal installation (right).

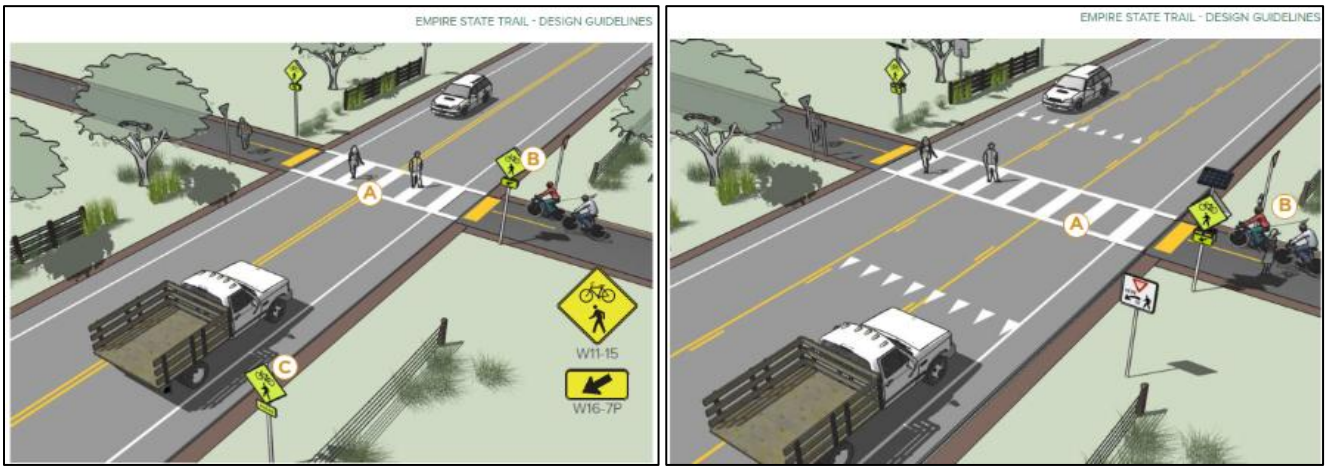


Figure 17: Typical Signage and Striping (left) and RRFB installation (right).

Rectangular Rapid Flashing Beacons (RRFBs) consist of a rapid, high intensity flashing yellow beacon mounted to a standard pedestrian warning sign at an uncontrolled crosswalk. The beacons are activated when a person pushes a button to cross the roadway. These are relatively low cost and are highly effective at improving the yield rate of drivers at marked crosswalks. RRFBs can be solar powered or hard-wired into the electric grid to provide electrical power. Additional signage and pavement markings such as Yield Lines and “Yield Here to Pedestrians” signs can also be installed in advance of an RRFB.

Installing a traffic signal or re-routing the trail to cross at an intersection would have the highest level of both vehicular and pedestrian safety for at-grade trail crossings. A signal warrant analysis would need to be performed prior to progressing the installation of a traffic signal and a traffic study would need to be performed to assess the need to coordinate the new signal with any existing signals in the area. The signal warrant analysis would need to meet the requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

If a signal warrant analysis does not indicate that a full traffic signal is appropriate at an intersection, the MUTCD states that a HAWK signal may be installed to facilitate pedestrian crossings instead. A HAWK signal would have a similar effect as a traffic signal, by stopping vehicular traffic when activated by a trail user. When the signal is not activated, the signal heads would be dark, allowing vehicles to travel through the intersection freely. Upon activation by a pedestrian or cyclist, the stop sequence begins with flashing yellow lights and changes to a solid red light for approaching vehicles and a walk symbol for pedestrians. HAWK signals are typically installed at mid-block crossings but can also be installed at intersections.

Additional factors that should be considered for at-grade crossings include vegetation clearing to improve visibility for drivers and trail users, realignment of the trail to cross at a right angle, and installation of ADA compliant features such as curb ramps and decetable warning pads.

The crossing alternatives that would provide the highest level of safety for trail users is a bridge over the roadway or a tunnel under the road. This eliminates the conflict point between vehicles and trail users and allows both to operate without interaction. However, this option is generally the most expensive to construct and would require the most space to build. A typical bridge crossing would need to be elevated approximately 20 ft. above the roadway, and would require nearly 400 ft. long ramps on each side at a maximum grade of 5% (per ADA) to elevate the bridge over the roadway. A tunnel would need similar ramps, but poses other challenges associated with the amount of excavation required and the potential for flooding.

The following sections detail the recommended crossing treatments at each of the seven major road crossings and 21 minor road crossings. These recommendations would apply to both the Rail To Trail and Rail With Trail concepts and were developed using guidance from the AASHTO and FHWA trail crossing design manuals.

Major Roadway Crossings

The major roadway crossings involve roads with more than 1,000 vehicles per day. These include the crossings of Routes 9, 52, 82, and 376, Washington Ave in the Town of Fishkill, and Churchill St and East Main St in the City of Beacon. A crossing recommendation memo is included in the Existing Conditions report (see Appendix A). The memo assessed the existing conditions at each crossing, evaluated several crossing concepts, and recommended a concept for each location. The memo was provided to NYSDOT for their review and comment. Below is a brief discussion of the existing conditions and the recommended concept for each major crossing.

Churchill St. (City of Beacon)

Churchill St. has a speed limit of 30 mph, an AADT of approximately 1,631 vehicles/day (vpd), a crossing length of 25 ft., and is in a downtown business district. The crossing is 100 ft. south of the intersection of Main St. and Churchill St. The recommended crossing treatment at this location is high visibility crosswalk markings, advanced pedestrian warning signs, improved lighting, and the installation of Rectangular Rapid Flashing Beacons.

Figure 18: Churchill St. in Beacon

East Main St (City of Beacon)

East Main St. has a speed limit of 30 mph, and AADT of 5,163 vpd, a crossing length of 55 ft., and is in a small city downtown. The railroad crossing is adjacent to the intersection of East Main St. with Main St. and is unsignalized with stop control on East Main St., although there is a flashing light in the center of the intersection (known locally as the dummy light). The recommended trail crossing treatment includes shifting the trail crossing closer to Main St., combining the crossing with the existing crossing, and installing advanced trail crossing warning signs and a raised median that incorporates the "dummy light".

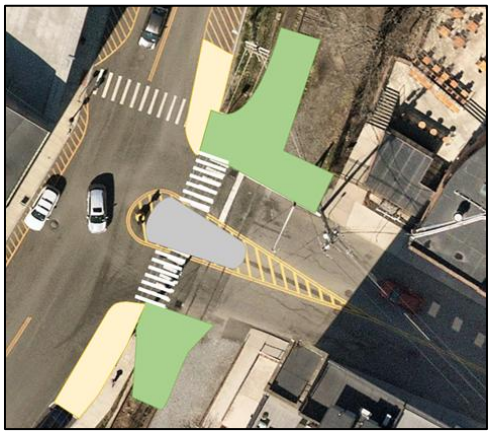


Figure 19: Proposed trail crossing at East Main St.

Washington Ave (Town of Fishkill)

Washington Ave has a speed limit of 30 mph, an AADT of 5,735 vpd, and a crossing length of 27 ft. The recommended roadway crossing treatment here includes the installation of RRFBs, realigning the crossing to intersect with Washington Avenue at a right angle, shifting the alignment to the north about 10-15 ft., and installing high visibility crosswalk markings and advanced trail crossing warning signs.

US Route 9 (Village of Fishkill)

The existing railroad crossing of Route 9 in the Village of Fishkill is the most complicated and challenging crossing along the study corridor. The rail line crosses the six-lane highway (three lanes in each direction) at a skew (angle) and the crossing is approximately 140 ft. in length. The AADT is 38,200 vpd and the posted speed limit is 40 mph, although speeds often exceed the posted limit. Traffic at the nearby intersection of Route 9 and Elm St often backs up across the railroad tracks, especially during peak hours. Given the existing conditions and traffic operations at this crossing, a bridge over Route 9 is recommended. A tunnel under Route 9 would be challenging as this area is adjacent to the Fishkill Creek and within the 100-year floodplain, creating potential drainage issues related to flooding. The bridge crossing is more feasible, although it is not without challenges. There are overhead high-voltage electric utility lines that parallel Route 9, and floodplain regulations that apply to new structures within floodplains.

Figure 20: Example of a rail trail bridge – WRS Dutchess Rail Trail over State Route 55.

Another consideration for the Route 9 crossing is the industrial site located directly west of the crossing. The recommended bridge over Route 9 would have to navigate this site as well, and the approximately 400 ft. long ramps (required to meet ADA slopes of 5%) would be within that site. Circular, spiral ramps could be constructed to contain the ramps to a smaller footprint than a linear ramp. The transition from the industrial site to the bridge over Route 9 should be determined during the design phase, once the option to navigate the industrial site has been determined. For further discussion of the industrial site, see the Route 9 Industrial Area section below.

NYS Route 52 (Town of Fishkill)

Figure 21: Railroad crossing at NYS Route 52

Route 52 is owned and maintained by NYSDOT and has an AADT of 12,801, a posted speed limit of 45 mph, and a crossing length of 42 ft. at an angle. There is a traffic signal at the nearby intersection of Route 82 (300 ft. to the north), and traffic often backs up across the railroad tracks. Due to these factors, the recommended crossing improvements include installation of a Pedestrian Hybrid Beacon (aka HAWK signal), which would bring traffic to a complete stop when a trail user activates the signal. Another concept that should be considered is a grade separated crossing. A bridge or tunnel would provide the greatest degree of safety for trail users, would not impact traffic operations, and may be required by NYSDOT. However, grade separation would be much more expensive and would require a long approach to cross over or under the roadway and maintain ADA compliance.

NYS Route 82 (Town of East Fishkill)

Similar to Route 52, Route 82 is owned and maintained by NYSDOT and has a high volume of traffic. The crossing is adjacent to the intersection of Palen Road with Route 82 and crosses Route 82 at a skew. Route 82 has a posted speed limit of 35 mph and an AADT of 18,364 vpd with a crossing length of approximately 80 ft. The recommended crossing concept is to modify the intersection of Route 82 and Palen Rd. and direct trail users to cross at that intersection. The existing signal would be equipped with pedestrian crossing signals and crosswalks would be added. A traffic analysis of the intersection should be included in the design phase to assess the existing intersection and optimize the traffic signals. As with the Route 52 crossing, the design phase should also investigate a grade separated crossing for this location, as that may be required by NYSDOT.

Figure 22: Railroad crossing at NYS Route 82 and the adjacent intersection of Palen Rd.

NYS Route 376 (Town of East Fishkill/Hamlet of Hopewell Junction)

NYS Route 376 has a posted speed limit of 35 mph, an AADT of 6,219 vpd and a crossing length of about 30 ft. The roadway is situated in a hamlet/commercial setting and there is a sharp 90-degree curve north of the crossing. This crossing includes the current starting point for the Junction Loop trail that extends from Route 376 to the Hopewell Junction Depot (and the trailhead for the Maybrook Trailway and WRS Dutchess Rail Trail). Based on the existing characteristics, the recommended crossing concept includes the installation of RRFBs and trimming the vegetation around the sharp curve north of the crossing to improve visibility for approaching vehicles. As with the other State highway crossings, NYSDOT may request that grade separation be considered. However, a bridge over or tunnel under this road is not recommended by the AASHTO guide for the development of bicycle facilities, based on the roadway's characteristics. A similar trail crossing to the north (Dutchess Rail Trail at Route 376) is at-grade. The Town also has a desire to realign Route 376 and assume control of its current alignment as a Town road that could possibly be dead ended, mitigating the need for a grade separated crossing.

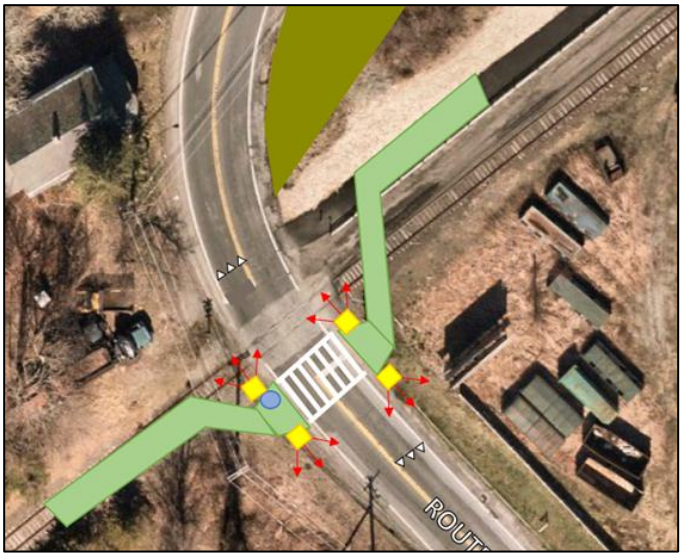


Figure 23: Proposed crossing at NYS Route 376, includes RRFBs and vegetative clearing.

Minor Roadway & Driveway Crossings

There are various types of minor crossings, including residential roads, driveways, and gravel maintenance roads. Since the rail line currently intersects with these minor roadways at grade, and the roads have low traffic volumes, all of the minor roadway crossings would remain at-grade. Traffic controls installed at the minor crossings would vary based on the characteristics of the crossing, such as the road surface, vehicle volumes, and the type of crossing. Table 2 below shows the recommended treatment for each minor crossing, based on engineering guidance and judgement. During the design phase of a trail, each crossing should be re-evaluated for any change in conditions that may require a different crossing treatment.

Table 2: Recommended Treatments for Minor Road Crossings*

Minor Road Name	Bike/Ped Crossing Warning Signs	Crosswalk Markings	Notes
Dennings Ave	X	X	
Arno Driveway	X	X	Apartment Complex
Park Driveway	X	X	
Mill St		X	Realign crossing closer to Route 52
Commercial Driveway	X	X	
Petticoat Ln	X	X	
Pump House Rd	X		
Blodgett Rd	X		
Industrial Driveway	X		
Jackson St	X	X	
Old Main St	X	X	
Pardy Ln	X	X	
McGrath Terr	X	X	
Mountain View Rd	X	X	
Residential Driveway	X		
Lomala Ln	X	X	
Fishkill Creek Rd	X	X	
Broadway	X	X	
Maintenance Road	X		Gravel road
Maintenance Road	X		Gravel road
Helin Rd	X	X	

*Note: Advanced warning signs are not recommended for these minor road crossings.

Trail Entrance Control

Trail entrance control at a road crossing or other trail access point serves two purposes: it deters unauthorized (and potentially unsafe) access to the trail by motor vehicles (such as ATVs, cars, trucks,

etc.) and it notifies trail users that they are approaching a road crossing. Road and trail signs alone generally do not deter access or attract the attention of trail users. The AASHTO bicycle facility design guide notes that bicyclists typically exhibit poor compliance with stop signs at roadway crossings and will typically yield at these crossings rather than come to a complete stop.

Physically altering the trail geometry as it approaches a roadway is recommended to encourage bicyclists and other users to slow down as they approach the crossing. Narrowing the path and adding a low curbed median provides a physical change to the trail conditions, which slows cyclists as they approach the crossing. A low curbed median also deters unauthorized access, as many drivers will not want to drive over the median. Flexible bollards can also deter the average driver, but be driven over by an emergency vehicle if needed. They will also not cause major injuries if a bicyclist strikes them.

Figure 22 below shows an entrance of similar design installed on the WRS Dutchess Rail Trail at the crossing with NYS Route 376, just north of Hopewell Junction. This crossing has a low median with a solid fixed bollard (not recommended) on top, yellow pavement stripes to delineate the median, and ADA compliant features such as a curb ramp and detectable warning. It also features a trail crossing warning sign and a striped crosswalk.

Figure 24: WRS Dutchess Rail Trail crossing of NYS Route 376 in Hopewell Junction.

Figure 25: Preferred trail entrance as outlined in the Empire State Trail Design Guide.

Route 9 Industrial Area

A key consideration along the corridor is the Montfort Brothers, Inc. masonry block manufacturing facility that actively uses an area just west of the Route 9 crossing in the Village of Fishkill. The manufacturing facility is just north of the railroad tracks, while the storage area for block making material and finished products is south of the tracks. Within the site, there is a main driveway where forklifts, front loaders, and other large trucks frequently cross the railroad tracks (100+ times per day). This would create unsafe conflicts with pedestrians and bicyclists if a trail were to be developed along the corridor. Also, a portion of the Montfort site is located within the floodway of the Fishkill Creek,

and the entire site is located within the 100-year flood zone of the creek, so the alignment option chosen for this area would have to obtain local floodplain permits. Accordingly, three options to carry a trail past this facility were assessed (see Figure 26):

- Option 1: Construct a bridge over the industrial site driveway (or a tunnel below it)
- Option 2: Use roads to the north (Chips Ln., Smith St., Elm St., and Route 9) as an on-road segment of the trail
- Option 3: Avoid the site by using the southern edge of the industrial property to construct a trail

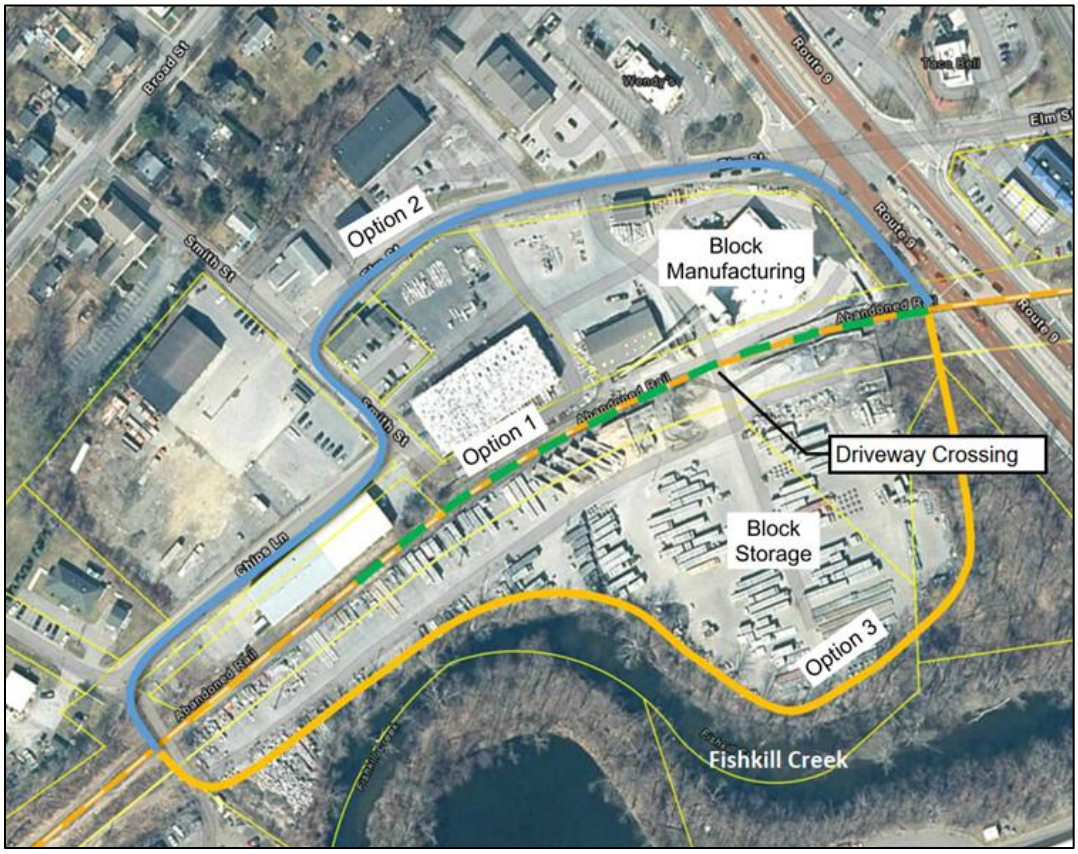


Figure 26: Route 9 Industrial Area – Showing the three trail alignment options evaluated near the Montfort Brothers facility.

The study team presented these options to the site's owners and their representatives in January of 2025 and toured the site. The most logical and feasible option is to construct a trail using the southern edge of the site (shown in orange on the map below). This would provide a continuous trail connection while avoiding the industrial traffic. A bridge or tunnel to avoid the site would be costly and poses maintenance issues and potential challenges for the site's activities. A bridge over the site would span the driveway and would have to include an approximately 400 ft. long ramp to meet ADA requirements while elevating the trail to match the bridge. The roads north of the facility have high volumes of trucks that enter and exit the site, which would pose potential conflicts with trail users.

Figure 27: The Route 9 Industrial Area – Option 3 (southern edge alignment) would use this area to avoid industrial traffic and improve safety.

During the design phase for this portion of a trail, the design team would need to consult with the Montfort Bros, Inc. owners to discuss a solution that works for both parties.

Access Locations & Connections

Trailheads

The railroad corridor borders four existing parks, one in the City of Beacon, two in the Town of Fishkill, and one in the Village of Fishkill. The western end of the corridor is approximately 0.4 miles from Long Dock Park on the Hudson River and can be accessed via the existing Klara Sauer trail, which runs parallel to this end of the corridor for approximately 0.25 miles. The eastern end of the corridor is in the hamlet of Hopewell Junction (Town of East Fishkill) at the Hopewell Depot, which is a trailhead for the WRS Dutchess Rail Trail and the Maybrook Trailway.

The four existing parks along the corridor would make for ideal trailheads. Madam Brett Park in Beacon is located adjacent to the former Tioronda Hat Factory and features walking trails, views of a waterfall on the Fishkill Creek, and parking for 15 vehicles. Additional parking is available in the former right-of-way for South Ave (owned by the City of Beacon). Improvements recommended at this trailhead consist of additional trailhead amenities (see the Trail Amenities section), an ADA compliant access to the main trail, and the removal or reconstruction of Bridge No. 2 (see the Structures section). The bridge restricts sight distance to the intersecting roadway of Tioronda Ave and only allows one lane of vehicle travel. The existing parking lot, informational kiosk, and walking trails are on land owned by Scenic Hudson. An agreement with Scenic Hudson would be needed to use this area as a trailhead and to make any improvements at the location.

2.8 miles east of Madam Brett Park sits Jean Van Pelt Park, which offers another logical location for a major trailhead. This location hosts parking and passive recreation opportunities such as picnicking and

fishing in Fishkill Creek. The park is owned and maintained by the Town of Fishkill. Improvements to make this park a trailhead could include extending a trail from the main trail to the parking area, installing wayfinding, informational, and regulatory signs, and adding benches. The existing parking area appears small, so a parking study should be done to confirm that the existing parking layout would be sufficient.

Though not located at a park, an intermediate trailhead could be situated near the intersection of Main St and Herbert St in Beacon. The railroad tracks run parallel to Main St through this area, about 15 ft. from the edge of pavement. A driveway crosses the tracks and opens to a gravel parking area with a maintained grass field and two overlooks to Fishkill Creek. This area is owned by the City of Beacon, Metro North Railroad, and a private entity. The private property could potentially be acquired and developed into a formal trailhead and pocket park, becoming a second trailhead at the eastern end of Main St.

Moving 2.4 miles east, the next logical trailhead is at Sarah Taylor Park, owned and operated by the Village of Fishkill and home to walking paths, a playground, pavilion, benches, picnic tables, athletic fields, and parking. The existing asphalt parking lot does not have delineated parking spaces, which reduces the number of vehicles that can use the lot. Additional parking is available behind a gate. Improvements to the park could include formalizing and maximizing the parking spaces, adding a trail from the parking area to the main trail, and installing wayfinding/informational signs.

1.7 miles east from Sarah Taylor Park is Doug Phillips Park, also owned by the Town of Fishkill. This park has similar amenities to Sarah Taylor Park, such as parking, athletic fields and courts, a playground, and picnic areas. The park also has restrooms – one of the more sought-after trail amenities identified in this study's online survey. Recommended improvements include wayfinding/informational signs and a connection to the main trail.

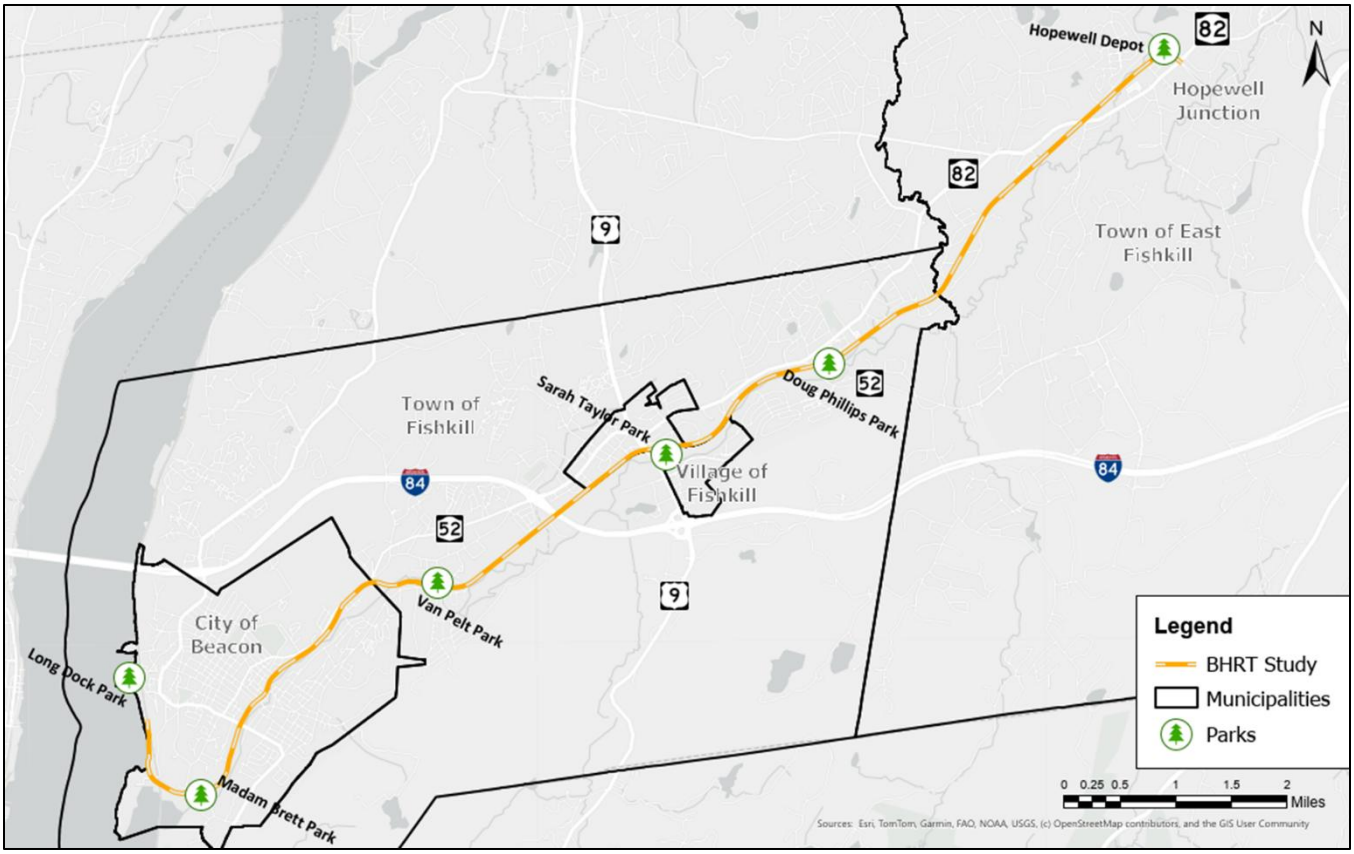


Figure 28: Map of the study area showing the potential trail and trailheads at parks in Beacon, Fishkill, and East Fishkill (Hopewell Junction).

The last logical trailhead is at the Hopewell Depot in Hopewell Junction (Town of East Fishkill). This site is about four miles east of Doug Phillips Park, making it the longest segment between trailheads. The Hopewell Depot is an established trailhead for the WRS Dutchess Rail Trail and the Maybrook Trailway and has a robust set of amenities, including parking, restrooms, trash receptacles, benches, and a museum dedicated to the history of the railroad industry in the Hudson Valley. During trail design, a parking study should be done to ensure enough capacity is available.

Neighborhood and community connections

City of Beacon

The study team met with representatives from the City of Beacon to discuss connection points to a potential trail. Most users coming from Beacon would be able to access the trail from one of the existing roadway crossings, the Main St area, or one of the potential trailheads. The City intends to add a pocket park at Main St/Herbert St. East of Herbert St. Trail access could also from residential areas to a trail could cross both Fishkill Ave (NYS Route 52) and private properties owned by businesses along Fishkill Ave. Some of the business owners could grant an access easement or possibly develop a trail connection on their property. One such opportunity is on a strip of property owned by CHG&E near Delavan Ave. Also, a possible pocket park/trail entrance could be added in the area of Route 52/Mill St.

Town/Village of Fishkill

In addition to the road crossings and trailheads, there are residential areas near the corridor that may warrant a connection to the trail. If it is possible to create a connection for such purposes using public land, that connection should be included in the design of a trail. For example, at the end of Van Steuben Rd, there is a footpath connected to a driveway that was established for the Town to access a pump station. A formal trail could be established in the public right-of-way to connect the trail to over 100 homes in this area.

Other residential connections to a trail could require crossing private property. If a trail is developed, an offer to connect the trail to residential areas (such as those listed below) could be investigated:

- Mountain View Garden Apartments
- The Commons at Fishkill
- Fishkill Mews
- Village Park Condominiums
- The Park Condominiums
- Fishkill Glen Condominiums
- Aveonis Townhouses
- Mountain View Knolls Garden Apartments
- Elm Crest Apartments

Town of East Fishkill

Many of the residential areas in the Town of East Fishkill would be connected to the trail via major and minor roadway connections. An existing informal footpath crosses the corridor and connects Governors Blvd to the Unity (ACME) Shopping Plaza in Hopewell Junction. The Town of Fishkill is working to formalize this path as part of the Junction Loop Trail (see the Regional Connections section below).

Regional Connections

Empire State Trail/WRS Dutchess Rail Trail

As noted above, the trail would connect to the Empire State Trail network at the Hopewell Depot trailhead in Hopewell Junction. This trailhead is the northern terminus of the Maybrook Trailway and the southern terminus of the WRS Dutchess Rail Trail, both of which are part of the Empire State Trail.

Junction Loop

The Junction Loop is a proposed multi-use trail in Hopewell Junction. A segment of the trail has been constructed between the Hopewell Depot and Route 376. A second segment of the trail would travel around the Hopewell Recreation Park and connect the Town offices on Route 376 to Main St (Route 82). A third segment of the trail would use the Beacon Line corridor to connect the footpath between Governors Blvd and the ACME plaza to the existing Junction Loop trail at Route 376. The path between Governors Blvd and the ACME plaza is also part of this segment of the Junction Loop and would be

formalized with a stone or asphalt surface. The existing segment between Route 376 and the Hopewell Depot may need to be widened to meet expected demand.

Hudson Highlands Fjord Trail & Beacon Hudson River Trail

The Fjord Trail is a linear park along the east side of the Hudson River, which is planned to span 7.5 miles between Long Dock Park in the City of Beacon and Dockside Park in the Village of Cold Spring. Some segments of the Fjord Trail have already been built. The potential Beacon-Hopewell Rail Trail would connect to the Fjord Trail where it meets the Klara Sauer Trail on the east bank of the Hudson River. Similarly, the Rail Trail could connect to a proposed Beacon Hudson River Trail that would extend north from the Beacon Train Station to the Beacon-Newburgh Bridge and into the Town of Fishkill.

Bus Transit Connections

Dutchess County Public Transit operates five bus routes with stops near the study corridor: Routes A, B, F, G, and the Amazon Express. Fares are $1.75, except for Route G, which is free.

Route A serves Route 9 from the Dutchess Mall in Fishkill north to the City of Poughkeepsie. The nearest bus stop to the potential trail is at the intersection of US Route 9 and Merritt Blvd (near Walmart), about 1,500 ft. south of the Route 9 crossing. There is a sidewalk to the bus stop, but no formal bicycle facilities. The Amazon Express also serves this location, providing express bus service for Amazon workers and others along the Route 9 corridor. That route stops in the Walmart parking lot.

Route B connects Beacon to Poughkeepsie using NYS Route 9D. The closest regularly served bus stop to the potential trail is at the Beacon Post Office on Main St, approximately 1,500 ft. west of the trail.

Route F runs parallel to the rail corridor along NYS Route 52 and Route 376. There are three locations where connections to a trail are feasible. Within Beacon, the nearest bus stops are at the intersection of Teller Ave and Main St, about 1,000 ft. along Main St from the potential trail. The Fishkill bus stop is at the intersection of Elm St and US Route 9, approximately 100 ft. from the potential trail. In Hopewell Junction, the bus stop is at the ACME plaza, where an informal path connects the plaza to the rail corridor.

Route G provides free bus service within the City of Beacon. There are four bus stops on this route that are within 500 ft. of the potential trail: at the Beacon train station, the Beacon Theater, the Tioronda Ave/Wolcott Ave intersection, and the Main St/East Main St intersection. All of these locations have sidewalks to the potential trail except for the stop at Tioronda Ave/Wolcott Ave. However, access to the trail could be provided along a path through The Arno apartment complex.

In addition, the Newburgh-Beacon Shuttle (to Orange County and Stewart Airport) operated by Leprechaun Lines serves Metro-North Railroad's Beacon Station. Fares are $1; however, the shuttle does not allow bicycles on board.

Emergency Services Access

Emergency service vehicles such as ambulances and other rescue vehicles would need access to the trail at all major and minor roadway crossings. That includes crossings that may have new grade-separated structures (such as Route 9). The only minor road crossings that may not be accessible to emergency vehicles are existing maintenance roads such as Pump House Rd in the Town of Fishkill and the CHG&E sub-station in the Town of East Fishkill.

The trail entrance design at the intersecting roadways should be designed (as noted in the Trail Entrance Control section) to allow emergency vehicles to enter the trail when necessary. Fixed bollards and gates should be avoided, as they can be difficult or impossible to remove in emergency situations. Emergency access should be supplemented by providing access via maintenance roads. In addition, the trail width and surface material would need to accommodate an emergency vehicle along the entire length of the trail.

Construction Access & Staging

Frequent access for construction vehicles is critical during the construction of any trail, especially along a narrow, linear corridor like the Beacon Line. Identifying access locations during a preliminary design phase and bidding process would reduce some of these unknowns and could decrease bid prices. In many areas, contractors would only be able to stage one construction vehicle at any one time. In long segments without frequent access points, providing passing zones where one vehicle can pass another would help facilitate grading and stone/asphalt placement. Construction access routes and locations should be reviewed and identified during the design phase.

Priority access locations would include many of the major road crossings along the corridor. Using local roads and minor crossings for construction access should be considered on a case-by-case basis and limited when possible. Heavy truck travel through mainly residential areas, such as the Lomala Ln and Broadway areas at the Fishkill/East Fishkill Town line, could potentially damage existing pavement and impact residents. Instead, construction work in these locations should use passing areas along the trail.

Staging during construction is most feasible at trailheads. Additional staging could be possible near the Pump House Rd crossing at the I-84 overpass and potentially near the CHG&E substation, if permitted.

Trail Amenities

Amenities along the trail should mimic the amenities on other regional trails such as the WRS Dutchess Rail Trail and the Maybrook Trailway. Amenities should also be consistent with the policies and needs of the entity maintaining the trail. For example, trash receptacles should only be installed if they can be regularly emptied. If not, the trail should be signed as “carry-in, carry-out.” Trail amenities can be organized into three general categories based on their location: along the trail, at minor entrances, and at trailheads. Suggested amenities are outlined below. All amenities and facilities (e.g., parking lots,

picnic tables, and restrooms) must be ADA compliant.

Amenities Along the Trail

Amenities that could be installed along the trail (between trail access points) include benches, mile markers, regulatory signs, and informational or historical interpretation signs.

- Benches should be considered at locations with scenic overviews or along stretches where trail users may want to stop and rest. Benches should be installed in shady locations to provide relief from heat.
- Mile markers (including half and possibly quarter mile markers) are helpful to let users know how far they've traveled and to easily convey a location in the event of an emergency.
- Regulatory signs could be installed at consistent intervals to remind users of trail rules and etiquette.
- Interpretative signs could be installed at natural or historic points of interest.
- Another amenity could include pocket parks or wayside attractions at locations such as the Fishkill Falls overlook in the City of Beacon. These locations could include interpretative signs, benches, bike racks, and safety railings.

Amenities at Minor Trail Entrances

Minor trail entrances, including major and minor road crossings, should consist of signs (wayfinding, informational, and regulatory) and benches.

- Wayfinding signs can be used to direct trail users to destinations off the trail, such as the Main St area in Beacon, or to provide distances to major attractions, such as the Empire State Trail in Hopewell Junction.
- Regulatory signs should be installed at every entrance along the trail, so users are aware of expected trail etiquette.
- Benches could be installed at the most popular trail entrances.
- Lighting improvements should also be considered at trailheads and at major road crossings. Rules of the trail would dictate whether lighting is installed at trailheads and if the trail is open past dusk. In more urban settings, such as in Beacon along Main St, lighting at trailheads, crossings, and along the trail may be desirable. However, many trails operate without lighting, apparently without issue.

Figure 29: Northside Line Trail Entrance with signage, lighting, benches, regulatory, and informational signage.

Amenities at Trailheads

Trailheads should provide the most robust package of amenities. These include vehicle parking, wayfinding, informational, and regulatory signs, and benches.

- Parking capacity should be assessed at each trailhead to determine if parking improvements would be needed.
- Other optional amenities include restrooms, water bottle filling stations, bicycle repair stations, bike racks, and trash receptacles. These amenities require maintenance and should be discussed and agreed upon with the entity maintaining the trailhead. Some of the potential trailhead locations already have some of these facilities (e.g., Hopewell Depot and Doug Phillips Park).

Historical Interpretation

Historical elements, such as the historical use of the corridor and the significance of the railroad in the area, could be showcased on interpretative panels along the trail. Infrastructure from the railroad, such as sections of tracks or siding switch components, could be left in place. Historical panels could also showcase significant features near the corridor such as the Tioronda Hat Factory, Matteawan Train Station, Fishkill Creek Falls, the Glenham Mills area, and the former Texaco Research Center. Significant environmental resources could be called out such as the Hudson River Estuary, Dennings Point, the Fishkill Creek waterfalls, wetlands, and floodplains. These panels would offer an opportunity to educate trail users of the area's history and significant natural resources.

Trail Screening

As part of the public outreach process, several private landowners adjacent to the corridor requested screening from a trail in the form of fencing or other measures to reduce the visibility of users on the trail and to improve the delineation of their property. Installing a fence that provides visual screening and property security along the entire trail is cost prohibitive. There are approximately 111 residential properties bordering the corridor that would require over 23,000 ft. (4.4 miles) of fencing.

Figure 30: Examples of trail screening: vegetative buffer with evergreen trees (left) and 4-ft high box wire fencing (right).

For County-owned/maintained trails, Dutchess County requires the adjacent property owner to take the necessary steps to secure their own property, due to cost and maintenance concerns. Options that could be considered based on the conditions of the border between a property and the trail include fencing and vegetative screening. Fencing such as a 4 ft. high box wire fence (typically found delineating highway and railroad right-of-way) is the most economical. If screening the trail from a particular feature is a concern, a vegetative buffer of evergreen trees could be installed to provide a sustainable, year-round buffer. A 6-8 ft. high wood or vinyl fence would also provide visual screening from the trail. Fencing or other screening features would be the adjacent property owner's responsibility to install and maintain, except when required for safety issues such as slopes or sensitive environmental areas like wetlands.

One practice that should be considered as part of any trail project is to install regulatory signs to remind trail users that they will be trespassing if they wander off the trail.

Anticipated permits

Various permits would be required for the construction of a trail, in addition to other local, state and federal approvals, depending on the funding sources. Specific permits that would likely be required include:

- Section 404 of the Clean Water Act (USACE)

- Article 15 permit (NYSDEC)
- Nationwide Permit (NWP) 14 for Linear Transportation Projects (USACE)
- Water Quality Certification under Section 401 of the Clean Water Act (NYSDEC)
- Article 15 Stream Protection Permit (NYSDEC)
- Highway Work Permit (NYSDOT)
- SPDES Permit (NYSDEC)
- Floodplain Permit (Local Municipalities)

The full list of permits required depends on the location and nature of the work and the funding sources used for construction.

Time of Year Restrictions

Time of year construction restrictions are determined by the relevant permitting agencies and put in place to protect endangered species within or adjacent to a site. Based on the species present within the study corridor, the most likely restrictions would be on cutting trees greater than a two-inch diameter at breast height between April 1 and October 31, and in-stream work between October 1 and April 30.

Additional Assessments

In general, the following detailed assessments and studies should be performed prior to the construction of a trail or trail segment:

- Wetland and Stream assessment
- Threatened and Endangered Species assessment
- Hazardous soil sampling program
- Level 1 bridge loading assessment (for Rail To Trail option)
- Parking and traffic studies for each proposed trailhead

Utilities

Central Hudson Gas & Electric (CHG&E) owns overhead transmission and distribution lines that cross perpendicular and run parallel to the rail corridor. The electric lines were constructed to the clearance standards of a train and would meet the clearance standards for bicyclists/pedestrians and vehicles to pass below them. Relocation of overhead lines may be needed at the major roadway crossings (US Route 9, NYS Routes 52, 82 and 376), if a bridge is used to cross the roadway. CHG&E has requested to be updated about any potential trail project during the design phase. Additionally, CHG&E may have existing maintenance agreements with Metro-North to use the rail corridor to maintain their infrastructure, and those agreements should remain in place if a trail is constructed.

Based on the existing conditions analysis, there is evidence of underground gas, water, sewer and communication lines crossing or adjacent to the study corridor at various points. The depths of those lines are unknown at this time but should not inhibit the construction of a trail on the corridor. A communications line owned by Metro-North is buried within the existing ballast of the railroad tracks and carried on each bridge structure. That line must remain in place and operational after construction of a trail. None of the underground or overhead utilities within the corridor are anticipated to have a major impact on the design and construction of a trail.

Right-of-Way

The rail corridor from the City of Beacon to Hopewell Junction is owned and maintained by Metro-North Railroad (MNR). If a trail project is progressed, rights to the corridor would need to be obtained from MNR through an easement or acquisition. The terms of the easement or acquisition agreement would need to comply with the requirements set forth in the railroad abandonment proceedings granted by the Surface Transportation Board (STB). MNR filed for, and was granted, abandonment of the Beacon Line (from the Hudson River to the NY/Connecticut State Line), “rail-banking” of the corridor, and interim trail use of the corridor. Rail-banking means that the right to convert the corridor back to railroad use at some future date still exists, and that the corridor may be used for other purposes (such as a trail) in the interim. Any agreements, easements, or acquisitions would need to be progressed with MNR.

Public Engagement Overview

Public engagement was critical during the study, and included a mix of virtual and in-person activities, summarized below:

Website

A study website has been maintained since early 2024 and allows viewers to learn about the study and opportunities to get involved, view documents such as the existing conditions report, and submit comments to the study team. The website will remain active until the conclusion of the study.

Figure 31: Pop-up event at the Beacon Farmers Market.

Pop-up events

Two pop-up sessions were held at local events to raise awareness of the study and to gain feedback. Maps, boards and flyers (in both English and

Spanish) were available for attendees to review and annotate. The study team also distributed business cards with the study area map and survey link. The first event was held at the City of Beacon Farmers Market on May 19, 2024, and the second event was held at the Sons of Italy Festival in East Fishkill on May 24, 2024.

Survey

> "This would be a transformational project, connecting the future Fjord Trail and Beacon with the Empire State Trail in Hopewell."
> *– Survey Participant*

The website hosted an online public survey that was launched in March 2024 and closed in July 2024. The survey was promoted during the pop-up events, on the study website, and by the Study Advisory Committee. The survey asked if users would support a trail, what amenities they would like to see along the trail and where, and how they would use the trail. It also collected general demographic information. The survey resulted in over 1,500 responses and 4,300 pins on the amenities map. Overall, 95% of respondents expressed support for a trail. Most respondents stated that they would bike or walk on the trail. Other comments included that the trail could become an economic driver in the community, offer alternative modes of transportation in the area (especially as Route 52 becomes more congested), and improve the currently abandoned infrastructure.

However, some respondents expressed concerns about the feasibility and safety of a trail, such as how safe the road crossings would be, especially at Routes 9, 52 & 82, and how the trail would affect security along the corridor for neighboring residents. Additional concerns focused on the use of e-bikes and the speed at which users travel, the potential loss of the ability for trains to use the corridor in the future, and cost of a trail project. The most requested amenities were restrooms, benches, and waste receptacles. Wayfinding and information signs were also requested (see Figure 32).

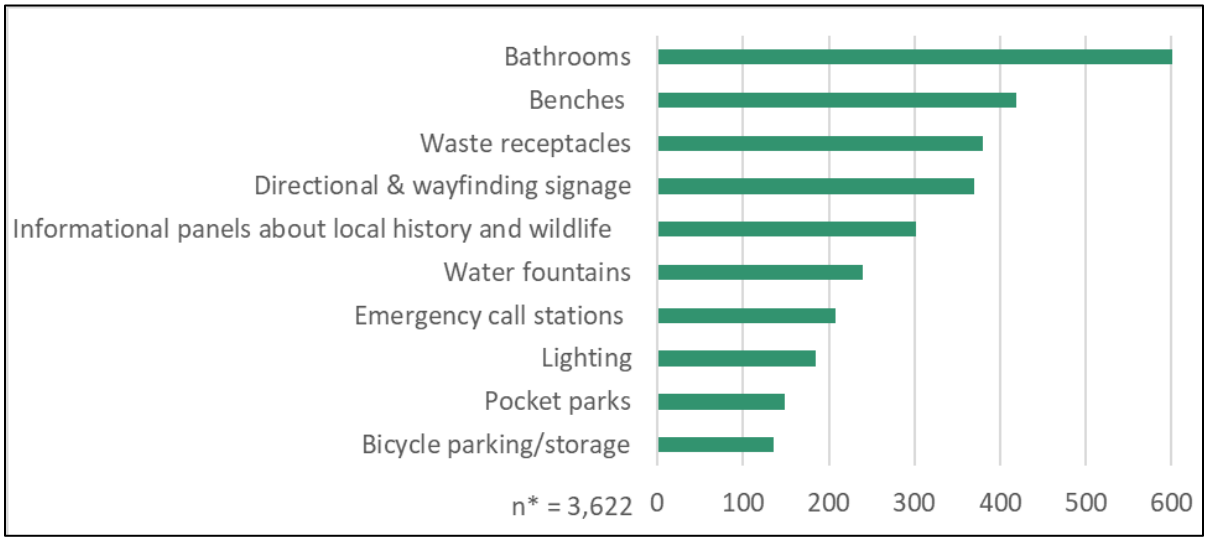


Figure 32: Top trail amenity requests from survey respondents.

Municipal Presentations

In early 2025, the study team conducted a series of in-person presentations to the governing boards of the City of Beacon, Town of Fishkill, Village of Fishkill, and Town of East Fishkill. Each meeting consisted of a brief presentation to introduce the study, review initial findings, and discuss preliminary design ideas. All four meetings were open to the public. The goal of these presentations was to engage each community with information about the condition of the rail corridor in their area and to listen to their concerns. These small, in-person gatherings allowed for useful dialogue among community members.

Elected officials and the public were generally supportive of a trail on the corridor and expressed excitement for the potential recreational opportunities and economic benefits of a trail. Common themes expressed during these presentations included:

- Support for a trail from the public and elected officials.
- Specific recommendations for amenities.
- Questions about when the trail would be built.
- Concerns from neighboring residents about property security and potential trespassing from the trail onto private property.
- Concerns for the safety of trail users.
- Desire for fencing and screening options to maintain privacy for residences adjacent to the trail.

Public Information Meetings (Virtual)

We held two virtual public meetings during the study. Both meetings included opportunities for the public to submit questions and participate in several interactive polls The first public meeting was held on March 20, 2025, where the study team presented an overview of existing conditions along the corridor. Approximately 75 people attended that meeting, which was recorded and posted on the study website. A second public meeting was held on August 20, 2025, where the two design concepts were presented, along with the recommended concept. Over 90 people attended that meeting, which was also recorded and posted online. During both meetings, people were supportive of a rail trail, especially the Rail To Trail concept.

Study Advisory Committee

A Study Advisory Committee (SAC) helped guide the study by providing local knowledge, advice, and feedback to the study team. The SAC was comprised of representatives from the municipalities along the corridor, the Dutchess County Department of Public Works and Department of Planning & Development, Metro-North Railroad, NYSDOT, and Scenic Hudson/Fjord Trail. The team held an initial SAC kick-off meeting in fall 2023, with subsequent meetings held throughout the planning process. The SAC was integral in providing feedback on data collected, community and agency input about the potential trail, and coordination with other projects.

Final Thoughts

Based on the assessment of existing conditions, constructability, and cost, the most feasible option for this corridor is Rail To Trail: converting the existing rail bed to a trail. This option is the most practical and least disruptive: not only would it cost much less than the Rail With Trail option, but it would impose significantly fewer environmental impacts. Importantly, the Rail To Trail option would not preclude future rail use, if ever desired. The DCTC stands ready to support interested parties in progressing the Rail To Trail concept, knowing that any project of this scale and scope will require initiative, patience, and significant outside funding.

Table 3. Rail To Trail Cost Estimate

Beacon-Hopewell Rail Trail Rail TO Trail - Planning Level Cost Estimate						
CONSTRUCTION ITEMS	**Klara Sauer Trail to Van Pelt Park**	**Van Pelt Park to Route 9 Area**	**Route 9 Area and Bridge Crossing**	**Sarah Taylor Park to Doug Phillips park**	**Doug Phillips Park to Hopewell Depot**	**TOTAL**
TRAIL LENGTH	**3.6 Miles**	**2.0 Miles**	**0.4 Miles**	**1.7 Miles**	**4.1 Miles**	**11.8 Miles**
CLEARING & GRUBBING	$ 58,000	$ 32,000	$ 32,000	$ 27,000.00	$ 65,000	$ 214,000
RAIL, HARDWARE & TIE REMOVAL	$ 552,000	$ 307,000	$ 62,000	$ 261,000.00	$ 628,000	$ 1,810,000
EARTHWORK	$ 296,000	$ 149,000	$ 30,000	$ 127,000.00	$ 305,000	$ 907,000
TRAIL	$ 873,000	$ 417,000	$ 84,000	$ 354,000.00	$ 854,000	$ 2,582,000
DRAINAGE	$ 713,000	$ 83,000	$ 21,000	$ 81,000.00	$ 151,000	$ 1,049,000
MINOR ROAD CROSSING IMPROVEMENTS	$ 32,000	$ 21,000	-	$ 21,000.00	$ 57,000	$ 131,000
MAJOR ROAD CROSSING IMPROVEMENTS	$ 102,000	-	$ 5,990,000	$ 2,490,000.00	$ 4,847,000	$ 13,429,000
EROSION CONTROL	$ 202,000	$ 102,000	$ 32,000	$ 89,000.00	$ 224,000	$ 649,000
LANDSCAPING, BENCHES, SIGNS/PANELS	$ 661,000	$ 396,000	$ 69,000	$ 352,000.00	$ 742,000	$ 2,220,000
PEDESTRIAN RAILING	$ 221,000	$ 215,000	$ 98,000	$ 260,000.00	$ 527,000	$ 1,321,000
MADAME BRETT TRAILHEAD	$ 124,000	-	-	-	-	$ 124,000
JEAN VAN PELT PARK	$ 113,000	-	-	-	-	$ 113,000
TEMPORARY PARKING	-	$ 44,000	-	-	-	$ 44,000
SARAH TAYLOR PARK	-	-	$ 101,000	-	-	$ 101,000
DOUG PHILLIPS PARK	-	-	-	$ 101,000.00	-	$ 101,000
HOPEWELL DEPOT PARKING EXPANSION	-	-	-	-	$ 85,000	$ 85,000
BRIDGE #1 REHAB	$ 325,000	-	-	-	-	$ 325,000
BRIDGE #2 REHAB	$ 65,000	-	-	-	-	$ 65,000
BRIDGE #3 REHAB	$ 350,000	-	-	-	-	$ 350,000
BRIDGE #4 REHAB	-	$ 450,000	-	-	-	$ 450,000
BRIDGE #5 REHAB	-	-	-	-	$ 340,000	$ 340,000
BRIDGE #6 REHAB	-	-	-	-	$ 130,000	$ 130,000
WORK ZONE TRAFFIC CONTROL	$ 47,000	$ 23,000	$ 326,000	$ 125,000.00	$ 269,000	$ 790,000
SUBTOTAL CONSTRUCTION COSTS	$ 4,734,000	$ 2,239,000	$ 6,845,000	$ 4,288,000	$ 9,224,000	$ 27,330,000
						$ -
CONTINGENCY / RISK (15%)	$ 710,100	$ 335,850	$ 1,026,750	$ 643,200	$ 1,383,600	$ 4,099,500
SUBTOTAL (2024 DOLLARS)	$ 5,445,000	$ 2,575,000	$ 7,872,000	$ 4,932,000	$ 10,608,000	$ 31,432,000
						$ -
FIELD CHANGE ORDER (5%)	$ 272,250	$ 128,750	$ 393,600	$ 246,600	$ 530,400	$ 1,571,600
MOBILIZATION (USE 4%)	$ 217,800	$ 103,000	$ 314,880	$ 197,280	$ 424,320	$ 1,257,280
SUBTOTAL (2024 DOLLARS)	$ 5,936,000	$ 2,807,000	$ 8,581,000	$ 5,376,000	$ 11,563,000	$ 34,263,000
						$ -
INFLATION TO 2030 DOLLARS (3%)	$ 895,000	$ 425,000	$ 1,290,000	$ 810,000	$ 1,735,000	$ 5,155,000
CONSTRUCTION SUBTOTAL	$ 6,831,000	$ 3,232,000	$ 9,871,000	$ 6,186,000	$ 13,298,000	$ 39,418,000
						$ -
ENGINEERING	$ 1,024,650	$ 484,800	$ 1,480,650	$ 927,900	$ 1,994,700	$ 5,912,700
CONSTRUCTION INSPECTION	$ 1,024,650	$ 484,800	$ 1,480,650	$ 927,900	$ 1,994,700	$ 5,912,700
ESTIMATED TOTAL	**$ 8,890,000**	**$ 4,210,000**	**$ 12,840,000**	**$ 8,050,000**	**$ 17,290,000**	**$ 51,280,000**

* Engineering and Construction Inspection assume Federal Funding Procedures

Table 4. Rail With Trail Cost Estimate

Beacon-Hopewell Rail Trail Rail WITH Trail - Planning Level Cost Estimate						
CONSTRUCTION ITEMS	**Klara Sauer Trail to Van Pelt Park**	**Van Pelt Park to Route 9 Area**	**Route 9 Area and Bridge Crossing**	**Sarah Taylor Park to Doug Phillips park**	**Doug Phillips Park to Hopewell Depot**	**TOTAL**
TRAIL LENGTH	**3.6 Miles**	**2.0 Miles**	**0.4 Miles**	**1.7 Miles**	**4.1 Miles**	**11.8 Miles**
CLEARING & GRUBBING	$ 476,000	$ 264,000	$ 32,000	$ 225,000	$ 542,000	$ 1,539,000
RAIL, HARDWARE & TIE REMOVAL	$ -	$ -	$ -	$ -	$ -	$ -
EARTHWORK	$ 4,811,000	$ 1,967,000	$ 30,000	$ 1,389,000	$ 4,126,000	$ 12,323,000
TRAIL	$ 1,053,000	$ 504,000	$ 84,000	$ 428,000	$ 1,032,000	$ 3,101,000
DRAINAGE	$ 774,000	$ 2,468,000	$ 21,000	$ 3,046,000	$ 3,737,000	$ 10,046,000
MINOR ROAD CROSSING IMPROVEMENTS	$ 32,000	$ 21,000	-	$ 21,000	$ 57,000	$ 131,000
MAJOR ROAD CROSSING IMPROVEMENTS	$ 102,000	-	$ 5,990,000	$ 2,490,000	$ 4,847,000	$ 13,429,000
EROSION CONTROL	$ 997,000	$ 544,000	$ 32,000	$ 464,000	$ 1,130,000	$ 3,167,000
LANDSCAPING, BENCHES, SIGNS/PANELS	$ 1,474,000	$ 849,000	$ 69,000	$ 737,000	$ 1,667,000	$ 4,796,000
PEDESTRIAN RAILING	$ 444,000	$ 69,000	$ 98,000	$ 410,000	$ 637,000	$ 1,658,000
MADAME BRETT TRAILHEAD	$ 124,000	-	-	-	-	$ 124,000
JEAN VAN PELT PARK	$ 113,000	-	-	-	-	$ 113,000
TEMPORARY TRAILHEAD	-	$ 66,000	-	-	-	$ 66,000
SARAH TAYLOR PARK	-	-	$ 101,000	-	-	$ 101,000
DOUG PHILLIPS PARK	-	-	-	$ 101,000	-	$ 101,000
HOPEWELL DEPOT PARKING EXPANSION	-	-	-	-	$ 85,000	$ 85,000
BRIDGE #1 CONSTRUCTION	$ 3,500,000	-	-	-	-	$ 3,500,000
BRIDGE #2 CONSTRUCTION	$ 500,000	-	-	-	-	$ 500,000
BRIDGE #3 CONSTRUCTION	$ 5,000,000	-	-	-	-	$ 5,000,000
BRIDGE #4 CONSTRUCTION	-	$ 3,500,000	-	-	-	$ 3,500,000
BRIDGE #5 CONSTRUCTION	-	-	-	-	$ 2,500,000	$ 2,500,000
BRIDGE #6 CONSTRUCTION	-	-	-	-	$ 750,000	$ 750,000
WORK ZONE TRAFFIC CONTROL	$ 194,000	$ 103,000	$ 323,000	$ 280,000	$ 634,000	$ 1,534,000
SUBTOTAL CONSTRUCTION COSTS	$ 19,594,000	$ 10,355,000	$ 6,780,000	$ 9,591,000	$ 21,744,000	$ 68,064,000
						$ -
CONTINGENCY / RISK (15%)	$ 2,939,100	$ 1,553,250	$ 1,017,000	$ 1,438,650	$ 3,261,600	$ 10,209,600
SUBTOTAL (2024 DOLLARS)	$ 22,534,000	$ 11,909,000	$ 7,797,000	$ 11,030,000	$ 25,006,000	$ 78,276,000
						$ -
FIELD CHANGE ORDER (5%)	$ 1,126,700	$ 595,450	$ 389,850	$ 551,500	$ 1,250,300	$ 3,913,800
MOBILIZATION (USE 4%)	$ 901,360	$ 476,360	$ 311,880	$ 441,200	$ 1,000,240	$ 3,131,040
SUBTOTAL (2024 DOLLARS)	$ 24,563,000	$ 12,981,000	$ 8,499,000	$ 12,023,000	$ 27,257,000	$ 85,323,000
						$ -
INFLATION TO 2030 DOLLARS (3%)	$ 3,685,000	$ 1,950,000	$ 1,275,000	$ 1,805,000	$ 4,090,000	$ 12,805,000
CONSTRUCTION SUBTOTAL	**$ 28,248,000**	**$ 14,931,000**	**$ 9,774,000**	**$ 13,828,000**	**$ 31,347,000**	**$ 98,128,000**
						$ -
RIGHT OF WAY	$ 3,600,000	$ 2,400,000	$ 500,000	$ 1,700,000	$ 4,100,000	$ 12,300,000
ENGINEERING	$ 4,237,200	$ 2,239,650	$ 1,466,100	$ 2,074,200	$ 4,702,050	$ 14,719,200
CONSTRUCTION INSPECTION	$ 4,237,200	$ 2,239,650	$ 1,466,100	$ 2,074,200	$ 4,702,050	$ 14,719,200
ESTIMATED TOTAL	**$ 40,330,000**	**$ 21,820,000**	**$ 13,210,000**	**$ 19,680,000**	**$ 44,860,000**	**$ 139,900,000**

* Engineering and Construction Inspection assume Federal Funding Procedures