

Ulster & Delaware Railroad Corridor

"U & D Rail + Trail"

Trail Feasibility Study

Final Report

July, 2006



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This document is based on information presented in prior task reports developed during the course of this study, including:

Existing Conditions Summary
Needs Identification and Safety Assessment
Trail Alignment and Feasibility Assessment
Preferred Alignment and Recommendations

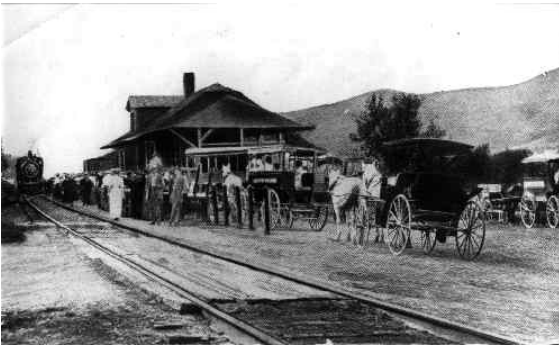
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1. Executive Summary

The Ulster and Delaware (U&D) Railroad corridor has the potential to become a unique “Rail + Trail” system providing transportation, economic development, tourism, and recreation benefits for Ulster County and the communities along the route. The existing corridor is approximately 40 miles long, 30-66 feet wide, and includes more than 300 acres of land. The U&D line runs from the historic Rondout section of Kingston, New York to the Belleayre Ski Center at the top of the Catskill Mountains. The majority of the railroad property (38.5 miles) is owned by Ulster County and is leased to the Catskill Mountain Railroad (CMRR) by the Ulster County IDA. The City of Kingston owns approximately 1.5 miles of the railroad property that is leased to the Trolley Museum of New York, which operates the Kingston Trolley on part of the line. The other major landowner along the Corridor is the New York City Department of Environmental Protection (NYCDEP). It owns approximately 12 miles of the railroad bed along the north side of the Ashokan Reservoir, which is leased to the Catskill Mountain Railroad. Several sections of the railroad are technically ‘out of service,’ but the tracks are still in place.



Historic photo of the Phoenicia train station, which has been restored by the CMRR.

The planning process included research on the history of the railroad corridor, an analysis of existing conditions, and detailed review of opportunities and constraints. The project team took several tours of the corridor, including along the Ashokan Reservoir, through downtown Kingston, and a ride on the CMRR; and developed a photo inventory of key locations. Meetings were held with the County’s Rail Trail Committee (RTC), key stakeholders, and the public.

Key issues identified for the U&D Rail + Trail corridor during the planning process include:

- The CMRR lease is for 25 years and began in 1991. The Trolley Museum lease with the City of Kingston is for 99 years. Both rail operations were considered as existing conditions, and therefore the rail tracks will remain in any of this study’s proposed alternatives.
- Sections of the corridor are currently in need of substantial repairs and upgrades, including washouts along the Esopus Creek in Phoenicia, deterioration of the Butternut Basin culvert, and repairs to the Boiceville Bridge.
- Connect the region’s history: The unique heritage and culture should be integrated into the Rail + Trail concept.
- Shared-use trail activity is not currently permitted by NYCDEP on lands around the Ashokan Reservoir. Any uses, other than the railroad, within reservoir lands would require NYCDEP approval.

- Walking and bicycling account for more than 5% of all commuter transportation in Ulster County, but use of these modes declined by 11% from 1990-2000. With rising fuel costs, the need for increased non-motorized transportation will continue to be an important issue for the region.
- Cardiovascular disease accounts for more than 30% of all fatalities in Ulster County. This is consistent with the widely documented national obesity epidemic. There is a need for increased physical activity in Ulster County, especially for children.
- There are more than 100 rail-with-trail projects in the U.S., and both rail and trail use can be part of a corridor preservation strategy.

Based on the available information and input, the consultant presented a series of alternative scenarios, ranging from a paved shared-use path for walking, bicycling, running, and other uses parallel to the railroad for the length of the corridor to a more rustic single track trail for hiking and mountain biking, to a ‘hybrid’ concept with a mix of rail and trail uses. The ‘hybrid’ concept is presented as the preferred alternative, connecting 40 miles of rail and trail facilities from the Hudson River in Kingston to the Belleayre Ski Center. Key connections would be made to the Long Path and NYSDEC hiking trails in the Catskill Forest Preserve. A summary of the public involvement process for this project is provided in the Appendix of this document.

The project will require a public-private partnership between Ulster County, the City of Kingston, New York City DEP, the Catskill Mountain Railroad, the Trolley Museum of New York, NYSDEC, and other organizations. Due to right-of-way, environmental, financial, and other constraints, a continuous railroad service with a parallel shared-use path is not currently feasible along the entire corridor. However, a continuous facility can be developed that utilizes a combination of railroad, trail, and rail-with-trail sections to create an innovative, 40-mile “rail + trail” system. The project is illustrated in the map on the following page. Detailed section maps are provided in the full report, as follows:

Section 1: Rondout Trolley Trail

Section 2: Downtown Kingston Trail

Section 3: O&W Trail Connector

Section 4: I-87 to West Hurley Station

Section 5: West Hurley to Boiceville

Section 6: Boiceville to Phoenicia

Section 7: Phoenicia to Highmount

Creating the 40-mile U&D Rail Trail project will take a sustained effort with many partners. Both the CMRR and the Kingston Trolley have relied primarily on volunteers and grants for their support. In order to advance the project, the following ‘next steps’ have been identified:

- **Preserve the Right-of-Way:** Regardless of the outcome of this report, it was the consensus of all participants involved in the project that the top priority is to ensure that the U&D right-of-way remains intact and in public ownership.
- **Conduct an Engineering Assessment:** The current railroad lease includes a provision for routine engineering evaluations of the railroad line. An annual review should be conducted for all sections of track and related structures.
- **“Early Win” Projects:** Support and action at the local level will be a key to success for the rail trail project. Local municipalities and agencies will need to be involved in creating sections of the trail that can be linked over time into the overall concept.
- **Initiate Fundraising and Grant Writing:** There are a variety of funding sources available for projects like the U&D Rail Trail, and all available opportunities should be pursued, including SAFETEA-LU federal transportation funds.
- **Set Up a Maintenance Endowment:** Many successful trails establish a fund for ongoing operation and maintenance. Starting this effort at the beginning of a trail project will help sustain effort in the future.
- **Public-Private Non-Profit Partnership:** Establish a “Friends of the U&D Rail Trail” non-profit organization to advocate for the project, and reconfigure the County RTC and/or Rail Advisory committee to include the involved agencies and organizations required to advance the project.



Participants at a U&D Rail Trail public meeting, in the Town of Olive. (Photo: J.Olson)

The future vision of the Ulster & Delaware Rail + Trail is a significant opportunity for local communities, Ulster County, and the region. The combination of two historic tourist railroads, the trolley and railroad museums, restored historic sites, and a trail for multiple uses will compliment the tourism and recreation economy of the Catskill Mountain Region. The project can become a model of sustainable transportation and cooperation between a wide range of public, private, and non-profit partners.



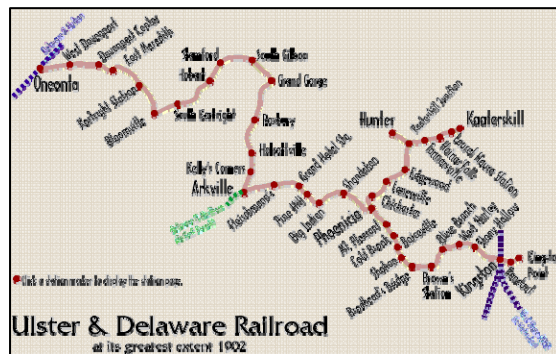
A possible vision of the future for Ulster County: clockwise from bottom left: Tourists of all ages enjoy the CMRR in Phoenicia; The existing right of way at Washington Street in Kingston; A multi-modal train service in California; An artist's rendering of a new trail along the CMRR line at Washington Street in Kingston.
(Photos: J.Olson)

2. Project Background and Purpose

The purpose of the Ulster & Delaware Railroad Corridor Trail Feasibility Study is to analyze the feasibility and potential for the phased implementation and maintenance of a trail system within the Ulster and Delaware Railroad Corridor right-of-way, from Kingston Point Park on the Hudson River to the Belleayre Mountain Ski Resort at the Delaware County line. The majority of the approximately 40-mile right-of-way of the former Ulster & Delaware Railroad is currently leased by Catskill Mountain Railroad and owned by Ulster County and the City of Kingston. Currently, two operators utilize active sections of the railroad corridor: (1) Catskill Mountain Railroad and (2) the Trolley Museum of New York. Ulster County purchased the majority of the Ulster and Delaware Railroad right-of-way in 1979. The U&D Railroad Trail Corridor presents a potential opportunity for a continuous transportation and recreation corridor from the Susquehanna River in Oneonta to the Hudson River in Kingston.

In 1991, the Catskill Mountain Railroad Co., Inc. (CMRR) signed a 25-year lease with the County, with the intent of providing tourist railroad service. Currently, CMRR operates the Catskill Mountain Railroad Scenic Train, (a 14-mile, 90-minute round trip excursion, three times per day between Phoenicia and Boiceville), and the Esopus Creek Shuttle, (a six-mile round trip, which operates hourly between Mount Pleasant and Phoenicia and provides service for both excursions and people tubing on the Esopus Creek). CMRR is a volunteer, for-profit corporation, with approximately 30-40 volunteers per year providing railroad operations and maintenance. To the west of the Belleayre Ski area in Delaware County, the Delaware and Ulster Rail Ride operates scenic train service between Arkville and Roxbury, and the 19-mile Catskill Scenic Trail has been developed from Grand Gorge to Bloomville.

The Trolley Museum of New York is a non-profit educational museum founded in 1955. The goals of the museum are to “offer a ride to the public and through exhibits and educational programs to share the rich history of rail transportation and the role it played in the Hudson Valley region.” In addition to displays of trolley, subway, and rapid transit cars from the United States and Europe, an excursion ride runs 1 1/2 miles from the foot of Broadway in downtown Kingston, to Kingston Point Park on the shore of the Hudson River. A small causeway and a trail were reconstructed in 2002 with a federal Recreation Trails Program grant.



Map of the Ulster and Delaware Railroad in 1902, showing the line from Kingston to Oneonta.
 Source: Ulster & Delaware Railroad Historical Society, [www.udrrhs.org/ images/map/udmap2.gif](http://www.udrrhs.org/images/map/udmap2.gif)

Regional Heritage and Culture

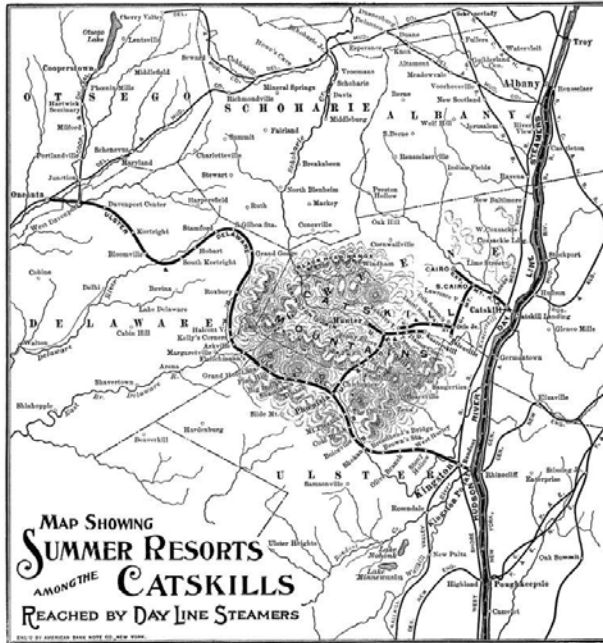
Ulster County, the Hudson River Valley, the Catskill Mountains, and the U&D Railroad corridor are rich in history and culture. Key military routes from the American Revolution are documented in the area. The region's landscape was the setting for the famous Hudson River School painters. Catskill tanneries supplied most of the saddles used in the Civil War. Native American sites are located throughout the river valley, but the mountain landscape above Kingston was only occasionally inhabited by permanent residents before the arrival of Dutch, English, Irish, and German settlers in the 1800's. The region's history also includes logging, bluestone quarrying, wintergreen and blueberry harvesting, and even World War II pilot training. The Catskills offer some of the finest trout fishing in the east; the Beaverkill-Willowemoc area is the birthplace of fly fishing in America. Kingston was the first Capital of New York State, and its historic districts are a center for county government and business. The Catskill Park and Forest preserve are among the premier examples of land conservation in the U.S. The legend of Rip Van Winkle is based in the Catskill Mountains. In the twentieth century, the name Woodstock became a symbol for contemporary music and the arts. All of these elements are part of the heritage and culture of the Ulster and Delaware Railroad corridor.

In 1868, the Ulster & Delaware Railroad was originally built as the Rondout & Oswego Railroad. It ran from Kingston Point on the Hudson River to a connection and shared station with the New York, West Shore, and Buffalo (which later became the New York Central West Shore Branch, Penn Central, and now Conrail / CSX) near Cornell Street and Broadway in Kingston. The tracks then extended through the Shandaken Valley to Bloomsville in Delaware County. The railroad included a branch north from Phoenicia through Stony Clove to Hunter, Tannersville, and Haines Falls (the tracks were removed from this section in the 1940's.). In the early 1900's, the U&D was completed to connect with the Delaware and Hudson Railroad in Oneonta.

Trains of the Ulster & Delaware Railroad carried vital freight and tourist traffic to and from the region. Bluestone for the sidewalks of New York and other cities as far away as Cuba and Europe was quarried along the line, and dairy products were delivered to the city by rail. Summer tourism brought city dwellers to the region's boarding houses and grand hotels. In 1913, more than 676,000 passengers rode the U&D to the Catskills. Indeed, traffic was so heavy in the first two decades of the century that automatic block signaling was installed to Phoenicia, and the entire line graded and spiraled to allow 60 mph running. In subsequent years, the New York Central railroad operated on the U&D tracks, and was succeeded by the Penn Central Railroad. In the 1930s, special ski trains provided service to the Simpson Ski Slope in Woodland Valley. During the railroad's heyday, through coaches and Pullman sleepers (some from as far as Washington) coupled onto U&D trains. Coaches would stand ready at Kingston Point for the steamships of the Hudson River Day Line, then load additional passengers at Kingston Union Station connecting out of Weehawken, before taking on the steep mountain grades.

Suffering losses of both freight and passenger business in the early 1930's, the railroad was taken into receivership February 1932, then sold to the New York Central. The post-World War II growth in automobile use and the construction of the New York State Thruway (I-87) led to a reduction in railroad travel. The New York Central's successor, Conrail, abandoned the railroad in 1976, by then

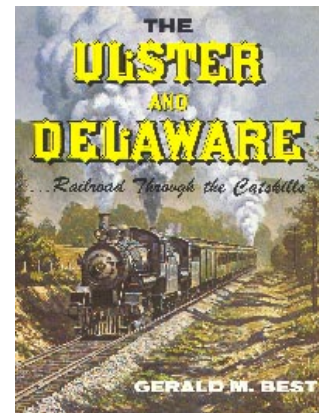
shorn back past Stamford. Ulster County acquired the corridor and saved the remaining trackage and the right-of-way for future use.¹



Map showing the connections between Day Line Steamers on the Hudson River at Kingston and the Ulster & Delaware Railroad Source: www.catskillarchive.com/rextra/udpage.html

A detailed history of the U&D Railroad by author Gerald M. Best tells the story of the "Railroad Through the Catskills."

Source: www.theoldandwearycarshop.com/uanddbest.jpg



¹ Sources: Castkill Mountain Railroad, http://www.catskillmtrailroad.com/about_us.htm, Empire State Railroad Museum, http://www.esrm.com/esrm/phoenicia_station.htm,,

Empire State Railway Museum

In 1985, the Phoenicia Station was purchased by the Empire State Railway Museum, Inc. and the SHARP committee, a community-based redevelopment agency. The station is listed on the National Register, and has been renovated as the home of the Empire State Railway Museum. The former baggage room is now an exhibition gallery for the Museum's collection of photographs and local railroad artifacts. The waiting room hosts regular seminars and membership meetings. The Museum's vision is that the former Ulster & Delaware tracks will become the Northeast's premier scenic railroad, and the Phoenicia Station will once again become a busy passenger depot.

The historic Phoenicia Station is now the home of the Empire State Railway Museum.

Source: http://www.esrm.com/esrm/phoenicia_station.htm



The Trolley Museum of New York

The Trolley Museum of New York is a non-profit educational museum founded in 1955. The goals of the museum are to “offer a ride to the public and through exhibits and educational programs to share the rich history of rail transportation and the role it played in the Hudson Valley region.” In addition to static displays of trolley, subway, and rapid transit cars from the United States and Europe, an excursion ride runs 1 1/2 miles from the foot of Broadway in downtown Kingston, to Kingston Point Park on the shore of the Hudson River. A small causeway and a trail were reconstructed in 2002 with a federal Recreation Trails Program grant. Picnic tables are available at the Hudson River and the West Strand Park (Rondout Creek) trolley stops. Along the way, the trolley stops at the museum grounds.

The museum is on the original site of the Ulster and Delaware Railroad yards at Milepost 1. The main building is built on the foundation of the engine house which existed at the turn of the century. The upper level includes a Visitors Center featuring seasonal and permanent displays, a video viewing area, and large windows overlooking the restoration shop. Visitors can see up to eight trolley cars being housed and restored below.

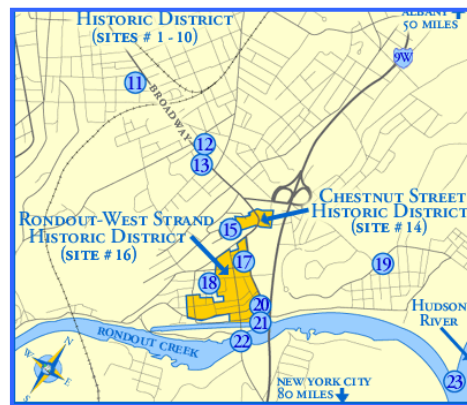
A restored former trolley stop shelter is used as a picnic area along the Hudson River waterfront in Kingston.

Source: <http://www.tnny.org/>



Kingston Urban Cultural Park

New York State's innovative Urban Cultural Park / Heritage Area program highlights the unique histories of communities throughout the state. Established in 1982 as a joint venture between the New York State Office of Parks, Recreation, and Historic Preservation and 22 historically significant communities, the UCP Program incorporates 16 Urban Cultural Parks. Kingston's Urban Cultural Park/ Heritage Area works closely with local businesses and the Chamber of Commerce to combine economic development with good preservation practices. The Kingston UCP/HA has created a series of outreach, history, and educational programs including Stockade Day, Artober--A Celebration of Art, and World War II Commemorative Weekend. The well-known "Reenactment of the Burning of Kingston," the Tall Tales Festivals, and holiday tree-lighting celebrations, are all annual events developed through the program, as are Band Concerts on the Waterfront and the City's trolley and walking tours of historic districts.



Logo and Map of the Kingston Urban Cultural Park and Heritage Area.

Source: <http://www.cr.nps.gov/nr/travel/kingston/urbanpark1.htm>

Catskill Park and Forest Preserve

“The Catskill Park is a mountainous region of public and private lands in Ulster, Greene, Delaware and Sullivan Counties - the "forest preserve" counties. Ninety-eight peaks over 3,000 feet high form an impressive skyline. Its blend of public and private lands is typical of large parks in Europe, where people and unique lands have coexisted for centuries. The Catskill Forest Preserve is the state land within the Catskill Park. Since its creation in 1885, it has grown from 34,000 to almost 300,000 acres. The forest preserve has thousands of acres of forests with meadows, remnants of old farmsteads, lakes, rivers, springs, waterfalls, cliffs, fire towers, bears, rattlesnakes and other wildlife, rare plants and animals. Also, there are hundreds of miles of abandoned woods, roads, and trails to enjoy. Today, it serves as a watershed, recreation area and ecological and scenic reserve.

Special areas, including spruce-fir forests on boreal mountaintops, wetlands, trout streams, rattlesnake dens, and old-growth forests are found throughout the forest preserve. Coyotes, bears, bobcats, minks and fishers are some of the more secretive residents of the Catskills, but coyotes are often heard and some of the 400 bears that live in the region are spotted, even though they generally avoid people. Red squirrels and porcupines are

more common at higher elevations where they live among the balsam fir, red spruce trees and flowers of the boreal forest. Old growth hemlock and northern hardwood forests on steep mountainsides and remote valleys were so inaccessible that they survived the logging, tanbarking and charcoal industries of the past 300 years. Elsewhere, repeated fires have burned deeply into the shallow mountain soils, forming mountaintop blueberry meadows.”

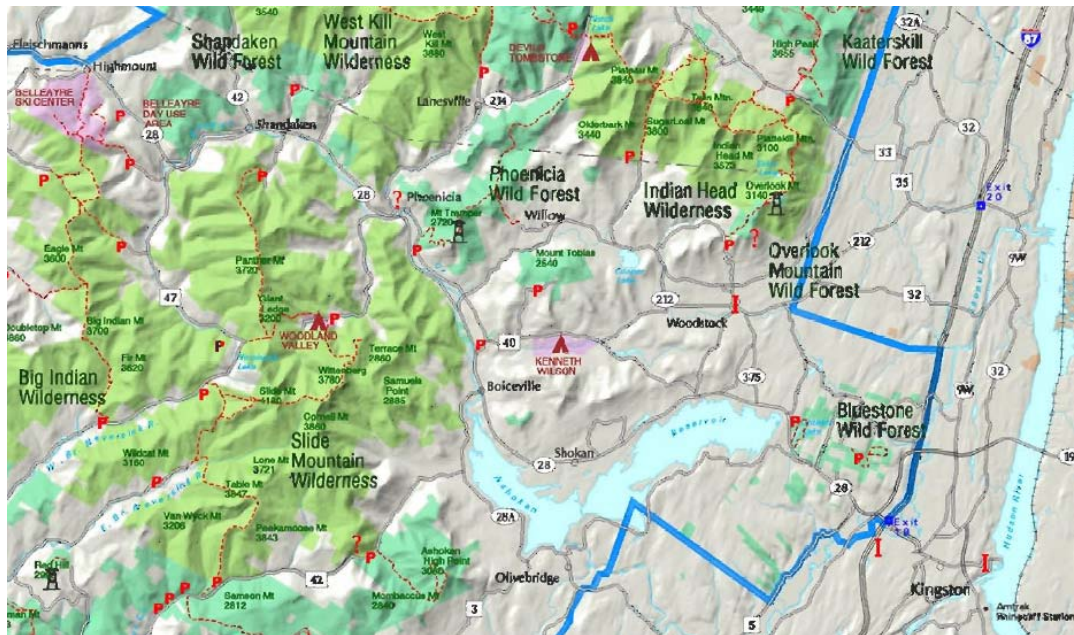
Today, over 60 percent of the lands in the Catskill Park is privately owned, with about 50,000 people living there year-round; the rest is publicly owned “forest preserve.” Hunting is permitted on forest preserve lands. Hunting, fishing and trapping licenses are required.

Source: NYSDEC <http://www.dec.state.ny.us/website/dlf/publands/cats/>

Both Wilderness and Wild Forest lands are located adjacent to the U&D railroad corridor. New York State land use areas in the study area include:

- Belleayre Ski Center
- Belleayre Day Use Area
- Shandaken Wild Forest
- West Kill Mountain Wilderness
- Slide Mountain Wilderness
- Phoenicia Wild Forest
- Bluestone Wild Forest

These land use classifications are illustrated on the map below:



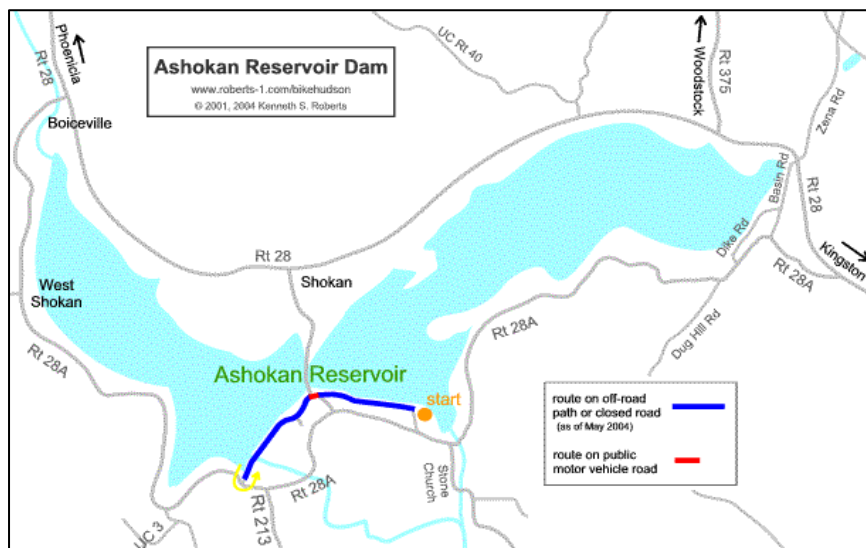
NYSDEC map of the Catskill Park and Forest Preserve.

Source: <http://www.dec.state.ny.us/website/dlf/publands/cats/catlarge.pdf>

Ashokan Reservoir

The New York City Water Supply watershed extends 1,972 square miles across parts of eight New York counties and Fairfield County, Connecticut. It is the largest unfiltered surface water supply in the world. The Catskill/Delaware watershed is responsible for almost 90% of New York City’s water supply. Ashokan Reservoir supplies about 40% of New York City’s daily drinking water needs in non-drought periods. Ashokan is located in Ulster County, about 13 miles west of Kingston and 73 miles north of New York City. The reservoir was formed by the damming of the Esopus Creek, which eventually flows northeast and drains into the Hudson River. It holds 122.9 billion gallons at full capacity and was placed into service in 1915. The Ashokan watershed’s drainage basin is 255 square miles and includes parts of 11 towns: Denning, Hardenburgh, Hurley, Kingston, Marbletown, Olive, Shandaken, and Woodstock in Ulster County; Hunter and Lexington in Greene County, and Middletown in Delaware County.

The history of the Ashokan Reservoir and its construction included significant challenges and controversy. Nine villages were either removed or obliterated by the construction of the reservoir. These included West Hurley, Ashton, Glenford, Brown’s Station, Olive Bridge, Brodhead, Shokan, West Shokan and Boiceville. Approximately 1,200 residents were forced to be relocated, and much of the land was taken by eminent domain. Eleven miles of the Ulster & Delaware Railroad tracks were taken up and relocated from the original route along the Esopus Creek valley to the current route along the north shore of the reservoir. Sixty-four miles of highway were discontinued, including a long stretch of the historic Plank Road. Forty new miles of boulevard were built, mainly of macadam, and ten new bridges were constructed. The current reservoir has roads around its entire perimeter, including State Routes 28 and 28a, and the causeway separating the two holding basins. A shared-use path is currently in use on the south side of the reservoir, and experienced road bicyclists ride the on-road loop around the perimeter.



A bike route map for the Ashokan reservoir shows the shared-use path on top of the dam on the south side.

Source: http://www.roberts-1.com/bikehudson/r/west/ash_dam/map/

In January 1997, Governor Pataki concluded negotiations that involved the City, the State, EPA, representatives of the counties and towns, residents of the watershed, and representatives from environmental groups with the signing of a Catskill Watershed Memorandum of Agreement (MOA). The MOA supplemented the City's existing watershed protection program with approximately \$350 million in additional funding for economic-environmental partnership programs with upstate communities, including a water quality investment program, a regional economic development fund, and a regional advisory forum for water quality initiatives and watershed concerns. The State issued a land acquisition permit, which allows the City to purchase land in the watershed, and approved a revision to the City Watershed Rules and Regulations governing certain aspects of land use in the watershed.

The Ulster & Delaware Railroad corridor from mile points 10-22 is currently permitted by NYCDEP for railroad purposes only. Many New York City Water Supply reservoirs and lands are open to the public for low-impact recreational activities when compatible with water supply protection. In order to responsibly provide recreation access to City property, DEP issues a comprehensive permit — The Access Permit — that allows for fishing and hiking on certain designated areas in the watershed. Access Permit holders may also obtain a DEP Hunting Tag for deer hunting and a DEP Boat Tag for keeping a rowboat at one of the reservoirs for fishing. *Hiking is not allowed at or around any of the New York City reservoirs, but a number of other City properties throughout the watershed are open for hiking.* People must have a valid Access Permit in order to enter these areas and they must agree to abide by the following permit conditions. Use of the corridor as a trail for walking, bicycling, and other uses would require new permission for NYCDEP for the change in use.

Sources: <http://www.nyc.gov/html/dep/watershed/html/ashokaninfo.html>
<http://www.nyc.gov/html/dep/watershed/html/wsrecreation.html#application>,
<http://www.nyc.gov/html/dep/watershed/pdf/wsrerules.pdf>

Proposed Rules and Regulations for the Recreational Use of Water Supply Lands and Waters

§. 16.07 Property Use and Designation

(a.) **Hiking.** Hiking is allowed only at Hiking Areas and Public Areas

(1) **Hiking Activities:** Activities permitted in hiking areas are hiking, walking, running, cross-country skiing, snowshoeing, bird watching, nature observation and photography.

(2) **Additional Activities:** Cycling is allowed at Public Areas only, unless otherwise posted. Other Activities may be allowed or restricted in accordance with NYSDEP postings or notices.

(3) **Season:** Access to Hiking Areas and Public Areas is year-round except as otherwise restricted by these regulations or other NYSDEP postings or notices.

Source: Proposed Rules and Regulations for the Recreational Use of Water Supply Lands and Waters , NYSDEP 2004, <http://www.nyc.gov/html/dep/watershed/pdf/wsrerules.pdf>

Existing Conditions Summary

The Ulster & Delaware Railroad corridor is a regional asset. It includes significant heritage and cultural resources, and can provide important transportation and recreation benefits. Its existing conditions can be summarized as follows:

- The corridor is approximately 40 miles long, from the Hudson River in Kingston to the Belleayre Ski center. The majority of the former U&D railroad line is owned by Ulster County. These lands were acquired from the Penn Central Railroad Corporation in 1979 for \$1.5 million dollars.
- The Castskill Mountain Railroad (CMRR) is a volunteer operated, for profit tourist railroad. The CMRR currently operates on seven miles of track between Phoenicia and Mt. Tremper. CMRR has a 25-year lease from the County on the old U&D line from Downs Street in Kingston to the Delaware Count line. The lease was originally between Ulster County and the Ulster County Industrial Development Agency (IDA), and then assigned by the IDA to CMRR on May 29, 1991. The lease requires CMRR to pay the County a percentage of gross railroad revenue, to “*expend a minimum of \$25,000 to rehabilitate a minimum of 1 mile of track per lease year*” and to “*perform all maintenance necessary to keep the rehabilitated track at <a> Class 1 standard.*” The end date of the lease is May 31, 2016.
- The Trolley Museum of New York operates vintage trolleys on the 1.5-mile section of track beginning at the Hudson River in Kingston. This section is owned by the City of Kingston.
- The New York City Department of Environmental Protection (NYCDEP) owns the land under the railroad right-of-way along the north shore of the Ashokan Reservoir. The tracks were moved from their original alignment along the Esopus Creek Valley when the reservoir was built in the early 1900’s. The U&D right-of-way is operated under a NYCDEP permit that currently does not allow uses other than railroad operations. Hunting, fishing, and hiking are allowed under permit on certain lands by DEP.

3. Trail User Identification and Safety Assessment

Trail User Identification

Identifying the needs of trail users is critical to providing appropriate trail alignments and design features that respond to the surrounding community and anticipated uses of the trail. It is important to understand who will be using the trail, how they will use it, and what types of amenities will be most effective in making this trail an asset to the surrounding community. The trail's design will need to respond directly to the needs of the trail users and managers, including the mobility impaired; provide interpretive information for heritage tourism; provide intermodal connections between the trail and railroad; and contain access points along the route.

Description of Potential Trail Users:

- 1. Pedestrians:** This group includes people of multiple ages and abilities from children through seniors, who require a smooth walking surface, clearly delineated crossings, benches, and shade for resting. This group may include long-distance hikers who are traveling through the region's trail system (and require camping sites), day-hikers who will walk a section of the trail (3-10 miles a day) and casual walkers looking for an hour of exercise and relaxation on the trail.
- 2. Runners:** Many runners prefer soft (dirt, crushed stone or cinder) surfaces or trail shoulders as an alternative to asphalt or concrete. Generally recreational users, runners are less likely than bicyclists to be commuting on trails.
- 3. Disabled:** People with disabilities require smooth, firm, ADA compliant pathways, with rest areas on steep grades, maximum 2% cross slopes, barrier-free facilities, and accessibility information at trailheads. It is important to note that the ADA applies to all types of physical and cognitive disabilities, including hearing and vision impairments as well as wheelchair access.
- 4. Bicyclists:** People on bicycles include several types of skill levels, from children and seniors who ride between 5 to 10 mph to highly skilled cyclists capable of sustaining speeds of more than 20 mph, to mountain bicyclists who may use pathways for access to more rugged single track trails. Road and touring bicycles require smooth, firm surfaces free of cracks, seams, or other surface imperfections.
- 5. In-Line Skaters:** Skaters require both a very smooth surface and wider pathways due to their swinging motion. They prefer asphalt pathways 10 ft. wide, with limited downhill grades.
- 6. Equestrians:** Horseback riders are concerned with multiple-use conflicts, especially with bicyclists since horses can react suddenly to them. Equestrians are able to ride on 'natural' surfaces with minimal maintenance. They require water, parking for horse trailers, and adequate height clearances.

7. Winter Trail Users: These uses include skating and track skiers, and snowshoe users, who require different groomed surfaces. Winter users can operate over frozen sections that may not be accessible year-round.

8. Transit Customers: This group includes passengers who use the Catskill Mountain Railroad, the Kingston Trolley, and regional bus transit system who are pedestrians, bicyclists, skiers, and others who choose to travel without using a private motor vehicle.

9. Motorized Trail Uses: ATVs and snowmobiles are generally not allowed on shared-use pathways. There are exceptions, and in some cases snowmobiles and ATV users may help groom and maintain trails. This issue must be handled carefully, since the speed and range of motorized trail users can create safety and operational conflicts with non-motorized trail uses.

10. Water Trails: The Esopus Creek is often used by people canoeing, tubing, and kayaking. The CMRR provides shuttle service for these uses, and there is potential for improved access and amenities to people using the creek as a water trail.

11. Hunting and Fishing: These uses are part of the Catskill Mountain heritage. The trail can provide improved access for hunting and fishing, as long as appropriate measures are provided to ensure the safety of people using the trail during hunting season.



The range of potential trail issues includes transit customers, safe crossings, ADA access, and shared multiple uses along the trail.

(Photos: J.Olson)

Safety Assessment

Trail safety consists of a range of issues including road crossings, possible on-road segments, and the continuing use of the railroad – especially in a potential rail-with-trail alternative. The existing field conditions must be addressed for topographic constraints, isolation, and general trail user directional orientation. Also, multi-use trails attract a wide variety of users that may have inherent conflicts. For example, mountain bikes may not mix well with equestrian users, and in-line skaters may pursue a different set of interests from bird watchers. Finally, security and safety concerns surrounding the Ashokan Reservoir and water transmission facilities must be identified. Specific solutions should be proposed to reduce user conflicts along the trail and promote trail safety. Site-specific physical and operational conditions for each alignment are required to maximize user safety.

User Safety – Existing Conditions

Roadway crossings, topographic constraints, isolation, emergency access, and general trail user directional orientation are key issues. The following field and data observations should be taken into consideration during project design:

Trail – Roadway Crossings: Trail-roadway crossings should be grade-separated or provided with well-designed at-grade crossings. All crossings should be provided with appropriate Manual of Uniform Traffic Control Devices (MUTCD) compliant signage and/or signals where at-grade crossings are necessary. There are approximately 30 roadway crossings of the U&D right-of-way between Kingston and Belleayre Ski area. The majority of these crossings are low-volume, unsignalized, at-grade crossings of two-lane roads, while the others include crossings of State Route 28 and existing railroad trestles and bridges.



Examples of trail/roadway crossings include well-marked and signed at-grade crossings with refuge islands (L) and grade separated crossings which include either tunnels below grade or pedestrian/bicycle bridges (R).

(Photos: J.Olson)

New York State Route 28 Traffic Data: Since one potential alternative for the corridor may include a trail or on-road bicycling route in the NYS Route 28 highway corridor, it is important to consider the existing conditions for traffic volumes, speed, and safety along the roadway. Route 28 is currently a 55mph State highway with four lanes from Kingston to Mount Tremper, and two lanes from Mt. Tremper to the County line. The route is designated as New York State Bike Route 28, and paved shoulder conditions vary from new sections with 6-8 foot paved shoulders to narrow sections with poor pavement. Current roadway volume conditions include:

NYS DOT Traffic Volume Data

Location:	Average Annual Daily Travel (motor vehicles)
Phoenicia	4400 AADT
Mt. Tremper	5960
Route 209	20,300
Route 28a	400 -800 (Between Boiceville and Stony Hollow)

Source: NYS DOT 2003 Traffic Volume Report
http://www.dot.state.ny.us/tech_serv/high/2003tvbk.pdf



Route 28 is designated as part of the New York State Bike Route System.

(Photo: J.Olson)

Safety Data: According to the 2003 Ulster County Transportation Plan, Route 28 has 1.5-3.5 crashes per million vehicle miles traveled; the area east of the Route 209 junction to the Kingston city line has 12-20 crashes per million vehicle miles traveled. This is the highest level of crashes identified in the 2003 Plan, but does not reflect the potential benefits of the new roundabout installed at the NYS Thruway entrance. Bicyclist and pedestrian crashes represent a small percentage of the total number of crashes in the corridor, but it should be noted that there are no existing traffic counts of pedestrians or bicyclists, so it is not possible to establish a crash rate for these modes. (Source: <http://www.co.ulster.ny.us/planning/uctc/2.6.pdf>)

Recreation Data: Trails have historically been an important part of the Catskill region. Since there are no large population centers between Kingston and the Delaware County line, a successful trail (and/or tourist railroad) must be a destination attraction to encourage tourism and recreation for Ulster County and the Hudson Valley region. The potential exists for this kind of facility, and there is documented demand for trails in New York State. Walking, bicycling, and trail uses are among the most popular outdoor activities statewide. Facilities for walking and bicycling were ranked as the top priorities identified by Park professionals for new recreational facilities in the New York State Comprehensive Outdoor Recreation Plan (SCORP) in 2003. SCORP also estimates that more than 14,000,000 people walk or bike for recreation in New York State, and that these numbers are expected to grow by 2020.

Health Data: America is currently experiencing a health epidemic - caused, in part, by a lack of physical activity. This issue is not usually considered in a typical safety analysis, but warrants attention in the case of a potential trail corridor. Obesity, caused by poor diet and lack of exercise, is a leading cause of cardiovascular disease, diabetes, and other conditions. Part of the solution to this epidemic is providing facilities for people to walk, bicycle, and be more physically active. Trails are an important part of this solution, and the U&D corridor could provide a significant health benefit to people who use the trail.

According to data from New York State Department of Health County Health Indicator Profiles, **cardiovascular disease accounts for more than 30% of all fatalities in Ulster County.** In 2003, more people died from heart disease in Ulster County than from lung cancer, AIDS, homicides, and motor vehicle crashes combined. (Source: <http://www.health.state.ny.us/statistics/chip/ulster.htm>). The specific benefits of the U&D corridor for physical activity will depend on a variety of factors, including how well connected the trail is to adjacent communities (especially the City of Kingston, which is the largest population center along the corridor), integration into a regional trails system, and its ability to attract trail users from both local residents and visitors to the region. In order to achieve physical activity benefits that reduce the risk of cardiovascular disease, the U.S. Surgeon General recommends that the average American get 30 minutes of exercise, 5 days a week.

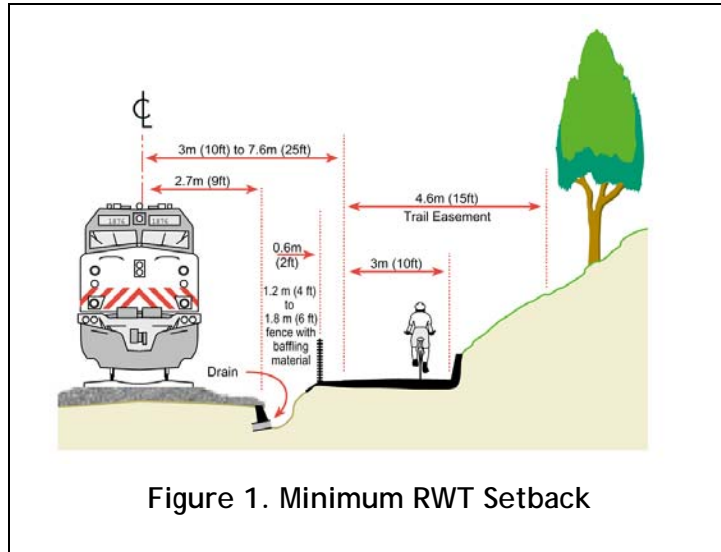
Rail with Trail (RWT) Considerations: Setback and Separation

Appropriate setback and separation techniques are key issues for potential rail-with-trail projects. The *2002 Rails-with-Trails: Lessons Learned* report, produced by Alta Planning + Design for USDOT, found that the range of trail setback on existing RWTs varies from less than 2.1 m (7 ft) to as high as 30 m (100 ft), with an average of almost 10 m (33 ft) of setback from the centerline of the nearest track. A comparison of RWT setback distance to both train speed and frequency reveals little correlation; over half (33 of 61) of the existing RWTs have 7.6 m (25 ft) or less setback, even alongside high-speed trains. Many of the trails identified in the national study with limited setbacks are ones that have been established for many years. The trail managers for these well-established trails report few problems. However, interviews with train engineers in several areas indicate that they observe a tremendous amount of daily trespassing and problems in areas with little setback and no physical separation.

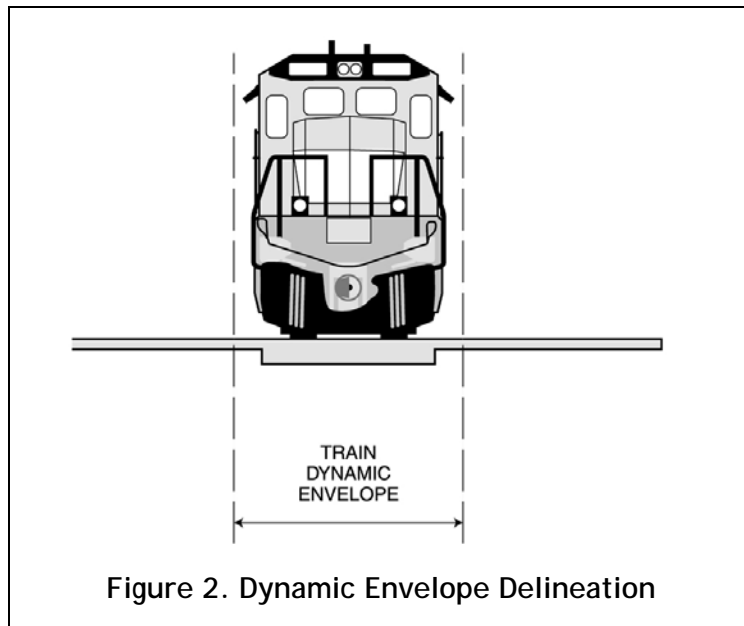
There is no current standard for either ‘typical’ setback requirements or a method of determining these requirements. Some trail planners use the AASHTO Bike Guide for guidance. Given that bicycle lanes are set back 1.5 to 2.1 m (5 to 7 ft) from the centerline of the outside travel lane of even the busiest roadway, some consider this analogous. Others use their State Public Utilities Commission’s (PUC) minimum setback standards (also known as ‘clearance standards’), developed for adjacent railroad switchmen’s walkways. For example, the Pennsylvania PUC has a standard setback dimension of 12 feet and has strict requirements for any variance. New York State is currently reviewing potential RWT guidelines, but has not published them at this time. It is possible that a flexible guideline can be adopted in New York that would provide for a desired 12 foot minimum setback dimension, but also allow exceptions based on environmental, right-of-way, or other constraints. This is the concept currently being proposed for the Saranac-Lake Placid RWT, which runs parallel to the Remsen-Lake Placid tourist railroad and has similar conditions to the U&D line. Because of the lack of standards on setback distances, the appropriate distance must be determined on a case-by-case basis. In addition, the U&D project will need to incorporate the following technical factors, including:

- type, speed, and frequency of trains in the corridor: (currently tourist rail, under 20 mph, less than 10 trips per day, weekends only)
- separation technique: (consider fencing for sections within minimum required setback of 12 feet)
- topography: (uphill grade between Kingston city line and Ashokan Reservoir, rolling terrain west of the Reservoir, uphill grade to Highpoint)
- sight distance: (varies along corridor, limited due to encroaching vegetation)
- maintenance requirements, and
- historical problems: (multiple washouts have occurred periodically along the Esopus Creek)

Relatively narrow setback distances of 3 m (10 ft) to 7.6 m (25 ft) may be acceptable to a railroad, RWT agency, and design team in certain situations, such as in constrained areas, along relatively low speed and frequency lines, and in areas with a history of trespassing where a trail might help alleviate a current problem. The presence of vertical separation or techniques such as fencing or walls also may allow for narrower setback. (see Figure 1 below).



At an absolute minimum, trail users must be kept outside the “dynamic envelope” of the tracks – that is, the space needed for the train to operate (see Figure 2 below). According to the MUTCD (Section 8), the dynamic envelope is “*the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure.*” It includes the area swept by a turning train.



According to the *2002 Rails-with-Trails: Lessons Learned* report, over 70 percent of existing RWTs utilize fencing and other barriers such as vegetation for separation from adjacent active railroads and other properties. Barriers include fencing (34 percent), vegetation (21 percent), vertical grade (16 percent), and drainage ditch (12 percent.) The fencing style varies considerably, from chain link to wire, wrought iron, vinyl, steel picket, and wooden rail. Fencing height ranges from 0.8 m (3 ft) to 1.8 m (6 ft), although typical height is 0.8 to 1.2 m (3 to 4 ft.). Other barrier types such as vegetation, ditches, or berms are often used to provide separation, especially where a RWT is located further than 7.6 m (25 ft) from the edge of the trail to the centerline of the closest track, or where the vertical separation is greater than 3 m (10 ft). In constrained areas, using a combination of separation techniques may allow narrower acceptable setback distances.

The existing U&D corridor has the railroad tracks in place, with numerous bermed sections, drainage, wetlands and restrictive land uses within the existing right-of-way. Trail feasibility will need to balance these constraints with appropriate setback and separation techniques for RWT sections.

(Photo: J.Olson)



Isolated Sections: Throughout the Ulster & Delaware corridor, there are locations where the right-of-way is more than a mile in length between road crossings and trail access points. In addition to the section along the Ashokan Reservoir, this condition occurs between the Belleayre Ski area and Phoenicia, between Phoenicia and Mt. Tremper, and between the City of Kingston and Ashokan reservoir. The areas along the right-of-way are generally remote, including sections of the NYSDEC Slide Mountain and West Kill Mountain Wilderness areas between Belleayre and the west end of the reservoir at Boiceville. For most of these sections, population is limited to small hamlets and limited developed areas along Route 28. Access to Route 28 will be important for emergency, trail access, and general services. It is important to note that mobile phone coverage is limited in the study area, particularly in the area west of Ashokan Reservoir.

Trail Orientation and Visibility: The proposed U&D trail should be clearly identified at all roadway crossings, trestles, and junctions. On the trail, signage should indicate the names of all crossing roads. Trail mile points and distance-to-destination signage should be provided to maintain user orientation and accurate locations for emergency response, if necessary. There are more than 30 roadway crossings on the current U&D railroad alignment between the City of Kingston and the County line.

Managing Multiple Uses: A significant challenge for shared-use trails is the need to manage multiple and potentially conflicting trail user groups. The following section provides a general overview of concepts for managing multiple uses in the U&D corridor:

- Plan, design, and manage to reduce conflicts among users with adjacent properties, including: reckless and unsafe behavior; incompatible uses and values; trespass; disturbances and adverse environmental impacts.
- Recognize the different goals of different users, such as equestrians and bicyclists, and separate them where feasible.
- Provide user education through signage, patrol, volunteers, brochures, and media.
- Provide adequate trail mileage and open space acreage to accommodate user populations.
- Solicit input from user groups.
- Monitor, document, and log problem areas and address problems through design and management.
- Promote trail etiquette.
- Educate bicyclists and hikers on how to pass horses using subdued voice cues rather than bells, horns, or sudden loud noise that might startle a horse.
- Avoid excessive regulatory and negative signage and “heavy handed” enforcement.
- Employ temporary closure of facilities when conditions dictate or for resource recovery.



In addition to having trail users ‘share the trail’ with each other, it is equally important for them to respect adjacent property owners and managers. Many sections of the U&D corridor are located on or near significant resource areas, private property and businesses. The following section offers guidelines for making trails and adjacent properties good neighbors.

Reducing Conflicts with Trail Neighbors

(Source: Flink, Searns and Olka—*Trails for the 21st Century*)

- Provide contact information for reporting problems.
- Maintain facilities regularly.
- Distribute or publish a trail maintenance schedule.
- Respond to illegal or disturbing activity quickly.
- Meet periodically with neighbors and provide other feedback means.
- Respond promptly and effectively to complaints, concerns, and suggestions.

Ashokan Reservoir: Safety and Security

The Ulster and Delaware Railroad Corridor passes through New York City owned land around the Ashokan Reservoir. The environmental sensitivity and attractiveness of the reservoir creates unique safety, security, trail alignment, and access restrictions to satisfy New York City Department of Environmental Protection (NYCDEP) concerns. Since the current permitted use of the U&D Railroad corridor does not include the trail, these issues must be addressed if a trail is to be developed.

Access to NYSDEP lands is regulated by permitted access only. Permitted uses include hunting, fishing and hiking.
(Photo: J.Olson)



In terms of security of the water supply, it should be noted that boats are allowed on the reservoir, there are roads around the perimeter, and the potential health or terrorist threat posed by trail users is equivalent to these other existing uses. While it is possible to imagine a scenario in which the water supply is poisoned, vandalized, or damaged via access from the trail, this could be potentially mitigated by routine mountain bike or vehicular patrols and access controls on the trail in the vicinity of the reservoir.

Trail user safety is a concern for potential drowning, forest fire danger, isolated locations along the reservoir, and limited access for emergency personnel. A key issue is whether trail users will be required to have a NYCDEP permit to use the trail – this would be a limitation for visitors and infrequent trail users, but would provide a measure of control for the agency. Signage (and possibly fencing) will need to clearly delineate the trail boundary and use regulations.

It should also be noted that the trail could potentially have positive benefits for safety and security of the Ashokan Reservoir, and could provide positive public relations benefits for NYCDEP. Discussions with NYCDEP staff indicated that they do not currently perceive that the potential for improved security patrols would be significant, and that the increased public access would be a challenge to their enforcement capabilities. If a trail or RWT were developed, law enforcement could have improved access to the perimeter of the reservoir on the trail, but provisions would have to be made for routine patrols, maintenance access, and emergency operations.



Access to the NYSDEP lands around Ashokan Reservoir is currently access controlled by gates (L) and barriers (R). Note that the signs in the photo on the right, of the weir across the reservoir, say “No Motor Vehicles” and “Road Closed, Pedestrian and Bicycle Traffic Only.” This section was closed to motor vehicles as a security measure after Spetember 11, 2001, and has since become a popular pathway and wildlife viewing location.

(Photos: J.Olson)

Summary

- The trail's design will need to respond directly to the needs of multiple trail users and year-round, four-season conditions, including providing for the mobility impaired / ADA compliance, interpretive information for heritage tourism, intermodal connections between the trail and railroad, and multi-functional access points along the route.
- If a trail or RWT were developed along the perimeter of Ashokan Reservoir, law enforcement could have improved access to the perimeter of the reservoir on the trail, but provisions would have to be made for routine patrols, maintenance access, and emergency operations.
- Trail-roadway crossings should be grade-separated or provided with well-designed at-grade crossings. All crossings should be provided with appropriate Manual of Uniform Traffic Control Devices (MUTCD) compliant signage and/or signals where at-grade crossings are necessary.
- State Route 28 is a 55 mph State highway with four lanes from Kingston to West Hurley and primarily two lanes from there to the County line. The route is designated as New York State Bike Route 28, and paved shoulder conditions vary from new sections with 6-8 foot paved shoulders, to narrow sections with poor pavement.
- Facilities for walking and bicycling were ranked as the top priorities identified by Park professionals for new recreational facilities in the New York State Comprehensive Outdoor Recreation Plan (SCORP) in 2003.
- Cardiovascular disease (which is related to a lack of physical activity) accounts for more than 30% of all fatalities in Ulster County. In 2003, more people died from heart disease in Ulster County than from lung cancer, AIDS, homicides and motor vehicle crashes combined.
- New York State is currently reviewing potential RWT guidelines, and it is possible that a flexible guideline can be adopted that would provide for a desired minimum setback dimension, but also allow exceptions based on environmental, right-of-way, or other constraints. A setback of 12 feet from the centerline of the railroad track can be used as a guideline for RWT sections of the U&D corridor.
- The proposed trail will need to be planned, designed, and managed to reduce conflicts among multiple types of users, and with adjacent properties, including consideration of potential reckless and unsafe behavior; incompatible uses and values; trespass; disturbances, and adverse environmental impacts.

4. Alignment Alternatives

Based on the opportunities and constraints identified in the planning process, a series of conceptual alternative alignments were proposed. The following descriptions served as illustrations of possible alternatives for review and discussion. Note that in each alternative, the Catskill Mountain Railroad is considered as an existing condition. Railroad operations are assumed to exist at least until the end of the current 25-year lease between the County IDA and CMRR. In all of the alternatives, the U&D corridor is preserved intact with the rails in place, regardless of which combination of rail and/or trail uses are advanced. The potential alternatives are described as follows:

1. Single Track Trail: This alignment includes a natural surfaced trail parallel to the railroad tracks. This trail would be suitable for hiking, mountain biking, cross-country skiing, and potentially equestrian use in some sections. Any alignment other than rail would require a permit negotiation with the NYCDEP. This alternative's cost would be substantially less than a paved, shared-use path. This type of trail would be similar to other trails in the Catskill Park managed by NYSDEC. In the section west of Phoenicia, the railroad right-of-way would be stabilized and the trail could run on top of the tracks until railroad operations are re-established.

2. Rail-with-Trail: This alternative is proposed as a 10-foot, paved, shared-use path along the entire U&D corridor. It would be designed to allow railroad operations to exist alongside the trail. The path would provide year-round multiple uses for walkers, runners, bicyclists, in-line skaters, cross-country skiers, and equestrians. The Ashokan Reservoir section would require special consideration to ensure security and water quality, and these issues could prohibit the project from advancing. This alternative would provide a maximum amount of intermodal travel using both the train and the trail. However, this option is likely to be the most costly due to the need to accommodate both rail and trail use in the corridor, especially considering wetlands, bridge/culvert repairs, narrow cross-sections of the existing railroad berm, and rock cut areas.

3. 'Hybrid' Rail and Trail: This option integrates a range of solutions within different sections of the 40-mile corridor. Rail operations are oriented to provide service in the existing section, and the section between Washington Street in Kingston and a viewpoint at the edge of the Ashokan Reservoir. Along the reservoir, the U&D right-of-way is allowed to remain in its existing condition until track and bridge repairs can be made, and the shared-use path is routed along Route 28 between the road and the western edge of the NYCDEP lands. This would allow the trail and rail to be developed on "parallel tracks" as independent but complimentary projects, and would provide an alternative to having the currently non-permitted trail uses along the reservoir. West of Phoenicia, the trail could become a single track for hiking and mountain bicycling. The railroad would be able to provide 'uphill' service for the trail for people coming up from Kingston, who could then return downhill along the trail.

These alternatives were evaluated using a matrix that addressed the following criteria:

1. Railroad operations
2. NYDEP environmental/security issues

3. Multiple trail uses
4. Trail user safety
5. Trail connectivity/transportation benefits
6. Economic/tourism benefits
7. Financial feasibility
8. Ease of implementation
9. Impact to adjacent landowners
10. Health and recreation benefits

After review by the Rail Trail Committee and with input from the public, the following key issues were identified for the development of the preferred alternative:

1. Preserve the Right-of-Way. There is significant support for keeping the Ulster & Delaware right-of-way intact along the entire corridor, and for preserving the region's heritage and culture. Rail tracks should remain in place for the remainder of the CMRR and Trolley Museum leases, at a minimum.

2. A Hybrid Solution. Due to constraints identified in the planning process, a 'hybrid' solution is preferred that allows rail and trail operations to coexist within the project corridor, but not necessarily with the same combinations of uses in each section.

3. Flexibility and Phasing. The project can be developed over time, with uses evolving as resources and opportunities become available. The proposed alternative should support this flexible approach.

Based on the analysis developed in prior task reports, the consensus of the RTC participants, and the evaluation of the key issues, a proposed alternative was identified, and it is presented in the following section.

5. Proposed “Rail + Trail” Concept

Overview: The proposed alternative for the Ulster & Delaware Rail Trail is a ‘hybrid’ rail *and* trail project connecting 40 miles of rail and trail facilities from the Hudson River in Kingston to the Belleayre Ski Center in the Catskill Mountains. The project will involve a public-private partnership between Ulster County, the City of Kingston, the New York City DEP, the Catskill Mountain Railroad, the Trolley Museum of New York, and other organizations. Due to right-of-way, environmental, financial, and other constraints, a continuous railroad service with a parallel shared-use path is not currently feasible along the entire corridor. However, by combining concepts based on the opportunities identified within the corridor, a continuous rail and trail theme can be developed. The project is illustrated in sections based on potential for phasing and the characteristics of the proposed concept for each section as follows:

Section 1: Rondout Trolley Trail

Section 2: Downtown Kingston Trail

Section 3: O&W Trail Connector

Section 4: I-87 to West Hurley Station

Section 5: West Hurley to Boiceville

Section 6: Boiceville to Phoenicia

Section 7: Phoenicia to Highmount

The trail mileage, primary trail surface, and structure quantities are summarized in the table below. Note that quantities indicated for different surface types are approximate and will vary depending on the final facility design. Detailed descriptions and maps of each Rail Trail section are provided on the following pages.

Ulster & Delaware Trail by Section								
		Mileage	Feet	Asphalt Feet	Crushed Stone Feet	Bridge Decking'	Bridge Abutments'	At-Grade Crossings
Section	1	2.25	11880	11880	0	460	0	7
Section	2	0.8	4224	4224	0	0	0	6
Section	3	1.5	7920	7920	0	0	0	3
Section	4	5.75	30360	0	30360	200	200	5
Section	5	10.0	52800	0	52800	0	0	3
Section	6	7.0	36960	0	36960	0	0	6
Section	7	12.5	66000	0	66000	520	500	6
Total	*****	39.8	210144	24024	186120	1180	700	36
			Miles	4.55	35.25			

Section 1: Rondout Trolley Trail

Description: Urban Heritage Park

Rail Service: Trolley

Shared Rail with Trail: No

Trail Type: Asphalt on existing rail, tracks to remain in place

Rail Tracks to Remain: Yes

Segment Length: 2.25 miles

The trail begins with the Trolley at Kingston Point Park along the Hudson River. E.Strand Street will be a low-speed, traffic-calmed boulevard with wide sidewalks and bike lanes. Historic trolleys will provide service from the Trolley Museum to the Hudson River. West of the museum, a linear park will be created on the rail line up to E. Chester Street near Kingston Hospital. The tracks will stay in place for occasional use by special event trains and potential future urban transit use. The linear park will be a railroad-themed heritage area and playground, with an asphalt surface and timber decking at bridges and trestles. Slides, swings, and benches will be crafted from recycled materials. The park will be an outdoor extension of the Trolley Museum, and will help tell the transportation history of Kingston.



Existing conditions in Kingston include this image of a woman jogging along the shoulder of the Route 9W bridge (left) which indicates the need for safe places to walk and bike; and the paved section of active trolley tracks in front of the Trolley Museum, which is an example of a “trail on rail” that accommodates walking, bicycling, and rail use. (right)

(Photos: J.Olson)

Section 2: Downtown Kingston Trail: E. Chester Street to Cornell Street

Description: Urban rail trail & on-street link

Rail Service: No

Shared Rail with Trail: No

Trail Type: Mostly on-street (signed bike route, sidewalk walking route; some sections with asphalt on existing rail with tracks to remain in place)

Rail Tracks to Remain: Yes

Segment Length: 0.8 miles

This section will begin at the Kingston Hospital. In this area, the railroad tracks were removed and the right-of-way was eliminated. The original rail route goes right through the current hospital site, and it is not likely that this alignment can be reconnected for active rail use unless the hospital property is redeveloped. In the short term, the trail follows an on-street route from the intersection of E. Chester Street at Jansen Avenue, using a combination of Jansen Avenue, Foxhall Avenue, and Smith Streets before reconnecting with the U&D rail line at Cornell Street. In the future, a possible enhancement to this route could include redesigning the hospital parking areas to include a “health trail” (supporting a community response to the national cardiovascular health and physical inactivity epidemic) and reconnecting the rail right-of-way through the filled-in tunnel under the active CSX mainline tracks. The trail surface in this section would be asphalt, with the existing tracks to remain in place up to Albany Street.

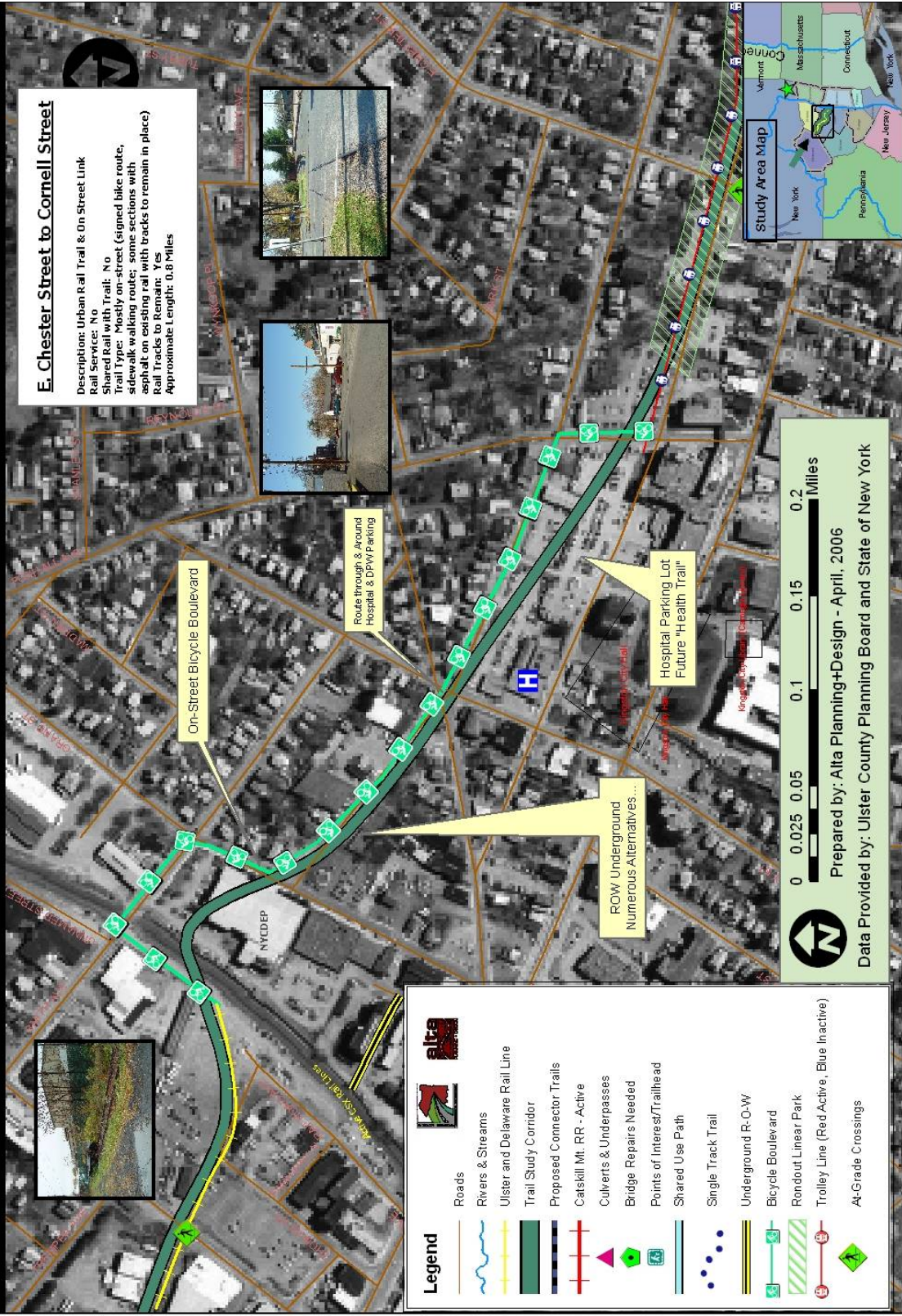


In downtown Kingston, the U&D rail tracks are still in place through the parking lot used by NYCDEP and Kingston Hospital along the west side of the CSX freight line.(left); and through the downtown neighborhoods and parking lots around the hospital (right). This is an opportunity for creating an urban greenway in the City.

(Photos: J.Olson)

ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY
ULSTER COUNTY, NEW YORK
Section 2: Downtown Kingston Trail

The USD Railroad Right of Way is approximately 40 miles long, 3000 feet wide, and includes approximately 300 acres of land.



Section 3: Albany Street to the Ontario and Western Rail Trail

Description: Intermodal hub and rail trail connector

Rail Service: Yes, east of Kingston Plaza

Shared Rail with Trail: Yes, between Washington Street and O&W Trail

Trail Type: Paved shared-use parallel to rail line

Rail Tracks to Remain: Yes

Segment Length: 1.5 miles

From Albany Street west through Kingston Plaza, the U&D line would become a rail-with-trail to Washington Street. The tracks would remain in place parallel to a paved shared-use path in this section. At Washington Street, a new at-grade crossing would begin a connector trail along the U&D to connect with the O&W Rail Trail along Route 209. This important ‘missing link’ can be accomplished with current available funding, and will serve as a hub of the County’s growing shared-use path system. Active rail service would likely begin at Washington Street, with good access from I-87 and adequate parking for rail and trail use.



Existing conditions along the U&D tracks in Kingston show the right-of-way at Kingston Plaza (left); and the tracks under Route 587 near Albany Street (right). This area is a potential “rail-with-trail” location, providing multi-modal access to retail and commercial sites, the nearby recreation fields along the Esopus Creek, and adjacent neighborhoods.

(Photos: J.Olson)

ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY

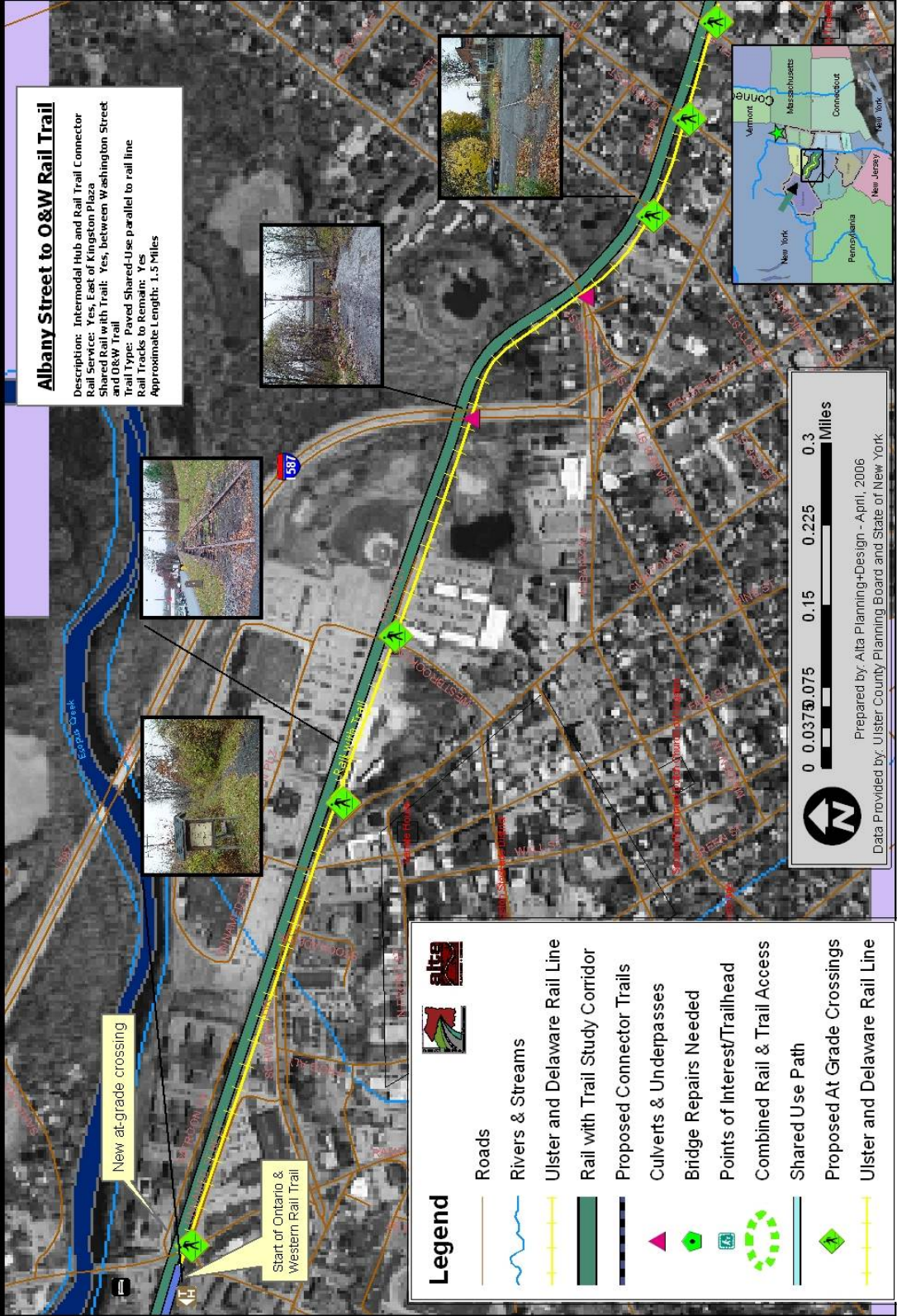
ULSTER COUNTY, NEW YORK

The USD Railroad Right of Way is approximately 300 feet wide and includes approximately 300 acres of land

Section 3: Albany Street to the Ontario & Western Rail Trail

Albany Street to O&W Rail Trail

Description: Intermodal Hub and Rail Trail Connector
 Rail Service: Yes, East of Kingston Plaza
 Shared Rail with Trail: Yes, between Washington Street and O&W Trail
 Trail Type: Paved Shared-Use parallel to rail line
 Rail Tracks for Remnant: Yes
 Approximate Length: 1.5 Miles



Legend

- Roads
- Rivers & Streams
- Ulster and Delaware Rail Line
- Rail with Trail Study Corridor
- Proposed Connector Trails
- Culverts & Underpasses
- Bridge Repairs Needed
- Points of Interest/Trailhead
- Combined Rail & Trail Access
- Shared Use Path
- Proposed At Grade Crossings
- Ulster and Delaware Rail Line

0 0.0375 0.075 0.15 0.225 0.3 Miles

Prepared by: Alta Planning+Design - April, 2006
 Data Provided by: Ulster County Planning Board and State of New York

Section 4: I-87 to West Hurley Station

Description: Uphill railroad service and overlook

Rail Service: Yes

Shared Rail with Trail: No

Trail Type: Crushed stone between rails (interim use for hiking and mountain bikes)

Rail Tracks to Remain: Yes

Segment Length: 5.75 Miles

From the tunnel under I-87 to West Hurley, the corridor would be a railroad-only section due to rock cuts, right-of-way constraints, and topography. This would allow for a scenic train ride up the grade to the east end of Ashokan Reservoir, and the rail trail station at Washington Street would serve as both a ‘terminal’ for the O&W Rail Trail and the gateway for the Catskill Mountain branch. The railroad would serve a function similar to a ski lift, taking passengers up the steepest grade in the corridor. At West Hurley, a new trailhead station would provide an overlook point for views of the Hudson River Valley. An interim ‘single track’ trail could be developed with the tracks to remain in place until railroad service is provided. This would require maintenance upgrades to the right-of-way, and the installation of a wooden deck on the bridge over the Esopus Creek near I-87. Note that due to steep grades, this section would be challenging for use by in-line skating, and that since the tracks must remain in place, thin-tired road bikes would be better served by improved paved shoulders along the adjacent Route 28 New York State bike route.



The ‘uphill’ section from I-87 to West Hurley provides an opportunity for a phased approach that allows an interim trail from the O&W rail trail (left) to the east end of the Ashokan Reservoir. When rail service is re-established in this section, the trail could shuttle trail users from Kingston to a high point in West Hurley. Narrow rock cuts (right) are a constraint to shared rail-with-trail use in this section.

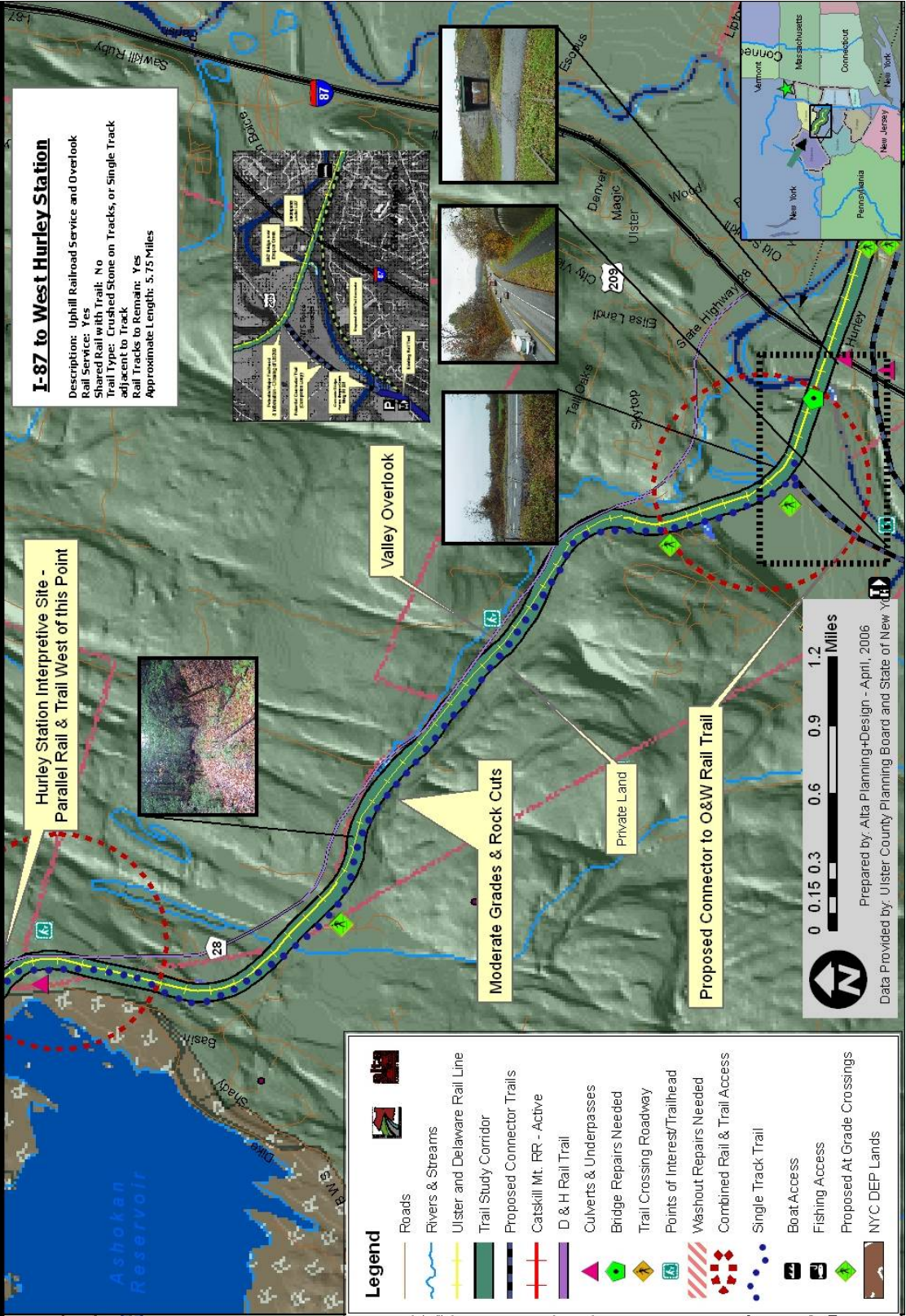
(Photos: J.Olson)

ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY

ULSTER COUNTY, NEW YORK

Section 4: I-87 to West Hurley Station

The USD Railroad Right of Way is approximately 40 miles long, 200 feet wide, and contains approximately 300 acres of land.



Section 5: West Hurley to Boiceville

Description: Parallel rail and trail

Rail Service: Yes

Shared Rail with Trail: Yes

Trail Type: Crushed stone, shared-use path (walking, bicycling, running, cross-country skiing)

Rail Tracks to Remain: Yes

Segment Length: 10.0 miles

From West Hurley to Boiceville, the trail and rail would split on different alignments due to right-of-way, safety, and security issues. The CMRR trains would follow the historic alignment along the reservoir to Boiceville, providing a scenic route with views of the reservoir without compromising the NYCDEP concerns about people trespassing along the water's edge. CMRR would remain responsible for reconstruction of the Boiceville Bridge and Butternut Basin culvert. The trail alignment would follow along the north edge of the DEP lands, preferably between the existing fence line and the shoulder of NYS Route 28. (An alternative would be to align the trail along the south side of the reservoir on NYCDEP lands between the reservoir and Route 28a). Along this route, the historical markers describe the former sites of small settlements which were lost during the construction of the reservoir. These sites would become trailheads, rest stops, and potentially small trail-related business locations (B&B's, a bike shop, general store, ice cream stand, deli, etc) designed within the historical context of the Catskill Region. With this combination, the West Hurley to Boiceville section can become an Esopus Valley Heritage Park, with the ability to enjoy the advantages of both rail and trail facilities. Due to the environmental concerns of the NYCDEP, cost concerns, and the historic quality of the corridor, a crushed stone surface could be used for the trail in this section. However, if a full range of multiple uses (including road bikes and in-line skating) are a priority, and the increased cost of a paved surface is acceptable, an asphalt surface would be preferred.



The proposed concept between West Hurley and Boiceville would create a heritage trail connecting the former sites of towns along the U&D, including the Town of Olive, shown left and right above. These locations can provide interpretive waysides, and potential sites for a general store, bicycle shop, B&B, ice cream stand, or café linked to the trail theme.

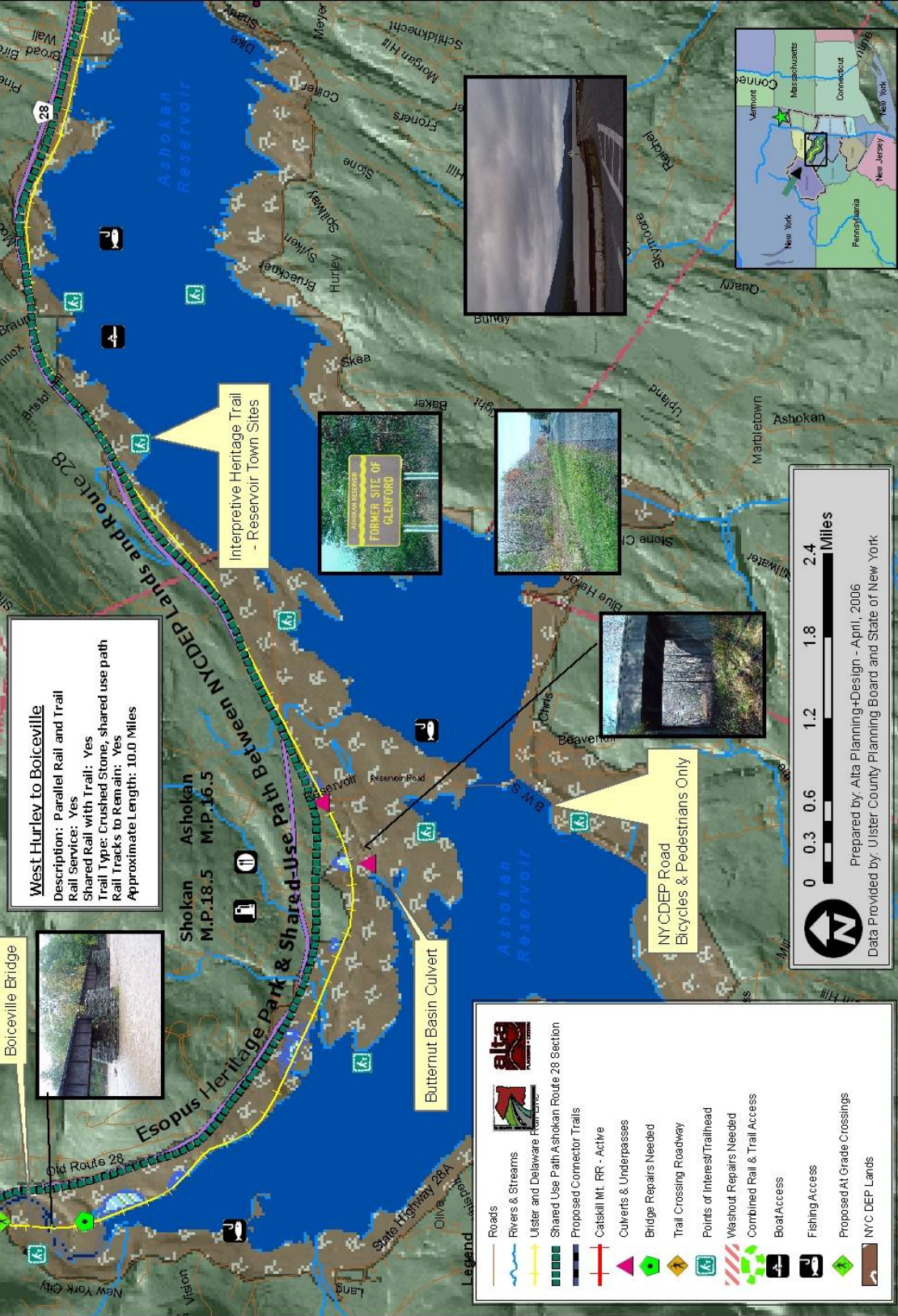
(Photos: J.Olson)

ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY

ULSTER COUNTY, NEW YORK

Section 5: West Hurley to Boiceville

The USD Railroad Right of Way is approximately 40 miles long, 30-65 feet wide, and includes approximately 300 acres of land



Section 6: Boiceville to Phoenicia

Description: Rail-with-trail, parallel rail and trail

Rail Service: Yes

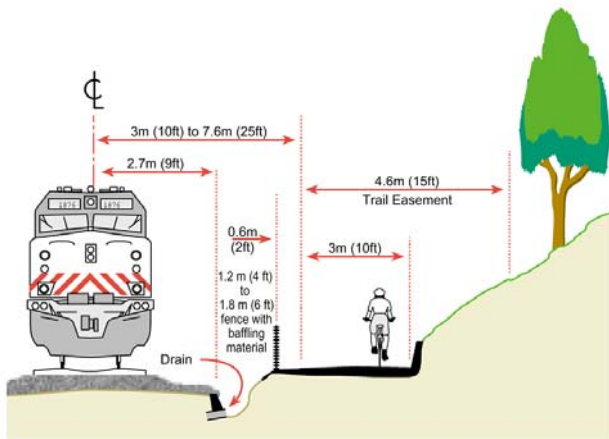
Shared Rail with Trail: Yes

Trail Type: Crushed stone, shared-use path (walking, bicycling, running, cross-country skiing)

Rail Tracks to Remain: Yes

Segment Length: 7.0 miles

From Boiceville to Phoenicia, the corridor would be developed as a Rail-with-Trail, utilizing the space between the existing rail line and Route 28. The CMRR would continue its operations, and the Empire State Railway museum would remain the focal point of operations. The new sewer line being developed in Phoenicia would be aligned under the proposed trail, with the trail serving as a maintenance facility for both the railroad and the utility. The trail surface would also be crushed stone in this section. Note: Currently, a 4,000-foot section of sewer line is proposed along the corridor from Phoenicia to the east which could be surfaced with a crushed stone maintenance path that could double as a section of the shared-use rail-with-trail path. As with the other proposed trail sections, asphalt could be used as a trail surface in hamlet areas, or along the entire section if environmental, cost, and multiple uses dictate.



Between Phoenicia and Boiceville, there are opportunities to create a shared-use Rail-with-Trail along the corridor. The diagram at left is from the Alta/FHWA National Rail-with-Trails study, and shows the optimum conditions for trails of this type. The photo on the right was taken from the engine of a CMRR train, showing the relationship between the tracks and NYS Route 28. Some constrained sections exist, including rock cuts south of Mt. Pleasant station.

(Photo: J.Olson)

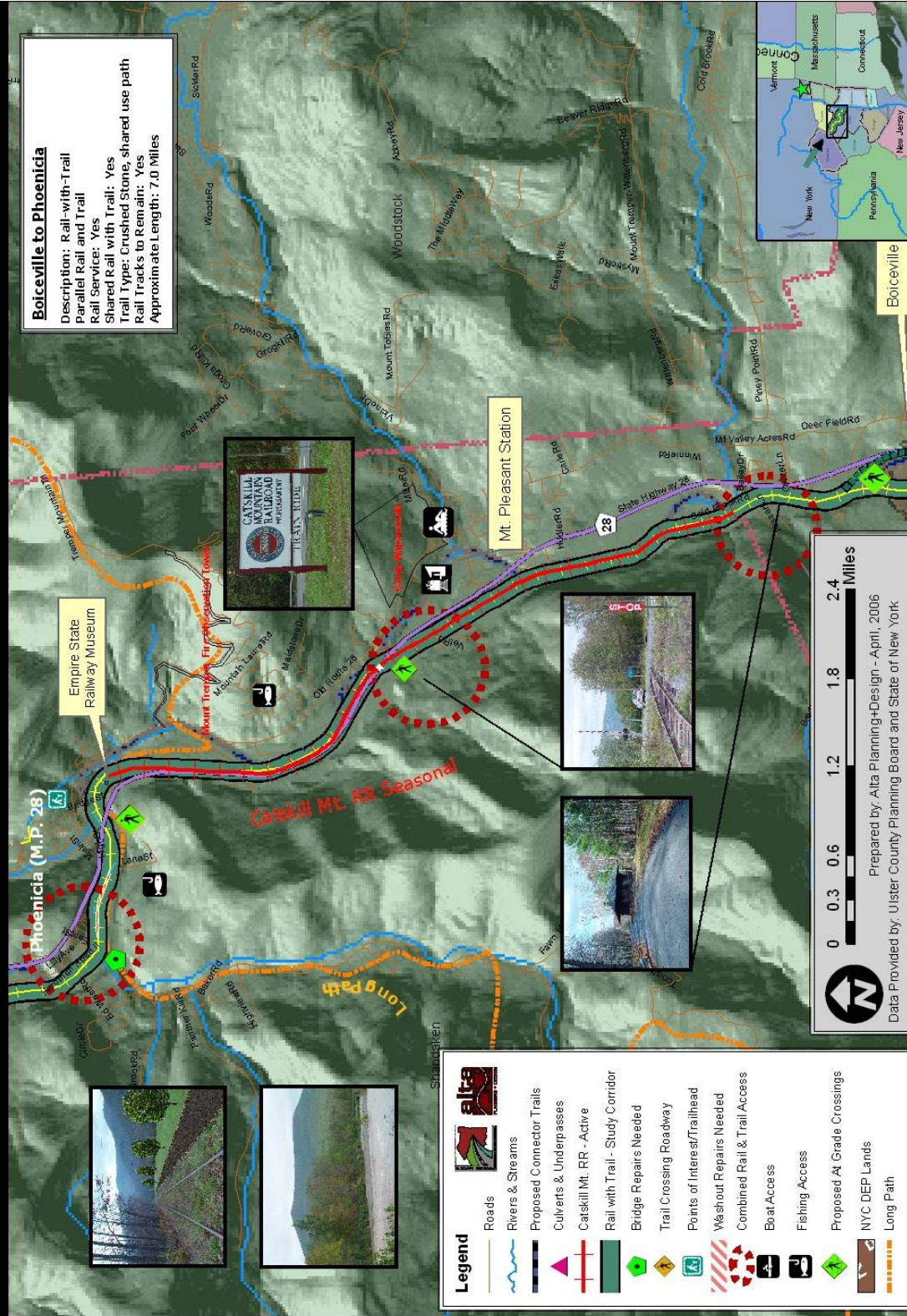
ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY

ULSTER COUNTY, NEW YORK

Section 6: Boiceville to Phoenicia

The USD Railroad Right of Way is approximately 40 miles long, 30-66 feet wide, and includes approximately 300 acres of land.

Boiceville to Phoenicia
 Description: Rail-with-Trail
 Parallel Rail and Trail
 Rail Service: Yes
 Shared Rail with Trail: Yes
 Trail Type: Crushed Stone, shared use path
 Rail Tracks to Remain: Yes
 Approximate Length: 7.0 Miles



- Legend**
- Roads
 - Rivers & Streams
 - Proposed Connector Trails
 - Culverts & Underpasses
 - Catskill Mt. RR - Active
 - Rail with Trail - Study Corridor
 - Bridge Repairs Needed
 - Trail Crossing Roadway
 - Points of Interest/Trailhead
 - Washout Repairs Needed
 - Combined Rail & Trail Access
 - Boat Access
 - Fishing Access
 - Proposed At Grade Crossings
 - NYC DEP Lands
 - Long Path

0 0.3 0.6 1.2 1.8 2.4 Miles

Prepared by: Alta Planning+Design - April, 2006
 Data Provided by: Ulster County Planning Board and State of New York

Section 7: Phoenicia to Highmount

Description: Single track trail

Rail Service: No

Shared Rail with Trail: No

Trail Type: Crushed stone between rails (hiking and mountain bike shared use)

Rail Tracks to Remain: Yes

Segment Length: 12.5 miles

This is the most remote section of the corridor, and currently the lowest priority for the CMRR to develop active rail service. This section is proposed to remain in as minimal a state as possible, with uses including cross-country skiing, fishing, hiking, and mountain biking. A connection will be made to Pine Lake and to the Belleayre Ski Center, as well as to NYSDEC trails in the area. The railroad tracks will be maintained with crushed stone placed between the rails as a trail surface. The washouts along the Esopus Creek will be repaired based on principles that minimize future erosion and maintain fish habitat along the Creek.



The western section of the corridor is through NYSDEC lands in the Catskill Park, including the highpoint at the entrance to the Belleayre Ski Center (left) and environmentally sensitive areas and fishing habitat along the Esopus Creek (right).

(Photos: J.Olson)

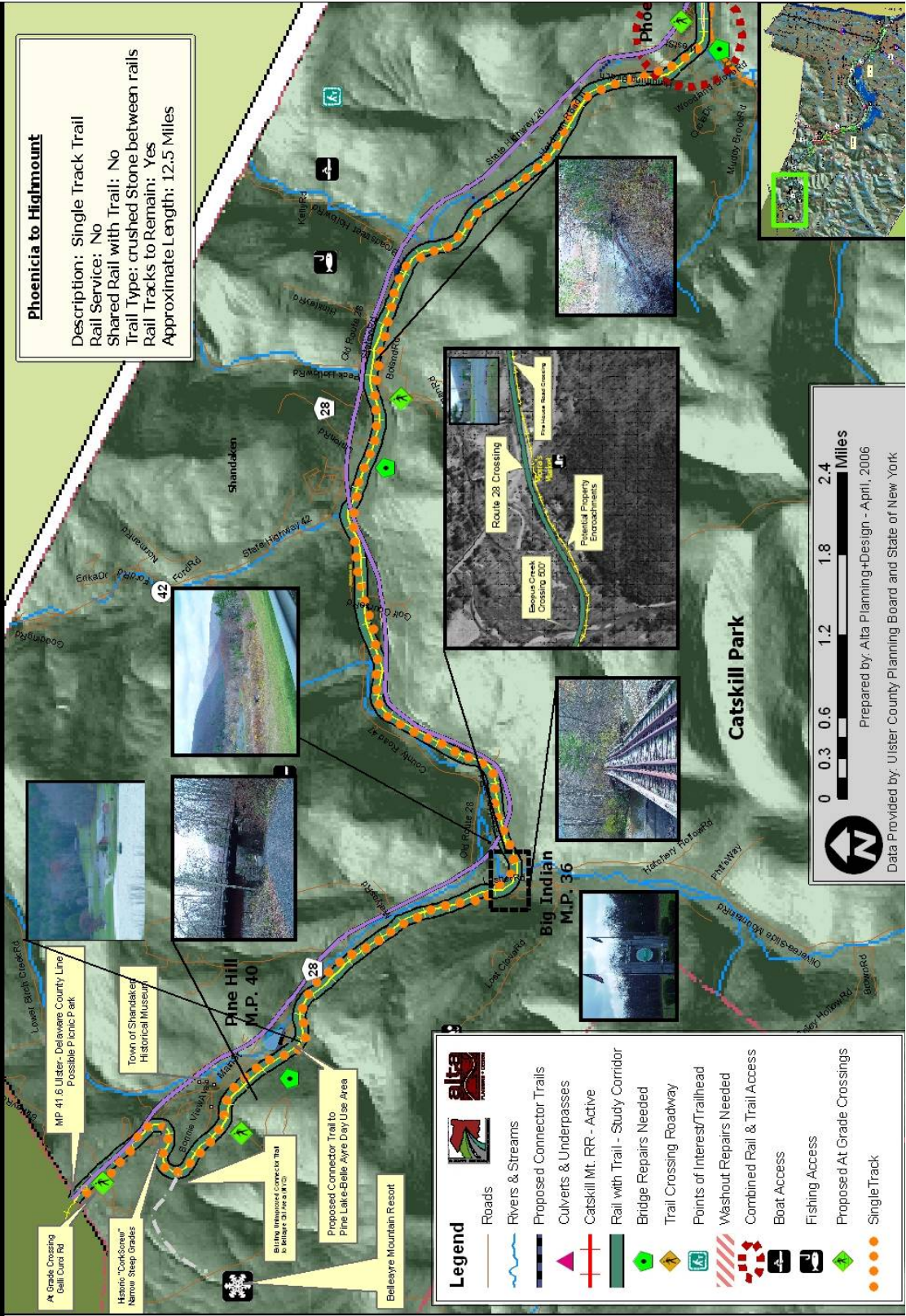
ULSTER & DELAWARE RAILROAD CORRIDOR TRAIL FEASIBILITY STUDY

ULSTER COUNTY, NEW YORK

The USD Railroad Right of Way is approximately 40 miles long, 66 feet wide, and includes approximately 300 acres of land

Section 7: Phoenicia to Highmount

Phoenicia to Highmount
 Description: Single Track Trail
 Rail Service: No
 Shared Rail with Trail: No
 Trail Type: crushed Stone between rails
 Rail Tracks to Remain: Yes
 Approximate Length: 12.5 Miles



0 0.3 0.6 1.2 1.8 2.4 Miles

Prepared by: Alta Planning+Design - April, 2006

Data Provided by: Ulster County Planning Board and State of New York

6. Findings and Recommendations

Trail and Community Connections

The proposed alternative would connect the entire 40-mile corridor from Highmount to the Hudson River. The trail would serve local neighborhoods in downtown Kingston, and provide access to recreation and transportation for the smaller towns along the route. The sites of historic towns lost during the construction of the NYC water supply system would be restored as trailside facilities. The Long Path, the NYSDEC Catskill Park Trails system, D&H Heritage Trail, and O&W Rail Trail would be connected, and these facilities would link the U&D to the Hudson Valley Greenway regional trail system.

Environmental Impacts and Benefits

The U&D Rail-with-Trail would provide public access to the currently underutilized corridor. This would provide opportunities for environmental interpretation, fishing, recreational access, and sustainable transportation. Since the proposed trail section does not follow the current railroad alignment along the Ashokan Reservoir, potential negative environmental impacts to watershed lands would be reduced. An area of particular concern is the series of washouts of the existing rail line along the Esopus Creek near Phoenicia. These areas should be restored in collaboration with local environmental organizations (such as NYCDEC and Trout Unlimited) to ensure that aquatic habitat is enhanced and appropriate methods are applied.

Economic Benefits

Economic development and tourism are critical issues for Ulster County. The U&D Rail Trail has the potential to be a key element in the County's ongoing economic development strategy. Trails have significant economic benefits in terms of direct tourism spending, public health cost savings, providing affordable transportation, and creating the quality of life that attracts 21st century businesses. The following text from the New York Parks Conservation Association summarizes these benefits:

“Numerous studies show that trails boost tourism by attracting visitors, extending their length of stay, and adding to the constellation of attractions in an area. This directly benefits area restaurants, motels, and service stations and spurs the growth of businesses selling recreational gear and other goods. Rail-trails, especially, can breathe new life into small towns left to wither after the trains stopped running. More than 100 million Americans walk for pleasure, 100 million bicycle, 17 million ride horses, 12 million in-line skate, and 6 million cross country ski. Localities with safe, pleasant trails are becoming highly desirable vacation destinations for these educated and affluent travelers. Trail users need food, lodging, and fuel. They need special clothes, shoes, and equipment. They buy souvenirs, crafts, film, and other items. They also combine visiting a trail with other money-spending activities.”

Source: **Greenways & Trails: Bringing Economic Benefits to New York**, www.ptny.org

With the potential for urban redevelopment along the trail in Kingston and the opportunities for trail-related services (B&B’s, bike shops, restaurants, etc.) along the route, the U&D corridor can provide increased economic benefits for Ulster County.

Bridges and Roadway Crossings

The U&D Rail Trail project involves a total of 37 bridges and roadway crossings. These have been identified by the following types:

Total Trail Road/Water Crossings	
5	Bridge Crossings
25	At-Grade Crossings
7	Under-pass Crossings

Significant crossings include the Esopus Creek Bridge, the Reservoir Road Bridge, and the narrow trestles which currently accommodate single railroad tracks. Note that two of the largest infrastructure repairs within the corridor are the Boiceville Bridge and Butternut Basin Culvert, which in the proposed alternative are maintained as railroad-only structures within the current CMRR lease agreement.

Security, Safety, and Liability

As the owners and occupiers of their rights-of-way, railroads and property owners have legal duties and responsibilities to persons both on and off their premises. The property owners have a duty to exercise reasonable care on their premises to avoid an unreasonable risk of harm to others who may be off the railroad premises. For example, railroads may be found liable if the use of their right-of-way creates an unreasonable risk to persons on an adjacent “public highway” such as through derailments or objects falling off the trains.

In most states, the duty of care owed to persons who enter another’s property depends on whether the injured person is considered a trespasser, a licensee, or an invitee. A trespasser is a person who enters or remains upon land in possession of another without a privilege to do so, created by the possessor’s consent or otherwise. A licensee is a person on land with the owner’s tacit or express permission but only for the visitor’s benefit. An invitee is a person on the owner’s land with the owner’s permission, expressly or implied, for the owner’s benefit. Trespassers are due the least duty of care, while invitees are due the most.

In deciding whether to allow a rail-with-trail (RWT) on its right-of-way or determining the indemnity and insurance coverage appropriate for a given RWT, a property owner needs to weigh and balance three factors: (1) the extent, if any, to which the RWT will elevate the land owner’s duty of care to any particular individual; (2) the potential increased scope of the owner’s liability; and (3) the increased or decreased likelihood of an injury occurring as a result of the RWT.

Potentially offsetting some of a railroad’s increased liability attributable to a RWT are the State-enacted Recreational Use Statutes (RUSs). All 50 states have RUSs, which provide protection to landowners who allow the public to use their land for recreational purposes. An injured person must prove the landowner deliberately intended to harm him or her. States created RUSs to encourage

landowners to make their land available for public recreation by limiting their liability provided they do not charge a fee. Railroad companies and institutions that agree to a RWT on their property would have limited liability due to these statutes. However, if the railroad or institution owns the property, they may still demand that the trail managing entity provide as much indemnification to the railroad as is allowable.

In New York State, the General Obligations Law § 9-103, is commonly known as the Recreational Use Statute or RUS. Section 9-103 provides that "*an owner, lessee or occupant of premises, whether or not posted as provided in section 11-2111 of the environmental conservation law, owes no duty, to keep the premises safe for entry or use by others*" for a number of specifically enumerated recreational activities "*or to give warning of any hazardous condition or use of or structure or activity on such premises*" to people entering the property for such activities.

Probable Cost Summary

At the level of detail of this feasibility study, it is difficult to identify specific costs for improvements to the entire 40-mile corridor. Conditions of the lease agreements with the County require the CMRR to maintain the entire corridor. Compliance with these conditions could potentially reduce some trail costs for sections where the right-of-way needs to be restored due to washouts and structural repairs. The railroad has, in the past, relied on volunteer labor and grants to maintain the corridor. This has reduced costs but has also presented challenges to keeping the tracks in a state of good repair.

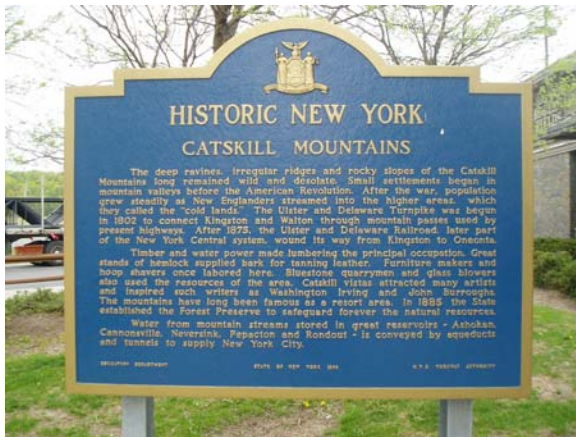
The most recent documentation for the railroad is the "Design Report: Restoration of the Catskill Mountain Railroad: Kingston to Phoenicia, New York" prepared by CMRR. This document indicates that approximately \$3.56 million dollars in funding is required to restore the track to FRA Class 2 standards to permit operation of scenic passenger service over the railroad line. The document states that if this funding is not provided, *...the (no build) alternative will effectively eliminate the possibility of preserving and restoring the former Ulster & Delaware Railroad right-of-way to a level permitting operation of passenger service...*

The project cost summary provided in the CMRR document does not include a detailed engineering analysis of critical infrastructure needs, including the Boiceville Bridge, Butternut Basin culvert, and sections where washouts have eroded the tracks. The document also indicates that the proposed service would not extend past Phoenicia (where the Esopus Creek has washed out a section of the track) and the service would be Class 2 for this 25-mile section. If the additional 15 miles of track were to be reconstructed, and if the railroad were to be returned to Class 1 service, the total costs would be significantly greater. New freight rail track can cost in excess of \$700,000 per mile to more than a million dollars per mile, plus the cost of rail cars, operations, and maintenance. For a complete upgrade of the 40 miles of rail service between Kingston and Belleayre, the capital cost could be in the range of \$28 million to \$40 million.

For discussion purposes, the following ranges of cost can be identified on a per mile basis for different types of trail facilities:

- Low Cost: Natural surface hiking or mountain bike trail, 4 ft width
\$ 75,000 / mile x 40 miles = \$3,000,000
- Mid-Cost Crushed stone surface, shared-use (rural) trail, 8 ft width
\$ 300,000 / mile x 40 miles = \$12,000,000
- High Cost Paved asphalt surface, shared-use (urban) trail, 10 ft width
\$ 550,000 / mile x 40 miles = \$ 22,000,000

The proposed concept for the U&D Rail Trail is a combination of the above conditions with unique characteristics, including multiple bridge and road crossings, the need to leave the existing railroad tracks in place, and constraints associated with adjacent land uses. Based on the proposed concept, the following probable costs were identified using the “*BikeCost*” model provided by the USDOT’s National Pedestrian and Bicycle Information Center.



The U&D Railroad corridor has played a significant role in the history of the Catskill Mountain region.
(Photo: J.Olson)

Trail Development Cost	Ulster and Delaware Rail/Trail Corridor
• Bridges / Structures	\$ 3.854 million
• Fencing	\$ 250,000
• Signage and Information	\$ 175,000
• Trailheads / Rest Areas	\$ 1.2 million
• Crossings / Signals	\$ 159,000
• Trail Surface - paved	\$ 5.49 million (Kingston Point to I-87)
• Trail Surface –stone dust	\$ 8.16 million (I-87 to Highmount)
Operations & Maintenance	\$ 10,000 / mile / year
Total	\$ 14.264 million - \$19.018 million

These costs amount to approximately \$357,000 - \$475,000 per mile, and assume that all costs are contracted out. Note that construction costs will vary with detailed engineering and the type of trail cross-section (single track, asphalt vs. stone dust, etc.). This amount is consistent with the cost of similar trails in New York State, and is within the range identified in the categories above. It is possible that significant cost savings can be realized through the use of volunteer labor, in-kind labor contributions, or through trail construction integrated into adjacent land development or infrastructure projects.

Note that once a shared-use trail is in place, its annual operating costs are minimal compared to other types of infrastructure. Similar trails have shown annual user rates in the 50,000 – 100,000 uses per year range. With the combined rail and trail infrastructure in place, the potential annualized cost per user could result in significant benefits for Ulster County.

Funding

The U&D Rail + Trail project will require a wide range of funding resources, including public, private, non-profit, and corporate support. There are a wide range of transportation, conservation, historic preservation, recreation, health, and safety funding sources available. A list of available funding sources is provided in the Appendix of this document. It is important to note that a local foundation has played a central role in developing the railroad service west of High Point. Since the CMRR is organized as a non-profit corporation, a non-profit entity would need to be created to receive foundation and charitable contributions. While most trails are not organized as direct revenue producing entities, there are examples of voluntary fee collections, annual user permits, rental equipment operations, and parking lot access charges being used to generate revenues for similar trails. Adopt-a-mile and donations linked to naming opportunities have been used to generate support. An excellent example is the P'tit Train du Nord (the Little Train of the North), a rail trail project north of Montreal that has a comprehensive branding strategy including microbrew beer, station stops, and consumer gifts linked to the trail.

Property Ownership

The majority of the U&D right-of-way is owned by Ulster County and leased to the CMRR and the Trolley Museum. In the proposed alternative, there are at least three areas where right-of-way is a concern:

- 1. Ashokan Reservoir / NYCDEP Lands:** The proposed alternative along Route 28 will require a negotiation for use of lands between the current DEP fence line and NYSDOT Route 28.
- 2. Private Land West of Boiceville Bridge:** There is a section of land identified as private ownership between Phoenicia and the Boiceville Bridge. This may require a modification of the current railroad easement to allow trail use across the property.
- 3. Downtown Kingston:** There are several parcels east of the CSX mainline tracks where the old U&D right-of-way has been built over and is no longer continuous. The NYCDEP building, Kingston Hospital, and the City of Kingston DPW building are located in this area. In the long term, the trail could be integrated into redevelopment of these urban properties.

It should be noted that the scope of this study did not include a complete parcel inventory and title search for all of the lands along the proposed corridor. The County was identified as the current owner of the U&D rail line and the property was identified on original railroad valuation maps. Prior to advancing recommendations of this study, a more detailed property ownership evaluation should be conducted.

Phased Implementation Approach

It is likely that the U&D Rail + Trail project will advance in phases, as resources and opportunities become available. The following sections are recommended for advancement:

Phase 1: (2-5 years)

O&W Trail Connector: Upgrade the existing trail from Washington Street to the new Route 209 trail to connect the O&W Trail and downtown Kingston.

Town of Olive: Ashokan to Shokan: Create a section of trail linking the two hamlet areas along Route 28, with an interpretive site at the former site of the town of Olive.

Phoenicia to Boiceville: Construct RWT section in coordination with new sewer line construction.

Downtown Kingston: Construct Trolley Line Park in Rondout from the Trolley Museum to Kingston Hospital. Provide an interim on-street route around the Hospital, and connect the rail-with-trail through the Kingston Plaza Section.

Phase 2: (5-10 years)

Phoenicia to Highmount: Restore the Rondout Creek washouts and provide 'single track' trail to the Belleayre Ski Center.

I-87 to West Hurley Station: Provide an interim single-track trail between the O&W trailhead and the west end of the Ashokan Reservoir. Maintain tracks for development of future rail service.

Phase 3: (10 -20 years)

Boiceville to West Hurley: Develop the Ashokan Reservoir trail as an interpretive heritage trail connecting the former sites along the route.

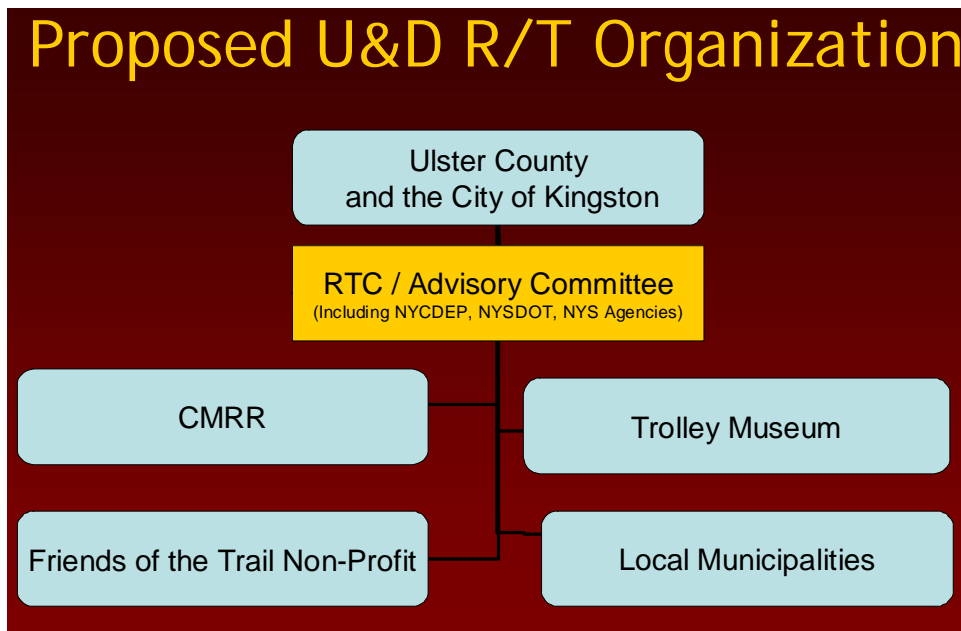
Downtown Kingston: Integrate the trail into the redevelopment of Kingston Hospital, NYCDEP, and City DPW to provide a continuous trail through the City.

Operations & Management Strategies

The U&D Rail + Trail will require an innovative public-private partnership to ensure its successful development. Keys to this effort will include the following strategies:

- 1. Friends of the U&D Rail Trail Organization:** Advocacy will be an important issue in developing this project. It is recommended that a non-profit organization (or a chapter of an existing organization) be established to create momentum for the project.
- 2. RTC Committee:** The County should formally establish an ongoing RTC advisory committee that includes the CMRR, the proposed Friends organization, the Trolley Museum, NYCDEP, NYSDOT, and other interested organizations.
- 3. Maintenance Endowment:** Early in the development of this project, a maintenance fund or endowment should be established. This will ensure that the project will be supported in the long term.
- 4. Management Responsibilities:** Ulster County, the City of Kingston, and other project partners will need to identify a coordinated strategy for management responsibilities including emergency response, routine repairs, annual facilities inspections, litter removal, trail safety patrols, and other related activities.

A proposed organization for the U&D Rail Trail is shown on the following chart:



Next Steps

This feasibility study is just one step in the ongoing development of the U&D Rail + Trail project. While the concepts proposed in this report may seem like new ideas, they are really just a new interpretation of a corridor that has a long history, from Native American paths, to Revolutionary War history, the great railroad era, and the current efforts to sustain the corridor. In order for the project to move forward, the following actions are necessary:

RTC Committee: The County should formally establish an ongoing RTC advisory committee that includes the CMRR, the proposed Friends organization, the Trolley Museum, NYCDEP, NYSDOT, NYSDEC, and other interested organizations.

Early Win Projects: Identify, in cooperation with local communities, sections which can serve as ‘proof of concept’ projects within the overall vision of the corridor. These projects may serve local destinations, but can be built as prototypes for the future.

Public Outreach: A project website and a PowerPoint presentation about the project are available. Additional public meetings led by a ‘Speakers Bureau’ of local volunteers help gain support. Local media, service organizations, and other groups will need to be involved in the project.

“Champions”: Every successful trail project needs individual leaders who will support the project, and stay involved for the long term.

Organization: “Before you advocate, organize” is a great message for this project. Even an informally organized group can help move the project forward, possibly under the umbrella of an existing non-profit until formal status can be established.

The Ulster and Delaware (U&D) Railroad corridor has the potential to become a unique “Rail + Trail” system providing transportation, economic development, tourism, and recreation for Ulster County and the communities along the route. With leadership, creativity, and a commitment to a common vision, this project will become a unique world-class, multi-modal rail trail system for future generations to enjoy.

Appendix: Summary of Public Involvement

The scope of this study included a series of meetings with the Rail Trail Committee (RTC), public meetings and presentations as follows:

October 12, 2005: Project kickoff meeting with RTC at the Olive Free Public Library, site tour of NYCDEP lands.

February 9, 2006: RTC meeting (5pm) and Public Informational Meeting (6:30pm) at the Olive Town Meeting Hall. Discussion of Working Paper #1, Existing Conditions Report.

March 28, 2006: RTC meeting (5pm) and Public Informational Meeting (7:00pm), Ulster County Legislative Chambers, Kingston. Discussion of Working Paper #3: Trail Alignment and Feasibility Assessment.

May 9, 2006: RTC meeting (4:30pm) at the Olive Free Public Library. Discussion of the proposed alternative and development of the final Plan.

June 6, 2006: Presentation to the Ulster County Transportation Council (UCTC) Policy Committee (11am) at Ulster County Community College, Stone Ridge.

Summaries for each of these meetings were provided to the RTC. Individual comments were collected on comment sheets, and a matrix of the potential alternatives was used by the RTC in evaluating the proposed alignment. The project received multiple media references in the local press, including both editorial and news coverage. The public comments at the beginning of the project were largely in reaction to a misconception that the intent of the study was to 'put the railroad out of business.' Once the scope of the project was communicated through the public meetings, a more balanced range of comments were received. These ranged from concerns that the railroad tracks are not being maintained properly, to advocates for a bike/hike trail along the corridor, to a proposal for an 'emerald necklace' of greenways and trails throughout the County. As the planning process moved forward, the comments were more oriented towards support of the bike/ped trail, but it must be noted that there is significant support for rail service where feasible, and support for the years of effort invested by the railroad organizations along the line. These comments were consolidated and reflected in the preferred alternative proposed in the feasibility study report.

Appendix: Potential Funding Sources

Source: **New York Bicycling Coalition**

www.nybc.net

Public Sector Funding Sources for Bicycle / Pedestrian / Trail- Related Projects

Funding Source	Stipulations	Contact Information
SAFETEA Federal Transportation Enhancements Program*	Project must relate to surface transportation and meet one of the eligible activities	<ul style="list-style-type: none"> • http://www.fhwa.dot.gov/environment/te/index.htm • http://www.enhancements.org/profile.asp (NYS Program)
NY S Governor's Traffic Safety Committee	Funds for the development, implementation, and evaluation of the traffic safety projects	<ul style="list-style-type: none"> • http://www.nhtsa.dot.gov/people/outreach/safedige/Fall1998/n5-111.html
NYS Consolidated Local Street and Highway Improvement Program (CHIPS) *	Local highway and bridge capital improvements	<ul style="list-style-type: none"> • http://www.dot.state.ny.us/chips/index.html • http://www.dot.state.ny.us/chips/guide.pdf (Guidelines)
NY State Environmental Protection	Funds to local government and not-for-profit organizations to purchase, develop, and preserve park lands and historic resources	<ul style="list-style-type: none"> • http://www.dec.state.ny.us/website/opensp/opepf14.html
Land and Water Conservation Fund/ Municipal Parks Matching Grant Program	Allocates funds for walking and biking projects, and those protecting open spaces	<ul style="list-style-type: none"> • http://www.nysparks.com/grants/ • http://nysparks.state.ny.us/grants/info.html • http://nysparks.state.ny.us/grants/ProgramInfoLWCF.htm • http://www.nysparks.state.ny.us/grants/ProgramInfoPKS.htm
Hudson River Valley Greenway	Allocates funds for planning and project implementation	<ul style="list-style-type: none"> • http://www.hudsongreenway.state.ny.us/funding/funding.htm • http://www.hudsongreenway.state.ny.us/funding/commgrant.pdf • http://www.hudsongreenway.state.ny.us/funding/compgrant.pdf

Funding Source	Stipulations	Contact Information
Empire State Development: Economic Development Fund	Funding to large and small businesses for economic development	<ul style="list-style-type: none"> • http://www.awib.org/content_frames/articles/empire.html • http://publications.budget.state.ny.us/fy0405app1/esdc.pdf
Division of Housing and Community Renewal (Community Development)	Provide funds to develop housing, for housing preservation, and development activities within communities	<ul style="list-style-type: none"> • http://www.dhcr.state.ny.us/ocd/pubs/pdf/cpm03.pdf • http://www.dhcr.state.ny.us/ocd/ocd.htm • http://www.dhcr.state.ny.us/ocd/progs/ocdprogs.htm • http://www.dhcr.state.ny.us/ocd/nofas/ocdnofas.htm
NYS Department of Health, Healthy Heart Program	Funds programs that make it easier for New Yorkers to choose healthy lifestyles	<ul style="list-style-type: none"> • http://www.health.state.ny.us/nysdoh/heart/healthy/healthy.htm • http://www.health.state.ny.us/nysdoh/heart/heart_disease.htm

***NOTE:** For additional information on State and Federal Transportation Funds, contact the Ulster County Transportation Committee (UCTC) or NYSDOT Region 8. There is a wide range of transportation funding sources available for rail, trail, and enhancements projects.

Greenways & Rail-Trails NY

New York State Government Funding Sources For Greenways and Community Trails

Source: Parks and Trails New York

www.ptny.org

Environmental Protection Fund Matching Grant Program NYS Office of Parks, Recreation and Historic Preservation (OPRHP)

TYPE OF PROJECTS: Acquisition, development and improvement of parks, historic properties and Heritage Area Systems

ELIGIBILITY: Municipalities and not-for-profits with ownership interest

FUNDING: Up to \$350,000 (special funding cap of \$1 million for projects over \$4 million), 50% local match required (state funds are eligible as match but federal funds are not)

DEADLINE: Call for proposals usually in June, with August deadline

FOR MORE INFORMATION: NYS Office of Parks, Recreation and Historic Preservation (OPRHP), Bureau of Grant Management, Empire State Plaza, Agency Building One, 16th Floor, Albany, NY 12238, (518) 474-0427. <http://nysparks.state.ny.us>

NYS Department of State - Division of Coastal Resources and Waterfront Revitalization

TYPE OF PROJECTS: Waterfront rediscovery; coastal education and tourism programs; preparation or implementation of Local Waterfront Revitalization Programs (LWRP) or components of LWRP programs

ELIGIBILITY: Municipalities located on New York's coastal waters (including tidal rivers) or on designated inland waterways

FUNDING: Up to \$500,000. 50% local match required.

DEADLINE: Call for proposals usually in June, with August deadline

FOR MORE INFORMATION: NYS Department of State, Division of Coastal Resources, Albany, NY 12231-0001, (518) 474-6000, www.dos.state.ny.us/cstl/epfba2.html

NYS Department of Environmental Conservation

Oversees acquisition of significant open space lands included in the official NYS Open Space Plan, revised every five years. No application process. Contact regional DEC offices to get information on regional open space committees, which is the route to get your trail corridor included in the Open Space Plan. <http://dec.state.ny.us>

Hudson River Valley Greenway

TYPE OF PROJECTS: Capital construction projects related to development of the Hudson River Valley Greenway Trail System, waterfront and main street revitalization, regional tourism strategies, and natural resource inventories.

ELIGIBILITY: Municipalities and not-for-profits within legislatively designated Hudson River Valley Greenway area

FUNDING: Up to \$300,000, 50% match required (federal and state funds are not eligible as match)

DEADLINE: Call for proposals usually in June, with August deadline

FOR MORE INFORMATION: Hudson River Valley Greenway, Capitol Station, Room 254, Albany, NY 12224, (518) 473-3835

<http://www.hudsongreenway.state.ny.us/conserv/trailfund.htm>

National Recreational Trails Program (funded by the Federal Highway Administration)
NYS Office of Parks, Recreation and Historic Preservation (OPRHP)

TYPE OF PROJECTS: Acquisition, development and maintenance of trails

ELIGIBILITY: State and local governments, not-for-profits, corporations, individuals

FUNDING: Up to \$1.5 million for grants ranging from \$5,000 to \$100,000, 20% local match required. 30% of funds must go to motorized trails, 30% to non-motorized trails

DEADLINE: Irregular, usually spring (last deadline was February 28, 2001)

FOR MORE INFORMATION: NYS Office of Parks, Recreation and Historic Preservation (OPRHP), Bureau of Grant Management, Empire State Plaza, Agency Building One, 16th Floor, Albany, NY 12238, (518) 474-0427. <http://nysparks.state.ny.us/offices/>

National Park Service Rivers and Trails Conservation Assistance Program (funded by the U.S. Department of the Interior)

TYPE OF PROJECTS: Technical Assistance for developing community trails and greenways; assistance in organization of non-profits and advocacy organizations Funding is currently not available, but may be available in future years. <http://www.nps.gov/rtca/>

Greenways & Rail-Trails NY

Private Funding Sources For Greenways and Trails

Source: Parks and Trails New York www.ptny.org

American Greenways Kodak Award

TYPE OF PROJECTS: Local greenway planning, design or development

ELIGIBILITY: Primarily local, regional, statewide non-profits, public agencies may also apply

FUNDING: Up to \$2,500

DEADLINE: Early June

FOR MORE INFORMATION: The Conservation Fund, 1800 North Kent Street, Suite 1120, Arlington, VA 22209, (703) 525-6300, www.conservationfund.org/conservation/amgreen

Bikes Belong Coalition

TYPE OF PROJECTS: Development of bicycle facilities, especially projects that could be funded under Transportation Equity Act for the 21st Century (TEA-21).

ELIGIBILITY: Local non-profits, agencies, citizens

FUNDING: Up to \$10,000

DEADLINE: Rolling

FOR MORE INFORMATION: Bikes Belong Coalition, Ltd/. 1368 Beacon Street, Suite 102, Brookline, MA 02446-2800, (617) 734-2800, www.bikesbelong.org

Powerbar's Direct Impact on Rivers and Trails (DIRT)

TYPE OF PROJECTS: Protect, preserve and restore recreational lands and waterways

ELIGIBILITY: Primarily non-profits

FUNDING: \$1,000-\$5,000

DEADLINE: Early June

FOR MORE INFORMATION: Powerfood, Inc., DIRT Program, 2150 Shattuck Avenue, Berkeley, CA 94710, www.powerbar.com

Furthermore...

TYPE OF PROJECTS: Publications, including maps, guides, pamphlets. Conservation a key interest.

ELIGIBILITY: Non-profits, public agencies may apply in partnership with a non-profit

FUNDING: Up to \$15,000

DEADLINE: March 15 and September 15

FOR MORE INFORMATION: Furthermore..., 518 Warren Street, P.O. Box 667, Hudson, NY 12534, (518) 828-8900, www.furthermore.org

Recreational Equipment Incorporation (REI)

1. CONSERVATION GRANTS TYPE OF PROJECTS: Protect lands and waterways and make them more accessible by mobilizing communities, building constituencies and influencing public policies

FUNDING: Up to \$2,000

2. COMMUNITY RECREATION GRANTS TYPE OF PROJECTS: Increase access to outdoor activities, encourage involvement and promote safe participation in muscle-powered sports, promote proper care of outdoor resources

FUNDING: Primarily in form of gear, typical value from \$500-\$5,000

3. GREAT PLACES GRANTS (highly competitive) TYPES OF PROJECTS: Ensure access to and protection of outdoor resources (including trails) essential to outdoor recreation

FUNDING: \$15,000-\$25,000

All REI grant programs:

ELIGIBILITY: Non-profits

DEADLINE: Conservation and Community Recreation Grants: March-October; Great Places: February 15

FOR MORE INFORMATION: REI Public Affairs, Grants Administrator, P.O. Box 1938, Summer, WA 98390-0800, (253) 395-3780, www.rei.com

Conservation Alliance Grants

TYPE OF PROJECTS: Protection of wild and natural areas where outdoor enthusiasts recreate

ELIGIBILITY: Non-profits, must be sponsored by a member company (EMS, Patagonia, Timberland, etc.)

FUNDING: Up to \$50,000

DEADLINE: January and August

FOR MORE INFORMATION: The Conservation Alliance, P.O. Box 3313, Park City, Utah, 84060, (801) 649-8226, www.outdoorlink.com/consall

American Hiking Society

1. NATIONAL TRAILS ENDOWMENT

TYPE OF PROJECTS: Building, improving, protecting trails or increasing the constituency for a specific trail project (focus is on hiking trails).

FUNDING: Up to \$10,000

DEADLINE: Late November

2. TRAILS FOR TOMORROW

TYPE OF PROJECTS: Outstanding National Trails Day events that put trails at the forefront of communities.

FUNDING: \$500 in cash, gear and goods worth up to \$2,000

DEADLINE: June

All American Hiking Society grant programs:

ELIGIBILITY: Non-profits

FOR MORE INFORMATION: American Hiking Society, 1422 Fenwick Lane, Silver Springs, MD 20910, (301) 565-6704, www.americanhiking.org