



New River Valley Passenger Rail Station Feasibility Study

June 2022



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Executive Summary

On May 5, 2021, the Governor of Virginia announced that the Commonwealth of Virginia (the “Commonwealth” or “Virginia”) reached an agreement with Norfolk Southern Railway (NS) to extend passenger rail service along the former Virginian Line from Roanoke, Virginia to the New River Valley (NRV), Virginia for the first time since 1979.

The Governor’s announcement outlined the formal discussions between NS and the Commonwealth to purchase 28 miles of right-of-way and tracks along the Virginian Line from the Salem Crossovers west of Roanoke to Merrimac (Christiansburg, Virginia). Following the acquisition of right-of-way and tracks, the Commonwealth intends to improve the existing rail infrastructure, which will allow for passenger rail extension to the NRV area. The planned rail infrastructure improvements include adding a new passenger platform and related infrastructure to support a rail station and passenger service in the NRV. The effort to locate and identify the least impactful area for a rail station in the NRV is the focus of the Virginia Passenger Rail Authority (VPRRA) led New River Valley Passenger Rail Station Feasibility Study (the “Study”).

The Study was conducted from the Fall 2021 to the Spring 2022. The purpose of the Study was to use the existing studies and analysis that had occurred in the NRV region by a host of regional stakeholders and government entities to identify and select a feasible passenger rail station location and prepare the necessary technical work to advance to the environmental process and potentially obtain a National Environmental Policy Act of 1969 (NEPA) Class of Action determination from the lead federal agency, most likely the Federal Railroad Administration (FRA), if a federal environmental action is required.

As identified in the Study narrative, the analysis included an extensive four-month public outreach effort to reach out to:

- Private property owners who were directly impacted based on a potential station concept design
- Key stakeholder focus groups consisting of government, educational, and advocacy groups
- Online surveys to reach out to the general public
- Two public meetings

The public meetings presented the results of a three-stage screening analysis, which was based on a purpose and need statement developed by the Study. A preliminary environmental review was developed with the screening analysis to determine potential environmental impacts within the study areas and within the impact limits of a station concept design. Additionally, a high-level cost estimate and a brief constructability analysis were developed for each station concept to determine comparative, order-of-magnitude costs for and constructability of a potential NRV station site.

Generally, the Study had a number of findings, which are summarized briefly below. Additional details outlined in this summary can be found in the Study chapters and appendices that follow.

Background

Background information for the Study relied on previous studies that were developed in the region and that examined locating a passenger rail station in the NRV.

- Passenger rail served the NRV until 1979
- Eleven previous studies generally identified:
 - A public desire to restart passenger rail services to the NRV
 - A technical analysis of the ridership and costs associated with locating a station in the NRV
 - Physical identification of potential rail station locations in the NRV

Based on the previous studies, five (5) proposed locations for a passenger rail station were examined and are identified in **Figure ES-1** below.

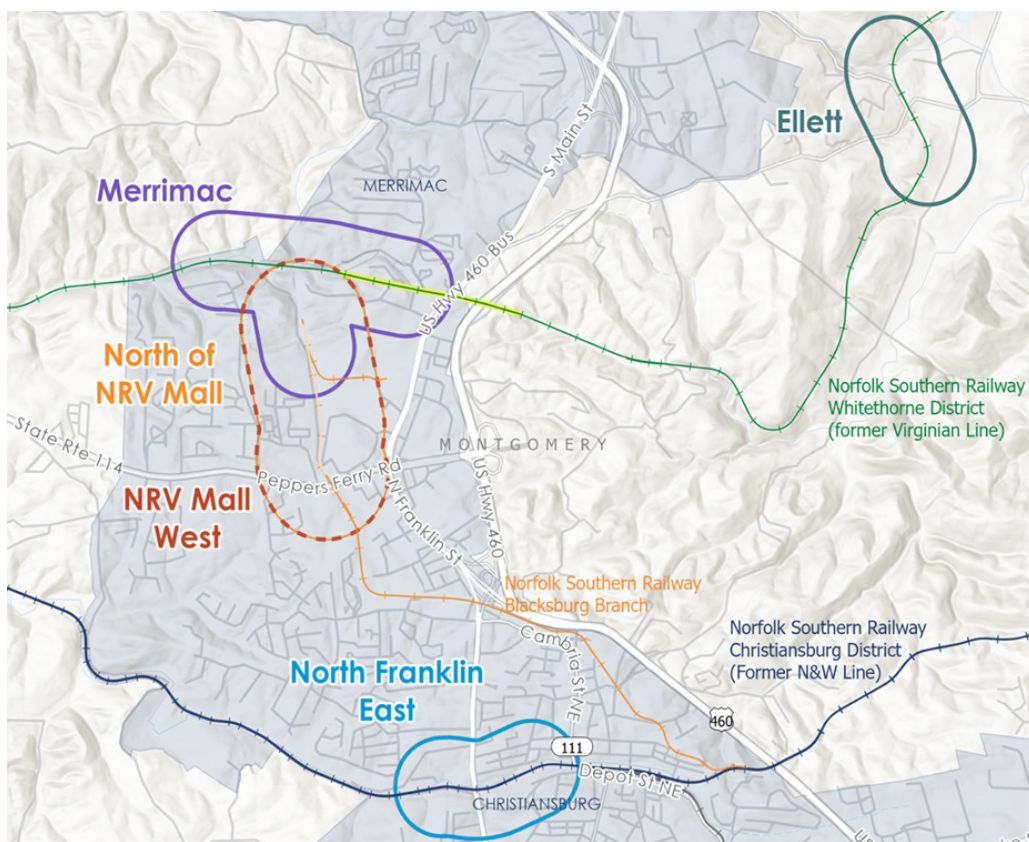


FIGURE ES-1: NRV PROPOSED STATION STUDY AREAS IDENTIFIED IN PREVIOUS REGIONAL STUDIES

Study Approach and Analysis

As described above and in **Chapter 2**, the Study Approach was developed from existing regional studies to identify potential physical locations for stations, determine the purpose and need for a station, develop a screening analysis to identify the impacts of a passenger rail station, and determine the feasibility of a potential location for a passenger rail station in the NRV region. The entirety of the analysis was based on a desktop review of available information

listed in **Chapter 1.2.2** and the analysis and reporting identified in the appendices. A summary of the findings for the Study Approach and Analysis is below.

- The Study team developed a purpose and need statement that focused on three purposes and three needs that an NRV Passenger Rail Station (NRV Station) would need to achieve.
- The screening analysis was developed based on the elements of the purpose and need statement, the environmental review, and physical characteristics examined in the appendices regarding the potential station sites to determine the most feasible physical location of a passenger rail station in NRV.
- Passenger station concepts were developed in accordance with Amtrak Station Program and Planning Guidelines dated February 2019 and with the available information from the desktop review of the stations.
- Concept designs were based on the ridership demand, current station design standards, the need for a high platform to serve the station, transportation access to and from the station, and a request from the NRV Regional Commission (NRVRC) to house future office space adjacent to the station.
- Each potential passenger rail station location examined in the Study required off-site infrastructure improvements to support transportation access to the station.
- Off-site infrastructure improvements included on and off-street improvements to support transit, pedestrian, and bicycle access to and from the station, and the track improvements required to support serving a station, including a railroad track connection from the Virginian line to the Blacksburg Branch.

Based on the results of the screening analysis summarized in **Table ES-1** below, the NRV North (NRV-N) and NRV West (NRV-W) sites were identified as the most feasible alternatives. Feedback received during the public outreach period of the Study found that the majority of the public is generally supportive of these locations as the most feasible alternatives for an NRV Station.

TABLE ES-1: SCREENING SUMMARY

Screening	Alternatives				
	NRV-N	NRV-W	Ellett	Merrimac	North Franklin East
Screening One –Operational Screening	✓	✓	✓	✓	✗
Screening Two – Comparison Study Area Analysis	✓	✓	✓	✓	N/A
Screening – Comparison Alternative Screening	✓	✓	✗	✗	N/A
Retained for Further Study	✓	✓	✗	✗	✗

Although not included in the actual screening analysis, Capital Cost Estimates were prepared for each of the conceptual layouts developed for Screening Three. These estimates provide an approximate order of magnitude comparison between the alternatives. To determine capital costs for the proposed station alternatives, the Study examined the Station System and Off-Site Infrastructure costs associated with each station location. The Capital Cost Estimates outlined in **Chapter 4.2** and summarized in **Table ES-2** were estimated to be:

TABLE ES-2: CAPITAL COST ESTIMATES

Station Alternative	Station Systems Cost (\$M)	Off-Site Infrastructure Cost (\$M)	Total Capital Cost (\$M)
NRV Mall West Site	\$34.7	\$21.4	\$56.1
NRV Mall North Site	\$35.8	\$21.4	\$57.4
Merrimac Site	\$49.8	\$25.6	\$75.4
Ellett Site	\$80.1	\$97.2	\$177.3

* Costs are an order of magnitude estimate due to the number of unknown conditions at this level of study.

The Capital Cost Estimates included a 40 percent contingency appropriate to this level of study to off-set unknown costs associated with each alternative. Generally, the Capital Cost Estimates depicted above include, but are not limited to, the following:

- Station System Costs
 - Station track and turnouts
 - Fencing
 - Passenger platform
 - Signals
 - Order of magnitude earthwork
 - Caretaker station
 - Bridging structures
 - Retaining walls
 - Parking areas
 - Roadway access
 - Shared-use path, where applicable
 - Future 10,000 square foot expansion for community space
- Off-Site Infrastructure Costs
 - Track and turnouts for connecting track to the NRV Mall sites
 - Roadway improvements to site
 - 0.8 miles for Merrimac
 - 2.5 miles for Ellett
 - Intersection improvements and signalization for Merrimac and Ellett sites
 - Order of magnitude earthwork
 - Shared-use path improvements to site
 - 2.5 miles for Ellett

The following exclusions to the capital cost estimates presented below are representative, but not comprehensive, at this level of analysis:

- Right of way acquisition
 - Environmental and permitting costs
 - Existing utility relocations
 - Mitigation for impacts that will be determined by the NEPA process
 - Pedestrian Bridge
 - Engineering design and technical considerations
- Constructability of the NRV-N and NRV-W stations will have fewer challenges than the other station locations.
 - Anticipated time to complete the project is presented in **Figure ES-4** and summarized below:
 - Environmental Review and 30% Engineering 9 to 18 months
 - Architectural/Engineering Design 6 to 18 months
 - Construction 12 to 30 months
 - **Total to Opening Day 27 to 66 months**

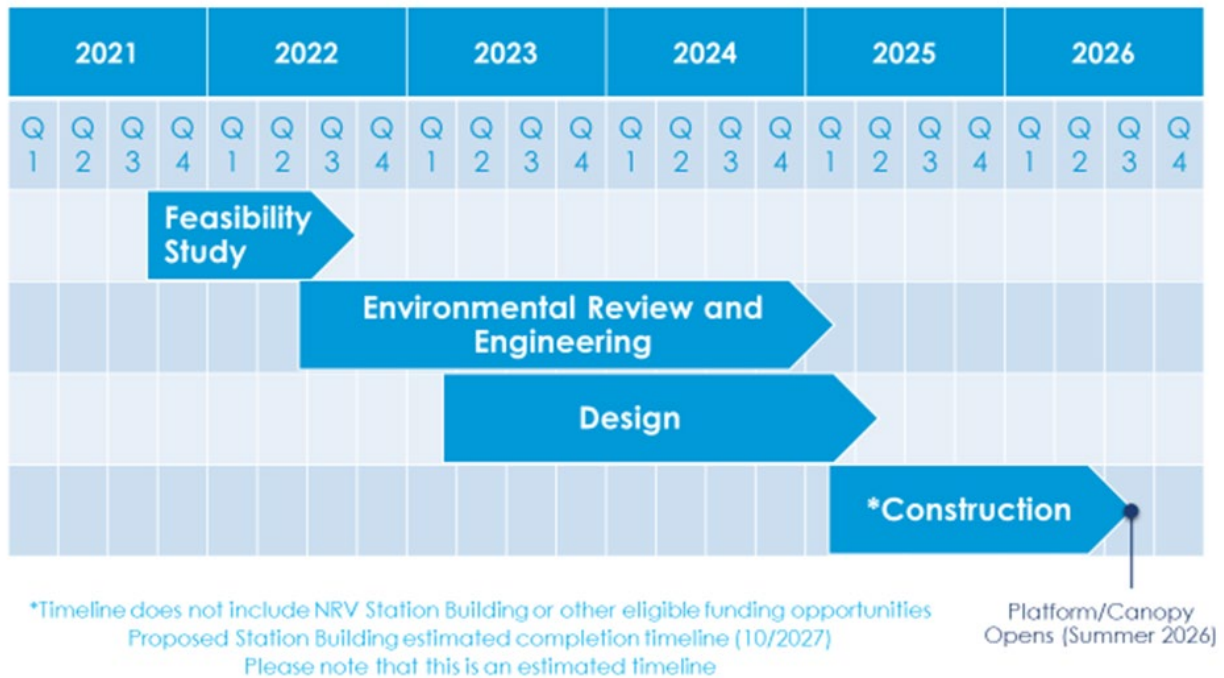


FIGURE ES-2: ANTICIPATED PROJECT TIMELINE

From these findings, the Study concluded that locating an NRV Station adjacent or near the NRV Mall (Uptown Christiansburg) is a feasible and logical next step in expanding passenger rail service to southwest Virginia. The following, high-level findings can be made regarding the next steps following this Study:

- **NRV-N and NRV-W should move forward to the environmental process and engineering design.**

North Franklin East was dismissed due to fatal flaws related to railroad operations. Ellett and Merrimac were dismissed due to significant negative major concept design differences.

- **If federal funding is awarded, an Environmental Assessment (EA) may be the FRA recommended NEPA Class of Action determination but is dependent on the review and recommendation by the FRA.**

VPRA will continue to coordinate with the federal government to address avoidance, minimization, and mitigation for environmental impacts. If federal funding is awarded for the Project, the recommendation that two station alternatives be advanced requires an EA to assist with additional environmental screening and evaluation to select a preferred alternative. It should be noted, that, upon review, the FRA may choose to recommend a different type of NEPA document.

- **Passenger rail service to the NRV may begin in the Summer of 2026 with the completion of a platform/canopy.**

A realistic opening date for a subsequent station building is late-2027.

1 Overview

On May 5, 2021, the Governor of Virginia announced that the Commonwealth had reached an agreement with NS to extend passenger rail service along the former Virginian Line from Roanoke to the NRV for the first time since 1979.

The Governor's announcement outlined the formal discussions between NS and the Commonwealth to purchase 28 miles of right-of-way and tracks along the Virginian Line from the Salem Crossovers west of Roanoke to Merrimac (Christiansburg). Following the acquisition of right-of-way and tracks the Commonwealth intends to improve the existing rail infrastructure, which will allow for passenger rail extension to the NRV area. The planned rail infrastructure improvements include adding a new passenger platform and station in the NRV area, which is the focus of the VPRA led Study.

1.1 Introduction

In response to the May 5, 2021, Governor's announcement, VPRA began the Study in Fall 2021 to examine locations in the NRV to locate a passenger rail station (the "NRV Station"). To determine feasible options for a passenger rail station in NRV, this Study examines and screens viable physical locations for a passenger rail station to determine station alternatives and to prepare the necessary technical work to advance the environmental process or obtain a NEPA Class of Action determination.

The intent of this Study is to develop a purpose and need for the NRV Station, a comprehensive screening methodology, and aerial photography-based concept designs of station alternatives to assess the potential impacts of a station on the surrounding environment using a desktop review of available materials. The results of the screening analysis for station locations are outlined in this Study and were presented to the public and stakeholders for input. The conclusion of the Study will result in an environmental process that could potentially result in a NEPA Class of Action requested by VPRA to the FRA.

The environmental review conducted in the Study developed and documented findings to further assess and develop avoidance, minimization, and mitigation measures for the NRV Station alternatives identified by the Study. If federal funding is sought for a subsequent capital project, a NEPA Class of Action determination may be pursued by VPRA. Once the NEPA evaluation begins, the NEPA work will include further preliminary engineering design related to station alternatives and will identify, analyze, and mitigate potential impacts to the environment caused by the construction of the NRV Station alternatives to identify a preferred alternative.

The Study has identified NRV Station locations that are along existing NS corridors – the former Virginian Line, the Blacksburg Branch, and the former Norfolk & Western Railway (N&W) Line. The Virginian Line, the Blacksburg Branch, and the N&W Line are controlled by NS and currently only operate freight trains carrying cargo.

VPRA identified the NRV Station locations outlined in the Study from previous studies and technical work in the region that analyzed the potential for an NRV Station for the region. The proposed locations in the Study were previously considered as part of the studies identified in **Chapter 1.2.2.**

The approach for the Study reflected on the previous studies listed above and included the following elements developed over a nine-month period:

- Development of a Purpose and Need Statement and screening analysis
- Environmental review and potential NEPA Class of Action determination
- Concept designs of station alternatives with associated comparative costs and projected schedules
- Public outreach to obtain input from stakeholders and the public
- Recommendations for next steps

1.2 NRV Passenger Rail Station Background

This Study included a review of the history of passenger rail in the NRV, as well as an analysis of the previous studies that promoted the reintroduction of passenger rail service to the region. These studies analyzed service options, ridership, and station alternatives; made recommendations for moving forward; and informed the Study process. The existing regional studies were notably valuable for generating the proposed locations to be screened.

As previously discussed, the Study is led by the VPRA. VPRA was established by Chapter 1230 of the 2020 Acts of Assembly¹. Its statutory authority is found in the Code of Virginia, Title 33.2, Chapter 2, Article 6. Virginia Passenger Rail Authority Act². VPRA assumes “all administrative and fiduciary responsibilities for Virginia’s state-supported passenger rail services, including the current six daily roundtrip Amtrak Northeast Regional services originating in Roanoke, Norfolk, Newport News, and Richmond. The VPRA will also provide funding to Virginia Railway Express (VRE), which will continue to operate passenger rail service in northern Virginia. VPRA also administers all capital expansion projects, infrastructure, and land acquisitions related to Virginia’s \$3.7 billion Transforming Rail in Virginia initiative, which will double Amtrak and VRE service in Virginia over the next decade.”³

The New River Valley Passenger Rail Station Authority was established by the Virginia General Assembly on March 25, 2021 (2021, Sp. Sess. I, cc. 353, 354) to assist the Commonwealth in creating and supporting passenger rail service in the region. The membership of the New River Valley Passenger Rail Station Authority is in the process of being formulated, with the assistance of the NRVRC. VPRA will work with the New River Valley Passenger Rail Station Authority to potentially partner and fund the construction of the station and related elements as the NRV Station project moves forward. A platform/canopy is a critical piece of infrastructure that will allow for passenger rail service to begin operations and may precede a station building.

¹ DRPT. (n.d.). Retrieved January 30, 2022, from <https://www.drpt.virginia.gov/vpra/>

² Virginia law. Code of Virginia Code - Article 6. Virginia Passenger Rail Authority Act. (n.d.). Retrieved January 30, 2022, from <https://law.lis.virginia.gov/vacodefull/title33.2/chapter2/article6/>

³ DRPT. (n.d.). Retrieved January 30, 2022, from <https://www.drpt.virginia.gov/vpra/>

1.2.1 BRIEF HISTORY OF PASSENGER RAIL IN THE NRV

The original N&W Christiansburg Station was built in the early 20th Century, and N&W passenger rail service in the NRV continued to the mid-twentieth century. Scheduled passenger trains to/from Cambria and Blacksburg ended in 1957.

N&W was a Class I railroad formed by the merger of over 50 predecessor railroads⁴. The earliest predecessor railroad began in 1838. N&W merged with the Southern Railway in 1986 to become NS. Special passenger trains, usually for football games, to/from Cambria and Blacksburg along the Blacksburg Branch ended in 1963. Passenger service provided by the N&W to/from Radford and Christiansburg ended in 1971.

The Blacksburg Branch began as the Virginia Anthracite Coal & Railway company in 1902⁵. N&W began operating the line as the Blacksburg Branch in 1912 and continued through 1963 when service was discontinued just north of the Corning industrial spur.

The Virginian Railway was a coal-hauling line formed by the merger of the Deepwater Railway in West Virginia and the Tidewater Railway in Virginia⁶. It operated from 1909 to 1959 when it was purchased by the N&W.

Amtrak, operating over the N&W, took over service to Christiansburg in 1971 and was the only service to Christiansburg after 1971. Amtrak service to Christiansburg ended in 1979.

Operators of the passenger rail routes that served the NRV chose to cease operations to and from Christiansburg. The route cancellations were the result of:

- Low ridership
- Slow passenger train operations due to the number of coal trains
- Congressional actions that streamlined Amtrak operations and eliminated existing service

Renewed interest in passenger rail service in the NRV began with the Commonwealth's efforts to extend passenger rail service from Lynchburg to Roanoke in 2014. A passenger rail advocacy group formed in 2013 to promote extending passenger rail service beyond Roanoke to the NRV. Since 2013, the following state and regional activities initiated NRV passenger rail studies:

- In 2013, the New River Passenger Rail community initiative formed with the purpose of bringing "Amtrak passenger rail service to Virginia's New River Valley" as they "seek to gain funding for extending Amtrak's Northeast Regional Service to Christiansburg".⁷

⁴ Norfolk & Western Corporate Family Tree (1916). (n.d.). Retrieved March 24, 2022, from https://nwhistory.info/nw_info/FamilyTree/index.php

⁵ The Blacksburg branch or "huckleberry". N&W Divisions – Radford. (n.d.). Retrieved March 24, 2022, from <https://nwhistory.info/divisions/Radford/NWRad4.php>

⁶ Princeton Railroad Museum " history of the Virginian Railway. header. (n.d.). Retrieved March 24, 2022, from <https://www.princetonrailroadmuseum.com/history-of-the-virginian-railway/>

⁷ NRV Rail: Putting passengers on track. NRV Passenger Rail. (n.d.). Retrieved February 13, 2022, from <https://www.nrvpassengerrail.org/>

- In 2014, the Commonwealth of Virginia, Amtrak, NS, and the City of Roanoke extended and re-established passenger rail service along the former N&W line from Lynchburg, Virginia to Roanoke, Virginia.
- In 2019, the Virginia Department of Rail and Public Transportation (DRPT) began to examine proposed station locations as part of an effort to extend Amtrak service into the NRV. That effort involved the purchase the former Virginian line from NS in advance of a service agreement with NS.

1.2.2 PREVIOUS NRV PASSENGER RAIL STUDIES AND PLANS

Over the past eight years, many studies in the region have examined the need for a station in the NRV region. These studies examined the extension of passenger rail service to the NRV region. A brief summary of each is below.

Montgomery County's 2025 County Comprehensive Plan⁸: Supports enhanced rail service and facilities. It notes under Economic Resources Goals "ECD 4.2.2 Rail Transportation: Support passenger rail service to Christiansburg and improved freight rail service along the Interstate 81 corridor." Public input during the development of this Comprehensive Plan supports light rail, and intermodal transportation options (including rail).

The Transportation Resource Goals in the same report list "TRN 2.5.3 Rail Alternatives: Require a detailed study and serious consideration of passenger (Trans Dominion) and freight rail service along the entire Interstate 81 corridor, including possible improvements in adjacent states. (15)". TRN 3.0 Mass Transit states: "Create a better mass transit system (rail, bus, trolley, carpool) that allows for mobility of all citizens. (18)"

The Town of Christiansburg Urban Development Area Report 2016⁹ update (UDA): Indicates a desire for a passenger rail station, and connectivity to the Huckleberry Trail in UDA CED 9.3.

Town of Christiansburg Placemaking Plan¹⁰: Supports rail service and a station in Christiansburg and identifies a station near the Christiansburg Aquatic Center area for synergy of growth.

New River Valley Regional Commission 2016 NRV Passenger Rail Study¹¹: Analyzed ridership data and rail service to the NRV and identified a station in Christiansburg near the Christiansburg Aquatic Center area.

2021 NRV MPO Multimodal Plan¹²: Examined supporting passenger rail service to the NRV area, and again noted the Christiansburg site adjacent to the Christiansburg Aquatic Center.

⁸ [Montgomery County Department of Planning and GIS Services, Montgomery County Comprehensive Plan - Montgomery County, 2025, October 12, 2004](#)

⁹ [Town of Christiansburg, Urban Development Area Report, Prepared by Michael Baker International and Renaissance Planning, November 2016](#)

¹⁰ [Town of Christiansburg, Christiansburg Placemaking Plan: Downtown, Midtown, and Cambria, August 4, 2020](#)

¹¹ [New River Valley Regional Commission, New River Valley Passenger Rail Study, February 2016](#)

¹² [New River Valley MPO, Multimodal Plan, Prepared by Michael Baker International, May 6, 2021](#)

NRVMPO 2045 Long-Range Transportation Plan¹³: Described extending passenger rail service from Roanoke to the NRV as a regional priority.

DRPT conducted technical studies over the past four years to examine NRV passenger rail service. A summary of recommendations and information found by each is below:

- Recommended improvements for passenger rail service along the former Virginian Line
- Identified locations for proposed passenger rail stations
- Analyzed the Virginian line with respect to storage and maintenance infrastructure, track infrastructure, and associated improvements required
- Projected ridership forecasts through 2030
- Evaluated track and infrastructure related to serving stations in NRV

¹³ *New River Valley MPO, NRVMPO 2045 Long-Range Transportation Plan, November 04, 2021*

2 Study Approach

This chapter reviews the overall Study approach to identify the physical locations for an NRV Station and related transportation infrastructure. The three-step approach of this Study is illustrated below and is discussed generally in this chapter.

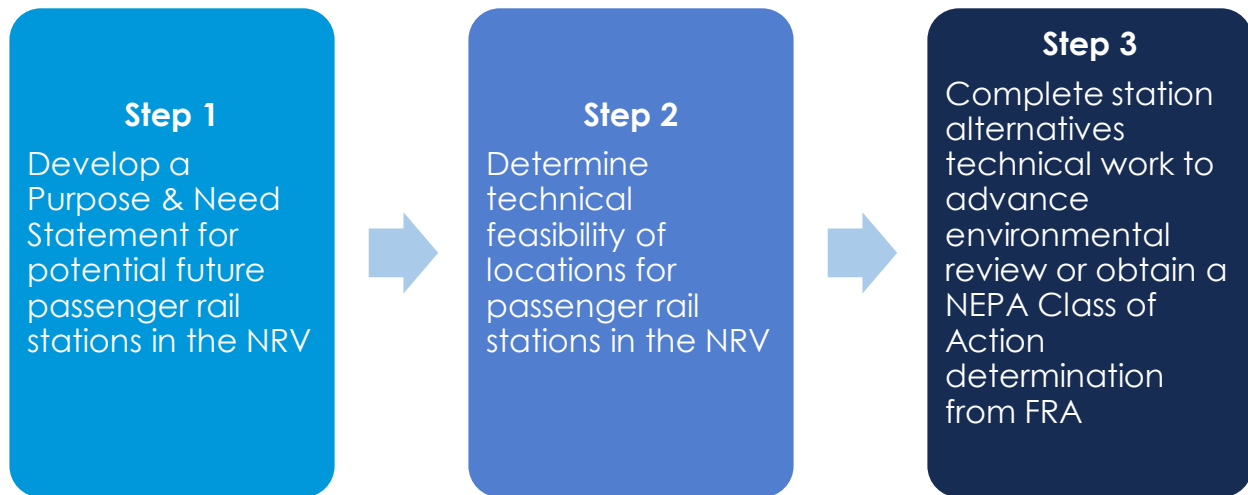


FIGURE 2.1: STEPS TO COMPLETE STUDY

To complete the process outlined in **Figure 2.1**, the Study developed a Purpose and Need for the NRV Station, established Study Areas based on technical feasibility of the locations, and evaluated alternatives as part of the methodology for screening areas and alternatives.

To determine the technical feasibility of proposed NRV Station locations, Study Areas that encompass a potential passenger station within the NRV were created using available studies and background information identified in **Chapter 1**.

A three-stage screening criteria was then developed to analyze potential NRV Station locations given the environmental and design categories identified in the screening criteria stages.

Concurrently, a public input and interagency coordination plan (PIICP) was developed to involve and obtain input from stakeholders and the public with the findings of the Study.

Additionally, the Study's approach included technical work to advance the environmental process or a NEPA Class of Action determination discussed in **Chapter 2.6**.

Additional detail regarding the Study approach is outlined below.

2.1 Purpose and Need

A new passenger rail service to NRV relies on the purpose and needs identified in the regional studies reviewed in **Chapter 1.2.2**. This chapter identifies major themes and observations from the existing regional studies and presents them as the purpose and need elements for the NRV

Station. The purpose and need elements are generally described in **Figure 2.2** below and in the supporting analysis in **Chapters 2.1.1** and **2.1.2**.

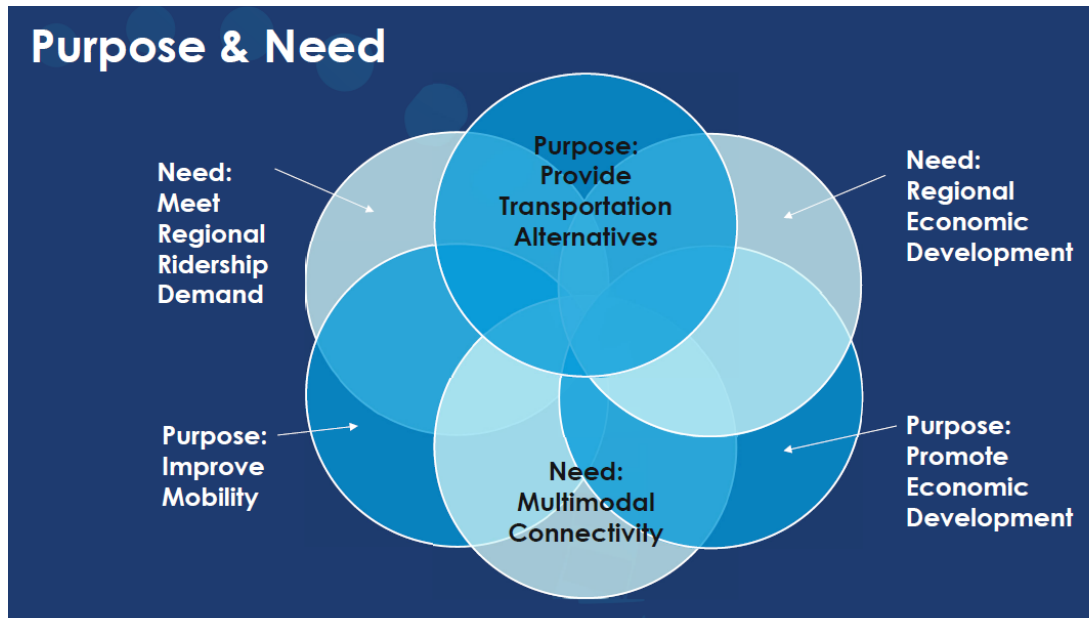


FIGURE 2.2: PURPOSE & NEED ELEMENTS

2.1.1 PURPOSE

As outlined in the regional studies identified in **Chapter 1.2.2** and by the May 5, 2021 Governor’s announcement, three primary purpose statements are recognized as common themes for the NRV Station.

Purpose Statement #1: Provide Transportation Alternatives to NRV

The NRV Station will provide visitors and citizens of the NRV with a new regional transportation alternative that does not exist today. The purpose of the NRV Station is that it will provide an alternative to highway travel, increase the accessibility to and from regional airports in Roanoke, and provide access to rail destinations locally and regional rail routes nationwide. Additionally, the NRV Station could allow travelers to use regional transit to and from the station in the future. This purpose was identified in the 2021 NRV MPO Multimodal Plan¹⁴.

Purpose Statement #2: Improve Mobility

The purpose of building the NRV Station is to improve mobility by providing travelers in the NRV region with a reliable transportation alternative that does not exist today. As depicted in the ridership study, and the many other studies that examined the mobility demands in **Chapter 1.2.2**, a common theme was the demand in the counties and towns in the NRV for increased regional, state, and nationwide mobility that did not rely on the use of an automobile. By

¹⁴ [New River Valley MPO, Multimodal Plan, Prepared by Michael Baker International, May 6, 2021](#)

introducing the NRV Station, a citizen or visitor could have the choice to travel by rail or automobile within the Commonwealth or nationwide.

Purpose Statement #3: Promote Economic Development

In addition, passenger rail stations in general promote positive economic development to the surrounding community by making the region more accessible to travelers from Virginia and nationwide, while reducing the need to travel by vehicle to the region. This was a common theme observed in the studies in **Chapter 1.2.2**.

The purpose of the NRV Station would be to remove a barrier to travelers to and from the NRV region based on their current requirement to use an automobile. Based on the observations of positive economic externalities in the existing regional studies, the findings for the economic development associated with potential visitor travel and the demand for development due to the NRV Station were supported.

Once the NRV Station is constructed in the region, the potential for Transit Oriented Development (TOD) communities to develop adjacent to the station will also be observed. Redevelopment or new development potential will increase around the station and will result in greater tax revenues earned in the region.

2.1.2 NEED

As previously discussed, the studies reviewed in **Chapter 1.2.2** have examined and identified the need for a passenger rail station in the NRV region. These studies have focused their analysis of meeting the passenger rail need by identifying different aspects of passenger rail serving the NRV region.

As a result of the existing studies in **Chapter 1.2.2**, the following need elements and associated references from existing studies, are identified below.

Need Element #1: Multimodal Connectivity

- In their UDA 2016¹⁵ update, the Town of Christiansburg indicated a desire for a passenger rail station and connectivity to the Huckleberry Trail in their UDA CED 9.3. The Town's Placemaker Plan¹⁶ also supports rail service and a station in Christiansburg and promotes a station in the Christiansburg area to provide synergy of growth due to the existing transportation access in the area and mix of land uses.
- The 2021 NRV MPO Multimodal Plan¹⁷ also supported passenger rail service to the NRV area, and again noted a Christiansburg site adjacent to the Aquatic Center.
- Montgomery County's 2025 County Comprehensive Plan¹⁸ supported increased multimodal options to the County, including enhanced rail service and facilities.
 - Public input during the development of this Comprehensive Plan supported light rail and intermodal transportation options (including rail). The Transportation

¹⁵ [*Town of Christiansburg, Urban Development Area Report, Prepared by Michael Baker International and Renaissance Planning, November 2016*](#)

¹⁶ [*Town of Christiansburg, Christiansburg Placemaking Plan: Downtown, Midtown, and Cambria, August 4, 2020*](#)

¹⁷ [*New River Valley MPO, Multimodal Plan, Prepared by Michael Baker International, May 6, 2021*](#)

¹⁸ [*Montgomery County Department of Planning and GIS Services, Montgomery County Comprehensive Plan - Montgomery County, 2025, October 12, 2004*](#)

Resource Goals in the same report list “TRN 2.5.3 Rail Alternatives: Require a detailed study and serious consideration of passenger (Trans Dominion) and freight rail service along the entire Interstate 81 corridor, including possible improvements in adjacent states. (15)”.

- TRN 3.0 Mass Transit states: “Create a better mass transit system (rail, bus, trolley, carpool) that allows for mobility of all citizens. (18)”

Need Element #2: Regional Economic Development

- Amtrak established the Great American Stations Project (Amtrak Project) in 2006 to educate communities on the economic development benefits of train stations and to offer tools to community leaders to invest in rail stations. The Amtrak Project documentation notes that “[investing] in a station can be an investment in the future of your community. The Amtrak Project report cites that a train station in a community can inspire real estate growth, dining and entertainment development, tourism, and local economic spending. Station improvements offer a return on investment for years to come...[m]any communities [that are] actively exploring station redevelopment as a means to stimulate economic growth and revitalization are seeing success in ways they never imagined. Across the country, Amtrak has witnessed towns and cities such as Hattiesburg, [Mississippi] and Normal, [Illinois] invest in stations to yield sizable economic benefits.”¹⁹
- Montgomery County's 2025 County Comprehensive Plan²⁰ also supported enhanced rail service and facilities. It noted under Economic Resources Goals “ECD 4.2.2 Rail Transportation: Support passenger rail service to Christiansburg and improved freight rail service along the Interstate 81 corridor.”

Need Element #3; Meet Regional Ridership Demand

- The 2016 NRV Passenger Rail Study²¹ prepared by the Town of Christiansburg provided ridership data, approximately 40,000 boardings per year, and supported rail service and a station at Christiansburg. The Study evaluates the ridership analysis that the 2016 NRV Passenger Rail Study considered.
- The DRPT 2020 NRV Ridership Study outlined the proposed NRV service that would add a second round-trip passenger train to Roanoke, and that a new station that terminates in the NRV region would draw between 77,300 to 87,100 passengers per year in 2030 at the future NRV station.²² The need for the NRV station and related service relates to the annual projections found in the study, which estimated a daily ridership level between 124 and 140 passengers per day.

2.2 Study Areas of NRV Station Locations

The approach examined the context of the physical locations that had been identified for a passenger rail station by the previous studies in **Chapter 1.2.2**. Based on the information in these

¹⁹ [Amtrak, The Great American Stations Project, 2006](#)

²⁰ [Montgomery County Department of Planning and GIS Services, Montgomery County Comprehensive Plan - Montgomery County, 2025, October 12, 2004](#)

²¹ [New River Valley Regional Commission, New River Valley Passenger Rail Study, February 2016](#)

²² [New River Valley Ridership Study, Ridership Report, Prepared for the Virginia Department of Rail and Public Transportation, December 16, 2020](#)

previous studies, the Study Area to locate proposed passenger stations was determined as illustrated in **Figure 2.3**.

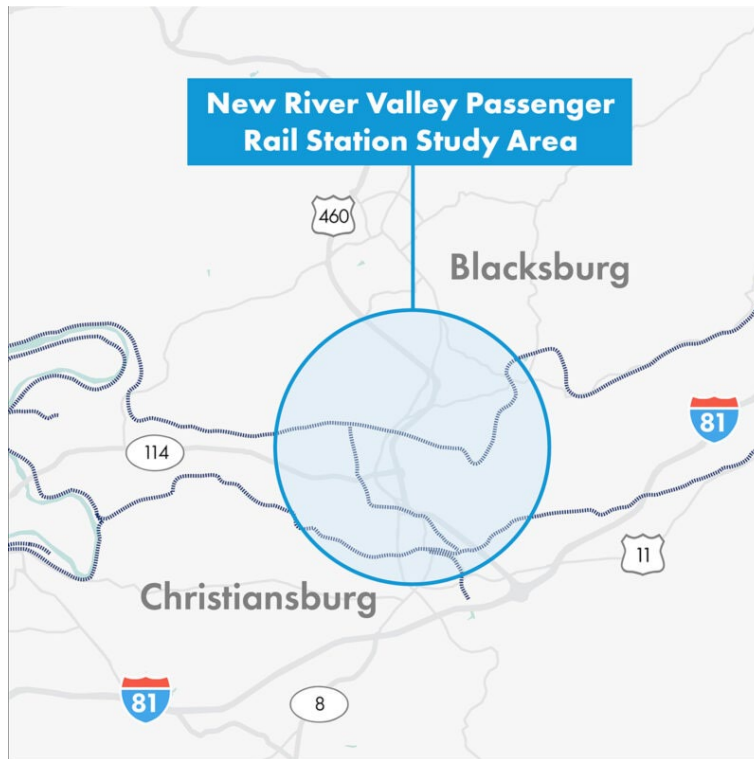


FIGURE 2.3: NRV STUDY AREA

The Study Area contains the three railroad corridors in the NRV region, and each rail line is within close proximity to a variety of land uses, multimodal infrastructure, and populations. The Study Area also is identified in the previous studies as proposed locations to meet the demand of passenger rail ridership. Railroad corridors within the NRV region are indicated in **Figure 2.4**.

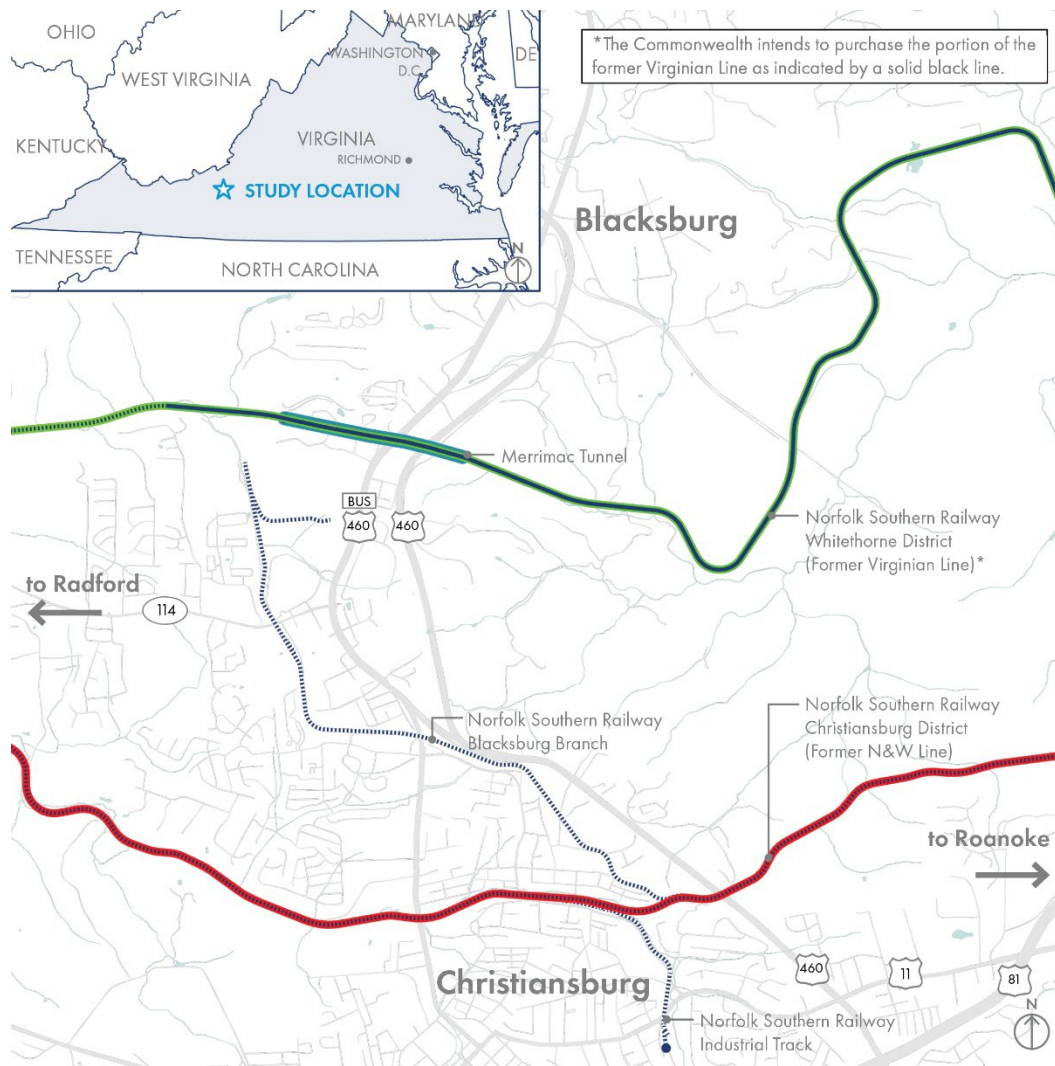


FIGURE 2.4: NRV RAILROAD CORRIDORS

Development of station areas continued by identifying locations recommended or approved in previous studies. In addition to the locations identified by previous studies to physically site the passenger station, this Study examined the rail corridors to identify feasible station locations based on railroad curves and railroad grades that might accommodate passenger rail platforms. Platforms require relatively straight and flat track. Due to the challenging topography in the region, five potential areas were identified. An area surrounding each potential location was established to provide its respective study area, which are indicated in the colored shapes in **Figure 2.5**.

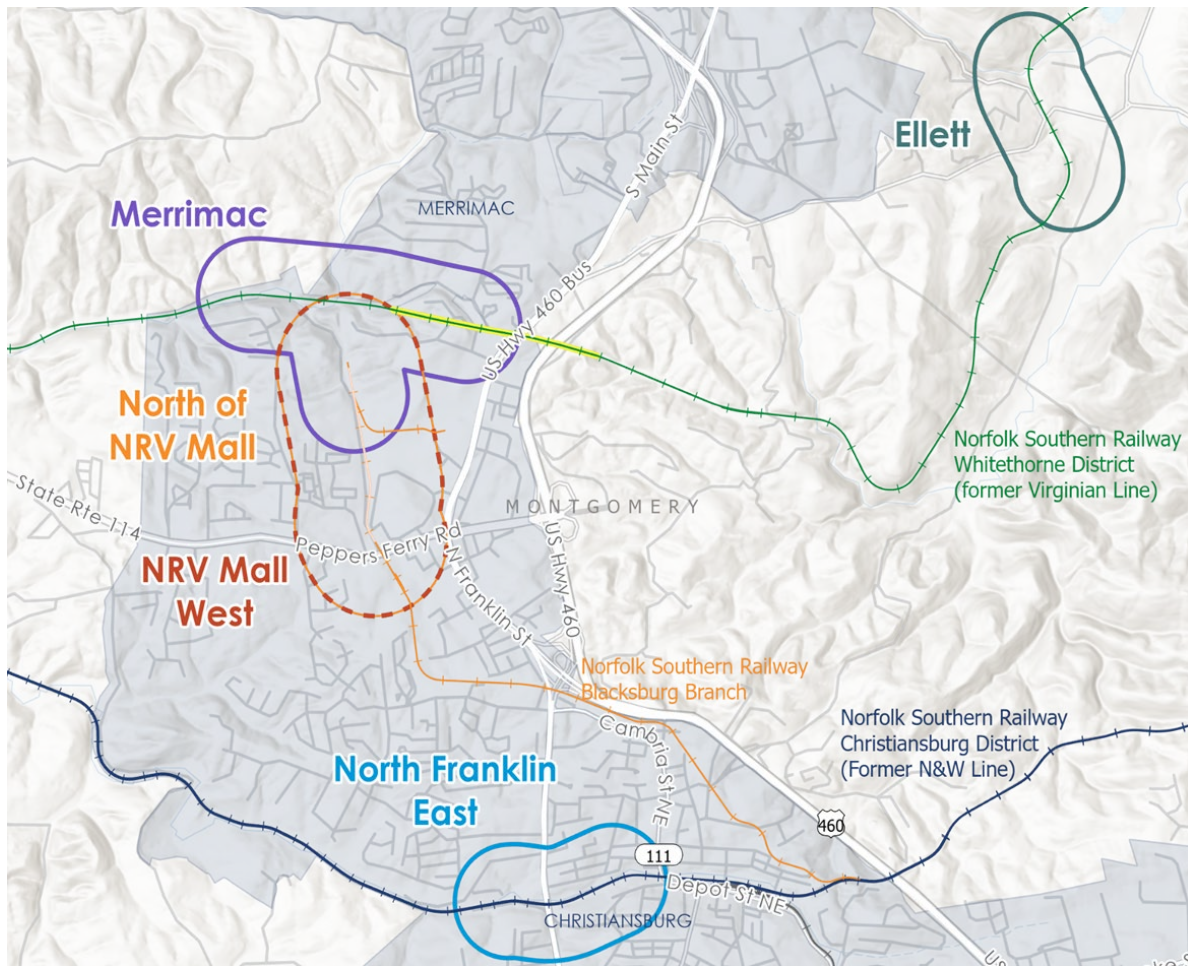


FIGURE 2.5: NRV PROPOSED STATION STUDY AREAS

2.3 Criteria Development

Based on the Purpose and Need outlined in **Chapter 2.1**, screening criteria were created to evaluate the feasibility of each of the five NRV Station areas identified in **Figure 2.5**. The Study developed the criteria to identify the potential impacts within each NRV Station area and to screen and remove any areas that the Study identified as having significant impacts. The process works similar to a funnel that has a wide opening at the top for a broad range of alternatives to enter and a narrow opening at the bottom to allow fewer alternatives to pass through as shown in the example in **Figure 2.6**.

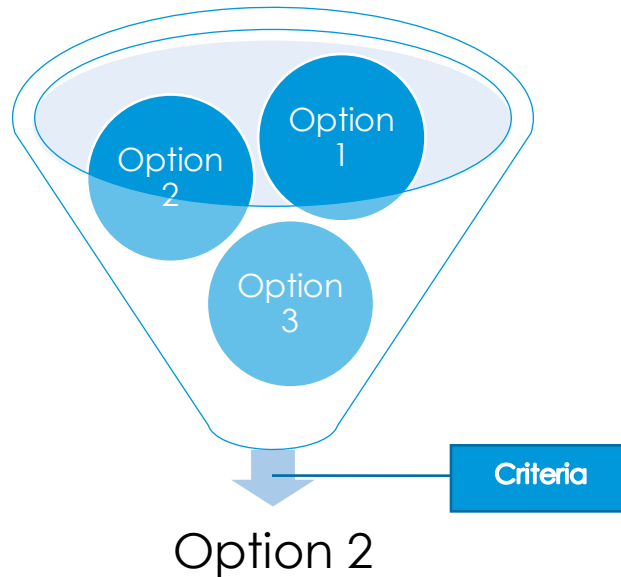


FIGURE 2.6: SCREENING CRITERIA AT WORK

The screening criteria are further discussed in **Chapter 3**. Fatal flaws of the station locations were assessed in Screening One using purpose and need factors. Safety, track geometry, and operations related to train movements were identified as fatal flaw criteria for a passenger rail station. Criteria for Screening One was based on Purpose and Need elements of transportation alternatives and improving mobility.

A comparison of significant impacts within the station areas were assessed in Screening Two using all of the purpose and need factors. Environmental criteria common to NEPA studies were identified as significant impact criteria for a passenger rail station. Criteria for Screening Two addressed all of the Purpose and Need elements in **Chapter 2.1**.

Major differences between station alternatives were assessed in Screening Three using all of the purpose and need factors. Screening Three identified and compared major differences in environmental criteria and concept designs of station alternatives. The screening focused on the potential impact areas created from the concept designs. Amtrak Station Program and Planning Guidelines dated February 2019 provided the criteria for the concept designs. The same environmental criteria from Screening Two were applied to the impact areas generated from the concept designs. Criteria for Screening Three addressed all of the Purpose and Need elements in **Chapter 2.1**.

Screening of the NRV Station locations, areas, and alternatives flowed through the purpose and need for the project. Criteria were developed based on one or more of the purpose and need factors for each screening as shown in **Table 2.1**.

TABLE 2.1: SCREENING CRITERIA DEVELOPMENT

Purpose & Need Element	Screening Criteria		
	Screening One Operational Screening	Screening Two Comparison Study Area Analysis	Screening Three Comparison Alternative Screening
Provide Transportation Alternatives	Safety Track Geometry	Hazardous Materials Permitting Requirements	Track Alignment Track Grade Constructability Security Hazardous Materials Permitting Requirements
Regional Economic Development		Air Quality Noise & Vibration Prime Farmland Protected Species & Critical Habitat Section 4(f) & 6(f)	Property Acquisition Relocations Air Quality Noise & Vibration Prime Farmland Protected Species & Critical Habitat Section 4(f) & 6(f)
Promote Economic Development		Community Resources Cultural & Historic Resources Water Resources	Topography Utilities Future Expansion Incremental Development Community Resources Cultural & Historic Resources Water Resources
Multimodal Connectivity		Land Use & Zoning	Bicycle Access Pedestrian Access Transit Access Highway Access Land Use & Zoning
Improve Mobility	Operations	Regulatory Agency Involvement	Traffic Impacts Railroad Operations Regulatory Agency Involvement
Meet Regional Ridership Demand		Environmental Justice	Platform Parking Environmental Justice

All five locations entered Screening One for an objective analysis. Fatal flaws were analyzed during Screening One. Retained station alternatives were identified through the screening process as indicated in **Figure 2.7**.

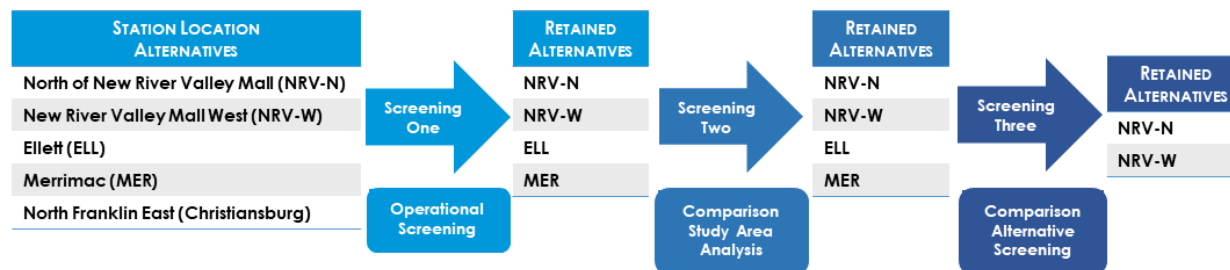


FIGURE 2.7: SCREENING PROCESS

Locations that met Screening One criteria were retained for further screening if they did not have one or more fatal flaws. Retained locations from Screening One proceeded to Screening Two to be assessed for significant impacts as shown in **Figure 2.7**. As with the fatal flaws, the significant impacts used the same screening process and Screening Two criteria to identify retained station areas that did not have significant impacts. Retained station areas from Screening Two proceeded to Screening Three to be assessed for major differences. As with the fatal flaws and significant impacts, the major differences used the same screening process and Screening Three criteria to identify retained station alternatives that did not have major differences.

The screening analysis, summary and retained alternatives from the screenings are reported in **Chapters 3** and **4** of the Study.

2.3.1 CONCEPT DESIGNS

Concept designs within each retained station area were prepared using the 2019 Amtrak Station Program and Planning Guidelines²³. A ridership forecast was required to use these guidelines. Previous studies indicated potential annual ridership at 40,000 at an undefined time in the future to 87,000 in 2030. This provides a range of daily passengers between 130 and 280.

Ridership at these levels fell in the range of an Amtrak Caretaker Station, defined as supporting an annual ridership of between 20,000 and 100,000 passengers. Caretaker stations range in size from an enclosed area with restrooms and vending or kiosks to an approximately 3,500 square foot station for passengers and Amtrak operations. Community or passenger services other than those required for Amtrak service required additional square footage.

A conservative approach to developing the concept designs was used for the Study. This approach provided the largest infrastructure footprint from which the impact area was established. Examples of this conservative approach include:

- 3,500 square foot station – largest footprint indicated by Amtrak for a caretaker station
- 15 foot wide platform – preferred rather than minimum dimension
- 150 parking spaces – daily passengers arrive by car, 2 per car, with additional parking for Amtrak staff

²³ Station planning guidelines. Great American Stations. (n.d.). Retrieved May 19, 2022, from <https://www.greatamericanstations.com/planning-development/station-planning-guidelines/>

- Transit drop off bays – daily passengers arrive by transit
- Rideshare drop off bays – daily passengers are dropped off from a car

Discussions with stakeholders indicated a desire to add a potential building space of 10,000 square feet adjacent to or above the station for the NRV Passenger Rail Station Authority. An elongated footprint was added to the design to increase the impact area.

Although not included in the actual screening analysis, Capital Cost Estimates were prepared for each of the concept designs developed for Screening Three. These estimates provide an approximate order of magnitude comparison between the alternatives. To determine capital costs for the proposed station alternatives, the Study examined the Station System and Off-Site Infrastructure costs associated with each station location. The Capital Cost Estimates are outlined in **Chapter 4.2**.

2.4 Public Input and Interagency Coordination

The Study developed a Public Input and Interagency Coordination Plan (PIICP) to ensure opportunities for feedback from regional stakeholders, property owners, and members of the public during the Study process. A summary document is attached as **Appendix A** to provide a synopsis of the public outreach and milestones that were achieved as part of the Study. Some of the public outreach data and milestones are indicated below.

- Seven property owner meetings held between January 25, 2022 and February 25, 2022
- Three key stakeholder focus group meetings held between February 7 and 10, 2022
- Two public meetings held on February 28, 2022, and March 1, 2022
- Two online surveys held from December 22, 2021, to January 31, 2022 and from February 28, 2022 to March 15, 2022
- A project webpage launched on December 22, 2021
- Multiple tweets and Facebook posts from December 2021 through March 2022

2.5 Environmental Review

The purpose of the environmental review is to identify potential environmental impacts in and around the four locations and help inform the screening process detailed in **Figure 2.1**. The environmental review consisted of two desktop investigations using existing GIS and environmental data.

Screening One did not include an environmental review and was focused on operational criteria. The environmental review began in Screening Two and concluded in Screening Three as described in **Chapter 2.3**. The environmental screening that was performed in Screening Two and Screening Three examined historic, cultural, and environmental conditions and resources in the areas surrounding the four potential sites and in the impact limits of each alternative, respectively. Screening Three evaluated the potential environmental impacts within the impact limits of the concept design of a proposed passenger rail station within each area using guidelines described in **Chapter 2.3.1**.

Categories of environmental investigation were the same for both assessments. Those categories were:

- Air quality
- Community resources
- Cultural and historic resources
- Environmental justice
- Floodplains
- Hazardous materials

- Land use and zoning
- Noise
- Permitting requirements
- Prime farmland
- Protected species / critical habitats
- Regulatory agency involvement
- Section 4(f), e.g., publicly owned parks, recreation areas, wildlife refuges
- Section 6(f), e.g., land and water conservation fund areas
- Water resources
- Vibrations

Detailed analysis performed during the environmental review is available in **Appendix C**.

2.6 Potential NEPA Class of Action

A secondary purpose of the Study is to provide technical work and initial environmental reviews that could be used to support development of subsequent environmental documents, including a NEPA study if federal funding is awarded for a capital improvement project. The approach followed for this Study documents the environmental reviews for potential development of a NEPA Class of Action determination request for submission to the FRA (or other lead federal agency as appropriate) if required by future funding sources. The lead agency will determine the required NEPA Class of Action based on the findings of the Study and other information available at the time of the determination request.

Passenger rail stations go through a similar development process as other capital improvement projects. Major steps in a capital improvement project include a feasibility study, NEPA study or other environmental process, architectural and/or engineering design, construction, commissioning, and then the operation and maintenance of the passenger rail service, station, and infrastructure.

3 Station Alternatives & Screening

The Study developed station concept designs and screened each design through a process that examined impacts and identified the most feasible station location(s) to potentially recommend moving into a NEPA study. To develop station concept designs and determine what station locations are most feasible, the Study used the method described in **Chapter 2 – Study Approach**.

As previously described, the station concept designs were developed by focusing on proposed station locations. Four stages of station development were used:

1. Broader region – determined railroad corridors
2. Railroad corridors – determined potential station areas
3. Potential station areas – determined potential station alternatives
4. Potential station alternatives

Examination of the broader region and information from previous studies resulted in the identification of five potential station locations. These potential station locations were determined by analyzing the track alignments and track grades for relatively straight, flat sections along the railroad corridors. This additional analysis confirmed that the five proposed station study areas shown in **Figure 2.5** provide the most feasible alternatives for a potential station areas.

Based on the factors described above, the five station locations considered in the Study are:

- North of NRV Mall (NRV-N)
- NRV Mall West (NRV-W)
- Ellett
- Merrimac
- North Franklin East

A description of each station and a summary of the screening analysis described in **Chapter 2.2** is listed below. Additional information regarding the screening results for each station is listed in **Appendix B** and **Appendix C**.

3.1 Proposed NRV-N Passenger Rail Station

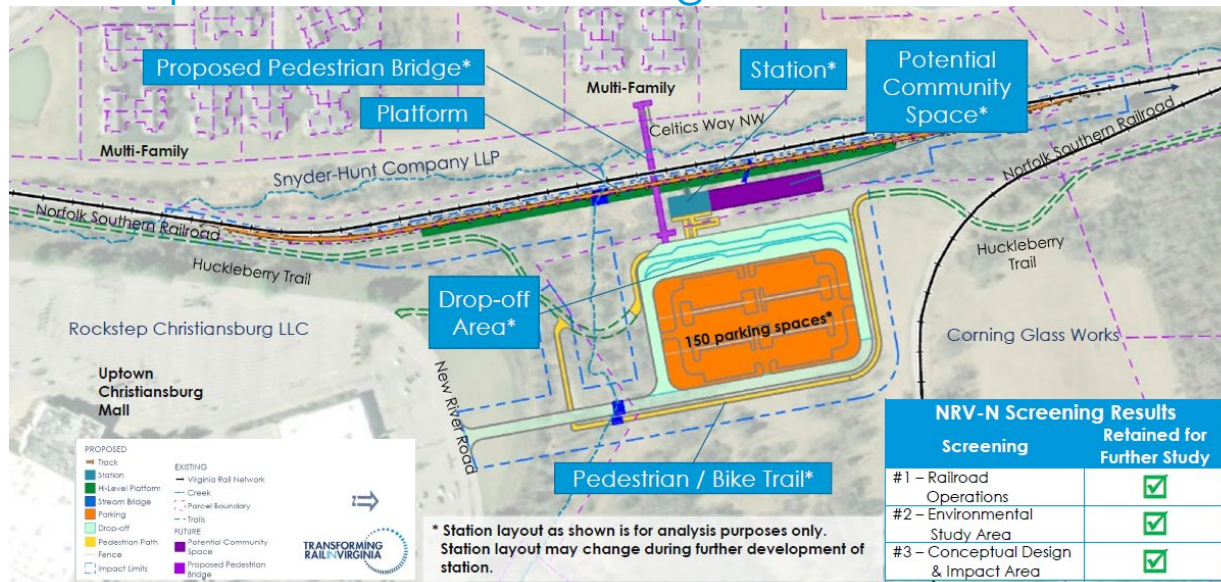


FIGURE 3.1: PROPOSED NRV-N PASSENGER RAIL STATION

Located on the Blacksburg Branch, NRV-N is less than one mile from the Virginian Line along the Blacksburg Branch.

NRV-N is proposed on private property east of the Blacksburg Branch due to the topography and location of a stream on the west side of the Blacksburg Branch at this location as shown in **Figure 3.1**. The railroad is relatively straight at this location with a grade sloping down from south to north. A high-level summary of existing conditions and site considerations for the station are listed below in **Table 3.1**.

TABLE 3.1: NRV-N PROPOSED SITE CONSIDERATIONS

Existing Conditions	Multimodal Access	Additional Infrastructure
<ul style="list-style-type: none"> Existing Track Configuration Topography Parking Utilities Streams Huckleberry Trail Incremental Development Future Development 	<ul style="list-style-type: none"> Pedestrian and Bicycle access using the Huckleberry Trail or the adjacent mall property Transit access using modifications to the existing transit routes and schedules Vehicular access to station using the mall property and parking area 	<ul style="list-style-type: none"> Track connection between the Blacksburg Branch and the Virginian Line Station Accessible Parking Station Transit Access Kiss & Ride/Passenger Drop-off Station Access

TABLE 3.2: NRV-N SCREENING RESULTS SUMMARY

Screening	Retained for Future Study	Impact Summary
Screening One – Operational Screening	Yes	Station is operationally accessible from the Virginian Line.
Screening Two – Comparison Study Area Analysis	Yes	Environmental impacts within the Study area may be avoided, minimized, or mitigated.
Screening Three – Comparison Alternative Screening	Yes	Concepts are constructible and environmental impacts are minimized or may be mitigated.

The NRV-N screening analysis, as shown in **Table 3.2**, resulted in the alternative being moved forward as part of the potential NEPA Class of Action recommendation and NEPA environmental process. Based on the screening analysis, the NRV-N location was operationally feasible with additional track improvements between the Virginian Line and Blacksburg Branch tracks. Screening Two resulted in similar levels of environmental impacts among all station areas. Screening Three resulted in a more constructible concept with fewer environmental impacts than the Merrimac and Ellett alternatives. The NRV-N alternative has similar environmental impacts as the NRV-W alternative due to the proposed use of the existing mall parking lot and road, and the existing transit services located adjacent to the proposed station site. The full screening analysis for all stations is available in **Appendix C**.

3.2 Proposed NRV-W Passenger Rail Station

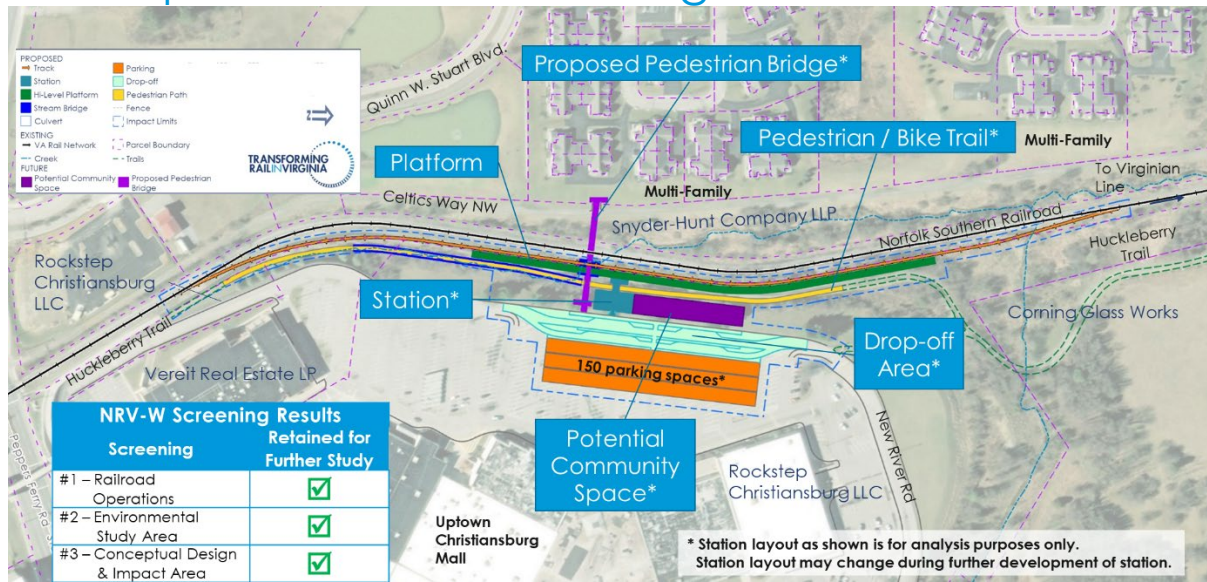


FIGURE 3.2: PROPOSED NRV-W PASSENGER RAIL STATION

Located on the Blacksburg Branch, the proposed NRV-W station is approximately one mile from the Virginian Line and is located adjacent to the Uptown Christiansburg mall.

NRV-W station is proposed on private property between the Huckleberry Trail, the Uptown Christiansburg Mall parking lot, and New River Road as shown in **Figure 3.2**. The site lies east of the Blacksburg Branch due to the topography and location of a stream on the west side of the Blacksburg Branch. A high-level summary of existing conditions and site considerations for the station are listed below in **Table 3.3**.

TABLE 3.3: NRV-W PROPOSED SITE CONSIDERATIONS

Existing Conditions	Multimodal Access	Additional Infrastructure
<ul style="list-style-type: none"> Existing Track Configuration Topography Utilities Streams Huckleberry Trail Incremental Development Future Development 	<ul style="list-style-type: none"> Pedestrian and Bicycle access using the Huckleberry Trail or the adjacent mall property Transit access using modifications to the existing transit routes and schedules Vehicular access to station using the mall property and parking area 	<ul style="list-style-type: none"> Track connection between the Blacksburg Branch and the Virginian Line Station Accessible Parking Station Transit Access Kiss & Ride/Passenger Drop-off Station Access

TABLE 3.4: NRV-W SCREENING RESULTS SUMMARY

Screening	Retained for Future Study	Impact Summary
Screening One – Operational Screening	Yes	Station is operationally accessible from the Virginian Line.
Screening Two – Comparison Study Area Analysis	Yes	Environmental impacts within the Study area may be avoided, minimized, or mitigated.
Screening Three – Comparison Alternative Screening	Yes	Concepts are constructible and environmental impacts are minimized or may be mitigated.

The NRV-W screening analysis, as shown in **Table 3.4**, resulted in the alternative being moved forward as part of the potential NEPA Class of Action recommendation and NEPA environmental process. Based on the screening analysis, the NRV-W location was operationally feasible with infrastructure track improvements between the Virginian Line and Blacksburg Branch tracks. Screening Two resulted in similar levels of environmental impacts among all station areas. Screening Three resulted in a more constructible concept with fewer environmental impacts than the Merrimac and Ellett alternatives. The NRV-W alternative has similar environmental impacts as the NRV-N alternative due to the proposed use of the existing mall parking lot and road, and the existing transit services located adjacent to the proposed station site. The full screening analysis for all stations is available in **Appendix C**.

3.3 Proposed Ellett Passenger Rail Station

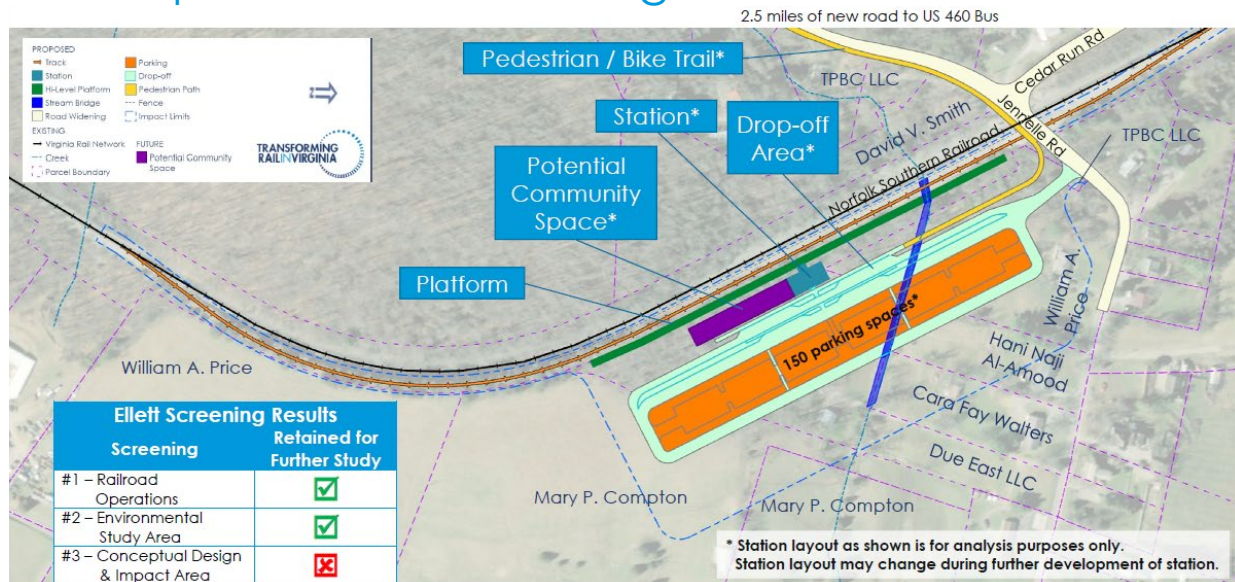


FIGURE 3.3: PROPOSED ELLETT PASSENGER RAIL STATION

Located on the Virginian Line, Ellett is more than two miles from US 460 Business. This is a critical distinction for this alternative due to the need to widen more than two miles of road to provide transit, pedestrian, and bicycle access to Ellett.

Ellett is proposed on private property south of the Virginian Line due to the roads, topography, and location of a stream on the north side of the Virginian Line at this location as shown in **Figure 3.3**. The railroad is relatively straight at this location with a grade sloping down from west to east. A high-level summary of existing conditions and site considerations for the station are listed below in **Table 3.5**.

TABLE 3.5: ELLETT PROPOSED SITE CONSIDERATIONS

Existing Conditions	Multimodal Access	Additional Infrastructure
<ul style="list-style-type: none"> Existing Track Configuration Topography Parking Utilities Streams Incremental Development Future Development 	<ul style="list-style-type: none"> Pedestrian and Bicycle access must be constructed Transit access must be constructed Vehicular access to station using existing two-lane road network 	<ul style="list-style-type: none"> Approximately 2.5 miles of roadway improvements to provide transit access Approximately 2.5 miles of a shared-use path to provide pedestrian and bicycle access Station Transit Access Kiss & Ride/Passenger Drop-off Station Access

TABLE 3.6: ELLETT SCREENING RESULTS SUMMARY

Screening	Retained for Future Study	Impact Summary
Screening One – Operational Screening	Yes	Station is operationally accessible from the Virginian Line.
Screening Two – Comparison Study Area Analysis	Yes	Environmental impacts within the Study area may be avoided, minimized, or mitigated.
Screening Three – Comparison Alternative Screening	No	Station location has greater impacts because of the off-site road improvements required by the station. The impacts include environmental and constructability challenges.

The Ellett screening analysis shown in **Table 3.6** resulted in the alternative being dismissed from further consideration. Based on the screening analysis, the Ellett location was operationally feasible with infrastructure track improvements adjacent to the Virginian Line. Screening Two resulted in similar levels of environmental impacts among all station areas. Screening Three resulted in a constructible concept at a much higher level of effort with more environmental impacts than the NRV-N and NRV-W stations. The full screening analysis for all stations is available in **Appendix C**.

3.4 Proposed Merrimac Passenger Rail Station

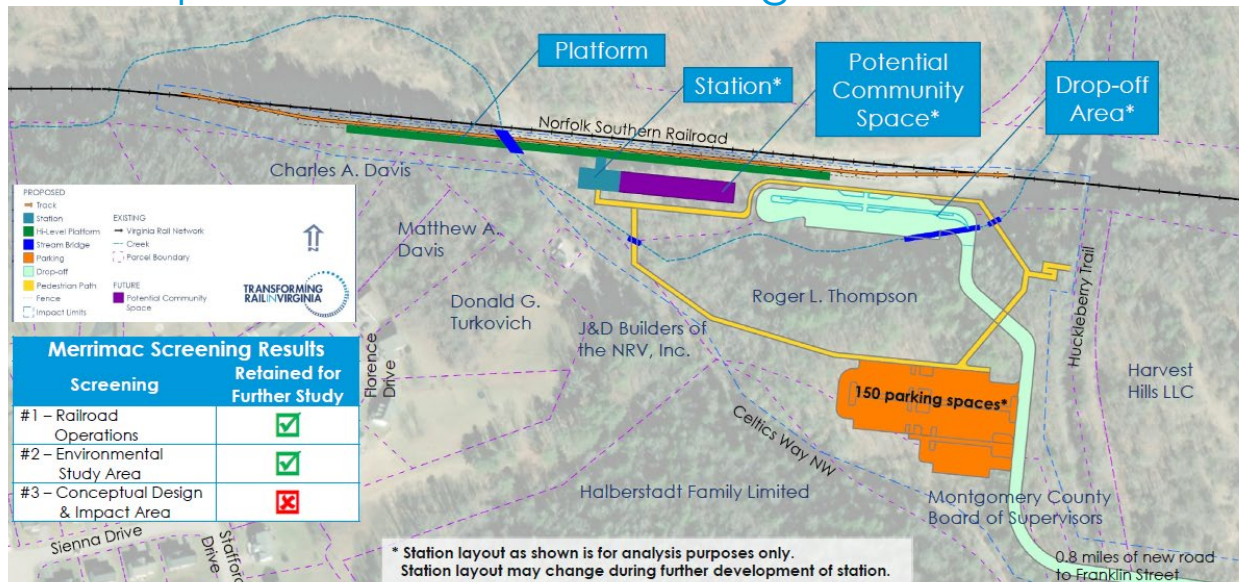


FIGURE 3.4: PROPOSED MERRIMAC PASSENGER RAIL STATION

Located on the Virginian Line, Merrimac is approximately one mile from US 460 Business. This is a critical distinction for this alternative due to the new road required to access the Merrimac station site.

Merrimac is proposed on private property south of the Virginian Line due to the topography and location of a stream and steep terrain on the north side of the Virginian Line at this location as shown in **Figure 3.4**. The railroad is relatively straight at this location with a grade sloping down from east to west. A high-level summary of existing conditions and site considerations for the station are listed below in **Table 3.7**.

TABLE 3.7: MERRIMAC PROPOSED SITE CONSIDERATIONS

Existing Conditions	Multimodal Access	Additional Infrastructure
<ul style="list-style-type: none"> Existing Track Configuration Topography Parking Utilities Streams Incremental Development Future Development 	<ul style="list-style-type: none"> Pedestrian and Bicycle access must be constructed Transit access must be constructed Vehicular access to station must be constructed 	<ul style="list-style-type: none"> Approximately 0.8 miles of roadway improvements to provide transit and vehicular access Approximately 600 feet of a shared-use path to provide pedestrian and bicycle access Station Transit Access Kiss & Ride/Passenger Drop-off Station Access

TABLE 3.8: MERRIMAC SCREENING RESULTS SUMMARY

Screening	Retained for Future Study	Impact Summary
Screening One – Operational Screening	Yes	Station is operationally accessible from the Virginian Line.
Screening Two – Comparison Study Area Analysis	Yes	Environmental impacts within the Study area may be avoided, minimized, or mitigated.
Screening Three – Comparison Alternative Screening	No	Station location is constrained by greater connectivity, environmental, and constructability challenges than other sites.

The Merrimac screening analysis shown in **Table 3.8** resulted in the alternative being dismissed from further consideration. Based on the screening analysis, the Merrimac location was operationally feasible with infrastructure track improvements adjacent to the Virginian Line. Screening Two resulted in similar levels of environmental impacts among all station areas. Screening Three resulted in a constructible concept at a higher level of effort with more environmental impacts than the NRV-N and NRV-W alternatives. The full screening analysis for all stations is available in **Appendix C**.

3.5 Proposed North Franklin East Passenger Rail Station



FIGURE 3.5: PROPOSED NORTH FRANKLIN EAST PASSENGER RAIL STATION

Located on the N&W Line, North Franklin East is adjacent to US 460 Business. Its location on the N&W Line is a critical distinction for this alternative.

North Franklin East is proposed on public property south of the N&W Line as shown in **Figure 3.5**. The railroad is relatively straight at this location with a grade sloping down from east to west. A high-level summary of existing conditions and site considerations for the station are listed below in **Table 3.9** with screening results shown in **Table 3.10**.

TABLE 3.9: NORTH FRANKLIN EAST PROPOSED SITE CONSIDERATIONS

Existing Conditions	Multimodal Access	Additional Infrastructure
<ul style="list-style-type: none"> • Existing Track Configuration • Topography • Utilities • Streams • N&W Christiansburg Yard 	<ul style="list-style-type: none"> • Pedestrian and Bicycle access at site • Transit access near site • Vehicular access to station at site 	<ul style="list-style-type: none"> • N/A

TABLE 3.10: NORTH FRANKLIN EAST SCREENING RESULTS SUMMARY

Screening	Retained for Future Study	Impact Summary
Screening One – Operational Screening	No	Passenger operations on the N&W Line are disruptive to operations and safety.
Screening Two – Comparison Study Area Analysis	N/A	Fatal flaw in first screening dismissed this station from further screenings
Screening Three – Comparison Alternative Screening	N/A	Fatal flaw in first screening dismissed this station from further screenings

In the first screening criteria, track geometry was consistent amongst concepts reviewed. Because of the agreement between NS and Virginia, the best opportunity for passenger operations and safety was found to exist on the Virginian Line or to sites located on the Blacksburg Branch due to lesser operational impacts to existing N&W main line rail operations and safety. As the North Franklin East site would require operations on the N&W Line, and would be more disruptive to operations and safety, the site was dismissed as a candidate for further screening.

3.6 Additional Station Infrastructure

The NRV-W, NRV-N, Merrimac and Ellett station concepts each required additional infrastructure to support the concept designs. The infrastructure required for each concept is described below, the impacts observed for each additional infrastructure element were included in the station analysis described above, with the exception of the Ellett concept additional infrastructure. The additional infrastructure needed for each station was developed for Screening Three – Comparison Alternative Screening.

Virginian Line and Blacksburg Branch Track Connection

The NRV-N and NRV-W alternatives required a railroad track connection between the Virginian Line and the Blacksburg Branch. For purposes of the Study, 0.5 mile of track shown in **Figure 3.6** was proposed to connect the NRV-N and NRV-W stations to the passenger rail service along the Virginian Line. It is anticipated that the rail operations would be served by push-pull trains along the lines and would not require a wye turn around to serve the stations. This connection will allow trains from the higher elevation Blacksburg Branch to descend to the Virginian Line leaving the station and ascend to the station on approach. Both the Virginian Line and the Blacksburg Branch are in rock cut sections through the entire length of this connecting track. Significant rock excavation will be required to construct this length of track.

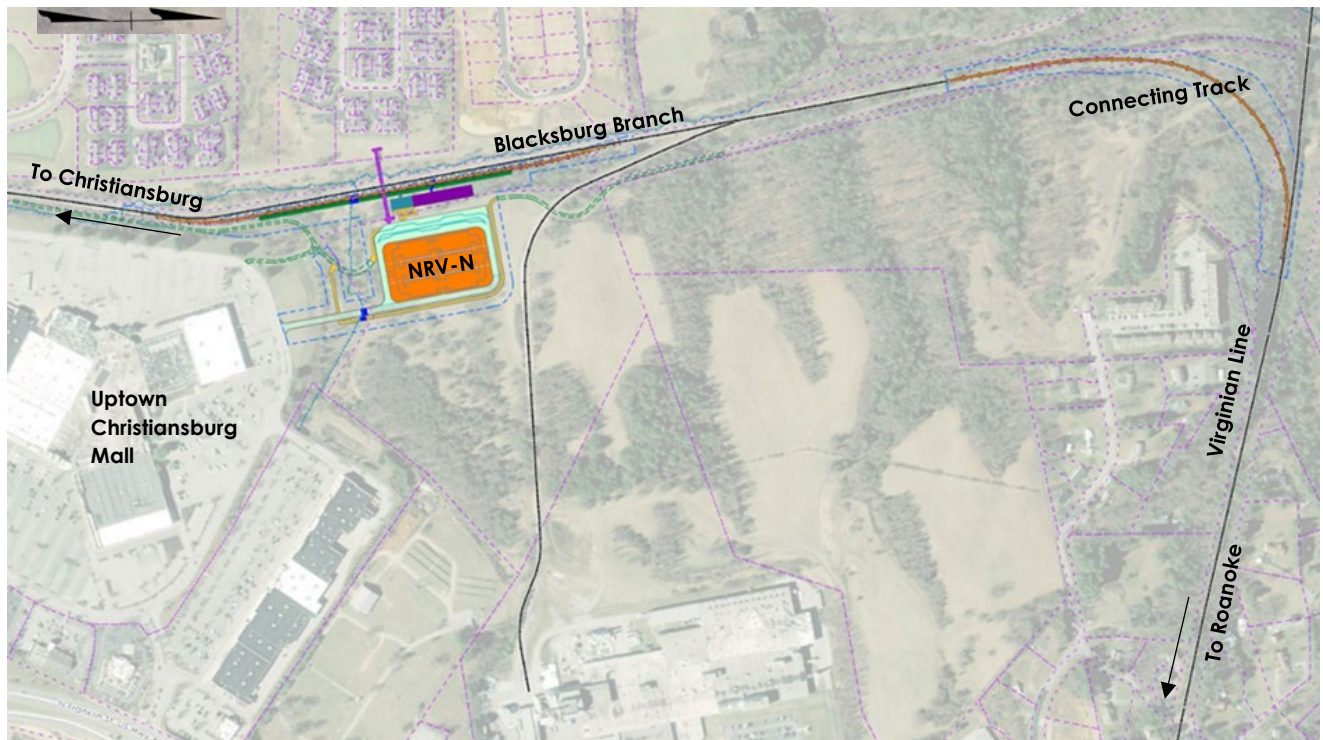


FIGURE 3.6: CONNECTING TRACK TO BLACKSBURG BRANCH

Ellett Alternative Multimodal Road Improvements

The Ellett alternative required roadway improvements between South Main Street and the concept design. For purposes of the Study, 2.5 miles of roadway widening and shared-use path as shown in **Figure 3.7** are proposed to connect the Ellett alternative to a major thoroughfare where transit currently operates. It is anticipated that the transit operations would be modified to serve the station. Depending on the design of this roadway widening and shared-use path, the potential right-of-way and property impacts are significant. Construction of the road widening would limit traffic to one through lane for extended periods of time (months) and potential road closures for shorter periods of time (days or weeks).

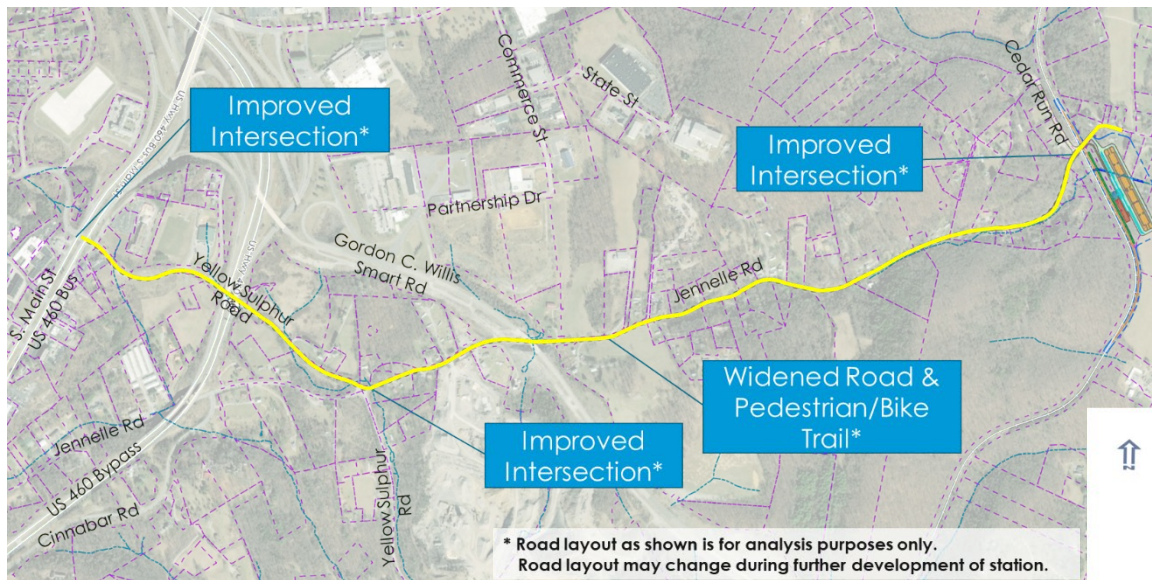


FIGURE 3.7: ROADWAY IMPROVEMENTS TO ELLETT ALTERNATIVE

Merrimac Alternative Multimodal Road Improvements

The Merrimac alternative required roadway improvements and a new road between North Franklin Street and the alternative. For purposes of the Study, 0.8 mile of roadway improvements and new road shown in **Figure 3.8** were proposed to connect the Merrimac alternative to a major thoroughfare where transit currently operates. It is anticipated that the transit operations would be modified to serve the station. Depending on the design of these roadway improvements and new road, there are right-of-way and property impacts. Construction of the roadway improvements would limit traffic to one through lane and cause potential road closures.

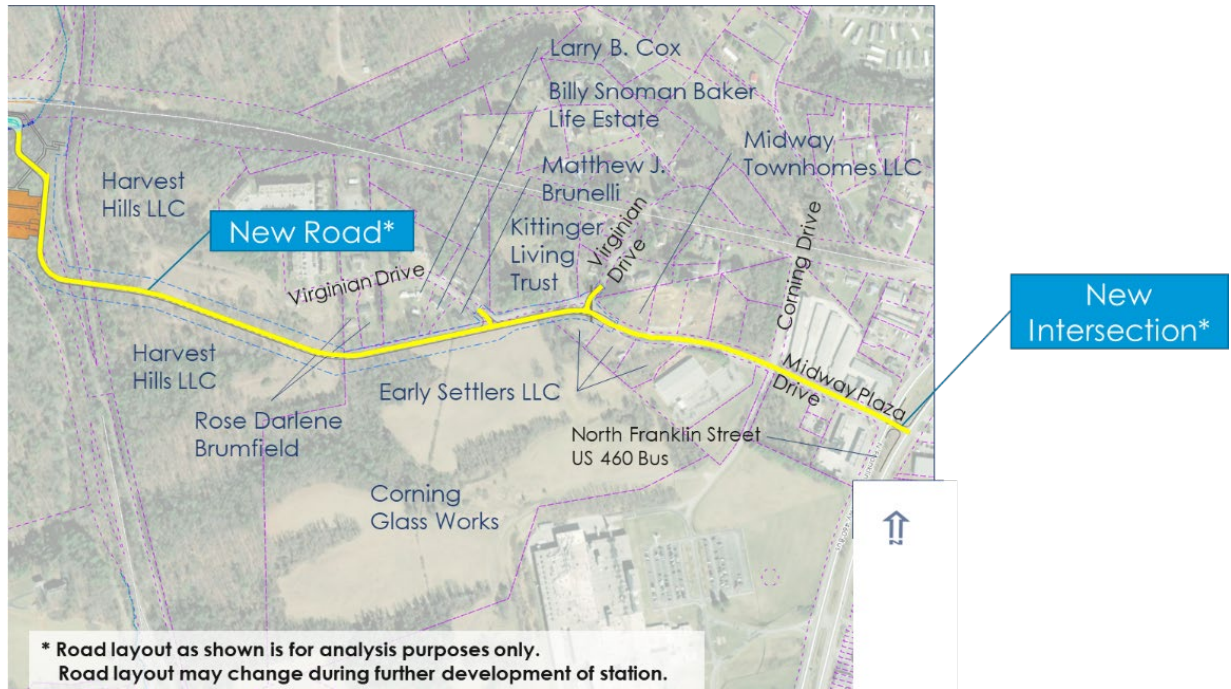


FIGURE 3.8: ROADWAY IMPROVEMENTS TO MERRIMAC ALTERNATIVE

4 Findings

Desktop data and analysis combined with public outreach revealed that a passenger rail station in NRV is both feasible and welcomed. **Chapter 3** detailed which station locations passed the environmental and concept design screenings. Additional findings included the following:

- Capital costs varied with the NRV-N and NRV-W station locations having the lowest costs of alternatives being analyzed. **However, these costs are for comparative purposes only, and do not include property acquisition or existing utility relocation costs.**
- Constructability at all of the locations was feasible with the NRV-N and NRV-W station locations having the lowest construction impacts.
- If federal funding is awarded, a NEPA Class of Action determination request will be prepared for FRA (or other appropriate federal agency) to use in developing the appropriate required NEPA Class of Action for the project.
- Public opinion about the station locations was generally favorable for the NRV-N and NRV-W station locations proposed for a potential NEPA environmental process. See **Appendix A** for the Public Outreach Summary.
- Screening results at each screening stage support moving NRV-N and NRV-W forward to a potential NEPA environmental process. See **Appendix B** for Screening Result Tables.
- Full screening analysis supports the screening results. See **Appendix C** for Support Data for Screening Analysis.
- At-grade crossings will need to be improved for higher passenger train speeds. See **Appendix D** for FRA Grade Crossings.
- Cultural and Historic Resources exist in the larger areas and may be avoided, minimized, or mitigated by design beyond the conceptual level. See **Appendix E** for the Cultural and Historic Resources Report.
- Threatened and endangered species exist in the larger areas and may be avoided, minimized, or mitigated by design beyond the conceptual level or by construction scheduling. See **Appendix F** for Information for Planning and Consultation (IPaC) reports.

4.1 Environmental

Environmental findings resulting from the screenings described in **Chapter 2.5** indicated the following:

- Comparison study area analysis
 - All study areas had some potential for environmental impacts
 - No study area had significant impacts that would eliminate the area from further consideration
- Comparison alternative screening
 - All potential alternatives had some level of environmental impact
 - NRV-N impacted 6 of the 14 environmental categories
 - NRV-W impacted 5 of the 14 environmental categories
 - Ellett impacted 7 of the 14 environmental categories
 - Merrimac impacted 5 of the 14 categories
 - No concept design had significant impacts that would eliminate the concept design from further consideration

Environmental screening results are included in **Appendix B**. Environmental analysis for each location, study area, and alternative is included in **Appendix C**. Cultural and historic resources within the study areas are identified in **Appendix E**. Threatened and endangered species within the study areas are identified in **Appendix F**.

The Study recognized that impacts to cultural and historic resources and to threatened and endangered species are avoidable by the location of a station within the study area and by the scheduling of construction activities.

4.2 Capital Costs

Concept level capital cost estimates were developed for NRV-N, NRV-W, Ellett, and Merrimac. These estimates were developed using the infrastructure indicated on the concept designs. Because the concept designs are based on GIS files, a 40% contingency was applied to the total cost to represent the large number of unknowns at the conceptual level of design. The concept designs were developed from this GIS data without benefit of field investigations or surveys. All estimates are escalated to 2025 dollars.

Generally, the capital cost estimates depicted in **Table 4.1** below are for comparative purposes only and include, but are not limited to, the following major systems:

- Track, including special trackwork
- Fencing
- Passenger platform
- Signals
- Order of magnitude earthwork
- Caretaker station
- Bridging structures
- Retaining walls
- Parking areas
- Roadway access
- Shared-use path, where applicable

The following exclusions to the comparative cost estimates presented below could be significant:

- Future 10,000 square foot expansion for community space
- Right of way acquisition
- Environmental and permitting costs
- Relocation of existing utilities
- Mitigation for impacts that will be determined by the NEPA process
- Pedestrian bridge
- Engineering design and technical considerations
- Rail grade crossing upgrades

TABLE 4.1: CAPITAL COST ESTIMATES

Station Alternative	Station Systems Cost (\$M)	Off-Site Infrastructure Cost (\$M)	Total Capital Cost (\$M)
NRV-N	\$33.0	\$19.3	\$52.3
NRV-W	\$37.3	\$19.3	\$56.6
Ellett	\$77.5	\$97.2	\$174.7
Merrimac	\$48.0	\$25.6	\$73.6

Station system costs include the major infrastructure elements indicated on the concept designs at a given station alternative as shown in **Figures 3.1, 3.2, 3.3, and 3.4**. Off-site infrastructure costs include the infrastructure elements indicated on **Figures 3.6, 3.7, and 3.8** as applicable to a given alternative.

4.3 Constructability

Constructability is the ability to construct the proposed infrastructure and improvements. A feasible project may not be constructable due to the extent of the construction impacts to the public or existing infrastructure. Construction impacts may include the duration of the construction and/or the impacts resulting from construction traffic, noise, vibrations, dust, or runoff. Duration of construction varies based on the infrastructure and the existing conditions in which it is being built. Impacts resulting from construction are activities common to most construction sites, e.g., trucks delivering materials, equipment traveling on exposed dirt, excavation, or pile-driving activities.

The Study examined each station concept to identify the ability to construct a passenger rail station at each alternative. Construction duration and impacts will vary between the alternatives due to the differences between conditions at each site and the existing conditions around the alternative.

Common construction impacts include, but are not limited to, temporary noise, dust, and traffic impacts. Additional constructability considerations are:

- Railroad operations impacts to install turnouts to the station track at all four alternatives
- US 460 Business traffic impacts for Ellett and Merrimac
- Temporary lane closures and detours for Ellett
- Relocation of Huckleberry Trail for NRV-N, NRV-W, and Merrimac

- Impacts to mall parking for NRV-W and NRV-N
- Potential rock excavation for road improvements to Merrimac
- Potential rock excavation for connecting track improvements for NRV-N and NRV-W
- Large quantity of fill material required for Ellett
- Impacts to streams for all four alternatives

NRV-N and NRV-W will have fewer challenges with constructability than Ellett or Merrimac. This further confirmed retaining NRV-N and NRV-W for subsequent study.

4.4 Potential NEPA Class of Action

Based on the findings discussed in this Chapter, and if federal funding is awarded, two alternatives were recommended for moving forward to a NEPA Class of Action determination or to a NEPA environmental process. An Environmental Assessment (EA) may be recommended as the logical Class of Action point of entry into the NEPA environmental process due to the multiple alternatives carried forward and due to potential permit conditions for streams. If it is found during NEPA investigations that the impacts are relatively minor, it may be possible for the NEPA environmental process to be completed under a Categorical Exclusion (CE).

Federal agencies require a federal funding mechanism to setup a project for review and to reimburse the NEPA environmental process. A grant or other federal funding source allows the federal agency to create the project and officially review the proposed NEPA Class of Action. It also allows the federal agency to fund or reimburse the costs of the NEPA environmental process if such funding is requested.

5 Next Steps

The next steps for the project will be to discuss the potential NEPA Class of Action and Study findings with the lead federal agency. Overall, the steps will be:

- Coordinate with the lead federal agency on the environmental impacts and the potential NEPA Class of Action
- If federal funding is awarded, develop and complete a NEPA environmental process culminating in project approval
- Architectural/engineering design
- Construction

Each step will be better defined and scheduled as the previous step is completed.

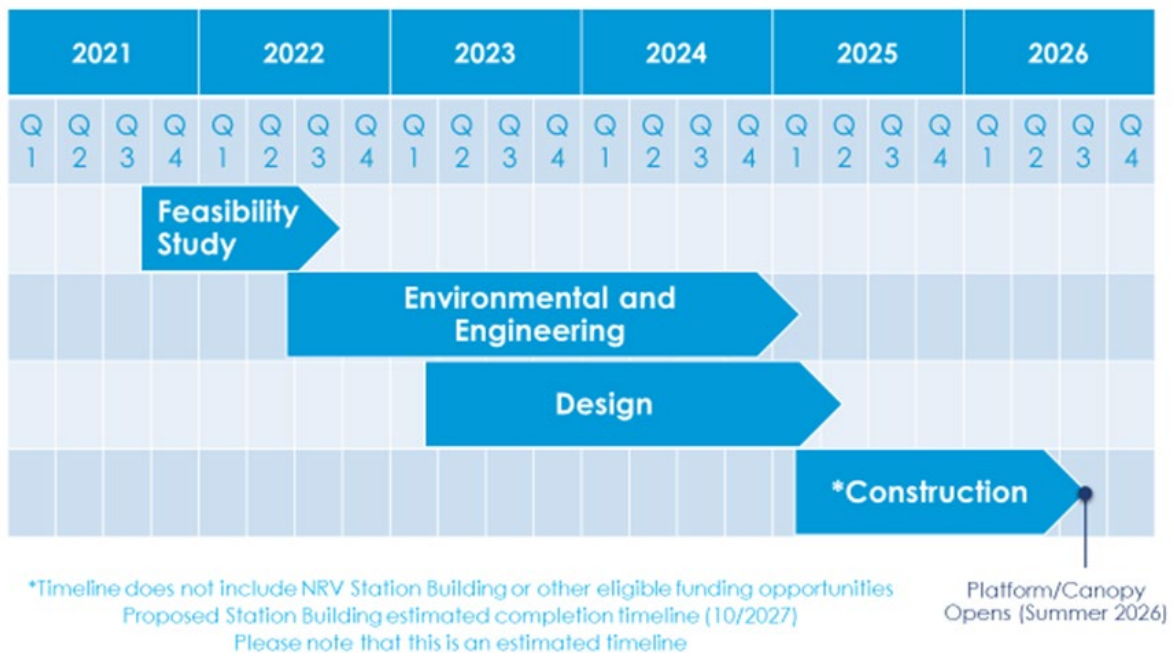


FIGURE 5.1: ANTICIPATED PROJECT TIMELINE

5.1 Potential NEPA Study

If federal funding is awarded, the next steps in the NEPA process include, but are not limited to:

- Coordinate with the lead federal agency on the NEPA Class of Action and address avoidance, minimization, and mitigation for environmental issues
- Prepare scope of work for the NEPA environmental process based on the lead federal agency determination
- Develop and finalize the NEPA environmental process that determines avoidance, minimization, and mitigations related to the NRV station and related infrastructure project
- Prepare preliminary (30%) design plans as required for support of the NEPA environmental process
- Perform continuous public outreach regarding the NEPA environmental process and design development

5.2 Engineering Design

The engineering design will continue for the Locally Preferred Alternative that is determined as part of a potential NEPA environmental process. Next steps in the engineering design process will include, but are not limited to:

- Further develop design plans
- Continue community outreach
- Finalize and acquire real estate interests
- Implement design and other related NEPA mitigations
- Prepare design documents and determine the construction delivery method
- Advertise for and receive construction bids

5.3 Construction

Once construction bids are received, the next step is the construction process. The steps to conclude the construction stage include, but are not limited to:

- Procure construction contractor
- Implement mitigations for temporary impacts
- Continue community outreach regarding planned construction activities and outages
- Commission railroad operation activities, safety and other construction related inspections
- Closeout construction activities
- Implement mitigations for permanent impacts

The time and delivery of the construction stage and all other next steps are anticipated as a high-level estimate only. The cost, time, and details associated with each next step will be further developed as part of the overall Project.

6 Summary

The Study is a high-level evaluation of potential passenger rail station locations in the NRV. The purpose of the Study is to analyze locations around the NRV area and identify the preferred alternative(s), which can inform further environmental review and a recommendation to the lead federal agency for a NEPA Class of Action Determination. Based on the results of the Study, and if federal funding is awarded, two station locations will be moved forward to the NEPA environmental process.

Using findings from previous regional plans and studies this Study was able to identify common themes to form the purpose and need statement for a passenger rail station in the NRV. A three-step screening process was developed from the Study's purpose and need statement. This process evaluated station locations. The screening process assessed:

- Operational screening criteria
- Comparison study area analysis criteria
- Comparison alternative screening criteria

VPRA conducted this environmental review of the areas and the impact limits of the alternatives in consideration of the future costs and constructability of a station. A comparative cost estimate was developed for each of the alternatives to provide magnitude costs for station systems and for off-site infrastructure improvements. However, major costs elements (property acquisitions, relocation of existing utilities, railroad grade crossing upgrades, etc.) were not included in these high-level cost estimates.

The proposed station locations were determined by analyzing track alignments and track grades for relatively straight, flat sections of the railroad corridors. Once the five locations were analyzed by the three-step screening process, two alternatives (NRV-N & NRV-W) located near the Uptown Christiansburg Mall were identified as the most feasible and are recommended for advancement for further environmental review and consideration as part of a potential NEPA Class of Action.

Throughout the course of the Study the public had many opportunities to provide feedback. The VPRA held:

- Meetings with property owners, key stakeholder focus groups, the general public through two public meetings
- Phone calls
- Virtual meetings

VPRA also conducted surveys to provide individuals and groups with a forum to provide feedback about the alternatives considered by the Study. Additionally, the public was able, and continues to be able, to submit input via the Study email at contactus@vpra.virginia.gov. VPRA will continue to solicit feedback from the public and provide forums for formal and informal comment as the NRV Station project advances in development.