



SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2021.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

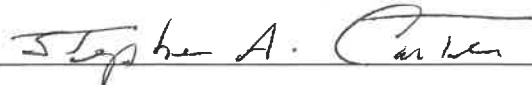
PROGRAM INFORMATION

County: Nelson County
Program Title: Blue Ridge Tunnel Rehabilitation and Trail Project
Program Category: Parks & Recreation

CONTACT INFORMATION

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SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Stephen A. Carter
Title: County Administrator
Signature: 

Blue Ridge Tunnel Rehabilitation and Trail Project
Nelson County, Virginia
Population: 14,930

PROBLEM STATEMENT/ EXECUTIVE SUMMARY

The Blue Ridge Tunnel: Turning an abandoned railroad tunnel built in the 1850s into a regional recreational amenity.

Claudius Crozet's Blue Ridge Tunnel was completed and opened for rail transportation in 1858 beneath the Rockfish Gap in the Blue Ridge Mountains. Built painstakingly over an 8-year period by Irish immigrants and slave labor (a decade before the invention of dynamite), it was the longest underground tunnel in the United States at the time.

Crozet, a French Army officer under Napoleon Bonaparte, West Point instructor, and founder of the Virginia Military Institute, designed the tunnel and directed crews to dig from east and west portals before arriving at a near perfect alignment at the tunnel's center. The tunnel was used for rail transport until 1944 when an adjacent tunnel was built to accommodate larger trains. In the 1950's a natural gas company built two concrete bulkheads within the old blue ridge tunnel with the intent to store propane between these two bulkheads. However, the propane storage never occurred, and the tunnel sat abandoned.

In 2001 Nelson County undertook the project that resulted in restoration of the historic tunnel, including plans for the tunnel to become an outdoor public trail. The county

acquired the tunnel in 2007 from CSX Inc. and in 2013 purchased easements and land to construct the project's eastern trail in Nelson County and the western trail in Augusta County. Despite the many challenges the project encountered that led to a 20-year long project, Nelson County staff persevered. The construction bids came in much higher than the engineer's estimate which meant the project had to be re-scoped and re-bid and broken down into phases. Ultimately, the tunnel project was completed in three phases: eastern trail and parking lot (phase 1), tunnel restoration (phase 2) and western trail and parking lot (phase 3). Federal and state grant funding (VA DCR Recreational Trail Program grant, Commonwealth Transportation Board Funding, VDOT grants), and local funding from Nelson County enabled the tunnel project to be completed and open to the public in November 2020.

The Claudius Crozet Blue Ridge Tunnel is a National Engineering Landmark and is located within a mile of the entrances to both the Shenandoah National Park and Blue Ridge Parkway. It has attracted 63,000 visitors to-date since it's opening in late 2020 and is expected to continue to draw thousands of visitors.

Nelson County was assisted by the following major partners: Virginia Department of Transportation, Commonwealth Transportation Board, City of Waynesboro, Woolpert Inc, Fielder's Choice Enterprises Inc, Whitesell Group, Department of Conservation and Recreation, and the Claudius Crozet Blue Ridge Tunnel Foundation.

Brief Overview for Press Releases/Brochures

The Blue Ridge Tunnel was constructed between 1850 and 1858 beneath Rockfish Gap in the Blue Ridge Mountains of central Virginia. The former railroad tunnel is 4,273-feet-long and approximately 700 feet below the surface at its deepest point. It was originally constructed to move goods and people back and forth from the coastal plain to the Piedmont, Shenandoah Valley, and beyond.

In 1944, the Chesapeake and Ohio Railway replaced the 86-year-old Blue Ridge Tunnel with an adjacent tunnel at a slightly lower elevation that could accommodate larger locomotives. In the 1950's, the Dixie Bottled Gas Corporation built massive concrete bulkheads in the old tunnel with the intent to store propane in the chamber created between the bulkheads. The venture was unsuccessful. The bulkheads created a barrier for walking through the entire tunnel, which sat vacant, unused and reclaimed by nature. That is, until Nelson County envisioned the passage as a major recreational and historical amenity; an economic initiative that will further strengthen the area's thriving recreation and tourism industry. Totalling almost a 20-year process, the tunnel has been transformed into an extremely popular recreational trail and Virginia destination, with over 60,000 visitors in less than 7 months.

Traveling through the long, dark tunnel is a stirring experience for a variety of visitors from across the Commonwealth and beyond: this shared-use trail is for hikers and cyclists of every level, wildlife watchers, history enthusiasts, railroad buffs, heritage tourists, school children on field trips, and nearby residents. Interpretive signs spread along the trail relay the history of the tunnel from the visionary engineer behind it

(Claudius Crozet), to the Irish immigrants and slaves who labored through illness, living through extremely challenging conditions. The tunnel is open from sunrise to sunset. Visitors should bring a high-powered flashlight or headlamp and expect wet conditions and uneven ground within the year-round 50-degree tunnel.

ABOUT THE TRAIL

The total trail length is 2.25 miles (one way) and there are parking lots at both the east and west trailheads. Trail width is 10 ft. Cross Slope 1-2% for the entire trail.

East Trail to East Tunnel Entrance

The most accessible route for people with mobility issues. 3,346 ft. (0.63 miles) net change in elevation +37 feet, max. grade 5.3% for 150 feet, most of the rest of the trail is < 1.6% ; avg. 1.5%

Length of Tunnel

4,273 feet; change in elevation +55 feet; average grade 1.3%

West Trail to West Tunnel Entrance

Length 4,279 feet; change in elevation +175 feet; grades range from -17% to +19% for lengths of 150+feet with grades over 5% for a majority of the trail; average grade is 6.5% max grade 19%. One section includes a concrete mat stream crossing that may have water flowing over it during or shortly after rainstorms.

The eastern trailhead and portal is located in Nelson County. The western trailhead and portal is located in Augusta County.

BEFORE/AFTER WESTERN PORTAL (Augusta County)



BEFORE/AFTER EASTERN PORTAL (Nelson County)



Multiple-Use Management and Corridor Sharing & Community Linkage

The Blue Ridge Tunnel restoration project is perfectly positioned to function as a key part of a greenway system that connects the counties of Albemarle, Nelson, and Augusta. Located at the threshold between the Shenandoah Valley and the Virginia Piedmont, the tunnel serves as a recreational gateway between these two historic regions. The tunnel is also strategically located at the convergence of the southern entrance of Shenandoah National Park's Skyline Drive, the northern entrance of the Blue Ridge Parkway, the Appalachian Trail, and U. S. Bicycle Route 76. Both Interstate 64 and U.S. 250 cross over the tunnel at Rockfish Gap.

Material washed off the mountain in the years after the original alignment was abandoned also blocked drainage from the tunnel, which slopes from west to east. The water and deep mud in the eastern end of the tunnel kept all but the most determined visitors out of the tunnel for many years. Photo shows the flooded east entrance of the tunnel prior to rehabilitation.





Near the tunnel eastern portal, the vegetation was waist high! August 2013

After the first section of trail was constructed and the shoulders had been completed, an 8-foot-high chain link fence was installed to separate the trail from the active rail lines which are currently used by Buckingham Branch Railroad. Completed trail section, May 2015.



The final stage of the work included in Phase 1 was the construction of the eastern trailhead parking lot.



Phase II

Phase 2 of the Claudius Crozet Blue Ridge Tunnel Renovation Project dealt with making the tunnel "safer" (i.e. always some risk) and more easily passable by: a) the removal of two internal seals; b) rock stabilization measures (i.e. rock bolting, shotcreting, scaling, etc.); c) brick masonry lining stabilization (i.e. scaling, shotcreting, replacement); d) provision for suitable breathing atmosphere; and e) gravity water drainage in conjunction with a new road/trail surface. Phase 2 final contract cost: 3,492,889.16.





One of the more enigmatic aspects of Phase II is the renovation of a short section of brick masonry arch several hundred feet in by the East Portal of the CCBRT. The purpose of this arch section is unknown. It has been theorized that it may have been used to cover an open fault that made water and had stability concerns. Photo courtesy of VDOT.



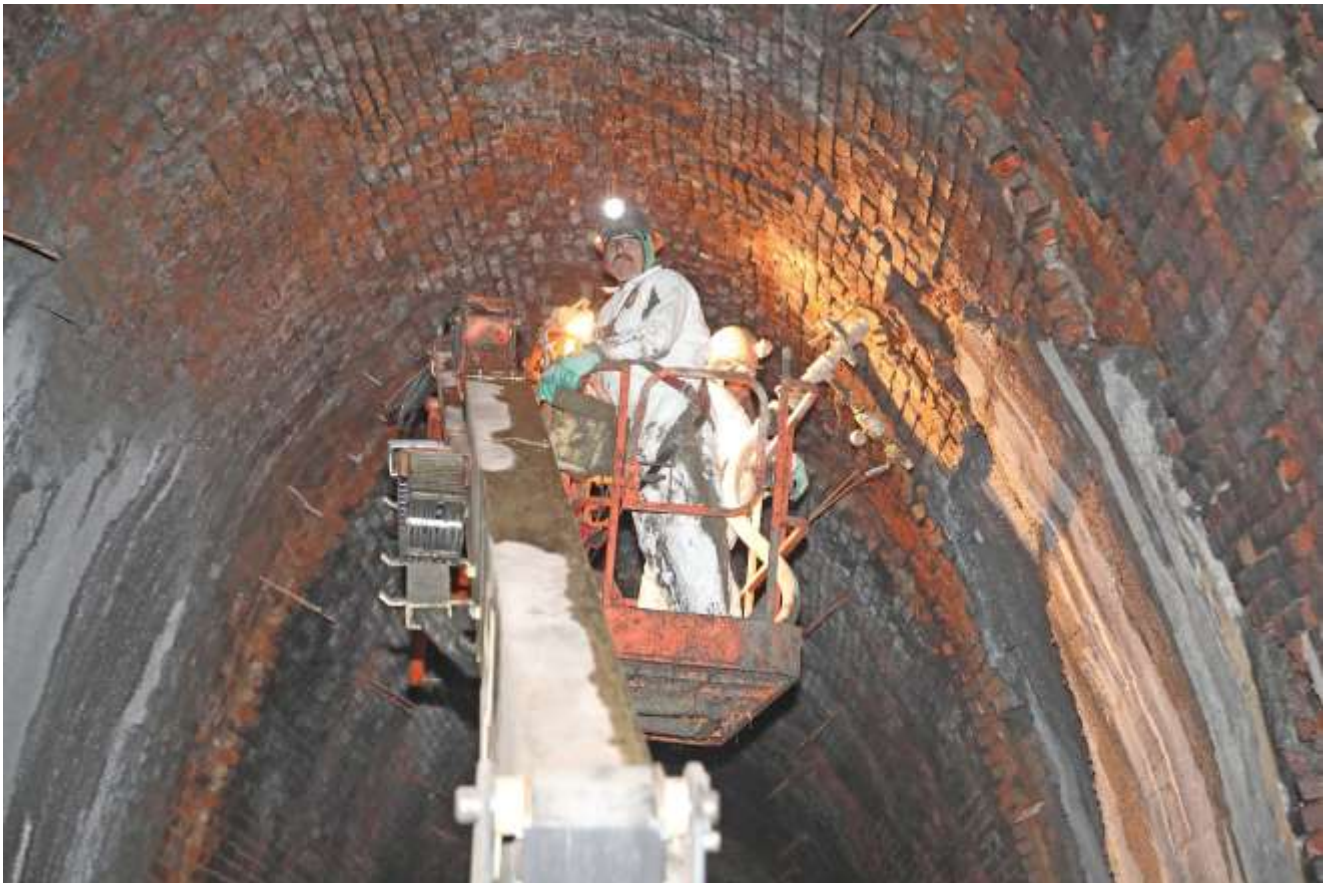
Two twelve-foot thick bulkheads were removed during phase 2. Photo courtesy of VDOT.



Drilling blastholes in east seal. Drill set up on basket of hi-lift.



Looking at the eastern bulkhead that was blocking access within the interior of the tunnel after fourth blast. This proved to be a more challenging operation than originally anticipated. Photo courtesy of VDOT.



A view of the hi-lift now being used to spray shotcrete on the western side. It's not exactly a clean nor easy operation. Much is required of the "nozzle man" to get it right. This was to reinforce the brick interior as it is not as strong as the eastern side. Photo courtesy of VDOT.



"The Light at the End of the Tunnel." We have been waiting for this view for many years! Note the repaired/replaced brick masonry units and surfaces scrubbed of decades of graffiti, as well as the new drained trail bed.

Phase III

Phase 3 began in fall 2019 and involved development of the western trail, west trailhead, and western parking lot. The western parking lot is located off of 250 West towards Waynesboro, Virginia. It is crescent-shaped and has separate entrance and exit.



Grading of western trail. Photo courtesy of Woolpert Inc.



Tree removal and more western trail grading. Photos courtesy of Woolpert Inc.



Next step of trail creation.



More west trail development above; 8ft fence installation. Photos courtesy of Woolpert Inc.

Start of western parking lot paving.



West parking lot completed.





Development of west trailhead.

2 Views of the new West Trailhead and Kiosk (Augusta County). Photos courtesy of Jack Looney Photography



West Portal Entrance (Augusta County) August 2020



Upper photo courtesy of Jack Looney Photography.



East Portal Entrance (Nelson County) August 2020. Photos courtesy of Jack Looney Photography.



2 Views of the new East Trailhead and Kiosk (Nelson County).



Interpretive Signs Along Trail. Photos courtesy of Jack Looney Photography.



A brief history overview of the 20-year Blue Ridge Tunnel Rehabilitation Project

1976

The Tunnel is Designated as a National Historic Civil Engineering Landmark

2001

Nelson County Staff and Board of Supervisors Initiate the Rehabilitation Project

2002

Virginia Department of Transportation Staff Visit the tunnel

2003 and 2005

Virginia Department of Transportation provides Transportation Enhancement Grants to fund the design of the project

2007

CSX donates the tunnel to Nelson County

2008-2011

Construction Drawings are completed and Nelson County is awarded a Virginia Department of Conservation and Recreation Recreational Trails Grant

2012

Claudius Crozet Blue Ridge Tunnel foundation is relaunched and a National Park Service RTCA grant is awarded to Nelson County

2013

Virginia Department of Transportation awards Nelson County a MAP-21 Transportation Assistance Grant

2014

Initial bids, which included the parking lot at the east trailhead, the trail to the east portal of the tunnel, a fence to separate the trail from the CSX rail tracks, and 700 feet of work in the tunnel, exceeded the engineer's estimate. The Phase 1 project was re-bid without the tunnel work and amenities such as kiosks, signs, etc. at the parking lot.

2015

Phase 1 was completed by Fielder's Choice Enterprises at a cost of \$678,447.21 (overall

expense was \$797,389) Phase II funds in the amount of \$1,571,013 were awarded from the Virginia Department of Transportation, Virginia Department of Conservation and Recreation (Recreational Trail Program), and local matching funding.

2017

Phase 2, which includes the work in the tunnel, and a portion of Phase 3 was bid but the single bid received was higher than the available funding.

2018

After additional funding was received, the project was rebid with a smaller scope and a contract for the work in the tunnel was awarded to Fielder's Choice Enterprises in the amount of \$2,827,470. This total will be used to perform all work required within the limits of the tunnel which includes removal of the concrete bulkheads, installation of rock bolts, repairs to the east portal parapet, repairs to the brick lining, and reconstruction of the roadbed.

2019

Phase 2 work in the tunnel was completed late in the summer of 2019 for a total of \$3,770,978.

Phase III began in late fall 2019 and was completed by late 2020.

2020

Phase 3 work on the west tunnel trail is was completed in fall 2020. Phase 3 work consisted of rebuilding the western trail and completion of the west trailhead parking lot (overall Phase III expense \$1,162,468).

BEFORE/AFTER WESTERN PORTAL (Augusta County)



BEFORE/AFTER EASTERN PORTAL (Nelson County)

