October 31, 2017

Mr. Christopher White, Deputy Director
Ulster County Planning Department
244 Fair Street, P.O. Box 1800
Kingston, New York 12402

Re: Alternatives Analysis- Burying Existing Track and Ties along Ashokan Rail Trail

Dear Mr. White:

As part of the engineering design for Ulster County's Ashokan Rail Trail Project, Barton & Loguidice (B&L) has explored and assessed the alternative of constructing the proposed recreational trail directly upon the existing railroad bed consisting of steel rails, wooden ties, and typical stone ballast along the former Ulster and Delaware Railroad corridor. B&L strongly recommends that Ulster County dismiss the alternative of burying of the existing track and ties based on engineering, cost, environmental, trail maintenance, and regulatory considerations. This recommendation also recognizes the fact that the New York City Department of Environmental Protection (DEP) has clearly and consistently indicated it would not approve such an alternative design due to concerns about wetland impacts, erosion, burying of creosote-treated ties, and other concerns.

In general, roadways, trails, sidewalks, and other surfaces require a stable base material, which is vital to the short and long term sustainability of the surface course. Properly designed projects include the removal of organic material and the placement with inorganic construction materials, also known as subgrade material. This material is typically granular and consists of either well graded low clay content soil, or a soil and stone mixture, or as proposed for the Ashokan Rail Trail, crushed stone. In any case, the material should have very low or no organic material.

The section of the U&D railroad track from approximately Basin Road in West Hurley to NY Route 28A in Boiceville is supported by a wooden tie and ballast system. The approximately 35,000+ wooden ties are in various stages of decay with approximately 90 to 95% requiring replacement. Organic (live, dead and decaying) materials have also accumulated on the surface of the ballast and rooted in the upper level of the ballast due to lack of clearing, maintenance and tie replacement for a period of many decades. In many areas, the stone ballast is not visible due to complete coverage by organic materials and vegetation and tree roots have developed into the railroad bed and adjacent drainage ditches.

If the organic materials and wooden ties were buried over, they would continue to deteriorate and undermine the integrity of the trail surface, which is proposed to be compacted crush stone. This process will compromise the supporting base or foundation for the improvements they support, specifically the trail surface. This inadequate foundation will become weaker and compromised, and cracks and depressions in the trail surface will develop. The cracks and depressions will form small drainage paths (called rills) and cause ponding, which will concentrate stormwater flow, induce erosion, and result in the uneven settlement of the trail surface, including potholes. Once this process is started, the erosion will accelerate, and the constructed trail surface will de-stabilize throughout the corridor over time. This process would not likely

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start in the very early stages (first year) of the trail being open, but would begin a long term maintenance issue that will continue unpredictably for many years along the entire trail length.

The organic material will also become saturated and hold moisture resulting in a cycle of frost heaving, melting and settling, followed by pothole formation. Once this process begins, a more rapid rate of surface degradation, and pothole development will occur and reconstruction of these areas will be required. In areas that are more prone to water collection and frost heave, sections of the rail may be pushed up and create ridges or bumps in the surface resulting in tripping hazards and rough riding and accelerated water damage.

Burying the steel rail and tie system would require a significant volume of new stone materials to be transported in to the project site, which would not otherwise be required under the proposed design plan, which minimizes transport of materials to reduce costs and environmental impacts. The proposed plan utilizes the stone ballast already present as a base for the trail, reducing the amount of stone that is needed to be brought in by approximately 60% or approximately 23,000 cubic yards (cy) when compared to the alternative of burying the track and ties. This reduction in materials alone will save the County $1.3 Million when compared to leaving the tracks and ties in place.

Additionally, burying the existing tracks and ties will reduce the effective width of the trail and the buffer areas adjacent to the trail where it will be very difficult to stabilize and retain materials if the tracks are covered instead of removed. As you are aware, our firm has done a detailed assessment of the existing railroad bed and has proposed in some areas, including high-fill embankment sections, to lower the trail profile to increase the usable width for the trail and reduce the need for protective fencing on side slopes. Any reduction in trail width to accommodate burying the railroad infrastructure (essentially building upon and narrowing the trail prism) would increase the need for safety fencing and eliminate most of the flexibility of shifting and fine tuning the trail to minimize the environmental impacts, which were required by DEP during the design and environmental review process. Such a reduction of width from twelve feet to in some cases five or six would not be in accordance with recommended design standards for multi-use trail and would inevitably create conflicts between bicyclists and pedestrians, potentially creating safety issue for trail users.

The construction of the Ashokan Rail Trail, including the installation of proposed new bridges at Boiceville and Butternut Creek, would be nearly impossible if the existing track and ties were not removed prior to construction and the roadbed rough-graded and stabilized. Access to the project site along the narrow single-tracked railroad corridor, which in some areas is constrained to only 10-12 ft. is already difficult for construction vehicles. During recent pre-bid site visits with prospective construction vendors, many of the firms highlighted the increased costs for all phases of construction because of the remoteness and limited width of the railroad corridor. Leaving in place an already deteriorated and compromised track system would make access by heavy construction equipment much more difficult and/or result in the destruction of the track during transport of equipment and materials. Heavy construction equipment could not traverse the existing track without crushing many of the remaining ties and further damaging the rails and joints, themselves.

It is important to note that there are sections of the existing railroad corridor where it would be impossible to bury the track and ties, due to engineering constraints or regulatory issues. For example, the railroad segment west of the Runge Road Access point where the railroad embankment has sunken for hundreds of yards and the railroad ties have been cribbed or cross-piled to hold the track in place would be very difficult, if not impossible, to bury effectively so that the materials are stabilized without installation of retaining structures. Again, such engineered solutions would dramatically increase the cost of the project while

substantially diminishing the safety and usability of the new trail. During our environmental investigations and subsequent negotiations on wetland delineations with the DEP, an eight-hundred (800) ft. segment of the former railroad bed was delineated as a wetland under federal jurisdiction. This railroad segment, which developed into wetland over a period of decades during which the drainage ditches and culverts were not maintained and cleared, must now be avoided entirely and new fill materials could not be placed over the existing tracks without obtaining additional permits and incurring expensive wetland mitigation requirements. I would also note that requiring tracks to be buried and retained for future use would be in direct contradiction to the bridge plans for Butternut Creek and especially, Boiceville, where the bridge will be raised by approximately 7 ft.

As the County is aware, B&L staff have done extensive field investigation, survey and mapping and worked diligently with the DEP staff to develop, revise and finalize plans that protect the drinking water supplies for the City of New York while also ensuring the recreational trail is designed to modern standards, including being fully accessible to persons with disabilities. As you know, the design has made accommodations to avoid and mitigate potential wetland impacts, including narrowing of shoulders and horizontal and vertical shifts to the trail to avoid wetlands and watercourses. Adding materials on top of the existing track infrastructure would in many cases undermine or negate the mitigative steps that we have taken to avoid wetland areas and reduce risk of erosion. For instance, in the State-delineated wetland area west of Shokan Station, we have narrowed the trail slightly and eliminated shoulder to avoid the adjacent wetland. Building up materials in this and other areas would unnecessarily require additional features, such as retaining walls to hold the materials in place on the sides so that they do not encroach upon the wetlands. These areas are also simply too narrow to appropriately slope materials without additional retention elements.

Both the County and DEP have made adjustments to the proposed design, and after nearly eighteen months of investigation, consultation, review and revisions, the trail plans accommodate the needs and interests of both parties. As you know, the DEP's approval of the final trail plans requires the removal of all track and ties, with the off-site disposal of the thousands of creosote treated ties to a licensed facility. Recognizing the importance of the County's project to the DEP's Ashokan Reservoir, it is understandable that such requirements were included by DEP. We believe that the currently proposed design has struck a reasonable and pragmatic balance between protecting water quality and developing a world-class recreational trail. Any proposals to bury the track and ties would undermine several years of detailed negotiations and work with DEP and more than likely result in the Ashokan Rail Trail not being approved by DEP or constructed.

With approximately 90 to 95% of the existing ties not suitable for reuse and the railroad track itself functionally obsolete for future uses, burying the track would serve no railroad viable purpose in the future while significantly detracting from the trail or frankly, precluding the construction of the trail entirely. In contrast, the proposed stone trail structure for the project is a viable and stable base course on which a rail system could be reinstalled if the County Legislature were to determine rail use should be restored at some point in the future. For this reason and the reasons discussed above, it is not recommended that the existing rail or tie system remain in place.

Sincerely,

Thomas C. Baird, P.E., Associate
BARTON & LOGUIDICE, D.P.C.