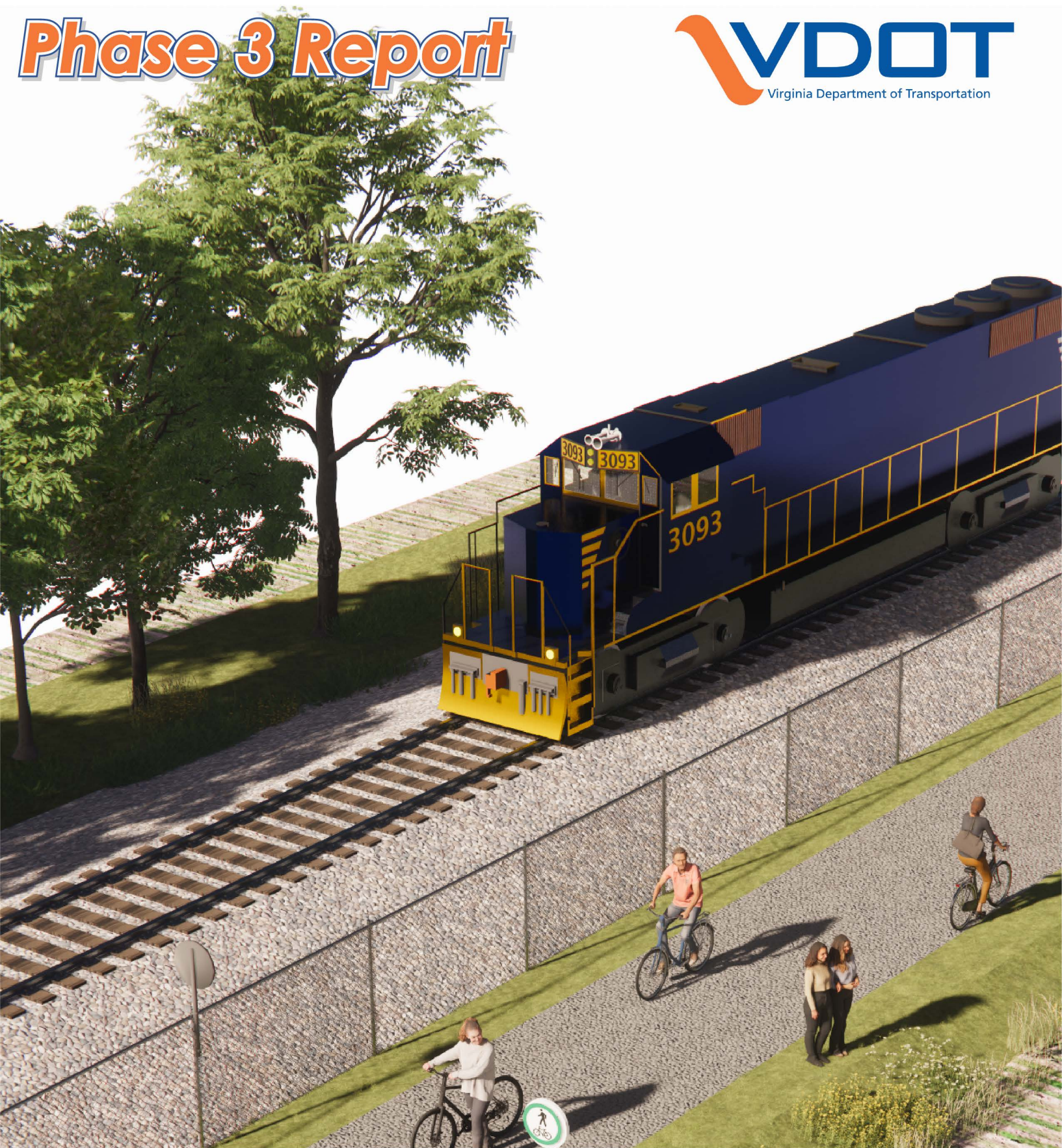


# Phase 3 Report



## Shenandoah Valley Rail-With-Trail Assessment

November 2025



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## PHASE 3 EXECUTIVE SUMMARY

Phase 1 of the Shenandoah Valley Rail-with-Trail Assessment concluded in March 2025 with an alternatives analysis. This analysis culminated in the development of typical sections for a 49-mile rail-with-trail concept along the Norfolk Southern-owned corridor between Broadway in Rockingham County and Front Royal in Warren County. This was the foundation of Phase 2, which concluded in September 2025. Phase 2 included an evaluation of track and structure conditions in relation to typical sections and requirements for future rail operations, in addition to delivering a hydraulics analysis, environmental desktop review, and a summary of public engagement conducted in April 2025. Phase 3 – the final phase of this assessment – examines the constraints and costs of the rail-with-trail concept and the rail-to-trail alternative. Public engagement will follow the Phase 3 release to garner feedback on the Phase 2 and Phase 3 findings. Public feedback will be summarized and published in a separate memorandum.

Building on the 2021 *Feasibility Study for a Linear Park in the Shenandoah Valley* conducted by the Virginia Department of Conservation and Recreation (DCR) and VDOT, an updated estimate for the rail-to-trail alternative was developed alongside new estimates for restoring the rail line to operational condition and for constructing a trail parallel to the rail line (rail-with-trail). These estimates will inform decision-making, fulfill the General Assembly's directive to not preclude the preservation of rail service, and guide the final phase of public outreach.

Assumptions for the cost analysis are detailed in this report. Typical sections were developed using U.S. DOT's *Rails With Trails: Best Practices and Lessons Learned* (2002 and 2021), AASHTO's *Guide for the Development of Bicycle Facilities*, and AREMA's *Manual for Railway Engineering*, and adhering to VDOT *Road Design Manual* standards where applicable. Guidance from the VDOT State Trails Office, including the forthcoming *Trail Surface Selection Guide*, was also incorporated. Costs were developed using VDOT's Statewide Bid Tab Query, the Cost Estimating Workbook, and property valuation data for right-of-way acquisition. Preliminary engineering costs were calculated as a percentage of construction costs and adjusted based on prior project experience. Should entities other than the Commonwealth assume ownership of the corridor, other design standards or assumptions could be employed; however, the Department has not been tasked with exploring other acquisition alternatives.

The proposed typical section assumes a 10-foot-wide crushed stone aggregate surface for both the rail-to-trail and rail-with-trail scenarios. In keeping with national best practices and the engineering judgement of subject matter experts, the rail-with-trail alternative assumes a 14-foot setback from the edge of trail to the nearest rail and separation by a 6-foot-tall fence. Trail width and setback distance assumptions used are consistent with the proposed rail-with-trail design renderings published by the Shenandoah Valley National Battlefields National Historic District (10-foot-wide trail and a typical 15.5- to 17.5-foot setback from edge of trail to the nearest rail).

The updated 2025 estimate for a rail-to-trail conversion is \$164 million. The rail-with-trail alternative is estimated at \$382 million (in 2025 dollars) for trail construction only. The higher cost of constructing the trail parallel to the rail line reflects the addition of retaining walls to accommodate a wider footprint, additional drainage features, safety fencing, culvert extensions, cantilevered bridges, and pedestrian bridges where cantilevered solutions are not practical. Due to the expanded footprint of the rail-with-trail typical section, right-of-way costs increase due to the anticipated additional right-of-way impacts. The estimated additional cost to restore the full rail line to meet FRA Class II requirements for 25-mph freight and/or excursion rail operation is \$305 million (in 2025 dollars), for a total of \$687 million (in 2025 dollars) to restore the rail and construct the adjacent trail.

Costs are presented across six corridor segments, consistent with previous studies. Prior rail-with-trail cost estimates were evaluated, applying VDOT's Statewide Bid Tab Query, Cost Estimating Workbook, and inflation factors, and incorporating property valuation data for right-of-way acquisition.

Cost estimates reflect feasible construction conditions, including segment-specific solutions such as cantilevers, bridges, and retaining walls. Rehabilitation of the track is more expensive than removal, and contingency costs increase proportionally with overall project value. While the analysis aligns with prior consultant work on core design parameters, it diverges in assumptions regarding structural needs, right-of-way requirements, and safety features, which leads to higher overall costs for the rail-with-trail alternative.

This analysis applies an approach which concludes a need for full rail structure rehabilitation to meet current operational and safety standards, including cantilevered or separate pedestrian bridges where needed, additional retaining walls, and expanded right-of-way for the wider trail footprint. Combined with updated inflation factors and VDOT estimating tools, these assumptions inform the cost estimating conclusions found in this report. Figure 1 shows the cost estimates by component for each alternative.

Lastly, this report contains an operating and maintenance section which, for comparative purposes, applies the costs for operating the New River Trail – a long-distance recreational trail in southwestern Virginia – as a potential model and estimate for the trail portion of the rail-with-trail. The New River Trail's costs are \$28,062 per mile of trail as of FY26. Rail operating and maintenance costs were calculated based on Class II standards and requirements. This results in a \$10,200 annual cost per mile of rail. The cost estimate for maintaining a locomotive on this rail is estimated to be \$125,000 annually.

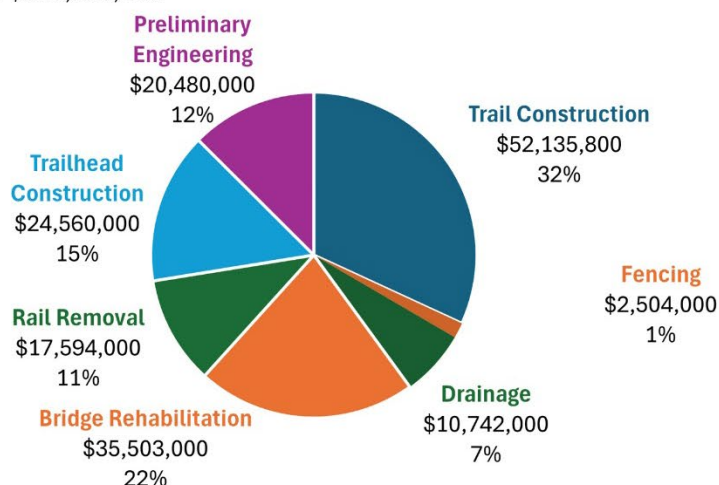


Figure 1: Cost Estimates by Component for Each Alternative

## Rail-to-Trail

**Rail-to-Trail Project Costs Per Sector**

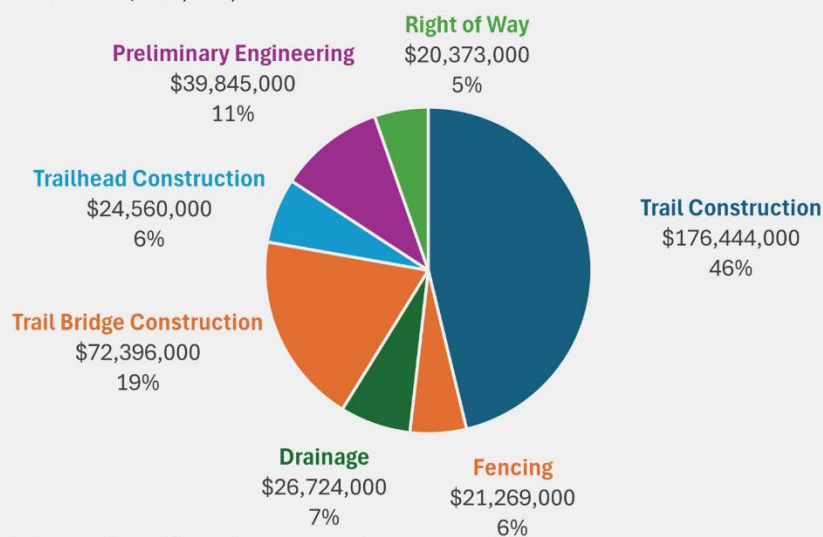
Grand Total Cost: \$163,518,800



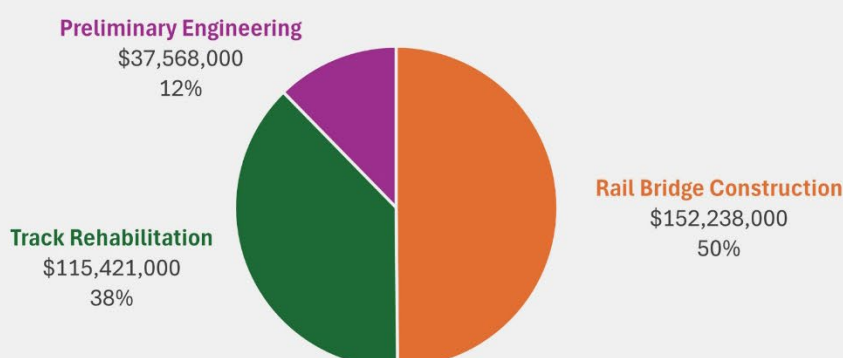
## Rail-with-Trail

**Rail-with-Trail Project Costs Per Sector  
(Trail Adjacent to Rail Line Related Costs)**

Grand Total Cost: \$381,611,000

**Rail-with-Trail Project Costs Per Sector  
(Rail Rehabilitation Related Costs)**

Grand Total Cost: \$305,227,000



## COST ESTIMATE ASSUMPTIONS

The purpose of this effort is to develop a comparative cost estimate for the proposed Shenandoah rail-with-trail and rail-to-trail alternatives. The rail-to-trail costs are based on a 2023 prescoping estimate which updated figures from the 2021 *Feasibility Study for a Linear Park in the Shenandoah Valley*. The 2023 rail-to-trail estimate has been further revised to reflect 2025 construction costs and to incorporate design adjustments informed by new information acquired during the development of the rail-with-trail alternative. These updates allow the two alternatives to be evaluated on a consistent basis, using comparable design assumptions .8

This section provides an overview of the key elements that make up the total cost estimate. It explains the general approach and shared assumptions that apply across all parts of the project. An assumption is a documented basis or decision used to guide planning or estimating, whether based on known information or reasonable judgment where details are still being developed. The goal is to give readers a clear understanding of how the overall costs were developed before turning to the more detailed sections that follow: trail construction, bridge and structure work, rail rehabilitation, and right-of-way acquisition. The 2023 rail-to-trail estimate serves as a foundation for this analysis because it was based on accepted cost-estimating practices and verified pricing from recent VDOT and local projects. Building upon that estimate ensures consistency and reliability. All costs presented in this report are in 2025 dollars.

The methodology for this comparison began by escalating the 2023 rail-to-trail estimate to 2025 dollars. For the rail-with-trail cost estimate, the length and placement of each typical section were verified within the six project segments. For each section, a per-linear-foot cost was calculated based on component unit prices (e.g., asphalt, base, drainage, excavation). These costs were multiplied by segment lengths to generate preliminary estimates. Percentage-based items (e.g. surveying, maintenance of traffic, contingencies, CEI or construction, engineering & inspection) were then applied to the base estimate. Detailed cost estimates can be found in the subsequent section of the report.

Both estimates rely on Valuation Maps created by the railroad company rather than GIS-based mapping for corridor alignment. Costs for both alternatives are organized according to six predetermined project corridor segments using known typical section assignments and linear-foot-based cost modeling. This approach enables a direct and consistent comparison between the rail-to-trail and rail-with-trail concepts. Several assumptions guided this process:

- Many assumptions from the 2023 rail-to-trail estimate carry over to this effort. Where applicable, these are noted in this document, though not all may be explicitly referenced.
- The 2023 cost estimate has been escalated to 2025 dollars using calculated inflation rates. Inflation rates of 15.87% and 7.39% were used to account for years 2024 and 2025 respectively. The rates were determined using VDOT bid tab data for 2024 and 2025.
- The estimate is based on six individual segments defined along the 49.4-mile corridor, as established in the 2021 rail-to-trail feasibility study, *Feasibility Study for a Linear Park in the Shenandoah Valley*, dated November 1, 2021.
- Each segment includes a defined alignment, with typical sections identified in Phase 1 for both the rail-to-trail and rail-with-trail alternatives. These typical sections form the basis for estimating quantities within each segment. Depending on which side of the corridor the trail is located on, the section may be mirrored.
- The trail may diverge from the rail in areas with limited right-of-way. These alignment decisions fall outside the scope of this planning-level estimate and will be addressed during the Preliminary Engineering phase.

- Line items specific to the rail-with-trail alternative, such as additional easement requirements and enhanced or new bridge construction, apply only to that scenario and not to the rail-to-trail estimate.
- Where applicable, unit costs have been drawn from the VDOT Bid Item – Unit Cost Lookup Tool, which incorporates economies of scale and project size through regression modeling. Filters were applied to reflect construction within the VDOT Staunton District when data is available; otherwise, statewide data has been used.
- The rail-with-trail estimate uses a linear foot cost model, in which each typical section is assigned a unit rate and multiplied by its total length within each segment.
- The line items from the 2023 rail-to-trail estimate served as the basis for the current cost estimate. These items have been retained with more added where necessary to reflect the scope of the updated rail-to-trail and rail-with-trail alternatives.
- Pricing does not account for challenging access, night work, seasonal constraints, or unusual site logistics. No costs are included for mitigation, complex permitting, or environmental delays. No major seasonal restrictions or weather impacts are expected during construction windows.

## Trail Construction

This section outlines the assumptions used for construction items related to building the trail, based on the set of typical cross sections from Phase 1 that represent different site conditions along the corridor. Each section identifies the materials, width, and features needed for the trail depending on the surrounding conditions, such as slopes, drainage needs, or nearby infrastructure. These sections were applied across the six project segments to estimate the amount of construction material required in each location. The result is a list of itemized costs that reflect realistic field conditions while maintaining a consistent approach for comparing both the rail-with-trail and rail-to-trail alternatives.

To validate these costs and the overall approach, this Trail Construction section describes the assumptions used in developing the trail construction portion of the estimate. It covers representative items needed to build a trail along the Shenandoah Valley rail corridor, including but not limited to trail materials, stormwater management features, signage and striping, retaining walls, fences, and limited excavation. It does not include costs for bridge rehabilitation, track rehabilitation, or right-of-way acquisition, which are addressed in other sections of this report.

### Mobilization

Mobilization for Trail Construction and Bridge Construction are calculated as \$80,000 plus 5% of the total contract cost, minus \$1,000,000, following VDOT Road and Bridge Specification method (Specification 513 – Mobilization, Section 513.02). For Track Rehabilitation, mobilization is estimated at 2.5% of the applicable discipline cost.

- **Construction Surveying**  
Construction Surveying is estimated at 2% of total trail construction cost.
- **Maintenance of Traffic**  
Maintenance of Traffic (MOT) is estimated at 2.5% of total trail construction cost.



- **Aggregate Base Material, Type I, No. 21B**

This line item describes the aggregate base material to the trail surface and is applied in different quantities in the two alternatives. For the rail-to-trail alternative, it assumes 5 inches of 21B aggregate placed over an additional 2 inches intended to fill voids in the existing ballast, resulting in a total 7-inch quantity. In contrast, the rail-with-trail alternative is not constructed on ballast and therefore assumes a standard 5-inch aggregate base composed of 21B aggregate.

- **Crusher Run Aggregate, No. 25 Or 26**

The 2021 estimate identified a 4-inch crusher run aggregate as the soft surface material. This specification has been adjusted and the line item will no longer be used, replaced with Aggregate No. 10 in order to provide a more compacted and uniform surface that can comply with ADA standards.

- **Construction Material: Fine Aggregate or Aggregate No. 10**

Two inches of compacted No. 10 aggregate is recommended as the finished trail surface in both alternatives. This surface profile is consistent with other planned and existing crushed stone trails in the Commonwealth. Exact specifications for the typical sections will be finalized following further geotechnical analysis during the Preliminary Engineering phase of project delivery.

- **Hydraulic Cement Concrete Sidewalk 4"**

The assumption accounts for a concrete pad at each at grade trail crossing of a roadway. Each pad is assumed to be 10 feet wide by 6 feet long, with an additional 2 feet extending beneath a detectable warning surface to meet ADA requirements for support of visually-impaired trail users. For each roadway intersection, one pad is assumed on either side of the road. This assumption has been incorporated into the cost and quantities for both the rail-to-trail and rail-with-trail alternatives.

- **CG-12 Detectable Warning Surface**

This assumption accounts for a 10 foot wide by 2 foot long area at each trail crossing to meet ADA requirements for support of visually-impaired trail users. For each roadway intersection, one paved strip is assumed on either side of the road. This assumption has been incorporated into the cost and quantities for both the rail-to-trail and rail-with-trail alternatives.

- **Geotextile Fabric**

Quantities were retained from the 2021 feasibility study, with unit costs updated to reflect 2025 construction values.

- **Culvert Extensions**

- For the rail-to-trail alternative, culverts are assumed to be extended 5 feet on both sides of the trail to accommodate shoulder grading.
- For the rail-with-trail alternative, culvert extensions are assumed on one side only, with a total length of 20 feet to accommodate the offset trail alignment.
- Concrete Class A4 (CY) and Reinforced Steel (LB) quantities were estimated using VDOT Road and Bridge Standards, Section 1000 – Culverts. Headwall and wingwall costs are included in the A4 concrete and steel quantities.
- Culvert sizes are based on field investigations and supporting documentation, including the *Feasibility Study for a Linear Park in the Shenandoah Valley* (Appendix G – Summary of Findings: Bridges and Culverts, 2021). Culverts identified as Stone Masonry Arch were all found to be in fair to good condition; therefore, costs have been estimated based on extensions rather than full replacements.

- **Stormwater Management (SWM) Facilities and Nutrient Credits**
  - Hydrologic Soil Group (HSG) classifications for each segment were determined using the USDA NRCS Web Soil Survey.
  - Each SWM facility is assumed to treat 0.5 pounds of total phosphorus.
  - Nutrient credit pricing is based on VDOT Form LD-453 (Nutrient Credit Purchase Form), which cites phosphorus credit costs in the Potomac River watershed ranging from \$10,000 to \$46,000 per pound. An average cost of \$28,000 per pound was used for this estimate.
  - It is assumed that 75% of the required phosphorus reduction will be achieved on-site via SWM facilities, with the remaining 25% offset by nutrient credit purchases to satisfy Virginia Erosion and Stormwater Management Program (VESMP) water quality requirements.
  - The cost of each SWM facility was estimated at \$70,000, assuming the use of dry swales to treat stormwater from the proposed improvements in order to meet state water quality requirements.
- **Excavation**
  - The updated rail-to-trail estimate assumes that the existing ditch will be used for drainage with minimal impact, and additional costs are not anticipated. The existing railroad track and underlying ballast are assumed to be removed, and the rail corridor will be regraded through either excavation or fill to achieve the proposed trail profile. The proposed trail will tie back to the existing railroad ditches on both sides, with no additional excavation at the bottom of the existing ditches. All proposed improvements are considered regulated disturbances and are expected to be contained within a 30-foot limit of disturbance, which is intended to accommodate typical grading and drainage adjustments along the corridor. The actual extent may vary depending on site-specific topography.
  - For the rail-with-trail estimate, the area adjacent to the existing railroad track, whether currently impervious or pervious, is assumed to be converted into the proposed trail through either excavation or fill, depending on the proposed profile. One side of the trail will tie into the existing ditch, while a new ditch will be constructed along the opposite side of the corridor. The existing ditch located between the railroad track and the proposed trail will be maintained, with only the grading work required to tie into it considered a regulated disturbance. The total width of disturbance is assumed to be contained within a 30-foot limit of disturbance, which is expected to accommodate the proposed grading and drainage improvements. Rehabilitation work on the existing railroad track is excluded from the regulated disturbance area, as it is considered routine maintenance. The volume of excavation assumes a 1.5-foot-deep ditch with 2:1 side slopes on both sides along the corridor.
- **Drainage Allowance and Erosion & Sediment (E&S) Controls**

Both items are calculated as 5% of the total Trail Construction cost.
- **Type B Class I Pavement Line Marking, 4"**

With the updated assumption of a crushed stone trail surface, the striping previously planned for the trail (e.g., 2'-6' skip patterns and solid shoulder lines) is no longer applicable along the length of the main trail. No restriping quantities are included, as the proposed trail will not disturb existing pavement surfaces or traffic markings at roadway intersections. Any necessary striping restoration resulting from incidental disturbance will be addressed in the field in coordination with VDOT.

- **Type B Class II Pavement Line Marking, 6"**  
This item is assumed at all crosswalks along paved roadways where the trail crosses. Lane width is assumed to be 12 feet.
- **Type B Class II Pavement Line Marking, 24"**  
This item is currently assumed for two specific applications: (1) stop bars along the trail, and (2) crosswalks at intersections with vehicular traffic. All crosswalks are assumed to be 10 feet wide, with lanes at 12 feet wide. There is a known conflict with the crushed stone trail surface for striping in these locations, which will need to be addressed during final design. Select trail crossing locations may require paving to accommodate striping.
- **Symbols / Messages**  
Each crossing is assumed to include two advance pavement markings to alert roadway users to the upcoming trail crossing, with one marking for each direction of traffic. The markings are intended to supplement the striped trail crossing and may consist of a symbol, word message (such as "XING"), or combination thereof, placed in accordance with VDOT and Manual on Uniform Traffic Control Devices (MUTCD) guidance for advance warning of pedestrian or bicycle crossings. The markings serve to improve driver awareness and enhance safety at locations where the trail intersects the roadway.
- **Sign Panel**  
Sign panels are calculated at 5.5 SF per sign. Sign frequency assumptions are detailed in the Concrete Sign Foundation, STP-1, Type E section.
- **Sign Post, STP-1, 2½", 12 Gauge**  
Each freestanding sign panel not mounted to a proposed or existing structure will require a 7 foot post for installation. It is assumed all signage will be ground-mounted and designed for pedestrian-scale visibility. Sign frequency assumptions are detailed in the Concrete Sign Foundation, STP-1, Type E section.
- **Concrete Sign Foundation, STP-1 Type E**  
Each signpost will require a dedicated concrete foundation, consistent with the STP-1 Type E standard. At each roadway crossing, it is assumed that eight signs will be required: four signs placed along the trail to alert trail users of the upcoming roadway crossing, and four signs placed along the roadway to alert motorists of the upcoming trail crossing. Additionally, one sign is assumed every quarter mile in each direction along the trail to provide consistent wayfinding and information for trail users.  
  
All signage is assumed to be consistent with the MUTCD, the Virginia Supplement to the MUTCD, and applicable VDOT pedestrian and bicycle guidance, including W11-2 "Pedestrian Crossing" and W11-15 "Bicycle Crossing" warning signs. Sign dimensions, placement height, and mounting are assumed to meet pedestrian-scale visibility and retroreflectivity standards, ensuring safe and legible information for both trail users and motorists. The exact type, design, and placement of each sign will be finalized during the preliminary engineering phase of design development.
- **Pedestrian Signal Equipment**  
The cost estimate includes Pedestrian Hybrid Beacons (PHBs) at major roadway intersections, listed as Pedestrian Signal Equipment within the estimate. PHBs are quantified at at-grade crossings of arterial class streets. The total quantity of PHBs will ultimately be determined during Preliminary Engineering review, considering factors such as AADT, gap availability and acceptance, sight distance and other engineering elements required for analysis. One PHB is quantified at each of these crossings.



- **Flashing Beacon FB-2**  
This assumption documents the use of Rectangular Rapid-Flashing Beacons (RRFBs). RRFBs have been quantified at select Major Collector crossings along the corridor based on a visual assessment of roadway conditions, consistent with the character of this planning-level analysis. The total quantity of RRFBs will ultimately be determined during Preliminary Engineering review, considering factors such as AADT, gap availability and acceptance, sight distance lines, and other engineering elements required for analysis. Two RRFBs are quantified at each of these crossings.
- **Fence, FE-CL**  
Chain link fencing is assumed along the length of the rail-with-trail alignment consistent with the typical section. For each at-grade intersection, a 250-foot reduction in fencing length is assumed to account for open access areas. Final quantities will be refined during the Preliminary Engineering phase.
- **Gabions**  
A gabion is a cage, cylinder, or cube, typically mesh, filled with solid material. Gabions were carried over from the rail-to-trail estimate where they were used as placeholder elements for potential retaining walls. Their quantities will remain in the rail-to-trail estimate, while the corresponding retaining wall scope is captured under RW-3 within the rail-with-trail estimate.
- **Retaining Walls, RW-3**  
Retaining walls are anticipated in locations with steep slopes, primarily to reduce the trail's footprint, minimize right-of-way impacts, and avoid encroachment on adjacent properties. It is currently assumed that retaining walls may be required in approximately 50% of steep areas where the slope is greater than 3:1. A conservative average wall height of 6 feet is assumed for estimating purposes; actual heights and extents will be confirmed during design development.
- **Pedestrian Fence**  
Pedestrian fencing (safety railing) is assumed in two primary conditions: (1) where slopes exceed 3:1 within 5 feet of the trail edge, and (2) where retaining walls exceed a 30-inch vertical drop. Quantities for the second condition were not captured in the 2023 rail-to-trail estimate. For both alignments, fencing will be included only where a clear safety need exists. Fencing is not currently proposed for aesthetic purposes or for general delineation along residential properties. Quantities can be derived from typical sections.
- **Regular Excavation, Borrow Excavation, Borrow Excavation (Minimum CBR-20), Clearing and Grubbing**  
Quantities for each item are carried over from the 2023 rail-to-trail estimate, with unit costs updated to reflect 2025 construction values.
- **Allowances and Percent-Based Cost Items**  
These allowances and percentage-based cost items are consistent with VDOT best practices for projects at the conceptual development phase. The following percentages are used:
  - Unaccounted-for Items - Unaccounted-for Items cover the smaller but necessary project elements that are not yet defined well enough to itemize individually. This allowance ensures that the estimate reflects the full expected scope. Unaccounted-for Items costs are developed based on 20% of the direct construction costs (costs for materials, labor, equipment and other items physically required to complete the project) of the project.

- Soft Costs (Indirect Project Costs) – Soft Costs are indirect construction costs necessary to deliver the project that do not involve the actual building / construction work required to deliver the project. These include costs needed to plan, manage and oversee the work with built-in safety nets that allow for known-unknowns. These are necessary to get a project built correctly but are not a part of the physical construction activities.
  - Construction Contingency: 35% of total direct construction costs
  - Contract Contingency: 5% of total direct construction costs
  - Construction Engineering & Inspection (CEI): 20% of total direct construction costs
  - Preliminary Engineering: 20% of total direct construction costs

Utility work has emerged as a possibility during the development of the rail-with-trail alternative; however, utility costs are not itemized as individual line items in the estimate due to a lack of available data. Utility costs are assumed to be addressed within the contingency of the estimate.

Environmental remediation costs are not included as a specific line item in this cost estimate. A preliminary environmental desktop review has been completed, and potential environmental issues, including those that may arise from environmental investigations through the NEPA process or other site-specific conditions, have been identified. However, the scope and cost of these items are too uncertain at this time to estimate with the specificity required for line-item inclusion. Consequently, any costs associated with environmental remediation are assumed to be addressed within the contingency of the estimate.

Construction Engineering and Inspection (CEI) costs are set at 20 percent of the total trail construction cost. CEI is the process of monitoring the construction process to ensure the project is built safely, on time, and according to the approved plans and specifications. This percentage reflects a decision made in the 2023 cost estimate and remains appropriate. This approach differs slightly from typical CEI cost development, which is often scaled based on total construction cost, with larger projects generally assigned a lower CEI percentage.

Trailhead locations are assumed to remain unchanged from the locations determined in the 2021 *Feasibility Study for a Linear Park in the Shenandoah Valley*. If future rail activity generates substantial new demand, an assessment may be needed to determine whether existing trailheads can accommodate increased parking needs.

## Structure Rehabilitation

The purpose of this effort is to develop a construction cost estimate for the rehabilitation of structures along the rail corridor. A tabular summary of all bridge assets listing the asset number, description, length, and recommended pedestrian trail type (cantilevered walkway vs pedestrian bridge) is included in Table 1 below. The structures have been divided into separate asset numbers that correspond to the structure's milepost. The assets were then grouped into the six project segments. Estimates were created for all assets along the corridor and displayed in their respective segments. The assets included in this estimate are comprised of steel, concrete, and timber superstructure elements (beams, girders, deck slabs, stringers); steel, concrete and masonry substructure elements (bents, piers, abutments). The estimate is structured around linear-foot, lump sum, and square yard quantities. Line items were determined based on rehabilitating the structures to restore freight rail service. Assumptions were made to ensure consistency, cost accuracy, and defensibility for funding or prioritization decisions.

- To restore all structures to sustain freight rail service it is assumed that all assets should rate E-80 or greater. The estimates are for repairs to the assets that would help achieve an E-80 rating.
- Inspections were completed in 2024 for three assets along the corridor, Assets 5104, 6141, and 7643. The assets that were inspected were typical structure types that appeared throughout the corridor. Detailed estimates were developed for the three assets and used as a representative estimate for all remaining assets.

- Superstructure repair costs were taken by dividing the total structural steel repair cost for the three representative assets and dividing by their respective span lengths. This linear foot cost was then applied to each asset that was like the representative assets.
- Superstructure repair costs consisted of applying a protective coating system, new timber tie deck, and repairing/replacing existing bearings.
- Additional steel repairs were deemed necessary for assets that did not rate for E-80 during the Phase 2 load rating effort (Assets 5104 & 7643). The existing steel for Asset 5104 was determined using AREMA Table 15-7-2 to be 30ksi yield strength based on the year of construction 1908 shown at the end posts. Asset 7643 steel was assumed to be 30ksi steel since the year of construction could not be determined.

Table 1: Structural Assets in the Corridor

Asset	Bridge Description	Length (Rounded)	Pedestrian Trail Type
9901	Steel Deck Beam Over North Fork Shenandoah River	28'	Pedestrian Bridge
9770	Steel Deck Girder Over North Fork Shenandoah River	184'	Cantilevered Walkway
9736	Steel Deck Girder Over Honey Run Creek	90'	Pedestrian Bridge
9571	Steel Deck Beams Over Unnamed Drainage	20'	Pedestrian Bridge
9435	Steel Deck Beams Over Unnamed Drainage	40'	Pedestrian Bridge
9430	Steel Deck Beams Over Unnamed Drainage	140'	Pedestrian Bridge
8984	Steel Deck Girder Over Holmans Creek & Farm Rd.	310'	Cantilevered Walkway
8790	Timber Deck Bridge Over Unnamed Drainage	32'	Pedestrian Bridge
8763	Timber Deck Bridge Over Unnamed Drainage	15'	Pedestrian Bridge
8627	Steel Deck Girder Over Mill Creek And Bryce Blvd.	425'	Cantilevered Walkway
8620	Steel Deck Beams Over Bank Street	21'	Pedestrian Bridge
8452	Timber Deck Bridge Over Unnamed Drainage	17'	Pedestrian Bridge
7902	Steel Deck Girder Over Stoney Creek & Massie Farm Ln.	375'	Cantilevered Walkway
7643	Steel Deck Girder Over Narrow Passage Run	630'	Cantilevered Walkway
7164	Steel Deck Girder Over Pugh's Run	380'	Cantilevered Walkway
6824	Steel Deck Beams Over Jordan Run	19'	Pedestrian Bridge
6765	Steel Deck Girder Over Toms Brook & Private Rd.	510'	Cantilevered Walkway
6669	Steel Deck Girder & Beams Over Hwy 651	127'	Cantilevered Walkway*
6391	Steel Deck Girder Over South Fork Run, Tumbling Run, Battlefield Rd	262'	Cantilevered Walkway
6280	Timber Deck Bridge Over Unnamed Drainage	35'	Pedestrian Bridge
6148	Steel Deck Beam Over Town Run Stream	105'	Pedestrian Bridge
6141	Steel Deck Beam Over Massanutten St.	46'	Pedestrian Bridge
5944	Pin Connected Deck Truss Over North Fork Shenandoah River	290'	Pedestrian Bridge
5565	'Steel Deck Girder & Beams Over Passage Creek	129'	Pedestrian Bridge
5104	Steel Through Truss & Steel Deck Beams Over South Fork Shenandoah River	522'	Pedestrian Bridge

\*Existing approach span beams are too shallow for cantilever, necessitating additional work. This structure was omitted from the Phase 2 total of 8 potential cantilevered structures for this reason but is being included as a 9<sup>th</sup> potential cantilevered structure in Phase 3 with this additional work assumed.



- It is assumed that for Asset 5104 the floor system will be replaced with new members of similar size to achieve an E-80 rating. For all truss members  $\frac{1}{2}$ " cover plates will be added to all members to achieve an E-80 rating.
- Since the year of construction could not be determined for Asset 7643 it is recommended to perform a steel coupon test to confirm the existing steel's yield stress. Otherwise, it is assumed that the members for the existing jump spans will be replaced with new rolled deck beams of similar size.
- It is assumed that 50% of the existing bearings will need to be repaired or replaced for each asset.
- All inspected structures will require a lump sum cost for lead abatement that is used for the disposal of lead coated materials.
- Substructure repair costs were taken by dividing the total substructure repair costs for the three representative assets and dividing by the total number of substructure units at each asset. This cost per substructure unit was applied to each asset that was similar to the representative assets.
- Concrete substructure surface repair and repointing of mortar joints was taken as 30% of the surface area of the substructure units for the representative assets. Concrete substructure surface repair would be paid in square yards and repointing of mortar joints would be paid in linear feet.
- The cost for a cantilevered trail was determined for Asset 7643. The Phase 2 report found that cantilevering a trail would only be viable on 9 bridges, all of which have a steel deck girder superstructure type. Member sizes were assumed to develop a model for the cantilevered trail structure. These assumed member sizes were used to develop a cost for structural steel needed for the cantilevered trail structure. In addition, to maintain consistency between the assumptions made in 2021, a timber deck is assumed as the cantilevered structures deck. The total cost was then divided by the total span length of asset 7643's spans that can support the cantilevered walkway (Spans 6-11). This linear foot cost for a cantilevered structure was added to all structures that could support a cantilevered trail.
- It is assumed that the existing substructures will need to be modified to support the forces introduced by the cantilevered walkway. It is assumed that micropiles around the substructure will be sufficient to support the cantilevered walkway. This assumption should be further investigated as the design for the cantilevered walkway is finalized.
- To estimate the cost of prefabricated pedestrian bridges, a three-tier system was developed to reflect how the cost per square foot varies with bridge length. Because shorter bridges share many of the same fixed expenses as longer ones, they tend to have a higher unit cost.

For each tier, approximate costs were identified for primary components such as decking, abutments, delivery, and geotechnical work. These costs were compared with data from previously completed projects to confirm their reasonableness. The square footage for each bridge was based on a 10-foot width, matching the width of the trail surface, and the full length of the adjacent railroad bridge. The resulting planning-level unit costs are as follows:

- Tier 1 (1–20 ft): \$2,000 per square foot
- Tier 2 (21–100 ft): \$1,200 per square foot
- Tier 3 (>100 ft): \$600 per square foot

- Miscellaneous items such as Clearing & Grubbing, Rough Grading, Environmental Protection, Disposal of Material, and Backfill Erosion Repair were taken from the 2021 cost estimates and adjusted for inflation. These items are unique to each asset and have been shown in each asset's estimate.
- Allowances and Percent-Based Cost Items – Descriptions for direct construction costs and soft costs are documented above. These costs also directly pertain to the structural estimate. Percentage based Cost Items for Structural Rehabilitation are described below:
  - Unaccounted Items: 20% of direct construction costs
  - Remote Location Factor: 15% of direct construction costs
  - CE&I: 20% of direct construction costs
  - Contingency: 50% of direct construction costs
  - Design Engineering: 20% of direct construction costs

## Track Rehabilitation

The track rehabilitation estimate is structured around linear foot quantities, typical infrastructure needs (such as tie and rail replacement, ballast, crossings, vegetation removal), and soft costs (e.g., design, mobilization, CEI).

### Methodology Overview

The estimate begins by applying unit costs to the known quantities for each work item across the three levels of expected rehabilitation needed, and for each of the six corridor segments. Spot rehabilitation and full-depth construction are distinguished by location, with quantities adjusted to reflect real-world field conditions and percentage-based tie/rail replacements. Once base quantities are costed, soft costs are applied uniformly across the estimate using accepted percentage rates. Salvage credits are subtracted from construction totals.

The final track rehabilitation estimate includes a subtotal by segment and summarizes total construction, engineering, and contingency costs. The deliverable will support future design, scoping, or funding prioritization and includes all assumptions, unit pricing, and calculation methodology used.

- Track rehabilitation efforts have been developed based on three varying conditional types across the South, Central, and North segments based on when the track section was removed from service. This work has been modified to fit within the six-segment structure of the rest of the cost estimate.
- The 115# rail and new Other Track Material (OTM) are standard for full-depth reconstruction in the Central segment. Spot versus full-depth assumptions are based on known or expected tie/rail conditions (e.g., 5–10% replacement rates for spot rehab). Track material including 115# rail, ties, ballast, and related materials are assumed readily available for procurement and will need to comply with Buy America requirements.
- Track removal costs are included in segments requiring full-depth replacement. For all other segments, only the scrap value is accounted for; the remaining removal costs are covered under contingency.
- Linear footage used for cost development is assumed to reflect field-verified alignment data.
- Per-unit pricing reflects prevailing market conditions and is assumed to include labor, material, and equipment.
- Rail scrap value is credited at \$250/ton where applicable, assumed consistent with market trends.

- The number of crossing improvements is assumed to be both accurate and complete. Each listed crossing is expected to receive the specified device type (Active or Passive), with no additional devices required. For active at-grade warning device replacements, it is assumed that the existing infrastructure is non-functional and will need full replacement, including a new operator. The replacement cost also covers associated trackwork and pavement improvements.
- Per-acre costs assume moderate and consistent vegetation density across segments.
- At live rail connections, it was assumed that rail operations are suspended or coordinated to allow safe construction access.
- The passive at-grade warning device replacement line item has assumed that all signage and markings will need to be upgraded. The item additionally includes cost for pavement work.
- Material haul distances are within standard project ranges and do not incur additional costs.
- Quality control/testing is included in engineering costs or general conditions.
- Maintenance of traffic at at-grade crossings is assumed minimal or included in crossing line items.

## Right-of-Way Acquisition

VDOT obtained a set of railroad Valuation (VAL) Maps from Norfolk Southern in 2024, which show the railroad's property line to be a minimum of 33 feet from the centerline on either side. This significantly increases the area available for design, as the GIS data used in previous pre-scoping tasks showed property boundaries much closer to the rail baseline.

This estimate assumes that the Commonwealth will acquire the property. Under this assumption, the additional right-of-way shown in the VAL maps eliminates the need for property acquisition or easement purchases for the rail-to-trail alternative, since it provides about 13 more feet of usable space compared to the 2023 assumptions. Areas that were previously expected to extend beyond the right-of-way, especially where grading or slope adjustments were required, are now assumed to fit within the 33-foot property line or be minimized through the use of retaining walls.

For the rail-with-trail alternative, the same Commonwealth acquisition assumptions apply, but the larger footprint needed to accommodate both the active rail and the shared-use path will likely require additional right-of-way or easement acquisition in certain areas.

- Assumptions for trailhead locations have been carried over from the 2023 cost estimate. That estimate noted: "At trailhead locations, the feasibility study documents some rudimentary trailhead development that was used to determine rough size calculations for each trailhead. Parcel location for these trailheads is not specified, so we have made assumptions on the correct parcel based on description, aerial imagery, and parcel ownership derived from tax map information." These assumptions were carried into the current estimate.
- All land determined as potentially necessary for ROW acquisition or easement purchase, regardless of ownership, is being quantified. However, if the towns proffer or donate the land, then ROW estimated cost will be reduced.
- The administrative fee for each parcel of impacted land is assumed to be \$25,000 based on VDOT's extensive experience delivering transportation projects.
- For properties with acquisition, any purchase cost less than \$500 is rounded up to \$500. This follows the precedent set in the 2023 rail-to-trail estimate.



- Right-of-way acquisition cost estimates were developed at a high level and do not differentiate between individual property owners at this stage. Impacted parcels currently owned by VDOT are presumed not to require right-of-way purchase; in these cases, VDOT would typically issue a license or permit to allow trail development rather than placing an easement on its own property. During Preliminary Engineering, right-of-way impacts will be further refined and property ownership confirmed.
- An “Improvement Impact” lump sum cost per parcel has been included to account for potential incidental impacts such as tree removal, adjustment or relocation of existing site features (e.g., fences, driveways, landscaping), and other minor site-specific conditions that may arise during acquisition or construction.
- It remains unclear who will be responsible for compensating property owners in cases where private site features encroach on the existing right-of-way. These may include buildings, parking lots, fences, signage, and other structures. The estimate does not currently account for the cost or legal processes associated with resolving such encroachments.
- Bridge ownership is assumed to be VDOT, if the areas adjacent are to be used for staging or any type of construction, there may be a need to purchase a temporary construction easement or right of entry. These costs have not been captured in the ROW estimate.
- High level estimates of land value for each of the segments have been provided given an average land cost per square foot for each town impacted within each segment. These land cost estimates will be based on a variety of property types (i.e. commercial, residential, industrial, farm, vacant, town owned, etc.) to derive a general average price per square foot per town. A similar methodology was found (albeit separated by town rather than by segment) within VDOT’s Ashland to Petersburg Trail Study.
- The Drainage and Stormwater Management Report for Phase 2 assumed a 30-foot disturbance width from the centerline of the proposed trail. To account for this level of impact, the estimate assumes a 5-foot encroachment onto adjacent properties along one side of the trail. The trail alignment shifts between sides of the existing rail corridor based on environmental constraints or other site-specific conditions. Property disturbance is assumed on only one side of each segment. This assumption allows for a general calculation of land acquisition needs. Using the estimated square footage of impacted land, combined with average land costs and the percentage breakdown of property types within each segment, as detailed in the methodology above, a high-level acquisition cost can be developed. This approach provides a planning-level estimate in lieu of a detailed, parcel-by-parcel engineering analysis.
- ROW acquisition costs were determined using the average assessed land value per square foot determined by property type within each town. These averages were then increased by 80% (uplift) to approximate the estimated fair market value for each parcel and to account for market appreciation beyond the assessed tax values.
- VDOT’s cost estimate guidelines assume a portion of parcels may proceed to condemnation, with associated court and administrative fees added per parcel type. However, given the high-level nature of this right-of-way analysis, these potential condemnation costs have not been incorporated at this stage. A more detailed evaluation, including application of the VDOT methodology for condemnation-related costs, will be conducted during Preliminary Engineering

## OPERATING AND MAINTENANCE

At a high level, the rail-with-trail alternative will involve a more complex maintenance scenario than rail-to-trail conversion due to the co-existence of a trail and an active railroad. A rail-with-trail will require careful planning, coordination, and communication between the trail manager and the railroad operator. A functioning memorandum of agreement (MOA) or maintenance agreement would be in place between the two parties to manage the co-existence of the two entities. Key elements of said agreement include:

- Division of responsibility
- Fiscal responsibility
- Coordination expectations
- Compliance with federal/state/local regulations, as well as railroad and utility requirements
- General expectations for maintenance of trail, including:
  - Type of equipment
  - Process for maintenance of the trail
  - Process for maintenance of the rail, including partial or total trail closures

Rails-to-trails and rails-with-trails have several key differences regarding operations and maintenance. Rails-with-trails require close coordination with the railroad operator when performing trail construction, maintenance, and operations. Rails-with-trails may also require trail closures for rail maintenance, rail safety education for trail users, designs that minimize impact between rail and trail, temporary rail-related storage on or near the trail, and emergency access use.

### Trail Operating and Maintenance Overview

Rail-to-trail maintenance activities include regular inspections, surface maintenance, vegetation management, drainage upkeep, and addressing safety concerns like signage and obstructions. Maintaining the trail's structural integrity, including those structures formerly part of the converted railroad line including bridges and culverts, is crucial.

Surface maintenance of the trail includes three primary activities. The first is sweeping and cleaning where debris like leaves, mud, gravel and other obstructions are removed to keep the trail surface clear and safe. The second is patching and repair where cracks, potholes, and other surface damage is addressed to prevent further deterioration and to ensure a smooth and safe walking and cycling experience. The third is weed control where vegetation is managed along the trail to prevent it from encroaching on the trail surface and impacting sight lines.

In terms of structural maintenance, bridges and culverts are the primary concerns. This includes ensuring the structural integrity of bridges, culverts, and other drainage structures to prevent erosion and to maintain trail stability. **Note:** *Preserving the integrity of the railroad right-of-way (rail-to-trail) will be the responsibility of the trail owner. Vegetation and weed control is the main component of the right-of-way preservation.*

Rail-to-trail operating and maintenance costs vary based on trail location, length, and type, among other individual trail qualities; however, the New River Trail in southwestern Virginia shares many characteristics with the potential Shenandoah Valley rail corridor. The New River Trail State Park is a 57-mile trail traversing Grayson, Carroll, Wythe and Pulaski counties and Galax in southwestern Virginia. Thirty-nine miles of the trail parallels the scenic and historic New River. The trail has two tunnels (135 feet and 193 feet long), three major bridges (the 951-foot Hiwassee bridge, the 670-foot Ivanhoe bridge, and the 1,089-foot Fries Junction bridge) and 30 smaller bridges and trestles. The park also contains five non-flush toilets along the trail, Dannelly Park, two campgrounds, Foster Falls concessions, and the Shot Tower area.

The trail has 12 full time employees (FTEs): a park manager, two assistant park managers, three chief rangers (maintenance, law enforcement, and visitor experience), two park rangers for the South Management Area, three park rangers for the North Management Area, one office manager, and one business manager. The New River Trail's annual budget in FY26 was **\$1,599,518, which results in an annual cost per mile of \$28,062.** The following bullets break down that budget:

#### Operations Costs:

- Staffing Costs: \$145,700
- Maintenance Costs: \$297,049
- Administrative Operations: \$124,390
- Day Use Operating Costs: \$492,448
- Administration-Public Safety \$29,300
- Resource Management-Exotic Plant Treatments/Removal of Negative Vegetation on Trail: \$9,652
- Preventative-Resource Management of Trestles/Trail: \$10,748
- Preventative Maintenance of Equipment: \$58,371

#### Annual Costs:

- Trestles Re-decking/Handrail Replacements (\$180/ft X 200 feet/year): \$36,000
- Resurfacing Trail (5 miles per year with trail resurfaced roughly every 10 years): \$60,860
- Tree Removal: \$10,000
- 1 Large Trestle Repair/Re-decking Project: \$325,000

The rail-to-trail alternative is expected to have a similar annual cost per mile for maintenance; however, cost items may differ since the New River Trail is a State Park maintained by the Department of Conservation and Recreation (DCR). The 51.7-mile Capital Trail between Richmond and Jamestown is controlled by VDOT with a roughly \$1,000,000 annual maintenance budget (approximately \$20,000 per mile). A rail-with-trail alternative will likely incur higher maintenance costs than a rail-to-trail alternative due to additional infrastructure including security fencing, additional retaining walls and increased stormwater management facilities.

## Rail Operating and Maintenance Overview

Maintenance cost per mile to maintain Class II status is estimated at approximately \$10,200 based on recent cost averages.

Key components that make up annual maintenance costs include:

- **Track Maintenance:** A major expense, which varies based on track class, usage, and environmental conditions. Track maintenance costs can range from **\$5,000 to \$50,000 per mile** annually. The fixed track maintenance costs for restored railroad operations is estimated at around \$10,200 per mile for Class 2 track in accordance with Federal Railroad Administration guidelines. This does not include annual maintenance of signals and structures, only of railroad bed, ballast, ties, and rail.
- **Infrastructure Maintenance:** A significant amount of capital would be necessary to maintain bridges, signaling systems, grade crossings, and other infrastructure and equipment. A full-scale inspection of all structures would be needed ahead of restoring service to the line.
- **Locomotive and Rolling Stock Maintenance:** Locomotives and railcars require regular maintenance and repairs. Maintenance for a six-axle diesel locomotive can cost up to \$250,000 annually based on locomotive age, miles operated, terrain (grade), and preventive maintenance plan. ***Locomotive maintenance costs for a restored rail operation are anticipated to be considerably less, at ½ of the aforementioned cost estimate, or \$125,000 annually.*** This is due to the characteristics of the corridor



including anticipated frequency of operations and gross tonnage. While newer locomotives would potentially have lower costs, it is not assumed that a rail operator would run a new fleet on a Class 2 branch line rail.

Factors influencing the cost for infrastructure and rolling stock maintenance include:

- **Miles of Track and Track Quality:** The extent of the network and track conditions directly affect maintenance requirements.
- **Traffic Density and Type:** Higher traffic volumes and the type of freight carried impact infrastructure wear and tear.
- **Geographic Location and Environmental Conditions:** Weather and terrain can impact maintenance needs and costs.
- **Labor and Material Costs:** These vary regionally and can fluctuate.
- **Preventive vs. Corrective Maintenance:** An effective preventive maintenance plan can reduce the need for more costly corrective repairs.

## Key Takeaways

While this study is not scoped to develop detailed annual maintenance costs for a restored rail operation, the high-level estimate is assumed to be \$10,200 per mile for **annual track maintenance**, and an additional \$125,000 for **rolling stock maintenance** (per locomotive). This figure does not include the maintenance costs associated with railcars, as it is anticipated the rail operator will either lease or use private equipment.

## DETAILED COST ESTIMATES

# **Shenandoah Valley**

## **Rail-with-Trail**

### **Segment 01 - 06**

**Cost Estimate Grand Totals**

**Rail-with-Trail and Rail-to-Trail**

## Shenandoah Valley Rail Trail

### Grand Total Cost Summary for Rail-to-Trail

Segment	Construction Costs				Preliminary Engineering	ROW Acquisition	Total Segment Cost
	Trail	Structures	Rail Removal	Trailheads			
Segment 01	\$ 20,148,600	\$ 5,740,000	\$ 4,129,000	\$ 9,885,000	\$ 5,865,000	\$ -	\$ 45,767,600
Segment 02	\$ -	\$ 4,477,000	\$ 3,421,000	\$ 2,030,000	\$ 1,514,000	\$ -	\$ 11,442,000
Segment 03	\$ 6,934,200	\$ 5,410,000	\$ 1,972,000	\$ 3,035,000	\$ 2,380,000	\$ -	\$ 19,731,200
Segment 04	\$ 6,837,000	\$ 3,550,000	\$ 1,972,000	\$ -	\$ 1,584,000	\$ -	\$ 13,943,000
Segment 05	\$ 17,258,600	\$ 4,866,000	\$ 2,511,000	\$ 1,015,000	\$ 3,836,000	\$ -	\$ 29,486,600
Segment 06	\$ 14,203,400	\$ 11,460,000	\$ 3,589,000	\$ 8,595,000	\$ 5,301,000	\$ -	\$ 43,148,400
	\$ 65,381,800	\$ 35,503,000	\$ 17,594,000	\$ 24,560,000	\$ 20,480,000	\$ -	
<b>GRAND TOTAL COST</b>							<b>\$ 163,518,800</b>

### Grand Total Cost Summary for Rail-with-Trail (Trail Adjacent to Rail Line Related Costs)

Segment	Construction Costs				Preliminary Engineering	ROW Acquisition	Total Segment Cost
	Trail	Structures*	Rail Rehabilitation	Trailheads			
Segment 01	\$ 49,384,000	\$ 14,112,000	\$ -	\$ 9,885,000	\$ 9,491,000	\$ 4,122,000	\$ 86,994,000
Segment 02	\$ 40,110,000	\$ 13,374,000	\$ -	\$ 2,030,000	\$ 6,691,000	\$ 4,252,000	\$ 66,457,000
Segment 03	\$ 23,995,400	\$ 8,151,000	\$ -	\$ 3,035,000	\$ 4,380,000	\$ 2,858,000	\$ 42,419,000
Segment 04	\$ 25,077,000	\$ 6,325,000	\$ -	\$ -	\$ 3,734,000	\$ 2,124,000	\$ 37,260,000
Segment 05	\$ 38,117,400	\$ 16,688,000	\$ -	\$ 1,015,000	\$ 6,554,000	\$ 3,194,000	\$ 65,568,000
Segment 06	\$ 47,754,200	\$ 13,746,000	\$ -	\$ 8,595,000	\$ 8,995,000	\$ 3,823,000	\$ 82,913,000
	\$ 224,438,000	\$ 72,396,000	\$ -	\$ 24,560,000	\$ 39,845,000	\$ 20,373,000	
<b>GRAND TOTAL COST</b>							<b>\$ 381,611,000</b>

### Grand Total Cost Summary for Rail-with-Trail (Rail Rehabilitation Related Costs)

Segment	Construction Costs				Preliminary Engineering	ROW Acquisition	Total Segment Cost
	Trail	Structures**	Rail Rehabilitation	Trailheads			
Segment 01	\$ -	\$ 31,328,000	\$ 20,982,000	\$ -	\$ 7,177,000	\$ -	\$ 59,487,000
Segment 02	\$ -	\$ 22,156,000	\$ 30,697,000	\$ -	\$ 8,247,000	\$ -	\$ 61,100,000
Segment 03	\$ -	\$ 21,147,000	\$ 19,911,000	\$ -	\$ 5,994,000	\$ -	\$ 47,052,000
Segment 04	\$ -	\$ 15,761,000	\$ 18,291,000	\$ -	\$ 5,157,000	\$ -	\$ 39,209,000
Segment 05	\$ -	\$ 39,148,000	\$ 9,588,000	\$ -	\$ 5,643,000	\$ -	\$ 54,379,000
Segment 06	\$ -	\$ 22,698,000	\$ 15,952,000	\$ -	\$ 5,350,000	\$ -	\$ 44,000,000
	\$ -	\$ 152,238,000	\$ 115,421,000	\$ -	\$ 37,568,000	\$ -	
<b>GRAND TOTAL COST</b>							<b>\$ 305,227,000</b>

\* Structure construction costs differ from the segment totals and limited to include costs for cantilevered or prefabricated pedestrian bridges

\*\* Structure construction costs differ from the segment totals and limited to include costs for bridge rehabilitation

Note: The total sum of the structures in both Trail Construction and Rail Rehabilitation costs matches the amounts shown within the segment sheets.

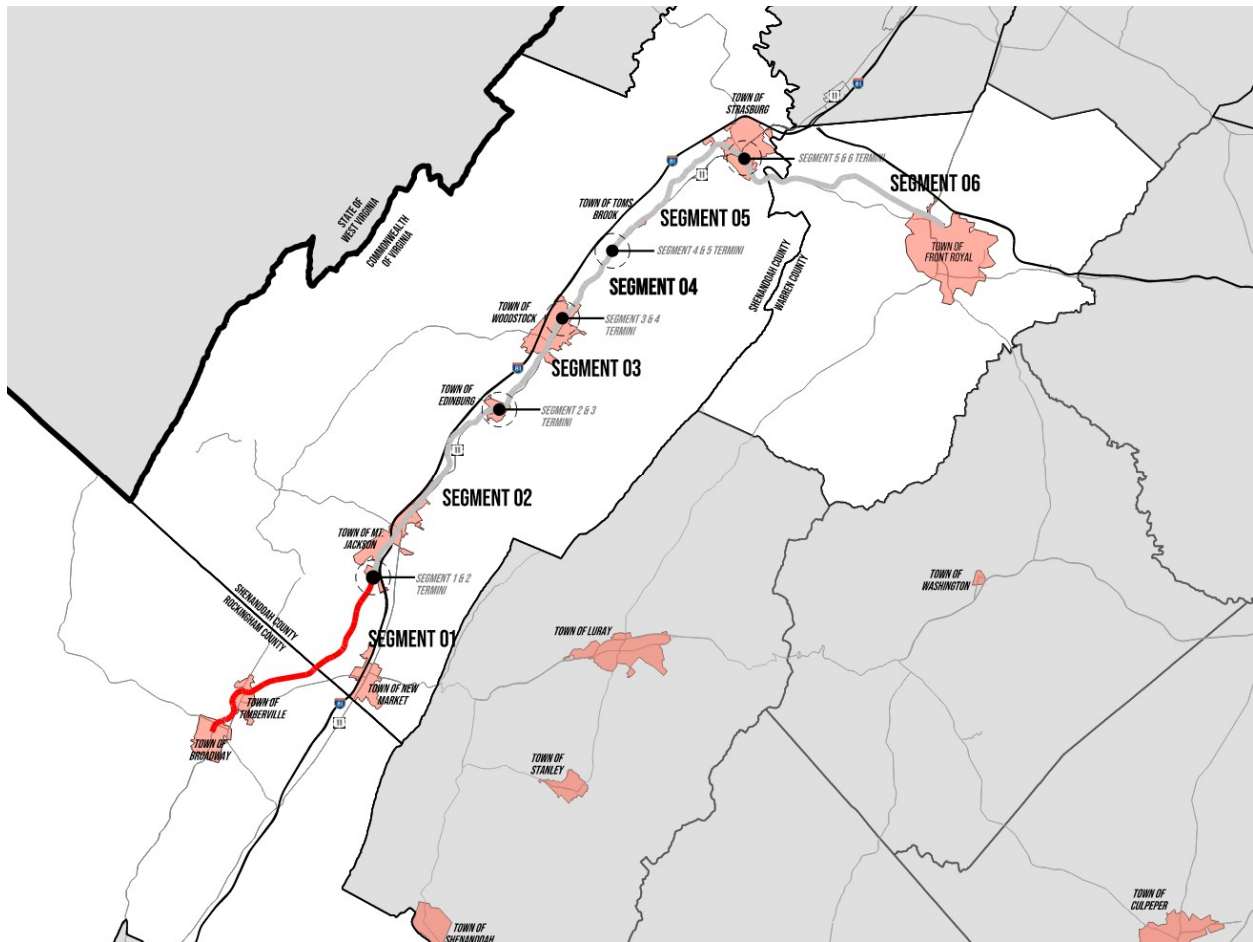


# Shenandoah Valley

## Rail-to-Trail

### Segment 01

Revised Cost Estimate



# Shenandoah Valley Rail-to-Trail (Segment 1)

## Features and Characteristics

<b>Length</b>	11.2 Miles
<b>Termini</b>	Turner Avenue in Town of Broadway and Cavern Road in Shenandoah County
<b>Jurisdictions</b>	Rockingham County Shenandoah County Town of Broadway Town of Timberville Town of Plains Mill Town of Mt Jackson New Market Quicksburg
<b>Trail Alignment Height</b>	3' from natural grade
<b>Recommended Trailheads</b>	5 Trailheads

## Total Cost Summary for Trail Alignment (Segment 1)

<b>Segment</b>	Segment 1		
<b>Length</b>	11.2 Miles		
		<b>Cost (FY 2025)</b>	
<b>Trail Construction Cost</b>	\$		<b>20,148,600.00</b>
<b>Bridge Constuction Cost</b>	\$		<b>5,740,000.00</b>
<b>Rail Removal Cost</b>	\$		<b>4,129,000.00</b>
<b>Trailhead Cost</b>	\$		<b>9,885,000.00</b>
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$		-
<b>Preliminary Engineering Costs</b>	\$		<b>5,864,880.00</b>
	<i>Trail</i>	\$	2,518,320.00
	<i>Bridge</i>	\$	543,760.00
	<i>Rail Removal</i>	\$	825,800.00
	<i>Trailheads</i>	\$	1,977,000.00
		<b>\$</b>	<b>45,767,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 1)

BRIDGE NO.	ASSET NO.		COST (FY 2025)
1	9901	\$	191,000.00
2	9970	\$	595,000.00
3	9736	\$	377,000.00
4	9571	\$	81,000.00
5	9540	\$	57,700.00
6	9435	\$	147,000.00
7	9430	\$	347,000.00
8	9286	\$	21,900.00
9	9224	\$	31,300.00
10	9213	\$	21,900.00
11	9199	\$	39,000.00
12	8984	\$	809,000.00
<b>Sub-Total Construction Cost</b>		<b>\$</b>	<b>2,718,800.00</b>
<b>Mobilization (Structures)</b>		\$	165,940.00
<b>Unaccounted Items</b>	20%	\$	543,760.00
<b>Remote Location Factor</b>	15%	\$	407,820.00
<b>CE&amp;I</b>	20%	\$	543,760.00
<b>Contingency</b>	50%	\$	1,359,400.00
<b>Design Engineering *</b>	20%	\$	543,760.00

Total Bridge Construction Cost (Segment 1)	\$	5,740,000.00
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**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study  
Total Bridge Construction Cost does not include Design Engineering

<b>Preliminary Engineering</b>					
	Preliminary Engineering	LS	1	20%	\$2,518,320
<b>Total Preliminary Engineering Phase (in FY2023 Dollars)</b>					<b>\$2,518,320</b>



FY2025 ESTIMATE							
Segment 1, Bridge 1, Asset 9901, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 15,825.00	1	\$ 15,825.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 21,100.00	1	\$ 21,100.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 3,793.32	1	\$ 3,793.32	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	2	\$ 32,200.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 430.00	76	\$ 32,680.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 260.00	76	\$ 19,760.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	3	\$ 8,531.49	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	25	\$ 3,889.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	16	\$ 894.56	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 26,375.00	1	\$ 26,375.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 15,825.00	1	\$ 15,825.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 10,000.00	1	\$ 10,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 191,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 191,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 1, Asset 9901, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 20,000.00	1	\$ 20,000.00	
		DECK DEMOLITION	LS	\$ 2,000.00	1	\$ 2,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	2	\$ 19,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	76	\$ 19,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	76	\$ 11,400.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	3	\$ 3,750.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	25	\$ 1,700.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	16	\$ 560.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 25,000.00	1	\$ 25,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 15,000.00	1	\$ 15,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 10,000.00	1	\$ 10,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 143,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 143,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 1, Bridge 2, Asset 9970, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 15,825.00	1	\$ 15,825.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 47,475.00	1	\$ 47,475.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 17,069.94	1	\$ 17,069.94	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	13	\$ 135,200.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	388	\$ 77,600.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	388	\$ 73,720.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	15	\$ 42,657.45	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	50	\$ 7,778.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	35	\$ 1,956.85	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 52,750.00	1	\$ 52,750.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 31,650.00	1	\$ 31,650.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 91,000.00	1	\$ 91,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 595,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 595,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 2, Asset 9970, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 45,000.00	1	\$ 45,000.00	
		DECK DEMOLITION	LS	\$ 9,000.00	1	\$ 9,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	13	\$ 123,500.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	388	\$ 97,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	388	\$ 58,200.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	15	\$ 18,750.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	50	\$ 3,400.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	35	\$ 1,225.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 78,000.00	1	\$ 78,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 530,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 530,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 1, Bridge 3, Asset 9736, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 15,825.00	1	\$ 15,825.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 52,750.00	1	\$ 52,750.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 9,483.30	1	\$ 9,483.30	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	6	\$ 62,400.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	200	\$ 40,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	200	\$ 38,000.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	6	\$ 17,062.98	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	50	\$ 7,778.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	23	\$ 1,285.93	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 52,750.00	1	\$ 52,750.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 31,650.00	1	\$ 31,650.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 48,000.00	1	\$ 48,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 377,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 377,000.00	

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\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 3, Asset 9736, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 5,000.00	1	\$ 5,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	6	\$ 57,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	200	\$ 50,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	200	\$ 30,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	6	\$ 7,500.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	50	\$ 3,400.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	23	\$ 805.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 40,000.00	1	\$ 40,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 339,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 339,000.00	

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FY2025 ESTIMATE							
Segment 1, Bridge 4, Asset 9571, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 3,165.00	1	\$ 3,165.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 1,055.00	1	\$ 1,055.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 1,896.66	1	\$ 1,896.66	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	2	\$ 20,800.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	60	\$ 12,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	60	\$ 11,400.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	1	\$ 2,843.83	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	10	\$ 1,555.60	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	9	\$ 503.19	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 10,550.00	1	\$ 10,550.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 5,275.00	1	\$ 5,275.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 9,000.00	1	\$ 9,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 81,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 81,000.00	

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FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 4, Asset 9571, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 3,000.00	1	\$ 3,000.00	
		ROUGH GRADING	LS	\$ 1,000.00	1	\$ 1,000.00	
		DECK DEMOLITION	LS	\$ 1,000.00	1	\$ 1,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	2	\$ 19,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	60	\$ 15,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	60	\$ 9,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	1	\$ 1,250.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	10	\$ 680.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	9	\$ 315.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 10,000.00	1	\$ 10,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 5,000.00	1	\$ 5,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 8,000.00	1	\$ 8,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 74,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 74,000.00	

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FY2025 ESTIMATE							
Segment 1, Bridge 6, Asset 9435, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 15,825.00	1	\$ 15,825.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 5,275.00	1	\$ 5,275.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 3,793.32	1	\$ 3,793.32	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	3	\$ 31,200.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	102	\$ 20,400.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	102	\$ 19,380.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	8	\$ 22,750.64	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	25	\$ 3,889.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	26	\$ 1,453.66	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 3,692.50	1	\$ 3,692.50	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 2,110.00	1	\$ 2,110.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 17,000.00	1	\$ 17,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 147,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 147,000.00	

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FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 6, Asset 9435, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 5,000.00	1	\$ 5,000.00	
		DECK DEMOLITION	LS	\$ 2,000.00	1	\$ 2,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	3	\$ 28,500.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	102	\$ 25,500.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	102	\$ 15,300.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	8	\$ 10,000.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	25	\$ 1,700.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	26	\$ 910.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 3,500.00	1	\$ 3,500.00	
		DISPOSAL OF MATERIAL	LS	\$ 2,000.00	1	\$ 2,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 14,000.00	1	\$ 14,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 124,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 124,000.00	

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FY2025 ESTIMATE							
Segment 1, Bridge 7, Asset 9430, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 10,550.00	1	\$ 10,550.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 5,275.00	1	\$ 5,275.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 13,276.62	1	\$ 13,276.62	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	10	\$ 104,000.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	304	\$ 60,800.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	304	\$ 57,760.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	4	\$ 11,375.32	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	8	\$ 1,244.48	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	18	\$ 1,006.38	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 15,825.00	1	\$ 15,825.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 8,440.00	1	\$ 8,440.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 57,000.00	1	\$ 57,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 347,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 347,000.00	

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FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 7, Asset 9430, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 10,000.00	1	\$ 10,000.00	
		ROUGH GRADING	LS	\$ 5,000.00	1	\$ 5,000.00	
		DECK DEMOLITION	LS	\$ 7,000.00	1	\$ 7,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	10	\$ 95,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	304	\$ 76,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	304	\$ 45,600.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	4	\$ 5,000.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	8	\$ 544.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	18	\$ 630.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 15,000.00	1	\$ 15,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 8,000.00	1	\$ 8,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 53,000.00	1	\$ 53,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 321,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 321,000.00	

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FY2025 ESTIMATE							
Segment 1, Bridge 12, Asset 9736, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 75,900.00	1	\$ 75,900.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 26,553.24	1	\$ 26,553.24	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	21	\$ 218,400.00	
25001	504SD20-0012	PEDESTRIAN RAIL (NS HANDRAIL)	LF	\$ 200.00	640	\$ 128,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE (NS PEDESTRIAN FENCE)	LF	\$ 190.00	640	\$ 121,600.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,843.83	4	\$ 11,375.32	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 155.56	8	\$ 1,244.48	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 55.91	18	\$ 1,006.38	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 42,200.00	1	\$ 42,200.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 25,300.00	1	\$ 25,300.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 132,000.00	1	\$ 132,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 809,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 809,000.00	

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FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 1, Bridge 12, Asset 9736, Sheandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 45,000.00	1	\$ 45,000.00	
		DECK DEMOLITION	LS	\$ 14,000.00	1	\$ 14,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	21	\$ 199,500.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	640	\$ 160,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	640	\$ 96,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	4	\$ 5,000.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	8	\$ 544.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	18	\$ 630.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 25,000.00	1	\$ 25,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 15,000.00	1	\$ 15,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 131,000.00	1	\$ 131,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 707,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 707,000.00	

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## TRAILHEAD CONSTRUCTION ESTIMATES

Trailhead	Location	Estimate Cost Range	Low Cost	High Cost	High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$ 3,600,000.00	\$ 5,000,000.00	\$ 8,430,000.00	Segment 1	\$ 9,885,000.00
Memorial Park	Town of Timberville	\$24K - \$26K	\$ 24,000.00	\$ 26,000.00	\$ 45,000.00	Segment 1	
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$ 200,000.00	\$ 300,000.00	\$ 510,000.00	Segment 1	
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$ 300,000.00	\$ 500,000.00	\$ 845,000.00	Segment 1	
Village Lane	Town of Quicksburg	\$26K - \$30K	\$ 26,000.00	\$ 30,000.00	\$ 55,000.00	Segment 1	
Town Hall	Town of Mount Jackson	-			\$ -	Segment 2	\$ 2,030,000.00
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 2	
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 2	
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$ 1,300,000.00	\$ 1,800,000.00	\$ 3,035,000.00	Segment 3	\$ 3,035,000.00
Fisher's Hill / Strasburg Museum	Town of Strasburg	\$0.4M - \$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 5	\$ 1,015,000.00
Town Park	Town of Strasburg	-			\$ -	Segment 6	\$ 8,595,000.00
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$ 700,000.00	\$ 1,000,000.00	\$ 1,690,000.00	Segment 6	
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$ 3,000,000.00	\$ 3,800,000.00	\$ 6,405,000.00	Segment 6	
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$ 4,000,000.00	\$ 5,100,000.00	\$ 8,595,000.00	Segment 6	

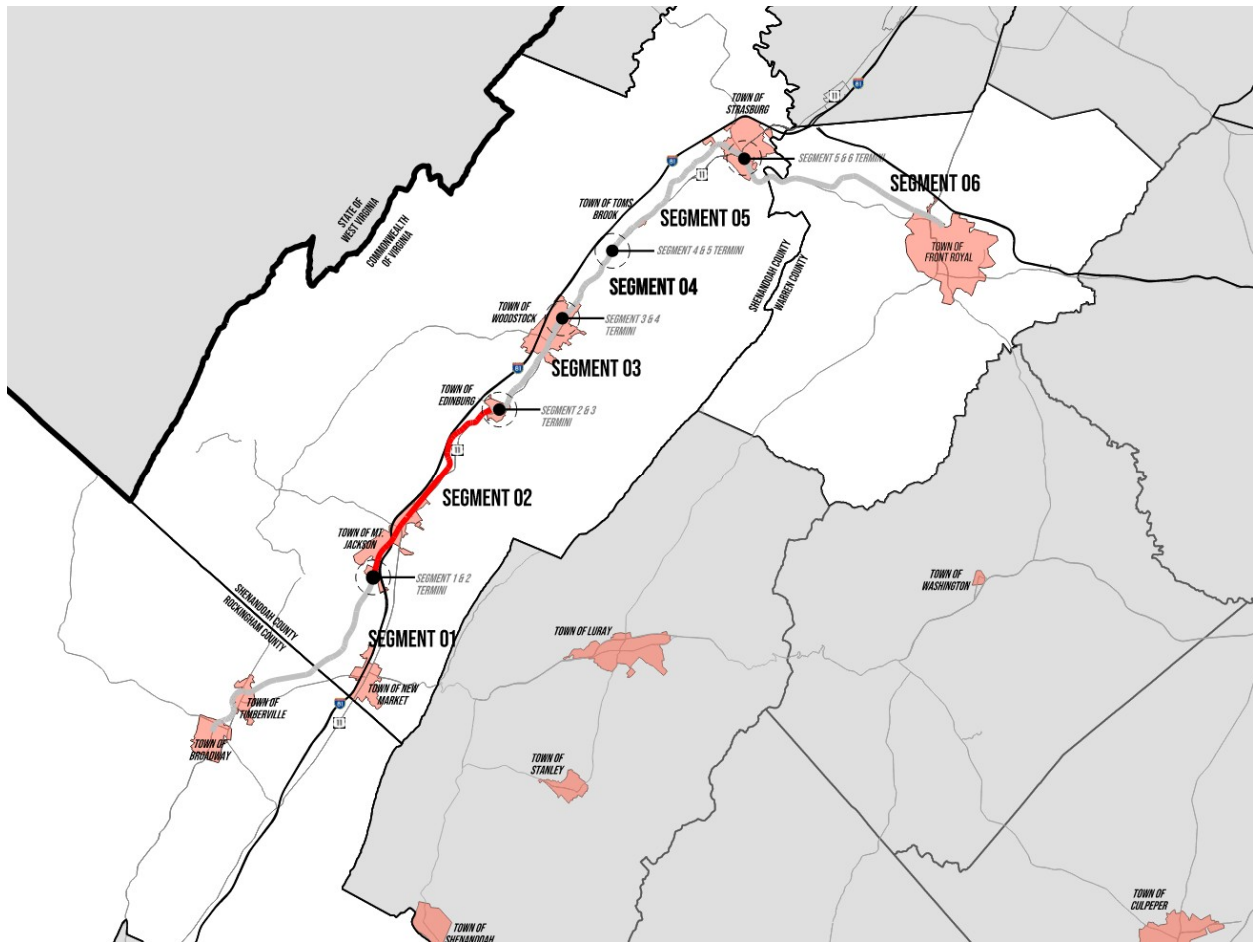
**Please note that this does NOT include right-of-way costs**

# Shenandoah Valley

## Rail-with-Trail

### Segment 02

#### Cost Estimate





# Shenandoah Valley Rail-to-Trail (Segment 2)

## Features and Characteristics

<b>Length</b>	9.8 Miles
<b>Termini</b>	Cavern Road in Shenandoah County and Stony Creek Boulevard in the Town of Edinburg
<b>Jurisdictions</b>	Shenandoah County Town of Mount Jackson Town of Hawkinstown Town of Bowmans Crossing Town of Edinburg
<b>Trail Alignment Height</b>	4' from natural grade
<b>Recommended Trailheads</b>	3 Trailheads

## Total Cost Summary for Trail Alignment (Segment 2)

<b>Segment</b>	Segment 2
<b>Length</b>	9.8 Miles
	<b>Cost (FY 2025)</b>
<b>Trail Construction Cost</b>	\$ 15,594,200.00
<b>Bridge Constuction Cost</b>	\$ 4,477,000.00
<b>Rail Removal Cost</b>	\$ 3,421,000.00
<b>Trailhead Cost</b>	\$ 2,030,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ -
<b>Preliminary Engineering Costs</b>	\$ 3,462,500.00
	<i>Trail</i> \$ 1,949,040.00
	<i>Bridge</i> \$ 423,460.00
	<i>Rail Removal</i> \$ 684,000.00
	<i>Trailheads</i> \$ 406,000.00
<b>\$28,985,000.00</b>	

## Itemized Bridge Construction Cost Summary (Segment 2)

BRIDGE NO.	ASSET NO.	COST (FY 2025)
1	8790	\$70,807.00
2	8763	\$ 51,000.00
3	8627	\$ 980,000.00
4	8620	\$ 115,000.00
5	8452	\$ 39,000.00
6	8438	\$ 42,300.00
7	7902	\$ 890,000.00
<b>Sub-Total Construction Cost</b>		<b>\$ 2,117,300.00</b>
<b>Mobilization (Structures)</b>		\$ 135,865.00
<b>Unaccounted Items</b>	20%	\$ 423,460.00
<b>Remote Location Factor</b>	15%	\$ 317,595.00
<b>CE&amp;I</b>	20%	\$ 423,460.00
<b>Contingency</b>	50%	\$ 1,058,650.00
<b>Design Engineering*</b>	20%	\$ 423,460.00
<b>Total Bridge Construction Cost</b>		<b>\$4,477,000.00</b>

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$483,940.98	\$ 483,940.98
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 181,576.39
MOBILIZATION SUB-TOTAL						\$ 665,517.37

		Roadway Items				
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	27,119	\$ 50.43	\$ 1,367,611.17
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	4,115	\$ 85.00	\$ 349,775.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	89	\$ 130.00	\$ 11,555.56
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	64	\$ 580.34	\$ 37,141.76
					ROADWAY SUB-TOTAL	\$ 1,766,083.49

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Structures/Bridges Items							
22643	507SD20-0005		FENCE FE-CL	LF	2,500	\$ 62.44	\$ 156,100.00
STRUCTURES/BRIDGES SUB-TOTAL							\$ 156,100.00

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -

MAJOR ITEMS SUBTOTAL		\$8,121,000
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Preliminary Engineering						
		Preliminary Engineering	LS	1	20%	\$1,949,040
Total Preliminary Engineering Phase (in FY2025 Dollars)						\$1,949,040

FY2025 ESTIMATE							
Segment 2, Structure 1, Asset 8763, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 4,300.00	1	\$ 4,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 8,500.00	1	\$ 8,500.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 422.00	47	\$ 19,834.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 253.00	47	\$ 11,891.00	
		SELECT BACKFILL	CY	\$ 2,200.00	1	\$ 2,200.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 3,400.00	1	\$ 3,400.00	
SUBTOTAL FOR ALL ITEMS						\$ 51,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 51,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 2, Structure 1, Asset 8763, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 2,500.00	1	\$ 2,500.00	
		ROUGH GRADING	LS	\$ 5,000.00	1	\$ 5,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	47	\$ 11,750.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	47	\$ 7,050.00	
		SELECT BACKFILL	CY	\$ 1,250.00	1	\$ 1,250.00	
		DISPOSAL OF MATERIAL	LS	\$ 2,000.00	1	\$ 2,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 30,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 30,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE						
Segment 2, Structure 2, Asset 8627, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL
Old	New					
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 16,900.00	1	\$ 16,900.00
00125	303SD20-0004	ROUGH GRADING	LS	\$ 8,500.00	1	\$ 8,500.00
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 35,755.68	1	\$ 35,755.68
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	29	\$ 301,600.00
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 200.00	870	\$ 174,000.00
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 190.00	870	\$ 165,300.00
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,300.00	6	\$ 13,800.00
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 160.00	8	\$ 1,280.00
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 130.00	23	\$ 2,990.00
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 25,300.00	1	\$ 25,300.00
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 33,800.00	1	\$ 33,800.00
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 200,000.00	1	\$ 200,000.00
SUBTOTAL FOR ALL ITEMS						\$ 980,000.00
TOTAL ESTIMATED CONSTRUCTION COST						\$ 980,000.00

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE						
Segment 2, Structure 2, Asset 8627, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL
Old	New					
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 10,000.00	1	\$ 10,000.00
		ROUGH GRADING	LS	\$ 5,000.00	1	\$ 5,000.00
		DECK DEMOLITION	LS	\$ 20,000.00	1	\$ 20,000.00
		LUMBER, TREATED *	MFBM	\$ 9,500.00	29	\$ 275,500.00
		PEDESTRIAN RAIL	LF	\$ 250.00	870	\$ 217,500.00
		PEDESTRIAN FENCE	LF	\$ 150.00	870	\$ 130,500.00
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	6	\$ 7,500.00
		CRACK REPAIR TYPE B	LF	\$ 68.00	8	\$ 544.00
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	23	\$ 805.00
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 15,000.00	1	\$ 15,000.00
		DISPOSAL OF MATERIAL	LS	\$ 20,000.00	1	\$ 20,000.00
		RECOAT EXISTING STRUCTURE **	LS	\$ 359,000.00	1	\$ 359,000.00
SUBTOTAL FOR ALL ITEMS						\$ 1,062,000.00
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,062,000.00

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 2, Structure 3, Asset 8620, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 5,100.00	1	\$ 5,100.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 4,300.00	1	\$ 4,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 1,787.78	1	\$ 1,787.78	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	2	\$ 20,800.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 200.00	62	\$ 12,400.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 190.00	62	\$ 11,780.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,300.00	1	\$ 2,300.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 160.00	10	\$ 1,600.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 130.00	9	\$ 1,170.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 8,500.00	1	\$ 8,500.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 4,300.00	1	\$ 4,300.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 40,000.00	1	\$ 40,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 115,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 115,000.00	

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\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 2, Structure 3, Asset 8620, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 3,000.00	1	\$ 3,000.00	
		ROUGH GRADING	LS	\$ 2,500.00	1	\$ 2,500.00	
		DECK DEMOLITION	LS	\$ 1,000.00	1	\$ 1,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	2	\$ 19,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	62	\$ 15,500.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	62	\$ 9,300.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	1	\$ 1,250.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	10	\$ 680.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	9	\$ 315.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 5,000.00	1	\$ 5,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 2,500.00	1	\$ 2,500.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 8,000.00	1	\$ 8,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 69,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 69,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE						
Segment 2, Structure 4, Asset 8452, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL
Old	New					
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 5,100.00	1	\$ 5,100.00
00125	303SD20-0004	ROUGH GRADING	LS	\$ 4,300.00	1	\$ 4,300.00
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 422.00	54	\$ 22,788.00
		SELECT BACKFILL	CY	\$ 2,200.00	1	\$ 2,200.00
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 200.00	10	\$ 2,000.00
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 2,200.00	1	\$ 2,200.00
SUBTOTAL FOR ALL ITEMS						\$ 39,000.00
TOTAL ESTIMATED CONSTRUCTION COST						\$ 39,000.00

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE						
Segment 2, Structure 4, Asset 8452, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL
Old	New					
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 3,000.00	1	\$ 3,000.00
		ROUGH GRADING	LS	\$ 2,500.00	1	\$ 2,500.00
		PEDESTRIAN RAIL	LF	\$ 250.00	54	\$ 13,500.00
		SELECT BACKFILL	CY	\$ 1,250.00	1	\$ 1,250.00
		CRACK REPAIR TYPE B	LF	\$ 68.00	10	\$ 680.00
		DISPOSAL OF MATERIAL	LS	\$ 1,250.00	1	\$ 1,250.00
SUBTOTAL FOR ALL ITEMS						\$ 23,000.00
TOTAL ESTIMATED CONSTRUCTION COST						\$ 23,000.00

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.



FY2025 ESTIMATE							
Segment 2, Structure 6, Asset 7902, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING***	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING ***	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 28,604.54	1	\$ 28,604.54	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	25	\$ 260,000.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 200.00	770	\$ 154,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 190.00	770	\$ 146,300.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,300.00	1	\$ 2,300.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 160.00	50	\$ 8,000.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY ***	LS	\$ 101,200.00	1	\$ 101,200.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL ***	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE ***	LS	\$ 28,604.54	1	\$ 28,604.54	
SUBTOTAL FOR ALL ITEMS						\$ 890,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 890,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 2, Structure 6, Asset 7902, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 16,000.00	1	\$ 16,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	25	\$ 237,500.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	770	\$ 192,500.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	770	\$ 115,500.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	1	\$ 1,250.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	50	\$ 3,400.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 60,000.00	1	\$ 60,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 166,000.00	1	\$ 166,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 888,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 888,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

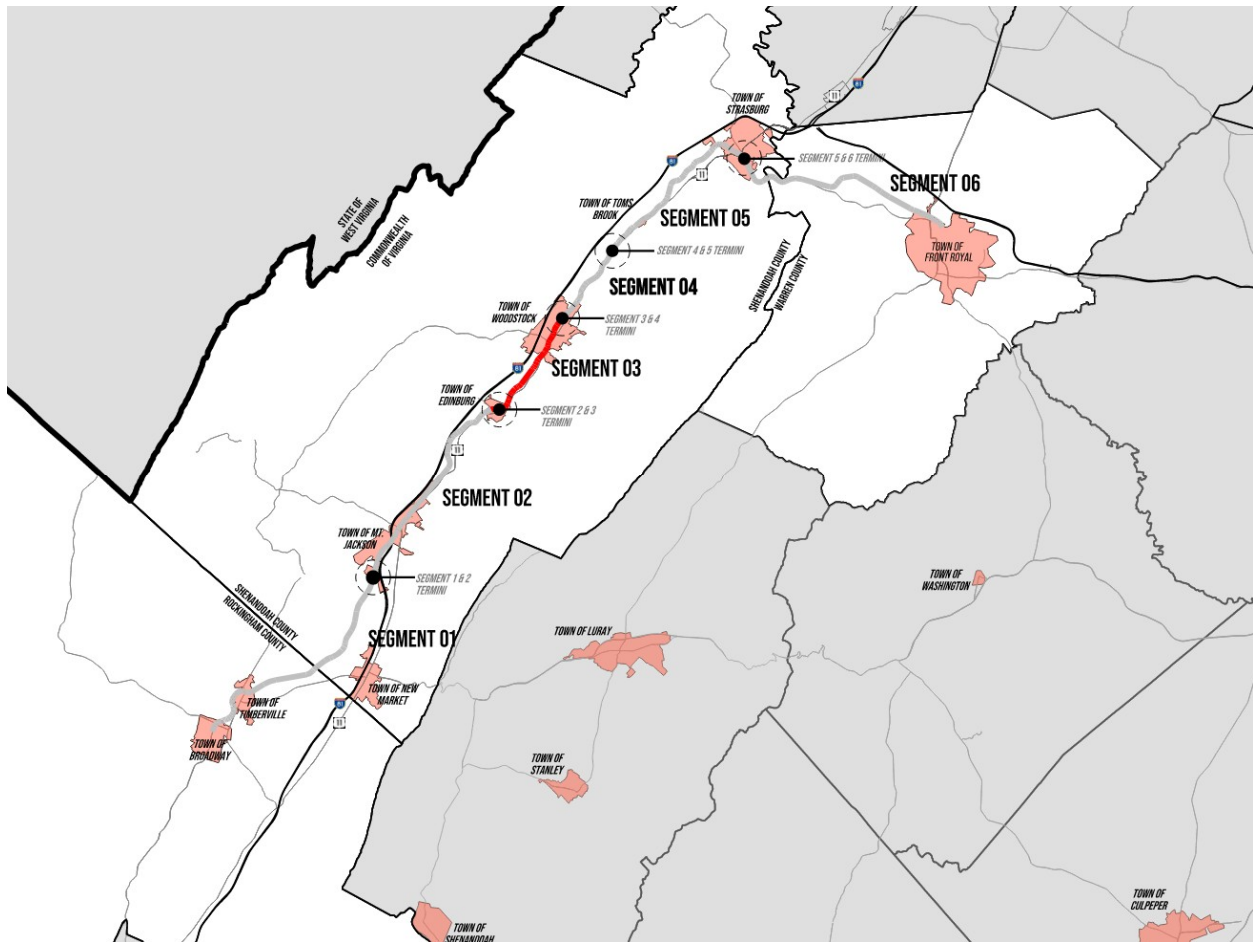


# Shenandoah Valley

## Rail-with-Trail

### Segment 03

#### Cost Estimate



# Shenandoah Valley Rail-to-Trail (Segment 3)

## Features and Characteristics

<b>Length</b>	5.5 Miles
<b>Termini</b>	Stony Creek Boulevard in the Town of Edinburg and Court Square in the Town of Woodstock
<b>Jurisdictions</b>	Shenandoah County Town of Edinburg Town of Willow Grove Town of Woodstock
<b>Trail Alignment Height</b>	At Natural Grade
<b>Recommended Trailheads</b>	1 Trailhead

## Total Cost Summary for Trail Alignment (Segment 3)

<b>Segment</b>	Segment 3
<b>Length</b>	5.5 Miles
	<b>Cost (FY 2025)</b>
<b>Trail Construction Cost</b>	\$ 6,934,200.00
<b>Bridge Constuction Cost</b>	\$ 5,410,000.00
<b>Rail Removal Cost</b>	\$ 1,972,000.00
<b>Trailhead Cost</b>	\$ 3,035,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ -
<b>Preliminary Engineering Costs</b>	\$ 2,379,240.00
<i>Trail</i>	\$ 866,640.00
<i>Bridge</i>	\$ 511,600.00
<i>Rail Removal</i>	\$ 394,000.00
<i>Trailheads</i>	\$ 607,000.00
	<b>\$ 19,730,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 3)

BRIDGE NO.	ASSET NO.		COST (FY 2025)
1	7860	\$	136,200.00
2	7643	\$	2,558,000.00
3	7500	\$	46,800.00
4	7400	\$	136,200.00
<b>Sub-Total Construction Cost</b>		<b>\$</b>	<b>2,558,000.00</b>
<b>Mobilization (Structures)</b>		\$	157,900.00
<b>Unaccounted Items</b>	20%	\$	511,600.00
<b>Remote Location Factor</b>	15%	\$	383,700.00
<b>CE&amp;I</b>	20%	\$	511,600.00
<b>Contingency</b>	50%	\$	1,279,000.00
<b>Design Engineering</b>	20%	\$	511,600.00
<b>Total Bridge Construction Cost (Segment 3)</b>		<b>\$</b>	<b>5,410,000.00</b>

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$231,053.14	\$ 231,053.14
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 80,421.26
MOBILIZATION SUB-TOTAL						\$ 311,474.40

Roadway Items						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	12,400	\$ 50.43	\$ 625,321.91
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	2,430	\$ 85.00	\$ 206,550.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	62	\$ 130.00	\$ 8,088.89
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	45	\$ 580.34	\$ 25,999.23
					<b>ROADWAY SUB-TOTAL</b>	<b>\$ 865,960.03</b>

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Structures/Bridges Items						
22643	507SD20-0005		FENCE FE-CL	LF	2,000	\$ 62.44 \$ 124,880.00
STRUCTURES/BRIDGES SUB-TOTAL						\$ 124,880.00

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -

MAJOR ITEMS SUBTOTAL						\$3,611,000
Construction Totals						
		Unaccounted for Items (20%)	LS	1	20%	\$ 722,200.00
Construction Contract Total						\$ 4,333,200.00
		Construction Contingency (35%)	LS	1	35%	\$ 1,517,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 217,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 867,000.00
Total Construction Phase (in FY2025 Dollars)						\$ 6,934,200.00

<b>Preliminary Engineering</b>						
		Preliminary Engineering	LS	1	20%	\$866,640
<b>Total Preliminary Engineering Phase (in FY2025 Dollars)</b>						<b>\$866,640</b>

FY2025 ESTIMATE							
Segment 3, Structure 1, Asset 7643, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 75,900.00	1	\$ 75,900.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 3,471.43	1	\$ 3,471.43	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	42	\$ 676,200.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 430.00	1280	\$ 550,400.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 260.00	1280	\$ 332,800.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,110.00	15	\$ 31,650.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 120.00	50	\$ 6,000.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 60.00	35	\$ 2,100.00	
		REPOINT MORTAR JOINTS	SF	\$ 640.00	39	\$ 24,960.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 84,300.00	1	\$ 84,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
		BACKFILL EROSION REPAIR	CY	\$ 2,200.00	3	\$ 6,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 687,600.00	1	\$ 687,600.00	
SUBTOTAL FOR ALL ITEMS						\$ 2,558,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 2,558,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 3, Structure 1, Asset 7643, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 45,000.00	1	\$ 45,000.00	
		DECK DEMOLITION	LS	\$ 30,000.00	1	\$ 30,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	42	\$ 399,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	1280	\$ 320,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	1280	\$ 192,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	15	\$ 18,750.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	50	\$ 3,400.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	35	\$ 1,225.00	
		REPOINT MORTAR JOINTS	SF	\$ 375.00	39	\$ 14,625.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		BACKFILL EROSION REPAIR	CY	\$ 1,250.00	3	\$ 3,750.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 408,000.00	1	\$ 408,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,531,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,531,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.



TRAILHEAD CONSTRUCTION ESTIMATES									
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3
Fisher's Hill / Strasburg Museum	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5
Town Park	Town of Strasburg	-					\$	-	Segment 6
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6
Please note that this does NOT include right-of-way costs									

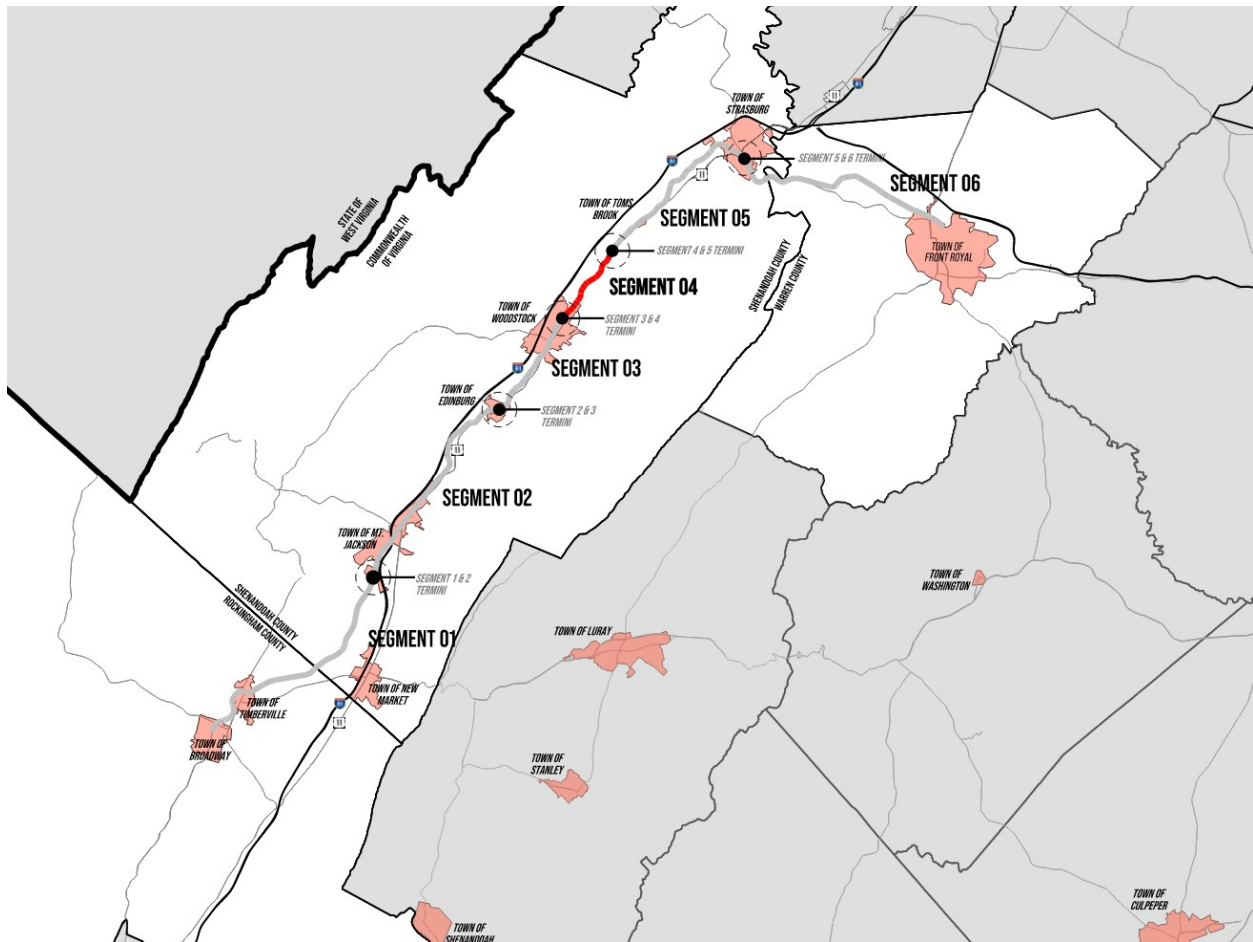
**Note: Segment 6 using preferred trailhead cost of Previous VFW Site only**

# Shenandoah Valley

## Rail-with-Trail

### Segment 04

Cost Estimate



# Shenandoah Valley Rail-to-Trail (Segment 4)

## Features and Characteristics

<b>Length</b>	5.5 Miles
<b>Termini</b>	Court Square in the Town of Woodstock and Brook Creek Road in the Town of Toms Brook
<b>Jurisdictions</b>	Shenandoah County Town of Woodstock Town of Mauretown Town of Toms Brook
<b>Trail Alignment Height</b>	N/A
<b>Recommended Trailheads</b>	0 Trailheads

## Total Cost Summary for Trail Alignment (Segment 4)

<b>Segment</b>	Segment 4
<b>Length</b>	5.5 Miles
	<b>Cost (FY 2025)</b>
<b>Trail Construction Cost</b>	\$ 6,837,000.00
<b>Bridge Constuction Cost</b>	\$ 3,550,000.00
<b>Rail Removal Cost</b>	\$ 1,972,000.00
<b>Trailhead Cost</b>	\$ -
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ -
<b>Preliminary Engineering Costs</b>	\$ 1,583,680.00
<i>Trail</i>	\$ 854,400.00
<i>Bridge</i>	\$ 334,880.00
<i>Rail Removal</i>	\$ 394,400.00
<i>Trailheads</i>	\$ -
	<b>\$ 13,943,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 4)

BRIDGE NO.	ASSET NO.		COST (FY 2025)
1	7164	\$	1,528,000.00
2	6858	\$	42,400.00
3	6824	\$	104,000.00
<b>Sub-Total Construction Cost</b>		<b>\$</b>	<b>1,674,400.00</b>
<b>Mobilization (Structures)</b>		\$	113,720.00
<b>Unaccounted Items</b>	20%	\$	334,880.00
<b>Remote Location Factor</b>	15%	\$	251,160.00
<b>CE&amp;I</b>	20%	\$	334,880.00
<b>Contingency</b>	50%	\$	837,200.00
<b>Design Engineering</b>	20%	\$	334,880.00
<b>Total Bridge Construction Cost (Segment 4)</b>		<b>\$</b>	<b>3,550,000.00</b>

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$228,219.50	\$ 228,219.50
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 79,287.80
MOBILIZATION SUB-TOTAL						\$ 307,507.30
Maintenance of Traffic (MOT) Items						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 96,692.44
MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL						\$ 96,692.44
Roadway Items						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	10,828	\$ 50.43	\$ 546,056.04
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	2,265	\$ 85.00	\$ 192,525.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	78	\$ 130.00	\$ 10,111.11
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	67	\$ 580.34	\$ 38,689.33
ROADWAY SUB-TOTAL						\$ 787,381.48
Hydraulics Items						
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	44,100	\$ 6.00	\$ 264,600.00
NUTRIENT CREDIT			LBS	8.08	\$ 28,300.00	\$ 220,000.00
SWM FACILITY			EA	0	\$ 70,000.00	\$ -
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	0	\$ 55.44	\$ -
DRAINAGE ALLOWANCE			LS	1	5%	\$ 134,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 134,000.00
HYDRAULICS SUB-TOTAL						\$ 752,600.00
In-Plan Utilities Items						
IN-PLAN UTILITIES SUB-TOTAL						\$ -
Traffic Items						
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	648	\$ 5.21	\$ 3,376.08
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	1,200	\$ 27.86	\$ 33,432.00
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	20	\$ 680.00	\$ 13,600.00
50108	701SD20-0001	SIGN PANEL	SF	600	\$ 51.43	\$ 30,858.00
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	700	\$ 42.71	\$ 29,897.00
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	100	\$ 606.21	\$ 60,621.00
TRAFFIC SUB-TOTAL						\$ 171,784.08
Structures/Bridges Items						
22643	507SD20-0005	FENCE FE-CL	LF	5,900	\$ 62.44	\$ 368,396.00
STRUCTURES/BRIDGES SUB-TOTAL						\$ 368,396.00
Earthwork/Materials Items						
00120	303SD20-0001	REGULAR EXCAVATION	CY	19,400	\$ 55.44	\$ 1,075,536.00
00140	305SD20-0001	BORROW EXCAVATION	CY	0	\$ 36.31	\$ -
00142	305SD20-0003	BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
EARTHWORK/MATERIALS SUB-TOTAL						\$ 1,075,536.00
Sound Wall Items						
SOUND WALL SUB-TOTAL						\$ -
Other Items						
00111	301SD20-0002	CLEARING AND GRUBBING	ACRE	0	\$ 0.00	\$ -
38953	605SX20-0013	LANDSCAPING	LS	0	\$ 0.00	\$ -
OTHER SUB-TOTAL						\$ -
MAJOR ITEMS SUBTOTAL						\$3,560,000
Construction Totals						
		Unaccounted for Items (20%)	LS	1	20%	\$ 712,000.00
		Construction Contract Total				\$ 4,272,000.00
		Construction Contingency (35%)	LS	1	35%	\$ 1,496,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 214,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 855,000.00
Total Construction Phase (in FY2025 Dollars)						\$ 6,837,000.00
Preliminary Engineering						
		Preliminary Engineering	LS	1	20%	\$854,400
Total Preliminary Engineering Phase (in FY2025 Dollars)						\$854,400

FY2025 ESTIMATE							
Segment 4, Structure 1, Asset 7164, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 31,242.83	1	\$ 31,242.83	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	26	\$ 418,600.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 430.00	780	\$ 335,400.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 260.00	780	\$ 202,800.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,110.00	2	\$ 4,220.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 120.00	50	\$ 6,000.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 84,300.00	1	\$ 84,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 284,800.00	1	\$ 284,800.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,528,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,528,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 4, Structure 1, Asset 7164, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 18,000.00	1	\$ 18,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	26	\$ 247,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	780	\$ 195,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	780	\$ 117,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	2	\$ 2,500.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	50	\$ 3,400.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 169,000.00	1	\$ 169,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 897,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 897,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 4, Structure 3, Asset 6824, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 8,500.00	1	\$ 8,500.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 4,300.00	1	\$ 4,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 1,735.71	1	\$ 1,735.71	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	2	\$ 20,800.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 200.00	59	\$ 11,800.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 190.00	59	\$ 11,210.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,300.00	2	\$ 4,600.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 160.00	30	\$ 4,800.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 130.00	13	\$ 1,690.00	
		SELECT BACKFILL	CY	\$ 2,200.00	1	\$ 2,200.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 16,900.00	1	\$ 16,900.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 8,500.00	1	\$ 8,500.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 6,800.00	1	\$ 6,800.00	
SUBTOTAL FOR ALL ITEMS						\$ 104,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 104,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 4, Structure 3, Asset 6824, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 5,000.00	1	\$ 5,000.00	
		ROUGH GRADING	LS	\$ 2,500.00	1	\$ 2,500.00	
		DECK DEMOLITION	LS	\$ 1,000.00	1	\$ 1,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	2	\$ 19,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	59	\$ 14,750.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	59	\$ 8,850.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	2	\$ 2,500.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	30	\$ 2,040.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	13	\$ 455.00	
		SELECT BACKFILL	CY	\$ 1,250.00	1	\$ 1,250.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 10,000.00	1	\$ 10,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 5,000.00	1	\$ 5,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 4,000.00	1	\$ 4,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 77,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 77,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

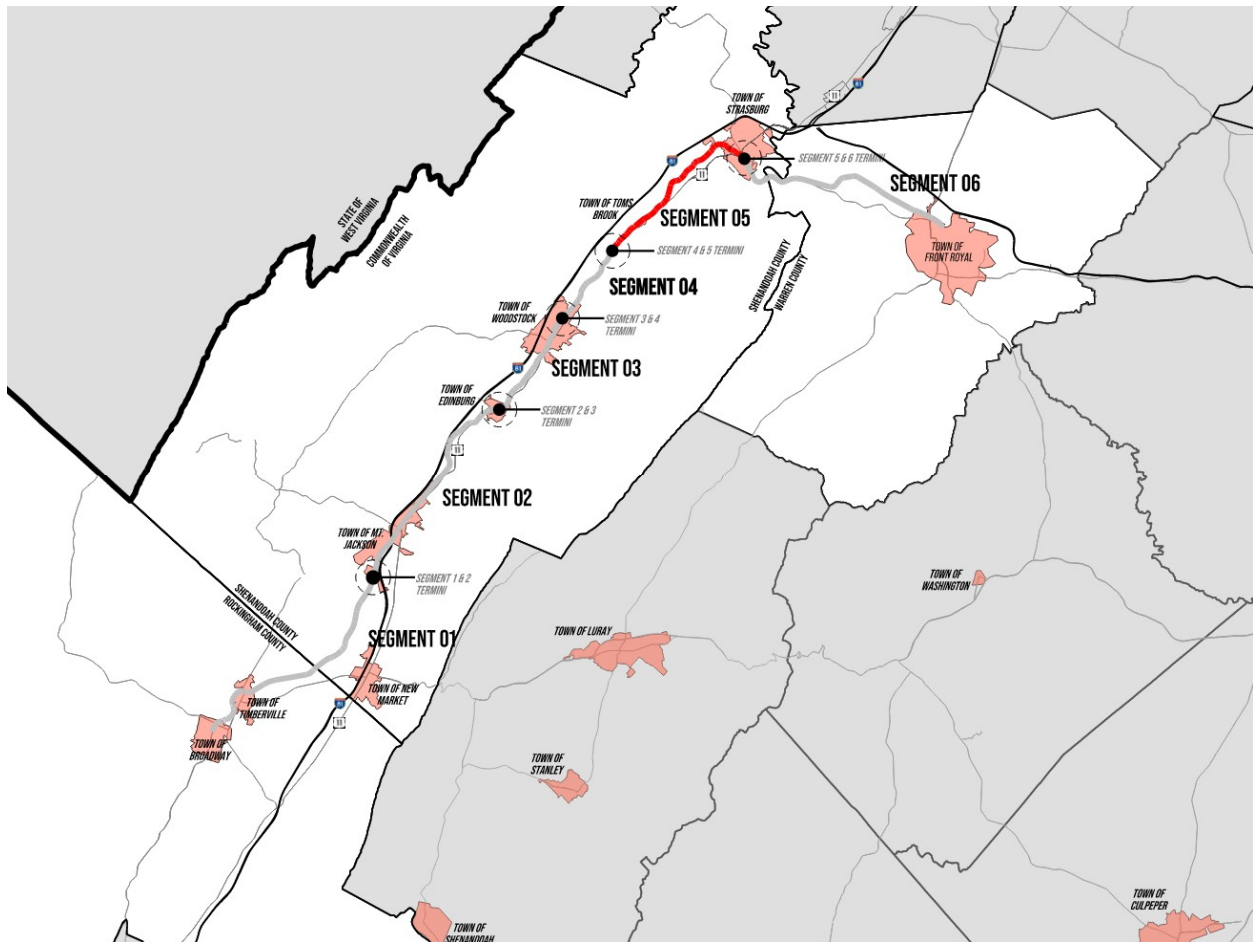


# Shenandoah Valley

## Rail-with-Trail

### Segment 05

#### Cost Estimate



# Shenandoah Valley Rail-to-Trail (Segment 5)

## Features and Characteristics

<b>Length</b>	6.8 Miles
<b>Termini</b>	Brook Creek Road in the Town of Toms Brook and the Town Museum in the Town of Strasburg
<b>Jurisdictions</b>	Shenandoah County Town of Toms Brook Town of Fishers Hill Town of Strasburg
<b>Trail Alignment Height</b>	Above grade south of the Town of Strasburg and at-grade within the Town of Strasburg
<b>Recommended Trailheads</b>	1 Trailhead

## Total Cost Summary for Trail Alignment (Segment 5)

<b>Segment</b>	Segment 5
<b>Length</b>	6.8 Miles
	<b>Cost (FY 2025)</b>
<b>Trail Construction Cost</b>	\$ 17,258,600.00
<b>Bridge Constuction Cost</b>	\$ 4,865,105.15
<b>Rail Removal Cost</b>	\$ 2,511,000.00
<b>Trailhead Cost</b>	\$ 1,015,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ -
<b>Preliminary Engineering Costs</b>	\$ 3,835,341.03
<i>Trail</i>	\$ 2,157,120.00
<i>Bridge</i>	\$ 973,021.03
<i>Rail Removal</i>	\$ 502,200.00
<i>Trailheads</i>	\$ 203,000.00
	<b>\$ 29,485,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 5)

BRIDGE NO.	ASSET NO.	COST (FY 2025)
1	6765	\$ 1,651,000.00
2	6669	\$ 476,000.00
3	6540	\$ 136,200.00
4	6391	\$ 1,237,000.00
5	6280	\$ 90,905.15
6	6148	\$ 798,000.00
7	6141	\$ 476,000.00
<b>Sub-Total Construction Cost</b>		<b>\$ 4,865,105.15</b>
<b>Mobilization (Structures)</b>		\$ 273,255.26
<b>Unaccounted Items</b>	20%	\$ 973,021.03
<b>Remote Location Factor</b>	15%	\$ 729,765.77
<b>CE&amp;I</b>	20%	\$ 973,021.03
<b>Contingency</b>	50%	\$ 2,432,552.58
<b>Design Engineering</b>	20%	\$ 973,021.03
<b>Total Bridge Construction Cost (Segment 5)</b>		<b>\$ 10,250,000.00</b>

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$532,574.40	\$ 532,574.40
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 201,029.76
MOBILIZATION SUB-TOTAL						\$ 733,604.17

		Roadway Items				
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	20,631	\$ 50.43	\$ 1,040,431.42
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	3,340	\$ 85.00	\$ 283,900.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	83	\$ 130.00	\$ 10,785.19
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	71	\$ 580.34	\$ 41,268.62
					ROADWAY SUB-TOTAL	\$ 1,376,385.22

		Hydraulics Items				
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	84,200	\$ 6.00	\$ 505,200.00
		NUTRIENT CREDIT	LBS	8.80	\$ 28,300.00	\$ 240,000.00
		SWM FACILITY	EA	0	\$ 70,000.00	\$ -
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	0	\$ 55.44	\$ -
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 354,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 354,000.00
					HYDRAULICS SUB-TOTAL	\$ 1,453,200.00

Traffic Items							
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	672	\$ 5.21	\$	3,501.12
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	2,600	\$ 27.86	\$	72,436.00
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	20	\$ 680.00	\$	13,600.00
50108	701SD20-0001	SIGN PANEL	SF	1,100	\$ 51.43	\$	56,573.00
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	1,400	\$ 42.71	\$	59,794.00
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	200	\$ 606.21	\$	121,242.00
		Pedestrian Signal Equipment	EA	1	\$ 85,000.00	\$	85,000.00
TRAFFIC SUB-TOTAL						\$	412,146.12

Structures/Bridges Items						
22643	507SD20-0005		FENCE FE-CL	LF	11,900	\$ 62.44 \$ 743,036.00
09155	610SD20-0001		GABIONS	CY	3,950	\$ 410.99 \$ 1,623,410.50
STRUCTURES/BRIDGES SUB-TOTAL						\$ 2,366,446.50

Earthwork/Materials Items							
00120	303SD20-0001		REGULAR EXCAVATION	CY	43,300	\$ 55.44	\$ 2,400,552.00
00140	305SD20-0001		BORROW EXCAVATION	CY	0	\$ 36.31	\$ -
00142	305SD20-0003		BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
EARTHWORK/MATERIALS SUB-TOTAL						\$	2,400,552.00

Other Items						
00111	301SD20-0002		CLEARING AND GRUBBING	ACRE	0	\$ 0.00 \$ -
38953	605SX20-0013		LANDSCAPING	LS	0	\$ 0.00 \$ -
OTHER SUB-TOTAL						\$ -

MAJOR ITEMS SUBTOTAL						\$8,988,000
Construction Totals						
	Unaccounted for Items (20%)	LS	1	20%	\$	1,797,600.00
Construction Contract Total					\$	10,785,600.00
	Construction Contingency (35%)	LS	1	35%	\$	3,775,000.00
	Contract Contingency (5%)	LS	1	5%	\$	540,000.00
	Construction Engineering & Inspection (20%)	LS	1	20%	\$	2,158,000.00
Total Construction Phase (in FY2025 Dollars)					\$	17,258,600.00

Preliminary Engineering					
	Preliminary Engineering	LS	1	20%	\$2,157,120
Total Preliminary Engineering Phase (in FY2025 Dollars)					\$2,157,120

FY2025 ESTIMATE							
Segment 5, Structure 1, Asset 6765, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 6,858.58	1	\$ 6,858.58	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	34	\$ 547,400.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 430.00	1040	\$ 447,200.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 260.00	1040	\$ 270,400.00	
		SELECT BACKFILL	CY	\$ 1,250.00	1	\$ 1,250.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 126,400.00	1	\$ 126,400.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 84,300.00	1	\$ 84,300.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 57,300.00	1	\$ 57,300.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,651,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,651,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 0% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 5, Structure 1, Asset 6765, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 24,000.00	1	\$ 24,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	34	\$ 323,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	1040	\$ 260,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	1040	\$ 156,000.00	
		SELECT BACKFILL	CY	\$ 1,250.00	1	\$ 1,250.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 75,000.00	1	\$ 75,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 50,000.00	1	\$ 50,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 34,000.00	1	\$ 34,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 989,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 989,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 5, Structure 2, Asset 6669, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 500.00	274	\$ 137,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 300.00	274	\$ 82,200.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 84,300.00	1	\$ 84,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 11,800.00	1	\$ 11,800.00	
SUBTOTAL FOR ALL ITEMS						\$ 476,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 476,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 5, Structure 2, Asset 6669, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	274	\$ 68,500.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	274	\$ 41,100.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		SPOT COAT EXISTING STRUCTURE **	LS	\$ 7,000.00	1	\$ 7,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 262,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 262,000.00	

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\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 5, Structure 3, Asset 6391, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 22,000.00	1	\$ 22,000.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	18	\$ 289,800.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 500.00	544	\$ 272,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 300.00	544	\$ 163,200.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 200.00	80	\$ 16,000.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 84,300.00	1	\$ 84,300.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 50,600.00	1	\$ 50,600.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 700.00	39	\$ 27,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 2,200.00	3	\$ 6,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 195,500.00	1	\$ 195,500.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,237,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,237,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 5, Structure 3, Asset 6391, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 13,000.00	1	\$ 13,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	18	\$ 171,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	544	\$ 136,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	544	\$ 81,600.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	80	\$ 5,440.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		REPOINT MORTAR JOINT	SF	\$ 375.00	39	\$ 14,625.00	
		SELECT BACKFILL	CY	\$ 1,250.00	3	\$ 3,750.00	
SUBTOTAL FOR ALL ITEMS						\$ 687,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 687,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE							
Segment 5, Structure 4, Asset 6148, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 10,200.00	1	\$ 10,200.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	8	\$ 128,800.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 500.00	230	\$ 115,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 300.00	230	\$ 69,000.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	CY	\$ 2,200.00	6	\$ 13,200.00	
		SELECT BACKFILL	SF	\$ 700.00	57	\$ 39,900.00	
		REPOINT MORTAR JOINTS	LS	\$ 311,800.00	1	\$ 311,800.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 84,300.00	1	\$ 84,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL **	LS	\$ 50,600.00	1	\$ 50,600.00	
SUBTOTAL FOR ALL ITEMS						\$ 798,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 798,000.00	

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\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 5, Structure 4, Asset 6148, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 6,000.00	1	\$ 6,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	8	\$ 76,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	230	\$ 57,500.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	230	\$ 34,500.00	
		SELECT BACKFILL	CY	\$ 1,250.00	6	\$ 7,500.00	
		REPOINT MORTAR JOINTS	SF	\$ 375.00	57	\$ 21,375.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 185,000.00	1	\$ 185,000.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 533,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 533,000.00	

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\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.



FY2025 ESTIMATE							
Segment 5, Structure 5, Asset 6141, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 5,100.00	1	\$ 5,100.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	4	\$ 64,400.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 500.00	111	\$ 55,500.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 300.00	111	\$ 33,300.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,200.00	3	\$ 6,600.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 200.00	30	\$ 6,000.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 100.00	16	\$ 1,600.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 84,300.00	1	\$ 84,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 59,000.00	1	\$ 59,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 476,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 476,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 5, Structure 5, Asset 6141, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 3,000.00	1	\$ 3,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	4	\$ 38,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	111	\$ 27,750.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	111	\$ 16,650.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	3	\$ 3,750.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	30	\$ 2,040.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	16	\$ 560.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 50,000.00	1	\$ 50,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 35,000.00	1	\$ 35,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 272,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 272,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

## TRAILHEAD CONSTRUCTION ESTIMATES

Trailhead	Location	Estimate Cost Range	Low Cost	High Cost	High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$ 3,600,000.00	\$ 5,000,000.00	\$ 8,430,000.00	Segment 1	\$ 9,885,000.00
Memorial Park	Town of Timberville	\$24K - \$26K	\$ 24,000.00	\$ 26,000.00	\$ 45,000.00	Segment 1	
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$ 200,000.00	\$ 300,000.00	\$ 510,000.00	Segment 1	
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$ 300,000.00	\$ 500,000.00	\$ 845,000.00	Segment 1	
Village Lane	Town of Quicksburg	\$26K - \$30K	\$ 26,000.00	\$ 30,000.00	\$ 55,000.00	Segment 1	
Town Hall	Town of Mount Jackson	-			\$ -	Segment 2	\$ 2,030,000.00
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 2	
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 2	
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$ 1,300,000.00	\$ 1,800,000.00	\$ 3,035,000.00	Segment 3	\$ 3,035,000.00
Fisher's Hill / Strasburg Muesuem	Town of Strasburg	\$0.4M - \$0.6M	\$ 400,000.00	\$ 600,000.00	\$ 1,015,000.00	Segment 5	\$ 1,015,000.00
Town Park	Town of Strasburg	-			\$ -	Segment 6	\$ 8,595,000.00
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$ 700,000.00	\$ 1,000,000.00	\$ 1,690,000.00	Segment 6	
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$ 3,000,000.00	\$ 3,800,000.00	\$ 6,405,000.00	Segment 6	
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$ 4,000,000.00	\$ 5,100,000.00	\$ 8,595,000.00	Segment 6	

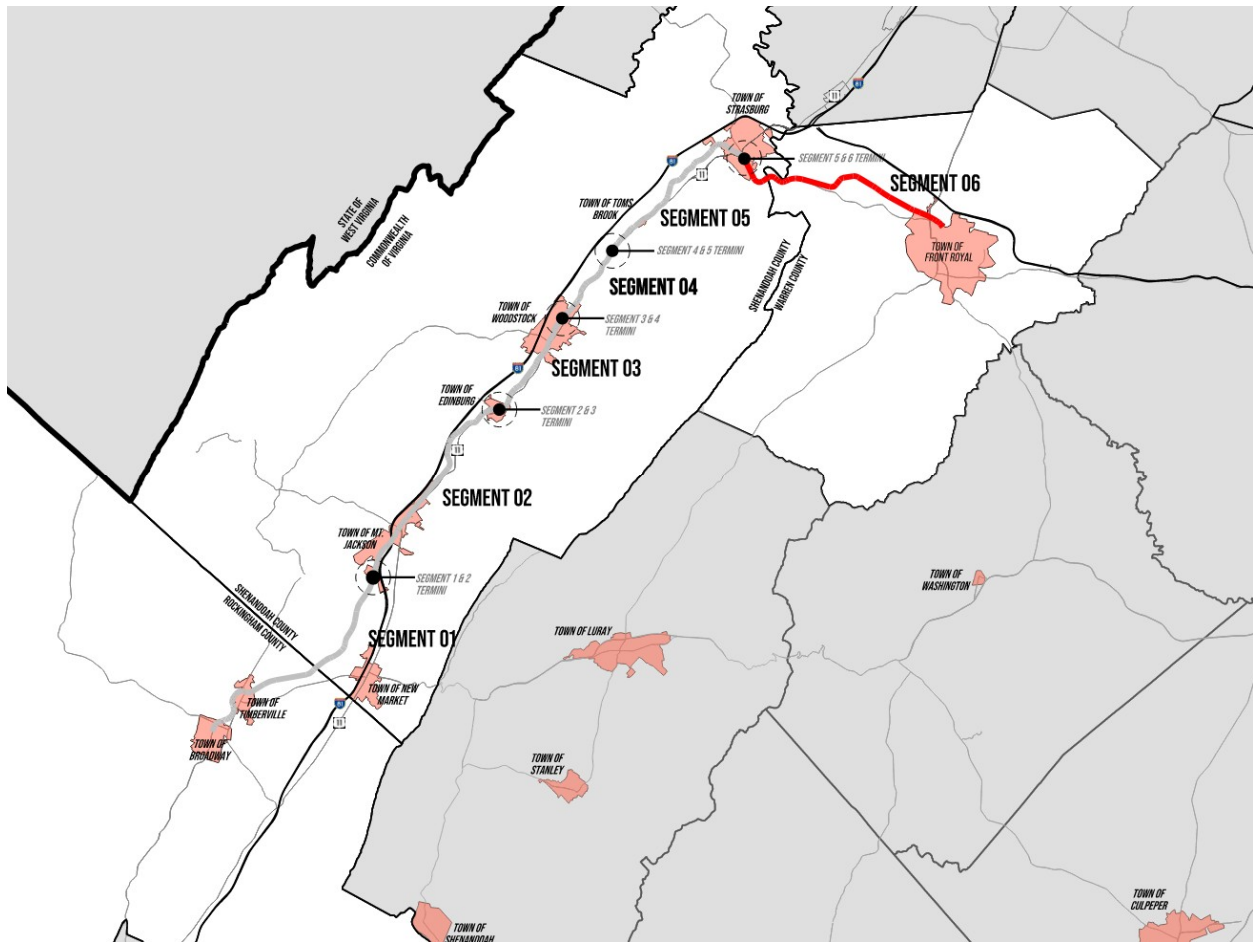
**Please note that this does NOT include right-of-way costs**

# Shenandoah Valley

## Rail-with-Trail

### Segment 06

Cost Estimate



# Shenandoah Valley Rail-to-Trail (Segment 6)

## Features and Characteristics

Length	10.6 Miles
Termini	The Town Museum in the Town of Strasburg and the east side of the South Fork of the Shenandoah River in the Town of Front Royal
Jurisdictions	Shenandoah County Warren County Town of Strasburg Town of Riverton Town of Front Royal
Trail Alignment Height	At natural grade
Recommended Trailheads	1 Preferred Trailhead (3 Additional Viable Alternatives)

## Total Cost Summary for Trail Alignment (Segment 6)

Segment	Segment 6
Length	10.6 Miles
	Cost (FY 2025)
Trail Construction Cost	\$ 14,203,400.00
Bridge Construction Costs	\$ 11,460,000.00
Rail Removal Costs	\$ 3,589,000.00
Trailheads Costs	\$ 8,595,000.00
ROW Acquisition Cost (Non Railroad Parcel)	\$ 91,000.00
Preliminary Engineering Costs	\$ 5,300,580.00
Trail	\$ 1,775,280.00
Bridge	\$ 1,088,500.00
Rail Removal	\$ 717,800.00
Trailheads	\$ 1,719,000.00
	\$ 43,239,000.00

## Itemized Bridge Construction Cost Summary (Segment 6)

BRIDGE NO.	ASSET NO.	COST (FY 2025)
1	5944	\$ 1,180,000.00
2	5791	\$ 36,000.00
3	5740	\$ 21,900.00
4	5734	\$ 25,500.00
5	5705	\$ 28,900.00
6	5695	\$ 49,800.00
7	5671	\$ 92,600.00
8	5636	\$ 61,600.00
9	5618	\$ 21,900.00
10	5612	\$ 25,500.00
11	5565	\$ 1,040,000.00
12	5523	\$ 21,900.00
13	5518	\$ 37,700.00
14	5389	\$ 32,000.00
15	5387	\$ 33,000.00
16	5382	\$ 27,500.00
17	5355	\$ 26,700.00
18	5326	\$ 41,900.00
19	5321	\$ 26,700.00
20	5320	\$ 26,700.00
21	5157	\$ 26,700.00
22	5104	\$ 2,558,000.00
Sub-Total Construction Cost		\$ 5,442,500.00

Mobilization (Structures)		\$	302,125.00
Unaccounted Items	20%	\$	1,088,500.00
Remote Location Factor	15%	\$	816,375.00
CE&I	20%	\$	1,088,500.00
Contingency	50%	\$	2,721,250.00
Design Engineering	20%	\$	1,088,500.00
Total Bridge Construction Cost (Segment 6)		\$	11,460,000.00

\* Notes:  
"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study  
Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$443,374.92	\$ 443,374.92
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 165,349.97
MOBILIZATION SUB-TOTAL						\$ 608,724.89

Maintenance of Traffic (MOT) Items						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 201,646.30
MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL						\$ 201,646.30

		Roadway Items				
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	23,279	\$ 50.43	\$ 1,173,939.80
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	4,450	\$ 85.00	\$ 378,250.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	119	\$ 130.00	\$ 15,503.70
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	102	\$ 580.34	\$ 59,323.64
					ROADWAY SUB-TOTAL	\$ 1,627,017.15

		Hydraulics Items				
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	86,600	\$ 6.00	\$ 519,600.00
		NUTRIENT CREDIT	LBS	3.903	\$ 28,300.00	\$ 120,000.00
		SWM FACILITY	EA	24	\$ 70,000.00	\$ 1,680,000.00
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	0	\$ 55.44	\$ -
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 218,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 218,000.00
					HYDRAULICS SUB-TOTAL	\$ 2,755,600.00

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Traffic Items							
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	864	\$ 5.21	\$	4,501.44
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	1,900	\$ 27.86	\$	52,934.00
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	20	\$ 680.00	\$	13,600.00
50108	701SD20-0001	SIGN PANEL	SF	800	\$ 51.43	\$	41,144.00
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	1,100	\$ 42.71	\$	46,981.00
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	200	\$ 606.21	\$	121,242.00
TRAFFIC SUB-TOTAL						\$	280,402.44

Structures/Bridges Items						
22643	507SD20-0005		FENCE FE-CL	LF	5,900	\$ 62.44 \$ 368,396.00
STRUCTURES/BRIDGES SUB-TOTAL						\$ 368,396.00

Earthwork/Materials Items							
00120	303SD20-0001		REGULAR EXCAVATION	CY	25,200	\$ 55.44	\$ 1,397,088.00
00140	305SD20-0001		BORROW EXCAVATION	CY	4350	\$ 36.31	\$ 157,948.50
00142	305SD20-0003		BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
EARTHWORK/MATERIALS SUB-TOTAL						\$	1,555,036.50

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -

Other Items						
00111	301SD20-0002		CLEARING AND GRUBBING	ACRE	0	\$ 0.00 \$ -
38953	605SX20-0013		LANDSCAPING	LS	0	\$ 0.00 \$ -
OTHER SUB-TOTAL						\$ -

MAJOR ITEMS SUBTOTAL						\$7,397,000
Construction Totals						
		Unaccounted for Items (20%)	LS	1	20%	\$ 1,479,400.00
		Construction Contract Total				\$ 8,876,400.00
		Construction Contingency (35%)	LS	1	35%	\$ 3,107,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 444,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 1,776,000.00
Total Construction Phase (in FY2025 Dollars)						\$ 14,203,400.00

<b>Preliminary Engineering</b>					
	Preliminary Engineering	LS	1	20%	\$1,775,280
<b>Total Preliminary Engineering Phase (in FY2025 Dollars)</b>					<b>\$1,775,280</b>

FY2025 ESTIMATE*							
Segment 6, Structure 1, Asset 5944, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 33,800.00	1	\$ 33,800.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	#VALUE!	1	\$ 2,000.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	32	\$ 515,200.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 430.00	600	\$ 258,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 260.00	600	\$ 156,000.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,110.00	6	\$ 12,660.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 120.00	10	\$ 1,200.00	
68180	412SD20-0017	EMBEDDED GALVANIC ANODES	EA	\$ 60.00	23	\$ 1,380.00	
		REPORINT MORTAR JOINTS	SF	\$ 640.00	140	\$ 89,600.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 42,200.00	1	\$ 42,200.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 25,300.00	1	\$ 25,300.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE *	LS	\$ 16,900.00	1	\$ 16,900.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,180,000.00	
						TOTAL ESTIMATED CONSTRUCTION COST	\$ 1,180,000.00

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 0% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 6, Structure 1, Asset 5944, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 20,000.00	1	\$ 20,000.00	
		DECK DEMOLITION	LS	\$ 2,000.00	1	\$ 2,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	32	\$ 304,000.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	600	\$ 150,000.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	600	\$ 90,000.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	6	\$ 7,500.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	10	\$ 680.00	
		EMBEDDED GALVANIC ANODES	EA	\$ 35.00	23	\$ 805.00	
		REPORINT MORTAR JOINTS	SF	\$ 375.00	140	\$ 52,500.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 25,000.00	1	\$ 25,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 15,000.00	1	\$ 15,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 10,000.00	1	\$ 10,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 693,000.00	
						TOTAL ESTIMATED CONSTRUCTION COST	\$ 693,000.00

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.



FY2025 ESTIMATE*							
Segment 6, Structure 11, Asset 5565, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 10,200.00	1	\$ 10,200.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 16,100.00	9	\$ 144,900.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 430.00	277	\$ 119,110.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 260.00	277	\$ 72,020.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,110.00	5	\$ 10,550.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 120.00	30	\$ 3,600.00	
		ABUTMENT BREASTWALL REPLACEMENT	LS	\$ 421,300.00	1	\$ 421,300.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 97,800.00	1	\$ 97,800.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,040,000.00	
						TOTAL ESTIMATED CONSTRUCTION COST	\$ 1,040,000.00

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 6, Structure 11, Asset 5565, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 6,000.00	1	\$ 6,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	9	\$ 85,500.00	
		PEDESTRIAN RAIL	LF	\$ 250.00	277	\$ 69,250.00	
		PEDESTRIAN FENCE	LF	\$ 150.00	277	\$ 41,550.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	5	\$ 6,250.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	30	\$ 2,040.00	
		ABUTMENT BREASTWALL REPLACEMENT	LS	\$ 250,000.00	1	\$ 250,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 58,000.00	1	\$ 58,000.00	
SUBTOTAL FOR ALL ITEMS						\$ 614,000.00	
						TOTAL ESTIMATED CONSTRUCTION COST	\$ 614,000.00

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

FY2025 ESTIMATE*							
Segment 6, Structure 22, Asset 5104, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION ***	UNIT	\$ /UNIT	QTY*	TOTAL	
Old	New						
00110	301SD20-0001	CLEARING & GRUBBING	LS	\$ 25,300.00	1	\$ 25,300.00	
00125	303SD20-0004	ROUGH GRADING	LS	\$ 84,300.00	1	\$ 84,300.00	
68900	413SD20-0005	DECK DEMOLITION **	LS	\$ 42,200.00	1	\$ 42,200.00	
62220	418SD20-0001	LUMBER, TREATED	MFBM	\$ 10,400.00	35	\$ 364,000.00	
25001	504SD20-0012	PEDESTRIAN RAIL	LF	\$ 200.00	1120	\$ 224,000.00	
67090	507SX20-0016	PEDESTRIAN FENCE	LF	\$ 100.00	1120	\$ 112,000.00	
		REPOINT MORTAR JOINTS	SF	\$ 700.00	45	\$ 31,500.00	
69500	412SD20-0061	CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 2,200.00	3	\$ 6,600.00	
68172	412SD20-0013	CRACK REPAIR TYPE B	LF	\$ 200.00	60	\$ 12,000.00	
68474	411SD20-0005	ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 252,800.00	1	\$ 252,800.00	
68490	411SD20-0006	DISPOSAL OF MATERIAL	LS	\$ 50,600.00	1	\$ 50,600.00	
68472	411SD20-0004	RECOAT EXISTING STRUCTURE **	LS	\$ 1,352,700.00	1	\$ 1,352,700.00	
SUBTOTAL FOR ALL ITEMS						\$ 2,558,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 2,558,000.00	

\* These quantities are unchanged from the FY2021 Feasibility Study

\*\* Refer to Bridge Calc sheet for unit costs on these line items

\*\*\* Where unnoted, default to unit costs from FY 2021 Feasibility Study incorporating assumed 68.52% inflation costs

FY2021 FEASIBILITY STUDY ESTIMATE							
Segment 6, Structure 22, Asset 5104, Shenandoah Valley Rail Trail							
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL	
Old	New						
UNPROVIDED IN FY2021 FEASIBILITY STUDY		CLEARING & GRUBBING	LS	\$ 15,000.00	1	\$ 15,000.00	
		ROUGH GRADING	LS	\$ 50,000.00	1	\$ 50,000.00	
		DECK DEMOLITION	LS	\$ 25,000.00	1	\$ 25,000.00	
		LUMBER, TREATED *	MFBM	\$ 9,500.00	35	\$ 332,500.00	
		PEDESTRIAN RAIL	LF	\$ 75.00	1120	\$ 84,000.00	
		PEDESTRIAN FENCE	LF	\$ 50.00	1120	\$ 56,000.00	
		REPOINT MORTAR JOINTS	SF	\$ 375.00	45	\$ 16,875.00	
		CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 1,250.00	3	\$ 3,750.00	
		CRACK REPAIR TYPE B	LF	\$ 68.00	60	\$ 4,080.00	
		ENVIRONMENTAL PROTECTION AND HEALTH AND SAFETY	LS	\$ 150,000.00	1	\$ 150,000.00	
		DISPOSAL OF MATERIAL	LS	\$ 30,000.00	1	\$ 30,000.00	
		RECOAT EXISTING STRUCTURE **	LS	\$ 802,678.00	1	\$ 802,678.00	
SUBTOTAL FOR ALL ITEMS						\$ 1,570,000.00	
TOTAL ESTIMATED CONSTRUCTION COST						\$ 1,570,000.00	

\* This quantity should be reviewed after the detailed inspection.

\*\* This amount should be reviewed after the detailed inspection and member dimensions are known.

TRAILHEAD CONSTRUCTION ESTIMATES									
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3
Fisher's Hill / Strasburg Muesuem	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5
Town Park	Town of Strasburg	-					\$	-	Segment 6
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6
Please note that this does NOT include right-of-way costs									

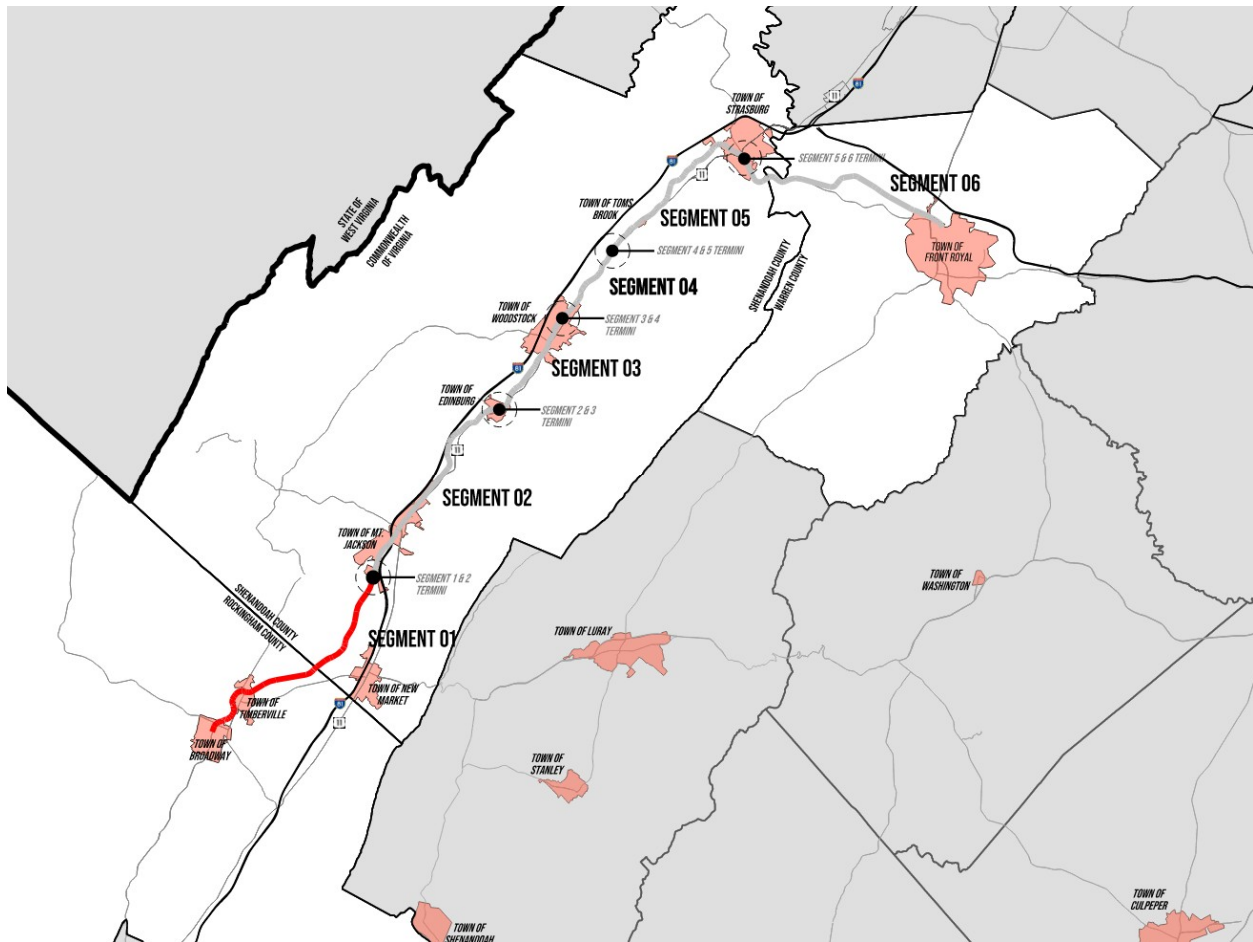
Note: Segment 6 using preferred trailhead cost of Previous VFW Site only

# Shenandoah Valley

## Rail-with-Trail

### Segment 01

#### Cost Estimate



# Shenandoah Valley Rail-with-Trail (Segment 1)

## Features and Characteristics

<b>Length</b>	11.2 Miles
<b>Termini</b>	Turner Avenue in Town of Broadway and Cavern Road in Shenandoah County
<b>Jurisdictions</b>	Rockingham County Shenandoah County Town of Broadway Town of Timberville Town of Plains Mill Town of Mt Jackson New Market Quicksburg
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	5 Trailheads

## Total Cost Summary for Trail Alignment (Segment 1)

<b>Segment</b>	Segment 1	
<b>Length</b>	11.2 Miles	
	<b>Cost Summary (FY 2025) with Cantilevers</b>	
<b>Trail Construction Cost</b>	\$	49,384,000.00
<b>Bridge Constuction Cost</b>	\$	45,410,000.00
<b>Rail Rehabilitation Cost</b>	\$	20,981,243.20
<b>Trailhead Cost</b>	\$	9,885,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$	4,121,818.38
<b>Preliminary Engineering Costs</b>	\$	16,667,852.63
<i>Trail</i>	\$	6,172,800.00
<i>Bridge</i>	\$	4,321,803.99
<i>Rail Rehabilitation</i>		\$4,196,248.64
<i>Trailheads</i>	\$	1,977,000.00
	\$	146,450,000.00

## Itemized Bridge Construction Cost Summary (Segment 1)

BRIDGE NO.	ASSET NO.	COST (FY 2025) (Cantilevers Crossings Where Feasible)		Cantilever Option Cost Savings (Compared to Seperate Structure)
1	9901	\$	1,006,505.00	
2	9770	\$	4,802,470.00	\$ (137,080.00)
3	9736	\$	3,229,315.00	
4	9571	\$	892,725.00	
5	9540	\$	81,100.00	
6	9435	\$	1,271,654.96	
7	9430	\$	3,026,390.00	
8	9286	\$	30,100.00	
9	9224	\$	43,600.00	
10	9213	\$	30,100.00	
11	9199	\$	53,300.00	
12	8984	\$	7,141,760.00	\$ (230,950.00)
<b>Sub-Total Construction Cost</b>		\$	21,609,019.96	\$ (368,030.00)
<b>Mobilization (Structures)</b>		\$	1,110,451.00	
<b>Unaccounted Items</b>	20%	\$	4,321,803.99	
<b>Remote Location Factor</b>	15%	\$	3,241,352.99	
<b>CE&amp;I</b>	20%	\$	4,321,803.99	
<b>Contingency</b>	50%	\$	10,804,509.98	
<b>Design Engineering *</b>	20%	\$	4,321,803.99	
<b>Total Bridge Construction Cost (Segment 1)</b>		\$	45,410,000.00	

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study  
Total Bridge Construction Cost does not include Design Engineering

Shenandoah Valley Rail-with-Trail Estimate - Segment 1  
Opinion of Probable Project Costs - October 2025  
Non-inflated Costs are in FY2025 Dollars using VDOT Bid Item - Unit Cost Lookup Tool

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$1,470,811.13	\$ 1,470,811.13
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 576,324.45
MOBILIZATION SUB-TOTAL						\$ 2,047,135.59

<b>Maintenance of Traffic (MOT) Items</b>						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 702,834.70
<b>MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL</b>						<b>\$ 702,834.70</b>

<b>Roadway Items</b>						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	14,419	\$ 50.43	\$ 727,167.25
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	5,821	\$ 85.00	\$ 494,827.11
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	145	\$ 130.00	\$ 18,874.07
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	124	\$ 580.34	\$ 72,220.09
<b>ROADWAY SUB-TOTAL</b>						<b>\$ 1,313,088.52</b>

<b>Hydraulics Items</b>						
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	84,200	\$ 6.00	\$ 505,200.00
		NUTRIENT CREDIT	LBS	5,31	\$ 28,300.00	\$ 160,000.00
		SWM FACILITY	EA	32	\$ 70,000.00	\$ 2,240,000.00
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	19,780	\$ 55.44	\$ 1,100,000.00
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 1,037,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 1,037,000.00
<b>HYDRAULICS SUB-TOTAL</b>						<b>\$ 6,079,200.00</b>

<b>In-Plan Utilities Items</b>						
						<b>\$ -</b>

<b>Traffic Items</b>						
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	1,104	\$ 5.21	\$ 5,751.84
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	2,217	\$ 27.86	\$ 61,765.62
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	112	\$ 680.00	\$ 76,160.00
50108	701SD20-0001	SIGN PANEL	SF	1,480	\$ 51.43	\$ 76,090.69
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	1,883	\$ 42.71	\$ 80,422.93
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	269	\$ 606.21	\$ 163,070.49
51162	703SD20-0005	FLASHING BEACON FB-2	EA	4	\$10,846.96	\$ 43,387.84
		Pedestrian Signal Equipment	EA	1	\$ 84,260.00	\$ 84,260.00
<b>TRAFFIC SUB-TOTAL</b>						<b>\$ 590,909.41</b>

<b>Structures/Bridges Items</b>						
22643	507SD20-0005	FENCE FE-CL	LF	52,338	\$ 62.44	\$ 3,267,984.72
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	22,569	\$ 77.18	\$ 1,741,839.63
13530	506SD20-0002	RETAINING WALL RW-3	CY	5,702	\$ 1328.56	\$ 7,575,813.67
<b>STRUCTURES/BRIDGES SUB-TOTAL</b>						<b>\$ 12,585,638.02</b>

<b>Earthwork/Materials Items</b>						
00120	303SD20-0001	REGULAR EXCAVATION	CY	43,300	\$ 55.44	\$ 2,400,552.00
00140	305SD20-0001	BORROW EXCAVATION	CY	0	\$ 36.31	\$ -
00142	305SD20-0003	BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
<b>EARTHWORK/MATERIALS SUB-TOTAL</b>						<b>\$ 2,400,552.00</b>

<b>Sound Wall Items</b>						
<b>SOUND WALL SUB-TOTAL</b>						<b>\$ -</b>

<b>Other Items</b>						
00111	301SD20-0002	CLEARING AND GRUBBING	ACRE	0	\$ 0.00	\$ -
38953	605SX20-0013	LANDSCAPING	LS	0	\$ 0.00	\$ -
<b>OTHER SUB-TOTAL</b>						<b>\$ -</b>

<b>MAJOR ITEMS SUBTOTAL</b>						<b>\$25,720,000</b>
<b>Construction Totals</b>						
		Unaccounted for Items (20%)	LS	1	20%	\$ 5,144,000.00
<b>Construction Contract Total</b>						<b>\$ 30,864,000.00</b>
		Construction Contingency (35%)	LS	1	35%	\$ 10,803,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 1,544,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 6,173,000.00
<b>Total Construction Phase (in FY2023 Dollars)</b>						<b>\$ 49,384,000.00</b>

<b>Preliminary Engineering</b>						
		Preliminary Engineering	LS	1	20%	\$6,172,800





## RAIL REHABILITATION FY2025 ESTIMATE

**Segment 1, CW-99.6 - CW-88.4, Shenandoah Valley Rail Trail**

Item Code		DESCRIPTION	UNIT	\$/UNIT	QTY	TOTAL
Old	New					
		Restore NS Connection Switch. Includes any nessessary legal interchange operation agreement, upgrading track structure to adhere to NS standards for interchange operations, and installing track protection device per NS standards @ Broadway	LS	\$ 500,000.00	1	\$ 500,000.00
		Track Construction Spot Rehabilitation - Level 1 (Spot cross tie replacement/disposal 42%, spot curve/defective rail replacement 132# - 10%, track surface and line, ballast and spot OTM)	LF	\$ 75.00	59136	\$ 4,435,200.00
		Replacement - Active Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 500,000.00	11	\$ 5,500,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 50,000.00	12	\$ 600,000.00
		Vegetation Removal	AC	\$ 5,000.00	81	\$ 407,272.73
		Tree Removal	AC	\$ 30,000.00	1.4	\$ 40,727.27
		Rail Scrap Value	TON	\$ (250.00)	197	\$ (49,280.00)
SUBTOTAL FOR ALL ITEMS						\$ 11,433,920.00
Mobilization and Demobilization (2.5%)						\$ 285,848.00
General Conditions and Insurance (2.5%)						\$ 285,848.00
ESPC, PCSM, & Drainage (4%)						\$ 457,356.80
Design, Engineering, Construction Inspection (20%)						\$ 2,286,784.00
50% CONTINGENCY						\$ 6,231,486.40
TOTAL ESTIMATED CONSTRUCTION COST						\$ 20,981,243.20

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	9970	Bridge	184.00	3	\$ 600.00	1840.00	\$ 1,104,000.00
2	9901	Bridge	28.00	2	\$ 1,200.00	280.00	\$ 336,000.00
3	9736	Bridge	90.00	2	\$ 1,200.00	900.00	\$ 1,080,000.00
4	9571	Bridge	19.67	1	\$ 2,000.00	196.66	\$ 393,320.00
5	9540	Culvert	41.00	2	\$ 1,200.00	410.00	\$ 492,000.00
6	9435	Bridge	40.33	2	\$ 1,200.00	403.33	\$ 483,999.96
7	9430	Bridge	140.33	3	\$ 600.00	1403.33	\$ 842,000.00
8	9286	Culvert	14.25	1	\$ 2,000.00	142.50	\$ 285,000.00
9	9224	Culvert	10.75	1	\$ 2,000.00	107.50	\$ 215,000.00
10	9213	Culvert	15.58	1	\$ 2,000.00	155.80	\$ 311,600.00
11	9199	Culvert	39.50	2	\$ 1,200.00	395.00	\$ 474,000.00
12	8984	Bridge	310.00	3	\$ 600.00	3100.00	\$ 1,860,000.00



PROJECT ASSET 9901 OVER NORTH FORK SHENANDOAH RIVER FILE NO. 0  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE 0%  
COMPUTED BY DS DATE 6/25/2025 CHECKED BY RBC DATE 6/26/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
9901			\$	670,505.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<b><u>SUPERSTRUCTURE RETROFIT ITEMS</u></b>				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	2.00	\$ 8,500.00
STRUCTURAL STEEL	LB	\$ 10.00	5824.00	\$ 58,240.00
<b><u>MISC. ITEMS</u></b>				
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1	\$ 25,275.00
ROUGH GRADING	LSUM	\$ 33,700.00	1	\$ 33,700.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 42,125.00	1	\$ 42,125.00
DISPOSAL OF MATERIAL	LSUM	\$ 25,275.00	1	\$ 25,275.00
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$ 3,240.00	28.00	\$ 148,960.00
SUBSTRUCTURE RETROFIT	EACH	\$ 193,335.00	2	\$ 386,670.00



PROJECTASSET 9770 OVER NORTH FORK SHENANDOAH RIVERFILE NO. \_\_\_\_\_

SUBJECTRAIL WITH TRAIL QUANTITIESPHASE \_\_\_\_\_

COMPUTED BYDSDATE7/7/2025CHECKED BYRBCDATE7/9/2025

ASSET NUMBER	PAY ITEM NAME				UNIT	FINAL QUANTITY	
						TOTAL	
9770						\$	3,561,390.00
COMPUTATION							QUANTITY
ITEM		UNIT		\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE							
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>							
MODIFY EXISTING BEARING		EACH	\$	4,250.00	8.00	\$	34,000.00
<u>MISC. ITEMS</u>							
CLEARING & GRUBBING		LSUM	\$	25,275.00	1.00	\$	25,275.00
ROUGH GRADING		LSUM	\$	75,825.00	1.00	\$	75,825.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY		LSUM	\$	84,250.00	1.00	\$	84,250.00
DISPOSAL OF MATERIAL		LSUM	\$	50,550.00	1.00	\$	50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)		LF	\$	4,260.00	184.00	\$	783,840.00
SUBSTRUCTURE RETROFIT		EACH	\$	501,530.00	5	\$	2,507,650.00
ADDITION OF CANTILEVER WALKWAY		LF	\$	6,745.00	184.00	\$	1,241,080.00



PROJECT     ASSET 9736 OVER HONEY RUN CREEK     FILE NO.     \_\_\_\_\_

SUBJECT     RAIL WITH TRAIL QUANTITIES     PHASE     \_\_\_\_\_

COMPUTED BY     DS     DATE     7/7/2025     CHECKED BY     RBC     DATE     7/9/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
9736				\$	2,149,315.00
COMPUTATION					QUANTITY
ITEM	UNIT		\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$	4,250.00	4.00	\$ 17,000.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$	84,250.00	1.00	\$ 84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$	84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$	50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$	4,260.00	90.00	\$ 383,400.00
SUBSTRUCTURE RETROFIT	EACH	\$	501,530.00	3	\$ 1,504,590.00



PROJECT     ASSET 9571 OVER UNNAMED DRAINAGE     FILE NO. \_\_\_\_\_  
SUBJECT     RAIL WITH TRAIL QUANTITIES     PHASE \_\_\_\_\_  
COMPUTED BY     DS     DATE     6/25/2025     CHECKED BY     RBC     DATE     6/26/2025


ASSET NUMBER	PAY ITEM NAME				UNIT	FINAL QUANTITY		
						TOTAL		
9571						\$	499,405.00	
COMPUTATION							QUANTITY	
ITEM		UNIT		\$ /UNIT		QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE								
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>								
MODIFY EXISTING BEARING		EACH	\$	4,250.00	4.00	\$		17,000.00
<u>MISC. ITEMS</u>								
CLEARING & GRUBBING		LSUM	\$	5,055.00	1	\$		5,055.00
ROUGH GRADING		LSUM	\$	1,685.00	1	\$		1,685.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY		LSUM	\$	16,850.00	1	\$		16,850.00
DISPOSAL OF MATERIAL		LSUM	\$	8,425.00	1	\$		8,425.00
SUPERSTRUCTURE RETROFIT (ASSET 6141)		LF	\$	3,240.00	19.67	\$		63,720.00
SUBSTRUCTURE RETROFIT		EACH	\$	193,335.00	2	\$	386,670.00	





PROJECT ASSET 9435 OVER UNNAMED DRAINAGE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 6/25/2025 CHECKED BY RBC DATE 6/26/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
9435				\$	787,655.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$	4,250.00	8.00	
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	25,275.00	1	
ROUGH GRADING	LSUM	\$	8,425.00	1	
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$	5,897.50	1	
DISPOSAL OF MATERIAL	LSUM	\$	3,370.00	1	
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$	3,240.00	40.33	
SUBSTRUCTURE RETROFIT	EACH	\$	193,335.00	3	

	PROJECT	ASSET 9430 OVER UNAMED DRAINAGE			FILE NO.		
	SUBJECT	RAIL WITH TRAIL QUANTITIES			PHASE		
	COMPUTED BY	DS	DATE	6/25/2025	CHECKED BY	RBC	DATE

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY
			<b>TOTAL</b>
9430		\$	2,184,390.00

COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
<b>COST TO RETROFIT FOR FREIGHT RAIL SERVICE</b>					
<b><u>SUPERSTRUCTURE RETROFIT ITEMS</u></b>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	28.00	\$	119,000.00
<b><u>MISC. ITEMS</u></b>					
CLEARING & GRUBBING	LSUM	\$ 16,850.00	1	\$	16,850.00
ROUGH GRADING	LSUM	\$ 8,425.00	1	\$	8,425.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 25,275.00	1	\$	25,275.00
DISPOSAL OF MATERIAL	LSUM	\$ 13,480.00	1	\$	13,480.00
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$ 3,240.00	140.33	\$	454,680.00
SUBSTRUCTURE RETROFIT	EACH	\$ 193,335.00	8	\$	1,546,680.00



PROJECT ASSET 8984 OVER HOLMANS CREEK & FARM ROAD FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/7/2025 CHECKED BY RBC DATE 7/9/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
8984				\$	5,050,810.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	12.00	\$	51,000.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$ 75,825.00	1.00	\$	75,825.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 42,125.00	1.00	\$	42,125.00
DISPOSAL OF MATERIAL	LSUM	\$ 25,275.00	1.00	\$	25,275.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	310.00	\$	1,320,600.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	7	\$	3,510,710.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	310.00	\$	2,090,950.00

# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 1 - October 2025

Segment 1		
	20% Uplift	80% Uplift
<b>Residential</b>		
Broadway	\$1.83	\$2.74
Timberville	\$2.26	\$3.38
New Market	\$2.58	\$3.87
Mount Jackson	\$4.02	\$6.03
<b>Average Land Value</b>	<b>\$2.67</b>	<b>\$4.01</b>
<b>Commercial</b>		
Broadway	\$2.26	\$3.39
Timberville	\$2.13	\$3.19
New Market	\$5.03	\$7.54
Mount Jackson	\$5.55	\$8.33
<b>Average Land Value</b>	<b>\$3.74</b>	<b>\$5.61</b>
<b>Agriculture/Farmland</b>		
Broadway	\$0.12	\$0.19
Timberville	\$0.17	\$0.25
New Market	\$0.15	\$0.23
Mount Jackson	\$0.11	\$0.16
<b>Average Land Value</b>	<b>\$0.14</b>	<b>\$0.21</b>
<b>Industrial</b>		
Broadway	NA	NA
Timberville	\$1.28	\$1.53
New Market	\$2.12	\$3.19
Mount Jackson	\$0.83	\$1.24
<b>Average Land Value</b>	<b>\$1.41</b>	<b>\$1.99</b>

Total Segment Length **59348.08**

Residential	
Percentage of land use	30%
LF of Affected Prop	17804.424
SF of Affected Prop	89022.12

**Total Acquired Land Value \$ 356,533.59**

Commercial	
Percentage of land use	10%
LF of Affected Prop	5934.808
SF of Affected Prop	29674.04

**Total Acquired Land Value \$ 166,545.55**

Agricultural / Farmland	
Percentage of land use	50%
LF of Affected Prop	29674.04
SF of Affected Prop	148370.2

**Total Acquired Land Value \$ 30,786.82**

Industrial	
Percentage of land use	10%
LF of Affected Prop	5934.808
SF of Affected Prop	29674.04

**Total Acquired Land Value \$ 58,952.43**

**Total Land Acquisition Cost \$ 612,818.38**

Total parcels Impacted	121
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 3,025,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 484,000.00
<b>Total ROW Cost</b>	<b>\$ 4,121,818.38</b>

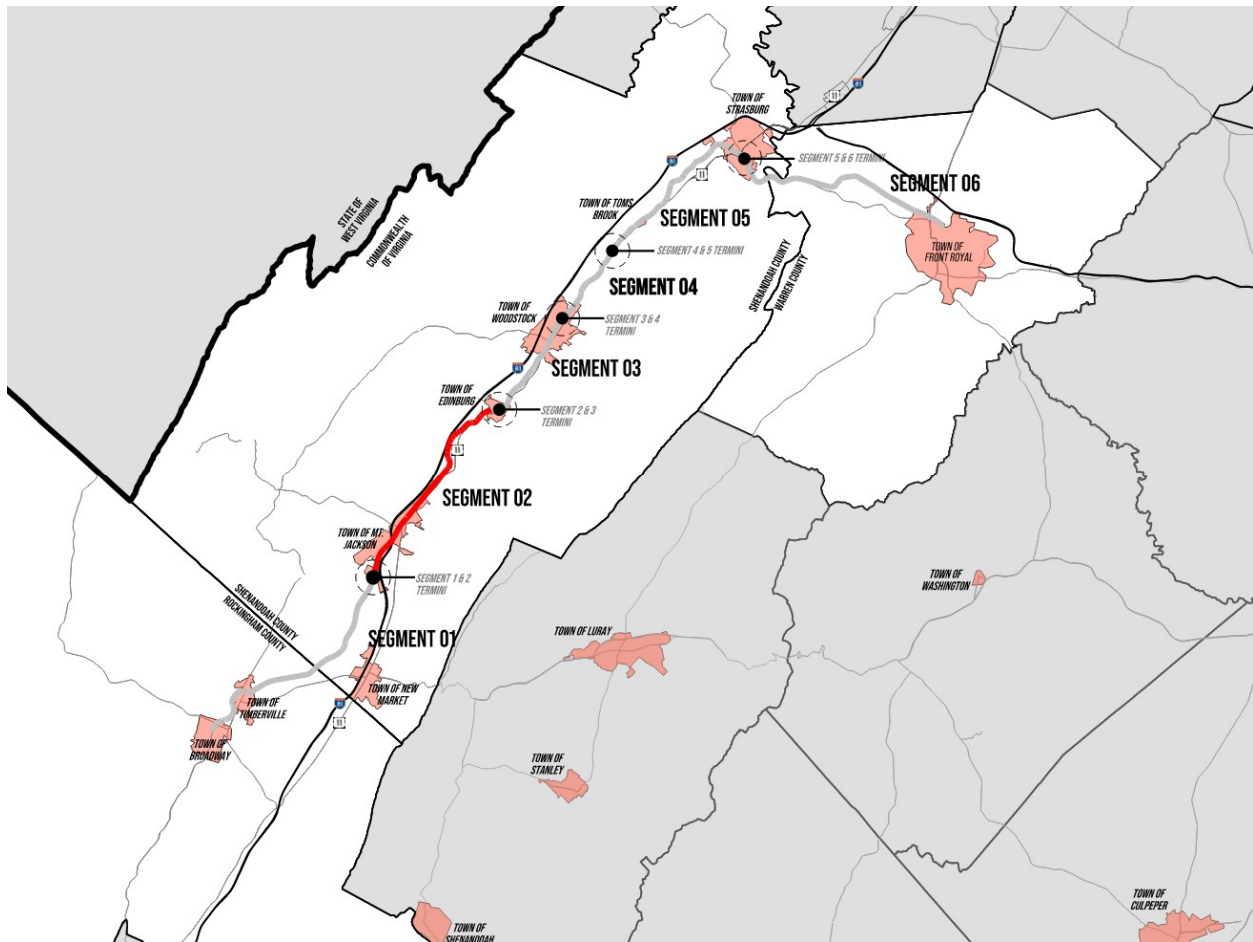
TRAILHEAD CONSTRUCTION ESTIMATES									
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3
Fisher's Hill / Strasburg Museum	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5
Town Park	Town of Strasburg	-					\$	-	Segment 6
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6
Please note that this does NOT include right-of-way costs									

# Shenandoah Valley

## Rail-with-Trail

### Segment 02

#### Cost Estimate



# Shenandoah Valley Rail-with-Trail (Segment 2)

## Features and Characteristics

<b>Length</b>	9.8 Miles
<b>Termini</b>	Cavern Road in Shenandoah County and Stony Creek Boulevard in the Town of Edinburg
<b>Jurisdictions</b>	Shenandoah County Town of Mount Jackson Town of Hawkinstown Town of Bowmans Crossing Town of Edinburg
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	3 Trailheads

## Total Cost Summary for Trail Alignment (Segment 2)

<b>Segment</b>	Segment 2
<b>Length</b>	9.8 Miles
	<b>Cost Summary (FY 2025) with Cantilevers</b>
<b>Trail Construction Cost</b>	\$ 40,110,000.00
<b>Bridge Constuction Cost</b>	\$ 36,214,000.00
<b>Rail Rehabilitation Cost</b>	\$ 30,696,379.12
<b>Trailhead Cost</b>	\$ 2,030,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ 4,251,769.12
<b>Preliminary Engineering Costs</b>	\$ 15,004,607.80
<i>Trail</i>	\$ 5,013,600.00
<i>Bridge</i>	\$ 3,446,007.80
<i>Rail Rehabilitation</i>	\$ 6,139,000.00
<i>Trailheads</i>	\$ 406,000.00
<b>\$128,307,000.00</b>	

## Itemized Bridge Construction Cost Summary (Segment 2)

BRIDGE NO.	ASSET NO.	COST (FY 2025) (Cantilevers Crossings Where Feasible)	Cantilever Option Cost Savings (Compared to Seperate Structure)
1	8790	\$ 497,175.00	
2	8763	\$ 310,130.00	
3	8627	\$ 6,792,995.00	\$ (316,625.00)
4	8620	\$ 743,035.00	
5	8452	\$ 371,314.00	
6	8438	\$ 55,600.00	
7	7902	\$ 8,459,790.00	\$ (279,375.00)
<b>Sub-Total Construction Cost</b>		<b>\$ 17,230,039.00</b>	<b>\$ (596,000.00)</b>
<b>Mobilization (Structures)</b>		\$ 891,501.95	
<b>Unaccounted Items</b>	20%	\$ 3,446,007.80	
<b>Remote Location Factor</b>	15%	\$ 2,584,505.85	
<b>CE&amp;I</b>	20%	\$ 3,446,007.80	
<b>Contingency</b>	50%	\$ 8,615,019.50	
<b>Design Engineering*</b>	20%	\$ 3,446,007.80	
<b>Total Bridge Construction Cost (Segment 2)</b>		<b>\$36,214,000.00</b>	

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

**Non-inflated Costs are in FY2025 Dollars using VDOT Bid Item - Unit Cost Lookup Tool**

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$1,199,955.51	\$ 1,199,955.51
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 467,982.20
MOBILIZATION SUB-TOTAL						\$ 1,667,937.71
Maintenance of Traffic (MOT) Items						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 570,710.00
MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL						\$ 570,710.00
Roadway Items						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	12,586	\$ 50.43	\$ 634,699.37
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	5,009	\$ 85.00	\$ 425,739.50
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	104	\$ 130.00	\$ 13,481.48
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	89	\$ 580.34	\$ 51,585.78
ROADWAY SUB-TOTAL						\$ 1,125,506.13
Hydraulics Items						
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	80,100	\$ 6.00	\$ 480,600.00
		NUTRIENT CREDIT	LBS	5	\$ 28,300.00	\$ 140,000.00
		SWM FACILITY	EA	28	\$ 70,000.00	\$ 1,960,000.00
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	17,196	\$ 55.44	\$ 953,346.24
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 709,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 709,000.00
HYDRAULICS SUB-TOTAL						\$ 4,951,946.24
In-Plan Utilities Items						
IN-PLAN UTILITIES SUB-TOTAL						\$ -
Traffic Items						
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	888	\$ 5.21	\$ 4,626.48
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	1,749	\$ 27.86	\$ 48,727.14
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	80	\$ 680.00	\$ 54,400.00
50108	701SD20-0001	SIGN PANEL	SF	1,100	\$ 51.43	\$ 56,573.00
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	1,400	\$ 42.71	\$ 59,794.00
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	200	\$ 606.21	\$ 121,242.00
51162	703SD20-0005	FLASHING BEACON FB-2	EA	2	\$10,846.96	\$ 21,693.92
TRAFFIC SUB-TOTAL						\$ 367,056.54
Structures/Bridges Items						
22643	507SD20-0005	FENCE FE-CL	LF	46,637	\$ 62.44	\$ 2,912,014.28
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	10,538	\$ 77.18	\$ 813,284.25
13530	506SD20-0002	RETAINING WALL RW-3	CY	4,296	\$ 1328.56	\$ 5,707,668.69
STRUCTURES/BRIDGES SUB-TOTAL						\$ 9,432,967.22
Earthwork/Materials Items						
00120	303SD20-0001	REGULAR EXCAVATION	CY	48,850	\$ 55.44	\$ 2,708,244.00
00140	305SD20-0001	BORROW EXCAVATION	CY	0	\$ 36.31	\$ -
00142	305SD20-0003	BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
EARTHWORK/MATERIALS SUB-TOTAL						\$ 2,708,244.00
Sound Wall Items						
SOUND WALL SUB-TOTAL						\$ -
Other Items						
00111	301SD20-0002	CLEARING AND GRUBBING	ACRE	4.40	\$ 14,700.00	\$ 64,680.00
38953	605SX20-0013	LANDSCAPING	LS	0	\$ 0.00	\$ -
OTHER SUB-TOTAL						\$ 64,680.00
MAJOR ITEMS SUBTOTAL						\$20,890,000
Construction Totals						
		Unaccounted for Items (20%)	LS	1	20%	\$ 4,178,000.00
		Construction Contract Total				\$ 25,068,000.00
Construction Contingency (35%)						
		Construction Contingency (35%)	LS	1	35%	\$ 8,774,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 1,254,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 5,014,000.00
Total Construction Phase (in FY2023 Dollars)						\$ 40,110,000.00
Preliminary Engineering						
		Preliminary Engineering	LS	1	20%	\$5,013,600
Total Preliminary Engineering Phase (in FY2023 Dollars)						\$5,013,600



RAIL REHABILITATION FY2025 ESTIMATE						
Segment 2, CW-88.36 - CW-78.58, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$/UNIT	QTY	TOTAL
Old	New					
		Track Construction Spot Rehabilitation - Level 1 (Spot cross tie replacement/disposal 42%, spot curve/defective rail replacement 132# - 10%, track surface and line, ballast and spot OTM)	LF	\$ 75.00	16167	\$ 1,212,552.00
		Track Construction Full Depth Replacement (New crossties, new 115# rail, track surface and line, new 9" ballast section, and new OTM)	LF	\$ 315.00	35471	\$ 11,173,365.00
		Replacement - Active Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 500,000.00	7	\$ 3,500,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 50,000.00	10	\$ 500,000.00
		Vegetation Removal	AC	\$ 5,000.00	71	\$ 355,000.00
		Tree Removal	AC	\$ 30,000.00	2.0	\$ 60,000.00
		Track Removal - Disposal of Track Material	TF	\$ 5.00	35471.0	\$ 177,355.00
		Rail Scrap Value	TON	\$ (250.00)	1000	\$ (250,000.00)
SUBTOTAL FOR ALL ITEMS						\$ 16,728,272.00
Mobilization and Demobilization (2.5%)						\$ 418,206.80
General Conditions and Insurance (2.5%)						\$ 418,206.80
ESPC, PCSM, & Drainage (4%)						\$ 669,130.88
Design, Engineering, Construction Inspection (20%)						\$ 3,345,654.40
50% CONTINGENCY						\$ 9,116,908.24
TOTAL ESTIMATED CONSTRUCTION COST						\$ 30,696,379.12

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	8790	Bridge	32.00	2	\$ 1,200.00	320.00	\$ 384,000.00
2	8763	Culvert	13.42	1	\$ 2,000.00	134.20	\$ 268,400.00
3	8627	Bridge	425.00	3	\$ 600.00	4250.00	\$ 2,550,000.00
4	8620	Bridge	20.83	2	\$ 1,200.00	208.30	\$ 249,960.00
5	8452	Culvert	17.00	1	\$ 2,000.00	170.00	\$ 340,000.00
6	8438	Culvert	17.25	1	\$ 2,000.00	172.50	\$ 345,000.00
7	7902	Bridge	375.00	3	\$ 600.00	3750.00	\$ 2,250,000.00



PROJECT ASSET 8790 OVER UNNAMED DRAINAGE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/16/2025 CHECKED BY RBC DATE 8/4/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
8790				\$	113,175.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
CONCRETE DECK	CY	\$	5,000.00	15.90	\$ 79,510.00
<u>SUBSTRUCTURE RETROFIT ITEMS</u>					
REPOINTING MORTAR JOINTS	LF	\$	62.20	250	\$ 15,550.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	4,212.50	1.00	\$ 4,212.50
ROUGH GRADING	LSUM	\$	8,425.00	1.00	\$ 8,425.00
DISPOSAL OF MATERIAL	LSUM	\$	3,370.00	1.00	\$ 3,370.00
SELECT BACKFILL	LSUM	\$	2,106.25	1.00	\$ 2,106.25




PROJECT ASSET 8763 OVER UNNAMED DRAINAGE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/16/2025 CHECKED BY RBC DATE 8/4/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
8763			\$	41,730.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>				
CONCRETE DECK	CY	\$5,000.00	4.72	\$ 23,615.00
<u>MISC. ITEMS</u>				
CLEARING & GRUBBING	LSUM	\$4,212.50	1.00	\$ 4,212.50
ROUGH GRADING	LSUM	\$8,425.00	1.00	\$ 8,425.00
DISPOSAL OF MATERIAL	LSUM	\$3,370.00	1.00	\$ 3,370.00
SELECT BACKFILL	LSUM	\$2,106.25	1	\$ 2,106.25



PROJECT ASSET 8627 OVER MILL CREEK & BRYCE BLVD. FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/16/2025 CHECKED BY RBC DATE 8/5/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
8627			\$	3,926,370.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	6.00	\$ 25,500.00
<u>MISC. ITEMS</u>				
CLEARING & GRUBBING	LSUM	\$ 16,850.00	1.00	\$ 16,850.00
ROUGH GRADING	LSUM	\$ 8,425.00	1.00	\$ 8,425.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 25,275.00	1.00	\$ 25,275.00
DISPOSAL OF MATERIAL	LSUM	\$ 33,700.00	1.00	\$ 33,700.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	425.00	\$ 1,810,500.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	4	\$ 2,006,120.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	425.00	\$ 2,866,625.00

	PROJECT	ASSET 8620 OVER BANK ST.		FILE NO.	
	SUBJECT	RAIL WITH TRAIL QUANTITIES		PHASE	
	COMPUTED BY	DS	DATE	7/15/2025	CHECKED BY
			DATE	8/4/2025	

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY
8620			TOTAL
			\$ 493,075.00

COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
<b>COST TO RETROFIT FOR FREIGHT RAIL SERVICE</b>					
<u><b>SUPERSTRUCTURE RETROFIT ITEMS</b></u>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	4.00	\$	17,000.00
<u><b>MISC. ITEMS</b></u>					
CLEARING & GRUBBING	LSUM	\$ 5,055.00	1	\$	5,055.00
ROUGH GRADING	LSUM	\$ 4,212.50	1	\$	4,212.50
ENVIORMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 8,425.00	1	\$	8,425.00
DISPOSAL OF MATERIAL	LSUM	\$ 4,212.50	1	\$	4,212.50
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$ 3,240.00	20.83	\$	67,500.00
SUBSTRUCTURE RETROFIT	EACH	\$ 193,335.00	2	\$	386,670.00



PROJECT ASSET 8452 OVER UNNAMED DRAINAGE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/15/2025 CHECKED BY RBC DATE 8/4/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
8452				\$	31,314.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
CONCRETE DECK	CY	\$	5,000.00	3.99	\$ 19,940.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	5,055.00	1.00	\$ 5,055.00
ROUGH GRADING	LSUM	\$	4,212.50	1.00	\$ 4,212.50
DISPOSAL OF MATERIAL	LSUM	\$	2,106.25	1.00	\$ 2,106.25



PROJECT ASSET 7902 OVER STONEY CREEK & MASSIE FARM LANE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/15/2025 CHECKED BY RBC DATE 8/4/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
7902			\$	5,930,415.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	14.00	\$ 59,500.00
<u>MISC. ITEMS</u>				
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$ 84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 101,100.00	1.00	\$ 101,100.00
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	375.00	\$ 1,597,500.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	8	\$ 4,012,240.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	375.00	\$ 2,529,375.00



# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 2 - October 2025

Segment 2		
	20% Uplift	80% Uplift
<b>Residential</b>		
Edinburg	\$5.36	\$8.04
Mount Jackson	\$4.02	\$6.03
<b>Average Land Value</b>	<b>\$4.69</b>	<b>\$7.04</b>
<b>Commercial</b>		
Edinburg	\$8.22	\$12.33
Mount Jackson	\$5.55	\$8.33
<b>Average Land Value</b>	<b>\$6.89</b>	<b>\$10.33</b>
<b>Agriculture/Farmland</b>		
Edinburg	\$0.17	\$0.26
Mount Jackson	\$0.11	\$0.16
<b>Average Land Value</b>	<b>\$0.14</b>	<b>\$0.21</b>
<b>Industrial</b>		
Edinburg	\$1.70	\$2.56
Mount Jackson	\$0.83	\$1.24
<b>Average Land Value</b>	<b>\$1.27</b>	<b>\$1.90</b>

Total Segment Length **51637**

<b>Residential</b>	
Percentage of land use	30%
LF of Affected Prop	15491.1
SF of Affected Prop	77455.5

**Total Acquired Land Value \$ 544,899.44**

<b>Commercial</b>	
Percentage of land use	10%
LF of Affected Prop	5163.7
SF of Affected Prop	25818.5

**Total Acquired Land Value \$ 266,705.11**

<b>Agricultural / Farmland</b>	
Percentage of land use	50%
LF of Affected Prop	25818.5
SF of Affected Prop	129092.5

**Total Acquired Land Value \$ 27,109.43**

<b>Industrial</b>	
Percentage of land use	10%
LF of Affected Prop	5163.7
SF of Affected Prop	25818.5

**Total Acquired Land Value \$ 49,055.15**

Total Land Acquisition Cost **\$ 887,769.12**

Total parcels Impacted	116
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 2,900,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 464,000.00

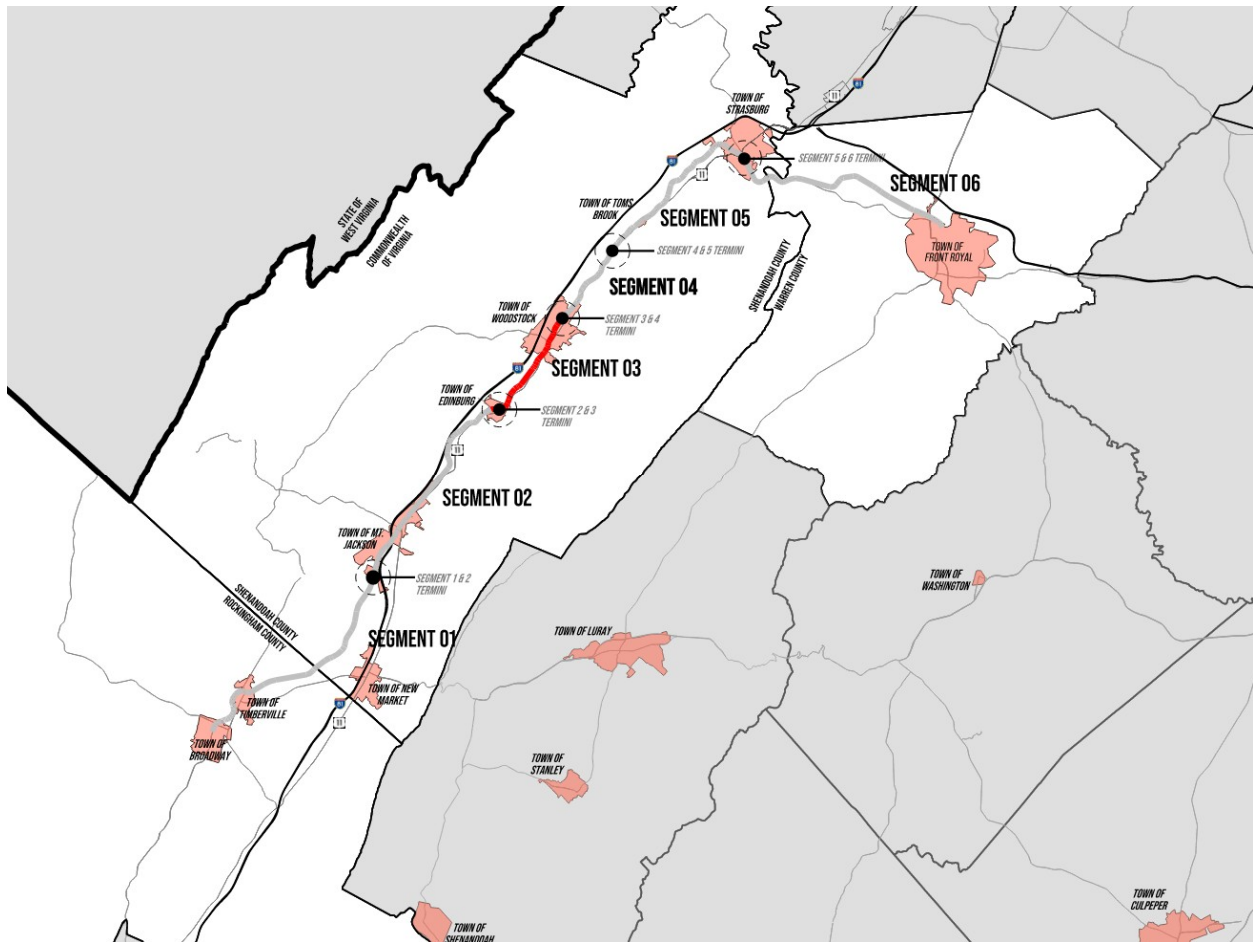
Total ROW Cost \$ 4,251,769.12

Trailhead Construction Estimates										
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High	
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1	\$ 9,885,000.00
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1	
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1	
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1	
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1	
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2	\$ 2,030,000.00
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3	\$ 3,035,000.00
Fisher's Hill / Strasburg Museum	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5	\$ 1,015,000.00
Town Park	Town of Strasburg	-					\$	-	Segment 6	\$ 8,595,000.00
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6	
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6	
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6	
Please note that this does NOT include right-of-way costs										

# Shenandoah Valley Rail-with-Trail

## Segment 03

### Cost Estimate



# Shenandoah Valley Rail-with-Trail (Segment 3)

## Features and Characteristics

<b>Length</b>	5.5 Miles
<b>Termini</b>	Stony Creek Boulevard in the Town of Edinburg and Court Square in the Town of Woodstock
<b>Jurisdictions</b>	Shenandoah County Town of Edinburg Town of Willow Grove Town of Woodstock
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	1 Trailhead

## Total Cost Summary for Trail Alignment (Segment 3)

<b>Segment</b>	Segment 3
<b>Length</b>	5.5 Miles
<b>Cost Summary (FY 2025) with Cantilevers</b>	
<b>Trail Construction Cost</b>	\$ 23,995,400.00
<b>Bridge Construction Cost</b>	\$ 29,270,000.00
<b>Rail Rehabilitation Cost</b>	\$ 19,910,961.10
<b>Trailhead Cost</b>	\$ 3,035,000.00
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ 2,857,150.57
<b>Preliminary Engineering Costs</b>	\$ 10,372,764.62
<i>Trail</i>	\$ 2,999,280.00
<i>Bridge</i>	\$ 2,784,484.62
<i>Rail Rehabilitation</i>	\$ 3,982,000.00
<i>Trailheads</i>	\$ 607,000.00
	<b>\$ 89,441,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 3)

<b>BRIDGE NO.</b>	<b>ASSET NO.</b>	<b>COST (FY 2025)</b> (Cantilevers Crossings Where Feasible)	<b>Cantilever Option Cost Savings</b> (Compared to Seperate Structure)
1	7860	\$272,300.00	
2	7643	\$13,314,523.12	\$520,891.88
3	7500	\$63,300.00	
4	7400	\$272,300.00	
<b>Sub-Total Construction Cost</b>		<b>\$13,922,423.12</b>	<b>\$520,891.88</b>
<b>Mobilization (Structures)</b>		\$ 726,121.16	
<b>Unaccounted Items</b>	20%	\$ 2,784,484.62	
<b>Remote Location Factor</b>	15%	\$ 2,088,363.47	
<b>CE&amp;I</b>	20%	\$ 2,784,484.62	
<b>Contingency</b>	50%	\$ 6,961,211.56	
<b>Design Engineering</b>	20%	\$ 2,784,484.62	
<b>Total Bridge Construction Cost (Segment 3)</b>		<b>\$ 29,270,000.00</b>	

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

## Shenandoah Valley Rail-with-Trail Estimate - Segment 3

Opinion of Probable Project Costs - October 2025

Non-inflated Costs are in FY2025 Dollars using VDOT Bid Item - Unit Cost Lookup Tool

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$729,324.37	\$ 729,324.37
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 279,729.75
MOBILIZATION SUB-TOTAL						\$ 1,009,054.12
Maintenance of Traffic (MOT) Items						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 341,133.84
MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL						\$ 341,133.84
Roadway Items						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	7,117	\$ 50.43	\$ 358,912.83
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	2,829	\$ 85.00	\$ 240,456.50
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	73	\$ 130.00	\$ 9,437.04
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	62	\$ 580.34	\$ 36,110.04
ROADWAY SUB-TOTAL						\$ 644,916.41
Hydraulics Items						
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	50,500	\$ 6.00	\$ 303,000.00
		NUTRIENT CREDIT	LBS	2.77	\$ 28,300.00	\$ 80,000.00
		SWM FACILITY	EA	17	\$ 70,000.00	\$ 1,200,000.00
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	9,747	\$ 55.44	\$ 540,373.68
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 424,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 424,000.00
HYDRAULICS SUB-TOTAL						\$ 2,971,373.68
In-Plan Utilities Items						
IN-PLAN UTILITIES SUB-TOTAL						\$ -
Traffic Items						
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	696	\$ 5.21	\$ 3,626.16
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	1,353	\$ 27.86	\$ 37,694.58
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	56	\$ 680.00	\$ 38,080.00
50108	701SD20-0001	SIGN PANEL	SF	743	\$ 51.43	\$ 38,186.78
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	945	\$ 42.71	\$ 40,360.95
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	135	\$ 606.21	\$ 81,838.35
51162	703SD20-0005	FLASHING BEACON FB-2	EA	2	\$10,846.96	\$ 21,693.92
		PEDESTRIAN HYBRID BEACON	EA	1	\$ 84,260.00	\$ 84,260.00
TRAFFIC SUB-TOTAL						\$ 345,740.74
Structures/Bridges Items						
22643	507SD20-0005	FENCE FE-CL	LF	25,689	\$ 62.44	\$ 1,604,021.16
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	7,463	\$ 77.18	\$ 575,955.75
13530	506SD20-0002	RETAINING WALL RW-3	CY	2,920	\$ 1328.56	\$ 3,879,311.80
STRUCTURES/BRIDGES SUB-TOTAL						\$ 6,059,288.71
Earthwork/Materials Items						
00120	303SD20-0001	REGULAR EXCAVATION	CY	20,100	\$ 55.44	\$ 1,114,344.00
00140	305SD20-0001	BORROW EXCAVATION	CY	0	\$ 36.31	\$ -
00142	305SD20-0003	BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	\$ -
EARTHWORK/MATERIALS SUB-TOTAL						\$ 1,114,344.00
Sound Wall Items						
SOUND WALL SUB-TOTAL						\$ -
Other Items						
00111	301SD20-0002	CLEARING AND GRUBBING	ACRE	0.70	\$ 14,700.00	\$ 10,290.00
38953	605SX20-0013	LANDSCAPING	LS	0	\$ 0.00	\$ -
OTHER SUB-TOTAL						\$ 10,290.00
MAJOR ITEMS SUBTOTAL						\$12,497,000
Construction Totals						
		Unaccounted for Items (20%)	LS	1	20%	\$ 2,499,400.00
		Construction Contract Total				\$ 14,996,400.00
		Construction Contingency (35%)	LS	1	35%	\$ 5,249,000.00
		Contract Contingency (5%)	LS	1	5%	\$ 750,000.00
		Construction Engineering & Inspection (20%)	LS	1	20%	\$ 3,000,000.00
Total Construction Phase (in FY2023 Dollars)						\$ 23,995,400.00
Preliminary Engineering						
		Preliminary Engineering	LS	1	20%	\$2,999,280
Total Preliminary Engineering Phase (in FY2023 Dollars)						\$2,999,280

RAIL REHABILITATION FY2025 ESTIMATE						
Segment 3, B-78.58 - B-73.05, Shenandoah Valley Rail Trail						
Item Code		DESCRIPTION ***	UNIT	\$/UNIT	QTY*	TOTAL
Old	New					
		Track Construction Full Depth Replacement (New crossties, new 115# rail, track surface and line, new 9" ballast section, and new OTM)	LF	\$ 315.00	29188	\$ 9,194,220.00
		Replacement - Active Warning Device for At-Grade Crossing including pavement	LF	\$ 450,000.00	3	\$ 1,350,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including pavement	EA	\$ 25,000.00	5	\$ 125,000.00
		Vegetation Removal	EA	\$ 5,000.00	40	\$ 200,000.00
		Tree Removal	AC	\$ 30,000.00	1	\$ 30,000.00
		Track Removal - Disposal of Track Material	TF	\$ 5.00	29188	\$ 145,940.00
		Rail Scrap Value	TON	\$ (250.00)	778	\$ (194,500.00)
SUBTOTAL FOR ALL ITEMS						\$ 10,850,660.00
Mobilization and Demobilization (2.5%)						\$ 271,266.50
General Conditions and Insurance (2.5%)						\$ 271,266.50
ESPC, PCSM, & Drainage (4%)						\$ 434,026.40
Design, Engineering, Construction Inspection (20%)						\$ 2,170,132.00
50% CONTINGENCY						\$ 5,913,609.70
TOTAL ESTIMATED CONSTRUCTION COST						\$ 19,910,961.10

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	7860	Culvert	10.00	1	\$ 2,000.00	100.00	\$ 200,000.00
2	7643	Bridge	630.00	3	\$ 600.00	6300.00	\$ 3,780,000.00
3	7500	Culvert	15.00	1	\$ 2,000.00	150.00	\$ 300,000.00
4	7400	Culvert	12.00	1	\$ 2,000.00	120.00	\$ 240,000.00



PROJECT ASSET 7643 OVER NARROW PASSAGE RUN FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 6/24/2025 CHECKED BY RBC DATE 6/25/2025

ASSET NUMBER		FINAL QUANTITY	
		TOTAL	
7643		\$	10,055,415.00

COMPUTATION				TOTAL	
ITEM	UNIT	\$/UNIT	QTY		
<b>COST TO RETROFIT FOR FREIGHT RAIL SERVICE</b>					
<b><u>SUPERSTRUCTURE RETROFIT ITEMS</u></b>					
STRUCTURAL STEEL	LB	\$10.00	46847.65	\$	468,480.00
MODIFY EXISTING BEARING	EACH	\$4,250.00	26.00	\$	110,500.00
NEW TIMBER TIE DECK	LF	\$1,500.00	630.00	\$	945,000.00
HANDRAIL TYPE 1	LF	\$185.00	630.00	\$	116,550.00
STEEL WALKWAY GRATING	LF	\$150.00	630.00	\$	94,500.00
PROTECTIVE COATING SYSTEM	LF	\$1,621.81	630.00	\$	1,021,745.00
LEAD ABATEMENT	LSUM	\$35,000.00	1.00	\$	35,000.00
<b><u>SUBSTRUCTURE RETROFIT ITEMS</u></b>					
CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$5,000.00	629.20	\$	3,146,000.00
REPOINT MORTAR JOINTS	LF	\$631.88	5662.80	\$	3,578,185.00
CRACK REPAIR TYPE B	LF	\$250.00	125.00	\$	31,250.00
PROTECTIVE COATING SYSTEM (TALL PIER)	LF	\$1,621.81	92.00	\$	149,210.00
PROTECTIVE COATING SYSTEM (SHORT PIER)	LF	\$1,621.81	72.00	\$	116,775.00
<b><u>MISC. ITEMS</u></b>					
CLEARING & GRUBBING	LSUM	\$25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$75,825.00	1.00	\$	75,825.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$84,250.00	1.00	\$	84,250.00
DISPOSAL OF MATERIAL	LSUM	\$50,550.00	1.00	\$	50,550.00
BACKFILL EROSION REPAIR	LSUM	\$6,318.75	1.00	\$	6,318.75
SUPERSTRUCTURE RETROFIT COST				\$	2,791,775.00
SUBSTRUCTURE RETROFIT COST				\$	7,021,420.00
MISC. COSTS				\$	242,218.75
TOTAL COST FOR RETROFIT				\$	10,055,415.00
<b><u>COST TO ADD CANTILEVER TO EX. STRUCTURE</u></b>					
PEDESTRIAN RAIL	LF	\$	421.25	440.00	\$ 185,350.00
PEDESTRIAN FENCE	LF	\$	252.75	440.00	\$ 111,210.00
STRUCTURAL STEEL (PEDESTRIAN WALKWAY)	LB	\$	4.50	235116.00	\$ 1,058,022.00
STRUCTURAL STEEL (STRUCTURE RETROFITS)	LB	\$	4.50	64014.26	\$ 288,064.17
MICROPILES	LF	\$	450.00	2160.00	\$ 972,000.00
TIMBER DECK	MFBM	\$	16,007.50	40.26	\$ 644,461.95
				\$	3,259,108.12
COST PER LF DECK GIRDER STRUCTURE				\$	4,255.99
COST PER SUBSTRUCTURE UNIT				\$	501,530.00
COST PER LF WALKWAY				\$	5,173.19



# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 3 - October 2025

Segment 3		
	20% Uplift	80% Uplift
<b>Residential</b>		
Edinburg	\$5.36	\$8.04
Woodstock	\$2.68	\$4.02
<b>Average Land Value</b>	<b>\$4.02</b>	<b>\$6.03</b>
<b>Commercial</b>		
Edinburg	\$8.22	\$12.33
Woodstock	\$9.97	\$14.96
<b>Average Land Value</b>	<b>\$9.10</b>	<b>\$13.65</b>
<b>Agriculture/Farmland</b>		
Edinburg	\$0.17	\$0.26
Woodstock	\$0.21	\$0.32
<b>Average Land Value</b>	<b>\$0.19</b>	<b>\$0.29</b>
<b>Industrial</b>		
Edinburg	\$1.70	\$2.56
Woodstock	\$3.12	\$4.68
<b>Average Land Value</b>	<b>\$2.41</b>	<b>\$3.62</b>

Total Segment Length **29189**

Residential	
Percentage of land use	30%
LF of Affected Prop	8756.7
SF of Affected Prop	43783.5

**Total Acquired Land Value \$ 264,014.51**

Commercial	
Percentage of land use	10%
LF of Affected Prop	2918.9
SF of Affected Prop	14594.5

**Total Acquired Land Value \$ 199,141.95**

Agricultural / Farmland	
Percentage of land use	50%
LF of Affected Prop	14594.5
SF of Affected Prop	72972.5

**Total Acquired Land Value \$ 21,162.03**

Industrial	
Percentage of land use	10%
LF of Affected Prop	2918.9
SF of Affected Prop	14594.5

**Total Acquired Land Value \$ 52,832.09**

**Total Land Acquisition Cost \$ 537,150.57**

Total parcels Impacted	80
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 2,000,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 320,000.00
<b>Total ROW Cost</b>	<b>\$ 2,857,150.57</b>

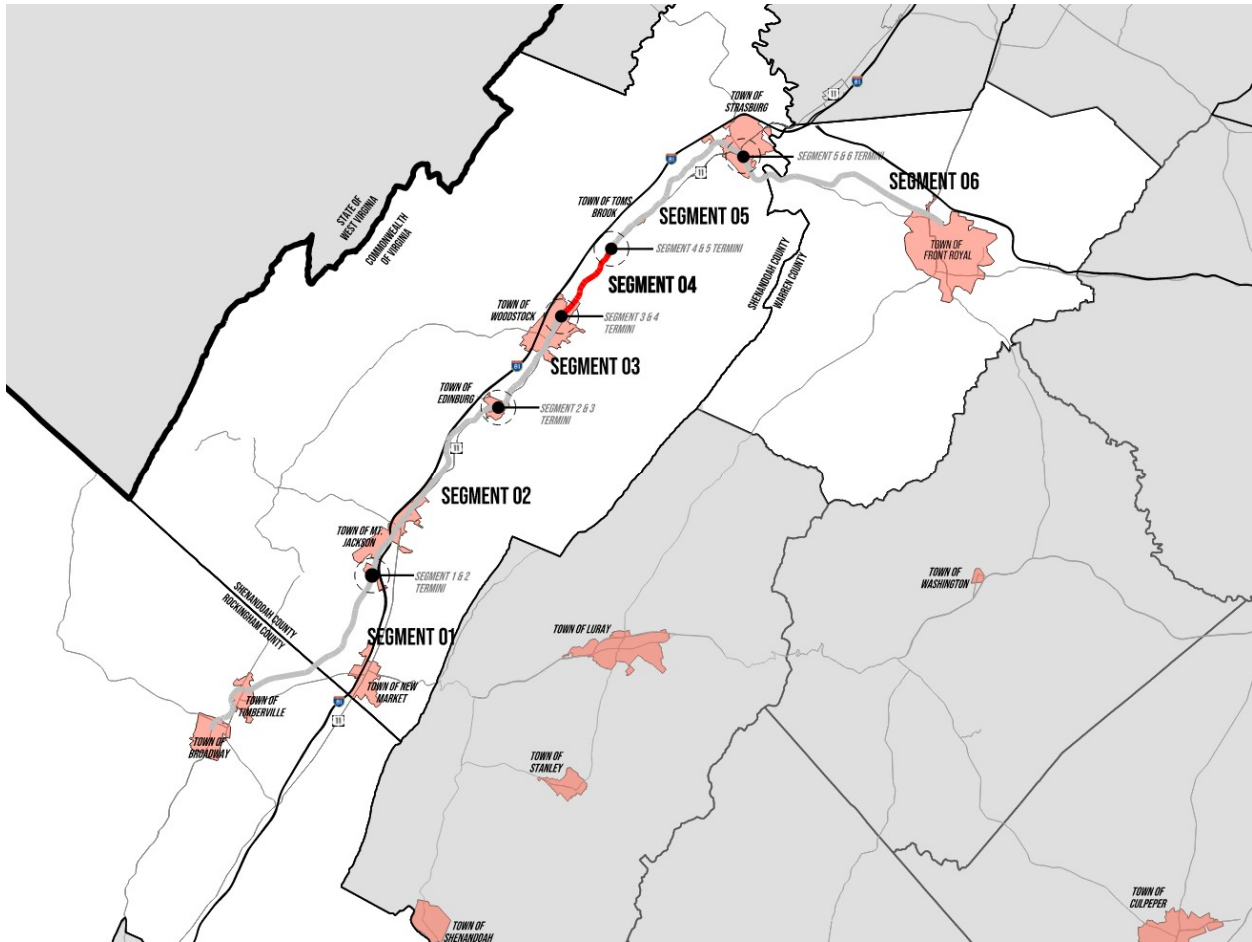
TRAILHEAD CONSTRUCTION ESTIMATES										
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High	
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1	\$9,885,000.00
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1	
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1	
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1	
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1	
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2	\$2,030,000.00
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3	\$3,035,000.00
Fisher's Hill / Strasburg Museum	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5	\$1,015,000.00
Town Park	Town of Strasburg	-					\$	-	Segment 6	\$8,595,000.00
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6	
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6	
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6	
Please note that this does NOT include right-of-way costs										

Note: Segment 6 using preferred trailhead cost of Previous VFW Site only

# Shenandoah Valley Rail-with-Trail

## Segment 04

### Cost Estimate



# Shenandoah Valley Rail-with-Trail (Segment 4)

## Features and Characteristics

<b>Length</b>	5.5 Miles
<b>Termini</b>	Court Square in the Town of Woodstock and Brook Creek Road in the Town of Toms Brook
<b>Jurisdictions</b>	Shenandoah County Town of Woodstock Town of Mauretown Town of Toms Brook
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	0 Trailheads

## Total Cost Summary for Trail Alignment (Segment 4)

<b>Segment</b>	Segment 4
<b>Length</b>	5.5 Miles
<b>Cost Summary (FY 2025) with Cantilevers</b>	
<b>Trail Construction Cost</b>	\$ 25,077,000.00
<b>Bridge Construction Cost</b>	\$ 22,060,000.00
<b>Rail Rehabilitation Cost</b>	\$ 18,290,248.36
<b>Trailhead Cost</b>	\$ -
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$ 2,123,274.40
<b>Preliminary Engineering Costs</b>	\$ 8,890,064.67
<i>Trail</i>	\$ 3,134,400.00
<i>Bridge</i>	\$ 2,097,615.00
<i>Rail Rehabilitation</i>	\$ 3,658,049.67
<i>Trailheads</i>	\$ -
	<b>\$ 76,441,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 4)

BRIDGE NO.	ASSET NO.	COST (FY 2025) (Cantilevers Crossings Where Feasible)	Cantilever Option Cost Savings (Compared to Seperate Structure)
1	7164	\$ 9,518,025.00	\$ (283,100.00)
2	6858	\$ 52,100.00	
3	6824	\$ 917,950.00	
<b>Sub-Total Construction Cost</b>		<b>\$ 10,488,075.00</b>	<b>\$ (283,100.00)</b>
<b>Mobilization (Structures)</b>		\$ 554,403.75	
<b>Unaccounted Items</b>	20%	\$ 2,097,615.00	
<b>Remote Location Factor</b>	15%	\$ 1,573,211.25	
<b>CE&amp;I</b>	20%	\$ 2,097,615.00	
<b>Contingency</b>	50%	\$ 5,244,037.50	
<b>Design Engineering</b>	20%	\$ 2,097,615.00	
<b>Total Bridge Construction Cost (Segment 4)</b>		<b>\$ 22,060,000.00</b>	

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$760,890.46	\$ 760,890.46
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 292,356.18
MOBILIZATION SUB-TOTAL						\$ 1,053,246.64

Roadway Items						
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	7,038	\$ 50.43	\$ 354,938.95
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	2,796	\$ 85.00	\$ 237,668.50
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	78	\$ 130.00	\$ 10,111.11
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	67	\$ 580.34	\$ 38,689.33
					<b>ROADWAY SUB-TOTAL</b>	<b>\$ 641,407.89</b>

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Structures/Bridges Items							
22643	507SD20-0005	FENCE FE-CL	LF	25,386	\$ 62.44	\$	1,585,101.84
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	11,825	\$ 77.18	\$	912,653.50
13530	506SD20-0002	RETAINING WALL RW-3	CY	3,167	\$ 1328.56	\$	4,207,705.99
STRUCTURES/BRIDGES SUB-TOTAL						\$	6,705,461.33

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -

	MAJOR ITEMS SUBTOTAL	\$13,060,000
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<b>Preliminary Engineering</b>					
	Preliminary Engineering	LS	1	20%	\$3,134,400
<b>Total Preliminary Engineering Phase (in FY2023 Dollars)</b>					<b>\$3,134,400</b>

RAIL REHABILITATION FY2025 ESTIMATE						
Segment 4, B-73.05 - B-67.54, Sheandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL
Old	New					
		Track Construction Full Depth Replacement (New crossties, new 115# rail, Full Segment track surface and line, new 9" ballast section, and new OTM)	LF	\$ 315.00	25629	\$ 8,073,172.80
		Track Construction Spot Rehabilitation - Level 1 (Spot cross tie replacement/disposal 42%, spot curve/defective rail replacement 132# - 5%, track surface and line, ballast and spot OTM)	LF	\$ 70.00	3341	\$ 233,870.00
		Replacement - Active Warning Device for At-Grade Crossing including pavement	EA	\$ 450,000.00	3	\$ 1,350,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including pavement	EA	\$ 25,000.00	5	\$ 125,000.00
		Vegetation Removal	AC	\$ 5,000.00	40	\$ 200,000.00
		Tree Removal	AC	\$ 30,000.00	1	\$ 30,000.00
		Track Removal - Disposal of Track Material	TF	\$ 5.00	25629	\$ 128,145.00
		Rail Scrap Value	TON	\$ (250.00)	691	\$ (172,750.00)
SUBTOTAL FOR ALL ITEMS						\$ 9,967,437.80
Mobilization and Demobilization (2.5%)						\$ 249,185.95
General Condtions and Insurance (2.5%)						\$ 249,185.95
ESPC, PCSM, & Drainage (4%)						\$ 398,697.51
Design, Engineering, Construction Inspection (20%)						\$ 1,993,487.56
50% CONTINGENCY						\$ 5,432,253.60
TOTAL ESTIMATED CONSTRUCTION COST						\$ 18,290,248.36

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	7164	Bridge	380.00	3	\$ 600.00	3800.00	\$ 2,280,000.00
2	6858	Culvert	40.50	2	\$ 1,200.00	405.00	\$ 486,000.00
3	6824	Bridge	19.10	1	\$ 2,000.00	191.00	\$ 382,000.00



PROJECT	ASSET 7164 OVER PUGH'S RUN		FILE NO.	0			
SUBJECT	RAIL WITH TRAIL QUANTITIES		PHASE	0%			
COMPUTED BY	DS	DATE	7/16/2025	CHECKED BY	RBC	DATE	8/4/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
7164			\$	6,954,925.00

COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	18.00	\$	76,500.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$	84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 84,250.00	1.00	\$	84,250.00
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$	50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	380.00	\$	1,618,800.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	10	\$	5,015,300.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	380.00	\$	2,563,100.00





PROJECT	ASSET 6824 OVER JORDAN RUN	FILE NO.	0
SUBJECT	RAIL WITH TRAIL QUANTITIES	PHASE	0%
COMPUTED BY	DS	DATE	7/16/2025
CHECKED BY	RBC	DATE	8/4/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
6824			TOTAL	
		\$	535,950.00	
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
SUPERSTRUCTURE RETROFIT ITEMS				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	2.00	\$ 8,500.00
STRUCTURAL STEEL	LB	\$ 10.00	3893	\$ 38,930.00
MISC. ITEMS				
CLEARING & GRUBBING	LSUM	\$ 8,425.00	1	\$ 8,425.00
ROUGH GRADING	LSUM	\$ 4,212.50	1	\$ 4,212.50
SELECT BACKFILL	LSUM	\$ 2,106.25	1	\$ 2,106.25
ENVIORNMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 16,850.00	1	\$ 16,850.00
DISPOSAL OF MATERIAL	LSUM	\$ 8,425.00	1	\$ 8,425.00
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$ 3,240.00	19.08	\$ 100,760.00
SUBSTRUCTURE RETROFIT	EACH	\$ 193,335.00	2	\$ 386,670.00

# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 4 - October 2025

Segment 4		
	20% Uplift	80% Uplift
<b>Residential</b>		
Woodstock	\$2.68	\$4.02
Toms Brook	\$3.15	\$4.72
<b>Average Land Value</b>	<b>\$2.92</b>	<b>\$4.37</b>
<b>Commercial</b>		
Woodstock	\$9.97	\$14.96
Toms Brook	\$3.61	\$5.41
<b>Average Land Value</b>	<b>\$6.79</b>	<b>\$10.19</b>
<b>Agriculture/Farmland</b>		
Woodstock	\$0.21	\$0.32
Toms Brook	\$0.15	\$0.23
<b>Average Land Value</b>	<b>\$0.18</b>	<b>\$0.28</b>
<b>Industrial</b>		
Woodstock	\$3.12	\$4.68
Toms Brook	\$1.72	\$2.58
<b>Average Land Value</b>	<b>\$2.42</b>	<b>\$3.63</b>

Total Segment Length **29136**

<b>Residential</b>	
Percentage of land use	30%
LF of Affected Prop	8740.8
SF of Affected Prop	43704

**Total Acquired Land Value \$ 190,986.48**

<b>Commercial</b>	
Percentage of land use	10%
LF of Affected Prop	2913.6
SF of Affected Prop	14568

**Total Acquired Land Value \$ 148,375.08**

<b>Agricultural / Farmland</b>	
Percentage of land use	50%
LF of Affected Prop	14568
SF of Affected Prop	72840

**Total Acquired Land Value \$ 20,031.00**

<b>Industrial</b>	
Percentage of land use	10%
LF of Affected Prop	2913.6
SF of Affected Prop	14568

**Total Acquired Land Value \$ 52,881.84**

Total Land Acquisition Cost **\$ 412,274.40**

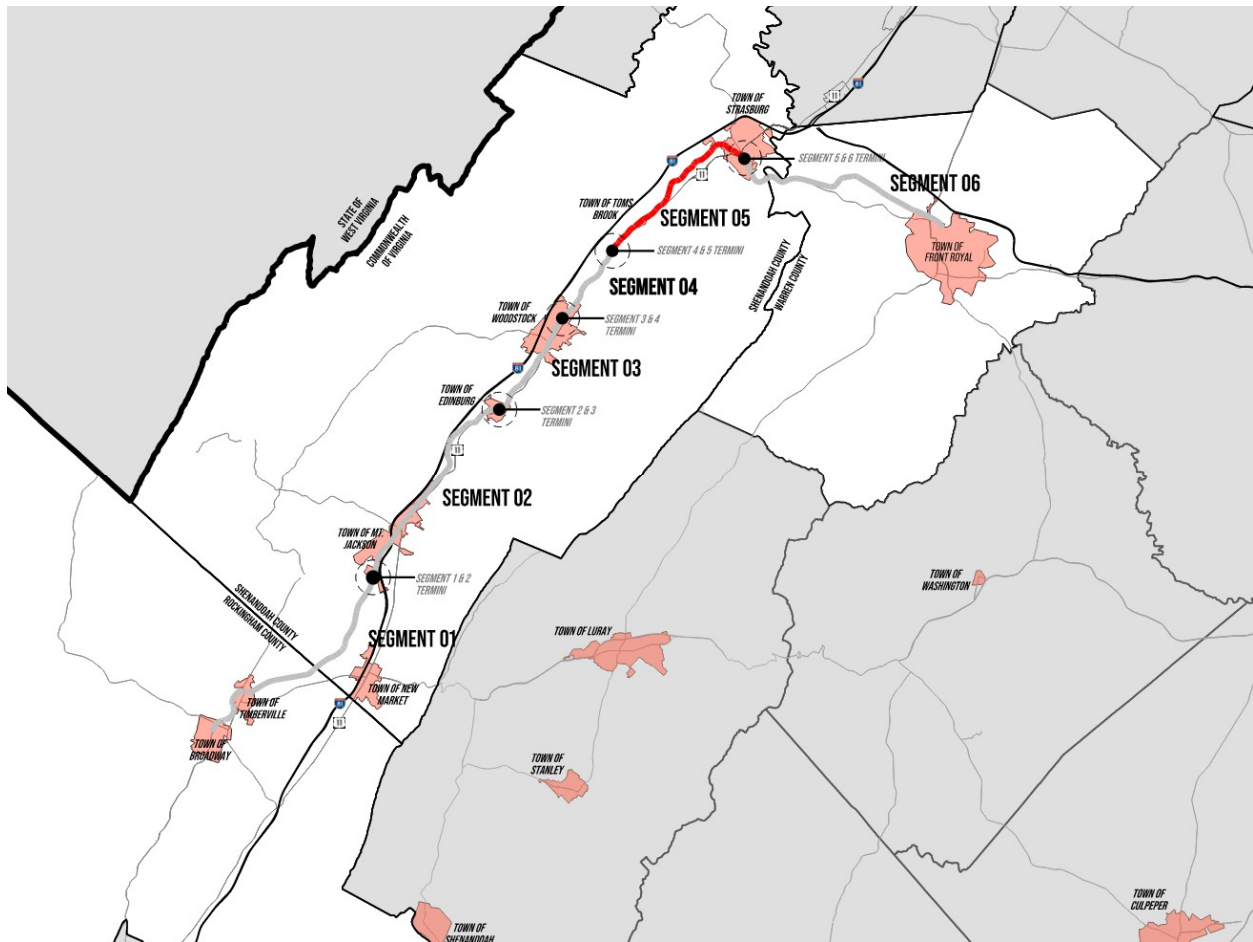
Total parcels Impacted	59
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 1,475,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 236,000.00
Total ROW Cost	\$ 2,123,274.40

# Shenandoah Valley

## Rail-with-Trail

### Segment 05

#### Cost Estimate



# Shenandoah Valley Rail-with-Trail (Segment 5)

## Features and Characteristics

<b>Length</b>	6.8 Miles
<b>Termini</b>	Brook Creek Road in the Town of Toms Brook and the Town Museum in the Town of Strasburg
<b>Jurisdictions</b>	Shenandoah County Town of Toms Brook Town of Fishers Hill Town of Strasburg
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	1 Trailhead

## Total Cost Summary for Trail Alignment (Segment 5)

<b>Segment</b>	Segment 5
<b>Length</b>	6.8 Miles
	<b>Cost Summary (FY 2025) with Cantilevers</b>
<b>Trail Construction Cost</b>	\$ 38,117,400.00
<b>Bridge Constuction Cost</b>	\$ 26,559,285.00
<b>Rail Rehabilitation Cost</b>	\$ 9,587,214.40
<b>Trailhead Cost</b>	\$ 1,015,000.00
<b>ROW Aqcuisition Cost (Non Railroad Parcel)</b>	\$ 3,193,566.83
<b>Preliminary Engineering Costs</b>	\$ 12,196,779.88
<i>Trail</i>	\$ 4,764,480.00
<i>Bridge</i>	\$ 5,311,857.00
<i>Rail Rehabilitation</i>	\$ 1,917,442.88
<i>Trailheads</i>	\$ 203,000.00
	<b>\$ 90,669,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 5)

BRIDGE NO.	ASSET NO.	COST (FY 2025)		Cantilever Option Cost Savings (Compared to Seperate Structure)
		(Cantilevers Crossings Where Feasible)		
1	6765	\$	12,554,590.00	\$ (379,950.00)
2	6669	\$	3,737,330.00	\$ (94,615.00)
3	6540	\$	272,300.00	
4	6391	\$	5,669,285.00	\$ (195,190.00)
5	6280	\$	524,965.00	
6	6148	\$	2,459,535.00	
7	6141	\$	1,341,280.00	
Sub-Total Construction Cost		\$	26,559,285.00	\$ (669,755.00)
Mobilization (Structures)		\$	1,357,964.25	
Unaccounted Items		20%	\$ 5,311,857.00	
Remote Location Factor		15%	\$ 3,983,892.75	
CE&I		20%	\$ 5,311,857.00	
Contingency		50%	\$ 13,279,642.50	
Design Engineering		20%	\$ 5,311,857.00	
Total Bridge Construction Cost (Segment 5)		\$	55,810,000.00	

**\* Notes:**

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
		Mobilization Items				
00100	513SD20-0001	Mobilization	LS	1	\$1,141,752.33	\$ 1,141,752.33
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 444,700.93
					MOBILIZATION SUB-TOTAL	\$ 1,586,453.26

		Roadway Items				
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	8,523	\$ 50.43	\$ 429,799.76
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	3,389	\$ 85.00	\$ 288,031.00
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	83	\$ 130.00	\$ 10,785.19
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	71	\$ 580.34	\$ 41,268.62
					<b>ROADWAY SUB-TOTAL</b>	<b>\$ 769,884.57</b>

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Structures/Bridges Items						
22643	507SD20-0005	FENCE FE-CL	LF	31,661	\$ 62.44	\$ 1,976,912.84
09155	610SD20-0001	GABIONS	CY	0	\$ 410.99	-
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	17,037	\$ 77.18	\$ 1,314,942.46
13530	506SD20-0002	RETAINING WALL RW-3	CY	5,138	\$ 1328.56	\$ 6,825,984.07
STRUCTURES/BRIDGES SUB-TOTAL						\$ 10,117,839.37

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -


MAJOR ITEMS SUBTOTAL						\$19,852,000
Construction Totals						
	Unaccounted for Items (20%)	LS	1	20%	\$	3,970,400.00
	Construction Contract Total				\$	23,822,400.00
	Construction Contingency (35%)	LS	1	35%	\$	8,338,000.00
	Contract Contingency (5%)	LS	1	5%	\$	1,192,000.00
	Construction Engineering & Inspection (20%)	LS	1	20%	\$	4,765,000.00
Total Construction Phase (in FY2023 Dollars)						\$ 38,117,400.00

<b>Preliminary Engineering</b>					
	Preliminary Engineering	LS	1	20%	\$4,764,480
<b>Total Preliminary Engineering Phase (in FY2023 Dollars)</b>					<b>\$4,764,480</b>

RAIL REHABILITATION FY2025 ESTIMATE						
Segment 5, B-67.54 - B-60.78, Sheandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$ /UNIT	QTY	TOTAL
Old	New					
		Restore CSX Connection Switch. Includes any nessessary legal interchange operation agreement, upgrading track structure to adhere to CSX standards for interchange operations, and installing track protection device per CSX standards @ Strasburg Junction 62.6	LS	\$ 750,000.00	1	\$ 750,000.00
		Track Construction Spot Rehabilitation - Level 1 (Spot cross tie replacement/disposal 42%, spot curve/defective rail replacement 132# - 5%, track surface and line, ballast and spot OTM)	LF	\$ 70.00	33977	\$ 2,378,390.00
		Replacement - Active Warning Devices for At-Grade Crossing including Trackwork and pavement	EA	\$ 500,000.00	3	\$ 1,500,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 50,000.00	7	\$ 350,000.00
		Vegetation Removal	AC	\$ 5,000.00	47	\$ 235,000.00
		Tree Removal	AC	\$ 30,000.00	1	\$ 30,000.00
		Rail Scrap Value	TON	\$ (250.00)	75	\$ (18,750.00)
SUBTOTAL FOR ALL ITEMS						\$ 5,224,640.00
Mobilization and Demobilization (2.5%)						\$ 130,616.00
General Cndtions and Insurance (2.5%)						\$ 130,616.00
ESPC, PCSM, & Drainage (4%)						\$ 208,985.60
Design, Engineering, Construction Inspection (20%)						\$ 1,044,928.00
50% CONTINGENCY						\$ 2,847,428.80
TOTAL ESTIMATED CONSTRUCTION COST						\$ 9,587,214.40

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	6765	Bridge	510.00	3	\$ 600.00	5100.00	\$ 3,060,000.00
2	6669	Bridge	127.00	3	\$ 600.00	1270.00	\$ 762,000.00
3	6540	Culvert	60.00	2	\$ 1,200.00	600.00	\$ 720,000.00
4	6391	Bridge	262.00	3	\$ 600.00	2620.00	\$ 1,572,000.00
5	6280	Bridge	35.00	2	\$ 1,200.00	350.00	\$ 420,000.00
6	6148	Bridge	105.00	3	\$ 600.00	1050.00	\$ 630,000.00
7	6141	Bridge	45.50	2	\$ 1,200.00	455.00	\$ 546,000.00

	PROJECT	Asset 6765 over Toms & Private Rd			FILE NO.		
	SUBJECT	Rail with Trail Quantities			PHASE		
	COMPUTED BY	DS	DATE	7/23/2025	CHECKED BY	RBC	DATE

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
6765		\$	9,114,640.00	

COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
<b>COST TO RETROFIT FOR FREIGHT RAIL SERVICE</b>					
<b><u>SUPERSTRUCTURE RETROFIT ITEMS</u></b>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	24.00	\$	102,000.00
<b><u>MISC. ITEMS</u></b>					
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$	84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 126,375.00	1.00	\$	126,375.00
DISPOSAL OF MATERIAL	LSUM	\$ 84,250.00	1.00	\$	84,250.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	510.00	\$	2,172,600.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	13	\$	6,519,890.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	510.00	\$	3,439,950.00





PROJECT Asset 6669 over HWY 651 FILE NO. \_\_\_\_\_  
SUBJECT Rail with Trail Quantities PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/23/2025 CHECKED BY RBC DATE 7/24/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
6669			\$	2,880,715.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	21.00	\$ 89,250.00
<u>MISC. ITEMS</u>				
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$ 84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	127.00	\$ 541,020.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	4	\$ 2,006,120.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	127.00	\$ 856,615.00



PROJECT Asset 6391 over South Fork Run, Tumbling Run, & Battlefield Rd. FILE NO. \_\_\_\_\_

SUBJECT Rail with Trail Quantities PHASE \_\_\_\_\_

COMPUTED BY DS DATE 7/23/2025 CHECKED BY RBC DATE 7/24/2025

ASSET NUMBER	PAY ITEM NAME	UNIT	FINAL QUANTITY	
			TOTAL	
6391			\$	3,902,095.00
COMPUTATION				QUANTITY
ITEM	UNIT	\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE				
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>				
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	8.00	\$ 34,000.00
<u>MISC. ITEMS</u>				
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$ 84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$ 4,260.00	262.00	\$ 1,116,120.00
SUBSTRUCTURE RETROFIT	EACH	\$ 501,530.00	5	\$ 2,507,650.00
ADDITION OF CANTILEVER WALKWAY	LF	\$ 6,745.00	262.00	\$ 1,767,190.00



PROJECT ASSET 6280 OVER UNNAMED DRAINAGE FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/16/2025 CHECKED BY RBC DATE 8/4/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
6280				\$	104,965.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
CONCRETE DECK	CY	\$ 5,000.00	14.26	\$	71,300.00
<u>SUBSTRUCTURE RETROFIT ITEMS</u>					
REPOINTING MORTAR JOINTS	LF	\$ 62.20	250	\$	15,550.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$ 4,212.50	1.00	\$	4,212.50
ROUGH GRADING	LSUM	\$ 8,425.00	1.00	\$	8,425.00
DISPOSAL OF MATERIAL	LSUM	\$ 3,370.00	1.00	\$	3,370.00
SELECT BACKFILL	LSUM	\$ 2,106.25	1.00	\$	2,106.25



PROJECT     ASSET 6148 OVER TOWN RUN STREAM     FILE NO.     \_\_\_\_\_

SUBJECT     RAIL WITH TRAILS QUANTITIES     PHASE     \_\_\_\_\_

COMPUTED BY     DS     DATE     6/25/2025     CHECKED BY     RBC     DATE     6/26/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
6148				\$	1,829,535.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$	4,250.00	20.00	\$ 85,000.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$	84,250.00	1.00	\$ 84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$	84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$	50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 6141)	LF	\$	3,240.00	105	\$ 340,200.00
SUBSTRUCTURE RETROFIT	EACH	\$	193,335.00	6	\$ 1,160,010.00



PROJECT ASSET 6141 OVER MASSANUTTEN ST. FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 6/24/2025 CHECKED BY RBC DATE 6/25/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
6141				\$	795,280.00
COMPUTATION					QUANTITY
ITEM	UNIT		\$/UNIT	QTY	
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
PROTECTIVE COATING SYSTEM	LF	\$	1,297.45	45.50	\$ 59,035.00
NEW TIMBER TIE DECK	LF	\$	1,500.00	45.50	\$ 68,250.00
MODIFY EXISTING BEARING	EACH	\$	4,250.00	4.00	\$ 17,000.00
LEAD ABATEMENT	LSUM	\$	20,000.00	1.00	\$ 20,000.00
<u>SUBSTRUCTURE RETROFIT COSTS</u>					
CRACK REPAIR TYPE B	LF	\$	250.00	480.00	\$ 120,000.00
CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$	5,000.00	53.33	\$ 266,670.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$	84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$	50,550.00	1.00	\$ 50,550.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$	84,250.00	1.00	\$ 84,250.00
SUPERSTRUCTURE RETROFIT COST					\$ 164,285.00
SUBSTRUCTURE RETROFIT COST					\$ 386,670.00
MISC. COSTS					\$ 244,325.00
TOTAL COST FOR RETROFIT					\$ 795,280.00
COST PER LF DECK BEAM STRUCTURE					\$ 3,237.03
COST PER SUBSTRUCTURE UNIT					\$ 193,335.00

# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 5 - October 2025

Segment 5		
	20% Uplift	80% Uplift
<b>Residential</b>		
Toms Brook	\$3.15	\$4.72
Strasburg	\$4.15	\$6.22
<b>Average Land Value</b>	<b>\$3.65</b>	<b>\$5.47</b>
<b>Commercial</b>		
Toms Brook	\$3.61	\$5.41
Strasburg	\$15.42	\$23.13
<b>Average Land Value</b>	<b>\$9.52</b>	<b>\$14.27</b>
<b>Agriculture/Farmland</b>		
Toms Brook	\$0.15	\$0.23
Strasburg	\$0.28	\$0.42
<b>Average Land Value</b>	<b>\$0.22</b>	<b>\$0.33</b>
<b>Industrial</b>		
Toms Brook	\$1.72	\$2.58
Strasburg	\$1.01	\$1.52
<b>Average Land Value</b>	<b>\$1.37</b>	<b>\$2.05</b>

Total Segment Length **35661**

<b>Residential</b>	
Percentage of land use	30%
LF of Affected Prop	10698.3
SF of Affected Prop	53491.5

**Total Acquired Land Value \$ 292,598.51**

<b>Commercial</b>	
Percentage of land use	10%
LF of Affected Prop	3566.1
SF of Affected Prop	17830.5

**Total Acquired Land Value \$ 254,441.24**

<b>Agricultural / Farmland</b>	
Percentage of land use	50%
LF of Affected Prop	17830.5
SF of Affected Prop	89152.5

**Total Acquired Land Value \$ 28,974.56**

<b>Industrial</b>	
Percentage of land use	10%
LF of Affected Prop	3566.1
SF of Affected Prop	17830.5

**Total Acquired Land Value \$ 36,552.53**

**Total Land Acquisition Cost \$ 612,566.83**

Total parcels Impacted	89
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 2,225,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 356,000.00
Total ROW Cost	\$ 3,193,566.83

Trailhead Construction Estimates										
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High	
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1	\$ 9,885,000.00
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1	
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1	
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1	
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1	
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2	\$ 2,030,000.00
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2	
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3	\$ 3,035,000.00
Fisher's Hill / Strasburg Muesuem	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5	\$ 1,015,000.00
Town Park	Town of Strasburg	-					\$	-	Segment 6	\$ 8,595,000.00
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6	
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6	
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6	
Please note that this does NOT include right-of-way costs										

## Segment 06



# Shenandoah Valley Rail-with-Trail (Segment 6)

## Features and Characteristics

<b>Length</b>	10.6 Miles
<b>Termini</b>	The Town Museum in Town of Strasburg and the east side of the South Fork of the Shenandoah River in the Town of Front Royal
<b>Jurisdictions</b>	Shenandoah County Warren County Town of Strasburg Town of Riverton Town of Front Royal
<b>Trail Alignment Height</b>	Railroad At Grade, Trail Built Up Atop Ballast Per Typical Sections
<b>Recommended Trailheads</b>	1 Preferred Trailhead (3 Additional Viable Alternatives)

## Total Cost Summary for Trail Alignment (Segment 6)

<b>Segment</b>	Segment 6		
<b>Length</b>	10.6 Miles		
		<b>Cost Summary (FY 2025) with Cantilevers</b>	
<b>Trail Construction Cost</b>	\$	47,754,200.00	
<b>Bridge Construction Costs</b>	\$	45,040,000.00	
<b>Rail Rehabilitation Cost</b>	\$	15,951,489.85	
<b>Trailheads Costs</b>	\$	8,595,000.00	
<b>ROW Acquisition Cost (Non Railroad Parcel)</b>	\$	3,822,610.36	
<b>Preliminary Engineering Costs</b>	\$	15,164,803.97	
	<i>Trail</i>	\$	5,969,040.00
	<i>Bridge</i>	\$	4,286,466.00
	<i>Rail Rehabilitation</i>	\$	3,190,297.97
	<i>Trailheads</i>	\$	1,719,000.00
		<b>\$</b>	<b>136,328,000.00</b>

## Itemized Bridge Construction Cost Summary (Segment 6)

BRIDGE NO.	ASSET NO.	COST (FY 2025)		Cantilever Option Cost Savings (Compared to Seperate Structure)
		(Cantilevers Crossings Where Feasible)		
1	5944	\$	5,847,125.00	
2	5791	\$	48,300.00	
3	5740	\$	30,100.00	
4	5734	\$	35,300.00	
5	5705	\$	39,600.00	
6	5695	\$	65,000.00	
7	5671	\$	126,900.00	
8	5636	\$	76,700.00	
9	5618	\$	30,100.00	
10	5612	\$	35,300.00	
11	5565	\$	4,020,135.00	
12	5523	\$	30,100.00	
13	5518	\$	47,800.00	
14	5389	\$	40,400.00	
15	5387	\$	42,400.00	
16	5382	\$	36,800.00	
17	5355	\$	37,700.00	
18	5326	\$	52,600.00	
19	5321	\$	37,700.00	
20	5320	\$	37,700.00	
21	5157	\$	37,700.00	
22	5104	\$	10,676,870.00	
Sub-Total Construction Cost		\$	21,432,330.00	\$ -
Mobilization (Structures)		\$	1,101,616.50	

Unaccounted Items	20%	\$	4,286,466.00
Remote Location Factor	15%	\$	3,214,849.50
CE&I	20%	\$	4,286,466.00
Contingency	50%	\$	10,716,165.00
Design Engineering	20%	\$	4,286,466.00
Total Bridge Construction Cost (Segment 6)			
		\$	45,040,000.00

\* Notes:

"Design Engineering" is used for Preliminary Engineering and remains unchanged from 2021 Feasibility Study

Total Bridge Construction Cost does not include Design Engineering

Item Code		Description	Unit	Quantity	Unit Cost	Extension
Old	New					
Mobilization Items						
00100	513SD20-0001	Mobilization	LS	1	\$1,423,221.18	\$ 1,423,221.18
00101	517SD20-0001	CN Surveying	LS	1	2%	\$ 557,288.47
MOBILIZATION SUB-TOTAL						\$ 1,980,509.66

Maintenance of Traffic (MOT) Items						
24265	512SP20-0002	Maintenance of Traffic	LS	1	2.5%	\$ 679,620.09
MAINTENANCE OF TRAFFIC (MOT) SUB-TOTAL						\$ 679,620.09

		Roadway Items				
10245	309SD20-0010	AGGR. BASE MATL. TY. I NO. 21B	TON	12,990	\$ 50.43	\$ 655,099.82
10041	312SD20-0003	CO.MAT.FINE AGGR.OR AGGR.NO.10	TON	5,167	\$ 85.00	\$ 439,167.12
13220	504SD20-0003	HYDR. CEMENT CONC. SIDEWALK 4"	SY	119	\$ 130.00	\$ 15,503.70
13108	504SD20-0002	CG-12 DETECTABLE WARNING SURFACE	SY	102	\$ 580.34	\$ 59,323.64
					<b>ROADWAY SUB-TOTAL</b>	<b>\$ 1,169,094.29</b>

		Hydraulics Items				
27500	303SD20-0032	GEOTEXTILE FABRIC	SY	86,600	\$ 6.00	\$ 519,600.00
		NUTRIENT CREDIT	LBS	5.31	\$ 28,300.00	\$ 160,000.00
		SWM FACILITY	EA	32	\$ 70,000.00	\$ 2,240,000.00
00120	303SD20-0001	DITCH EXCAVATION (REGULAR EXCAVATION)	CY	18,702	\$ 55.44	\$ 1,036,838.88
		DRAINAGE ALLOWANCE	LS	1	5%	\$ 854,000.00
27275	303SX20-0022	E&S CONTROLS	LS	1	5%	\$ 854,000.00
					<b>HYDRAULICS SUB-TOTAL</b>	<b>\$ 5,664,438.88</b>

In-Plan Utilities Items		
	IN-PLAN UTILITIES SUB-TOTAL	\$ -

Traffic Items						
54044	704SD20-0012	TYPE B CLASS II PMNT LINE MRKG 6"	LF	864	\$ 5.21	\$ 4,501.44
54048	704SD20-0015	TY.B CL.II PAVE. LINE MARK. 24"	LF	1,747	\$ 27.86	\$ 48,671.42
54402	704SX20-0005	SYMBOLS/ MESSAGES	EA	92	\$ 680.00	\$ 62,560.00
50108	701SD20-0001	SIGN PANEL	SF	1,249	\$ 51.43	\$ 64,210.36
50436	700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	1,589	\$ 42.71	\$ 67,866.19
50489	700SD20-0042	CONC. SIGN FDN. STP-1 TY.E	EA	227	\$ 606.21	\$ 137,609.67
TRAFFIC SUB-TOTAL					\$	385,419.08

Structures/Bridges Items							
22643	507SD20-0005	FENCE FE-CL	LF	50,354	\$ 62.44	\$ 3,144,103.76	
22750	507SX20-0017	NS PEDESTRIAN FENCE	LF	18,395	\$ 77.18	\$ 1,419,736.52	
13530	506SD20-0002	RETAINING WALL RW-3	CY	6,678	\$ 1328.56	\$ 8,872,774.58	
STRUCTURES/BRIDGES SUB-TOTAL						\$ 13,436,614.86	

Earthwork/Materials Items							
00120	303SD20-0001		REGULAR EXCAVATION	CY	25,200	\$ 55.44	\$ 1,397,088.00
00140	305SD20-0001		BORROW EXCAVATION	CY	4350	\$ 36.31	157,948.50
00142	305SD20-0003		BORROW EXCAVATION MIN. CBR-20	CY	0	\$ 96.63	-
					EARTHWORK/MATERIALS SUB-TOTAL		\$ 1,555,036.50

Sound Wall Items		
	SOUND WALL SUB-TOTAL	\$ -

Other Items						
00111	301SD20-0002		CLEARING AND GRUBBING	ACRE	0	\$ 0.00 \$ -
38953	605SX20-0013		LANDSCAPING	LS	0	\$ 0.00 \$ -
OTHER SUB-TOTAL						\$ -

	MAJOR ITEMS SUBTOTAL	\$24,871,000
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<b>Construction Totals</b>						
		Unaccounted for Items (20%)	LS	1	20%	\$ 4,974,200.00
		<b>Construction Contract Total</b>				<b>\$ 29,845,200.00</b>

	Construction Contingency (35%)	LS	1	35%	\$ 10,446,000.00
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	Contract Contingency (5%)	LS	1	5%	\$ 1,493,000.00
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	Construction Engineering & Inspection (20%)	LS	1	20%	\$ 5,970,000.00
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Total Construction Phase (in FY2023 Dollars)	\$	47,754,200.00
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<b>Preliminary Engineering</b>					
	Preliminary Engineering	LS	1	20%	\$5,969,040
<b>Total Preliminary Engineering Phase (in FY2023 Dollars)</b>					<b>\$5,969,040</b>

RAIL REHABILITATION FY2025 ESTIMATE						
Segment 6, B-60.78 - B-50.15, Sheandoah Valley Rail Trail						
Item Code		DESCRIPTION	UNIT	\$/UNIT	QTY	TOTAL
Old	New					
		Restore NS Connection Switch. Includes any nessessary legal interchange operation agreement, upgrading track structure to adhere to NS standards for interchange operations, and installing track protection device per NS standards @ Riverton Junction	LS	\$ 1,500,000.00	1	\$ 1,500,000.00
		Track Construction Spot Rehabilitation - Level I (Spot cross tie replacement/disposal 42%, spot curve/defective rail replacement 132# - 5%, track surface and line, ballast and spot OTM)	LF	\$ 70.00	53463	\$ 3,742,410.00
		Replacement - Active Warning Devices for At-Grade Crossing including Trackwork and pavement	EA	\$ 500,000.00	5	\$ 2,500,000.00
		Replacement - Passive Warning Devices for At-Grade Crossing including trackwork and pavement	EA	\$ 50,000.00	11	\$ 550,000.00
		Vegetation Removal	AC	\$ 5,000.00	74	\$ 370,000.00
		Tree Removal	AC	\$ 30,000.00	2	\$ 60,000.00
		Rail Scrap Value	TON	\$ (250.00)	118	\$ (29,500.00)
						\$ 8,692,910.00
Mobilization and Demobilization (2.5%)						\$ 217,322.75
General Condtions and Insurance (2.5%)						\$ 217,322.75
ESPC, PCSM, & Drainage (4%)						\$ 347,716.40
Design, Engineering, Construction Inspection (20%)						\$ 1,738,582.00
50% CONTINGENCY						\$ 4,737,635.95
TOTAL ESTIMATED CONSTRUCTION COST						\$ 15,951,489.85

## Pedestrian Bridge Abridged Cost Estimation Table

#	Asset Number Adjacent	B or C	Length	Tier	SF Cost	SF	Structure Cost
1	5944	Bridge	290.00	3	\$ 600.00	2900.00	\$ 1,740,000.00
2	5791	Culvert	0.00	2	\$ 1,200.00	0.00	\$ -
3	5740	Culvert	26.50	2	\$ 1,200.00	265.00	\$ 318,000.00
4	5734	Culvert	21.00	2	\$ 1,200.00	210.00	\$ 252,000.00
5	5705	Culvert	10.00	2	\$ 1,200.00	100.00	\$ 120,000.00
6	5695	Culvert	26.00	2	\$ 1,200.00	260.00	\$ 312,000.00
7	5671	Culvert	40.00	2	\$ 1,200.00	400.00	\$ 480,000.00
8	5636	Culvert	40.00	2	\$ 1,200.00	400.00	\$ 480,000.00
9	5618	Culvert	50.00	2	\$ 1,200.00	500.00	\$ 600,000.00
10	5612	Culvert	32.00	2	\$ 1,200.00	320.00	\$ 384,000.00
11	5565	Bridge	128.50	3	\$ 600.00	1285.00	\$ 771,000.00
12	5523	Culvert	60.00	2	\$ 1,200.00	600.00	\$ 720,000.00
12	5518	Culvert	60.00	2	\$ 1,200.00	600.00	\$ 720,000.00
12	5389	Culvert	30.00	2	\$ 1,200.00	300.00	\$ 360,000.00
12	5387	Culvert	38.00	2	\$ 1,200.00	380.00	\$ 456,000.00
12	5382	Culvert	24.00	2	\$ 1,200.00	240.00	\$ 288,000.00
12	5355	Culvert	24.00	2	\$ 1,200.00	240.00	\$ 288,000.00
12	5326	Culvert	45.00	2	\$ 1,200.00	450.00	\$ 540,000.00
12	5321	Culvert	20.00	2	\$ 1,200.00	200.00	\$ 240,000.00
12	5320	Culvert	20.00	2	\$ 1,200.00	200.00	\$ 240,000.00
12	5157	Culvert	25.00	2	\$ 1,200.00	250.00	\$ 300,000.00
12	5104	Bridge	522.00	3	\$ 600.00	5220.00	\$ 3,132,000.00



PROJECT     Asset 5944 over North Fork Shenandoah River     FILE NO. \_\_\_\_\_

SUBJECT     RAIL WITH TRAIL QUANTITIES     PHASE \_\_\_\_\_

COMPUTED BY     DS     DATE     7/23/2025     CHECKED BY     RBC     DATE     7/24/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
5944				\$	4,107,125.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	4.00	\$	17,000.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$	84,250.00
ENVIRONMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 84,250.00	1.00	\$	84,250.00
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$	50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 5104)	LF	\$ 10,370.00	290.00	\$	3,007,300.00
SUBSTRUCTURE RETROFIT	EACH	\$ 279,500.00	3	\$	838,500.00



PROJECT Asset 5565 over Passage Creek FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 7/23/2025 CHECKED BY RBC DATE 7/24/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
5565				\$	3,249,135.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
MODIFY EXISTING BEARING	EACH	\$	4,250.00	8.00	\$ 34,000.00
<u>MISC. ITEMS</u>					
CLEARING & GRUBBING	LSUM	\$	25,275.00	1.00	\$ 25,275.00
ROUGH GRADING	LSUM	\$	84,250.00	1.00	\$ 84,250.00
DISPOSAL OF MATERIAL	LSUM	\$	50,550.00	1.00	\$ 50,550.00
SUPERSTRUCTURE RETROFIT (ASSET 7643)	LF	\$	4,260.00	128.50	\$ 547,410.00
SUBSTRUCTURE RETROFIT	EACH	\$	501,530.00	5	\$ 2,507,650.00



PROJECT ASSET 5104 OVER SOUTH FORK SHENANDOAH RIVER FILE NO. \_\_\_\_\_  
SUBJECT RAIL WITH TRAIL QUANTITIES PHASE \_\_\_\_\_  
COMPUTED BY DS DATE 6/25/2025 CHECKED BY RBC DATE 6/26/2025

ASSET NUMBER	PAY ITEM NAME		UNIT	FINAL QUANTITY	
				TOTAL	
5104				\$	7,544,870.00
COMPUTATION					QUANTITY
ITEM	UNIT	\$/UNIT	QTY		
COST TO RETROFIT FOR FREIGHT RAIL SERVICE					
<u>SUPERSTRUCTURE RETROFIT ITEMS</u>					
STRUCTURAL STEEL	LB	\$ 10.00	322675.31	\$	3,226,755.00
PROTECTIVE COATING SYSTEM	LF	\$ 2,591.53	522.00	\$	1,352,780.00
NEW TIMBER TIE DECK	LF	\$ 1,500.00	522.00	\$	783,000.00
MODIFY EXISTING BEARING	EACH	\$ 4,250.00	10.00	\$	42,500.00
LEAD ABATEMENT	LSUM	\$ 50,000.00	1.00	\$	50,000.00
<u>SUBSTRUCTURE RETROFIT</u>					
CONCRETE SUBSTRUCTURE SURFACE REPAIR	SY	\$ 5,000.00	154.93	\$	774,670.00
REPOINT MORTAR JOINTS	LF	\$ 631.88	1394.40	\$	881,090.00
CRACK REPAIR TYPE B	LF	\$ 250.00	85.00	\$	21,250.00
<u>MISC. ITEMS</u>					
DISPOSAL OF MATERIAL	LSUM	\$ 50,550.00	1.00	\$	50,550.00
ENVIORMENTAL PROTECTION & HEALTH & SAFETY	LSUM	\$ 252,750.00	1.00	\$	252,750.00
CLEARING & GRUBBING	LSUM	\$ 25,275.00	1.00	\$	25,275.00
ROUGH GRADING	LSUM	\$ 84,250.00	1.00	\$	84,250.00
SUPERSTRUCTURE RETROFIT COST				\$	5,455,035.00
SUBSTRUCTURE RETROFIT COST				\$	1,677,010.00
MISC. COSTS				\$	412,825.00
TOTAL COST FOR RETROFIT				\$	7,544,870.00
COST PER LF SUPERSTRUCTURE				\$	10,368.84
COST PER SUBSTRUCTURE UNIT				\$	279,501.67



TRAILHEAD CONSTRUCTION ESTIMATES									
Trailhead	Location	Estimate Cost Range	Low Cost		High Cost		High Inflated Costs	Segment	Total Segment Cost High
Turner Avenue	Town of Broadway	\$3.6M - \$5.0M	\$	3,600,000.00	\$	5,000,000.00	\$	8,430,000.00	Segment 1
Memorial Park	Town of Timberville	\$24K - \$26K	\$	24,000.00	\$	26,000.00	\$	45,000.00	Segment 1
North Main Street	Town of Timberville	\$0.2M - \$0.3M	\$	200,000.00	\$	300,000.00	\$	510,000.00	Segment 1
Depot Road	Shenandoah County	\$0.3M - \$0.5M	\$	300,000.00	\$	500,000.00	\$	845,000.00	Segment 1
Village Lane	Town of Quicksburg	\$26K - \$30K	\$	26,000.00	\$	30,000.00	\$	55,000.00	Segment 1
Town Hall	Town of Mount Jackson	-					\$	-	Segment 2
Edinburg Mill	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Stony Creek Boulevard	Town of Edinburg	\$0.4M-\$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 2
Court Street	Town of Woodstock	\$1.3M - \$1.8M	\$	1,300,000.00	\$	1,800,000.00	\$	3,035,000.00	Segment 3
Fisher's Hill / Strasburg Muesuem	Town of Strasburg	\$0.4M - \$0.6M	\$	400,000.00	\$	600,000.00	\$	1,015,000.00	Segment 5
Town Park	Town of Strasburg	-					\$	-	Segment 6
VDOT District Office	Town of Front Royal	\$0.7M - \$1.0M	\$	700,000.00	\$	1,000,000.00	\$	1,690,000.00	Segment 6
Queens Highway	Town of Front Royal	\$3.0M - \$3.8M	\$	3,000,000.00	\$	3,800,000.00	\$	6,405,000.00	Segment 6
Previous VFW Site	Town of Front Royal	\$4.0M - \$5.1M	\$	4,000,000.00	\$	5,100,000.00	\$	8,595,000.00	Segment 6
Please note that this does NOT include right-of-way costs									

Note: Segment 6 using preferred trailhead cost of Previous VFW Site only

# Right of Way Cost Estimation Table

Shenandoah Valley Rail-with-Trail Estimate - Segment 6 - October 2025

Segment 6		
	20% Uplift	80% Uplift
<b>Residential</b>		
Strasburg	\$4.15	\$6.22
Front Royal	\$5.40	\$8.09
<b>Average Land Value</b>	<b>\$4.78</b>	<b>\$7.16</b>
<b>Commercial</b>		
Strasburg	\$15.42	\$23.13
Front Royal	\$14.94	\$22.41
<b>Average Land Value</b>	<b>\$15.18</b>	<b>\$22.77</b>
<b>Agriculture/Farmland</b>		
Strasburg	\$0.28	\$0.42
Front Royal	\$0.03	\$0.05
<b>Average Land Value</b>	<b>\$0.16</b>	<b>\$0.24</b>
<b>Industrial</b>		
Strasburg	\$1.01	\$1.52
Front Royal	\$4.35	\$6.52
<b>Average Land Value</b>	<b>\$2.68</b>	<b>\$4.02</b>

Total Segment Length **56104**

<b>Residential</b>	
Percentage of land use	30%
LF of Affected Prop	16831.2
SF of Affected Prop	84156

**Total Acquired Land Value \$ 602,136.18**

<b>Commercial</b>	
Percentage of land use	10%
LF of Affected Prop	5610.4
SF of Affected Prop	28052

**Total Acquired Land Value \$ 638,744.04**

<b>Agricultural / Farmland</b>	
Percentage of land use	50%
LF of Affected Prop	28052
SF of Affected Prop	140260

**Total Acquired Land Value \$ 32,961.10**

<b>Industrial</b>	
Percentage of land use	10%
LF of Affected Prop	5610.4
SF of Affected Prop	28052

**Total Acquired Land Value \$ 112,769.04**

Total Land Acquisition Cost **\$ 1,386,610.36**

Total parcels Impacted	84
Admin Cost per Parcel	\$ 25,000.00
Total Admin Cost	\$ 2,100,000.00
Improvement Impact Fee	\$ 4,000.00
Total Improvement Impact Fee	\$ 336,000.00
Total ROW Cost	\$ 3,822,610.36