Saluda Grade Multipurpose Active Tourism Rail and Hiking Corridor Feasibility Study

2024

North Carolina Division of Parks and Recreation

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Executive Summary

The Saluda Grade Railroad, constructed in the 1870s to link Spartanburg, SC, with Asheville, NC, contains the steepest section of standard-gauge mainline railroad in the United States. Rail use of the corridor between Zirconia, NC, and the SC state line was discontinued in 2001. In honor of the North Carolina Year of the Trail, the North Carolina legislature allocated funds to purchase the rail corridor for the eventual conversion into a state trail. Additionally, to maximize the return on this investment, the legislature directed the Department of Natural and Cultural Resources to study the feasibility of combining a recreational trail with a multipurpose active tourism rail line within the Saluda Grade Railroad corridor.

Staff from the North Carolina Division of Parks and Recreation conducted an extensive analysis of the corridor using GIS (Geographic Information System) and fieldwork; consulted with rail experts at the North Carolina Department of Transportation (NCDOT) and assembled the Saluda Grade Conservation and Development Council to guide the investigation.

The research and analysis showed that there has been extensive damage to the railroad corridor, including washouts and overgrowth of vegetation. There are homes, businesses and debris well within the provided right-of-way of the corridor. There are seven bridges that will need an engineering study to determine if they are structurally sound for either rail or trail use. There are 24 on-grade road crossings, three overpasses and three pedestrian crossings in the corridor.

The most overwhelming obstacle is the topography of the corridor. The terrain drastically limits the area within the corridor. There is simply not enough room within the rail corridor to accommodate both a tourist train and a trail for significant stretches in the corridor due to the steep topography. In the areas where the rail line is above the surrounding landscape, constructing the trail below the grade could potentially compromise the integrity of the rail line. Accommodating both uses would require significant additional land purchase and/or elevated structures for the trail. Presuming that the tourist train would occupy the existing footprint for the tracks, the trail would be required to crisscross the rail line, which increases the safety concerns and the cost of implementation.

The other significant obstacle to a rail with trail in this corridor is the cost. Construction of a multipurpose active tourism rail line and trail is estimated to cost a total of $328.4 million. This cost is inclusive of replacing the tracks, rehabilitating the bridges, constructing new bridges to mitigate washouts, making necessary accommodations and providing safety facilities, as well as the engineering and environmental assessments required. Constructing only a 4-foot natural surface trail within the rail corridor is estimated to cost a total of $11.4 million. There are also long-term maintenance costs to consider. All rail bridges must be inspected every 2 years, and the road crossings must be inspected yearly. This amounts to an annual maintenance cost of $654,000

In conclusion, while establishing a precedent for tourism rail with trail in North Carolina would be an exciting prospect, the Saluda Grade Railroad does not offer the appropriate conditions to make this feasible.

Note: This study was completed prior to Hurricane Helene's catastrophic impact on the entire region. Prior to publication of the report, the area was not even open for possible evaluation of the conditions. The costs mentioned in this document may vary.

Introduction

The Saluda Grade rail line once linked Asheville to Spartanburg, SC. Recently, there has been a lot of enthusiasm for converting the rail line into a trail. Railbanking the railroad corridor, or using the corridor for interim trail use and preserving it for future rail use, will permit recreational use of the corridor while preserving it for future rail use, should the need arise.

Per the legislative requirement in Session Law 2023-134, The North Carolina Division of Parks and Recreation studied the feasibility of combining a hiking trail and a multipurpose active tourism rail line in the former rail corridor between the state line and Zirconia, NC. This is a situation with both trail and train use within the same corridor. The train would be for tourism, rather than long-distance transportation. Some examples of this type of train use in North Carolina include the Great Smoky Mountain Railroad, Tweetsie Railroad, and the New Hope Railroad. None of those railroads include a trail adjacent to the rail line. This study is to determine the feasibility of both trail and tourist train in the Saluda Grade corridor.

Purpose: To determine the potential and feasibility of a multipurpose active tourism rail and hiking corridor in the Saluda Grade corridor from the City of Henderson to the Town of Tryon in North Carolina.

Need: Recent efforts to purchase the Saluda Grade Rail Corridor from Norfolk Southern have created energy towards developing a multiuse trail along the Saluda Grade Rail corridor and has resulted in receiving support and funding from the NC legislature. As part of the legislation that created this funding, the Division was directed to determine the feasibility of a multipurpose active tourism rail and hiking trail in the Saluda Grade Corridor from the City of Hendersonville to the Town of Tryon.

The enacting legislation can be found in the appendix.

The Saluda Grade Conservation and Development Council

Per the legislation, the Saluda Grade Conservation and Development Council was created with two representatives each from the Polk County Board of Commissioners and Henderson County Board of Commissioners; and one representative each from the City of Hendersonville City Council, City of Saluda Board of Commissioners, Town of Tryon Board of Commissioners and the executive director (or a designee) of the Polk County Community Foundation. The chair of the board of the Saluda Historic Depot and Museum Board or the chair's designee shall serve as an ex-officio member. Due to their involvement in the acquisition of the corridor, the executive director (or a designee) of Conserving Carolina was also invited as an ex-officio member.

Members:

- Alan Peoples, Mayor of Tryon, NC
  Town of Tryon Board of Commissioners Representative
- Autumn Ratcliff, Henderson County
  Henderson County Board of Commissioners Representative
- Janna Bianculli, Henderson County
  Henderson County Board of Commissioners Representative
- Myron Yoder, Polk County
  Polk County Board of Commissioners Representative
- Sara Bell, President and CEO of Polk County Community Foundation
  Polk County Community Foundation Representative
- Tangie Morgan, Mayor of Saluda, NC
  City of Saluda Board of Commissioners Representative
- Vacant
  Polk County Board of Commissioners Representative
- Vacant
  City of Hendersonville City Council Representative

Ex Officio Members:

- Mike Reeves, Saluda Historic Depot and Museum Board
  Saluda Historic Depot and Museum Board Representative
- Kieran Roe, Executive Director, Conserving Carolina
  Conserving Carolina Representative

History of the Saluda Grade Rail Line

The Saluda Grade holds a special place in railroad history in the United States as the steepest mainline, standard gauge stretch of track in the country.

In the 1800s, rail became the preferred transport for people and goods over long distances. Mountain communities in western North Carolina and upstate South Carolina were growing and needed a rail line connecting Asheville, NC, with Spartanburg, SC,to continue their growth. Several potential routes for this line were investigated. The shorter, steeper route was ultimately selected due to the more stable substrate and budget savings.

Most of the North Carolina portion of the line between Asheville and the SC border was accomplished with convict labor. This project marked the first large-scale use of prison labor in the US. In the Jim Crow-era South, most of the laborers were African Americans who were convicted and imprisoned for petty offenses. The convicts were chained together under brutal and dangerous working conditions on the railroad. If one man fell, he could drag the rest of the line over cliff face, to their deaths. Injuries, diseases, and deaths were common on the Saluda Grade project.

However, the work continued and on July 4, 1878, the first train traveled up the Saluda Grade into Pace's Gap, NC. In a few short years, the impact of rail travel would change that community's name to Saluda. It took another year for the tracks to reach Hendersonville. Finally, the line reached Asheville in 1886. The communities on the rail line prospered as a direct result of the rail traffic. It became a popular destination in the summer for people trying to escape the blistering heat in the lower elevations of both NC and SC.

Despite the popularity of the line, the steepness of the Saluda Grade became infamous for the number of runaway train accidents. As these accidents continued, the railroad constructed spur lines to stop a runaway train. It became commonplace to split trains into multiple sections to reduce the weight — necessary for travel both uphill and downhill on the Saluda Grade.

The 20th century saw the rise of the interstate highway system, easy availability of automobiles, and economic viability of shipping goods by trucks. This would bring the end of rail traffic on the Saluda Grade. Use of the tracks was discontinued by Norfolk Southern in 2000. In North Carolina, that totals 16 miles of track from the SC border north to Flat Rock. There is still rail traffic on the line in Hendersonville.

In 2023, the North Carolina General Assembly appropriated funds to preserve the Saluda Grade corridor — mirroring actions by the legislature in South Carolina. The Saluda Grade Conservancy has worked tirelessly to convert the historic rail corridor to a recreational trail. Once the corridor is acquired in North Carolina, it will be authorized as a state trail.

Definition of "Multipurpose Active Tourism Rail and Hiking Corridor"

A multipurpose active tourism rail and hiking corridor is a pathway providing recreational, educational, and transportation opportunities while promoting economic development, environmental conservation, and cultural heritage preservation. This definition originates from the Rails to Trails Conservancy. Key features and purposes of such corridors include:

Recreational Opportunities: These corridors offer a range of outdoor activities, including hiking, biking, birdwatching, and other nature-based pursuits. They cater to a diverse audience, from serious outdoor enthusiasts to families looking for leisurely outdoor activities.

Rail Transport: Part of the corridor may still function as an active rail line, potentially for scenic train rides that offer unique perspectives of the landscape and heritage of the region. Alternatively, disused rail lines might be converted into trails, preserving the historical rail infrastructure as part of the corridor's charm.

Economic Development: By attracting tourists and supporting local businesses, such as accommodations, restaurants, and retail, these corridors can significantly contribute to local and regional economies. They may also create jobs related to the maintenance and operation of the trail and rail components.

Conservation: Multipurpose corridors often play a role in preserving and showcasing natural landscapes and ecosystems. They can be developed with sustainability in mind, incorporating measures to protect wildlife, support biodiversity, and educate the public about environmental stewardship.

Cultural and Historical Preservation: These corridors can preserve and highlight historical and cultural features, including historical rail lines, stations, and cultural landmarks along the route. Interpretive signage and visitor centers may provide educational content about the area's history and cultural significance.

Connectivity and Accessibility: By linking communities, parks, natural areas, and historical sites, these corridors enhance regional connectivity and accessibility. They offer safe, nonmotorized transportation routes for residents and visitors alike, promoting healthier lifestyles and reducing the reliance on automobiles.

Public Health and Well-Being: By providing accessible spaces for physical activity and nature engagement, these corridors contribute to the public health and well-being of communities. They offer inclusive recreational options that cater to a wide range of abilities and interests.

Railbanking of the Corridor

Due to the rapid contraction of America's rail network, Congress amended the National Trails System Act (Section 8(d)) in 1983 to create the railbanking program. The legislation can be found in the appendix. Railbanking is a legal mechanism in the United States that allows unused railroad corridors to be preserved for future rail use through interim conversion to trails. This process is governed by the National Trails System Act and is facilitated by the Surface Transportation Board (STB). This process was intended and written for conversion to trails, and not rail and trail, within the corridor. Therefore, there is little guidance on the process of including a multipurpose active tourism rail into the corridor.

During trail use, the tracks and ties may be removed, but all bridges and trestles must remain in place and no permanent structures can be built on the right-of-way. If a rail line is abandoned, then easements revert to the adjacent property owners; however, railbanking prevents this and ensures the integrity of the corridor remains intact. More information on railbanking can be found in *Secrets of Successful Rail-Trails: An Acquisition and Organizing Manual for Converting Rails into Trails*, a 1993 manual published by the Rails-to-Trails Conservancy and the National Park Service.

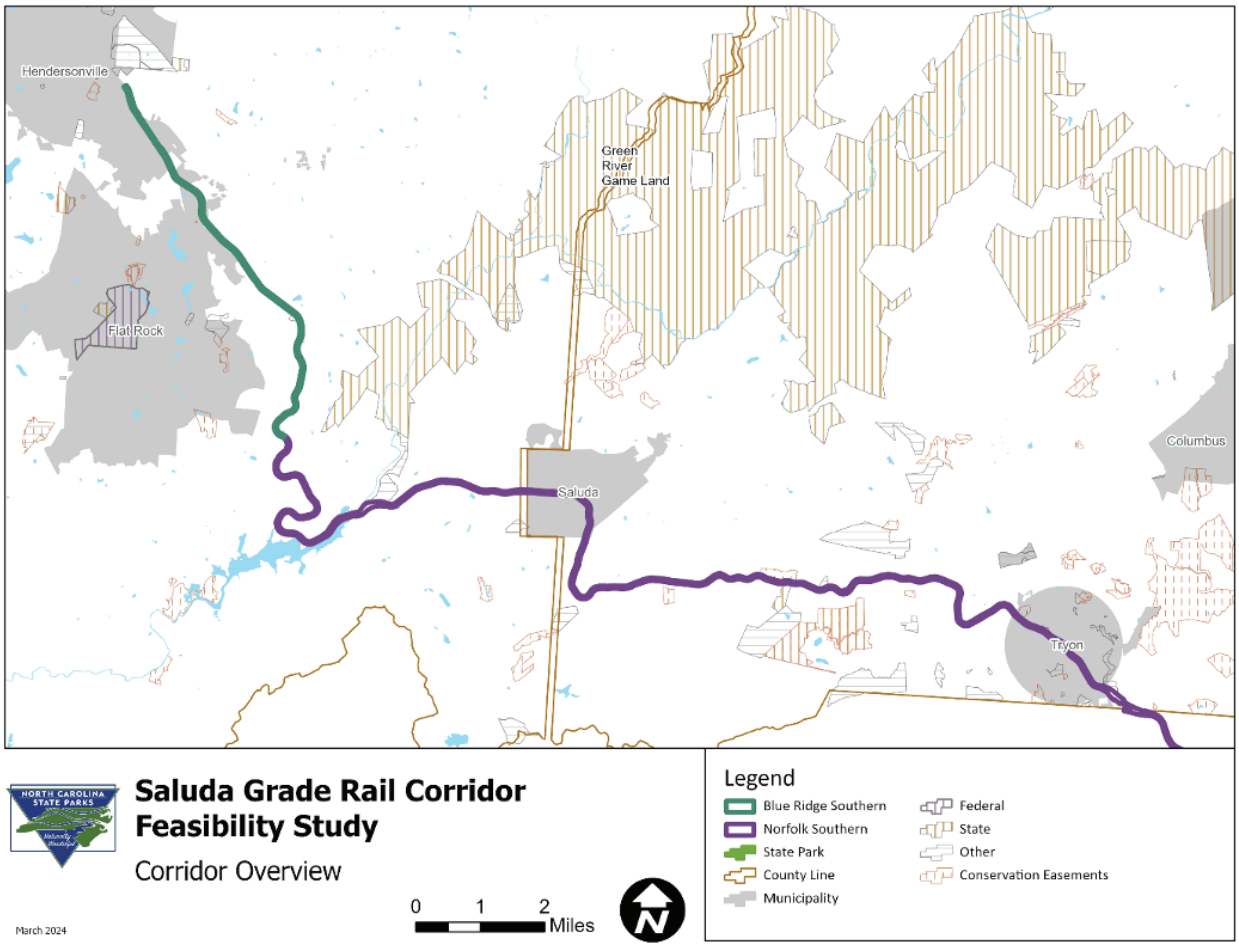
Here some processes and considerations regarding railbanking in the context of converting the Saluda Grade rail corridor in North and South Carolina to an active tourism rail line with a hiking trail:

- **Application for Railbanking:** Saluda Grade Trails Conservancy will need to apply for railbanking. This includes plans for the trail, details on how the infrastructure will be maintained, and assurances that the corridor can be reactivated for rail service in the future if necessary.
- **Interim Use as Trail and Tourist Rail Line:** Once approved, the corridor could then be developed as a dual-purpose trail, supporting both a tourist rail line and a hiking trail.

Challenges and Considerations:

- Maintaining the infrastructure to a standard that allows for future reactivation of full rail services can be costly and complex.
- The tracks and ties on a railbanked line can be removed. However, bridges and trestles must remain in place, and no permanent structures can be built on the right-of-way.
- "Some railroad rights-of-way contain easements that revert to adjacent landowners when an abandonment is consummated. However, if a line is railbanked, the corridor is treated as if it had not been abandoned. As a result, the integrity of the corridor is maintained, and any reversions that could break it up into small pieces are prevented (Rails to Trails)."
- "A railbanked line is subject to possible future restoration of rail service. The abandoning railroad can apply to the STB to resume rail service on a railbanked corridor which will then vacate the trail use ordinance. The terms and conditions of a transfer back to rail service must be negotiated with the trail manager (Rails to Trails)."
- Lawsuits regarding the change of use of the existing easements may occur, which would go to the federal court system.

Planning Area Context



The Saluda Grade rail corridor in consideration for this feasibility study spans from Hendersonville to the South Carolina border in Tryon. At the time of this study, there are two owners of the planning area corridor. Blue Ridge Southern owns the rail corridor from Hendersonville to mile marker 26, and Norfolk Southern owns the rail corridor from mile marker 26 into South Carolina. The steep grade that the corridor is known for begins in downtown Saluda and continues toward Tryon for approximately 3.5 miles.

Typically, there are several types of ownership of rail corridors including fee simple, easement, or license. An examination through a survey and title search, determines if the railroad owned the land itself (fee simple) or only had a right to use it for railroad purposes (easement or license). The Saluda Grade corridor is a mix of fee simple and easement ownership.

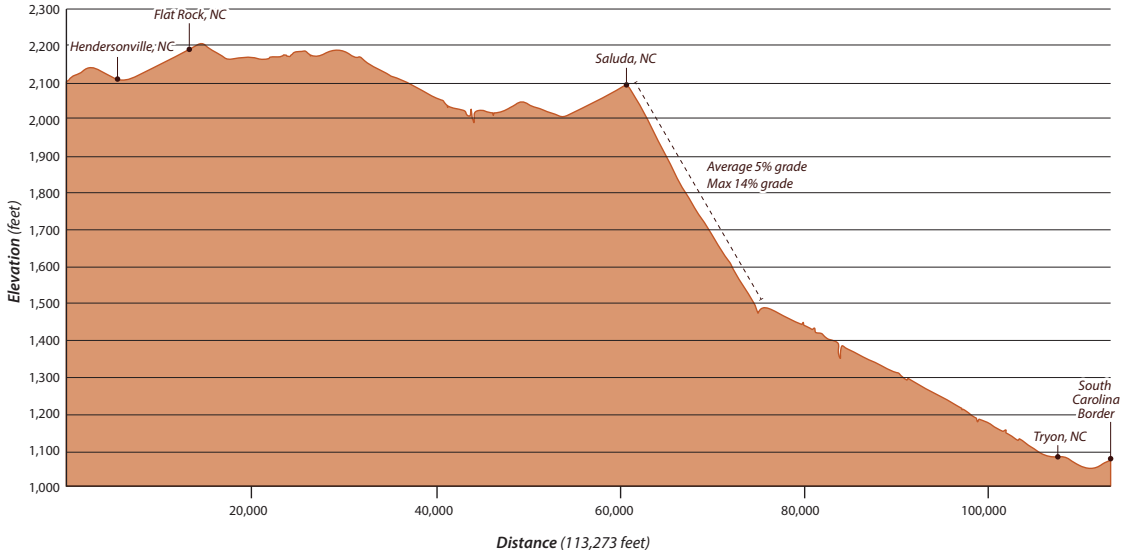
While North Carolina is studying the feasibility of combining a tourist train with the recreational trail, South Carolina is also considering how best to use the 15 miles of the corridor that are located in that state. The SC segment of the rail line is in much better condition than the line in NC, with decreased erosion and less vegetative encroachment on the rail line. The last time that a train ran on the tracks in SC was in 2001, but much of the SC line has considerably flatter topography than the part to the north in NC. There are three rail bridges located in SC, as opposed to the seven in NC. South Carolina will develop a trail for hikers and bicyclists and is still determining whether to include equestrian use. It is probable that the surface of the trail will be paved. All-terrain vehicles and other motorized vehicles will not be permitted. South Carolina is not considering a tourist train.

Existing Conditions

This section outlines the physical inventory for the rail line corridor, which will inform a recommendation for the feasibility of a multipurpose active tourism rail and hiking trail within the corridor. These features were gathered through GIS analysis using authoritative, public data sources and a right-of-wayfrom value maps. In addition, on-the-ground fieldwork was performed by NC DPR staff to corroborate the GIS desktop exercises and provide additional anecdotal evidence.

Grade of Corridor

The grade is relatively mild, with an average grade of 2%, from Hendersonville to Saluda. From Saluda south to Tryon, the rail line follows the North Pacolet River with an average grade of 5% and max of 14%. The grade begins to level out slightly after Tryon as the corridor enters South Carolina, transitioning from the steep inclines of the Saluda Grade to more rolling hills.

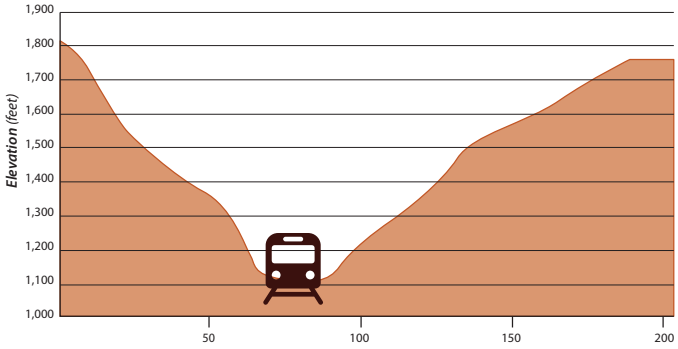


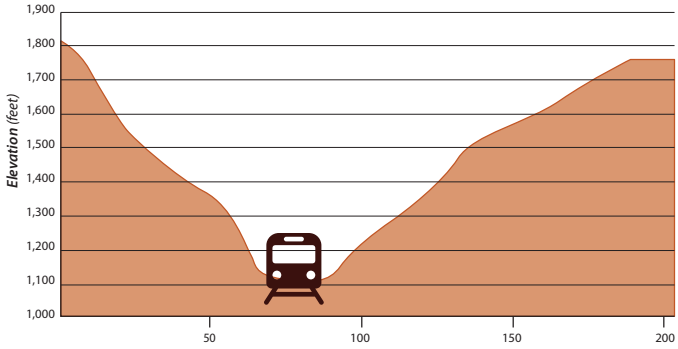
Width of Corridor

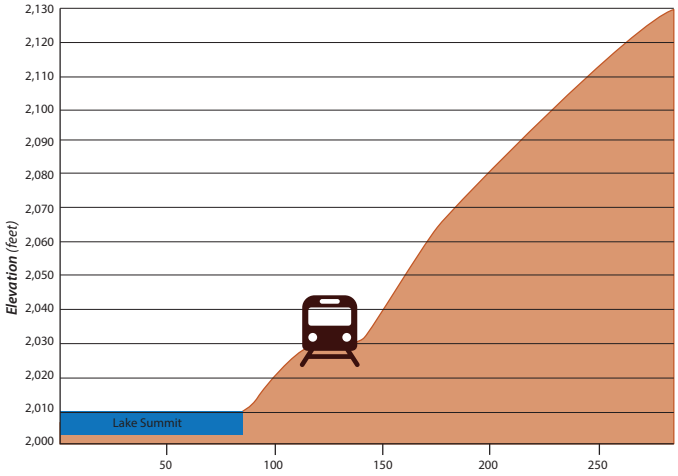
Most of the corridor is approximately 200 feet wide. There is a minimum width of 135 feet and a maximum width of 450 feet. The centerline of the track is centered in a large portion of the corridor; however, there are a multitude of areas in which the rail line does not remain in the center. This results in areas of the corridor that have a minimum of 35 feet between the property boundary and the rail line.

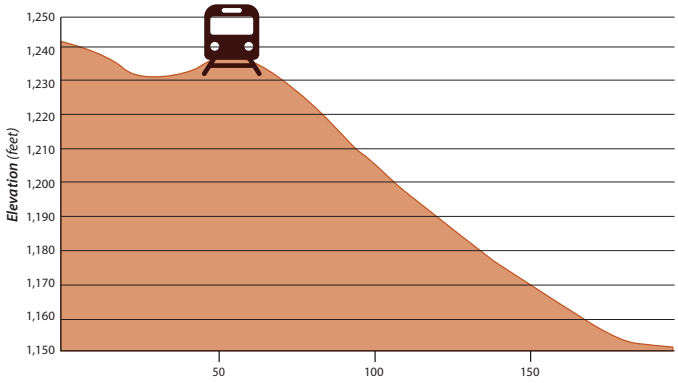
Terrain of Corridor

The rail line corridor is situated in the Appalachian Mountains where the Southern Blue Ridge Front falls off steeply to the Piedmont plateau region. Much of the rail between Saluda and Tryon sits on a narrow-level corridor along a steep ridge surrounded by cliffs and hills. The topography of the corridor surrounding the rail line changes frequently. Primarily, the only flat terrain is the rail line itself. The images on page 9 depict perpendicular cross sections of the rail corridor, which exemplifies the steep hills and cliffs on either side of the rail line. See the maps on page 18 for detailed locations.









Bridges

King Creek Bridge

(35.295, -82.438)

Railroad bridge spanning approximately 100 feet over creek.

North Lake Summit Drive Bridge

BR 440347; (35.228,-82.405)

Railroad bridge spanning approximately 120 feet over a road.



Lake Summit Bridge

(35.232, -82.399)

Railroad bridge spanning approximately 450 feet over Lake Summit.

Spartanburg Highway (U.S. 176) Bridge

BR 440068; (35.235,-82.392)

Railroad bridge spanning approximately 100 feet over a highway.


Pearson Falls Road Bridge

BR 740216; (35.219,-82.349)

Railroad bridge spanning approximately 170 feet over a road.

Pearson Falls Road/North Pacolet River Bridge

BR 740215; (35.220,-82.325)

Railroad bridge spanning approximately 70 feet over a road. Road tunnels through hillside under track.

Big Fall Creek (Melrose Falls) Bridge

(35.219, -82.298)

Railroad bridge spanning approximately 90 feet over a creek.

Road Crossings

The chart below lists all of the road crossings from north to south.

Road Name	Type	Lanes	Crossing Gate?	Notes
Brooklyn Avenue	On Grade	2	Yes	
Shepherd Street	On Grade	2	Yes	
North Highland Lake Road	On Grade	2	Yes	Intersection (West side)
West Blue Ridge Road	On Grade	2	Yes	Intersection (West side)
Roper Road	On Grade	2	Yes	
Mine Gap Road	On Grade	2	No	
Zirconia Road	On Grade	2	No	
Old Zirconia Road (ID#16)	On Grade	2	No	Intersection (West side)
Old Zirconia Road (ID#17)	On Grade	2	No	Intersection (South side)
Bright Road	On Grade	1	No	
Old Zirconia Road (ID#21)	On Grade	2	No	
Smyre Road	On Grade	1	No	
Wooded Bluff Lane	On Grade	1	No	
Macedonia Road	On Grade	1	No	
Camp Creek Road	On Grade	2	No	Intersection (South side)
West Main Street	On Grade	1	No	Intersection (South side)
Greenville Street	On Grade	2	No?	Intersection (North side)
Country Club Road	On Grade	2	No	
Horseshoe Curve Road	On Grade	2	No	
Lockhart Road	On Grade	1	No	
Pacolet Street	On Grade	3	No?	Intersection with turn lanes on tracks
South Trade Street	On Grade	3	No	Intersection with turn lanes on tracks
2nd Street	On Grade	1	No	
Edney Street	On Grade	1	No	Pull off/parking lot (Southeast side)
Spartanburg Highway	Overpass	5		
U.S. Highway 225 North/South	Overpass	4	N/A	
U.S. Highway 176	Overpass	2	N/A	
Tryon Nina Simone Statue Pedestrian Crossing	Pedestrian	N/A	N/A	
Pedestrian Crossing	Pedestrian	N/A	N/A	
Tryon Depot Pedestrian Crossing	Pedestrian	N/A	N/A	

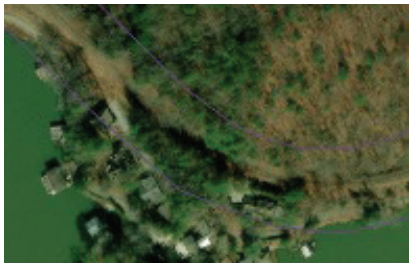
Potential Constraints

Potential Encroachments in Corridor

Evans Cove Road

(35.241, -82.416)

Various industrial materials next to railroad tracks



North Lake Summit Road

(35.228, -82.410)

Multiple large single-family homes built in provided right-of-way

South Lake Summit Road
(35.233 -82.396)
Undetermined hoses in provided right-of-way

Spartanburg Highway
(35.234, -82.389)
Construction materials piled by the railroad tracks

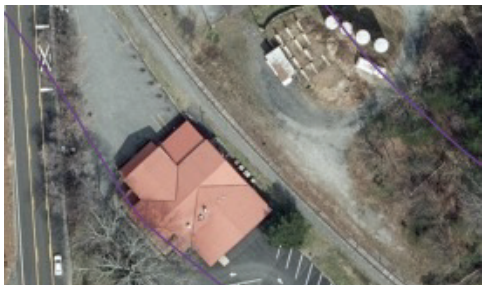
Old Saw Mill Road
(35.236, -82.386)
Junk pile adjacent to the railroad tracks

Macedonia Road
(35.238, -82.382)
Buildings and farm equipment in provided right-of-way

U.S. Highway 176
(35.237, -82.360)
Materials and/or collapsed building in provided right-of-way

West Main Street
(35.236, -82.352)
Cars and other materials in provided right-of-way

East Main Street Saluda
(35.236, -82.347)
Multiple business buildings within provided right-of-way



South Trade Street
(35.207, -82.237)
Pizza restaurant and treatment facility within provided right-of-way

Unofficial Road Crossings Over Rail Line

Spartanburg Highway
(35.235, -82.388)
Dirt driveway constructed over the railroad tracks

U.S. Highway 176
(35.237, -82.360)
Dirt road crossing over railroad tracks

Double Tracks, Sidings, and Spurs

Spur – Shepherd Street
(35.300,-82.440)
Track spur that leads to abandoned bridge and dead ends.

Siding – West Blue Ridge Road
(35.280, -82.424)
Track siding that spans approximately 2,000 feet.

Siding – Irving and West Main Street
(35.240, -82.350)
Track siding for approximately 1,000 feet

Spur – GE Lighting
(35.270, -82.410)
Spur that leads to industrial warehouse (GE Lighting).

Heavy Erosion or Drainage

Lake Summit Drainage
(32.233, -82.397)
Drainage between rail line and old roadbed within the right-of-way east of Lake Summit.

Chriscott Lane Drainage
(32.218, -82.348)
Drainage between rail line and roadway.

North Pacolet River Heavy Erosion
(35.220, -82.326)
Heavy erosion along the north side of the rail line and along the shore of the North Pacolet River.

Heavy Industrial Area

As the corridor approaches Hendersonville there is a section of industrial and commercial businesses alongside the tracks from Route 176 south to Shepherd Road. There are also pockets of industry along the corridor for its full length. None of these industries currently appears to utilize the abandoned tracks however there are several spurs and sidings along the corridor were likely used in the past by these businesses.

Eroding Shorelines/Floodway

Eroding Shoreline – West of Lake Summit Bridge
(35.23, -82.40)
Shoreline along track eroding into lake, potentially undermining rail bed.

Floodway Encroaches in Rail Corridor
(35.23, -82.41)
100-year floodplain encroaches into rail corridor.

Old Roadbed and Social Trails

(35.234, -82.395)
There is an old roadbed, adjacent to the pedestrian bridge across the Green River on Hwy 176, that follows the railroad tracks approximately half the distance to Lake Summit along the length of the roadbed, and beyond, the railroad tracks are approximately 20-30' above the roadbed with a very steep embankment. There is evidence that people use the old roadbed to access the tracks. They then walk along the tracks to the bridge that spans part of Lake Summit, jump off the bridge and exit at a "beach" on the other shore.

Powerlines and Utilities

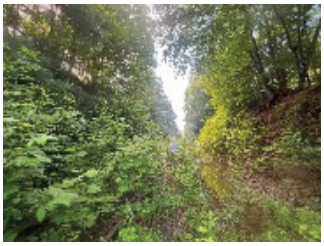
There are powerline easements that run perpendicular to the rail corridor at multiple locations along the corridor. There is also signage for utility lines running beneath the entire corridor.

Bright Road Powerline Easement
(35.238,-82.409)

Spartanburg Hwy Powerline Easement
(35.239,-82.378)

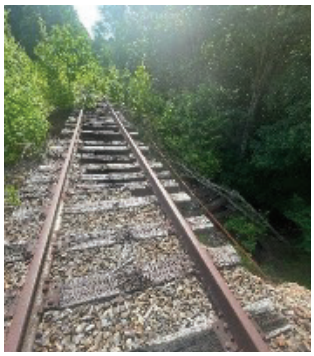
Wet Conditions

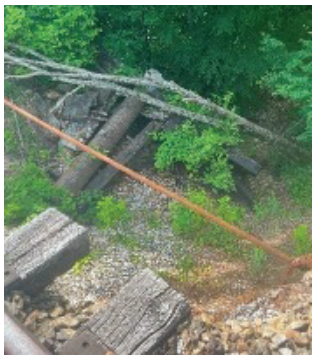
Wet conditions and a potential emergent wetland within the right-of-way.



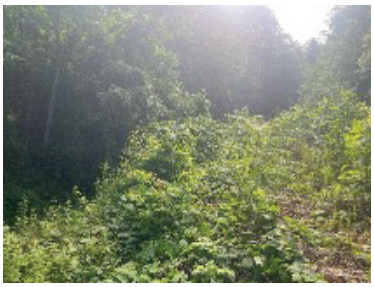
Bright Road Wet Conditions
(35.236, -82.408)
Wet area begins at Bright Road and continues within the corridor.

Washouts





Old Zirconia Road/U.S. 225 Overpass
(35.240, -82.413)
Washout under track for approximately 50 feet in length, and approximately 60 feet in depth. There is a 4-inch rusty pipe running parallel to the track approximately 10 feet below on the northern side.




Old Zirconia Road/Smyre Road

(35.233,-82.413)

Washout approximately 200 ft in length and 25 ft in depth. There is audible running water at the bottom. Erosion continues on the other of side Old Zirconia Road.

Smyre Road/Whistle Lane

(35.233, -82.413)

Washout between rail line and roadway for approximately 30 ft.

Macedonia Road

(32.238, -82.380)

Washout approximately 40 feet in length on northern side of tracks and heavy erosion.



Downtown Saluda (A and B)

(35.235, -82.347)

Multiple washout areas on both sides of the track and on both tracks through downtown Saluda for a total length of approximately 200 ft.

Pearson Falls Road

(35.240, -82.413)

Washout approximately 230 feet in length between the rail line and the road. There is a creek at the base of the washout.

North Pacolet River

(35.218, -82.345)

Washout approximately 300 feet in length with heavy erosion continuing along the rail line in both directions.

Little Fall Creek
(35.235,-82.347)
Washout approximately 120 feet in length.

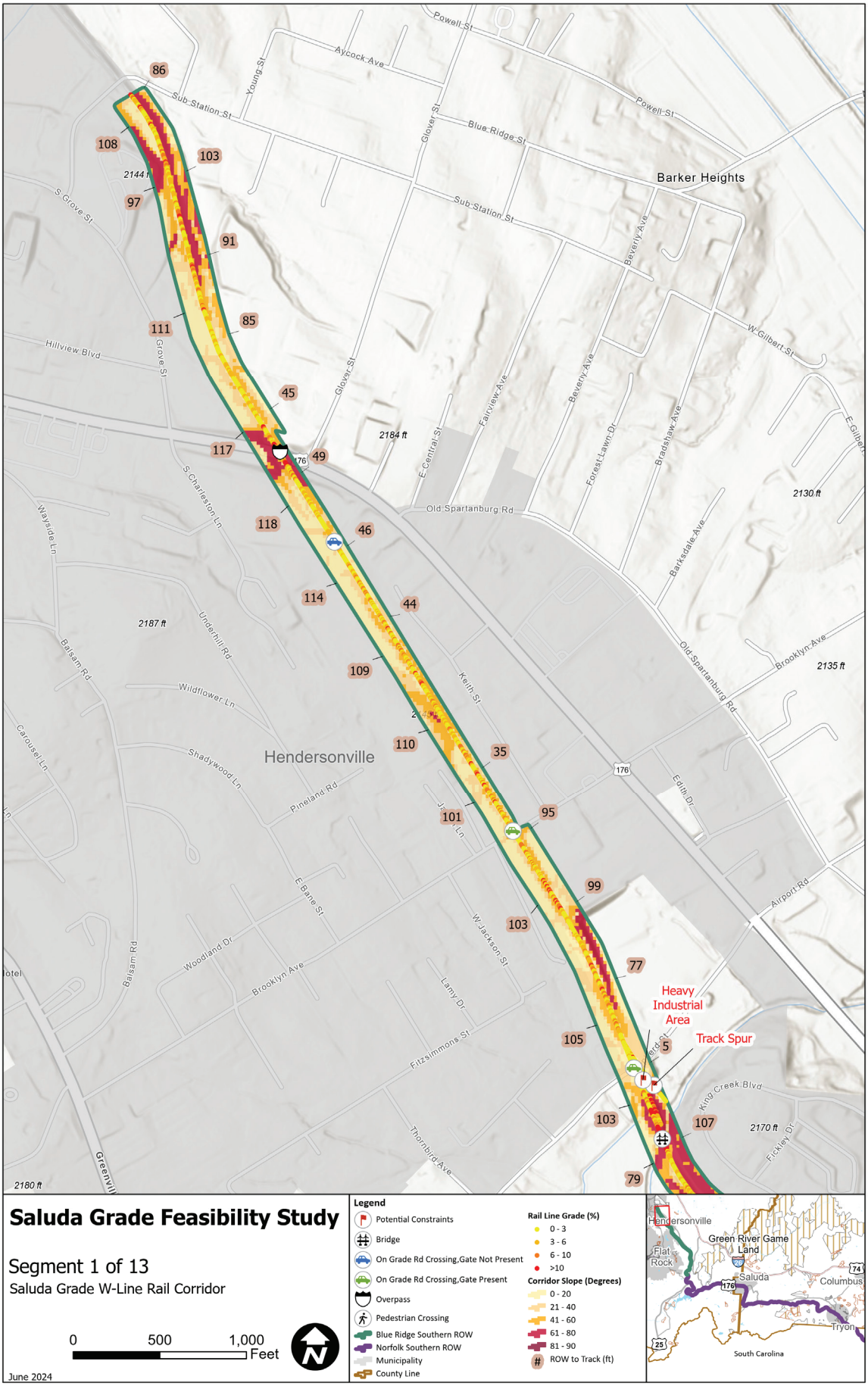


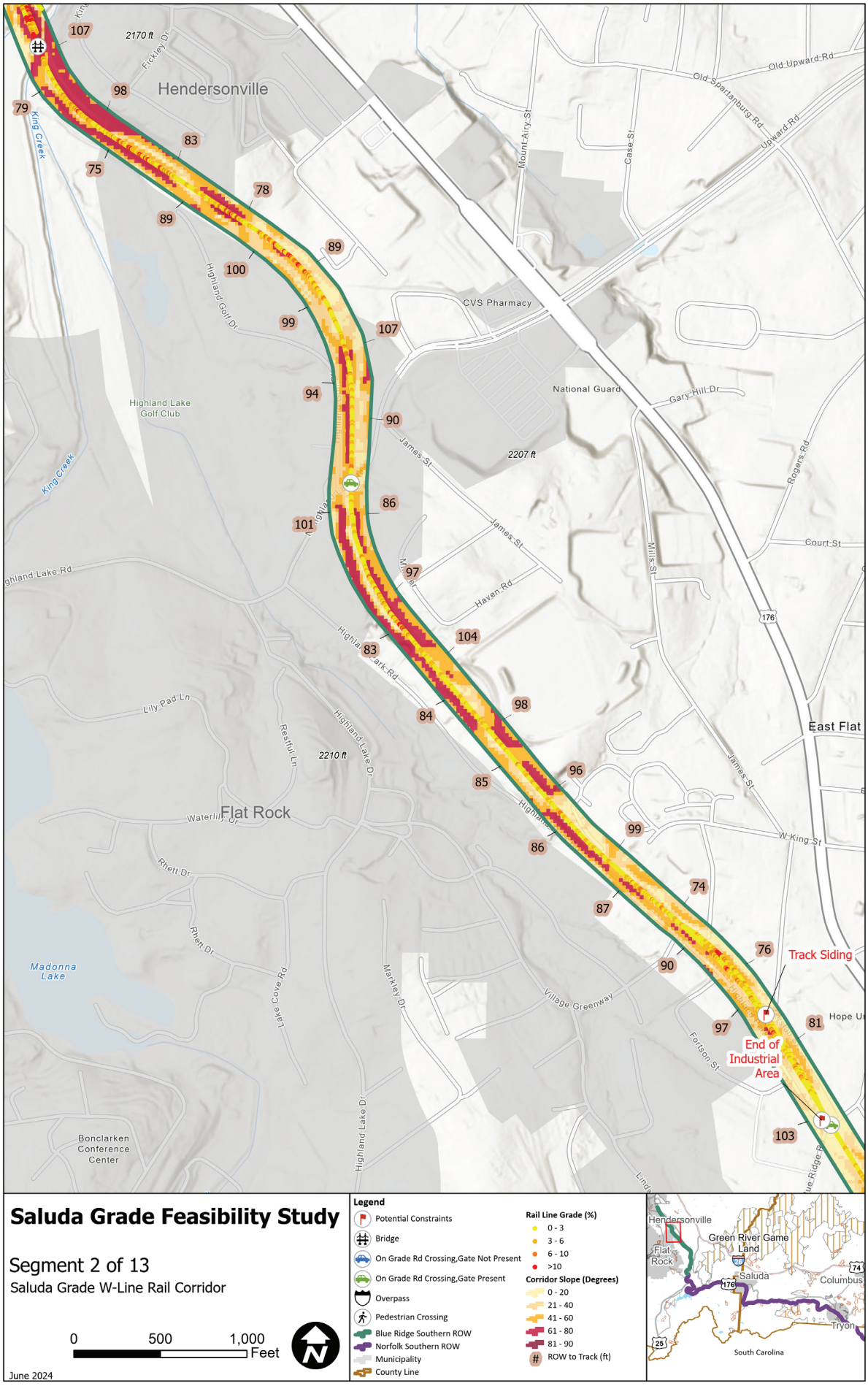
South Tryon
(35.201,-82.230)
Washout approximately 230 feet in length.

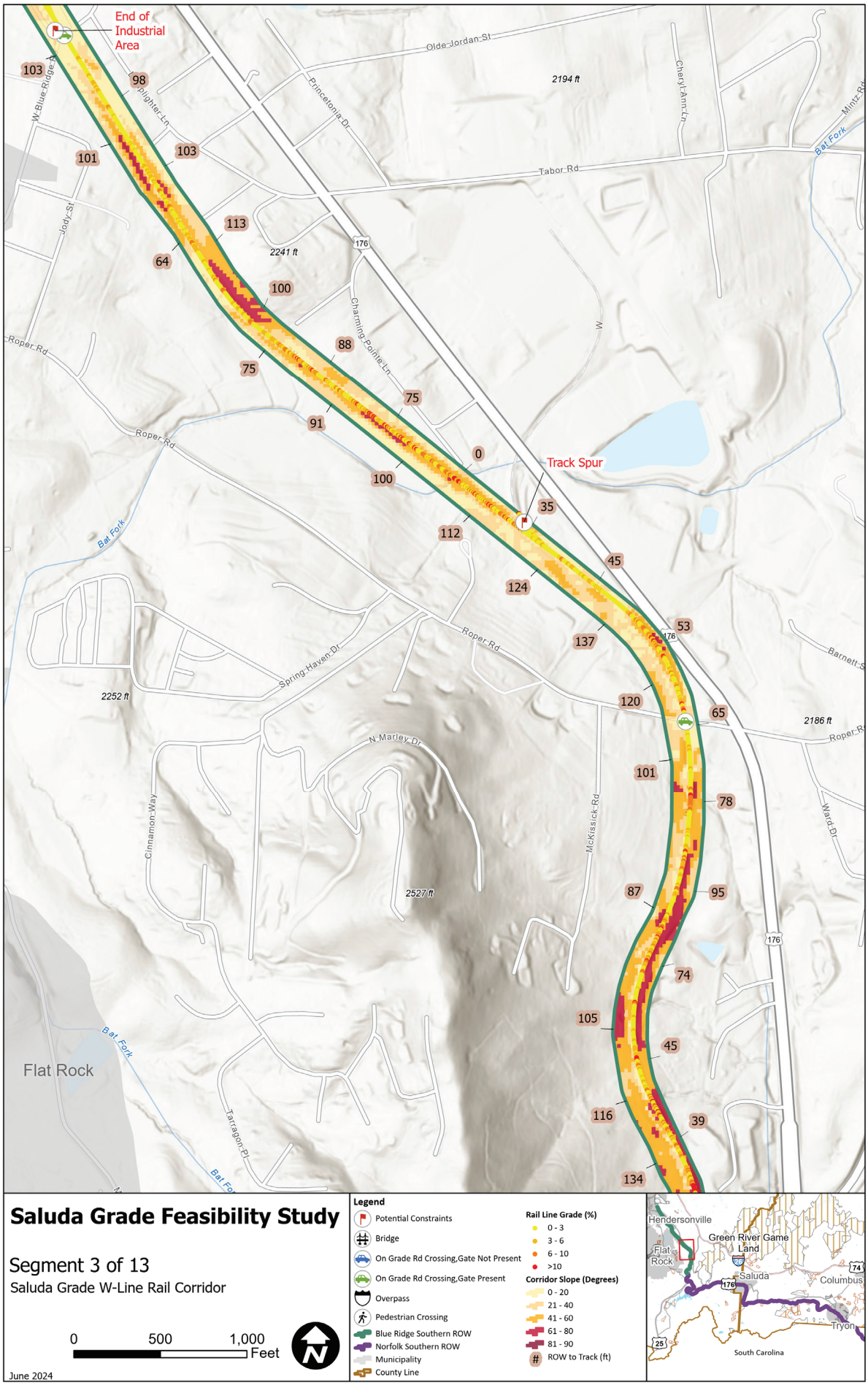
Constraints Throughout the Corridor

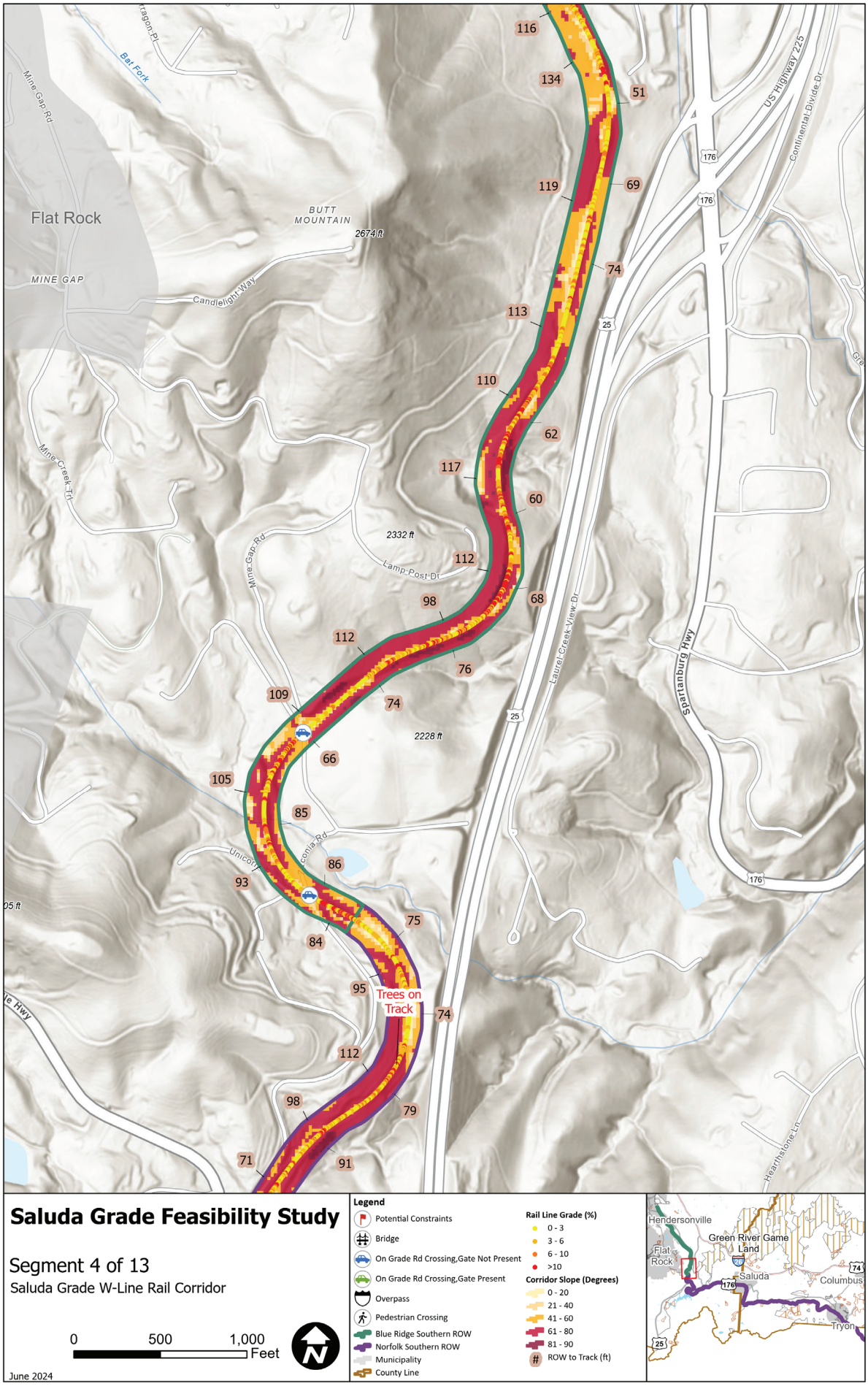
Fallen trees, and other organic material, have accumulated on the tracks, and vegetation that has grown unchecked within the corridor. Additionally, kudzu and other nonnative invasive plant species have taken hold and are dominating large sections of the landscape, posing ecological and maintenance issues. The condition of the existing rail infrastructure also presents obstacles, with numerous rail ties and sections of the line damaged and in need of repair or replacement if rail service is to be restored.

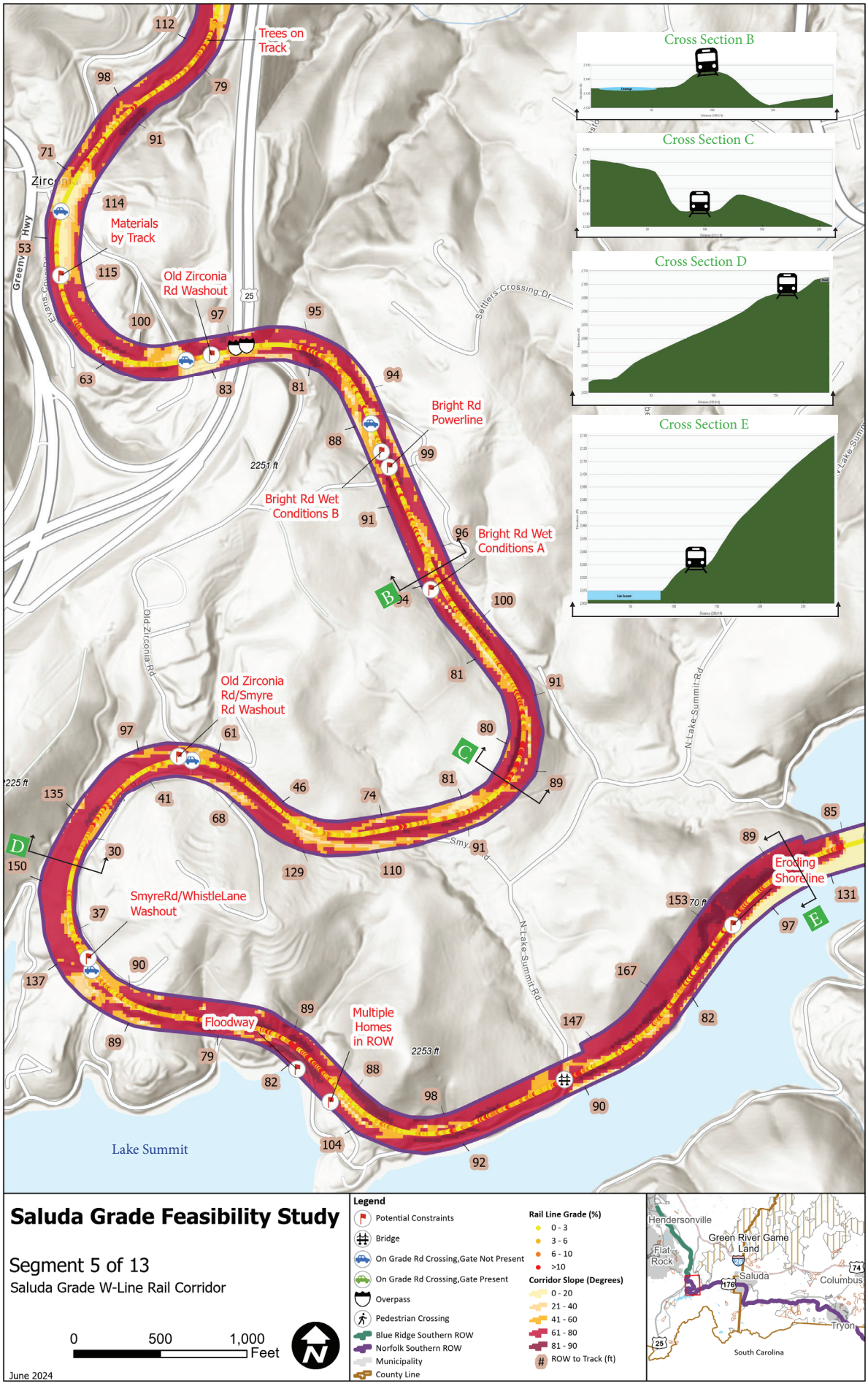
Maps

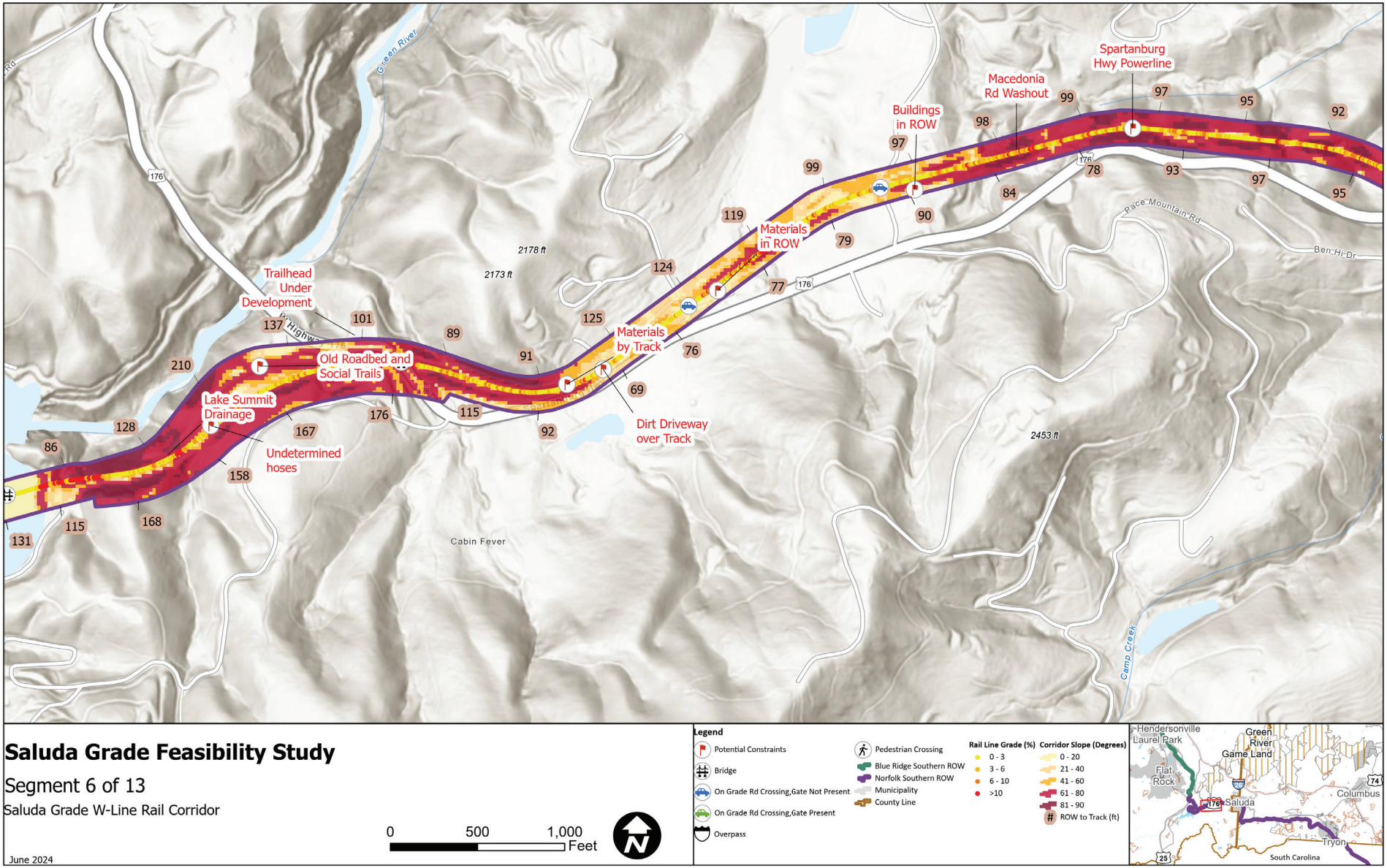

Saluda Grade Feasibility Study
Segment 1 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Barker Heights
Hendersonville
Heavy Industrial Area
Track Spur
Powell St
Aycock Ave
Young St
Sub Station St
Blue Ridge St
Glover St
Beverly Ave
W Gilbert St
Old Spartanburg Rd
Brooklyn Ave
Airport Rd
King Creek Blvd
Fickley Dr
Fitzsimmons St
Thornbird Ave
Lanny Dr
W Jackson St
E Barne St
Woodland Dr
Brooklyn Ave
Pineland Rd
Shadywood Ln
Wildflower Ln
Underhill Rd
Balsam Rd
Carousel Ln
Wayside Ln
S Charleston Ln
Hillview Blvd
S Grove St
Grove St
Keith St
Edith Dr
Forest Lawn Dr
Bradshaw Ave
Barksdale Ave
Fairview Ave
E Central St
2144 ft
2184 ft
2187 ft
2180 ft
2130 ft
2135 ft
2170 ft
Flat Rock
Green River Game Land
Saluda
Columbus
Tryon
South Carolina


Saluda Grade Feasibility Study
Segment 2 of 13
Saluda Grade W-Line Rail Corridor
0
500
1,000
Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Flat Rock
East Flat
Saluda
Green River Game Land
Columbus
Tryon
South Carolina
Track Siding
End of Industrial Area
CVS Pharmacy
National Guard
Highland Lake Golf Club
Bonclarken Conference Center
Madonna Lake
King Creek
Fickley Dr
Old Upward Rd
Old Spartanburg Rd
Upward Rd
Mount Airy St
Case St
Highland Golf Dr
James St
Gary Hill Dr
Rogers Rd
Court St
Mills St
Haven Rd
Highland Lake Rd
Lily Pad Ln
Restful Ln
Highland Lake Dr
Waterlily Dr
Rhett Dr
Lake Cove Rd
Markley Dr
Village Greenway
W King St
Fortson St
2170 ft
2207 ft
2210 ft


End of Industrial Area
Track Spur
Olde Jordan St
Princetonia Dr
Cheryl Ann Ln
Mintz Rd
Bat Fork
Tabor Rd
Jody St
Roper Rd
Charming Pointe Ln
Spring Haven Dr
N Marley Dr
Cinnamon Way
McKissick Rd
Ward Dr
Barnett St
Tarragon Pl
Flat Rock
2194 ft
2241 ft
2252 ft
2527 ft
2186 ft
Saluda Grade Feasibility Study
Segment 3 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina


Saluda Grade Feasibility Study
Segment 4 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Trees on Track
Flat Rock
BUTT MOUNTAIN
2674 ft
MINE GAP
2332 ft
2228 ft
Bat Fork
Mine Gap Rd
Candlelight Way
Mine Creek Trl
Lamp Post Dr
Laurel Creek View Dr
US Highway 225
Spartanburg Hwy
Continental Divide Dr
Hearthstone Ln
Hendersonville
Green River Game Land
Saluda
Columbus
Tryon


Cross Section B
Cross Section C
Cross Section D
Cross Section E
Trees on Track
Materials by Track
Old Zirconia Rd Washout
Bright Rd Powerline
Bright Rd Wet Conditions B
Bright Rd Wet Conditions A
Old Zirconia Rd/Smyre Rd Washout
SmyreRd/WhistleLane Washout
Floodway
Multiple Homes in ROW
Eroding Shoreline
2251 ft
2225 ft
2253 ft
170 ft
Lake Summit
Old Zirconia Rd
N Lake Summit Rd
Selters Crossing Dr
Greenville Hwy
Saluda Grade Feasibility Study
Segment 5 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina



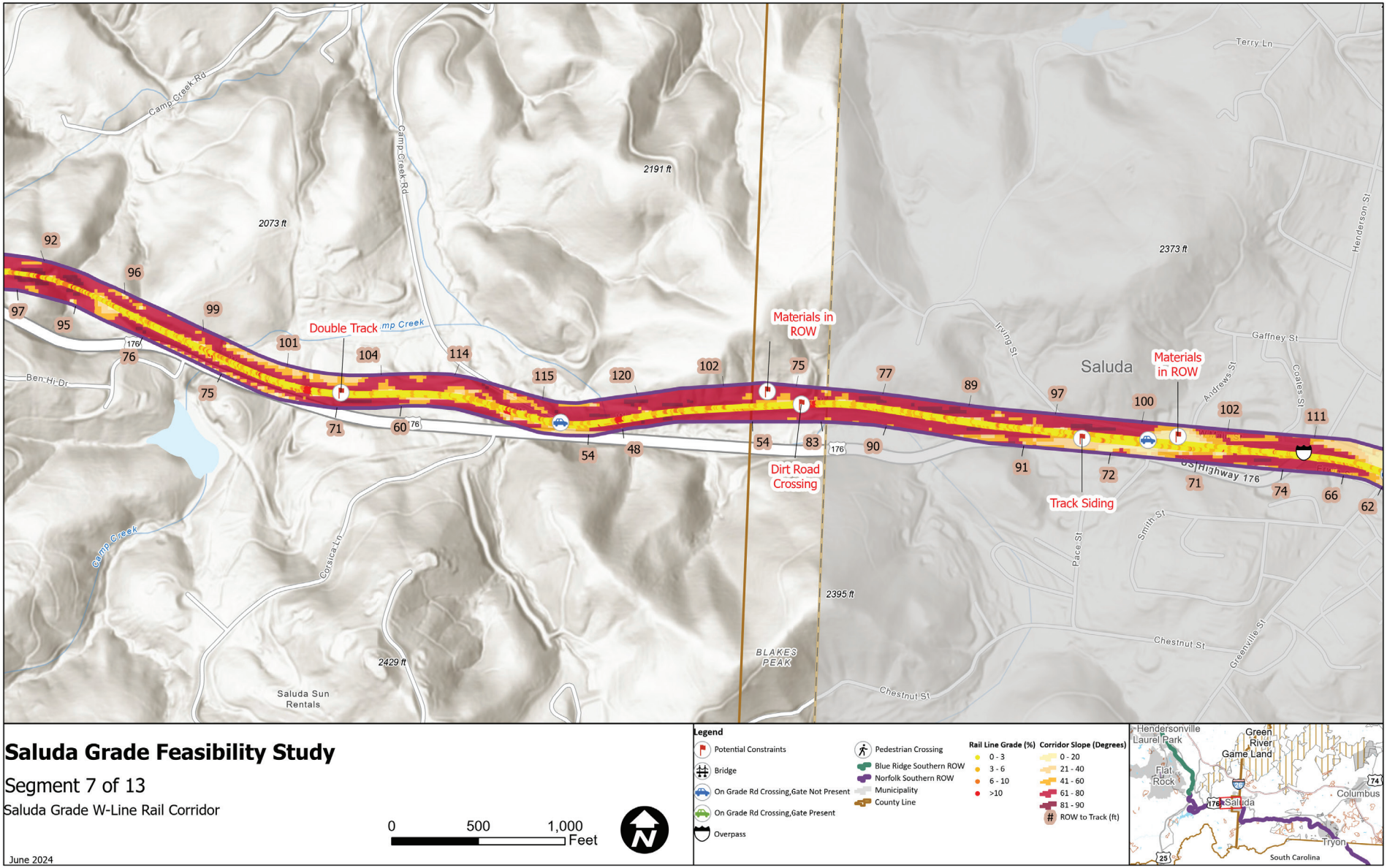
Saluda Grade Feasibility Study

Segment 6 of 13

Saluda Grade W-Line Rail Corridor

0 500 1,000 Feet

June 2024



Saluda Grade Feasibility Study

Segment 7 of 13

Saluda Grade W-Line Rail Corridor

0 500 1,000 Feet

June 2024

Legend

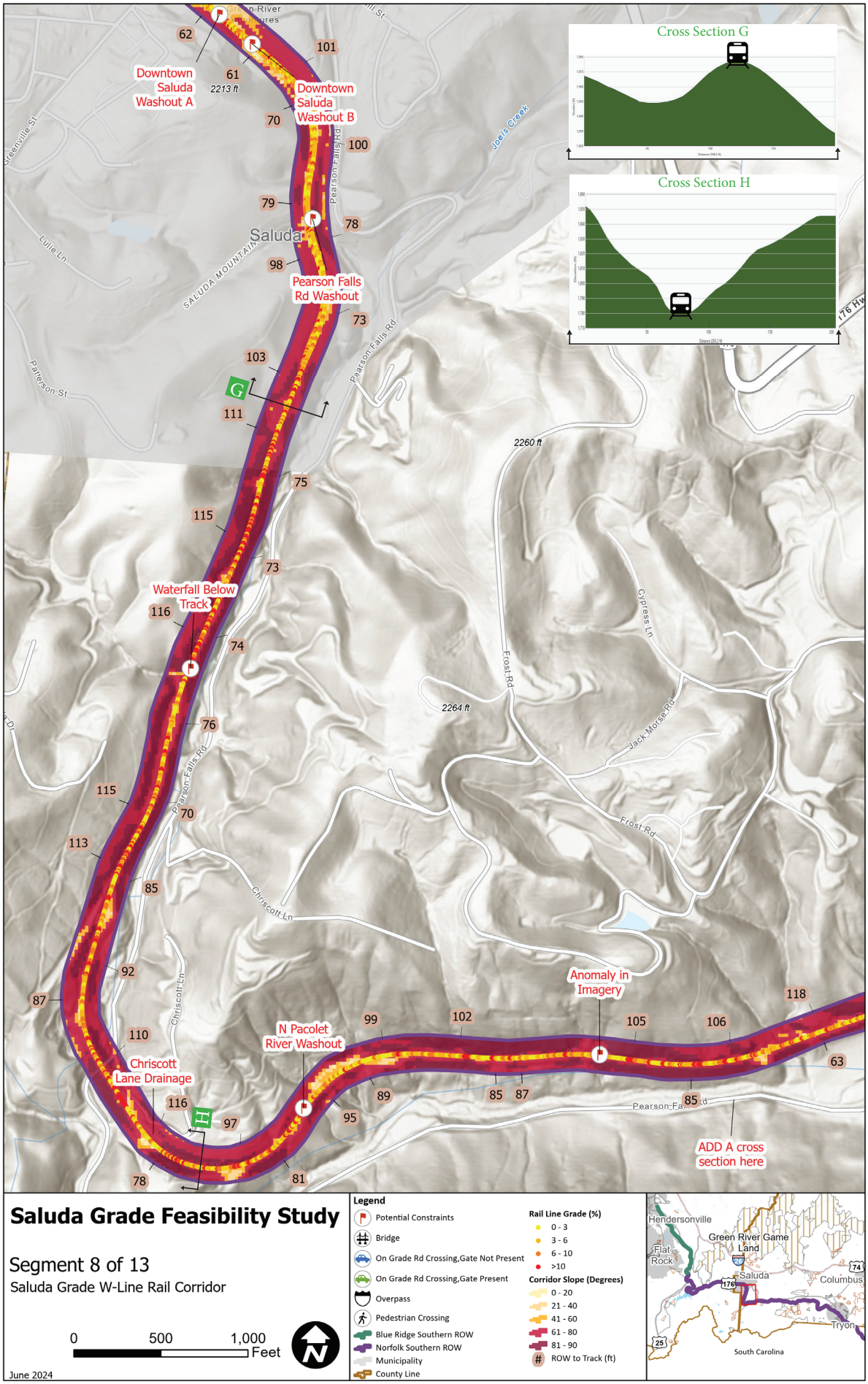
- Potential Constraints
- Bridge
- On Grade Rd Crossing,Gate Not Present
- On Grade Rd Crossing,Gate Present
- Overpass
- Pedestrian Crossing
- Blue Ridge Southern ROW
- Norfolk Southern ROW
- Municipality
- County Line

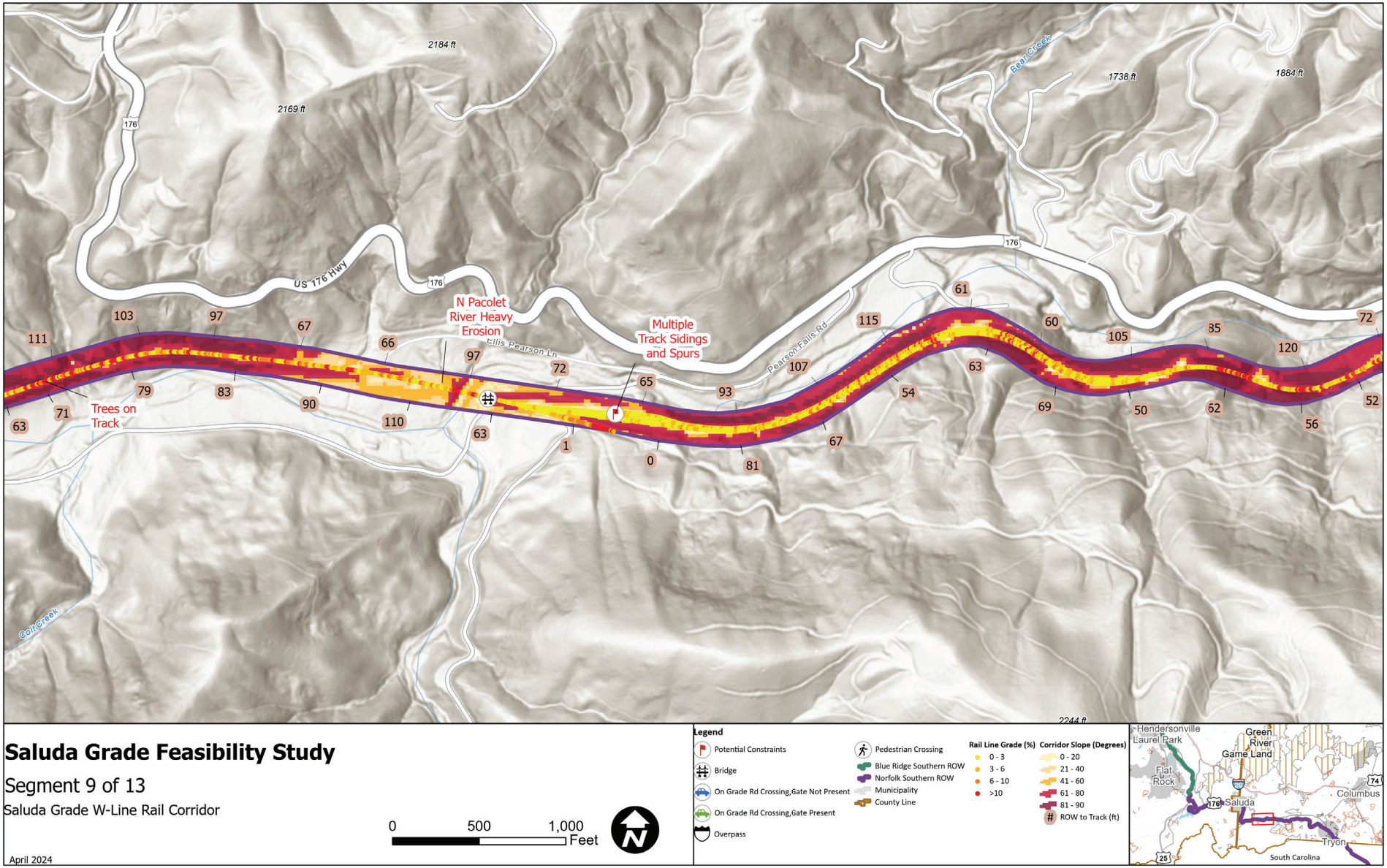
Rail Line Grade (%)

- 0 - 3
- 3 - 6
- 6 - 10
- >10

Corridor Slope (Degrees)

- 0 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 90
- # ROW to Track (ft)


Cross Section G
Cross Section H
Downtown Saluda Washout A
Downtown Saluda Washout B
Pearson Falls Rd Washout
Waterfall Below Track
Chriscott Lane Drainage
N Pacolet River Washout
Anomaly in Imagery
ADD A cross section here
2213 ft
2260 ft
2264 ft
Saluda
Pearson Falls Rd
Frost Rd
Chriscott Ln
Joels Creek
SALUDA MOUNTAIN
Saluda Grade Feasibility Study
Segment 8 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
June 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina



Saluda Grade Feasibility Study

Segment 9 of 13

Saluda Grade W-Line Rail Corridor

0 500 1,000 Feet

April 2024

Legend

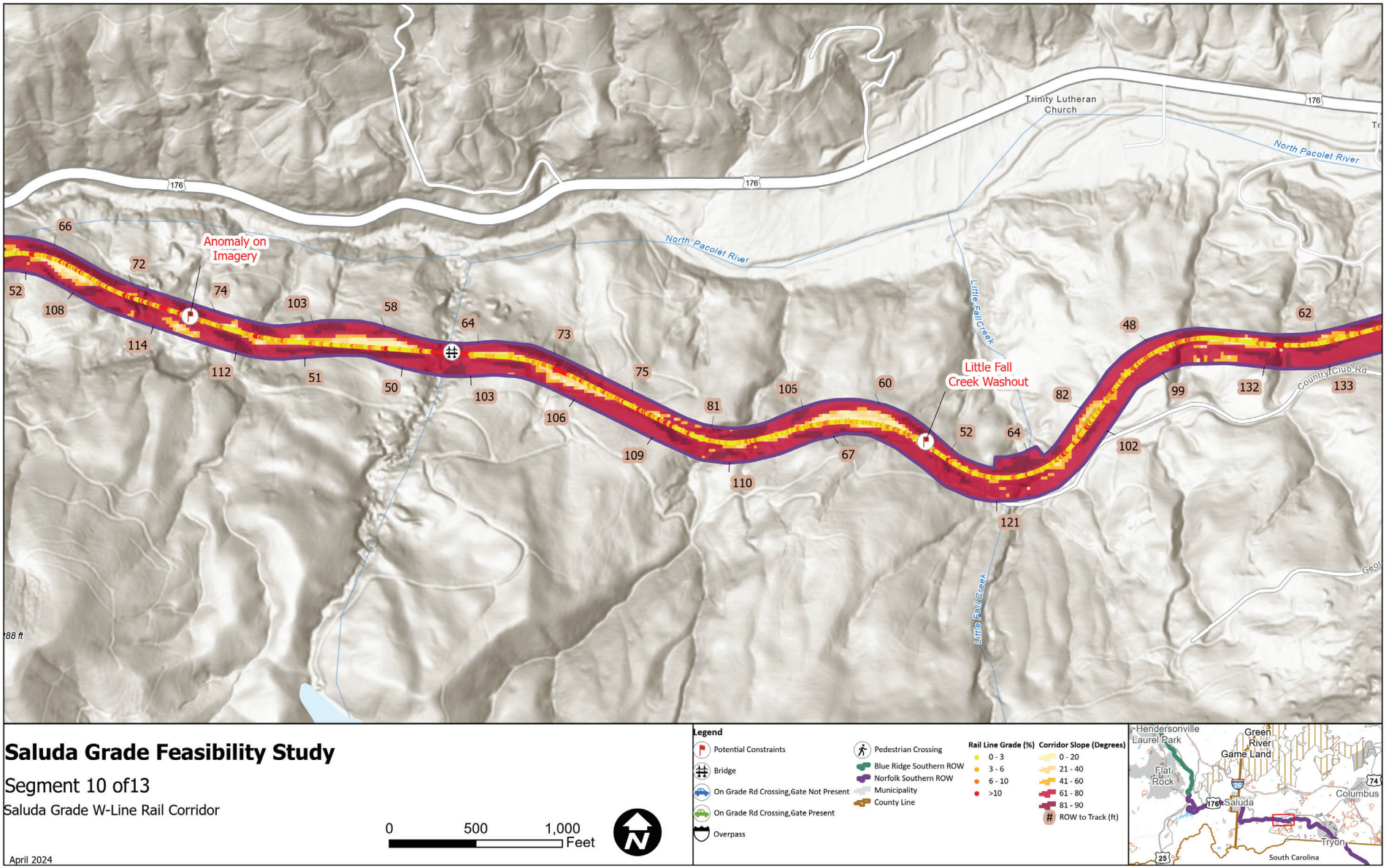
- Potential Constraints
- Bridge
- On Grade Rd Crossing,Gate Not Present
- On Grade Rd Crossing,Gate Present
- Overpass
- Pedestrian Crossing
- Blue Ridge Southern ROW
- Norfolk Southern ROW
- Municipality
- County Line

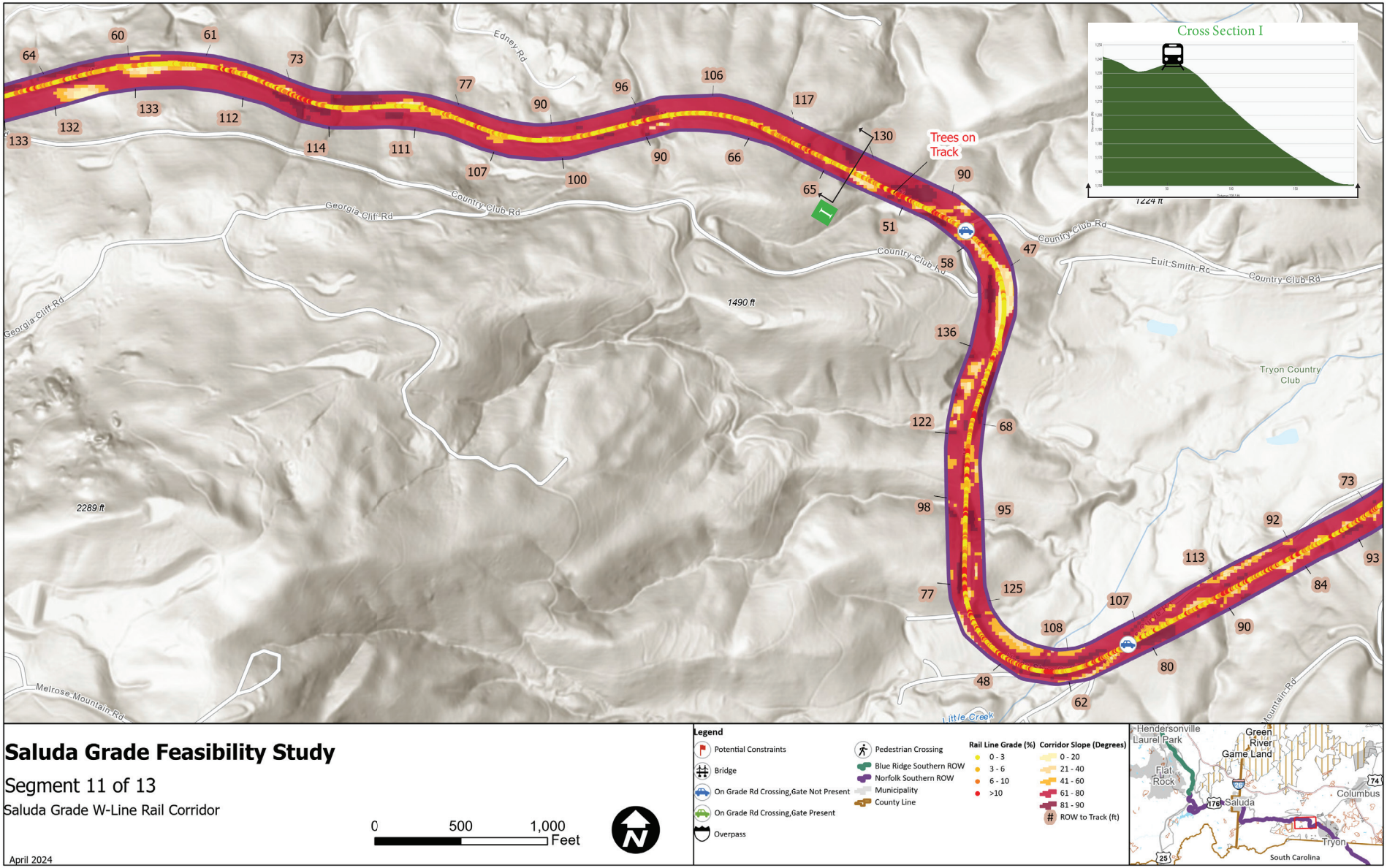
Rail Line Grade (%)

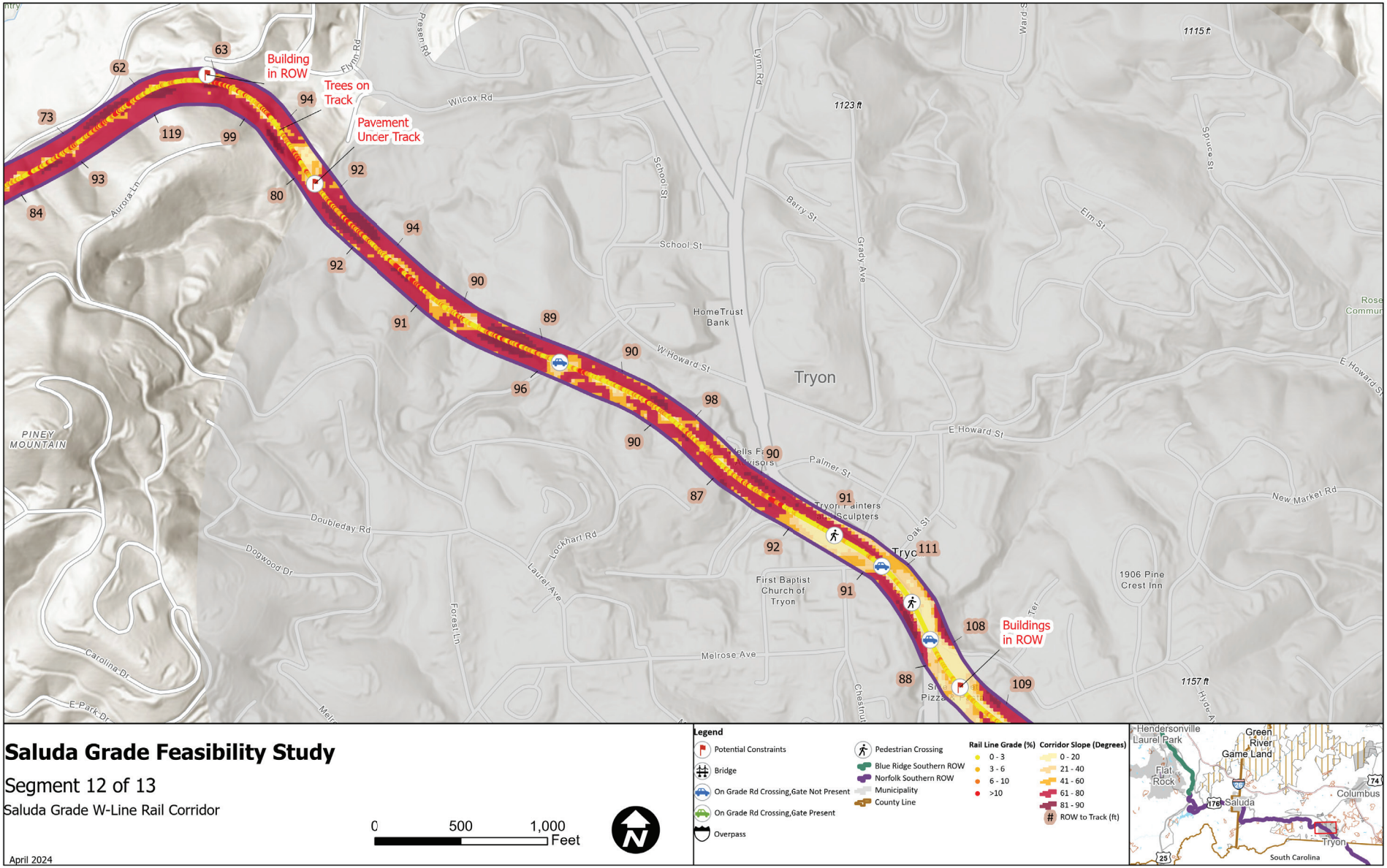
- 0 - 3
- 3 - 6
- 6 - 10
- >10

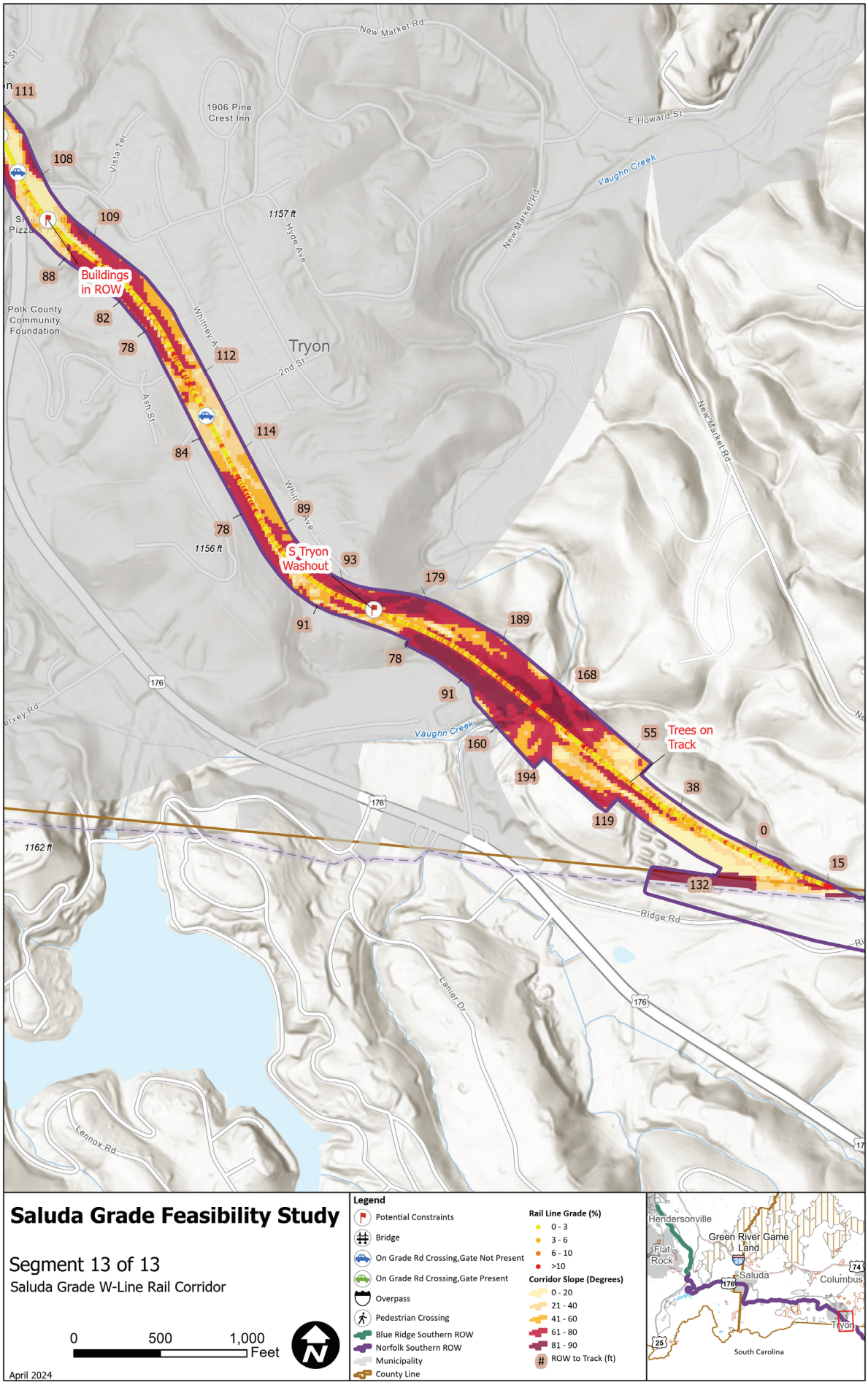
Corridor Slope (Degrees)

- 0 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 90
- # ROW to Track (ft)


Trinity Lutheran Church
North Pacolet River
Anomaly on Imagery
Little Fall Creek Washout
Little Fall Creek
Country Club Rd
176
66
72
52
108
114
74
112
103
51
58
50
64
103
73
106
75
109
81
110
105
67
60
52
64
121
48
82
99
102
62
132
133
Saluda Grade Feasibility Study
Segment 10 of13
Saluda Grade W-Line Rail Corridor
0
500
1,000
Feet
April 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Laurel Park
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina
74
25


Cross Section I
1224 ft
Trees on Track
Edney Rd
Georgia Cliff Rd
Country Club Rd
Euit Smith Rd
Melrose Mountain Rd
Tryon Country Club
1490 ft
2289 ft
Little Creek
Saluda Grade Feasibility Study
Segment 11 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
April 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Laurel Park
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina


Building in ROW
Trees on Track
Pavement Uncer Track
Buildings in ROW
Tryon
HomeTrust Bank
First Baptist Church of Tryon
1906 Pine Crest Inn
PINEY MOUNTAIN
Wilcox Rd
School St
W Howard St
E Howard St
Palmer St
Doubleday Rd
Dogwood Dr
Lockhart Rd
Laurel Ave
Melrose Ave
Carolina Dr
E Park Dr
Aurora Ln
Flynn Rd
Lynn Rd
Grady Ave
Oak St
New Market Rd
Elm St
Spruce St
Barry St
1115 ft
1123 ft
1157 ft
Saluda Grade Feasibility Study
Segment 12 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
April 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Hendersonville
Laurel Park
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina


Saluda Grade Feasibility Study
Segment 13 of 13
Saluda Grade W-Line Rail Corridor
0 500 1,000 Feet
April 2024
Legend
Potential Constraints
Bridge
On Grade Rd Crossing,Gate Not Present
On Grade Rd Crossing,Gate Present
Overpass
Pedestrian Crossing
Blue Ridge Southern ROW
Norfolk Southern ROW
Municipality
County Line
Rail Line Grade (%)
0 - 3
3 - 6
6 - 10
>10
Corridor Slope (Degrees)
0 - 20
21 - 40
41 - 60
61 - 80
81 - 90
ROW to Track (ft)
Buildings in ROW
S Tryon Washout
Trees on Track
Tryon
1906 Pine Crest Inn
Polk County Community Foundation
New Market Rd
E Howard St
Vaughn Creek
Whitney Ave
Hyde Ave
Ash St
2nd St
Vista Ter
Ridge Rd
Lanier Dr
Lennox Rd
1157 ft
1156 ft
1162 ft
Hendersonville
Green River Game Land
Flat Rock
Saluda
Columbus
Tryon
South Carolina

Case Studies

North Carolina has examples of tourist trains, rail-to-trail conversions, and rail with commercial rail, but no examples of a tourist train with trail. Below are examples of organizations with elements like what Saluda Grade could potentially include. Each of these examples are either a rail-to-trail conversion (trail only), or a tourism train attraction (rail only).

Ecusta Trail

The Ecusta Trail is a proposed 19.4-mile trail that will connect Hendersonville to Brevard. Conserving Carolina, the local land conservancy, has spearheaded a major fundraising campaign that, through major grants and local donations, has been able to purchase the Ecusta Rail corridor and fund initial trail construction. This rail-to-trail conversion has many elements common to the future Saluda Grade Trail. It has very similar topography, robust public support, comparable length, and is using railbanking as the method to develop trail on a rail corridor. A tourist rail is not being considered for the Ecusta; however, Ecusta does provide a caveat for the Saluda Grade Rail project.

Even though the Ecusta corridor is railbanked, once the plan to convert it to a greenway was approved, landowners along the corridor brought suit in the U.S. Court of Federal Claims that their property was being taken for an alternate use. They had concerns of trespassing, loss of privacy, loss of river access, and impacts on farming. In that suit, 164 landowners were awarded $5 million in compensation. Even though the landowners won the lawsuit, the US Department of Justice denies that any taking whatsoever affected the plaintiffs. Because the law that was challenged in the suit was the National Trails System Act of 1968, it was the federal government that had to pay the award.

Tweetsie Railroad - Wild West Theme Park

- **Location:** Between Boone and Blowing Rock, North Carolina
- **Opened:** July 4, 1957
- **Owner:** Tweetsie Railroad, Inc.
- **Operating season:**
  April – May (Weekends)
  Memorial Day – Mid-August (Thursday – Monday)
- **Audience(s):** Families
- **Length**: 3 miles
- **Track Gauge**: Narrow
- **Locomotive Type/#**: Steam/2
- **Price:**
  - Season Pass – $140 Adult
  - Day Pass – $ 60 Adult
  - Group Day Pass (15+ people) - $51 Adult
- **Attractions:**
  - Train Ride
  - Rides (carousel, roller coaster, Ferris wheel)
  - Live shows (July 4th – Fireworks Extravaganza)
  - Zoo
  - Special events (e.g. Halloween Ghost Train, Day Out with Thomas)
- **Notes:**
  - Not rail with trail
  - Example of successful attraction including a tourist railroad

Great Smoky Mountains Railroad - Heritage and Freight

- **Location:** Bryson City, North Carolina
- **Opened:** 1988

- **Owner:** American Heritage Railways
- **Operating season:** Year round
- **Audience(s):** Families
- **Length:** 53 miles
- **Track Gauge:** Standard
- **Locomotive Type/#:** Diesel/7, Steam/1
- **Price:**
  - Day Pass – Adult: $74-$135, depending on time of year, level of service, and locomotive type
  - Serene Relaxation At Stonebrook Lodge – $230-$513, depending on time of year, level of service, and locomotive type
  - Private Caboose Party – $850-$1105, depending on time of year, level of service, and locomotive type
  - *October, crown class, and steam engine are more expensive
- **Attractions:**
  - Excursions
  - Carolina Shine Moonshine Experience
  - Economy boost in 2004
  - Tuckasegee River - 4-hour excursion travels 32 miles round-trip to Dillsboro and back to the Bryson City Depot.
  - Nantahala Gorge - 4.5-hour roundtrip excursion journeys 44 miles to the Nantahala Gorge.
  - Partnership packages
  - Tarzan Train, Raft & Rail, Rail & Trail – partnership with Wildwater, a rafting and zipline tour company
  - Serene Relaxation At Stonebrook Lodge
  - Events
  - Polar Express ride
  - Uncorked
  - Smoky Mountain Beer Run
  - Bunny Hopper Express
  - Smoky Mountain Trains Museum
  - Bryson City Depot
- **Notes:**
  - Not rail with trail
  - Example of successful tourist/heritage railroad

New Hope Valley Railway/North Carolina Railway Museum - Heritage Railroad

- **Location:** Bonsal, North Carolina
- **Opened:** 1963
- **Owner:** North Carolina Railway Museum, Inc.
- **Operating season:** April – December
- **Audience(s):** Families
- **Length:** 4 miles
- **Track Gauge:** Standard
- **Locomotive Type:** Diesel
- **Price:** Adult Day Pass – $14
- **Attractions:**
  - Operate-a-Loco
  - Garden Railroad (G-Scale) Train
  - Events
  - Track or Treat
  - Santa's Reindeer Roundup Express
  - Museum exhibits
- **Notes:**
  - Ran by all-volunteer, nonprofit, and tax--exempt educational and historical organization
  - Not rail with trail, history is focus
  - Part of same line as American Tobacco Trail

Other Examples of Attractions with Rail

South Carolina Railroad Museum

- **Location:** Winnsboro, South Carolina
- **Features:** Heritage railroad and museum with train rides and hosting special events and train-themed excursions.

Dollywood Express

- **Location:** Attraction within Dollywood, a theme park in Pigeon Forge, Tennessee.
- **Features:** Full-size, narrow-gauge steam train that takes visitors on a scenic, 5-mile round-trip journey through the park and into the surrounding foothills of the Great Smoky Mountains. Focus on heritage — railroading history/culture within the region.
- Durango and Silverton Narrow Gauge Railroad

Tennessee Valley Railroad

- **Location:** Chattanooga, Tennessee
- **Features:** Heritage railroad and museum with train rides that recreate the classic railroad experience. Routes include scenic journeys through the Tennessee Valley and along the historic Hiwassee River Loop.

Blue Ridge Scenic Railway

- **Location:** Blue Ridge, Georgia
- **Features:** Heritage railroad along the Toccoa River in the northern Georgia mountains. Popular in the fall when the foliage offers a spectacular backdrop.

Other Examples of Rail-to-Trail Conversion with Tourism

Virginia Creeper Trail

- **Location:** Southwestern Virginia, not far from the North Carolina border
- **Features: 3**4.3-mile rail-trail running from Abingdon to Whitetop, Virginia, passing through the Mount Rogers National Recreation Area and the town of Damascus. Known for scenic beauty, historical significance. Popular destination for biking, hiking, and horseback riding.

New River Trail State Park

- **Location:** Southwestern Virginia
- **Features:** 57-mile trail/linear park following an abandoned railroad right-of-way along the New River managed by Virginia State Parks. Offers both hiking and biking paths and horseback riding trails, showcasing rural landscapes and historical structures, and crossing through several small towns.

Palmetto Trail

- **Location:** Across South Carolina, from the mountains to the sea
- **Features:** Mix of rural and urban landscapes, including passages through small towns and alongside active railroad lines, highlighting the state's diverse ecology and history. Sponsored by the Palmetto Conservation Foundation in cooperation with the South Carolina Department of Parks, Recreation, and Tourism.

Swamp Rabbit Trail

- **Location:** Greenville County, South Carolina
- **Features:** 22 miles, connecting the cities of Greenville and Travelers Rest. More urban than the others listed, its passage through small towns and rural landscapes, alongside its successful impact on local economies, could provide insight into developing Saluda.

Doodle Trail

- **Location:** 7.7 miles linking the towns of Easley and Pickens in the South Carolina upstate region, in the South Carolina upstate region
- **Features:** Named after the old Doodle Line railroad. For walkers, cyclists, and runners, with rich history of industry and economy for the area.

Great Allegheny Passage

- **Location:** Western Pennsylvania and Maryland
- **Features:** 150-mile trail connecting with the Chesapeake and Ohio Canal Towpath to create a continuous 334-mile route from Pittsburgh, Pennsylvania, to Washington, D.C. It is a model for rail-with-trail projects, offering a dedicated path for cyclists and hikers that sometimes parallels active train tracks.

Examples of Rail with Trail in North Carolina

- **Libba Cotten Bikeway**
  - **Location:** Orange County, North Carolina
  - **Features:** 0.38-mile (one-way) bikeway trail along freight rail line from Carrboro to Chapel Hill.
- **Charlotte's Rail Trail**
  - **Location:** Charlotte, North Carolina
  - **Features:** 3.5-mile (one-way) trail adjacent to the Blue Line from the Sedgefield community to Uptown Charlotte that includes public art.
- **Cape Fear River Trail**
  - **Location:** Fayetteville, North Carolina
  - **Features:** 7-mile-long (one-way) greenway along the Cape Fear River, with a connection to Fayetteville's Linear Park
- **Hickory City Walk**
  - **Location:** Hickory, North Carolina
  - **Features:** 2.5-mile (one-way) paved (asphalt and concrete) path that is a segment of the 10-mile-long Hickory Trail
- **Irwin Creek and Stewart Creek Greenways**
  - **Location:** Charlotte, North Carolina
  - **Features:** 1.4-mile (one-way) gravel/sidewalk/pavement segment of the Carolina Thread Trail
- **Marcia H. Cloninger Rail Trail**
  - **Location:** Lincolnton, North Carolina
  - **Features:** 1.50-mile (one-way) paved trail

Examples of Rail with Trail in the United States

- **Northern Central Railway**
  - **Location:** New Freedom, Pennsylvania
  - **Features:** Civil War themed heritage railroad offering train rides. Parallels a 21-mile rail-trail managed by the county's parks and recreation department in collaboration with York County Rail Trail Authority.
- **Napa Valley Vine Trail**
  - **Location:** Napa Valley, California
  - **Features:** 47-mile multiuse trail running parallel to the Napa Valley Wine Train for portions of the route.

Structure and Facility Needs

New Rail Infrastructure – All of the rails, ties and ballast would need to be removed and replaced for the entirety of the corridor.

Passenger Platform – A low-level passenger platform would be needed to facilitate the entrance and exit of the multipurpose active tourism rail. The right-of-way may be land limited, and additional land acquisition may be required.

Traffic Control Devices – Each road crossing must undergo an assessment in accordance with the US Department of Transportation – Federal Highway Administration's *Manual on Uniform Traffic Control Devices (11th Edition)*. A Diagnostic Team will reach a consensus on the needed traffic control devices and warning systems. For example, this may include signs, marking, and signals. Currently, only six of the 24 road crossings have a gate.

New Rail Bridges – Bridges would need to be constructed to mitigate each of the washouts listed in the 'Existing Conditions' section. This construction would be pending a geotechnical survey and an engineered design.

New Trail Bridges – The current rail bridges do not allow for both rail and trail use. In each location that has a rail bridge, a parallel trail bridge would need to be constructed. It is inconclusive if this is allowed per the railbanking laws, as these may be considered permanent structures. Consultation with an attorney would be needed.

Fencing – The trail would need to be at minimum 15 feet but ideally 25 feet or more from the edge of the rail. A fence would need to be installed for separation between the rail and trail. Trespassing onto railroad tracks is the leading cause of rail industry fatalities in the United States and there is risk of slipping and tripping on the rail by pedestrians.

Roofing – In areas where the trail is constructed below the rail line and potentially disturbing the embankment, a geotechnical and civil engineering design would be needed. It is likely that if these sections are deemed safe to construct, they would require a roof to protect pedestrians from flying debris.

Trail Crossings – The trail would need to cross the rail line an estimated 20 times, at a minimum, due to the difficult topography and limited right-of-way. Each of these crossings will need either tube crossing and rubber rail seals or a pedestrian bridge over the rail. The crossing type will need to be determined for each individual crossing.

Elevated Boardwalk – Due to the difficult topography and limited space within the right-of-way, much of the trail would need to be an elevated boardwalk that runs parallel to the track.

Natural Surface Trail Construction – a 4-foot-wide natural surface trail needs to be constructed parallel to the rail line. Due to the difficult topography and limited space within the right-of-way, only about 10% of the corridor can accommodate sustainable, natural surface trail.

Trailhead – At least one trailhead would need to be constructed. The current parking facilities of the municipalities would not be able to support the additional traffic of a trail and multipurpose active tourism rail. The right-of-way may be land limited, and additional land acquisition may be required.

Cost Estimates

The cost estimates were developed in collaboration with the North Carolina Department of Transportation Rail Division. These costs do not include any additional land acquisition costs needed due to the limited space available within the rail corridor.

Item	Cost per Unit	Unit	Amount	Total Estimated Cost
Tourist Train Costs				
Bridge inspections – bridges less than 100 feet	$15,000	each	2	$30,000
Bridge inspections – bridges greater than 100 feet	$25,000	each	5	$125,000
Removal of current rail infrastructure – ties and ballasts	$100,000	mile	16	$1,600,000
Construction of new rail infrastructure – ties and ballasts	$1,600,000	mile	16	$25,600,000
Construction of new rail infrastructure – grading and drainage	$1,500,000	mile	16	$ 24,000,000
Constructing new rail bridges	$1,000	square ft	57,500	$57,500,000
Major rehab to rail bridges	$600	square ft	27,500	$16,500,000
Crossing diagnostic assessment	$7,500	each	24	$180,000
Crossing gate and flashers	$425,000	each	19	$8,075,000
Rail Crossing – detailed engineering plans	$42,500	each	19	$807,500
Low-level passenger platform	$150	square ft	225	$33,750
Detailed Engineering Plans	20% of construction cost	-	-	$26,661,750
50% contingency* (permitting, insurance, etc.)	50% of construction cost	-	-	$66,654,375
Trail Costs				
Trailhead – paved parking lot with 20 spaces and a single vault toilet	$155,000	each	1	$155,000
Detailed trail design	$7,000	mile	16	$112,000
Trail construction (4-foot, natural surface)	$58,000	mile	2	$92,800
Trail construction (elevated boardwalk)	$600	linear ft	74,000	$44,400,000
Fencing	$25	linear ft	84,500	$2,112,500
Trail bridges – standard	$200	square ft	44,250	$8,850,000
Trail bridges – greater than 400 feet over water	$400	square ft	6,750	$2,700,000
Trail crossings (pedestrians crossing rail, not at a road)	$2,000	linear ft	200	$ 400,000
20% contingency	20% of construction cost	-	-	$11,742,060
Miscellaneous Costs				
Environmental assessment for the 16-mile corridor	$500,000	each	1	$500,000
Total Estimated Tourist Train Cost				**$227,800,000**
Total Estimated Trail Costs				**$70,600,000**
Total Estimated Miscellaneous Costs				**$500,000**
Total Estimated Cost				**$298,900,000**

**A 50% contingency was advised by the NC DOT Rail Division to cover associated costs with permitting, insurance, and other soft costs.*

Maintenance Costs – Per Year				
Item	**Cost per Unit**	**Unit**	**Amount**	**Total Estimated Cost**
Bridge inspections – bridges less than 100 feet	$7,500	each	2	$15,000
Bridge inspections – bridges greater than 100 feet	$12,500	each	14	$175,000
Crossing gate and flashers	$6,000	each	24	$144,000
Trail – contracted	$20,000	mile	16	$320,000
Total Estimated Yearly Maintenance Cost				**$654,000**

Study Findings and Recommendations

These findings are based on the examination of existing conditions, field visits, and best practices from North Carolina Department of Transportation Rail Division.

1. **Multiple, detailed studies need to be conducted on the corridor.** These additional studies will determine structural integrity, natural and cultural resources currently present, as well as designs and plans for new structures. It is recommended that these reports and surveys be done as a continuation of the site analysis process and prior to any improvements to the corridor. This includes, but is not limited to:
   - Inspection of all rail bridges by a certified engineer, and subsequent designs if needed
   - Environmental assessment as required by the North Carolina Environmental Policy Act
   - Review by State Historic Preservation Office for historical, archaeological, and cultural resources
   - Geotechnical surveys of areas along the corridor
   - Study of solutions to correcting washouts and shoreline erosion
   - Traffic studies for every at grade crossing
   - Bridge designs for all new trail bridges
   - Study of solutions for hiking trail crossings of rail line
2. **Initial cost estimates show that it will be prohibitive to construct both rail and trail within the corridor.** To construct a multipurpose active tourism rail line and trail it is estimated to cost a total of $328 million. This cost is inclusive of replacing the tracks, rehabilitating the bridges, constructing new bridges to mitigate washouts, necessary accommodations and safety facilities, as well as the engineering and environmental assessments required.

   Constructing only a 4-foot natural surface trail in place of the current rail line is estimated to cost a total of $11.4 million.
3. **Due to constraints in the corridor, it is not possible to construct both trail and rail within the corridor.** The corridor is, on average, 200-feet wide, but the rail line is not centered within the corridor for its entirety. There are multiple areas of the corridor where there are less than 50 feet of space between the rail line and the boundary of the corridor. Due to the property constraints, a potential hiking trail would need to cross the rail line an estimated 20 times to be feasible. There are approximately 20 areas where there is no available space outside of the current rail line for trail construction within the property boundary. Pending an official survey, the encroachments will prevent sustainable trail construction while retaining rail within the corridor.

   The terrain within the corridor also makes it difficult to construct a trail while allowing room for a rail line. In many areas, the rail line sits on the only level terrain and there are steep cliffs or hills on either side of the rail line. The construction of a trail within these areas would require extensive engineering and designs, and potentially long sections of elevated platforms. Following best practices, the trail needs to be at minimum 15 feet but ideally 25 feet from the edge of the rail line. Given the topography, there are multiple locations where the right-of-way does not allow for enough space to build sustainable trail.

   While the high grade near Saluda gives the corridor its name and notoriety, it can be a barrier to feasible trail and rail construction within the property boundaries. According to the American Association of State Highway and Transportation Officials' Guide to Development of Bicycle Facilities, the maximum grade of a shared use path should be 5%, and a grade steeper than 3% is not feasible for natural surface trails due to drainage and erosion issues. Due to the grade reaching up to 13 percent, mitigation efforts will need to be employed on a multipurpose trail, such as an additional 4-6 feet of width or multiple switchbacks. It is not feasible to fit these mitigation efforts within the property boundary while maintaining a rail line.
4. **Prior to construction, we need to ensure a concessionaire is willing to manage, maintain and invest into a multiuse active tourism rail.** The Division is not equipped nor has the expertise to operate a multiuse active tourism rail, and would therefore, need to find a concessionaire that is willing and able to maintain and operate the facility. At the time of this study, the Division is unaware of an entity that has expressed interest in this undertaking.

   A concessionaire of this type (multiuse active tourism rail) does not fall under the same category of other concessionaires with whom the Division has agreements. Due to this difference, the Division may need to change the concessionaire policy and process. At present, the Division offers a lease with the state for 3-7 years with a 2-year extension. It is recommended that a concessionaire be responsible for the investment and construction of the needed rail facilities and supply the train itself. This would ensure that they align with the needs and desires of the concessionaire to successfully operate a multiuse active tourism rail.

   The concessionaire would need to fully manage and operate the rail including staffing, marketing, maintenance, and the day-to-day operations. There will likely be insurance and other legal requirements of the concessionaire.

Recommended Partner Organization

Once a state trail is authorized by the General Assembly, as the Saluda Grade will be after the corridor is acquired from Norfolk Southern, it becomes part of the North Carolina state parks system, giving the Division both the authority and responsibility to plan the general corridor within which the trail will be located. The planning process includes identifying a partner organization for the state trail, meeting with stakeholders and potential segment sponsors, and holding public information meetings. Segment sponsors are the landowners of the land upon which the trail runs. Generally, the planning corridor is 5-10 miles wide to take advantage of available land and advantageous topography. While the proposed Saluda Grade corridor right-of-way is nowhere near that wide, the master planning effort may identify locations where it will be necessary to route the trail outside of the railway corridor for safety and/or sustainability.

In addition, the master planning effort needs to ensure that the Saluda Grade trail will meet proposed state trail standards:

- Statewide significant natural, cultural, scenic and recreational value
- Enough potential length and beauty to attract varied and significant use from regions outside the local area. The planned length should be a minimum of 100 miles long.
- The proposed length of the trail should include multiple jurisdictions and be physically achievable.

The partner organization selected for the Saluda Grade State Trail should assist the Division in both the planning efforts and identifying potential land managers and stakeholders as they will be the local experts on the Saluda Grade. There is one partner organization for each state trail. The partner and the Division agree to a Memorandum of Agreement that defines roles and responsibilities relating to the state trail.

The partner organization selected for the Saluda Grade trail will need to have:

- History with the Saluda Grade trail
- Experience in trail development and land acquisition
- Representation from every county that the trail will traverse
- Representation from user groups who use the trail
- Representation from the land conservancy/conservancies that service the region traversed by the trail
- Ability to recruit, inspire, train and manage volunteers
- The capacity to focus on trail development

The Division recommends Conserving Carolina Land Conservancy as the partner organization for the future Saluda Grade State Trail.

Appendix

Saluda Grade Legislation

SECTION 14.5 - SALUDA GRADE RAIL CORRIDOR

House Bill 259 Session Law 2023-134 Page 399

SECTION 14.5.(a) Findings and Purpose – The General Assembly finds that the Saluda Grade Railroad was constructed in the 1870s to link Spartanburg, South Carolina, to Asheville, North Carolina, and holds a special place in American rail history as the steepest standard-gauge mainline railroad in the United States, located where the line crosses the dramatic Blue Ridge Escarpment. The General Assembly further finds that the 31-mile portion of the Railroad proposed for acquisition stretches from Inman, South Carolina, to Zirconia, North Carolina, with 16 miles in South Carolina and 15 miles in North Carolina, and would pass through downtown Inman, Gramling, Campobello, Landrum, Tryon, and Saluda, as well as the picturesque Piedmont countryside, the Pacolet River valley with its plunging waterfalls, and the spectacular scenery around the Green River and Lake Summit. The purpose of this section is to take advantage of an unprecedented opportunity for the citizens of North Carolina to celebrate 2023 as the Year of the Trail and enhance the reputation of North Carolina as the Great Trails State by acquiring the Saluda Grade rail corridor for conversion into the Saluda Grade Trail.

SECTION 14.5.(b) Definition – For purposes of this section, the Saluda Grade rail corridor means the portion of the Norfolk Southern W-Line railroad between milepost 26 in the unincorporated community of Zirconia in Henderson County and the boundary between North Carolina and South Carolina.

"**SECTION 14.5.(c) Funding** – Of the funds appropriated in this act from the projected interest in the State Fiscal Recovery Reserve to the Department of Natural and Cultural Resources, seven million dollars ($7,000,000) in the 2023-2024 fiscal year and five million dollars ($5,000,000) in the 2024-2025 fiscal year is allocated to provide a grant to the Saluda Grade Trails Conservancy, a nonprofit corporation (Conservancy), for the purchase of the Saluda Grade rail corridor in Henderson and Polk Counties and related assessment, due diligence, and transaction costs. Of the funds allocated by this subsection, the amount necessary for the Conservancy to provide the earnest money deposit toward the purchase of the Saluda Grade rail corridor, corridor, and related assessment, due diligence, and transaction costs, not to exceed two million dollars ($2,000,000), shall be provided to the Conservancy as soon as possible after the effective date of this act. The remaining funds shall be provided to the Conservancy upon the earlier of (i) January 1, 2025, or (ii) the date the Department completes the study required by subdivision (c)(5) subdivision (c)(4) of Section 14.7 of this act and notifies the Office of State Budget and Management that it has done so." SECTION 4.15.(b) Subdivision 14.7(f)(2) of S.L. 2023-134 reads as rewritten: "(2) Purpose; Dissolution. – The Council shall advise the Department in conducting the study of the W-Line rail corridor required by subdivision (c)(5) subdivision (c)(4) of this section and shall cease to exist when the funds allocated for the study have been disbursed and all reports, audits, and other documentation required by the State Budget Act (Chapter 143C of the General Statutes) have been submitted."

SECTION 14.5.(d) Memorandum of Understanding – No later than 60 days after the effective date of this act, the Department of Natural and Cultural Resources shall enter into a Memorandum of Understanding with the Conservancy regarding the long-term ownership structure, management, and improvement of the rail corridor. The Memorandum shall provide, at a minimum, the following:

1. That not later than July 1, 2027, the corridor will be conveyed to the State to be added to the State Trail system.
2. That the conveyance and other provisions of the Memorandum are structured to ensure that the acquisition of the rail corridor and the conversion to an interim use as a State trail is consistent with the requirements of federal law necessary to preserve established railroad rights-of-way for future activation of rail service as set forth in the railbanking provisions of the National Trails System Act Amendments of 1983.

SECTION 14.5.(e) Report – The Department shall provide an interim report no later than March 1, 2024, and a final report no later than October 1, 2026, to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources and the Fiscal Research Division regarding the acquisition of the Saluda Grade rail corridor funded by this section. The Department shall also include a summary of its actions to promote and support the establishment of the Saluda Grade Trail as a part of the annual report required by G.S. 143B-135.102.

SECTION 14.5.(f) Authorization – Upon completion of the acquisition of the Saluda Grade rail corridor funded by this section, the General Assembly authorizes the Department of Natural and Cultural Resources to add the trail established on the Saluda Grade rail corridor to the State Parks System as a State trail, as provided in G.S. 143B-135.54(b). The Page 400 Session Law 2023-134 House Bill 259 Department shall support, promote, encourage, and facilitate the establishment of trail segments and connecting trails on State parklands and on lands of other federal, State, local, and private landowners. On segments of the trail that cross property controlled by agencies or owners other than the Department's Division of Parks and Recreation, the laws, rules, and policies of those agencies or owners shall govern the use of the property. The requirement of G.S. 143B-135.54(b) that additions be accompanied by adequate appropriations for land acquisition, development, and operations shall not apply to the authorization set forth in this section; provided, however, that the State may receive donations of appropriate land and may purchase other needed lands or finance improvements and amenities for the trail with existing funds in the Clean Water Management Trust Fund, the Parks and Recreation Trust Fund, the federal Land and Water Conservation Fund, and other available sources of funding.

SECTION 14.7 - COMPLETE THE TRAILS FUND

SECTION 14.7.(a) - Of the funds transferred from the State Fiscal Recovery Reserve to the Department of Natural and Cultural Resources for the 2023-2024 fiscal year for trails, five million dollars ($5,000,000) shall be allocated to the Complete the Trails Fund to be used as set forth in subsection (c) of this section.

SECTION 14.7.(b) – Definitions…

SECTION 14.7.(c) Complete the Trails Fund – Funds allocated to the Complete the Trails Fund by subsection (a) of this section shall be used as follows:

1. **Capacity building funds** – Seven hundred fifty thousand dollars ($750,000) to provide capacity building grants to the partner organizations for each component of the State Trail System with which the Department has signed a Memorandum of Understanding (MOU) pursuant to Section 14.7(d) of S.L. 2021-180 as well as the partner organizations for the trail established on the Saluda Grade rail corridor as set forth in Section 14.5 of this act. The Department shall distribute fifty thousand dollars ($50,000) to the local partner for each System component. With respect to funding under this subdivision for the Equine State Trail established in Section 6 of S.L. 2023-63, the Department shall identify one or more partners and enter into Memoranda of Understanding (MOUs) with those partners prior to disbursing any funds under this subdivision to those partner organizations. Where there is more than one partner organization for a System component, the Department shall apportion the funds under this subdivision based on relative scope of activity for which each partner organization assumes responsibility in the MOU.

   …

4. **Rail Line Study** – Twenty-five thousand dollars ($25,000) in the 2023-2024 fiscal year for the Department, in consultation with the Saluda Grade Conservation and Development Council established in subsection (f) of this section, to study the potential and feasibility of a multipurpose active tourism rail and hiking corridor on that portion of the Norfolk Southern W-Line rail corridor from the City of Hendersonville to either the Town of Tryon or the Town of Saluda and, if such a multipurpose active tourism rail and hiking corridor is determined to be feasible, to develop a conceptual plan and preliminary engineering for its implementation. The Department shall provide its report to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources and the Fiscal Research Division no later than January 1, 2025. Funds allocated by this section that are not spent or encumbered by January 1, 2025, may thereafter be used for the purposes set forth in subdivisions (2) or (3) of this subsection.

SECTION 14.7.(d) Reports – The Department shall provide an initial report no later than October 1, 2023, to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources and the Fiscal Research Division regarding the process for awarding grants and the metrics the Department intends to use in evaluating grant applications for the Complete the Trails Fund pursuant to this section. Thereafter, the Department shall report annually no later than October 1 regarding the use of funds allocated by this section. The annual report will include a list of grant recipients and amounts, a description of trail projects funded, and a summary of non-State funds leveraged with grant funding. The Department may discontinue annual reporting upon providing a final summary report after it awards all funds allocated by this section. These reports may be included as a part of the report required by G.S. 143B-135.102.

SECTION 14.7.(e) – Administrative Expenses…

SECTION 14.7.(f) Council Established – The Saluda Grade Conservation and Development Council (Council) is established to advise and partner with the Department regarding the study of the Saluda Grade rail corridor funded by subdivision (c)(4) of this section as provided in this subsection:

1. **Membership** – The Council shall include two members selected by the Polk County Board of Commissioners, two members selected by the Henderson County Board of Commissioners, one member selected by the City of Hendersonville City Council, one member selected by the City of Saluda Board of Commissioners, one member selected by the Town of Tryon Board of Commissioners and the executive director of the Polk County Community Foundation, Inc., a nonprofit corporation, ex officio, or the executive director's designee. The Chair of the board of the Saluda Historic Depot and Museum Board or the Chair's designee shall serve as an ex officio member of the Council and shall vote only in the case of a tie.
2. **Purpose; Dissolution** – The Council shall advise the Department in conducting the study of the W-Line rail corridor required by subdivision (c)(5) subdivision (c)(4) of this section and shall cease to exist when the funds allocated for the study have been disbursed and all reports, audits, and other documentation required by the State Budget Act (Chapter 143C of the General Statutes) have been submitted."

Railbanking Legislation

SECTION 8(d) of Public Law 90-543 "National Trails System Act"– The Secretary of Transportation, the Chairman of the Surface Transportation Board, and the Secretary of the Interior, in administering the Railroad Revitalization and Regulatory Reform Act of 1976 (45 U.S.C. 801 et seq.) and chapter 224 of title 49, United States Code, shall encourage State and local agencies and private interests to establish appropriate trails using the provisions of such programs. Consistent with the purposes of that Act, and in furtherance of the national policy to preserve established railroad rights of-way for future reactivation of rail service, to protect rail transportation corridors, and to encourage energy efficient transportation use, in the case of interim use of any established railroad rights-of-way pursuant to donation, transfer, lease, sale, or otherwise in a manner consistent with the National Trails System Act, if such interim use is subject to restoration or reconstruction for railroad purposes, such interim use shall not be treated, for purposes of any law or rule of law, as an abandonment of the use of such rights-of-way for railroad purposes. If a State, political subdivision, or qualified private organization is prepared to assume full responsibility for management of such rights-of-way and for any legal liability arising out of such transfer or use, and for the payment of any and all taxes that may be levied or assessed against such rights-of-way, then the Board shall impose such terms and conditions as a requirement of any transfer or conveyance for interim use in a manner consistent with this Act, and shall not permit abandonment or discontinuance inconsistent or disruptive of such use.