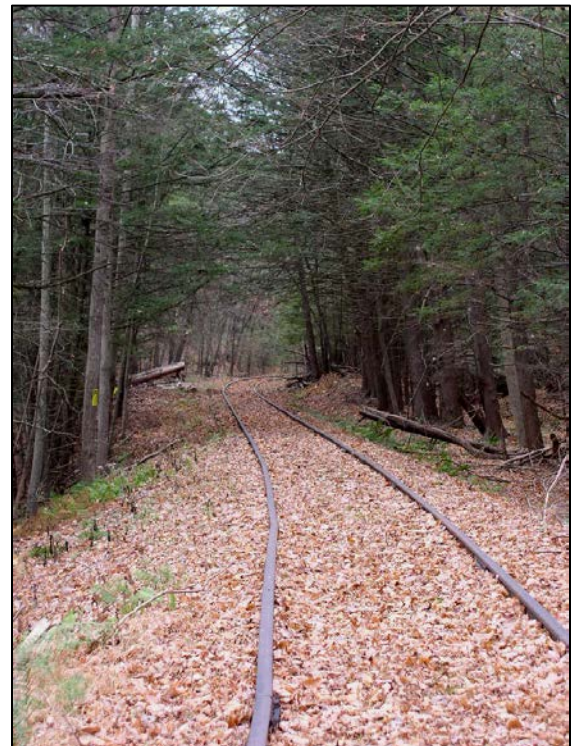


COUNTY OF ULSTER, NY HIGHEST AND BEST USE RECOMMENDATIONS U&D RAILROAD CORRIDOR



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Highest and Best Use Recommendations U&D Railroad Corridor

Table of Contents

1. Introduction	1
2. Historic Perspective and Impact	4
3. Existing Trail Conditions and Connections	6
4. Existing Rail Operations	10
4.1 Kingston	10
4.2 Phoenicia/Mt. Tremper	13
4.3 Future Ridership Trends	14
5. Economic Impact Analysis	16
5.1 Trail Impacts: Camoin Study	16
5.2 Rail Impacts: Catskill Mountain Railroad Business Plan	17
6. Health Impact Analysis	23
7. Segment by Segment Corridor Analysis	26
7.1 Kingston	26
7.1.1 CSX to Kingston Plaza	26
7.1.2 Cornell St. Yard	29
7.1.3 Trail Usage Within Kingston	29
7.1.4 Rail with Trail Alternatives – Kingston	30
7.1.5 NYDOT Funding vs. Trail Design Standards	32
7.1.6 Kingston Recommendations	34
7.2 Kingston Plaza Zone (I-587 bridge to I-87 bridge)	35
7.2.1 Economic Impacts – Plaza	37



7.2.2 Kingston Plaza Zone Recommendations	38
7.3 Kingston Flats – I-87 to Hurley Mt. Road	38
7.3.1 Industrial, Transload or Railroad Shop Area in Flats	40
7.3.2 Flats Recommendation	40
7.4 Hurley Mt. Road to Basin Road (DEP Easement Boundary)	41
7.4.1 Hurley Mt. Rails Issues	42
7.4.2 Hurley Mt. Trails Issues	43
7.4.3 Rails with Trails Concepts	44
7.4.4 Hurley Mt. Road Recommendations	46
7.5 Ashokan Reservoir Area (Basin Rd. Bridge to Rt. 28A Boiceville)	47
7.5.1 Ashokan Rail Use	47
7.5.2 Ashokan Trail Use	49
7.5.3 Ashokan Rail with Trail Use	49
7.5.4 DEP Memorandum of Understanding	50
7.5.5 Basin Road?	51
7.5.6 Recommendation	52
7.6 Boiceville – Mt. Trempor – Phonecia Area	52
7.6.1 Phonecia Zone Existing Rail Operations	53
7.6.2 Phonecia Zone Rail-with-Trail	56
7.6.3 Phonecia Zone Economic Impact	56
7.6.4 Phonecia Zone Recommendation	57
7.7 Phonecia to Big Indian	58
7.8 Big Indian to Highmount (County Line)	59
8. Capital Cost Factor Analysis	62
8.1 Track Valuation and Removal.	63
8.2 Track Rehabilitation	64



8.3 Boiceville Bridge	.	.	.	.	.	.	.	65
8.4 Bridge Clearances	.	.	.	.	.	.	.	66
8.5 MP 23.4 Washout (West of Boiceville)	.	.	.	.	.	.	.	66
9. Freight Services In Kingston? On the U&D?	.	..	.	.	.	.	.	68
9.1 Hurley Mt. Road	.	.	.	.	.	.	.	69
9.2 Existing CMRR Website	.	.	.	.	.	.	.	70
9.3 Rt. 209/28 Existing Operations – Potential and Active Operations	.	.	.	.	.	.	.	70
9.4 Transloading 101	.	.	.	.	.	.	.	71
9.5 Other Excursion Railroad Transload/Freight Examples	.	.	.	.	.	.	.	72



COUNTY OF ULSTER

Highest and Best Use Recommendations U&D Railroad Corridor

November 2015

1. Introduction

Our recommendations for “highest and best use” becomes an effort to evaluate, through a variety of perspectives and methods, what the best benefit that the Ulster County U&D Rail Corridor can make to Ulster County residents.

Right from the start, that establishes some ground rules and distinctions. There are potential benefits well beyond Ulster County, and there are also benefits likely to non-residents. The rules for our evaluation must keep the clear focus on Ulster County businesses and residents. Alternatives that provide economic and/or health benefits, but primarily outside of Ulster County, are not necessarily ignored, but must be clearly identified as such.

The other major factor in our evaluation is that the evaluation of alternatives must consider other rail operators that may not necessarily be the Catskill Mountain Railroad as the rail business provider beyond lease expiration in 2016. Other rail operators may look at different business factors and opportunities in different ways. Based on our national experience, we are to evaluate the corridor for those conditions, as well as the specific business model and business plan submitted by the Catskill Mountain Railroad. That evaluation also impacts potential rehabilitation or construction costs, as relatively few operators repair track and perform regular maintenance with an all-volunteer staff.

While economic impact analysis (for both dollar activity and resulting equivalent jobs) has been used as an analysis tool for decision making for decades, a new tool has been requested for this project – the Health Impact Analysis based upon potential increased trail usage by County residents. This allows the logical application of providing additional outdoor recreation opportunities to assist in providing more opportunities for exercise, increasing longevity, and to monetize those benefits in a manner comparable to economic impacts using recognized methods and tools. Adding those benefits in for local trail evaluation recognizes that economic impact is not the only resulting benefit of alternatives. Evaluating health benefits can decrease health costs for an identified local



population. But like other analysis, it also has to be subjected to a County, not necessarily statewide or regional, scope of evaluation.

Ulster County is already well-experienced in trail development and benefits. High quality trails already exist, and the problem is more of building the disconnected islands of existing trails into a unified system rather than considering the trail concept either unproven or experimental in nature. The unparalleled success of “Walkway over the Hudson” has converted a rusting railroad bridge across the river into one of the most heavily-visited pedestrian sites in the Eastern United States with a national audience. Connecting these sites would conceivably leverage the asset into longer visitor experiences and more of a destination attraction nature. Based on that success, Ulster County has been a primary target from the state level to develop additional trails, and funding has been secured for several new linkages and opportunities. Ulster County has an established recreational trail community, with visitors outside and inside the county developing local business opportunity to serve them.

Likewise, after 23 years of relative quiet, the Catskill Mountain Railroad launched an intense effort in 2014 to develop the event-based tourist railroad market, and the results were outstanding. In one year, they effectively quadrupled their ridership, developed a state-regional market for event-based activity, and developed enough cash flow from that activity to seriously begin long-neglected maintenance and repair work on the corridor. The obvious effects on local visitation, and on downtown Kingston business, were sufficient to justify reexamination of what had been previously regarded as a hobbyist activity with minimal local impacts.

The problem of course is that these two desirable opportunities tend to collide both physically and philosophically. The decision would be far easier if trails had already been developed in Ulster County and were not being used and had few demonstrated benefits, or if the Catskill Mountain Railroad had shown no capability to either progress or grow for either its own or the County’s benefit. Neither of those statements is now true. The truth is that Ulster County is faced with difficult decisions and evaluations because it is struggling with choosing with two very good alternatives, in what is at least perceived to be rather mutually exclusive territory when compared to the other. This alternatives analysis intends to lay those issues out, throughout the entire corridor – comparing and contrasting the alternatives in a localized manner rather than generalizations. The goal is to develop the use of the corridor to increase the economic and health well-being of Ulster County.

One deliberate choice of words here is important. Rather than a “feasibility” analysis, this is genuinely an “alternatives” analysis. By any rational statement, the railroad is ‘feasible’ as it physically existed and for the most part, still exists, the difficulty is in rebuilding the portions that were destroyed through storms and decades of deferred



maintenance. The trail is certainly feasible, as the process of removing railroad track and turning it into a trail is by no means a new exercise. Even putting the two in the same corridor is likely feasible, given nearly unlimited funding and unlimited time to address specific physical and environmental restraints that do exist. Feasibility is more a measure of how big the resulting number has to be to accomplish the task, rather than whether it could even be done. The definition of feasibility becomes more of a reflection of both cost and time, and the individual conclusion of whether or not the resulting outcomes of economic impact and health benefits are sufficient to justify the effort, or if it crosses into simply irrational levels of cost vs. perceived or defined benefit.

The alternatives analysis also acknowledges that to achieve any progress within economic and time limits, compromises must be made in approach, goals, and planning. Some compromises may be considered, and some may not be, but our interest on maximizing benefit will challenge previous assumptions by all in this evaluation. Our national experience includes proven approaches that have not just been considered in the past, but those that are in practice today. While some may or may not be considered to be acceptable to Ulster County, they must be recognized for what they have done – produce benefits for their own localities by recognizing that some segments really do have a better use than the other, and of finding a way to include rails and trails together as partners rather than opponents.

Perhaps the most promising aspect to this alternatives analysis is that both groups of interest have publicly acknowledged that their own realistic viewpoint of the overall corridor is that portions of it may likely be best suited to the others use. The County has offered portions of the trackage in both Kingston and in the Phoenicia area for continued rail operations, and the 2015 business plan of the Catskill Mountain Railroad has effectively offered virtually the entire Ashokan reservoir corridor for trail usage.

This recognizes that the corridor is not entirely homogenous for either use, and requires an in-depth analysis of identified segments for “Highest and Best Use”. Whatever the eventual outcome, we recognize and salute the stakeholders for respecting the others viewpoint and considering it in an open manner.



2. Historic Perspective and Impact

Although the railroad was built as a corporate entity with a rather single-minded purpose and approach in the late 1860's (take tourists up into the Catskill Mountain to the grand hotels), it is no longer easy to classify what remains today in such an easy manner. Our on-site inspections in October and November revealed that dramatically different methods of construction and material exist within the corridor, as well as current condition. This legacy impacts rail and trail considerations, costs, and uses. History still very much impacts the analysis to the future.

First, as a passenger railroad, it was actually designed for speed. Those traces remain today with superelevated (banked) curves remaining in the track, well-designed geometric curves with approach spirals, historic station locations very closely spaced, and passenger trains that run frequently enough to require both passing sidings and signal systems to prevent collisions. At the peak, tourist hotels were all up and down the valley, and all had a small local passenger station with connecting stage or bus service. Passenger trains were run as fast as possible, and during the summer season, frequent. Freight traffic, for what existed, was comparatively late to develop, and other than some early Bluestone quarry activity, was almost exclusively on the western end of the railroad beyond Phoenicia. Freight consisted of single-car traffic with small lumberyards, creameries, and further toward Oneonta, feed mills for the dairy farms. Through traffic from the rail connections at Oneonta, when the connection was finally made in 1900, were mostly agricultural commodities, milk traffic, and anthracite coal for home heating inbound to Kingston. So, much of the infrastructure (and upgrading) typically necessary for heavy industrial freight traffic (and the longer and heavier freight cars it uses) simply never developed here. Much of the steel rail dates back to the early 1900's and is relatively light by current standards. That light local freight traffic and no strategic interconnections to the west is why the corridor was proposed for abandonment at the end of Penn Central operations in 1976.

Approximately in 1910, passenger train speeds were raised on the railroad to as much as 60mph in some places. To achieve that, curves were superelevated and they were also relocated on the right-of-way for better approach spirals. These track relocations are noted on the valuation maps, and in some places, the track is no longer in the center of the right-of-way.

Because passenger trains were significantly lighter than freight trains, steep grades were much less of an issue. The railroad was built with a very steep 4.5% grade out of Rondout, requiring multiple locomotives per train to crest the hill at Kingston. Stony Hollow required a 2% climb out of Kingston, and the final approach to Highmount was at the top of a 4.3% grade out of Big Indian. The total climb from Rondout to



Highmount is 1854 feet over 40 miles of track – but the climb is actually irregular and focuses on those three rather distinct grades. In direct contrast, the other great rail/trail corridor across Ulster County – from the Poughkeepsie Bridge west, is nearly dead-flat and heavily engineered as it was one of the major interconnecting freight gateways between New England and the Mid Atlantic with peak levels of 40 heavy trains a day into the 1950's.

The 1911-13 construction of the Ashokan Reservoir permanently relocated approximately 13 miles of railroad out of the Esopus Creek valley and up onto the surrounding hillsides. As that reservoir project was paid for by New York City and relocated (by force) what was then a rather active and very profitable passenger railroad, the City paid a premium price to the Ulster and Delaware Railroad to relocate it high and alongside the new reservoir – 43 years after the railroad was originally built. Much had developed in both engineering technology and railroad materials by that time, and the relocated section between Stony Hollow and Boiceville is more like a 'modern' freight railroad with wide cuts, well-engineered fills, newer steel rail dating to at least 1911, low grades, and reinforced concrete bridges and culverts. It is a far superior railroad corridor to the original 1868 segments on either end. This issue in particular creates underlying situations for the current trail proposals and corridor repairs as what is a relatively straightforward trail conversion program alongside the reservoir can meet with surprisingly constrictive situations elsewhere.

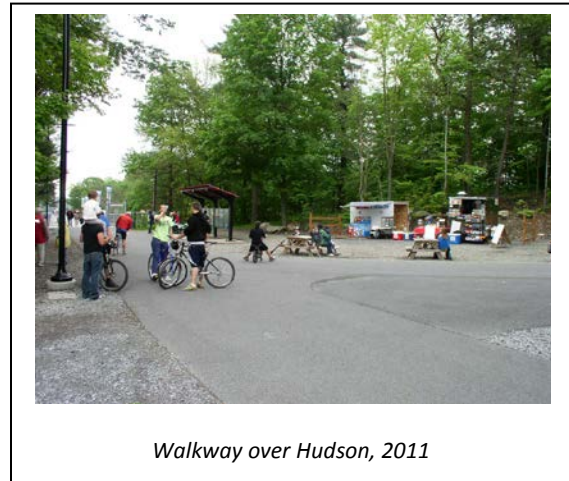


3. Existing Trail Conditions and Connections

After examining existing reports, field notes and observations were made on some of the existing multi-use trail and bicycle connections that impact this analysis. This was done both in October and November 2015.

One of the key statements in the Camoin Trail Impact study is that the existing O&W/D&H Canal trail within Ulster County had 81,157 users, and that the projected annual usage of the Catskill Mountain Rail Trail was projected to nearly 140,000, with sufficient detail to identify specific subgroups. Unlike the railroad, there are no hard ticket counts to rely on, and no revenue-producing activity to examine as a financial report. While technology may be developing to actually count trail users like vehicle counts on a roadway, they are still based strictly on estimates and sampling. Much of the projected economic impact as well as health impacts is based on these numbers in our analysis.

Our unofficial observations during our field trips verified that the O&W trail, in particular, was obviously well-used. Cars were in trailhead parking lots, runners and bicyclists were out in force. One day in particular was a very nice fall day, and the trail, while not packed, was steady with use and users were clearly visible alongside Rt. 209. We have also visited the “Walkway over the Hudson”, both in 2011 and 2015, and have seen firsthand the high volume of visitors and users on that attraction. While we cannot verify the numbers or methods, we also cannot disprove them either, and will accept the potential existing user estimates for the O&W trail or the U&D, lacking better data from other sources. We would encourage, however, that the ongoing process of counting trail users on local trails would be done with improved technology rather than relying entirely on estimates¹. Future development, investment, and maintenance will rely on hard data that today is simply not available.



Similarly, the “Dike trails” on the south side of the Ashokan reservoir were visibly used by both walkers and bicyclists; the obvious connectivity problems beyond parking lots and relatively short segment lengths were observed although the reservoir views were as outstanding as the potential to the north side. The facilities provided by DEP near Ashokan are relatively minimalist in nature despite the quality of the views, and reflect

¹ Sample people counting technology: <http://www.videoturnstile.com/>



their mission to protect, rather than promote, the resource. It is obvious that whatever impact that Ashokan trail sections may produce, it will be up to the County, or some other group, to develop it. On the same day as the O&W trail was well-used, Ashokan Dike trails were probably 20% of the same density.

Our concern in reviewing these numbers is the level of diversionary activity by the creation of a new trail, both within downtown Kingston (both Greenway and U&D), and the creation of a new trail system toward the Ashokan reservoir that will likely become a preferred destination. It is logical to assume that the creation of a new trail does not necessarily result in 100% new trail users; some will divert from existing trails and simply go to a better trail location - which this U&D corridor could certainly become for some. The primary markets of local users will continue to use the trail closest to them for exercise and new trails next to new users will result in new health benefits purely due to local convenience. A high-quality destination trail (such as the Ashokan reservoir section is capable of) may divert some users, although the prevailing wisdom is to extend individual use through connectivity rather than accept user diversion to other trails. Both concepts are true, but it is difficult to quantify. Some allowance must be made however to accept that 140,000 new trail uses on the U&D corridor will have some impact on existing trail use on O&W for those trail users that drive to a local destination trail.

The vertical difference between Ashokan and Kingston (400' in round numbers over 4 miles of distance, average 2%) is perhaps more consistent on the rail corridor, but is still the same elevation and will be a barrier to connectivity for some users, multiuse trail design or not. This distinct difference in gradient in different proposed sections has really not been examined in terms of projected usage by segment, however we did note in the Camoin study that segmented use (Kingston, Ashokan, Bellayre) was not projected – only the sum of the parts as a whole.

Like the railroad and their own special events, trail usage can be very concentrated in different areas and at different times. The Camoin study identifies special events like marathons, etc. for 17,500 users and 3 major/6 medium/10 minor events; we agree that this new system will be far superior to the existing trail maps and route guides offered on the HIT venue, including the annual marathon with road and trail routes. Events such as the HIT Marathon already exist today, so at least one such major event is a clear diversion on existing use to the potential new trail. These destination events are of particular economic value because any multi-day event such as that feeds directly into out-of-county, out-of-state destination users that are a target market. Trail connectivity across the County will contribute to the success of this long-distance event market. The proof of the existing multi-day HIT event and the established route map justify the Camoin out-of-area estimates.



On paper, the existing map of Ulster bike routes and trails looks impressive, particularly for the bicyclist. At first, we were puzzled on the desirability of developing a new trail running exactly parallel to the existing Route 28 Bicycle Route, which has exceptionally wide and smooth paved shoulders. Two immediate observations were made; one that the vehicle traffic on Rt. 28 is heavy enough to discourage bicycle use despite the paved shoulder lane, and second that during our visits, we never saw anyone actually using it as a bicycle route. It is not particularly well-publicized online but is well-signed as a state bicycle route.



On all on-line trail and tour resources, Route 28A was also shown as part of a 'loop trail' around the reservoir. We observed Route 28A to be a narrow, twisting roadway, and lacking paved shoulders of any kind, as well as having sight distance issues at proposed trail crossings. Like Route 28, it has significant shortcomings and is not an acceptable alternative except for the true road-class bicyclist. While it has not been mentioned in previous studies, our interviews and observations within Ulster County is that there is a definite safety issue of existing bicycle routes in certain areas, despite marking or recommendations, and that these both divert use to other locations and discourage destination use. The need for a dedicated, and safe, rail-trail corridor is rather obvious, and also explains the relative popularity of the existing trails nearer to Kingston that do not have such vehicle conflicts.

While the Camoin study considers the U&D corridor as part of a cross-county connectivity to Delaware County, the only existing destination to the west appears to be the Bellayre ski resort at the County line. Within Delaware County, there are also rail-trails, but they do not connect with this corridor, and trail proposals there do not appear to propose to connect to the Ulster County Line. The Delaware and Ulster Railroad (DURR) is the operating entity primarily from Arkville north (as well as the trail operator). While the track is in place from Arkville to the Ulster County line, it is not currently operated. It is, however, sprayed for vegetation and fully cleared and has reportedly been used for a locomotive-only move in 2013. It is in significantly better condition than most of the Ulster County corridor. The concept of trail connectivity to anything further west beyond the County line is not yet clear in terms of either projected or stated benefits, even if the Ashokan district appears to present outstanding trail and recreational potential.



DURR Fleischmanns siding – April '14



As commentary, within our own local area, national trends in trail use are equally evident and impact our analysis of Ulster County. Warren County PA (pop. 50,000) is firmly within the Allegheny National Forest and has had a long history of forest hiking trails through vertical elevation differences of 300-500'. **64 listed trails** exist within Warren County, and vary from motorized snowmobile trails, forest roads, and true wilderness trails, as well as the long-distance North Country Trail². Conventional rail trails include the paved and multiuse North Warren Rail Trail³ as well as less developed recreational rail-trails with far less usage⁴. Our own local multiuse rail trail is well-used since having been constructed 15 years ago. Over the last 20 years, Federal budgetary cutbacks within the Allegheny National Forest have led to complete abandonment of some forest walking trails as better-maintained and more scenic routes have come available. A new technical-skills mountain-bike/pedestrian trail is being federally funded in 2015⁵, as that is a new and previously untapped market.

Trails, by themselves, must be of extraordinary quality and well-promoted to serve as any kind of destination attraction. Our own local efforts to use the abundance of recreational trails as a destination attraction have not been as successful as the rather outstanding regional success of using the local lakes, rivers, and streams as destination canoe event venues; that has been a relatively unique resource. Warren County PA has hosted the USCA National Canoe Championships for six years and it has contributed major economic impact to our local economy.⁶ Our own 'local' excursion railroad, the Knox and Kane, ceased operations as a direct result of the hurricane that destroyed its own destination attraction, the Kinzua Viaduct, in 2003. Before the hurricane, the 1020', 340' high Viaduct attracted 160,000 park visitors on a structure not at all unlike the Walkway over the Hudson. The connecting long-distance (97 mile round trip) steam excursion railroad operated in excess of 25,000 riders per year between 1982 and 2005, but unable to sustain the loss of the bridge attraction. The local economic and tourism impacts of their combined loss were significant enough to justify partial reconstruction of the storm-damaged bridge, and it has reopened as the Kinzua Skywalk, now without the railroad attraction, at less than 50% of original visitation⁷.

² http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5052728.pdf

³ <http://www.traillink.com/trail/warren-to-north-warren-bike-trail.aspx>

⁴ <http://www.traillink.com/trail/allegheny-national-forest---tidioute-riverside-rectrek-trail-.aspx>

⁵

<https://www.facebook.com/thetrailsatjakesrocks/photos/a.837355112957837.1073741829.826111880748827/1186824708010874/?type=3&theater>

⁶ http://www.uscanoe.com/2015_USCA_Canoe_Kayak_Nationals_8212_Warren_PA_W168C48.cfm

⁷ <http://visitanf.com/kinzua-bridge-state-park-has-record-fall-season-allegheny-national-forest-visitors-bureau-releases-new-kinzua-bridge-sky-walk-zippo-lighter/>



4. Existing Rail Operations

4.1 Kingston

At Kingston, Catskill Mountain Railroad now has 2.7 miles of track in operation, which is about ¼ mile more than in 2014. Track east of Westbrook to Cornell St. is used to link the storage yard to Westbrook, but is not operated with passengers. Kingston operations consist of a shuttle / special events service from the Kingston Plaza (“Westbrook Station”) to just north of the Hurley Mt. road crossing. During 2014, the Polar Express decorated North Pole site was just west of Kenco Outfitters (2.4 miles out). For 2015 it is halfway between the two private crossings on Rt. 28, set on the hillside and within clear view of passing traffic.

The distance from Hurley Mt. Road to Kingston (Westbook) station that has been offered by the County is just over 2 miles; 4.1 mile round trip, running time at 10mph is approximately 30 minutes or less. How much of a difference can this half mile of track section really make?

It is clear to see that for at least 2014-5, the event that drives the success of the Kingston end is the Polar Express special event calendar (Nov. 20-Dec. 27), and 2015 reservations indicate what appears to be near-sellout conditions - capacity still insufficient to meet demand. With the draw of this event and the premium price, this ridership volume also becomes the driver for economic impacts in Kingston. So while it is not the exclusive opportunity for either the operator or Kingston, it does effectively become the key discussion item to determine impact analysis in terms of out-of-county visitors and overnight stays. And, as will be mentioned elsewhere, it has apparently not achieved either any slackening of demand or market saturation level at the current time.



Regionally, and nationally, the Christmas on the train franchise is still expanding today. The numbers being produced by the Essex CT Valley Railroad would indicate their North Pole Express alone is drawing 40-50,000 event numbers with their higher train capacity, also aimed at the New York metro market at a near-identical mileage distance. Valley Railroad showed as ‘sold out’ as of 11/25/15.



Excursion railroads that operate the Polar Express trips typically cannot schedule back to back trips any closer than 1.5 hours⁸; Catskill Mountain does their trips on two-hour intervals (2015 shows 2PM, 4PM, 6PM and 8PM on the busiest days for 2015). Subtracting time for train loading and unloading (done more efficiently in some event locations than others) the actual trip/event time is effectively an hour. Within that timeframe, the ‘arrival at North Pole’ is done at walking speed to allow children to wave to Santa standing at the North Pole site. So the actual running time per trip on track at speed is typically in the 45-50 minute range; i.e. 5-7 miles round trip underway is the minimum travel distance even with stops for grade crossings. Dividing that in half results in 2.5 to 3.5 miles of track necessary for typical minimum operating distance to run the presentation and still be on a moving train during the entire presentation.

That relationship between licensed event program length and available operating track is one of the most critical relationships for Ulster County to keep in mind for alternatives analysis of the corridor on the Kingston end. It is simply based on a relatively straightforward analysis of time and distance. Discussions with Rail Events indicated that during the 2014 season, they did not have enough running time at Kingston to actually finish the presentation while underway, and the train had to be stopped back at Westbrook to allow Santa to ‘finish his rounds’ passing out bells, and finishing the hot chocolate. In terms of a premium-price entertainment experience, this is more or less like turning on the house lights before the show is over. Rail Events had encouraged CMRR to extend their operations further to address what they considered to be a problem in this specific situation⁹. . This is not necessarily a case of CMRR extending track purely for their own internal or arbitrary purposes, and would apply to any operator doing this event with Rail Events, not just CMRR. Rail Events, as the show provider, actually has as much if not more influence on operating practices than the hosting railroad.

It’s also equally important to understand that even if the railroad already had 30 miles of track in operation today, it still could not use it for this particular event. Texas State Railroad (Palestine-Rusk TX) now has 25 miles of operable track (and over 40,000 riders for Polar Express in 2014), but runs out only 7.3 miles to the North Pole site, as their track has a passenger operating speed of 25mph. Running time from their station to the North Pole is exactly 26 minutes to hit their show queues. To make the Polar Express event schedule, they cannot run out any further and still make the schedule, even when running at twice the track speed of Catskill Mountain. “Polar Express” is a specific, timed, presentation with music, narration and near-stopwatch timing when done properly, and is best compared to an off-Broadway production done on a (slow)

⁸ <https://www.texasstaterr.com/the-polar-express-train-ride/>

⁹ Phone Interview with David Schranck, Rail Events, November 2015



moving train. The “North Pole” trackside location is typically selected based on elapsed time calculations on where it has to be to fit the presentation schedule, based on train speed and allowable track conditions. Similar situations exist on other excursion railroads with far longer runs¹⁰ – the “North Pole” site is picked based upon running time to fit the show.

So how does this impact Ulster County? For FRA Class 1 15mph track (which is usually run at 10mph on CMRR) that means the minimum track distance is really in the 3-3.5 mile range resulting in a 7 mile round trip, run just about as slowly as can be done and still actually be moving at all. That is the underlying explanation for the 2015 extension up Rt. 28, increasing their operating distance to 2.7 miles out of Westbrook. It is better than 2014.

What that means for this project is that to preserve the economic impacts for Ulster County that are already being demonstrated and also form the backbone of the business plan for them (and any other passenger operator using this licensed event) the additional distance of operable trackage above Hurley Mt. Road is actually very strategic in the total operating and impact plan. While it doesn’t necessarily need ten miles of track to operate Polar Express event, or even five, the 25-minute moving distance to fit the presentation is the underlying reason for the highest and best use conflict in what is really a relatively short physical distance of corridor.

That analysis, in turn, focuses a great deal of attention on specific corridor conditions and challenges on the portion of the railroad between Hurley Mt. Road and Basin Rd., looking for alternatives for rail and trail locations to preserve this existing rail impact and also provide the trail connectivity that the Camoin study envisions. This conflict and search for resolution will look at other areas in the corridor as well.

For the other major special event – “Day Out with Thomas” (DOWT), the space and time restrictions are actually lessened. In terms of all the activities and opportunities on a “Day out with Thomas”, the length of the train ride (along with the attention spans of its target audience) is very short. While not as choreographed as Polar Express, DOWT events still have a minimum trip length and time; on the Strasburg Railroad it is only 20 minutes. Essentially, of the two primary event market builders now in place, DOWT can generally fit in any operating envelope that Polar Express occupies. It does not, by itself, drive additional track space issues out of Kingston. Unlike Polar, DOWT has generally reached plateau demand nationally, and in some areas, has actually declined. Whether this is due to the increasingly-difficult economics of the franchise contract terms, or due

¹⁰ Grand Canyon Railroad – 60+ miles available; 40mph track, North Pole is 17 miles out from Williams, AZ. Cuyahoga Valley; 51 miles total length, three on-line cities (Cleveland, Akron, Canton) 25mph track, North Pole relocated to the 25-minute time distance depending on origin of trip.



to a decrease in interest on the underlying characters in the PBS program is difficult to judge, but the animated program offerings in 2015 are significantly different from the peak years of a decade ago.

Other licensed events offered need a destination site – the Dinosaur train, Pumpkin Patch, etc., and all focus to a certain extent on ‘going’ somewhere by train and getting off the train to see the program. Unlike Polar Express, they need a safe, flat, and accessible area with at least a temporary boarding platform, and are not directly linked to a time/distance schedule. Pumpkin patch trains of all manner (not just Peanuts) have proven to be nearly as much of a sellout as Polar, and are simply limited by the available season and train capacity. Other railroads we have worked with, including the six-mile Lebanon, Mason & Monroe (Lebanon OH) have had great success with PBS-character themed trains and a destination site for the event. In most of these situations, a destination site between Rt. 209 and Hurley Mt. Road would appear to be adequate, but it does need some development and planning effort. Such an event area could just as easily be West Hurley, if that could be accessed.

While the CMRR business plan envisions operations to West Hurley and Glenford Dike out of Kingston, it is perhaps more important to recognize that the proven success of CMRR is largely based on these two existing Polar and Thomas events, and that for any operator to have any significant financial interest in being in Kingston, must have at least enough operable track to allow them to operate. In addition, some kind of destination event area needs developed alongside the track, in an area large enough and safe enough to allow train unloading. Few if any areas between Hurley Mt. Road and Basin Rd. qualify for that criteria and the corridor was looked at in detail.

As a result of this analysis, a great deal of additional study time was spent examining and measuring corridor clearance and physical conditions between Hurley Mt. Road and Basin Road on our field trip. It would appear that that resolution of this zone, through any means possible, of both trail connectivity and preservation of the existing rail economic benefits of visitation would be at the heart of the entire corridor discussion and alternatives discussion.

4.2 Phonecia/Mt. Trempor

After the catastrophic flooding of their facilities in 2011, it is frankly remarkable that the Catskill Mountain Railroad survived at all, as many similar volunteer organizations would lack the drive and stamina to rebuild in-place. Our 2014 visit through the corridor was before repairs were completed at Mt. Trempor, and was our first on-site view of the post-storm damage.



Interviews with CMRR, as well as the business plan, confirm that the Mt. Tremper/Phonocia operation has become a fall-foliage draw, but has plateaued at the 8,000 rider range. This is essentially the same number that CMRR produced over the last decade or so. This low ridership on a short, volunteer-based operation out of major traffic flows is not particularly unusual. While it could be increased, something would need to significantly change in order to even begin to make it produce similar results to what is now happening in Kingston with the special event market.

Our interview with Rail Events disclosed that they had reviewed Mt. Tremper/Phonocia as an alternate location for Polar Express and had deliberately chosen Kingston. CMRR did not make that final decision. The final factors were additional driving distance from Kingston, available parking, areas, proximity to services, and layout of the museum building interior for anticipated visitor volumes.

4.3 Future Ridership Trends

One of the key issues on corridor usage by rail that has not been openly stated is that the role of excursion railroads nationally has become more and more event-based, and that nationally, the 4th quarter has clearly become peak usage and ridership time between fall foliage season, Halloween, and Christmas markets. The niche for excursion railroads and their offerings is increasingly not so much as a summer vacation destination activity in the three-month summer season, but as a fall-to-winter attraction when most outdoor attractions are either closed or unfavorable. The 'all weather' nature of train rides is a significant advantage when the usual summer competition of everything from water parks to summer camp is closed. Furthermore, the peak demand for Polar Express is at nighttime, in November and December.

In our analysis, and recommendations, that observation is critical for Ulster County because it greatly lessens potential conflicts between rail and trail users operating in the same corridor when their relative usage peaks for use no longer directly coincide. The very highest-rail demand period is now when trail use, due to both weather and season, is typically at a low point. The trails thrive in ideal weather conditions when everyone that is capable wants to be outside to enjoy the outdoors; excursion trains in vacation areas typically see ridership jump in poor weather conditions. Summer ridership, once the bulwark of tourist trains, is now often only 25-30% of the annual total. Within New York State, the ultimate contrast in successful joint-corridor use continues to be the Adirondack Scenic Railroad, where the entire corridor from Snow Jct. (Remsen) to Lake Placid becomes a designated and exclusive snowmobile trail after October 31st of any



year, and will continue despite the Lake Placid portion review.¹¹ Therefore, concerns about joint occupation should reflect this reality to maximize potential County benefits.

¹¹ <https://www.facebook.com/NewYorkStateSnowmobileAssociation/posts/10152966606194772>



5. Economic Impact Analysis

Evaluating highest and best use of the corridor for Ulster County residents implies that one of the key factors is reviewing the stated economic impact factors for both uses, and determining whether or not those need adjusted to achieve a fair comparison basis.

On the surface, the two methodologies appear comparable, so that X-dollars and jobs produced via rail alternatives is comparable to Y-dollars and jobs produced by trail alternatives. In-depth analysis of the data, sources, and methodologies involved disclosed that they aren't entirely that simple. Dollar-for-dollar comparisons cannot truly be used at face value.

Primary comparative input documents are the 2013 Camoin study (Catskill Mountain Rail Trail: Economic and Fiscal Impact Analysis, June 2013) and the Catskill Mountain Railroad Business Plan 2015-2020 (February 2015). These two documents attempt to present comparable economic impacts.

5.1 Trail Impacts: Camoin Study

Key factors within the Camoin Study include the projected trail users (visitation figure), user groups, and the resulting economic impacts from those figures. Overall, the 140,000 total estimate makes a clear distinction between in-county and non-county users; for purposes of economic impact the non-county users are key (same standards apply to rail use). Non-county users are projected to be 23%. (Note that the in-county visitors rely primarily on health benefits to compensate; see that section).

Camoin was careful to develop average trail use using relative average users over seven comparable trails and excluded the Hudson Valley Rail Trail due to the Walkway over the Hudson counts which they felt were not comparable; similarly the Catskill scenic trail was not used due to issues with the counting methodology. The highest number actually used was the Burlington Waterfront Bikeway at 292,000 and the lowest number was the Uncle Sam Bikeway at 25,19, giving a potential range of possible use. Removing the Walkway counts is to be commended as we have seen that number used to over-project trail use in other projects when in reality it is a remarkable attraction nearly in a class by itself rather than a comparable trail project.

Total trail visitation was summarized by a baseline of 102,685; 19,520 extended stay, 17,500 for events for a total of 139,705.

Included in that total was 81,157 for the existing use estimate of the O&W Rail Trail, used as an average. That does raise an immediate question of if the creation of a new 40-mile trail will lower visitor use for the O&W, when both are within Ulster County. Today the prime rail-trail may be O&W, but that may not hold true if the U&D is built.



Within the County, one new trail is competing against an existing trail with no adjusting factors shown in the analysis for projected diversion. We feel this is a legitimate estimate, but not necessarily one that recognizes net gain when the O&W trail is also within Ulster County.

Further on in the report, economic impacts per user are projected – but in this case the Walkway Over the Hudson is now included, and factored into the average non-County trail users, to arrive at the 23% total of non-county users on trails. Walkway percentages are highest at 48% non-county, which is entirely likely, but we do not feel should have been included if the Walkway usage was not included in prior analysis. The visitation estimate of 139,705 is taken at the 23% average for 31,762 ‘net new out of county visitors’. Recalculating the average without Walkway would then decrease that average to 20%.

When it comes to assigning visitor spending by outside users, the only source shown is for Walkway users; 48% of which are out-of-county. The ‘per person per day’ totals to \$64.37 per person per day. Multiplying that \$64.37 by 31,762 results in the projected \$2 million direct spending projected impact; adding on an indirect impact factor of .52 results in a total economic spending impact of \$3.1 million

We recalculated the entire Camoin Economic Impact using our own adjustments and factors, including recalculation of usage, applying a diversion rate of 20% against existing Ulster trails to net against U&D estimates; separating day trips vs. overnight trips, and applied RIMS II factors such as spending per party rather than per visitor. Our RIMSII indirect-to-direct factor is a higher .965 rather than .52, and is used both here and for the railroad comparison that follows. Spreadsheets are included comparing the results and ‘showing the work’ on how the relationships apply given adjustments.

All that being said, our adjusted economic impact analysis result was only \$30,000 different than the Camoin Study: \$3,077,000 vs. \$3,107,000. The only question remains if a 20% usage diversion is appropriate, as that would lower the Camoin impact number somewhat, but overall, in terms of a working comparison, the numbers are not significantly far enough apart to dispute for our highest and best use analysis purposes for this report, and to make appropriate recommendations.

5.2 Rail Impacts: Catskill Mountain Railroad Business Plan

CMRR presented an Economic Impact Analysis of their own, as part of their 2015-2020 business plan. While the line-by-line calculation traceability of the EI calculation is not shown, the critical parts are – enabling us to run an Economic Impact of our own based on their data. In addition, their data was used to estimate the difference between Kingston and the West End operations.



Calculating railroad economic impact in broad terms is the spending by the railroad itself (unlike a trail, the railroad is an active business that spends the great majority of the ticket revenue it receives from operation) as well as the visitor impacts. CMRR provided their 2014 results as well as a 2015 operating budget. That is the key data for that portion of the impact calculation.

In addition, CMRR has relatively solid revenue and rider counts as unlike a trail, they charge for admission. Additional data is provided by the fact that Rail Events and HIT! have a designated ticket services provider (third party), and nearly all event reservations have to be made by credit card. This detail provides a great deal more statistical and demographic data, at least on those special event riders that reserve tickets. As the special events have often been in sellout conditions, the percentage of cash walkups other than conventional shuttle and Mt. Tremper trains is relatively low. Out-of-County data is relatively proven, in comparison to trail estimates.

Our conclusion, using CMRR 2015 budget projections, is that the CMRR economic impact has been at least partially understated, due to a mix of indirect multipliers applied between the Camoin study and the Adirondack study, although previous estimates on direct impacts are relatively consistent. We have applied consistent multipliers to both based upon input data. Our results were that the total railroad will have a 2015 impact of \$4.2 million; \$3.3 million of which is on the Kingston side. Detail calculation sheets follow.



**IMPACT OF CATSKILL MOUNTAIN RAILROAD OPERATION ON TOTAL REGIONAL
 BUSINESS**

OUTPUT – CAPITAL BUDGET

Category of Expenditure	Direct Expenditures	Output Multiplier a/	Impact on Total Output b/
EXPENDITURES			
Equipment – Repair, Maintenance	\$60,000	1.9160	\$114,960
Track Machines – Repair & Maintenance	\$50,000	1.9160	\$95,800
Maintenance – General	\$20,000	1.9160	\$38,320
Track Work – New Construction	\$200,000	1.9490	\$389,800
Crossing Protection – Installation	\$10,000	1.9490	\$19,490
TOTAL	\$340,000		\$658,370

a/ Each entry represents the total dollar change in output from all industries for each dollar of output delivered to final demand.



**IMPACT OF CATSKILL MOUNTAIN RAILROAD RAIL OPERATION ON TOTAL
 REGIONAL BUSINESS**

OUTPUT – OPERATING BUDGET

Category of Expenditure	Direct Expenditures	Output Multiplier a/	Impact on Total Output b/
EXPENDITURES			
Equip. Rental/Leases	\$47,853	1.9119	\$91,490
Fuel	\$10,180	1.4544	\$14,806
Wages/Overhead	\$100,000	1.0755	\$107,550
Admin Expenses	\$15,000	1.9799	\$29,699
Bridge Inspections	\$10,000	1.9799	\$19,799
Repairs (Day-to-Day)	\$10,180	1.9160	\$19,505
Lease Payments	\$9,000	1.9119	\$17,207
Insurance	\$20,360	2.5330	\$51,572
Advertising/Promo	\$10,180	1.9799	\$20,155
Special Event – Licensing Fees	\$333,550	\$1.9799	\$660,396
Special Events – Production Expenses	\$241,505	1.9650	\$474,557
Utilities	\$3,054	1.4212	\$4,980



County Rent – 5%	\$47,853	1	\$47,853
Property Tax	\$3,054	1	\$3,054
TOTAL	\$861,769		\$1,562,623

a/ Each entry represents the total dollar change in output from all industries for each dollar of output delivered to final demand.

VISITOR IMPACTS

In developing the accurate picture possible of the visitor rail economic impact on Ulster County and the communities through which the CMRR runs we separated riders into three distinct categories – local (or trail proximity), day trippers and overnights. Each has a quite distinct spending pattern.

We have used the most recent ridership figures to determine estimated consumer spending levels by category. In addition, we are using the current standard “family unit” representing 3.1 individuals (two adults and 1.1 children).

Estimated non-rail related tourism expenditures by visitors:

Local Users

We place no value against locals since it is probable that those funds in pursuit of some other activity within the immediate area. Ticket expenditures for all three category riders show up elsewhere.

Day Trippers

Day Trip riders – 26,936.

Family units of 3.1 individuals – 8,689. (\$82.50 per party/day) \$716,843

Overnight

Overnight riders – 2,664. Family Units -- 860 room nights.

Family Units – 860 (\$313 per party/day) \$269,180

Total Estimated Economic Impact – Visitors

\$986,023 x 1.9650 multiplier **\$1,937,535.1**



Total Economic Impact – Summary (Table)

TOTAL ECONOMIC IMPACT –

	\$ IMPACT ON TOTAL OUTPUT	INCREMENTAL JOB CREATION ^{a, b}
OPERATING BUDGET	\$1,562,623	
WAGES, PAYROLL OVERHEAD	\$100,000	
CAPITAL BUDGET	\$658,370	
TOTAL ECONOMIC IMPACT – RAILROAD OPERATION	\$2,320,993	56.4
TOTAL ECONOMIC IMPACT – NON- RAILROAD OPERATION	\$1,937,535	47.08
TOTALS	\$4,258,528	103.48

a/ Equivalent full-year jobs.

b/ Projection of jobs supported is based on the RIMS II models for the State of New York. The actual number of jobs supported may be higher, but the numbers shown here are equivalent of full-time employment. Job creation for the railroad operation does not necessarily mean employment with the railroad, but rather employment with those firms servicing and selling goods and services to the railroad operation.

Regional Input-Output Modeling System (RIMS II)



6. Health Impact Analysis

One of the stated goals of this Highest and Best Use analysis was to factor in the concept that developing new trails for County residents would likely create new walking and exercise opportunities that do not now currently exist. Encouraging residents to get outside and use trails as a recreational opportunity, and part of the regular routine, would not only have the intrinsic benefits, but given some methodology and experience factors, can be monetized in much the same way as Economic Impacts. The concept is readily acceptable as a generalization, but converting it to a result requires explanation.

This is important because much in the same way that Economic Impacts favor out-of-area users (because of the visitor spending), the health impacts directly favor local residents rather than visitors. Keeping local residents healthy by providing more opportunities should, in theory, reduce disease and mortality rates within a population. Decreasing mortality rates, and in particular, incidence of chronic disease can have palpable local economic benefits, particularly when the costs of healthcare are borne through the public sector.

The science and evolution of standard procedure on this approach has rapidly matured to the point that, much like economic impacts, certain key items like multipliers and standard values (in this case, human life value vs. a standard Job value) can be described and applied. Combining these values with demographic data, use data, and duration of exercise data can produce results that can, for comparative purposes, place a dollar value on the value of additional exercise.

Increasingly, this kind of analysis is used to reflect public policy in decision making, in everything from development of new public transit access to establishing public health standards (i.e. the dollar value of establishing nonsmoking policies in government buildings).

We have attempted to help develop estimates that are not just stated as a total conclusion over the entire corridor, but sufficiently explained to allow comparison and analysis for individual segment decisions in the future. For instance, analysis of the 2-mile round-trip neighborhood trail within Kingston and an eight-mile walk at the Reservoir, are of different health value. But developing use/health dollar constants can assist the County with balancing individual segment needs and evaluation criteria.

Stone was assisted by Harvard University's Jonathan Buonocore, one of the prime authors of the 2014 Massachusetts Bay Transportation Authority Health Impact Analysis of proposed transit service cutbacks and the resulting health impacts¹².

¹² A Health Impact Assessment of Proposed Public Transportation Service Cuts and Fare Increases in Boston, Massachusetts (U.S.A.) <http://www.mdpi.com/1660-4601/11/8/8010>



Statistical, population, valuation, and mortality data was used with the HEAT tool published by the World Health Organization¹³.

6.1 Constants Used for Health Impacts Analysis

Population of Kingston, 2014 **23,557** (as adjusted to 2014)
http://www.census.gov/popest/data/cities/totals/2014/files/SUB-EST2014_36.csv

Population of Ulster County, 2014 **180,445**
<http://quickfacts.census.gov/qfd/states/36/36111.html>

Ulster County Background Mortality Rate (20-74 year olds, per 100,000) **507.32**
<http://wonder.cdc.gov/>

Value of statistical life (2015USD) **\$7,850,000** (National Center for Environmental Economics)
<http://yosemite.epa.gov/EE%5Cepa%5Ceed.nsf/webpages/MortalityRiskValuation.html>

Discount rate for future health gains: **5%**

Raw usage data for per-mile usage calculation model

Additional trail visits – county basis (Net trail usage gain) (Camoin)

58,845 annual visits all users

Percentage of local trail users in County (average) 75%

Trail Distance in Miles	Resulting Health Benefits (total \$ per year)		Health Benefits per trip-mile (\$ / trip-mile)	
	County Users Only		County Users Only	
2	\$	384,750.00	\$	3.29
4	\$	769,500.00	\$	3.29
8	\$	1,539,000.00	\$	3.29

6.2 Conclusion

With this table, and the base per/user/trip/mile calculation of \$3.29, any number of additional trail use scenarios revolving around visits per year and trip distance can be calculated for comparison. This is not based on a total County scenario, but is a tool to be used to evaluate individual options and segments.

For instance, a distinct neighborhood population of 10,000 within Kingston with an annual usage of one trip/yr (10,000 trips, one trip per person/year) on a two-mile round trip average over the distance from Cornell St. to Kingston Plaza would equate to a

¹³ Development of the Health Economic Assessment Tools for walking and cycling:
http://www.euro.who.int/_data/assets/pdf_file/0005/248900/Development-of-the-health-economic-assessment-tools-HEAT-for-walking-and-cycling.pdf?ua=1



comparative annual health benefit of \$32,858. Multiple trips, and larger population sizes, can be estimated to perform easy calculations.



7. Segment by Segment Corridor Analysis

7.1 Kingston

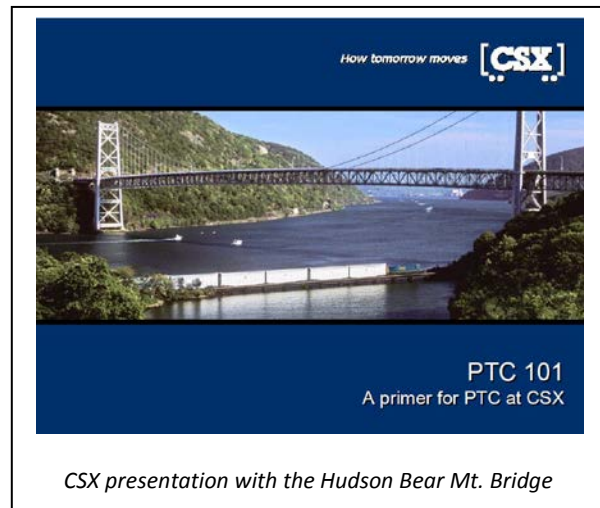
Within Kingston itself, the corridor is effectively severed from the very start with the rest of the national rail network. This creates a comparatively unusual situation, as the lack of this rail-to-rail connection presents a specific set of issues for the current CMRR, and more importantly, any other operator that would be interested in operating the corridor as a railroad.

Keeping the track 'connected' to CSX at Kingston is part of the submitted CMRR business plan, and conceptually justifies the retention of the track in place and operable between Kingston Plaza and the CSX main line. Determining the issues around the retention of this track is not just crucial for CMRR, but directly impacts trail feasibility, potential industrial development, and legal 'railroad' status as part of the general system. Pursuing rail-with-trail alternatives also involves careful examination of the need, and cost, to retain the connecting track for any reason.

7.1.1 CSX to Kingston Plaza

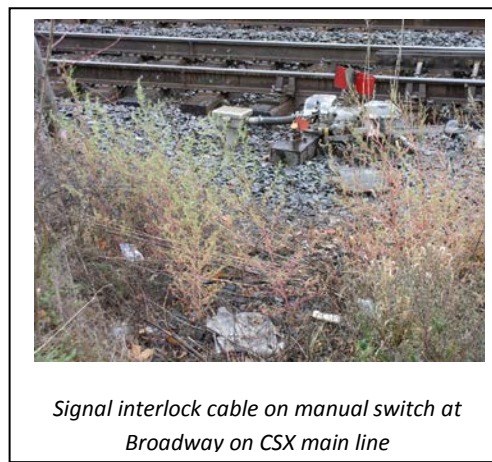
Without personal, on-site examination, it is difficult to even realize that the rails are still in place across the DEP and Post Office parking lots within Kingston. While a 'cut' was left in the vehicle guard rails adjacent to CSX, it is insufficient to actually allow clearance of rail equipment through the opening if the switch was replaced.

Removal of the CSX track switch for the lack of maintenance payment to Conrail was in retrospect, an expensive and critical decision by all parties. Since the inception of Positive Train Control (PTC), main line railroads have now been much more reluctant to place any new turnouts in main line trackage, as the cost of the turnout is now only part of the problem – PTC signal systems must now be modified to account for any potential main line switch ever left open. Detection systems and monitoring software must be updated any time that track modifications are made. This has raised the price of installed main line switches in PTC territory to the \$300,000 and up range. Essential to the cost estimation problem is that the track and signal installation is done by CSX forces on CSX property, essentially assigning the 'cost' to them at their



discretion. Putting in a switch is not a negotiable, or competitively biddable, exercise when working with CSX.

CFR 49 236.410 covers the new Federal requirements for signal interlocks using hand-thrown switches on main tracks.¹⁴ Our on-site inspection confirmed that this replaced track switch would now be outside Kingston yard limits, under the control of a remote dispatcher. The nearest switch to the south (remnants of the Walkill Valley Railroad at Broadway) is already wired into the signaling system although it is a hand-thrown switch, proving the existence of dispatcher and pending PTC monitoring.



CMRR has suggested that it may be possible to have a switch installed that is essentially 'locked down' except for special moves. This would be a rather common-sense approach but at the current time, no such installations appear to have actually been done on CSX or any other identified Class-1 carrier to lower PTC costs. In absence of any written communication with CSX indicating this is actually allowable for this location, we have no current evidence to indicate that this is possible. The impact of this single issue could be well over \$200,000 and may need further study.

The CMRR business plan earmarks this connection for two purposes: 1 - the ability to run 'charter trains' over CSX, and 2 - the ability to receive interchange equipment on its own wheels on an as-needed basis. They do not reference the switch for the one key benefit – freight traffic development – and no indication of any potential freight traffic is made within the business plan. Potential freight traffic is separately covered at the end of this report and at this time, is a complete unknown that could dramatically impact the conclusions of this report based on an alternative operator proposal submission.

CMRR's business plan includes proposed access to CSX for 'charter trains'. It is unclear what their definition of 'charter trains' is. CSX has not allowed third-party (effectively everyone but Amtrak-designated special train authority) operating over its trackage without liability insurance coverage at or above \$200 million. The price of that insurance has effectively shut down any third-party excursion operations operating over CSX-owned track on a nationwide basis. It is far more feasible to own Amtrak-compliant equipment and operate over CSXT under Amtrak operating and insurance authority; this essentially puts CMRR in the railroad car leasing business rather than

¹⁴ <http://www.gpo.gov/fdsys/pkg/CFR-2010-title49-vol4/pdf/CFR-2010-title49-vol4-sec236-410.pdf>



‘charter’, and has shown to be a sustainable business model for car ownership for excursion operators. Kingston, however, is not directly on the Amtrak system, or near an Amtrak terminal, so passenger equipment handling is still done by CSXT as a special freight move to the nearest Amtrak terminal (Albany) at premium rates. Numerous National Railway Historical Society chapters do own Amtrak-compliant passenger cars as fundraising vehicles, and do lease them out for extended periods. The other potential is to bring in specialty or additional passenger cars for special events on a short-term rental basis, and this is a very viable approach done on other operations during Polar Express events to have more and better cars on site during the eight-week market window. These typically consist of one move of passenger cars in and one move of cars out on an annual basis. So, while there some validity in the concept, it is not truly ‘charter’ in nature, and of very low frequency use. Conflicts are lessened due to low usage, but the cost-benefit ratio is subject to further analysis based on intent.

For historic/museum equipment interchange, CSX has taken a similarly difficult position on the movement of ‘non-compliant’ equipment over its lines, including vintage locomotives and cars. The definition of ‘non-compliant’ was extended during 2012 to include locomotives and cars with non-rotating end cap roller bearings on their wheels, and older locomotives without alignment-control couplers (that center the couplers to lessen possibility of derailment when shoving). This unprecedented decision even stranded CSX-owned locomotives and connecting shortline partners over their entire system. This was subsequently eased to be enforced on a ‘case by case’ basis, but still hangs over any potential vintage equipment move as an unknown issue for both cost and time. Outbound movements of vintage cars via CSX can still be cleared by a CSX equipment inspector with some degree of predictability, but inbound equipment not originating on CSX is still subject to embargo at any non-CSX interchange point without prior notice, effectively stranding the equipment at a distant location and needing extensive modification before it can be moved again on its own wheels.

The overall impact of all these internal CSX policies (not from federal regulation) is that vintage equipment movement of all but Amtrak-compliant cars has become both rather unpredictable and expensive. Tourist and museum railroads increasingly resort to movement of vintage equipment over the highway (which is how Iowa Pacific removed the vintage passenger cars from Rt. 209 crossing area to the Midwest) or by putting the equipment on a standard railroad flatcar and moving it via that method. Flatcar equipment movement is far less expensive on a mileage/tariff basis, but has significant additional costs for crane time and rigging. Despite those additional crane costs, it is both predictable for cost and time and has become a preferred method for moving older equipment that is obviously non-compliant for wheels, bearings, and coupler issues. It would not necessarily require an active track connection in Kingston.



7.1.2 Cornell St. Yard

CMRR's current 'yard and shop' location at Cornell St. is cramped and limited for both equipment storage and maintenance uses. It is at best a compromise location based out of necessity and complete lack of any available current alternatives. CMRR's business plan prefers a new location elsewhere on the corridor if possible, either on the west side of the I-587/28 overpass, or even out at Hurley Mt. Road, that will provide them a better maintenance location and also be clear of potential trail conflicts. It is important to note that this Cornell-Plaza trackage segment is not used for actual excursion operations and is not really practical to do so for any other potential operator.

That being said, until this new maintenance location is decided, any excursion rail operations out of Kingston are squarely in the path of trail alternatives at Cornell St. The excursion operation must have some base of operations, even if relatively Spartan in nature. Erection of a pre-engineered steel storage building is a rather standard solution elsewhere, the only non-standard feature unique to a railroad is the required addition of an in-track lowered pit for FRA-mandated locomotive safety inspections. It should be cautioned, however, that few railroad excursions or museums that are in the business of equipment storage and restoration manage to keep a site that is not labeled by some in the community as an effective "junkyard". A railroad museum repair shop, and equipment and parts collection, is by definition, industrial in nature, and will cause less community conflict if well-removed from commercial and residential neighbors.

Other than using the connection for occasional excursion equipment interchange or county-beneficial freight service, resolving this shop location issue essentially defines the Cornell St. to I-587 corridor for trail use as the highest and best use concept.

7.1.3 Trail Usage Within Kingston

The primary uses for this first segment of the corridor is for trail connectivity to provide the best, and most seamless, connections across Kingston from east to west with minimal diverging onto side streets, residential, and commercial property to achieve it. The other goal is to provide recreation and pedestrian access for a local neighborhood. Both goals are well-researched and defined in numerous reports examined by Stone Consulting.

Seamlessly connecting rail-trails through Kingston is faced with very limited if nonexistent opportunities for dedicated corridor development across the City from east to west. Trails, pathways, and greenways proposals east of the CSX main line track in Kingston share a similar problem with the existence of the CSX main line. The original Ulster and Delaware railroad crossed the north-south railroad line on a level diamond crossing that was removed in the late 1960's. The trail alternative across Kingston east



of the CSX track is comprised of designated public streets. The railroad corridor has been thoroughly repurposed and built-over east of CSX.

West of the CSX tracks from Rondout, this is truly the only viable east-west corridor available for consideration. However, connectivity issues to the east aside, specific neighborhood needs exist that do not necessarily require seamless corridor connectivity.

Discussions with Kingston's Greenline Proposal (Tim Weidemann) outlined the clear focus of this corridor section on local neighborhoods and connectivity issues. The northwest portion of Kingston (bordered by Broadway, Albany, Manor, and the CSX tracks) has parks only on its outlying boundaries. This neighborhood also lacks self-contained shopping and the closest one appears to be the Kingston Plaza. Unlike the south, west and east districts of Kingston, no existing or proposed trail or greenway corridors now exist for development for greenspace or connectivity to it.

These issues raise the strategic importance of the development of the Cornell St. rail corridor for trail use – particularly to the community – as a new pedestrian corridor connecting the neighborhood to the Kingston Plaza not just for recreation, but for daily walking transportation for shopping. It is considered to be on the 'most wanted' list in terms of trail issues not just within Kingston, but at the County level. This encompasses all goals of trail development – recreation, commercial activity, and health benefits in particular. While it is a short distance, the estimated neighborhood population of 10,000 making just one trail trip per year would have health benefits of \$32,858

Because of this issue – neighborhood greenway and accessibility over essentially a mile of corridor between Cornell and Kingston Plaza – trail usage is a local community priority. The only remaining issue then becomes if any *joint* rail with trail activity is actually feasible within this 3000' distance between Cornell St. and the Plaza. After the Rt. 587 overpass, the available space for both rail and trail occupation significantly increases with fewer direct conflicts.

7.1.4 Rail with Trail Alternatives – Kingston

CMRR's alternatives as presented in concept documents essentially consists of a narrower walking trail on one side of the track or the other that rose to street level and back down to track level at the two constricted overpasses at Elmendorf and Albany Streets. We do not consider that as a viable alternative to a conventional multipurpose or recreational trail



design, and would effectively prevent anything but limited pedestrian access. It would neither be accessible nor allow bicycle traffic. Work done to accomplish such an 'up and over' trail to street level would be wasted construction effort if the rail presence were ever to vacate in the future.

Although the right-of-way is as narrow as 50' in some locations (according to the Valuation maps), one factor that has been overlooked is that the current track and ballast condition is still very poor. If the corridor is to be maintained for rail use (and particularly for any freight), it essentially must be reconstructed, as general tie and drainage condition needs significant additional work. If it is reconstructed as it should be, it could also be relocated to one side of the right-of-way, creating much more space for a full-width pedestrian trail than if a narrower trail were squeezed to one side or the other. That approach could, in theory, resolve most of the conflicts *except* at the two street underpasses.

That leaves potentially two seemingly unsolvable constraints at the two narrow underpasses at Albany and Elmendorf – a total of 110 lineal feet out of 3000'. CMRR has proposed for 'crossovers' at various locations throughout the entire corridor, a solution of paved angular crossings with rubber flangeway inserts to eliminate both the tripping hazard of an open flangeway and reduce the hazards presented to bicycles in such situations. This solution is actually well-suited to this slow-speed occasional (and likely seasonal) use of the rail corridor in specific locations. While it may seem unconventional, given such short distances, the rail operator's policy of hand-flagging vehicle crossings could simply be extended to these two short overpasses. Short and slow train operations can simply proceed through these areas at a walking pace. This is not the CSX main line. Alternatives such as overpass reconstruction are an expensive and unnecessary approach to what can be resolved by operating practice.

Concern has been raised, and justifiably, over two specific issues with this concept. First, the design of such crossings presents an oblique angle of any bicycle or wheeled vehicle with the rail rather than a direct crossing angle – presenting a slip hazard on the railhead. Second, the funding agency potentially involved for this trail segment (NYDOT) may not consider this acceptable due to their own design reviews that do not differentiate in any way between a 'main line' crossing and this low-speed, low-use situation.

First, the oblique rail crossing angle issue is primarily impacted by one key design factor – the vertical distance of the railhead surface in relationship to the crossing surface in design specification. Conventional heavy rail (freight) design places the railhead as high as half an inch higher than the crossing surface (accounting for wheel profile and heavier track load variations); while recommended streetcar design places the same railhead flush with the surface to lessen accident potential in mixed-use pavement types.



Combined with flangeway insert, this lower rail head to surface standard could significantly mitigate risk. Finally, unlike the CSX main line, the U&D corridor simply sees insufficient traffic to burnish steel rails to the high side-to-side polish typically seen that presents a legitimate slip risk.

7.1.5 NYDOT funding vs. Trail Design Standards

The NYDOT funding vs. design standards issue is a critical one that governs whether or not Federal funding enhancement grants can be used for this project, and what standards apply in design. Responsibility was traced to the NYDOT office out of the Poughkeepsie regional office and consulted with both Martin Evans and designer Lance Gurney¹⁵ regarding specific design criteria as it relates to this funding source.

AASHTO design criteria for specific trail cross-sections or width, separation and barriers to adjacent rail are used as guidelines. These definitions matter, as a “recreational trail” and a “multiuse trail” are not the same thing. Ulster County strongly desires the construction of a full width (10-12’ surface) multiuse and accessible trail over the entire corridor. CMRR’s “Rail with Trail” proposal outlined a “recreational walking trail” between Cornell St. and Glenford Dike beside the existing track – nominally a 4’ trail width. These are two very different concepts in finished product. The funding application for this project is for a multiuse trail. Design criteria in that case, according to NYDOT, is reviewed by Federal Highways. Exceptions to full-width 10-12’ design specs do exist in two situations – wetlands and rock cuts, both of which this project has in abundance. Gurney noted that a similar project in Dutchess County was not approved by FwHA due to a design that went to 6-foot width to get through a wetland. This confirms that given this funding source, restrictions exist, but there is at least some latitude that can be explored.

The Rails to Trails Conservancy has been actively promoting trails for decades, and has also made several landmark studies of rail-with-trail corridors nationwide. Overall, these corridors widely vary, and follow no particular standard except that they have worked, and worked relatively well, to provide trail benefits while preserving the rail corridor. There are two significant distinctions to be made – one being that many corridors are beside high-speed, high-volume commercial freight lines, and others are beside low-speed, low-density rail corridors, some of which are only operated seasonally. Many have the luxury of being placed on former double-track lines with one remaining track, where there are actually relatively few conflicts with horizontal space on the existing roadbed. Others have single-track corridors with relatively easy geography, where a parallel trail may be at ground level, stay within the right-of-way, and not necessarily present significant construction barriers. Most corridors are

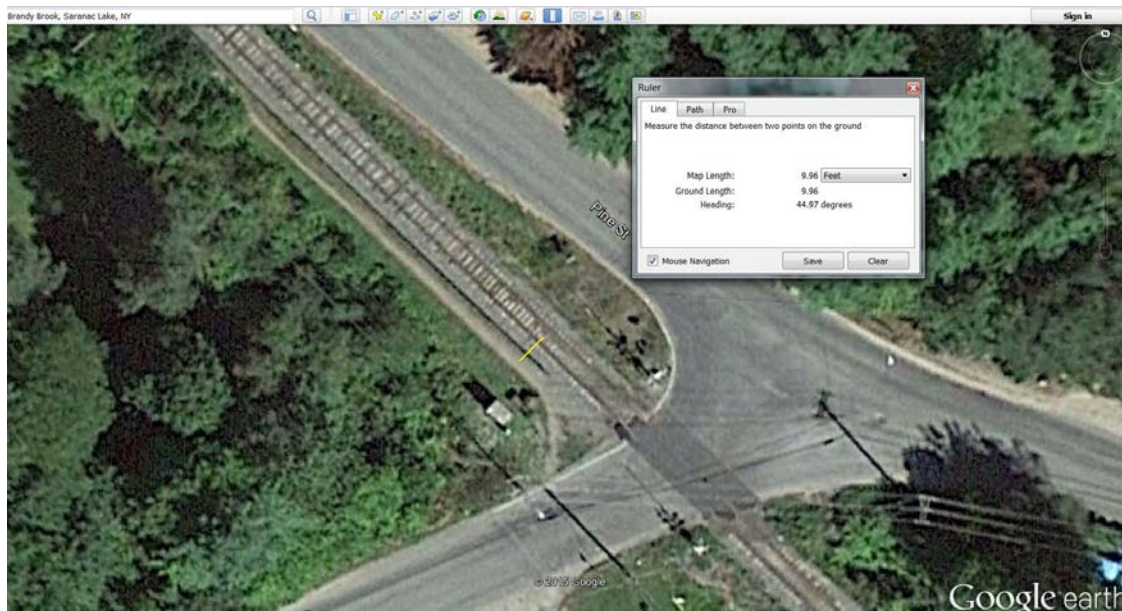
¹⁵ Lance Gurney (845) 431-5811 contacted 11/30/15



publicly owned, with the railroad being a tenant operator rather than landowner. A wide variety of rail-with-trail projects have actually been constructed.

Ulster County's conflict situation is very location specific – in some areas, a rail with trail location appears tantalizingly possible, and in some it appears nearly impossible. Design compromises necessary for even a limited amount of co-location will likely conflict with funding source design standards.

While active rail-with-trail corridors exist nationwide, the only confirmed active rail-with-trail occupation today within New York State is ½ of a mile at Saranac Lake NY, which is an unpaved recreational path beside the Adirondack Scenic Railroad¹⁶, operated as a seasonal operation at 30mph track speed (FRA Class 2). “The Adirondack North Country Association (ANCA) proposed the rails-with-trails pathway project in 2001. In 2002 the NYS Department of Transportation (DOT) awarded \$796,575 to the Town of North Elba as a portion of the cost for building a pathway beside the railroad tracks between Old Military Road in Lake Placid and the Scarface trail in Ray Brook. This project appears to have been stalled in the design stage due to the same conflicts Ulster is facing, but half a mile was actually constructed by the Town of North Elba next to the track as a walking trail. In this case, the simple and inexpensive solution was to simply locally fund the portion of the trail in conflict. The parallel trail was built, but recent developments are likely to remove the rail from Saranac Lake to Lake Placid to allow construction on the original roadbed.



Saranac Lake, NY Brandy Brook Trail end (Adirondack Scenic Railroad) 10' trail-to-rail centerline with 4' barrier fence and 4' walking trail surface (Google Earth image and measurement).

¹⁶ <http://www.trailink.com/trail/saranac-lake-recreational-path.aspx>



7.1.6 Kingston Recommendations

Preservation of this corridor connection between Albany Ave. and CSX strictly for occasional passenger car or equipment movements, while feasible, is a potential business advantage, but not a strategic operational necessity, of an excursion railroad in Kingston. The connection, therefore, is not definitively critical, unless that is an incidental benefit of preserving the corridor for potential transload freight services further west. It would benefit seasonal operations of Polar Express events if it was used to bring in additional equipment for more capacity and additional economic impact, but that capacity can also be increased by other approaches (and is being addressed for the 2015 season).

The other key issue within retention of any rail access on this corridor segment would be the recognition that rail usage, even in a revived freight scenario, would be no more than one move each way each business day, at low speed (10mph or under), and with short train lengths. “Freight” movements would be just as short, and as slow, as passenger trains are today, and capable of stopping and flagging through the underpasses just as they do at some road crossings. In that scenario, safety and corridor occupation must be realistically balanced with safety mitigation, along with corridor usage for trails. Rail operations could be structured to minimize trail conflicts rather than to exacerbate them.

Potential for both flexibility and mitigation still exist, including adjusted design criteria to lessen rail crossing hazards. Funding considerations via NYDOT in regard to separation and barriers exist, but were not absolute, for rail-with-trails occupancy on one prior state-funded program. Within the only precedent existing within the state, neither funding source nor design criteria apparently precluded practical design mitigation practices that were location-specific.

Even without extensive balancing and monetizing of economic vs. health benefits based on additional usage estimates, the comparative community advantage for accessibility is clearly to the trail alternative for this segment unless some new factors exist that may emerge during operator review and lease renewal, or by a freight proposal that actually produces a county-based benefit. The additional commercial advantages through retention of this corridor strictly for equipment interchange do not necessarily translate to specific community benefits or local economic impacts, and they are also not assured given the internal barriers created by CSX that they can be used except for freight. The primary reason for retention for this trackage and any kind of rail plus trail joint occupation remains to display community – not just commercial – benefits.

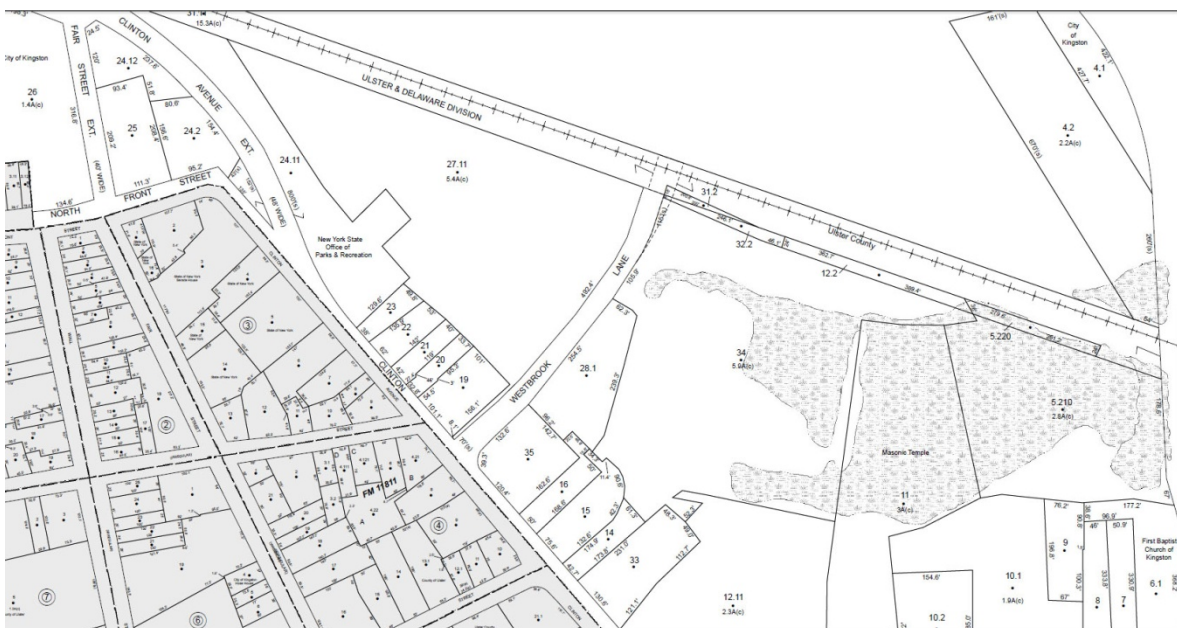


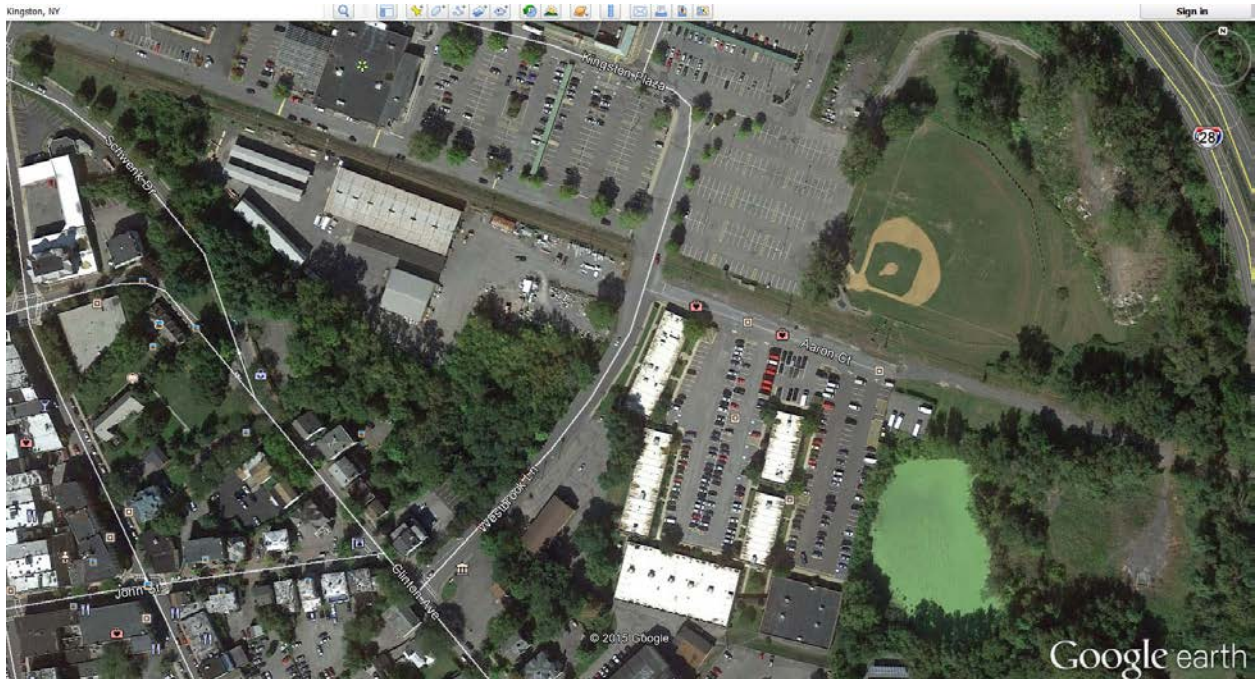
7.2 Kingston Plaza Zone (I-587 bridge to I-87 bridge)

The history of the railroad in this location disclosed an interesting fact in that the remaining track is no longer in the centerline of the right-of-way. The track is already located to the far north edge of the right-of-way, and despite encroachments, leaves some additional distance to the south. Within the right-of-way, there appear to have been significant property encroachments over the years that aren't clearly visible except by detailed research.

Historically, there were as many as four parallel tracks at MP4 (Fair St.), heading east and around the curve, where the I-587 bridge ends. This 'railroad yard' area shift can still be seen from aerial views extends from west of Fair St. back to Westbrook. At Washington St., the track is again back in the centerline of the right-of-way. Aerial views confirm that the track swings from one side to the center, and the one remaining track switch behind the Ulster Savings Bank was the connection that was historically made to the NYO&W railroad yard within Kingston.

As this area was a railroad yard, it is relatively flat and presents almost no barriers to full-width trail placement on the same embankment. Alternative placement on parallel streets, roads or Kingston Plaza zone is not desirable, but physically possible. The most significant potential encroachment in the zone is between the track and the lumberyard, which is located on the site of the former NYO&W passenger depot (wedge-shaped parcel). The tax maps still show a relatively consistent parcel boundary with the 1917 valuation maps, but the aerial view does not clearly coincide with either. The shift of the track to the north side of the right-of-way at this location, vs. the typical centerline location elsewhere, may have led to this potential issue.





Property issues aside, this is a zone where adequate room exists, or alternatives exist, to allow trail passage while leaving the track relatively in place.

Proposals to relocate the CMRR repair shop site to this location, immediately confront the County parcel map that indicate presence of wetlands on the site. The parcel furthest to the east (east of the green, algae-covered pond) is still indicated to be wetlands. The parcel is shown as vacant commercial lot of 2.8 acres in size. If the County or City wishes to proceed with this site, wetland delineation and mitigation is likely. If this site was used as the repair shop rather than Cornell St., much of the previously-discussed issues with the trail are solved, other than periodic equipment moves and/or freight activity.

CMRR's existing "Westbrook Station" is located at the south edge of the parking lot, on the north side of the track, nearest the ballfield. It consists of an open, treated lumber ramp next to a semi-portable ticket booth. Portable restrooms are on site. CMRR indicated that the adjacent ballfield is used for "Day out with Thomas" event site activity.



As "stations" go, this is as minimalist as it can possibly be. Our experience is that neither HIT! nor Rail Events license a site with only portable toilets on site, purely due to customer complaints. The proximity of the Plaza



creates the only possible solution, and undoubtedly contributes to additional Plaza traffic during railroad events.

CMRR's business plan has suggested a 'real' depot building be constructed on this site for the railroad. We would suggest that it be taken one step further, and be developed as a true multi-modal site with restrooms for both trail and rail uses. Multi-modal trailhead/rail depot examples exist, but our own favorite example is the historic Hanover Jct. depot on the Northern Central (York County Rail Trail) which was restored primarily for trail restrooms, but also serves as a destination station for the parallel excursion railroad. The dual nature of the structure (which also features a small museum) is an excellent example of multimodal ideals.



For Kingston, the proximity of this potential site to an active commercial district will assist in security, and could even become a visitor center location or administrative office with on-site security presence by the excursion railroad. Such joint-use multi-modal facilities, particularly those that benefit trails, are frequent funding favorites in most states.

Just west of Washington Avenue, the original New York, Ontario and Western right-of-way comes into Kingston from the southeast. While it is brush-grown and abandoned, the alignment begins to swing almost due west and gently curves southwest under I-87, and connects with the existing Hurley Rail Trail, staying on the south side of Esopus Creek. It is apparently already an informal walking trail and even is indicated on Google Earth.

The amazing retention of the I-87 overpass bridge over the O&W solves a major accessibility problem for this trail concept, considering that the Thruway was built in 1956 and the O&W railroad was abandoned in 1957. Without that underpass, the entire trail connectivity concept would likely be infeasible. With the underpass, this presents Kingston with the immediate ability to connect Kingston to the O&W trail, and is possibly the easiest recommendation we could ever see for a trail project. The connectivity to the existing O&W trail sections is sufficiently superior that even if the U&D corridor were used as the northwest section, this section would still be desirable for connections to the southwest.

7.2.1 Economic Impacts - Plaza

This section of the corridor is clearly strategic to both interests. It will have a tendency to serve as the 'terminal' for both the railroad and the trail, and if properly done, will become not just a way for the community to connect to a shopping area, but a



recognizable gateway to Kingston itself. Removing Kingston from either alternative would reduce local economic impacts by 30-50%, as visibility to food, lodging, and commercial activity within the community would be completely bypassed by any other location. County impacts are less than impacts within Kingston itself.

7.2.2 Kingston Plaza Zone Recommendations

Other than the obvious potential issues revolving around the observed right-of-way encroachments (or inaccurate tax parcel mapping), the ability of this corridor section to support both rail and trail interests seems to be a foregone conclusion by all before this report was ever produced. It is equally strategic to both programs, and is equally necessary for economic impact for both programs. No “A vs. B” choice needs to be made for this portion. We would concur with the attempts to develop joint use of both rail and trail activities as economically and operationally sound.

7.3 Kingston Flats – I-87 bridge to Hurley Mt. Road

Kingston County planning indicated that preliminary designs had already been considered to alter the proposed trail path between the Plaza and Hurley Mt. Road via the O&W trail (Hurley Trail connection), then on a new alignment under Rt. 209, cross the Esopus Creek on a new trail-only bridge, and then resume a ‘rail with trail’ cross section by shouldering out new trail space beside the existing railroad grade with a full new trail profile on a newly-constructed embankment.

The major obstacle in that concept is a new bridge across the Esopus Creek – for trail use – of at or near 200’ in length. The County is legitimately concerned about the cost of such a new bridge, as well as a new trail to get there. A rather similar-length bridge of suspension design for trail use in Vermont was just completed at a cost of \$1.6 million.¹⁷ In addition to that, the construction of a new embankment to support rail-with-trail activity between Hurley Mt. Road and Rt. 209 needs to be constructed to accomplish a rail-with trail to Hurley Mt. Road. County Planning also thoroughly examined alternatives of farmland crossings, Rt. 29A, and Hurley Mt. Road as alternatives. Route 209 was not an acceptable co-occupation for a crossing, and the bridge design did not allow cantilevering off an additional trail structure.

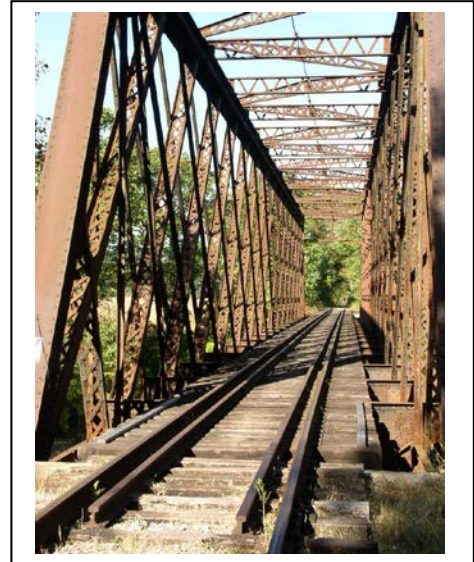
Both sides of the existing U&D corridor in this area are substantially below grade and zoned as agricultural use. Other than the last portion near Hurley Mt. Road, they consist of active farm fields that are essentially flood plain, but not wetland. While there are no rock cuts to contend with in this area, rail-with-trail concepts hinge on

¹⁷ <http://www.burlingtonfreepress.com/story/news/local/2014/08/04/long-trail-bridge-takes-shape-winooski-river/13567455/>



construction of a lower, parallel fill for trail use with the barrier as part of the existing rail embankment.

The existing railroad corridor crosses Esopus Creek on a bridge comprised of a through truss bridge 218' long with two approach spans on the west side totaling 111'. This bridge has been both inspected and repaired within the last two years for both approaches and bridge tie replacements. The County did not feel that there was any potential for rail-with-trail via this alignment over this particular bridge.



The only similar situation we have seen in the field of any value to this discussion was the overdecking of the wood pile trestles on the Astoria (OR) Waterfront Trail for rail with trail use. Astoria features multiple joint-use rail bridges (pile trestles) of 427', 690', 200', 860', 222', 495', 553', and 234' over an end-to-end trail distance of 4.7 miles. That equates to 3700 lineal feet of wood-decked rail bridge for multi-use trail purposes (almost 13% of the entire trail)¹⁸.

One notable Astoria design feature was the construction of new pedestrian escapes (pullout platforms on the narrower rail bridges every 115'), and additional width added on most of the pile trestles taking the 'trail' width to 17' with full railings on the outside. Trail use and rail use are both heavy; the standard-gauge self-propelled trolley passes every 30 minutes during season at 10mph. Astoria did not attempt to use any rubber flange filler on their trail, the multiple crossings



and open flangeways on the bridges have caused complaints from inline skaters and skateboarders despite posted warning signs. Lineal, rather than perpendicular, wood planking on some areas has not weathered well for bike use. The rail with trail system has now been in use for 16 years. Half of the trail (from the former Astoria passenger station east) remains accessible to conventional heavy rail including full-sized rail passenger trains, now for special events only. The overall operation is rather similar to a boardwalk shuttle operation on the East Coast; slow-moving vehicle shuttle in the center with constantly ringing bell, wood planking, and high volumes of traffic of both pedestrians and shuttle.

¹⁸ http://www.oregonhikers.org/field_guide/Astoria_Riverwalk_Hike



While this is admittedly a design anomaly compared to conventional rail with trail design criteria, it has been an extremely successful community development project. Keys to the success of the operation include low speeds and stopping distances for rail equipment, excellent lines of sight, and copious signage. It should be noted that this would not be likely to qualify under NYDOT/FwHA design criteria, despite success.

7.3.1 Industrial, Transload, or Railroad Shop Area in Flats

The only parcel along the entire corridor that appeared feasible for a transload facility (and was shown primarily as a proposed alternative railroad shop location) is on the north side of the railroad ROW before Hurley Mt. Road. This 15.4 acre site is shown as 'vacant industrial' on the tax mapping system, and is accessed via two driveways that branch around the "His World Revealed" church off of Rt.28. The existing industrial parcel, Kingston Precast, was active in November 2015, and is a different parcel.

This is our recommended railroad shop location, as it has adequate room, is properly zoned for industrial activity, and will have the fewest community conflicts with Kingston and Ulster County over time.

Further discussion of the validity and potential of this potential freight activity is included at the end of the report under the Freight review. For this section, it should be noted that considering track condition, distances, grades, and available parcels, no site further west of this location was seriously considered viable for transload or freight activity, and combining all industrial-related rail activity on one site is also an easy recommendation.

7.3.2 Flats Recommendation

The aggregate capital cost of this section alone (new trail, new pedestrian bridge, rail-with-trail new section) is so large that consideration has been made to invest in relocation of the railroad event operation to Boiceville, purely to avoid the additional rail-with-rail issues as they are now perceived at Kingston.

Our observation, if not necessarily our recommendation, is that the geography of these trail connection alternatives west to Ashokan Reservoir connectivity in Kingston presents a true trail design dilemma as the layout presents a triangle of opportunities, only two legs of which are contemplated. A trail connection over the U&D corridor will, by definition, encourage a 'shortcut' between the Hurley trail to the south over Rt. 209 to reach the railroad crossing, even if not recommended, signed, or ever intended. This risk of highway shoulder trail use is exactly why DOT reportedly required a separate pedestrian bridge over the creek. But if this alignment is pursued, the other 'shortcut' will then be via the existing railroad grade from Kingston direct to Hurley Mt. Road, using the 329' of railroad bridge with open bridge ties. Neither shortcut is particularly



safe for these reasons; one will simply become the attractive nuisance compared to the other. Over time, and with sufficient investigation, both may even be developed for trail use, but as long as any trail system is developed toward Ashokan parallel to Rt. 28, the ultimate (and expensive) solution is to consider both.

As long as the current concept is to use alternate trail locations via O&W trail to reach Hurley Mt. Road, the recommendation is to continue that approach, as it certainly leverages the economic and health impacts for all involved corridor concerns at this time. If a point is reached where cost, rather than concept, is driving the discussion, review of alternatives should be done again.

Ideally, the 'highest and best' use for the entire lower end of the corridor (CSX interchange to Hurley Mt. Road) would be as a redevelopment tool for existing and potential industrial development sites (countywide) via a new rail transload. The most likely freight customers are not direct delivery, but to a locally-switched transload site outside of Kingston with easy truck access. The preservation of this link through to Hurley Mt. Road may actually be more viable for attracting a replacement operator for a portion of the remaining rail property than any potential excursion passenger operation would be. At any rate, final decision on this segment should wait until final proposals are received to see what operator-developed opportunities are revealed. If there are no operator-submitted concepts, previous recommendations apply.

7.4 Hurley Mt. Road to Basin Road (DEP Easement Boundary)

From the very start, this segment of U&D corridor appeared to have the potential to be the most difficult to examine for highest and best use, and develop a conclusive and long-term recommendation. Our field work and in-depth analysis has not changed that initial perception, and it remains the most problematic portion of the corridor to clearly and decisively make a firm recommendation to the County.

Stone Consulting did two on-the-ground inspections of this corridor, first by motorized track car (speeder) and the second on foot. The detailed report of the on-foot inspection is attached to this report as an Appendix. It details milepost-by-milepost conditions in an effort to examine and resolve conditions for rail, trail, and rail-with-trail. It concluded that while some sections have potential for a rail-with-trail (with varying width potential), some segments exist that are barely wide enough for either use and present two specific areas that define feasibility.

The CMRR business plan includes this portion of the corridor – and extending on through the DEP easement to Glenford Dike, as a strategic portion of their business plan to develop more adult-themed events, charters, and develop a scenic view from the train



at a destination. More about the Glenford Dike concept follows this section, but in order to get there, this section also has to be available for rail use.

Meanwhile, while the Camoin study of the corridor includes this portion of the corridor as ‘connectivity’, it does not specifically outline either individual economic impacts, visitation, or purpose for it other than connectivity between Kingston and Ashokan trail segments – both of which have significant desirability. Unlike the Kingston or Ashokan sections, this four-mile section is on a consistent 2% grade – the original first climb out of Kingston west. It was steep enough for the railroad that the West Hurley siding was preserved well into the 1980’s to allow ‘doubling the hill’ (breaking the train into smaller movements and then reassembling them into a full train at the top of the hill) as a regular practice due to the difficulty of climbing the mountain.

This section is also a mixed bag of construction practice, as it is the location where the 1911-13 relocation diverts from the original line, just west of the large fill over Stony Hollow. Unlike the Ashokan segment, this portion has challenging areas of narrow cuts, narrow fill tops, and steep embankments tracing back to the original 1868 construction.

7.4.1 Hurley Mt. Rails Issues

Two specific issues for rail planning impact this section of the corridor:

- 1) Part of it is already in operation west of Hurley Mt. Road, in order to provide sufficient operating and time distance for the Polar Express franchise operation. Today this only includes an additional half-mile of use, our research indicated that an additional $\frac{3}{4}$ mile would provide adequate operating space for Polar. This portion is particularly valuable to existing Kingston operations.
- 2) CMRR has included in entirely within its business plan document to access West Hurley and Glenford Dike.

CMRR regards this section as strategic to its business plan, and according to the business plan, perhaps more strategic than the existing Phoenicia-Mt. Tremper location. The business plan includes additional adult-themed trains, etc., that would access this corridor for new business opportunities, but the goal remains Glenford Dike. This vision may or may not be shared by any other proposers. Critical rail issues for the West Hurley – Glenford Dike – Ashokan section will be discussed in that section.

Specific rail time and distance issues with this segment regarding Polar Express have already been discussed under “Existing Rail Operations”. They do not impact this entire segment, and in fact, only impact the first $\frac{3}{4}$ of a mile until the historic double-track width area is reached. If the most successful, best-attended, and highest impact program for the entire 40-mile corridor is to be continued, that $\frac{3}{4}$ of a mile remains a key issue beyond this segment.



As a stand-alone rail segment, the corridor has no additional scenic value or sense of destination. While not unpleasant, the view from the train will either be into the hillside, or into the trees, or into cut faces for the entire four-mile distance. No vista-type or mountain views are evident from this section.

7.4.2 Hurley Mt. Trails Issues

While the Camoin study emphasizes connectivity between Kingston and Ashokan, it does not specifically reference this segment for economic impacts or use. It is unknown what percentage of either trail users or resulting impacts are assigned to this segment. While it may be clear that the Kingston portion or the Ashokan portion have strong stand-alone values for trail usage, the value for the intermediate portion connecting is left to inference.

Our own research shows that the existing HIT Marathon is already linking the reservoir area with Kingston using the patchwork of highways and trails in-place. These include Rt. 28 and 28A.

Parallel NY28 is a veritable four-lane divided expressway in this area, and climbs the same valley as the railroad. While the railroad maintains a relatively steady 2% grade to the top, Rt. 28 has alternating areas of level and steep sections on its shouldered bike route. While the value of the parallel designated bike route could be debated as a connectivity alternative to a trail, it is undoubtedly much less pleasant, and much less safe, on the edge of a four-lane expressway than on a dedicated multi-use trail segment.

For trail purposes, the segment consists of four distinct visual and environment areas:

- 1) The long rock cut district from Basin Rd.;
- 2) Commercial/industrial district to Beesman Rd. bridge;
- 3) Stony Brook fill to Rt. 28A (most natural, interesting and scenic)
- 4) Rt. 28A downhill to Hurley Mt. road in the Rt. 28 valley corridor.

While not an unpleasant walk, the surprise was that that the lower portion parallel to Rt. 28 was dominated by traffic noise from the adjacent highway (particularly truck traffic climbing the hill) echoing up the valley, and voices had to be raised to talk. While certainly safer than a highway shoulder, it was not a typical trail-corridor experience.

Portions of the 1868 construction pose significant challenges to either the railroad or the trail. First,



Stony Brook Fill



although the major cross-drainage through fills is actually very good, the side slopes on those fills is much steeper than is present through the Ashokan segment. The major fill at Stony Brook appears to have been widened at least twice by the property lines on the valuation maps. It also appears narrow; extending just past the tie edges. Two other fills on the downhill section are similarly narrow across the top. Discussions of this issue with County Planning indicated that in areas where the current roadbed was not even wide enough to support a standard multi-use trail width, the intent was to lower and excavate the fill until that width was reached.

Mixed Bluestone and shale cuts also dominate the corridor. The hillside ditchlines in the shale cuts are generally filled with eroded and spalled shale, mixed with leaves and topsoil, that now supports tree life. Removing this hillside shale accumulation will generally, if not always, allow additional space.

Two Bluestone cuts on this corridor present trail barriers; the second narrow (15'6" clearance) cut above Hurley Mt. road (and just below the first private crossing), and the Bluestone cut just below the Rt. 28A crossing that is lower, but just as narrow and has significant drainage issues coming from the highway. In any case, unlike the Ashokan trail section, this portion of the corridor has issues that even make trail construction difficult.

7.4.3 Rails with Trails Concepts

CMRR has produced a series of valuation maps marked with 4' recreational trails sketched on them that were examined in detail during our walk through this corridor. They feature several design concepts, including going 'up and over' cuts at ground level, and the construction of retaining walls to the outside edge (Rt. 28 side) in many locations.

Our evaluation of any rails-with-trails concepts in this area is that any work to be done to even attempt a rail-with-trail alignment should be done at the track level, removing the loose shale accumulation to the inside hillside, conceptually relocating the track (as tie condition is marginal enough to generally justify reconstruction to the outside) to gain more clearance, and as a last resort, actually excavate the lower-zone Bluestone cut



Narrow Bluestone cut above Hurley Mt. Road

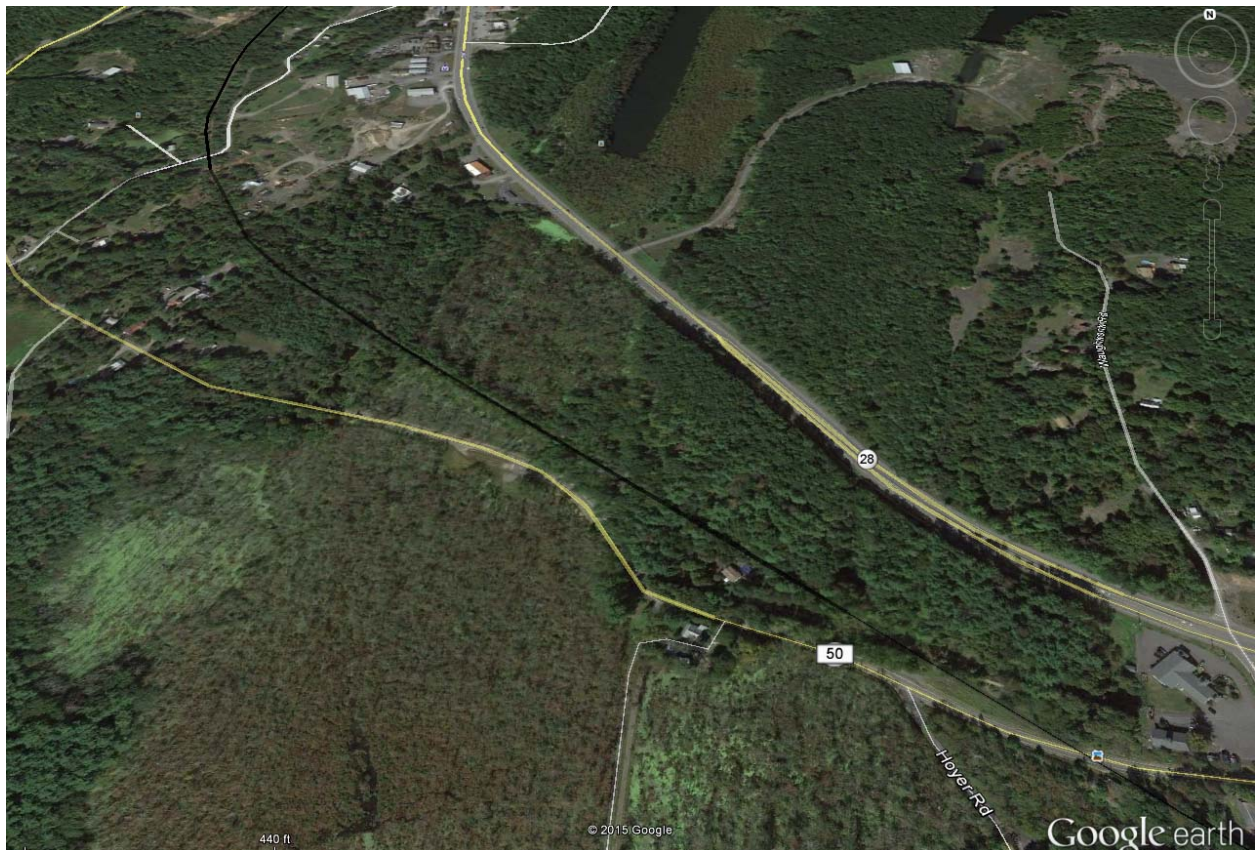


Drainage through the rails at Rt. 28 cut



wider where necessary rather than ‘up and over’, as the additional width will benefit the trail program in any future outcome. The good news is that this is not a widespread problem, and can be defined to specific areas that could actually be addressed. Any sound stone material removed from this zone to create additional trail width could be rail-loaded and moved the short distance to the proposed rail-with-trail alignment between Rt. 209 and Hurley Mt. Road. For at least the first mile and a half, some dual-use potential can be achieved with the willingness to address $\frac{3}{4}$ mile of cut widening, and the half mile beyond that where width exists to allow multi-use trail alongside existing rail. Beyond that point, the challenge resumes to put either in place let alone both.

The ‘fatal flaw’ discovered, if there is one, for the rail-with-trail concept in this area is the long 2700’ fill at Stony Brook, dating to the original 1868 alignment. It crosses designated high-quality wetlands that are essentially marshland to both sides (and had ducks taking flight during our inspection), has no through-drainage noted on the valuation maps. Some historic settling and repair at track level was evident, and it has steep side slopes exceeding 2:1. We do not think that the CMRR concept a 4’ trail on a retaining wall section on this section is feasible, due to the stability, slope, and construction of the existing fill, without significant erosion into the wetlands below.



Therefore, this rather specific barrier either completely prevents a rail-with-trail (even narrow recreational width) or forces the trail to parallel highway alignment via Rt. 28A and Beesmer Rd. for over 3100 feet. Rt. 28A crosses the same marshland at a lower elevation, and shoulders are nearly in the water level.

7.4.4 Hurley Mt. Road Recommendations

Both rail and trail concepts hinge the value of this segment in relationship to connectivity to other areas – specifically the Ashokan reservoir portion. Therefore, the final status of the Ashokan Reservoir corridor effectively governs the true value of this segment to either approach. If it were not for this connectivity, the only significant value of this corridor segment for either use is in extending the operation of the Polar Express franchise partway up the hill for additional time and running room.

We recommend – strongly, that retention of sufficient operating track space be retained, at least at this point, to continue operating distance for Polar Express operations to its current location or beyond – as far as 7.28. That is a significant impact value for a relatively minimal distance in comparison to the entire corridor, and could justify the excavation and widening of the key $\frac{3}{4}$ mile segment between Hurley Mt. Road and the beginning of the double track width ROW at MP 6.74. A longer-term solution for relocation to Boiceville is also possible, but any widening work done here will still produce value to the trail.

Retaining railroad presence beyond that point depends on many issues, some of which will resolve only with some additional time beyond the due date of this report. It is not known if any other rail proposer sees the connectivity value to Ashokan in the same manner as CMRR. It is also unknown on what if any changes in the DEP-County agreement may produce if reconsidered, but a destination somewhere at the top of the hill the rail connectivity is of little remaining value here. An entirely similar situation exists on the west end of the railroad with similar considerations.

The railroad corridor does, however, have a key element to consider before a final decision is made – as an ‘active’ railroad corridor it has the current ability to gain additional latitude for drainage and excavation work under a blanket railroad DEP permit, rather than removing the railroad wholesale and then addressing the remaining drainage issues later. The wet drainage and narrow cut portions would require far more less environmental permitting activity given an active rail maintenance presence than after, delaying any trail implementation for years.

While the ‘most likely’ outcome is likely dedicated trail usage based on the current situation, this segment may be the most benefitted by simply delaying the decision to view more definite factors as they emerge in time. There is no particular reason why



this segment could not be put on a separate, and shorter, operator lease term to allow review – perhaps five years, and focus on physical corridor improvements in the meantime that benefit all outcomes. Rail use can be extended if benefits are validated, and ridership can be monitored, to see if Polar continues its current economic success. That can then justify corridor widening at one end allowing a modified rail-with-trail presence. Meanwhile, more definitive trail developments on other corridor segments that have clear direction can proceed without delay. Highest and best use conclusions for this segment remain open and linked to other sections.

7.5 Ashokan Reservoir Area (Basin Rd. Bridge to Rt. 28A Boiceville)

Of all the corridor sections, this portion has been the most studied, and at the current time, the only portion of the entire 40 mile corridor that is effectively complete through preliminary engineering studies. The Camoin study has also reviewed it for economic impacts and usage, and has concluded this is one of the showpiece potential trail areas along the entire corridor.

The railroad was relocated to this alignment by a single easement agreement in 1913 that conveyed railroad authority across the reservoir district. The actual construction was part of the total reservoir project, but built by and contracted through the Ulster and Delaware Railroad and effectively billed to New York City. Overall, it had significantly better construction standards, material, and geometry than the original railroad corridor on both ends. The relative ease of trail design and cost estimating on this segment is not a reflection of the entire corridor. It is also the only relatively flat area on the corridor between Hurley Mt. Road and the County line.

While the track is passable by a motorcar (speeder), it has not been maintained to actual rail standards for many years. Equipment has been parked on the track at Shokan, but no active excursion program was run by CMRR to that zone under its current lease. Washouts present at Butternut Cove are the most significant infrastructure issue until the Boiceville bridge is reached – which is inside the DEP zone and presents an expensive and difficult situation on repair and replacement for any corridor use on that end.

7.5.1 Ashokan Rail Use

From an excursion railroad standpoint, two areas in this segment stand out – the reservoir views possible from the Glenford Dike, and the water-level views at the opposite end of the reservoir toward Boiceville, beyond the damaged bridge. Between those two areas is a woodland area zone that all railroaders refer to as ‘a green tunnel’, a closed-in right-of-way where the only view through the windows is trees, and in this



case, eight miles of it, and at 15mph, that's at least half an hour of nothing from the windows but trees and close-in forest views.

Because of that simple reality, and the maintenance costs and needs of that much track for no additional scenic views, CMRR's business plan does not include retention of this track for future use. Their business plan as submitted stops at the far end of Glenford Dike (MP 11) one mile inside the DEP boundary at MP10. That is the only location near Kingston that the reservoir is visible from the windows of a train.

While no non-CMRR rail operating proposal has been viewed, we generally agree with the CMRR conclusion that the cost vs. benefit of restoration and operation of this much connecting track entirely through the reservoir area is not creating additional ridership value, only repair and maintenance cost. That greatly lessens rail vs. trail conflict in this area, but does concentrate conflict squarely on either end to be able to access any destination effect to the reservoir area.

It should be commented that until the storm activity in 2008 and 2011, CMRR's goal was to reach and eventually cross the Boiceville bridge and obtain scenic views from the west end. Only when the bridge was not reconstructed was the experiment done to relocate equipment to Kingston and begin the Kingston Shuttle experiment.

7.5.2 Ashokan Trail Use

Trail use for this corridor section is well-researched, well-defined, and generally, adequately estimated for potential cost under multiple scenarios. Our concerns that specifically relate to this segment are discussed under "Capital Costs", particularly the Boiceville Bridge, as that structure is key for any use and certainly trail use, because the entire west end of the trail needs to connect to Route28A to form a viable corridor.

There is no practical connection to the waterside trail area except via the Boiceville bridge. Repair and replacement of that span is partially included within funding provided by FEMA, but that funding appears based upon 'like for like' replacement; i.e a full-load railroad bridge structure to replace a railroad bridge structure. That has been held under the assumption that only the railroad use would benefit by restoration; we do not agree with that conclusion. If the beams can be re-



used, and if the bridge can be raised at some point for future waterway clearance, the only real cost is for abutments and piers that form the true cost and construction issues.



The bridge is also located within the DEP easement zone, which potentially allows funding from either the FEMA damage payment being held in abeyance, or within the initial DEP grant portion, or both.

Overall, the location, scenery, accessibility, ease-of-use, and combination of both isolation and access should produce a trail and recreation product that could provide the majority of projected trail destination use within the entire corridor. The almost complete unanimity of this opinion from so many viewpoints actually surprised us, and the environmental, political, and funding climates appear to be converging to achieve this goal.

7.5.3 Ashokan Rail with Trail Use

The stated goal of the CMRR business plan was proposed in February 2015. It included the description of CMRR operating to the top of Glenford Dike. To understand this concept, we rode the track speeder car to the location to see it for ourselves. It should be noted that this is the only portion of this DEP segment that was proposed, or requested, to be rail-with-trail.

The four-mile climb from Hurley Mt. Road to Basin Road through the forest offers no particularly remarkable views, until an open spot is reached at West Hurley. Even at this location, the reservoir is not visible. But one mile in, beginning at MP 10.5, the views open up on both sides of the train track for a panoramic view of the eastern reservoir. CMRR envisioned this spot not just as a destination, but as a place to actually park a destination train for a period of a sunset dinner, or even to interface directly with the proposed West Hurley trailhead.



The most curious part of this portion of the railroad is the presence of a well-crafted loose Bluestone wall, approximately 3-4' tall, between the track and the reservoir, and extending 2000' feet across the dike and some distance inland toward West Hurley. It is called the "Chinese Wall", but historic research indicated that it actually was part of the original design of the Dike, to have a 10' wide pedestrian walkway across it, separated from the railroad with a stone wall, to allow safe and separated access



beside what was then both high speed and frequent rail use.¹⁹ This may have been the first deliberate design of 'rail with trail' in the US. While the CMRR proposal suggests the 4' trail be on the inside of the wall between the track and the wall, the original historic design was to the outside, and this constitutes both separation and adequate design width to do so.

Historically, this certainly offers both deliberate design and precedent to the co-occupation of this short segment for both rail and trail. The second advantage to this design is that between the actual dike and the proposed West Hurley trailhead is one of the clearest, and widest, Bluestone cut sections with particularly wide cuts that if cleaned out and the track shifted, would have adequate room for both between the trailhead area and the dike. Other than the double-track siding portion in the MP 7 area, this is the most favorable area of the corridor for rail-with-trail with minimal disturbance or excavation.

7.5.4 DEP Memorandum of Understanding

The City of New York, through DEP, and Ulster County drafted a memorandum of understanding concerning the future of the corridor through the Ashokan Reservoir. This memorandum covered mutual responsibilities, procedures, and DEP funding for the conversion of the rail corridor to a trail corridor over the entire 11.5 mile distance. It allows the easement to continue as a trail easement, but the only alternatives are either a trail corridor, or a freight rail corridor, but not both.

The final signed memorandum as of June 15, 2015 included planning, design and construction activities by the County, as well as trailhead facility planning, design and construction by DEP. It only discusses rail revision under freight provisions.

While there would appear to be ample reason to seek to access the Glenford Dike area as a terminal for any rail excursion operations, or even from the opposite direction to the Boiceville Bridge, none of those evaluations appear to be open for discussion under the current memorandum of understanding. The only room for negotiation would appear to be if the memorandum were actually terminated under the agreement and then renegotiated, or if the boundary of the DEP easement were transferred to the County in these specific locations.

DEP is genuinely concerned of the risk of derailment, contamination or accidental discharge into the water supply by any rail activity, no matter how slow or short the activity may be. On the West Hurley end, the first time that the track actually comes into an elevation that drains into the reservoir is on the dike itself, and that is primarily

¹⁹ <https://books.google.com/books?id=HVVYAAAAYAAJ&dq=Glenford%20dike%20stone%20wall&pg=RA2-PA3&ci=172%2C832%2C717%2C350&source=bookclip#v=onepage&q=Glenford%20dike%20stone%20wall&f=false>



on the 'downhill' side of the dike opposite the wall. Prior to that, the railroad is either climbing, or within a stone cut that effectively serves as a containment location. Beyond the dike, any potential railroad incident would be at risk, but not here. On the other end, at Boiceville, any potential or derailment would conceptually be into the creek, which actually has a far more significant risk on track alongside the waterway than the situation at West Hurley.

Multiple technical mitigation concerns of DEP for any continued railroad presence could be addressed, but the basic question must be if the County is willing to renegotiate this agreement to allow rail access to either end, to provide some kind of destination location for the CMRR or any other operator. At the current time, there is no reason for DEP to reopen discussion; DEP's mission is not economic development or tourism, and removal of the railroad easement lowers their perceived risk. But without that, the essential status quo rail operator alternatives are in place - which does provide for Kingston special events and a second limited operation at Mt. Tremper, but does not provide either for the opportunity to grow to reservoir access and a single-segment operation. The only other alternative is to negotiate a new County property line inclusive of a rail terminal, and assume responsibility of trailhead construction as well.

7.5.5 Basin Road?

There is an undeveloped parcel fronting on Rt. 28 on the southeast corner of Basin Rd. that appears to be an abandoned service station or convenience store. Our research indicates that it is still for sale, although the real estate agency handling it seemed to have not had any inquiries for quite some time. It also appears, by the tax parcel map, to be adjacent to the right-of-way just east of Basin Rd. Without ever entering the DEP easement, this would be the westernmost location possible for a 'hill' terminal to interface rail activity with the Ashokan trail section

This site has not been mentioned in any previous report or proposal. If the Ashokan reservoir lands deemed inaccessible due to the DEP agreement, and rail presence is maintained to the easement for an additional lease term this location could be experimented with as a destination by CMRR or another operator. It is not necessarily scenic, but it does present the alternative to test the function of the railroad as a 'trail elevator' between upper and lower trail sections. This concept has been successful on several excursion railroads that do bike ferry operations beside or between trail segments.

This particular concept is speculative at best, but would allow interface between the railroad and the upper Ashokan trail zone without further agreement modification with DEP. It could also prove, or disprove, the value that the railroad might have as an alternative to a four-mile, 2% grade between two relatively flat trail zones.



Experimentation with this concept could be done on a shorter interim lease term than remaining portions of the corridor; if it is not successful as a concept, reversion to trail status is justified.

7.5.6 Recommendation

Trail conflicts on the climb to Ashokan are significant. Once reached, the trail potential recommendation is one of the clearest decisions on the entire corridor.

The conflicts within the ‘last mile’ on either end (Boundary to West Hurley and Glenford Dike, and Boundary to the Boiceville Bridge) were not anticipated in the MOU and now are a more effective barrier than geography or geology. Benefits to the rail operation are clear, and the actual mitigation concerns are significantly less on the east side than the west.

As this section goes, so goes the section below, at least to MP 7.24 above Hurley Mt. Road, as without any potential of a rail terminal at the top of the hill, the track below it is only useful for the portion that supports special events.

7.6 Boiceville - Mt. Trempor – Phoenicia Area

The original zone of excursion operations for the Catskill Mountain Railroad, dating back to the original lease terms, was from Phoenicia south toward Kingston. At one time, rail operations were done as far east as the Boiceville Bridge, where deterioration of the bridge ties stopped them from running over it. But this section of the corridor has been used exclusively for rail for many years.

Historically, this has been ‘home track’ for the CMRR, and the move to Kingston for the shuttle program was only done after the Boiceville bridge was unreachable due to one of the storm washouts. Now that Kingston has shown to be a significantly better opportunity for ridership and events, if not necessarily scenery, the unusual situation exists with two sections of the same corridor in operation separated by miles of unused, and unrepaired, track, and has now been that way for several years. Even the Adirondack Scenic Railroad, with separated operations over 119 miles of corridor,



can do non-occupied equipment moves to relocate equipment between segments.

North of Boiceville, the railroad runs on the south side of the creek, separated from Route 28 for some distance. The large washout at MP23.4 currently precludes any operation short of that location, and that is the stopping point for current train excursion activity east of that location. Our estimates for that repair (see Capital Cost) are now in the \$1.4-1.5 million range, and would be necessary for any use of the corridor for either rail or trail purposes.

This begins an area of rail operations where the track is essentially on the side of Esopus Creek until all the way to Big Indian, where it makes its final approach up the hillside. The placement of the corridor beside the creek is the distinguishing general feature, adding both to scenic views, some mountain views, at the price of exposure to the storm events of the parallel creek.

Other than the major washout at MP 23.4, and the minor washouts below it, this portion of the corridor is relatively intact, cleared, and usable for both rail and trail purposes.

7.6.1 Phonecia Zone Existing Rail Operations

Operations in this area essentially started due to the private purchase and ownership of the Phonecia station, and grew east out of there. As the station was under private control with an individual interested in developing a railroad museum and an operating line, that was where it all began. There was not a marketing study, or research, or strategic plan after the Steamtown project selected Scranton, PA as their home as to just what location, or portion of the corridor, was best for long-term excursion operation.



Discussions with CMRR's Hunt discussed their viewpoint on this part of the railroad; essentially, after trying Kingston, the expansion of the railroad out of Kingston to Glenford Dike is preferable to expansion of the railroad from Phonecia back to Boiceville. A key issue remains that there are still two distinct organizations here – the nonprofit Empire State Railroad Museum (ESRM), which owns the actual Phonecia station and at least some surrounding outparcels, and the for-profit Catskill Mountain Railroad Corp, which has the lease on the right-of-way and bases their actual ticketing operations out of the small station building at Mt. Trempor.



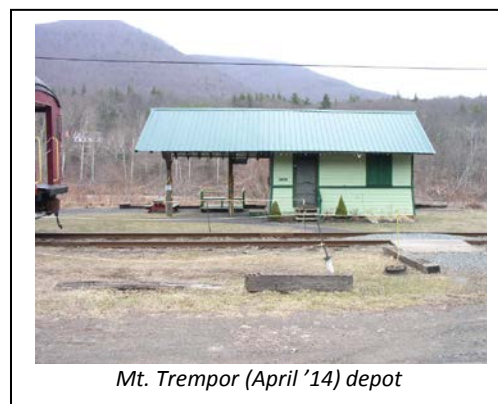
Another on-site vintage station is of particular interest at Cold Brook. This is a standard-plan wood depot similar to many others and is accessible only via a dead-end road west off of Rt. 28A at Boiceville. It is privately owned by a small rod and gun club and is excellently maintained. Other than an interesting and well-preserved lineside artifact, it currently has no strategic relationship to the railroad program, but has distant potential.



At Phonecia, ESRM and CMRR have some common relationships, but essentially they are totally different organizations, and have ownership of their own equipment. While they may be cooperating on the operations of this section, that is not a foregone conclusion that the relationship will continue with any other operator. It does appear clear that ESRM's nonprofit status, and museum focus, does not necessarily always agree with CMRR's new events-based philosophy. ESRM maintains its independence, and also appears to remain at Phonecia for any outcome of corridor discussions, operating excursion rail operator or not.

ESRM was not included on the stakeholders meetings for the corridor, although they control adjacent parcels to the corridor and to a certain extent, govern what can possibly happen at Phonecia for future operations. Leaving ESRM out of the discussion, or defacto represented by CMRR at the table, does not help clarify future opportunities or limitations. Neither the County, or CMRR, control Phonecia for improvements necessary to make the site better suited to high volumes of event visitors.

CMRR's position in their business plan is that the entire upper end of the railroad is now far less important to the strategic future than the Kingston end, but also made no particular statement that they intend to leave it. CMRR's 'west end' operations peak during the fall foliage season, when 80% of the approximately 8,000 annual riders visit this area. This is a rather common peak October phenomenon in the Northeast, and until special events came to dominate the excursion train market, fall foliage was the peak season for many operations such as the Potomac Eagle in West Virginia.



As a potential compromise position, the County has offered that the portion above Boiceville to Phonecia be designated for rail operations, but with the understanding that it is truly their desire to concentrate rail operations in that area, freeing the majority of



the corridor east of there for trail use. It is also apparent that given the amount of funding that it will take to achieve any 'rails with trails' alternatives in the Kingston end, those dollars could instead be expended to improve this end of the railroad for significantly better special events locations – parking, restrooms, depot, and retail space all are currently lacking.

As the DEP boundary ends at Rt. 28A, there should be at least some consideration as to what, if any, potential exists for a true events-site, destination, or railroad presence at the general location of Rt. 28A and Rt. 28. The physical location issues are complex, as the land directly east of the 28A overpass bridge is DEP-controlled, and the land west of the overpass bridge is right-of-way only with private ownership of an accessible parcel between Cold Brook Road and the right-of-way. Access to the Ashokan trails and scenic views to the east are just as appealing, and perhaps more so, as the relationship between the boundary line at Basin Road and West Hurley. This is a good strategic location on the west end for a railroad-to-trail interface, and also a good location for development of a true rail operation center. The natural location of such an operation would be just east of Rt. 28A, but that still would be squarely on DEP land subject to an amended occupancy agreement for any rail much in the same way as West Hurley and Glenford Dike. Workarounds down the right-of-way may be possible for at least an unloading location for excursion trains to interface the Ashokan trail, but development of the site into an actual commercial/railroad interface would require sufficient available property and space that is not evident today.

Redrawing DEP property lines to re-assign a parcel to County control on this end appears far more viable than at West Hurley/Glenford, and could be explored as an alternative to renegotiating the agreement. In the immediate 28A area, the road forms a rather arbitrary boundary not related to the reservoir itself, the potential parcel is mostly out of the 100-year flood plain, and this would also transfer the responsibility of trailhead/railhead control to the County rather than DEP.

Unlike Kingston to Basin Rd, this is a relatively flat zone, has pleasant scenery, and is not so close to Rt. 28 that traffic noise and commercial development impact the appeal of a trail in this zone. Phonecia has some degree of a destination, and overall, the corridor condition is intact except for the washout. Compared to the condition west of Phonecia, or the Boiceville Bridge situation, it is straightforward as a trail zone.

Within the Camoin study, this segment is alluded to primarily for connectivity, and in this case connectivity all the way west to Highmount, and east to Ashokan over the Boiceville bridge. The only indicated market at Highmount is the winter cross-county connectivity. The trail usage by market, or section, is not indicated for comparative impact and makes trail usage difficult to evaluate.



7.6.2 Phonecia Zone Rail-with-Trail

No proposal has ever been suggested to attempt the co-location of a recreational trail within the same right-of-way as the existing railroad, be it a recreational trail or a fully accessible trail.

The only commentary is that as the elevations up the Esopus Creek valley steadily increase, the relative snow depth and retention does as well. Seasonal use of the Adirondack Scenic Railroad of a snowmobile corridor has become extremely popular, and a designated section of trail for snowmobile use has not been previously mentioned in any trail documents. If there is a clear non-motorized focus, the presence of the Bellayre resort also included the cross-country skiing market as a trail potential.

Neither snowmobiles nor cross-county skiing automatically necessarily require removal of railroad track. Adirondack Scenic has been hosting snowmobiles informally, since the 1980 Winter Olympics reopened the corridor under NYDOT ownership, and formally since the bridges were repaired as part of the multi-modal funding program on the corridor. Instead the debate has now shifted as to the economic impact value of the beginning and ending shoulder seasons when snow cover is insufficient to fully cover the ties. But overall, the compatibility of either cross-county skiing or snowmobile use on a seasonally-dedicated corridor (with the rails left in place) should not be discounted.

7.6.3 Phonecia Zone Economic Impact

As this entire evaluation tends to revolve around the success of the special events market, and the economic impact of those events, the discussion rapidly turns to the potential of somehow relocating events to this end of the railroad to then free the entire lower end of the corridor for trail-only purposes, i.e. from Kingston to Boiceville.

The key to economic impact for rail and trail visitors is non-ticket spending for meals, lodging, etc. The current situation of basing operations within downtown Kingston for boarding takes traffic off I-87, Rt. 209, and 28, and takes it into Kingston itself. That route notes the adjacent food and lodging opportunities within the town. The relationship with the boarding location, and the resulting direct impacts, should not be overlooked. The visitor is literally boarding at a shopping center, and has had to drive by at least two hotels and multiple restaurants to get there. That is actually an uncommon, and ideal, situation between a community and an excursion operation.

Transplanting the very same events-based operation 'up the road' on Route 28, even if ridership was able to be maintained to current levels, would negatively impact rail visitor impacts with the potential to 'just keep driving' once they got in the car and at leave Ulster County on the connecting highways, with no similar adjacent opportunities at Boiceville, Phonecia, or Mt. Tremper. As there are no chain lodging facilities along



the route as when driving into Kingston proper, some loss of rail visitor impacts can certainly be assumed. Our projection would be that 30-50% of County-based visitor impacts (not railroad operating budget impacts) would be lost as opposed to the current location within Kingston.

Economic Impact loss from the relocation of non-rail activity to a distant location could then be estimated at 40% of the \$1.9 million of economic impact generated by visitors within the County; i.e. \$760,000. But, that would be potentially offset by additional trail economic impacts on the Kingston end and/or health benefits based on trail usage. The most direct commercial economic impact would likely be seen by the City of Kingston, not necessarily the County as a whole. In this case, the comparative evaluations between rail and trail alternatives are essentially even.

7.6.4 Phonecia Zone Recommendation

Highest and best use of this portion of the corridor will hinge on the decision of the provider for excursion rail services, as well as the ability to determine if a new agreement or location can be found to serve for rail terminal as close to the Boiceville interface with 28A as possible. In the current situation, combined with the split ownership and control of the Phonecia end with ESRM, this is not an attractive opportunity for a rail excursion operator other than CMRR. As a stand-alone situation with approximately an 8,000 rider base without special events, or the lack of support facilities to handle them, it has little commercial interest and only the passion of volunteers to support operations. Insufficient cash flow would limit any significant maintenance or capital activity, much as it has in the past.

That recommendation can be changed if a destination-quality interface could be developed at the Boiceville end – it is still closer to Kingston than Phonecia. That, however would appear to be linked with reopening the Memorandum of Understanding to keep excursion rail presence within the DEP boundary at Rt. 28A, or alternatively redraw the DEP boundary around a parcel at that end to allow County control. Any operator, not just CMRR, would need a railroad location including ticketing, retail, and event space adjacent to the trail interface with the Ashokan corridor to actually thrive. Limited physical alternatives exist to accomplish that in that location, and still link to the adjacent trail concept. In many respects, however, it is certainly no more difficult than the equally-difficult alternative of attempting to locate rail-with-trail alignment on the Hurley Mt. Road end to accommodate special events to that zone on the east end.

Long term, this may still evolve toward a trail corridor, and it is also suitable for such. Continued use of this section as rail-only, or as the only rail-active portion of the corridor within Ulster County, will depend on the level of investment made to improve connectivity and site development.



7.7 Phonecia to Big Indian

This portions of the corridor is perhaps the most damaged, and most difficult portion of the entire 40 mile corridor. Just above Phonecia, significant portions of the right-of-way are completely eroded away from previous flooding. The corridor is generally unwalkable, due to generally heavy brush and tree conditions. Brush control has been done in some localized areas, but overall, the corridor consists of two steel rails, leaf-and litter-buried ties that are fully deteriorated, and a new forest growing between the rails. There are also isolated areas of cross-drainage and small bridge loss, and the completely missing two-span steel girder bridge at Big Indian, which was damaged during previous flooding and removed as a streambed hazard, leaving almost no trace of its previous location.



Other than the East Broad Top Railroad in Orbisonia, PA (which ceased operations in 1956 and has not been maintained east of Orbisonia ever since that date) we have not seen tree growth conditions within a roadbed this large, and concentrated, as some portions of this corridor have become.



East of Big Indian

When tree and root growth becomes this pervasive, it is actually easier to recover the corridor as a railroad, because the small stumps and roots can be allowed to deteriorate around newly replaced ties and allowed to rot out without compromising stability. For anything more than a slow-speed excursion railroad, the rail would be completely removed, the subroadbed grubbed and cleared, and new material put down to replace it, essentially, rebuilding the entire roadbed from scratch, only reusing the steel materials.



Partial vegetation clearing closer to Phonecia

For trail conditions, it is not significantly different. The trail would have to be cleared of tree growth, then grubbed out to remove



more significant roots and stumps that would either re-sprout through the trail surface, or rot into a surface depression over time. In either situation, substantial work has to be done to the subroadbed to stabilize it.

Conceptually, as no interest is shown in this as a rail corridor by CMRR, and is highly unlikely by any other organization, this would remain in this condition until sufficient funding or interest surfaces to perform a trail conversion. County interests, in the meanwhile, could start the arduous task of tree-clearing above the ties, as even to remove the rail will require that work. In some cases, such as immediately above Phonecia, and in Big Indian, the only cost-effective solutions may be for a side-of-the-road trail development with an intermediate barrier, rather than attempting to reconstruct the in-creek embankment and bridge necessary to restore the original railroad grade.

The loss of this section in its entirety effectively places the concept of an unbroken cross-county connectivity trail in jeopardy (along with usage predictions), and impacts our conclusions on the value of that concept all the way down to Boiceville. The County position on focusing rail activity north of that point is due in no small point to the truth that it may be many, many years before this corridor portion can be resurrected for trail purposes, but that the Ashokan-Kingston portion has its separate value not necessarily linked to a full countywide connectivity concept.

7.8 Big Indian to Highmount (County Line)

Immediately after the bridge at Big Indian, the corridor begins a steep 3.4% climb for the remainder of the corridor. As it is now out of the creek valley and generally on a hillside alignment, the overall corridor condition, while still tree-grown, is considerably better.

Immediately after the Big Indian bridge is one of the narrowest, and lowest, highway underpasses we have ever seen – the Lasher Rd. crossing above Rt. 28. This bridge was reportedly removed and stored on-site to allow emergency vehicles to clear it. The original under-girder clearance appears to be no more than 6', and the width is no more than 10'. This is one of the few issues on the upper end, and is likely to be resolved by either bringing the trail to grade level, putting in a higher-clearance trail-only truss bridge, lowering the roadway through the underpass, or combinations of the three.



The Peekamoose restaurant is at the intersection of Lasher Rd. and Rt. 28, and was noted by the Delaware and Ulster's Dave Riordan as the limit of any of their interest in the corridor, although it is not entirely clear how they would ferry passengers the distance to the corridor or otherwise include this as a destination.

The next point of note is at Pine Hill, where another extraordinarily low and tight highway underpass spans both a creek and the adjacent dirt road. As another road immediately parallels this one and crosses at grade, emergency vehicles have a way around it. West of Pine Hill is what appears to be a former station location, which also provides the last highway interface prior to Highmount.

Immediately after Pine Hill, the grade climbs the side of the mountain on a pair of reverse horseshoe curves, each nearly a full 180-degree curves, the first one over a valley with a fill and the second one curving around the face of the mountain itself. These two curves were specifically noted by the Ulster and Delaware as being of sufficient interest to them to warrant a lease request to extend their operations to them, at least to Pine Hill, and possibly even as far as the Peekamoose Restaurant at Lasher Rd, but not east of that point. Both curves would appear to be highly scenic in nature, and one of the best available mountain train views available in the Catskills.

Highmount is just east of the County line, and at this point, DURR has cleared the remains of the main line and short passing siding for 1200', and what also appear to be the remains of a small boarding platform. Newspaper reports, as well as Riordan, confirmed that DURR operated a demonstration locomotive to this point in 2013, but do not operate over the track, even though it is cleared. While the track is generally in better condition into Delaware County, it is not in FRA 1 condition for ties at the current time.

The Bellayre ski resort is just south and west of this location, with the parking lot only 820' off of the County line boundary.

The Camoin report only relates this portion of the trail study into potential cross-country ski activity downhill to Big Indian. That does appear possible, and also would appear entirely possible without necessarily removing the rail, and doing an Adirondack-style seasonal use permit. DURR does not currently operate past the fall foliage season. This is the only portion of the corridor that this might apply to, but given what may be only disconnected trail status at the current time vs. an immediate lease of some portion of the track to DURR, both objectives of ski trail and DURR lease could be



DURR at Arkville



accomplished. It should be noted, however, that Bellayre has their own system of groomed cross-country ski trails on their site, and investigation as to whether this addition would be considered to be direct competition or a connecting opportunity was not pursued during this report's deadline period.

As DURR is located outside Ulster County, and in-county rail/visitor benefits are marginal at best, the primary benefit is annual lease payments and corridor maintenance paid to Ulster County. DURR does appear ready to operationally connect to this portion, and we would recommend that lease negotiations be reopened, but on a shorter term than 25 years, and that the lease payment be directly linked to revenue plus defined regular maintenance provisions rather than a fixed long-term lease such as was given to CMRR.



8. Capital Cost Factor Analysis

At the request of Ulster County, some specific rail and trail construction issues were reviewed by Stone Consulting, based upon our rail background and civil engineering experience including New York State. Stone Consulting has two registered New York Civil Engineers on staff, and one environmental/stormwater specialist that reviewed specific issues with the corridor by reviewing our site photos and previous reports.

Some of these issues, particularly washouts and bridge repairs, have little to do with the decision on what to do with the corridor – they are simply necessary to preserve it for any use be it rail or trail. Those issues in particular should not be delayed for any further investigation or implementation. Luckily, the more-typical issue along unused railroad corridors, plugged culverts, loss of streambed clearance, and insufficient cross-drainage, is not an issue here. Flood damage from Hurricane Irene resulted in severe damage to specific areas rather than a widespread cross-drainage pattern that we saw from the same storm in Chenango County.

8.1 Track Valuation and Removal

Several trail conversion projects we have reviewed have considered that the value of the track itself could pay for the trail construction. In some cases that has actually been true. We were requested to review track valuation numbers as part of the overall pricing estimates that had been done in sections that have already been subject to preliminary engineering cost estimates.

Over the last three years, the price of scrap and light relay quality rail has risen and fallen, generally as a direct result of foreign market demand from Brazil, China and India. From all-time-high periods of \$660 a ton in late 2006, scrap 80-to-90 pound rail (measured in pounds per yard) is now in the \$135-\$155 per ton range²⁰. Another application for some rail is to have it rerolled into other steel products, which generally commands a slightly better price than scrap but less than relay rail would get; in the \$170-\$190 per ton range. One prime market for such rail is Franklin Steel in Franklin PA where used rail is rerolled into agricultural and consumer grade steel fence posts. This pricing reflects that market. Rail lighter than



90# rail rolled in 1899 on original alignment

²⁰ Franklin Steel quote to Stone Consulting, November 2015, Nathan Kovalchick.



115-lb./yard is rarely used in new track construction (industrial or grant-funded projects) although there are spot markets from overseas buyers.

The other metal components of track – plates, bars, bolts, and spikes, is referred to as “Other Track Materials” and may either be relay or scrap grade; it usually gets a higher price per ton as it is smaller material that is more easily melted in electric furnaces.

Crossties usually have some residual value, and it is a matter of assessing their condition against local markets either for railroad relay purposes (CMRR buys relay ties for roughly \$12 per tie), landscaping ties unsuitable for relay (but still sound enough to use for retaining walls, etc.), or simply disposal grade ties. While railroads are legally allowed to dispose of fully rotted ties on their own embankments, creation of a new trail results in the harvesting of the entire population down to the subroadbed, and a good working number is 3,000 ties per mile. If the ties can’t be sold for relay or landscape, and must be disposed of, they are typically regarded as hazardous material for landfill purposes.

The exercise then (which is then somewhat imprecise) is to convert a 7x9x8’6” rotted railroad tie into estimated pounds and tons of disposal material, which can vary wildly by both wood weight and absorbed water content. Based upon tonnage disposal costs, we used a figure of \$7 per tie for disposal, and in the great majority of the corridor the tie condition would be 95% disposal ties. This means that the ties actually cost considerably more money than they are worth to remove, and that they offset the positive value of the rail, always which does have some value.

Against that number is also applied an estimate cost per mile to remove track. This can also vary widely depending on how difficult it is to get to; within Ulster County it ranges from relatively easy within Kingston to nearly inaccessible between Phoenicia and Big Indian – trees would even have to be removed to remove the rail itself. We used an average of \$12,000 per mile for difficult access condition.

The net result of this estimate is that the more-typical 90# rail would net out at around \$3,400 per mile, and the heavier 105# rail might receive \$8,300. It is seen that the trail cost estimates generally consider the track value itself as a zero-dollar item, we concur that the rail value itself is negligible and should certainly not be considered to be sufficient for covering trail construction costs. This can certainly vary, but the assumption is that the trail cannot be paid for by selling the track. As no estimates have been seen particularly within the B&L study that would assume this, we are simply reinforcing the same point.

The only factor that has emerged to impact that assumption in a meaningful way has been the November 2015 announcement that “CB Railroad Ties” in Atlanta GA, has



been formed to develop a waste-tie-to energy company in Georgia and will be soliciting volume tie purchases from the entire northeast United States. Their basic business plan has been to neither charge nor pay for the ties, so the cost of disposal is now the cost of freight (by the ton, in railroad gondola) shipped to Georgia²¹.

With rail transportation estimated at \$1200 per car, that converts the cost of disposal ties down to roughly \$1 each instead of \$7 each at a landfill, a value gain of \$18,000 per mile of disposal ties. As ties could be loaded on CSX for single-line rail shipment to Georgia, this would be a valuable alternative for landfilling for either rail or trail crosstie disposal costs for Ulster County.



8.2 Track Rehabilitation

CMRR's current lease with the County makes them responsible for rehabilitation of railroad track to 'FRA Class 1 condition', ²²which is also the minimum passenger, track standard (acceptable for 15mph train speed). Class 1 still has standards, however, and the one that costs the most and is the most difficult to achieve is crosstie condition.

Simply put, for minimum passenger train safety, the bolted track joints must be supported by a solid crosstie that can hold a spike and does not allow the rail joint to move laterally. In addition to that, each 39' rail section (or adjusted equivalent in an 30' rail on this line) has to have five good intermediate ties (one of which usually supports the staggered joint on the opposite rail). Effectively, that translates out to about a 40% tie replacement program necessary to restore out-of-service track to usable condition. That agrees with HDR estimates made during their track inspections in 2014.

CMRR has been replacing crossties with relay-quality (used) ties, which cost roughly \$12 each as opposed to a mixed-grade new crosstie in the \$70 range. Track contractor installed prices are typically close to \$100 each for spot tie replacement in similar situations, where CMRR uses volunteers and their own equipment. That means that CMRR is capable of significant



²¹ Charles Bradley, CB Railroad Ties, [Tel 678 818 6448](tel:6788186448)

²² Class 1 condition is the lowest allowable condition for passenger use and hazardous materials. For comparison, Class 6 is the typical high-speed standard for Amtrak on the Northeast Corridor (110mph) and Class 7 is 125mph.



savings using their approach, equipment, and volunteer labor, but the life of the replaced ties in wet and poorly-drained roadbed is more in the 10-15 year range rather than in the 25-30 year range of a new creosoted tie. Each takes the same amount of effort to install. Therefore, the 'life of repairs' that is being done to achieve passenger operating status today is significantly less, but is also being done without either capital grant dollars or County commitments, which is somewhat unusual— particularly in New York State. Other rail operators may assume that the County will either support or participate in a more typical grant-rehab program using state and county resources to rehabilitate track, using all-new material at contractor prices and prevailing wage rates. These assumptions on track maintenance between a major 'capital rehab' (usually done with grant dollars) and 'regular maintenance' are the distinction lacking in the current lease agreement. When the CMRR has been actually capable of self-funding track repair, the effective cost of a 40% tie replacement program would be closer to \$20,000 per mile than a contractor/grant based cost of \$120,000 per mile typically seen, so savings are evident even if the ties would have to be replaced again during a 25-year lease period.

8.3 Boiceville Bridge

Several engineering reports and analysis were examined concerning the Boiceville Bridge issues, as well as an on-site inspection. While there is little additional information of value to add to the discussion, some specific points were observed that may have been overlooked:

- 1) A great deal of cost variance in reconstruction estimates is based on whether the existing bridge girders that are now washed downstream are reusable or not. They do not appear bent, but are partially submerged and embedded in streambed gravel. As the impact on a new bridge is literally in the millions, removal and inspection of the girders is a priority item before the costs can be truly assessed. Portable hydraulic jacks and wood deck beams may be used to lift and drag them out of the creek rather than relying on heavy crane equipment inside the creekbed to lift and carry. At that point, bridge steel can be ultrasonically tested for thickness, measured for straightness, and evaluated for reuse. Our meeting with DEP confirmed that they do want the girders removed as soon as possible and will cooperate to the fullest degree; this is a priority item for any future use and should not be delayed simply due to the rail vs. trail discussion.
- 2) One bridge study recommended the use of a truss bridge to lower the profile of the structure to reduce potential overtopping damage and side force exposure. We would suggest that the entire bridge be elevated to increase the distance above the stream as an alternative – at least three feet pending a full watershed



analysis. New approach grades for a trail are certainly possible and even approach grades for rail uses are entirely appropriate for short excursion train operations. This line is not being intended for long trains where slack runout over such a structure would be an operating issue even for future rail use. Similar girder bridges on trails in our area have been raised as part of the trail program, on the original abutments and piers.

- 3) The original 1860's era piers and abutments (likely replaced and repeatedly repaired) were very poorly done in comparison to the usual high cut-stone rockwork standards seen elsewhere on the corridor. The design of the piers was an interior consisting of round-edged, concreted rock faced with cut square stone that had been pointed and sealed. Once the square facing stones were structurally compromised, the demolition of the remainder of the pier and abutment was easily completed due to water flow and debris impact. Placement of the girders inside the abutments and piers, rather than sitting on top of them, also made it possible for the girders to tear apart the stone structures if they were subjected to side water flow stress. Whether the piers failed and dropped the girders or the bridge turned into a dam and tore apart the poorly-built piers, the pier design should certainly not be repeated. While bridge steel may be reusable, the structural needs of the bridge need a much better pier and abutment design for the future.

Overall, the Boiceville Bridge is such a critical link to either the rail or trail proposals that it should be expedited as a decision not linked specifically to rail use, particularly for the analysis stage.

8.4 Bridge Clearances

The extraordinarily tight vehicle clearances of two rail overpasses above Phonecia at Lasher Rd. and at Pine Hill need to be factored into the corridor discussion. Both of these locations need further study to determine if they can be graded down to level for trail use, or if clearances can be increased for rail use. The Lasher Rd. Bridge (currently removed) is a significant impediment to the consideration of rail renewal, but the Pine Hill bridge will be subject to verification of interest from DURR to ever go to, or beyond that location.

8.5 MP 23.4 Washout (West of Boiceville)

We examined the cost estimates provided by the Catskill Mountain Railroad to repair the washout at MP 23.4 for methodology and cost estimating, along with photos supplied by Ulster County. We were not able to access this site for firsthand inspection. Photos show hanging track, but also a rather tapered washout profile rather than the usual vertical-drop strictly due from streambank cuts in floodwater situations.



Overall quantities and methodology (which had been updated to 2012 pricing) was consistent with repair practices of such a washout, and the use of heavy stone rather than Gabion baskets. This methodology is generally consistent with the repair at Mt Trempor.

CMRR is concerned, however, that since this is the second major repair at this location, that subsurface soil conditions may exist that result in slope slippage, and a conventional repair may not hold. The potential for such an issue is simply unknown, and likely good cause for additional soil study before a second major repair is attempted. Photos are inconclusive, but at least suggest that there may be cause for analysis due to the slope conditions at the site.

The other issue at this site will be permitting. While the Mt. Trempor repair seems to have been accomplished under emergency permitting associated with the preservation of Rt. 28 (the railroad grade is a barrier there), the washout at MP 23.4 is not. As an active railroad comes to the site from the north, some latitude from DEC can be done under a blanket permit, but there still should be at least a wetland clearance letter and a permit analysis budget of \$50,000 if not done by in-County resources.

Our cost estimate – concern over soils condition notwithstanding – is as follows:

Basic repair – increased from \$1,227,558 (2012) to \$1,415,000 (2015 factors applied)

Permitting, Clearance letter	\$50,000
Total	\$1,465,000



9. Freight Services? In Kingston? On the U&D?

The truly unmentioned issue for the corridor is what, if any, feasibility remains for freight services over part or any of the corridor. In any other location, in any other community, the very first inquiry on the underutilized railroad situation would be to see if there was any remaining potential for freight traffic that had actually been overlooked.

Our observation is that Kingston is in an ideal geographic and highway network situation north of New York City to develop some kind of niche intermodal services for a low-to-medium volume commodity transfer service from rail to truck – likely inbound rather than outbound material. Operators other than CMRR typically look at this opportunity first, and the passenger second, as possible reasons to take on an operator contract with or without passenger services.

Based on our county-specific alternatives analysis, additional issues exist for the examination of freight services that would not normally be done. The preservation of freight services and a rail corridor is typically part of a strategic, county-led plan to preserve or develop industrial employment in the area by the preservation of rail freight service. Even in areas such as Chenango County (which has had no rail through the county since 2006), the impetus for preservation of rail freight service has been to lower the price of delivered agricultural commodities (feed and fertilizer) by transloading at a more competitive price than direct trucking. In Ulster's case, no on-line freight customers remain on the Catskill corridor, CSX provides rail services through the north-south river corridor, and the agricultural business is generally either in the river valley or much further west. So determining not just if freight can be developed at all, but if any freight that was developed would benefit County residents, is an additional obligation. One easy way to explain the difference would be that rail-delivered road salt at a 20% savings to the county would benefit all; an outbound transload of concrete precast product by an Ulster employer would benefit many, and a transload of outbound hardwood logs from Delaware County might benefit few to none.

Still, the entrepreneurial nature of shortline railroaders is such that most can find, with some real research, some freight movement inbound or outbound in an area such as Ulster than can be leveraged back to rail delivery if combined with a truck transload terminal. They are also counting on the fact that CSX generally ignores all but the largest potential customers for their own marketing, leaving such niche markets to the trucks. We would anticipate that based on the geography and transportation links in the County, that any non-CMRR proposers would effectively make this a substantial part of their business plan. Although this report is not a freight study, the implications are so substantial that they must be included in the alternatives analysis.



The initial view of the corridor showed three observations:

9.1 Hurley Mt. Road

Industrially-zoned property exists at Hurley Mt. Road and Rt. 28. CMRR's Hunt commented that this property was discussed as an alternative location for maintenance shops for the railroad. The property was not examined in depth; 'vacant commercial' was shown on the current online county maps of at least 15 acres. The adjacent precast concrete site (Kingston Precast) is still an active business, but does not initially appear to be of sufficient size to develop remote product markets.

This 15-acre undeveloped property is actually ideally located for a potential commodity transload site. While CSX may have had a transload site just south of Broadway in Kingston, it appears difficult to access and is also apparently unused although the turnout remains in place on the CSX main line. It is not now advertised as a transload site on any CSX directories of service.

One of the key issues of a good transload site is the ability to go 'site to thruway' with no downtown traffic issues and generally use existing highway infrastructure. Another one of the key issues to maintaining a good transload service is the ability of on-demand switching to reorder or relocated freight cars on the site. The CSX site at Kingston appears to foul the main line during switching activity, and there is no lead space beyond the derails to reorder cars between tracks. This single issue may be why it is not used. A transload facility operated off of shortline trackage is generally far easier to switch on-demand as there is no main line freight traffic to interfere with.

While this is an initial observation only, it remains to be heard on the ownership of this site, other development plans or restrictions, etc. This appears to be the only rail-accessible, commercially-zoned parcel on the railroad suitable for such activity and should be leveraged as such for the highest and best use for the County as there may be no other location of the same quality. If it is not available for whatever reason, it greatly limits opportunity. Joint use with a tourist operation shop is entirely feasible and perhaps even preferred (see Strasburg Railroad below for example).

Note that the Ulster County Industrial Development Agency site listings do not indicate rail access in any way (<http://ulstercountyny.gov/economic-development/properties-and-property-e-blast>) even though some of the sites may be in immediate proximity to CSX on the north end of Kingston. Search basis does not have an overall map, or the ability to determine which properties are actually rail-accessible.



9.2 Existing CMRR Website

CMRR's 'freight services' page shows their vintage diesel, a maintenance dump car, and has no map or other indication of how the railroad interfaces with the highway network or the national rail network. There are also spelling errors and no direct link to the Industrial Development Agency. While the "freight" website may exist, it is virtually impossible to leverage the concept either from the County or Railroad side given current available tools. It is unlikely to develop any potential interest.

9.3 Rt. 209/28 Existing Operations – Potential and Active Operations

The existing property use just east of Hurley Mt. Road is apparently active with Kingston Precast, and the undeveloped parcel present just to the east of it parallel to the tracks. Two driveways appear to access the site behind a church property.

Further up Rt. 28, *Kings Town Stone Quarry* is located across from railroad. While it appears active, there is no web page, facebook, or promotional information discovered. Research has indicated that Bluestone is not used for high-volume commercial purposes and is unlikely to produce rail volumes.

Eastern Materials LLC is located trackside. Active. <http://easternmaterials.net/> Multi-county; also sourcing asphalt from offsite. Excavation area does not look active but on-site crusher.

Woodstock Landscaping and Excavating between Basin Rd. and track – does not appear to be handling bulk materials and is primarily retail in nature.

Beesmer's Furniture is retail, although significant pallets were discarded on the railroad ROW.

The woodcutting activity adjacent to the right-of-way near Beesmer Rd. appears to be a firewood processing operation (i.e. not rail volumes or remote destinations in or out).

The other typical commodities for local and low-volume specialized transload services remain as rail-delivered road salt (which can have significant cost-savings for municipalities) and outbound logs – as hardwood log exports have remained relatively stable, particularly for lower-grade logs. Other typically transloaded commodities in the niche markets that require specialized sites include propane or LPG gas, plastic pellets, dimensional (construction) lumber, asphalt, etc. Ulster County has a significant legacy of stone and concrete industries that may have niche products with destinations over the 500-mile range that are more attractive to move by rail than direct trucking.



9.4 Transloading 101

The largest economic benefit that a short railroad can possibly offer a region is leveraging ‘retail’ freight services that a Class-1 railroad chooses to ignore. The ability to deliver bulk materials inbound and outbound is the essential tool, even if direct dockside service is not always possible. This is highly service oriented, which is why most larger railroads have failed at it and why smaller, more nimble, customer-oriented shortlines can thrive. Most transload locations also require on-site car switching services – which Class-1 railroads consider infeasible, and shortlines can provide on-demand. Shortlines also may enter into the final truck delivery services and warehousing as an integrated product, such as Carload Express in Pittsburgh PA²³.

From a highway access standpoint, the 209/28/I-87 area is actually ideally located. A transload is more critically linked to highway access, and keeping new truck traffic out of high-traffic downtown industrial areas into high-volume connections. Similarly, transloads work best for railroads when they are away from congested rail terminals, yet at least have consistent daily local connecting rail services.

The closest advertised location that is similar to this concept and operating a niche market is Steelways Inc in Newburgh. They specialize in waste transfer truck to barge, but also have rail transloading services to rail, primarily aimed at the waste and steel scrap business.²⁴ They promote these services on the same basis that Kingston could – geographic location and transportation availability.²⁵ It is important to recognize that most successful shortline transloads pick only one or two regional commodities to work in and develop their business around that base, using specialized service and location. Other sample locations and services can be viewed at the Bulktransporter.com listings for New York State.

Numerous tourist, museum, or excursion railroads have found that reopening their freight services were by far the most sustainable and lucrative opportunities open to them to provide solid baseline business, and may provide the highest economic benefits for a wide area between regional business support and some direct employment in transportation and logistics services. In addition, integrating even a limited amount of freight operations opens the corridor to grant opportunities that are unavailable as an excursion-only railroad, particularly in New York State.

Other than the Hurley Mt. Road site, no ‘ideal’ sites were found on the corridor. Moving freight cars up the 2% grade any further west would be both more expensive and difficult, and the next ‘flat spot’ to park any cars would be at West Hurley – on the DEP

²³ <http://carloadexpress.com/logistics/>

²⁴ http://www.steelwaysinc.com/new_york_transloading.php

²⁵ <http://www.steelwaysinc.com/downloads/MN201011.pdf>



easement – and those site use conflicts would continue west to Boiceville. While technically possible, it is neither advised or is risk-free and is exactly what DEP is trying to prevent via their agreement with the County.

The downside, of course, is that the more successful this concept may be, the more potential conflicts could exist between the restored CSX connection and the transload site. This squarely impacts the potential use of the corridor in that immediate 3000' Kingston section as a trail corridor, with increased rail activity beyond projected CMRR activity strictly for occasional car moves. If this proposal materializes by another operator, it needs to be carefully balanced and mitigated for conflicts.

Development of new freight switching or transload services by tourist or museum railroads, however, has become more popular if the right transportation and demand conditions exist. It is no longer unusual. The following provide examples for further research by the County:

9.5 Other Excursion Railroad Transload/Freight Examples

Texas State Railroad, Palestine TX

The Texas State Railroad Authority reconstructed a 2-mile abandoned interchange track to reconnect the excursion railroad with Union Pacific, connecting developable industrial land to the Union Pacific mainline. TSRA and their operator secured new employer Baze Chemical in 2013 on an abandoned meatpacking plant site with 30+ projected on-site employees. Baze became an active rail shipper in 2015. Received \$14M in TEA-21 funding for reconstruction of excursion railroad and equipment in 2007; program ongoing.

See http://www.palestineherald.com/news/local_news/baze-company-to-build-ethoxylation-plant-in-palestine/article_dddc3a64-c218-5b16-ab67-579a09e48f4f.html

Arcade and Attica, Arcade NY

Always a mixed-mode shortline operation, A&A continues servicing the feed mill at North Java NY as well as seasonal steam excursion trains. Freight status allowed grant application for complete track rebuild under NY grants program. \$1.1 million in 2010 virtually rebuilt the entire railroad for both freight and passenger operations. A&A is a particularly good example of funding corridor reconstruction via freight service also benefitting passenger operations.



Strasburg Railroad, Strasburg PA

Strasburg Railroad opened a new transload facility on their 4 ½ mile railroad (connecting with NS/Amtrak) that handles lumber, fertilizer, grain and other bulk commodities. Strasburg is possibly the only steam tourist railroad that regularly hauls freight cars with a steam locomotive. Reopening freight services allowed application for grant funding by Pennsylvania to replace a deteriorated bridge.



Strasburg lumber & conveyor transload site

See http://lancasteronline.com/business/strasburg-railroad-lands-m-state-grant/article_2bc82ffd-87cb-553d-bb93-80b357305318.html

Saratoga & North Creek, Saratoga Springs NY

Original excursion operations were done by Warren County through the selection of the passenger excursion operator Upper Hudson Railroad. Saratoga & North Creek (Iowa Pacific) assumed passenger operations contract but also purchased the North Creek – Tahawas abandoned segment to ship mine tailings out for freight opportunity. Shipments have finally begun on a regular basis in 2015, and have been controversial as corridor has also been subject to trail interest.

Tennessee Valley Railroad Museum, Chattanooga, TN

Possibly the most spectacular example of railroad museum success through freight, TVRM created a for-profit subsidiary to the railroad museum to handle switching and services to a new Volkswagen of America automobile assembly plant in Chattanooga, TN.

See <http://www.chattanoogan.com/2011/10/4/210484/TVRM-In-50th-Year-Branches-Out-To.aspx>

California State Railroad Museum/Sacramento Southern Railroad, Sacramento, CA

CSRM has one on-track freight customer, Setzer Forest Products, approximately two miles south of the museum. They organized a for-profit subsidiary, the Sacramento Southern Railroad, to serve this customer. While this siding is used only occasionally, the freight services have qualified the museum railroad for additional state grants, as well as federal status for preserving their right-of-way. CSRM's trackage is also host to a parallel rail trail (American River Bike Trail) over most of its length.



