



Appendix C Support Data for Screening Analysis

June 2022



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1 Introduction

Appendix C provides supporting data for the screening analysis reported by the Virginia Passenger Rail Authority (“VPRRA”) in the New River Valley Passenger Rail Station Feasibility Study (the “Study”). A feasibility-level analysis of alternatives assesses the same level of development for each alternative. Impacts are identified using known information to select the most feasible station alternative location based on the fewest impacts. Screening analysis for this Study consisted of a three-pronged, sequential approach. These three screening analyses, using industry best practices, are:

- Screening One – Operational Screening
- Screening Two – Comparison Study Area Analysis
- Screening Three – Comparison Alternative Screening

At each screening, a review was made to determine if there was a “red flag” fatal flaw or a significant flaw that diminished an alternative’s feasibility. Screening review elements (criteria) are associated with the Purpose and Need elements as indicated in each row of **Table 1.1**.

TABLE 1.1 SCREENING CRITERIA

| 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 |

| Purpose & Need Element | Screening Criteria | | |
|---------------------------------------|--------------------------------------|---|--|
| | Screening One: Operational Screening | Screening Two: Comparison Study Area Analysis | Screening Three: Comparison Alternative Screening |
| 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 |

Screening One analyzed five locations to determine if any location(s) failed or had a “red flag” fatal flaw. Those five locations were identified as North of the New River Valley Mall (NRV-N), New River Valley Mall West (NRV-W), Ellett, Merrimac, and North Franklin East.

Screening Two was environmentally focused over larger study areas around each of the remaining locations from Screening One. This screening used environmental categories to evaluate the areas on a comparative basis. Environmental categories with characteristics common to all areas were identified as “common impacts” prior to the screening analysis. Screening Two focused on the categories with potentially different characteristics as a way to rank the areas, compare the areas based on the same categories, and examined each area for a “red flag” impact or impacts.

A conceptual station design was then developed in the most viable location of each of the study areas remaining after Screening Two. These conceptual station design alternatives were used to establish “footprints” for the Screening Three alternatives comparison.

Screening Three was performed in two steps. First, each environmental category in Screening Two was re-evaluated for the alternative footprint to determine if the potential environmental impacts identified in the larger study area could be better quantified or eliminated in the smaller station alternative footprint. In the screening second step, design categories were evaluated for each alternative to determine any differences between each station alternative.

The results of Screening Three focused on identifying impacts in environmental categories that had potentially different characteristics and that could then be ranked amongst the alternatives. This screening step allowed the Project team to compare alternatives based on the same categories and identify “red flag” impact or impacts each alternative to reach the preferred station location(s).

The details of the screening processes and impacts identified as part of each screening are outlined in the chapters below.

2 Screening One – Operational Screening

The Operational Screening performed a high-level analysis at each location using the three categories for railroad operations outlined below:

- **Safety** – The ability to perform the activities required without harming people and without damaging equipment, infrastructure, or property.
- **Track geometry** – The physical characteristics of the track longitudinally, laterally, and vertically that contribute to the safety of railroad operations.
- **Operations** – The movements of passenger trains along and between tracks with consideration of freight train movements, at-grade crossings, and train control signals that contribute to the safety of railroad operations.

Figure 2.1 shows the five potential station locations that were analyzed as part of the first screening. Each station location had a defined area around a portion of the existing rail track to accommodate the physical space needed to accommodate railroad infrastructure to support a passenger rail station site. Generally, this physical area resulted in a 2,500-foot buffer around a 1.5 mile portion of existing Norfolk Southern (NS) railroad track on the NS Christiansburg District ("N&W Line") and the NS Whitethorne District ("Virginian Line"), as indicated in the map below.

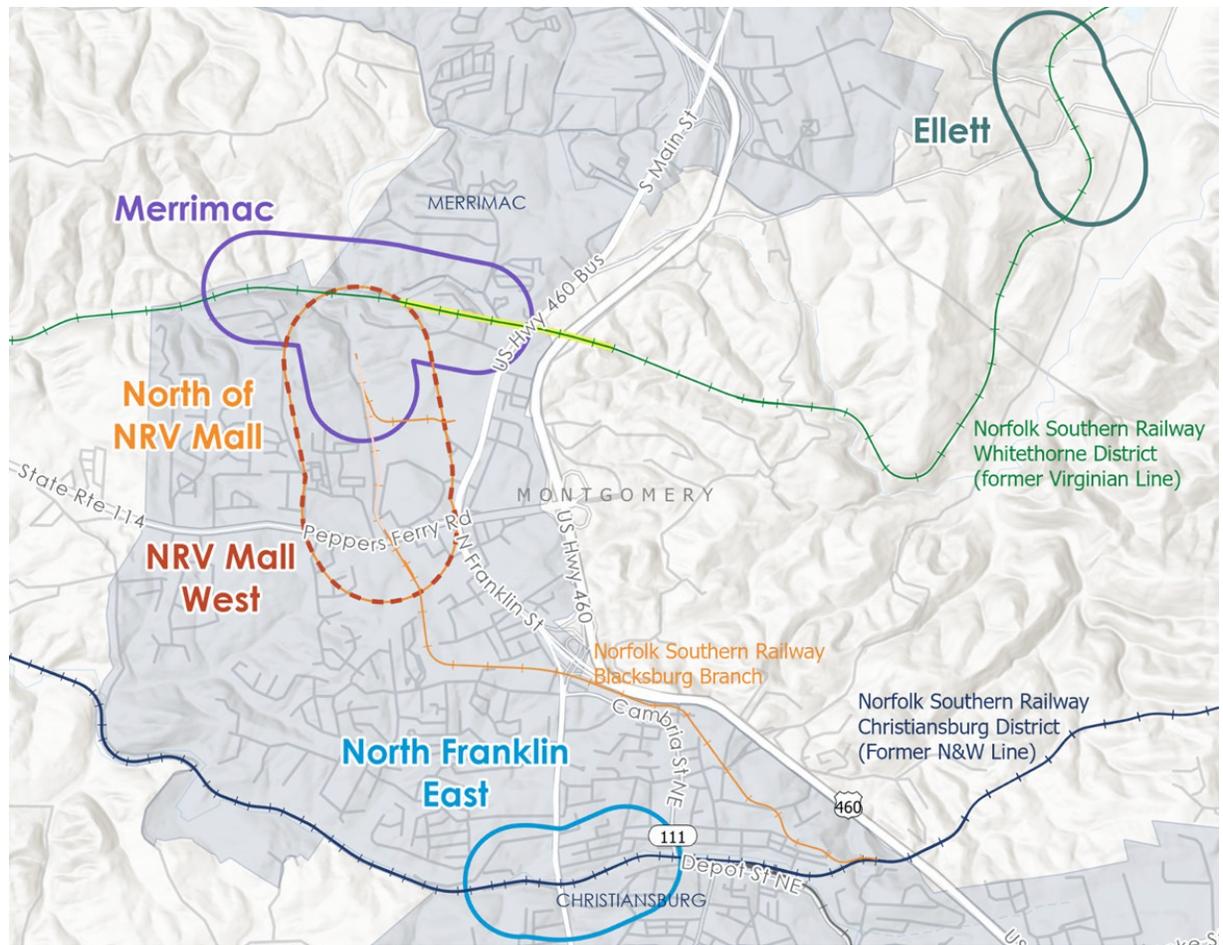


FIGURE 2.1 SCREENING LOCATIONS

Table 2.1 provides the results of the screening analysis. A green checkbox indicates that a fatal flaw was not indicated for the associated category. A red checkbox indicates that a fatal flaw was indicated for the associated category. One or more fatal flaws in Screening One resulted in the dismissal of the location.

TABLE 2.1 SCREENING ONE – OPERATIONAL SCREENING

| Category | Alternatives | | | | |
|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | NRV-N | NRV-W | Ellett | Merrimac | North Franklin East |
| Safety | <input checked="" type="checkbox"/> |
| Track Geometry | <input checked="" type="checkbox"/> |
| Operations | <input checked="" type="checkbox"/> |
| Retained for Further Study | <input checked="" type="checkbox"/> |

The comprehensive rail agreement between VPR and NS, acknowledge the future operation of passenger rail on the Virginian line. As a result, the North Franklin East Location on the N&W

Line was considered and dismissed during Screening One as shown in **Table 2.1**. This location was not feasible as the North Franklin East site will require operations on the N&W Line and would be more disruptive to operations and safety.

Finding: In the first screening criteria, track geometry was consistent amongst concepts reviewed. Because of the agreement between NS and the Commonwealth of 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 Screening Two – Comparison Study Area Analysis

The second screening analysis was a comparison examination of the proposed station Study Areas that remained after the first screening exercise. The physical Study Areas are identified in **Figure 2.1**, and all remained except for the North Franklin East site. To be conservative, the comparison analysis continued to examine a broad study area for each potential station location.

The categories of environmental screening and investigation are defined below and in the Study document. The categories that are in alignment with the categories analyzed in the National Environmental Policy Act (NEPA) environmental process. While this Study is not a NEPA environmental process, the categories of investigation and technical reports from NEPA allows for an appropriate vetting process as part of VPRA's pre-NEPA consideration of areas in the feasibility stage and provides an excellent framework to analyze and eliminate stations due to identified environmental impacts.

Categories of environmental investigation are below. Categories that are followed by the term "Common Impact" are identified as being a common impact amongst all four stations.

- **Air Quality** – Common Impact – Air quality analysis is done on a regional basis. Quantitative air quality assessment requires data input not available at the feasibility study stage. A qualitative comparison provided the same results for all areas since the areas are in the same region. The Air Quality analysis was obtained from the United States Environmental Protection Agency's (EPA) Nonattainment Areas for Criteria Pollutants (Green Book).
- **Community Resources** - Community resources include government buildings, post offices, recreation and park facilities, and conservation lands from GIS data available through the Virginia Department of Conservation and Recreation.
- **Cultural & Historic Resources**– Identified resources that include archaeology and historic architecture. The Study analyzed the potential for resources in each Study Area in **Appendix E**.
 - **Archaeology** – Archaeological sites on the National Register of Historic Places.
 - **Historic Architecture** – Historic structures, as designated by Section 106, and are sites listed on the National Register of Historic Places.
- **Environmental Justice** - Environmental Justice (EJ) supports the fair treatment and meaningful involvement of all populations regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

To meet NEPA responsibilities related to the protection of public health and the environment, the Environmental Protection Agency (EPA) developed an environmental justice mapping and screening tool called EJScreen, based on nationally consistent data and an approach that combines environmental and demographic indicators in maps

and reports. EJScreen users choose a geographic area. The tool provides demographic and environmental information for that area. EJScreen indicators are publicly available data that provides a way to display this information and includes a method for combining environmental and demographic indicators into EJ indices (US EPA EJScreen 2022).

- **Hazardous Materials** - The Code of Federal Regulations (CFR) Title 40, Chapter I, Subchapter I, Part 261, Subpart A, Section 261.3 generally defines a hazardous waste as a waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment. Hazardous waste is generated from many sources, ranging from industrial manufacturing process waste to batteries and may come in many forms, including liquids, solids gases, and sludges. Hazardous waste that is improperly managed poses a serious threat to human health and the environment. The Resource Conservation and Recovery Act (RCRA), passed in 1976, was established to set up a framework for the proper management of hazardous waste. Information for hazardous materials was obtained from GIS data available through the EPA and the Virginia Department of Environmental Quality.
- **Land Use and Zoning** - Land use and zoning impacts were identified using publicly available municipal data sets from Montgomery County, The Town of Christiansburg, and the Town of Blacksburg GIS data. While the Town of Christiansburg's GIS data was consulted, GIS data from the Town of Blacksburg and Montgomery County was utilized as the Town of Blacksburg's data also includes the Town of Christiansburg's data. These describe existing and planned development types.
- **Noise & Vibration** - As the proposed passenger rail station will support heavy passenger rail transportation, compliance with noise and vibration will be considered under the follow-up NEPA analysis to lead agency standards (most likely Federal Railroad Administration (FRA) standards). FRA uses the Federal Transit Administration's (FTA) noise model (FTA Report No. 0123 2018). For the case of this comparative analysis, a qualitative analysis was performed utilizing distances from the sensitive receptors as an indication of noise and vibration levels. Noise and vibration levels drop off with distance, therefore distance is an indicator of potential noise and vibration levels. Pursuant to the FRA noise models, the typical maximum allowable noise level (in dBA) for receiving residential land use receptors is 65 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 55 dBA for nighttime hours (10:00 p.m. to 7:00 a.m.). However, construction noise (specifically) is not allowed to exceed 90 dBA at industrial, commercial, or residential receptors during daytime hours. Construction noise and vibration associated with the Project would be temporary until construction concluded. Operational noise and vibration from passenger trains would be based on the operating schedule and would be similar to the existing freight train noise and vibration of current operations on the Blacksburg Branch and Virginian rail lines. Therefore, there is no introduction of an unfamiliar type of noise and vibration to the existing area.

This qualitative comparison of areas allows for a ranked judgement of "best case" to "worst case" based upon the distance from the proposed station centroid to the nearest sensitive receptor. The nearest receptor would logically be the one expected to receive the worst noise and vibration impacts as these impacts decrease over distance.

A quantitative Noise and Vibration Analysis will be completed during the NEPA process of the project planning to better illustrate the impact of the station and rail operations. Field

measurements, modeling and outputs are not appropriate at the feasibility stage, and many of the inputs are not available until the NEPA stage. The qualitative analysis examined as part of the Study is conservative and uses the shortest distance between the station work area and the nearest receptor. The analysis does not account for any additional noise or vibration attenuation that may result between the station and residential receptors by obstructions such as vegetation or buildings. Information for receptors was obtained from Montgomery County and the Town of Blacksburg GIS data. While the Town of Christiansburg's GIS data was consulted, GIS data from the Town of Blacksburg and Montgomery County was utilized as the Town of Blacksburg's data also includes the Town of Christiansburg's data.

- **Permitting Requirements** – Common Impact – Permitting requirements address special permits or increased permitting efforts due to known existing conditions in each study area. Permit requirements were pulled from federal, state and local permitting requirements and that were applicable for each station Study Area in Screening Two.
- **Prime Farmland** - The United States Department of Agriculture (USDA) defines Prime Farmland as lands that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and are also available for these uses (SSM, USDA Handbook No. 18 1993). Farmland that has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmland have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt, and sodium content, and few or no rocks. They are permeable to water and air. Prime farmland is not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding (SSM, USDA Handbook No. 18 1993). Information for prime farmland was obtained from GIS data available through the USDA Soil Survey.
- **Protected Species & Critical Habitat** – This category includes Threatened and Endangered Species, Wetlands, Waters of the U.S., and Critical Habitat.

A USFWS Information for Planning and Consultation (IPaC) request was performed for the four areas (see **Appendix F**) on March 22, 2022. The following species are listed under the Endangered Species Act (ESA) at these locations and should be considered in the analysis of project effects that could impact these species or their habitats.

- Indiana Bat, *Myotis sodalis* (Endangered) Mammal. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: <https://ecos.fws.gov/ecp/species/5949>
- Northern Long-eared Bat, *Myotis septentrionalis* (Threatened) Mammal. No critical habitat has been designated for this species. Species profile: <https://ecos.fws.gov/ecp/species/9045>
- Monarch Butterfly, *Danaus plexippus* (Candidate) Insect. No critical habitat has been designated for this species. Species profile: <https://ecos.fws.gov/ecp/species/9743>
- Smooth Coneflower, *Echinacea laevigata* (Endangered) Flowering Plant. No critical habitat has been designated for this species. Species profile: <https://ecos.fws.gov/ecp/species/3473>

Information for essential habitat was obtained from GIS data available through the Virginia Department of Wildlife Resources.

- **Regulatory Agency Involvement** – Common Impact – Interagency regulatory reviews begin during the NEPA environmental process. If Federal funding is allocated to the project, a Lead Federal Agency will be designated by the federal department that allocates the funds. The regulatory agencies involved in the future phases of the project are the same for all four areas at this level of study.
- **Section 4(f) and 6(f)** - Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which provided for consideration of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, applies only to the U.S. Department of Transportation (U.S. DOT) and is implemented by the Federal Highway Administration (FHWA) and FTA through the regulation 23 Code of Federal Regulations (CFR) 774.

Section 6(f) – The federal government established the Land and Water Conservation Fund (LWCF) Program in 1965 to increase the net quantity of public, outdoor recreational space. Section 6(f) of this Act provides matching funds to states or municipalities for planning, improvements, or acquisition of outdoor recreational lands. Any property that was planned, purchased, or improved with LWCF money is considered a 6(f) property. Typically, Section 6(f) properties are recreational lands that are also regulated under Section 4(f) of the Department of Transportation Act, so the review and approval by federal and District of Columbia agencies under both regulations runs concurrently.

Information for Section 4(f) and 6(f) was obtained from GIS data available through the Virginia Department of Conservation and Recreation.

- **Water Resources** – These resources include jurisdictional water features. Features assessed during this study included wetlands and streams identified in the United States Geological Survey (USGS) National Hydrography Dataset (NHD) and floodplains identified in the Federal Emergency Management Agency (FEMA).
 - **Wetlands and Streams** – The USGS maintains the NHD Wetlands database of water resources collected from federal, state, local, and educational sources. The four areas were examined in terms of the presence of wetlands and streams, and it appears that many water-related issues may be addressed during project design. Any potential impact on wetlands or streams will be reviewed by the United States Army Corps of Engineers or the Virginia Department of Environmental Quality during a NEPA environmental process.
 - **Floodplains** - FEMA (and its locally delegated programs) addresses potential direct effects of development in floodplains. FEMA review ensures that any rise in flood elevations will be minimal and not affect up or downstream development. The four areas were examined in terms of the presence of FEMA floodplains and local elevations, and it appears that any flood related issues may be addressed during project design. Any potential impact on FEMA floodplains will be submitted to FEMA (or the delegated local program) for their review. Information for floodplains was obtained from GIS data available through FEMA.

The categories above are typical for USDOT agency NEPA documents led by the FHWA, FTA, FRA, Federal Aviation Administration (FAA), or Maritime Administration (MARAD). FRA and NEPA guidance is available to inform this feasibility analysis (USDOT FRA 2022).

Screening Two analyzed the potential impacts to each of these environmental categories resulting from the construction of a passenger rail station within the larger study area. This analysis compared impacts as shown in **Table 3.1**. A green checkbox indicates that a potential impact was not indicated for the associated category. A red checkbox indicates that a potential impact was indicated for the associated category.

TABLE 3.1 SCREENING TWO – COMPARISON STUDY AREA ANALYSIS

| Environmental Category | Stations | | | |
|--------------------------------------|----------|-------|--------|----------|
| | NRV-N | NRV-W | Ellett | Merrimac |
| Air Quality | ☑ | ☑ | ☑ | ☑ |
| Community Resources | ☒ | ☒ | ☒ | ☒ |
| Cultural & Historic Resources | ☒ | ☒ | ☒ | ☒ |
| Environmental Justice | ☑ | ☑ | ☒ | ☑ |
| Hazardous Materials | ☒ | ☒ | ☒ | ☒ |
| Land Use & Zoning | ☑ | ☑ | ☑ | ☑ |
| Noise & Vibration | ☒ | ☒ | ☒ | ☑ |
| Permitting Requirements | ☑ | ☑ | ☑ | ☑ |
| Prime Farmland | ☒ | ☒ | ☒ | ☒ |
| Protected Species & Critical Habitat | ☒ | ☒ | ☒ | ☒ |
| Regulatory Agency Involvement | ☑ | ☑ | ☑ | ☑ |
| Section 4(f) & 6(f) | ☒ | ☒ | ☒ | ☒ |
| Water Resources | ☒ | ☒ | ☒ | ☒ |
| Retained for Further Study | ☑ | ☑ | ☑ | ☑ |

Finding: Comparative analysis of environmental impacts by study area indicated that the study areas under consideration were relatively similar. Therefore, the four remaining areas were retained in Screening Two all advanced to Screening Three.

4 Screening Three – Comparison Alternative Screening

The Comparison Alternative Screening examines a high-level a station concept design within each station Study Area identified to determine the overall impact and feasibility of constructing a station at a specified location within the large study areas identified in Screening One and Screening Two. The same environmental categories defined in Screening Two were analyzed as part of Screening Three to determine the potential impacts caused by the more refined concept design for each station alternative.

Concept designs were prepared using GIS data from ESRI World Imagery, ESRI Topographic, Montgomery County, Tigerline 2020, and the environmental GIS data noted in **Chapter 3**.

To determine the totality of the concept design impacts, the concept design included station site plan designs that site planning needs for the station, and considerations for multimodal infrastructure needed to access the station. Site Plan details for each station can be found in Chapter 3 of the Study, but are also generalized for each station below and are defined in terms of design categories and elements of each design that would cause an impact to the existing environment.

Design categories identified in each concept design review were developed from the elements of the major infrastructure systems listed below to determine the impacts that might be created by each category and provide an analysis of any significant differences between each category identified.

Design categories of investigation considered for this Study include:

- **Bicycle Access** – The ability of cyclists to safely access the station.
- **Constructability** – The ability to construct the required station infrastructure and the level of effort required to complete the construction.
- **Future Expansion** – *Common Impact* – The ability to expand station infrastructure beyond the forecast ridership if future ridership requires such an expansion. Future expansion is the same for all alternatives.
- **Highway Access** – The ability of highway vehicles, including delivery trucks, to safely access the station.
- **Incremental Development** – *Common Impact* – The ability to begin with station infrastructure to accommodate ridership for the startup and a defined period of time thereafter and then expand the station infrastructure to the level of ridership forecast during the life cycle of the infrastructure. Incremental development is the same for all alternatives.
- **Parking** – *Common Impact* – The area required to accommodate highway vehicles while waiting for a passenger to get on or off of a train or while the occupants of the vehicle are traveling by train. Parking is the same for all alternatives.

- **Pedestrian Access** – The ability of pedestrians to safely access the station.
- **Platform** – *Common Impact* – The relatively flat paved area where passengers gather before getting on the train or after getting off of the train. Platforms are high-level and are the same length for all alternatives.
- **Property Acquisition** – The ability to acquire the property required to develop the station infrastructure and the number of properties that will potentially need to be acquired.
- **Railroad Operations** – The ability of passenger trains and freight trains to safely operate with minimal or no conflicts between their operations.
- **Relocations** – The residences and/or businesses within the impact limits of the potential station infrastructure and the number of each that will potentially be moved.
- **Security** – The ability to secure the station, property, and passenger vehicles when activity at the station is at a minimum, e.g., between the departure of one train and the arrival of the next train.
- **Topography** – The relative changes in elevation within the impact limits of the potential station infrastructure, including the challenges presented by embankments, steep slopes, and man-made changes to the topography.
- **Track Alignment** – *Common Impact* – The longitudinal and lateral characteristics of the track related to passenger train operations, existing and station track, and the platform. Each station location assumed an additional track that diverted from the mainline track to allow the mainline track to be clear for operations during passenger boarding and alighting.
- **Track Grade** – *Common Impact* – The vertical characteristic of the track will be the same for all alternatives to provide safe passenger train operations and safe passenger movements between the platform and the train.
- **Traffic Impacts** – The impacts of station traffic on the nearest intersection(s) and on local roads.
- **Transit Access** – The ability for transit vehicles and their passengers to safely access the station from established routes or by altering existing routes.
- **Utilities** – The above ground utilities or the potential underground utilities identified by above ground structures that are seen on aerial photography.

Screening Three analyzed the potential impacts to each of environmental categories from Screening Two and the categories above resulting from the construction of a passenger rail station using the potential impact limits for that construction. This analysis compared impacts as shown in **Table 4.1**. A green checkbox indicates that a potential impact was not indicated for the associated category. A red checkbox indicates that a potential impact was indicated for the associated category.

TABLE 4.1 SCREENING THREE – COMPARISON ALTERNATIVE SCREENING

| Category | Stations | | | |
|--|----------|-------|--------|----------|
| | NRV-N | NRV-W | Ellett | Merrimac |
| Refinement of Screening Two Environmental Criteria Applied to Conceptual Design | | | | |
| Air Quality | ✓ | ✓ | ✓ | ✓ |
| Community Resources | ✓ | ✗ | ✓ | ✓ |
| Cultural & Historic Resources | ✗ | ✓ | ✓ | ✗ |
| Environmental Justice | ✓ | ✓ | ✗ | ✓ |
| Hazardous Materials | ✓ | ✓ | ✓ | ✓ |
| Land Use & Zoning | ✓ | ✓ | ✗ | ✗ |
| Noise & Vibration | ✗ | ✗ | ✗ | ✓ |
| Permitting Requirements | ✓ | ✓ | ✓ | ✓ |
| Prime Farmland | ✗ | ✗ | ✗ | ✓ |
| Protected Species & Critical Habitat | ✗ | ✓ | ✗ | ✗ |
| Regulatory Agency Involvement | ✓ | ✓ | ✓ | ✓ |
| Section 4(f) & 6(f) | ✗ | ✗ | ✗ | ✗ |
| Water Resources | ✗ | ✗ | ✗ | ✗ |
| Screening Three Conceptual Design Impact Criteria | | | | |
| Bicycle Access | ✓ | ✓ | ✗ | ✗ |
| Constructability | ✓ | ✓ | ✗ | ✗ |
| Future Expansion | ✓ | ✓ | ✓ | ✓ |
| Highway Access | ✓ | ✓ | ✗ | ✗ |
| Incremental Development | ✓ | ✓ | ✓ | ✓ |
| Parking | ✓ | ✓ | ✓ | ✓ |
| Pedestrian Access | ✓ | ✓ | ✗ | ✗ |
| Platform | ✓ | ✗ | ✓ | ✓ |
| Property Acquisition | ✓ | ✓ | ✗ | ✗ |
| Railroad Operations | ✗ | ✗ | ✓ | ✓ |
| Relocations | ✓ | ✓ | ✗ | ✗ |
| Security | ✓ | ✓ | ✓ | ✗ |
| Topography | ✓ | ✓ | ✗ | ✗ |

| Category | Stations | | | |
|-----------------------------------|----------|-------|--------|----------|
| | NRV-N | NRV-W | Ellett | Merrimac |
| Track Alignment | ✓ | ✓ | ✓ | ✓ |
| Track Grade | ✓ | ✓ | ✓ | ✓ |
| Traffic Impacts | ✓ | ✓ | ✗ | ✗ |
| Transit Access | ✓ | ✓ | ✗ | ✗ |
| Utilities | ✓ | ✓ | ✓ | ✗ |
| Retained for Further Study | ✓ | ✓ | ✗ | ✗ |

The following sections detail the impact analysis for each of the environmental and design categories for each station concept design alternative. The analysis examines the overall impacts associated with the concept design of each alternative, and does not show the station building, track, platform or other details described in earlier in this section. The purpose of the analysis below was to examine the overall impact of the station design limits of disturbance and identify impacts of any additional infrastructure needed to support the station infrastructure.

4.1 North of New River Valley Mall (NRV-N) Alternative

The NRV-N location is less than one mile from the Virginian Line south of the Blacksburg Branch. NRV-N is proposed on private property east of the Blacksburg Branch; the east site location was identified because of the challenging topography and the location of a stream on the west side of the Blacksburg Branch. The railroad track is relatively straight at this location with a grade sloping down from south to north. A screening analysis 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 New River Valley Mall West (NRV-W) alternative.

In Screening One, the NRV-N Alternative did not have any fatal flaws related to safety or railroad operations. In Screening Two, it had similar environmental impacts within the associated study area as the other three remaining alternatives.

The following section evaluates the NRV-N Alternative in Screening Three.

4.1.1 NRV-N ENVIRONMENTAL CATEGORY SCREENING FINDINGS

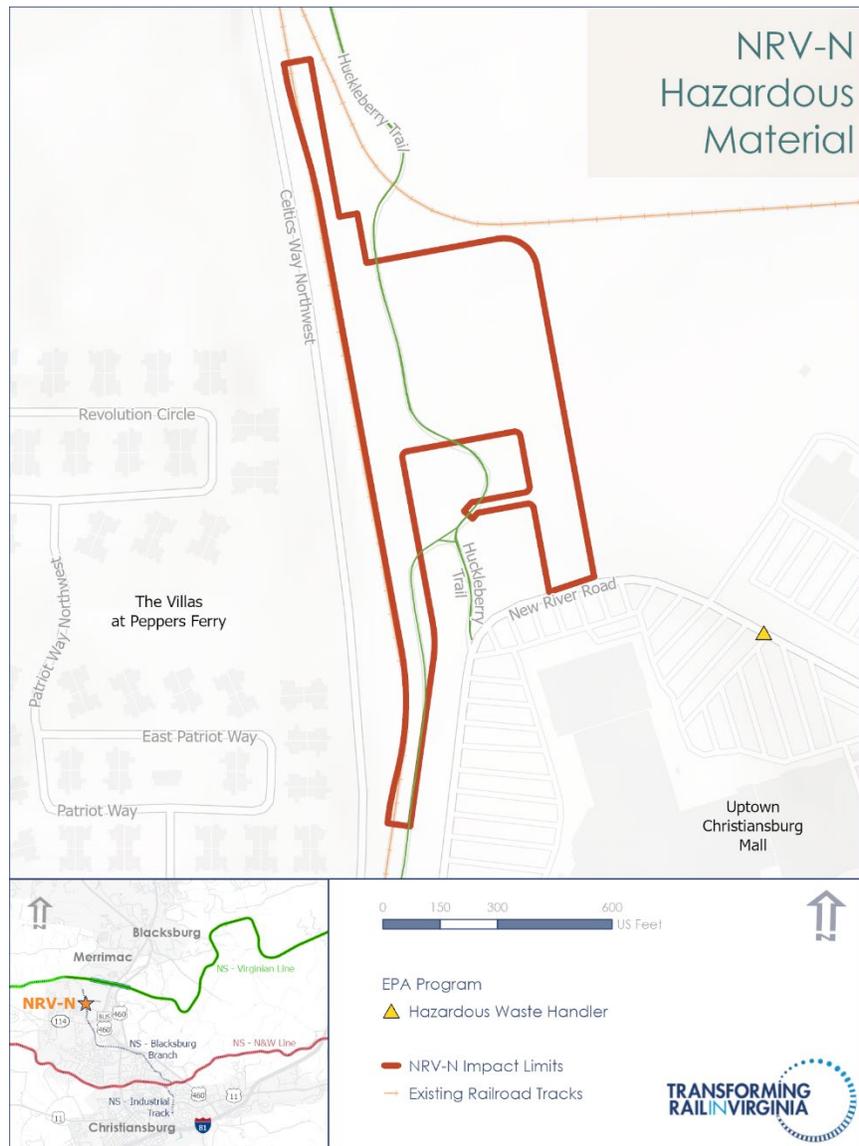


FIGURE 4.1: NRV-N HAZARDOUS MATERIALS

Hazardous Materials – Within the NRV-N impact limits shown in **Figure 4.1: NRV-N Hazardous Materials**, no known instances of recorded hazardous waste sites were identified.

Noise & Vibration – (qualitative comparison) – The NRV-N Alternative would result in the nearest receptor being a cluster of patio home west of the existing tracks, approximately 325 feet from the potential station location.

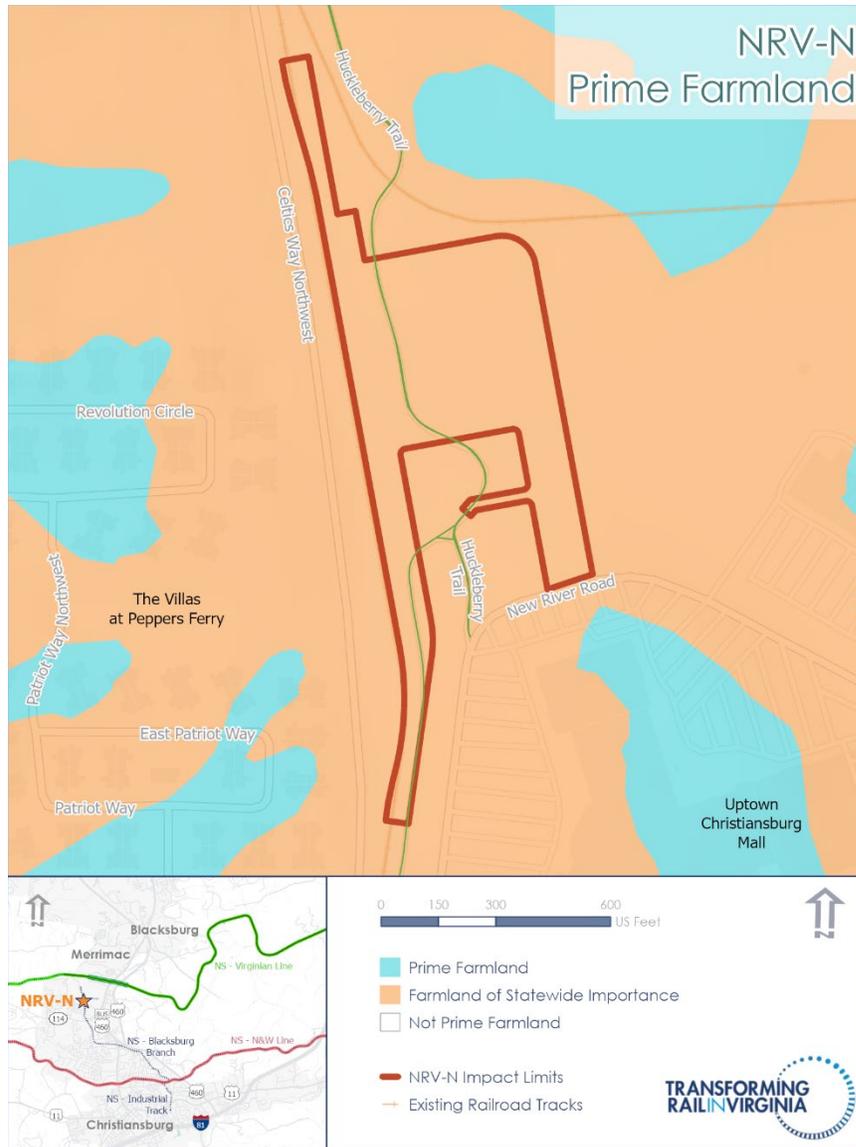


FIGURE 4.2: NRV-N PRIME FARMLAND

Prime Farmland –The NRV-N Alternative impact limits in **Figure 4.2** contains no Prime Farmland and 100% Farmland of Statewide Importance (USDA Soil Survey).

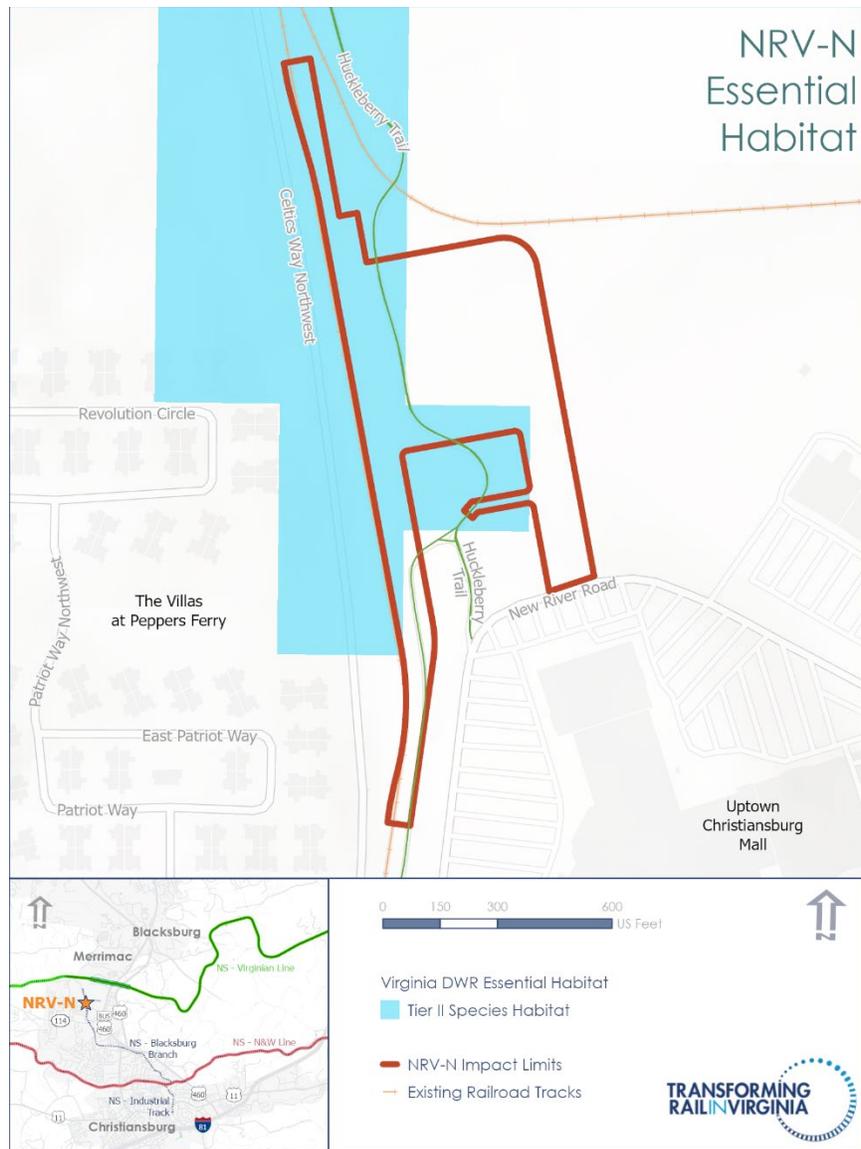


FIGURE 4.3: NRV-N ESSENTIAL HABITAT

Protected Species & Critical Habitat – The screening indicated that a Tier II T&E Species Essential (Critical) Habitat identified in the Virginia Wildlife Action Plan may be present within the Alternative footprint as shown in **Figure 4.3**. The actual species associated with this habitat was not identified in the GIS database and would be evaluated during subsequent studies.



FIGURE 4.4: NRV-N 4(F) AND 6(F) RESOURCES

Section 4(f) and 6(f) – FRA environmental reviews comply with 23 CFR Part 774 (Section 4(f)). Properties defined in 23 CFR Part 774 are not located within the impact limits of the alternative shown in **Figure 4.4**. The Virginia Department of Conservation and Recreation maintains a GIS database of Section 6(f) properties. This database indicated part of the Huckleberry Trail as a Section 6(f) property. The Huckleberry Trail is identified as a potential Section 6(f) impact that may be mitigated by relocating the trail while maintaining public use of the trail.



FIGURE 4.5: NRV-N COMMUNITY RESOURCES

Community Resources –The Huckleberry Trail is within the impact limits of the NRV-N Alternative as shown in **Figure 4.5**. With proper planning, the Huckleberry Trail and the rail station could complement the use of each other.

Cultural & Historic Resources – According to the analysis, three potential historical and cultural impacts were identified for the NRV-N site. See **Appendix E** “Cultural and Historic Resources Report” for additional details.

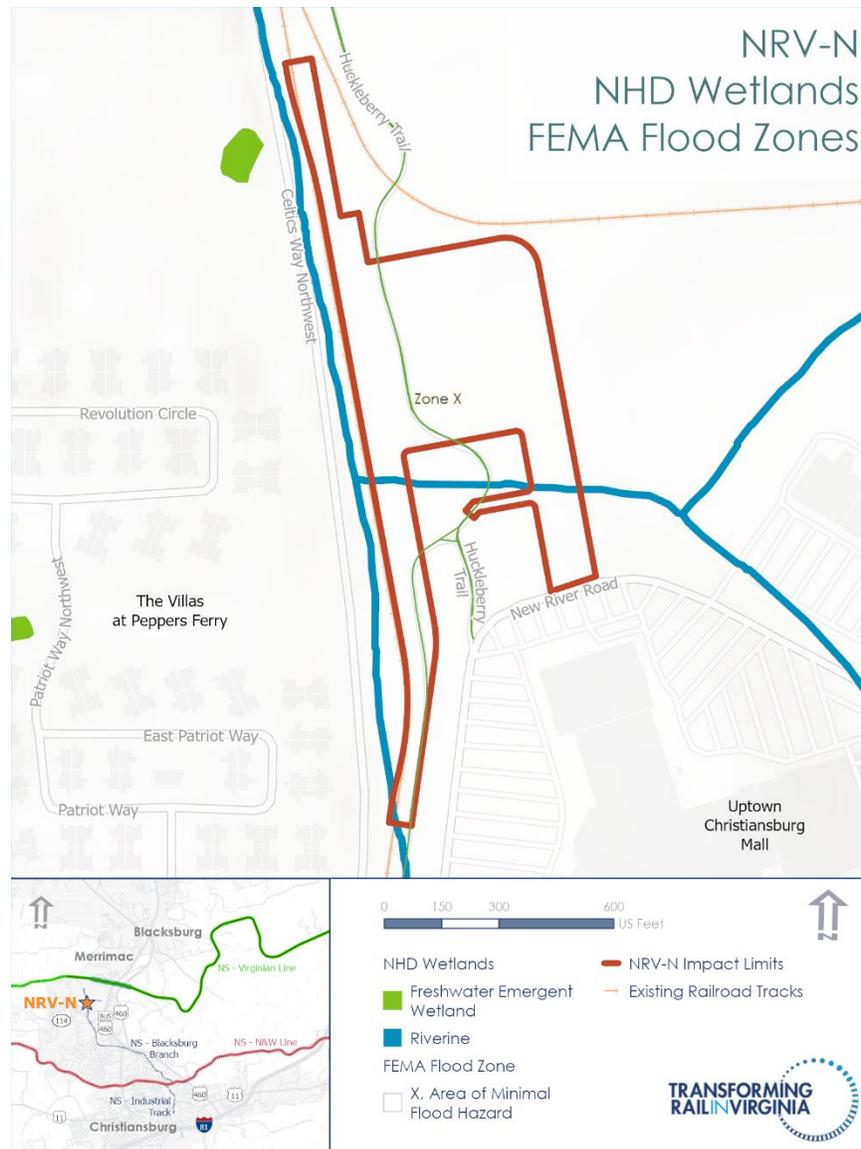


FIGURE 4.6: NRV-N NHD WETLANDS & FEMA FLOOD ZONES

Water Resources – This alternative carries several jurisdictional waters features shown within the impact limits in **Figure 4.6**. There is a stream running north-south beside the impact limits that crosses under the existing track. This feature will need careful design to prevent serious impacts. There is also a perpendicular stream crossing through the impact limits. A few small wetlands exist near the impact limits but are avoidable.

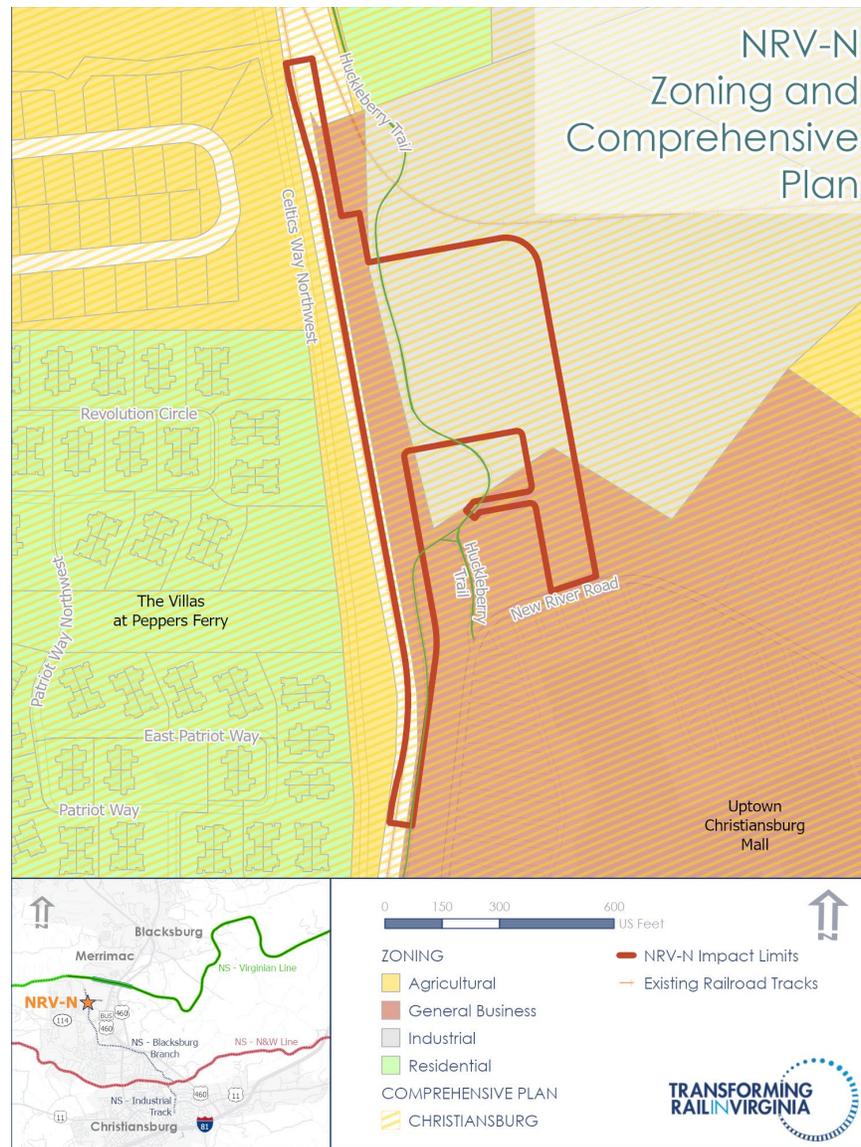


FIGURE 4.7: NRV-N ZONING AND COMPREHENSIVE PLAN

Land Use & Zoning – The land use surrounding the NRV-N impact limits is a mix of commercial (the NRV Mall, also known as Uptown Christiansburg, and associated commercial pad sites), industrial, agricultural and residential as shown in **Figure 4.7**. Zoning is predominantly Industrial, General Business, Residential, and Agriculture. The proposed alternative straddles General Business and Industrial zoning areas and would likely not require extensive rezoning according to the Montgomery County Open Data (Montgomery Co, VA GIS Services).



FIGURE 4.8: NRV-N CENSUS TRACTS

Environmental Justice Potential Communities – There are no potential Environmental Justice Communities within the NRV-N impact limits shown in **Figure 4.8**. The low-income population is 23% within this census tract as compared to a Statewide average of 25%. The People of Color population is 11%, lower than the statewide average of 38%. The linguistically isolated population is 0%, lower than the statewide average of 3%.

4.1.2 NRV-N CONCEPT DESIGN CATEGORY SCREENING FINDINGS

A concept design for an NRV-N Alternative is shown in **Figure 4.9** followed by the screening criteria findings for this alternative.

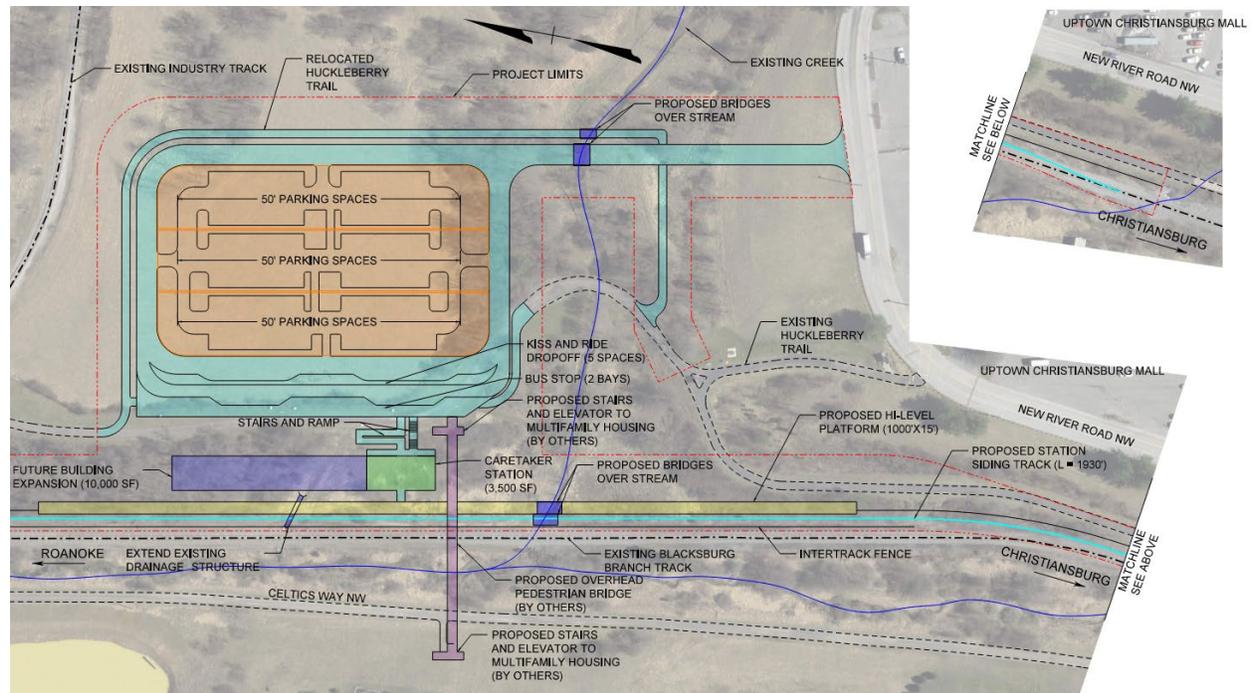


FIGURE 4.9: NRV-N CONCEPT DESIGN

Bicycle and Pedestrian Access – An existing shared-use path, called the Huckleberry Trail, crosses the NRV-N Alternative. The Huckleberry trail connects the area's recreational, cultural, and historical assets and serves as the spine for a 60-mile paved and natural surface trail that includes the Coal Mining Heritage Park, McDonald Hollow Trail Network, Gateway Trail, Poverty Creek Trail System as well as other local systems. Accommodations for continuity and function of the trail will be addressed during the design of the project.

Property Acquisition – The proposed NRV-N Alternative sits on two parcels.

Relocations – The proposed NRV-N Alternative is on vacant land and will not require any residence or business relocations.

Topography – The proposed NRV-N Alternative lies on an existing gradual slope.

Traffic Impacts – The proposed NRV-N Alternative should be developed such that existing traffic is routed around construction areas as to avoid significant impacts to traffic.

Track Alignment – The proposed NRV-N station siding is approximately 1,900' long and will connect to the existing Blacksburg Branch at both ends with Number 10 turnouts.

4.1.3 NRV-N ADDITIONAL INFRASTRUCTURE REQUIREMENTS

Each station site requires additional infrastructure to access and support the station. NS does not currently have a connecting track between the Virginian Line and the Blacksburg Branch. The analysis found that a connecting track concept design will be required to provide train access to the NRV-N and NRV-W Alternatives along the Blacksburg Branch. A concept of this connecting track to the NRV-N Alternative is shown in **Figure 4.10**.

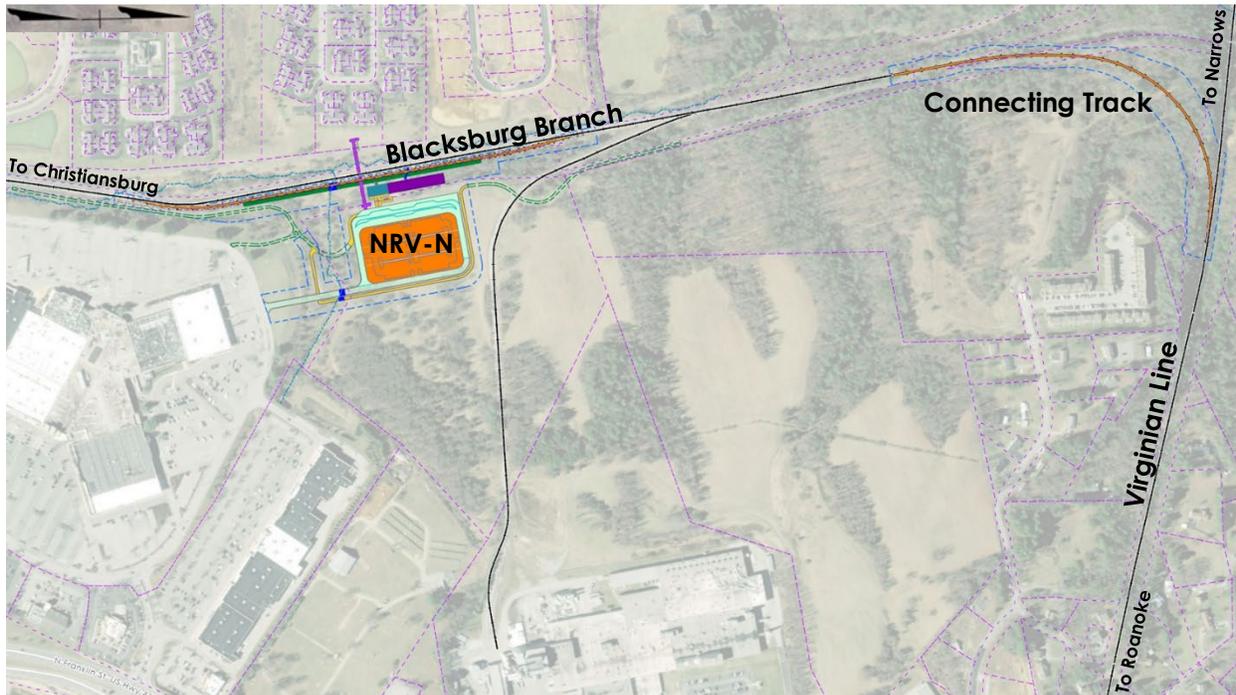


FIGURE 4.10: CONNECTING TRACK TO BLACKSBURG BRANCH

Railroad Operations— A proposed track must be constructed to provide a connection between the former Virginian Line and the Blacksburg Branch as shown in **Figure 4.10**.

4.2 New River Valley Mall West (NRV-W) Alternative

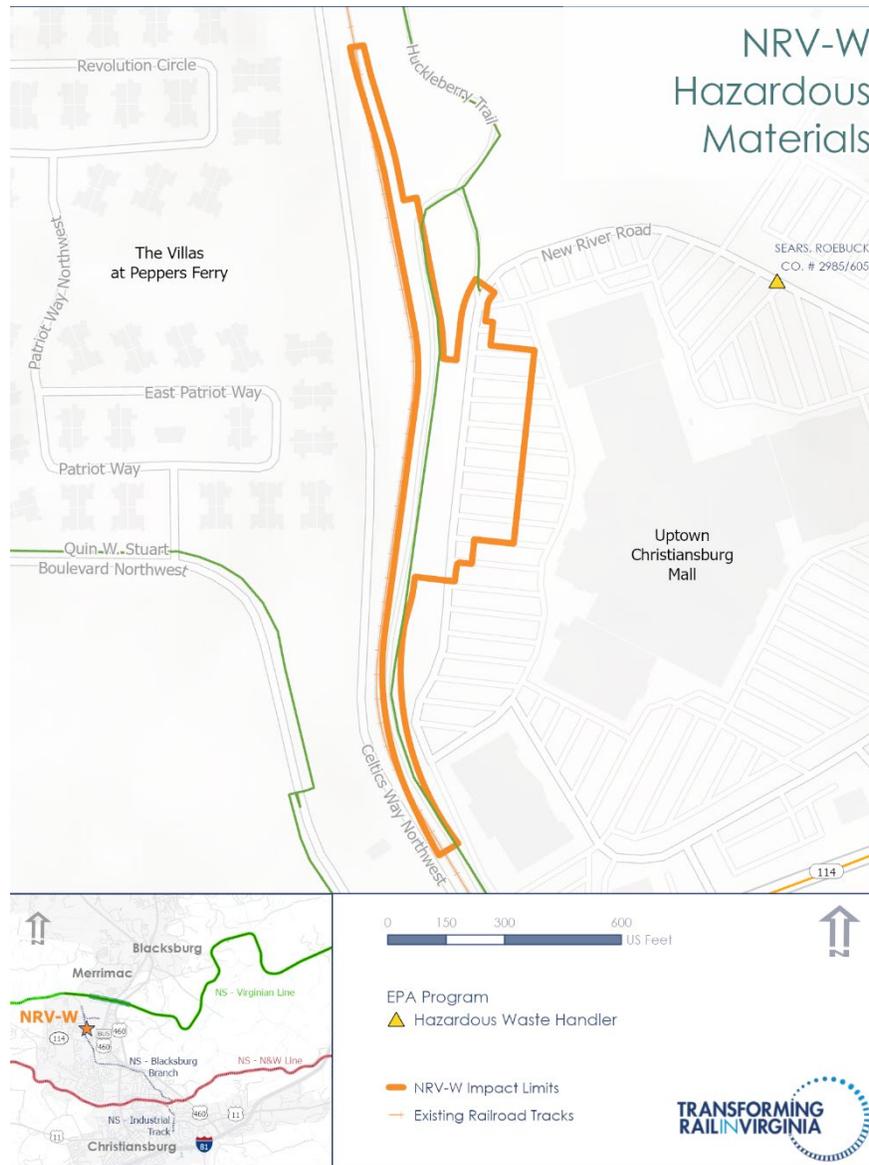
Like NRV-N the NRV-W station site is also located on the Blacksburg Branch, and is approximately one mile from the Virginian Line. The station is sited adjacent to the NRV Mall (Uptown Christiansburg) parking lot, New River Road and is also adjacent to the Huckleberry trail. The alternative is proposed east of the Blacksburg Branch due to the topography and the location of a stream on the west side of the Blacksburg Branch. A screening analysis 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.

In Screening One, the NRV-W Alternative did not have any fatal flaws related to safety or railroad operations. In Screening Two, it had similar environmental impacts within the associated study area as the other three remaining alternatives.

The following section evaluates the impacts identified for NRV-W Alternative in Screening Three.

4.2.1 NRV-W ENVIRONMENTAL CATEGORY SCREENING FINDINGS

FIGURE 4.11: NRV-W HAZARDOUS MATERIALS



Hazardous Materials – Within the NRV-W impact limits shown in **Figure 4.11**, there were identified no known instances of recorded hazardous waste sites.

Noise & Vibration – The NRV-W Alternative would result in the nearest receptor being a cluster of patio home west of the existing tracks, approximately 313 feet from the potential station location.

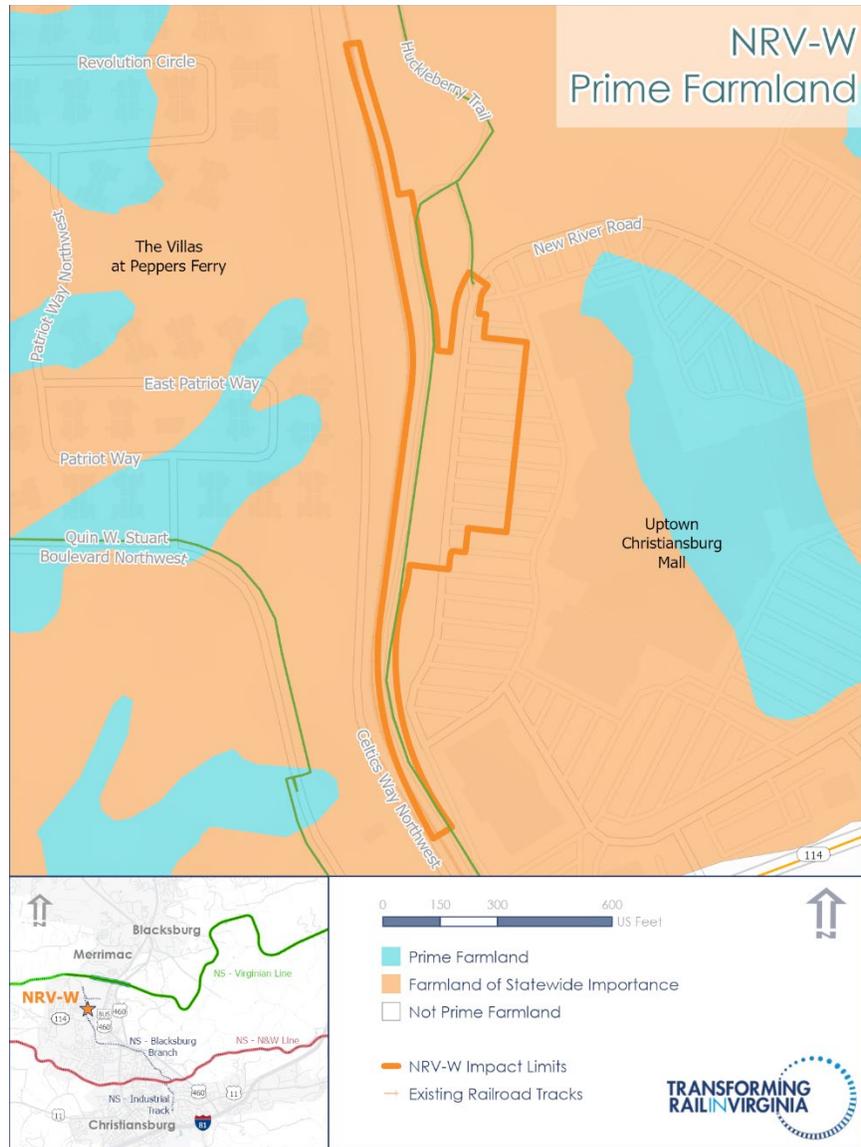


FIGURE 4.12: NRV-W PRIME FARMLAND

Prime Farmland – The NRV-W Alternative impact limits in **Figure 4.12** contains no Prime Farmland and 100% Farmland of Statewide Importance.



FIGURE 4.13: NRV-W ESSENTIAL HABITAT

Protected Species & Critical Habitat – The screening indicated that a Tier II T&E Species Essential (Critical) Habitat identified in the Virginia Wildlife Action Plan may be present within the Alternative footprint as shown in **Figure 4.13**. The actual species associated with this habitat was not identified in the GIS database and would be evaluated during subsequent studies.

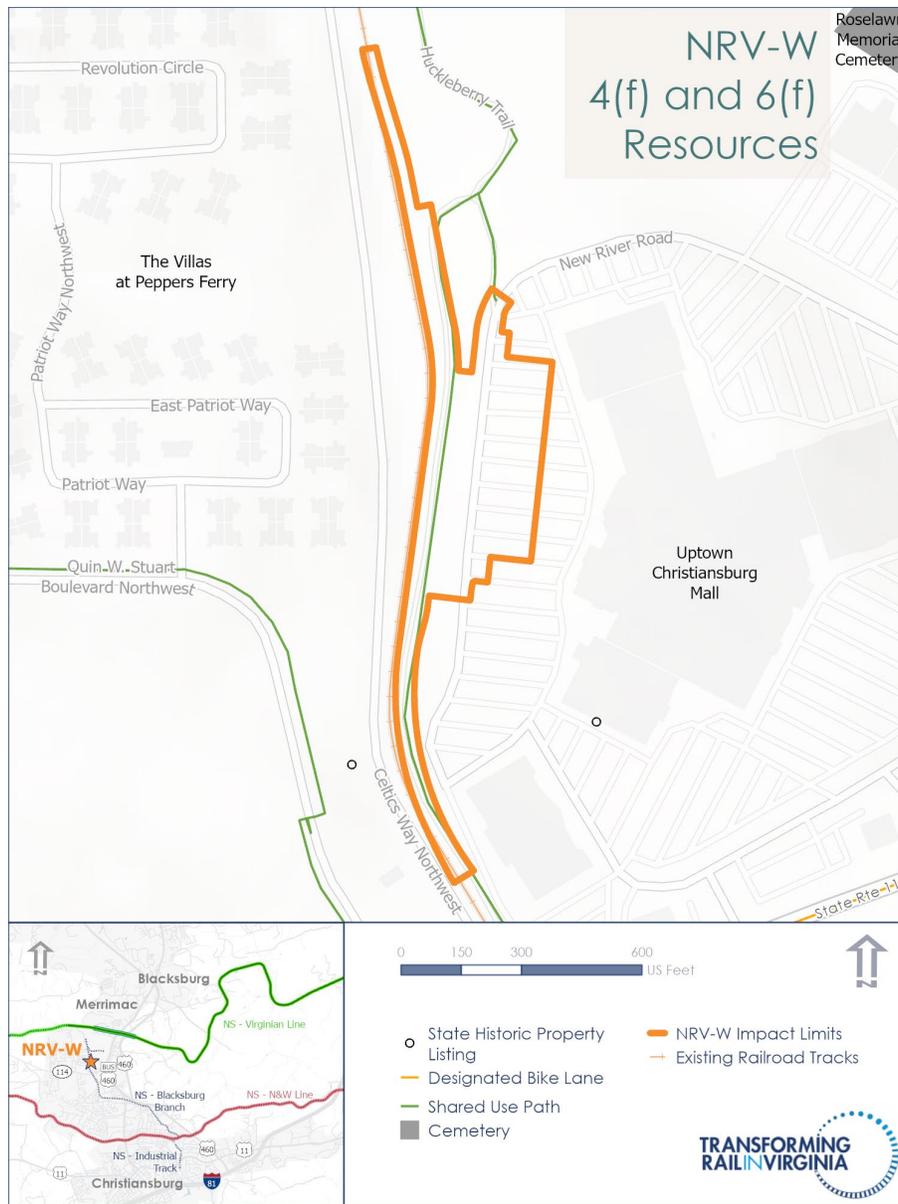


FIGURE 4.14: NRV-W 4(F) AND 6(F) RESOURCES

Section 4(f) and 6(f) – FRA environmental reviews comply with 23 CFR Part 774 (Section 4(f)). Properties defined in 23 CFR Part 774 are not located within the impact limits of the alternative shown in **Figure 4.14**. The Virginia Department of Conservation and Recreation maintains a GIS database of Section 6(f) properties. This database indicated part of the Huckleberry Trail as a Section 6(f) property. The Huckleberry Trail is identified as a potential Section 6(f) impact that may be mitigated to a de minimis impact by relocating the trail while maintaining public use of the trail.

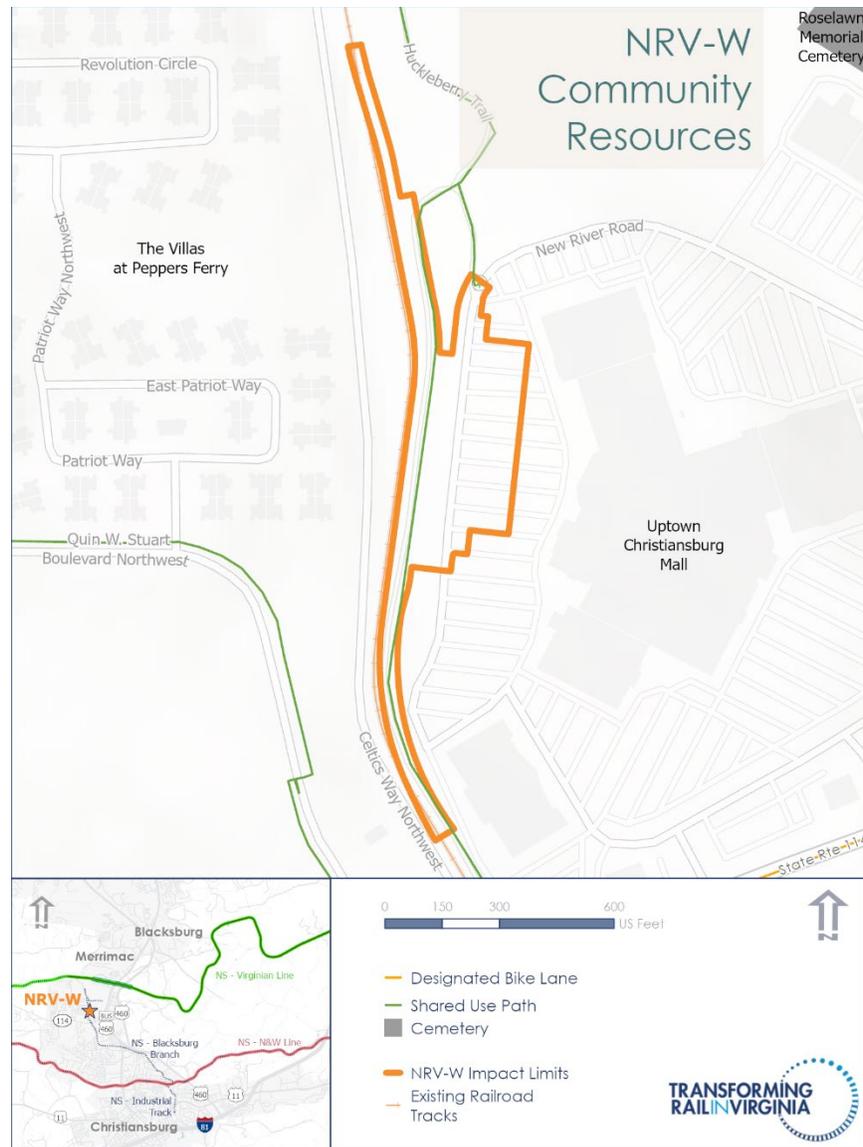


FIGURE 4.15: NRV-W COMMUNITY RESOURCES

Community Resources – The Huckleberry Trail is within the impact limits of the NRV-W alternative as shown in **Figure 4.15**. With proper planning, the Huckleberry Trail and the rail station could complement the use of each other.

Cultural & Historic Resources – According to the analysis, no historical and cultural impacts were identified for the NRV-W site. See **Appendix E** “Cultural and Historic Resources Report” for additional details

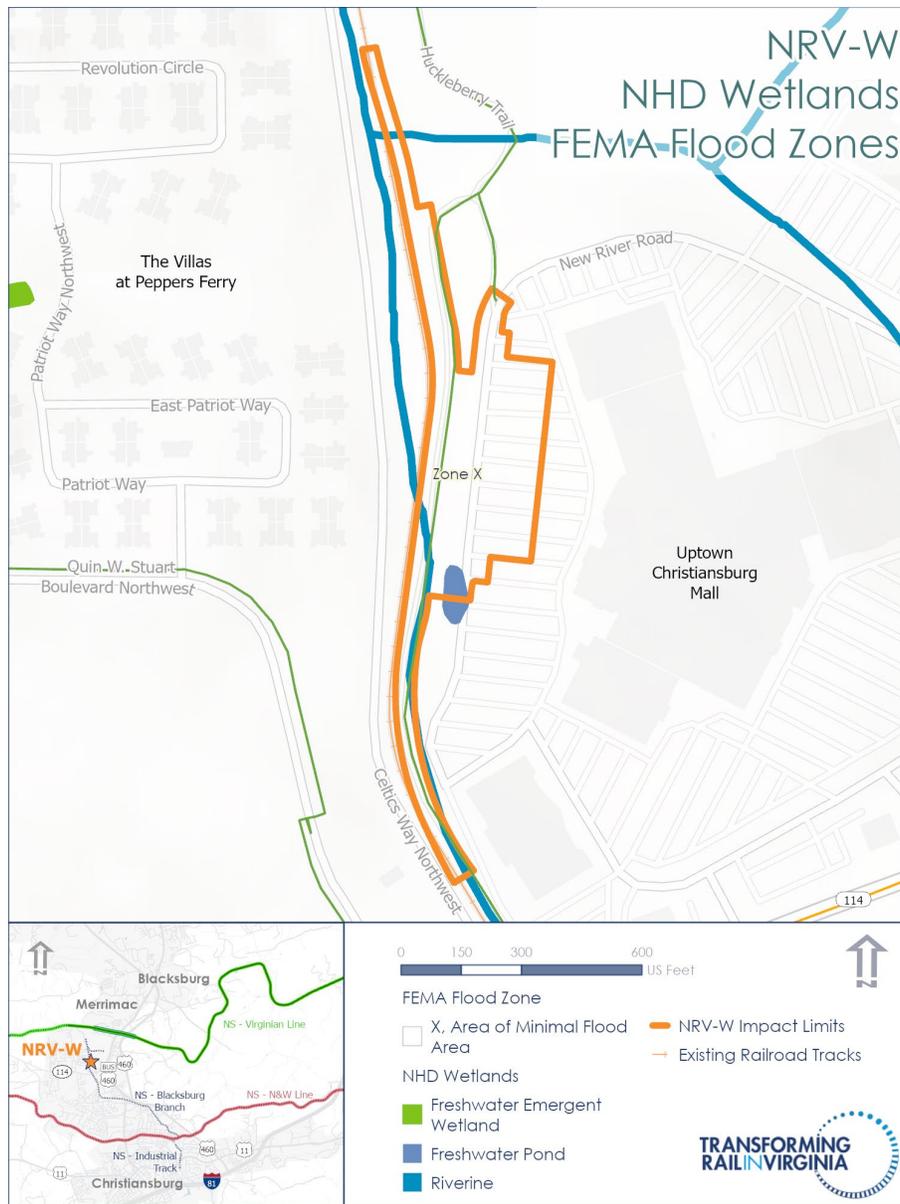


FIGURE 4.16: NRV-W NHD WETLANDS & FEMA FLOOD ZONES

Water Resources – This alternative carries several jurisdictional waters features through the impact limits as shown in **Figure 4.16**. There is a stream running north-south that crosses under the existing track. This stream will need careful design to minimize impacts. There is also a perpendicular stream at the north end of the impact limits. A freshwater pond indicated in the NHD Wetlands data no longer exists and is not considered as a potential impact.



FIGURE 4.17: NRV-W ZONING AND COMPREHENSIVE PLAN

Land Use & Zoning – The land use in the impact limits in **Figure 4.17** is predominantly commercial (including the NRV Mall, also known as Uptown Christiansburg). Zoning is predominantly Industrial, General Business, Residential, and Agriculture in the vicinity of the impact limits. The NRV-W Alternative straddles General Business and Industrial zoning areas and would likely not require extensive rezoning.

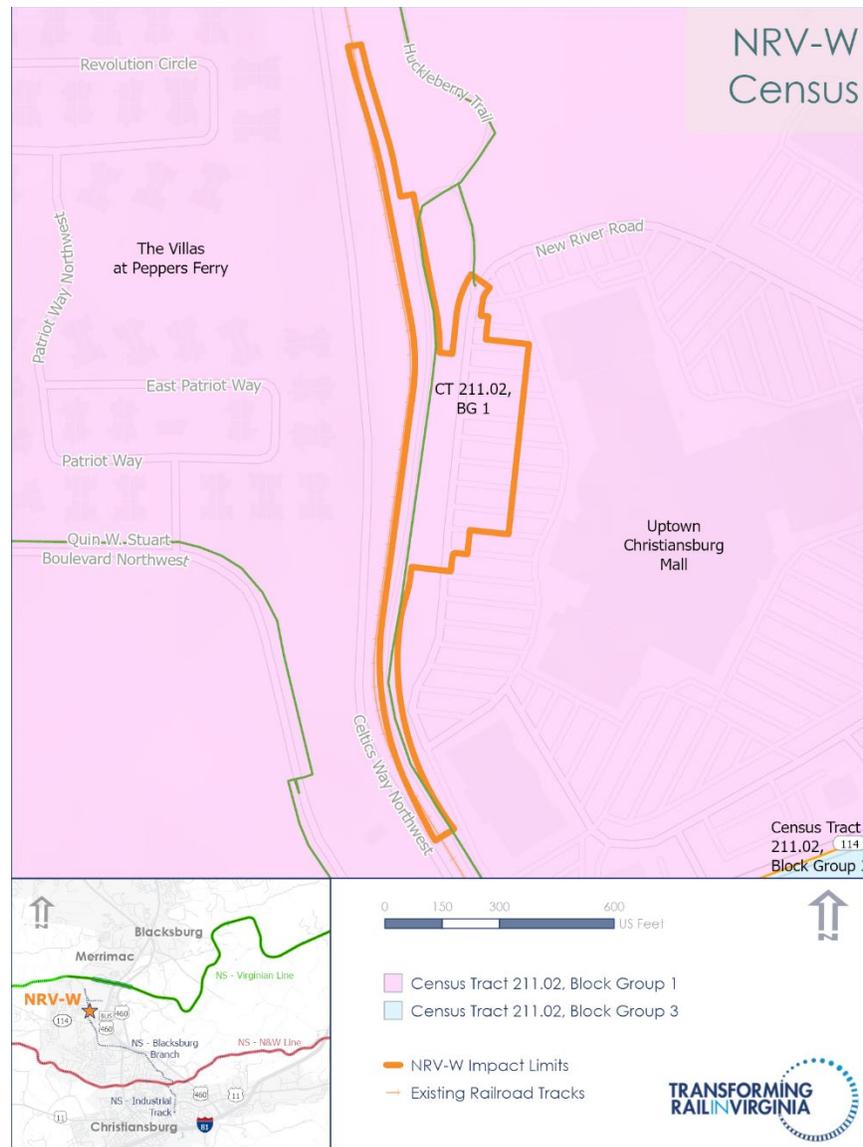


FIGURE 4.18: NRV-W CENSUS TRACTS

Environmental Justice Potential Communities – There are no potential Environmental Justice Communities within the impact limits shown in **Figure 4.18**. The low-income population is 23% within this census tract as compared to a Statewide average of 25%. The People of Color population is 13%, lower than the statewide average of 38%. The linguistically isolated population is 0%, lower than the statewide average of 3%.

4.2.2 NRV-W CONCEPT DESIGN CATEGORY SCREENING FINDINGS

A concept design for an NRV-W Alternative is shown in **Figure 4.19** followed by the screening criteria findings for this alternative.

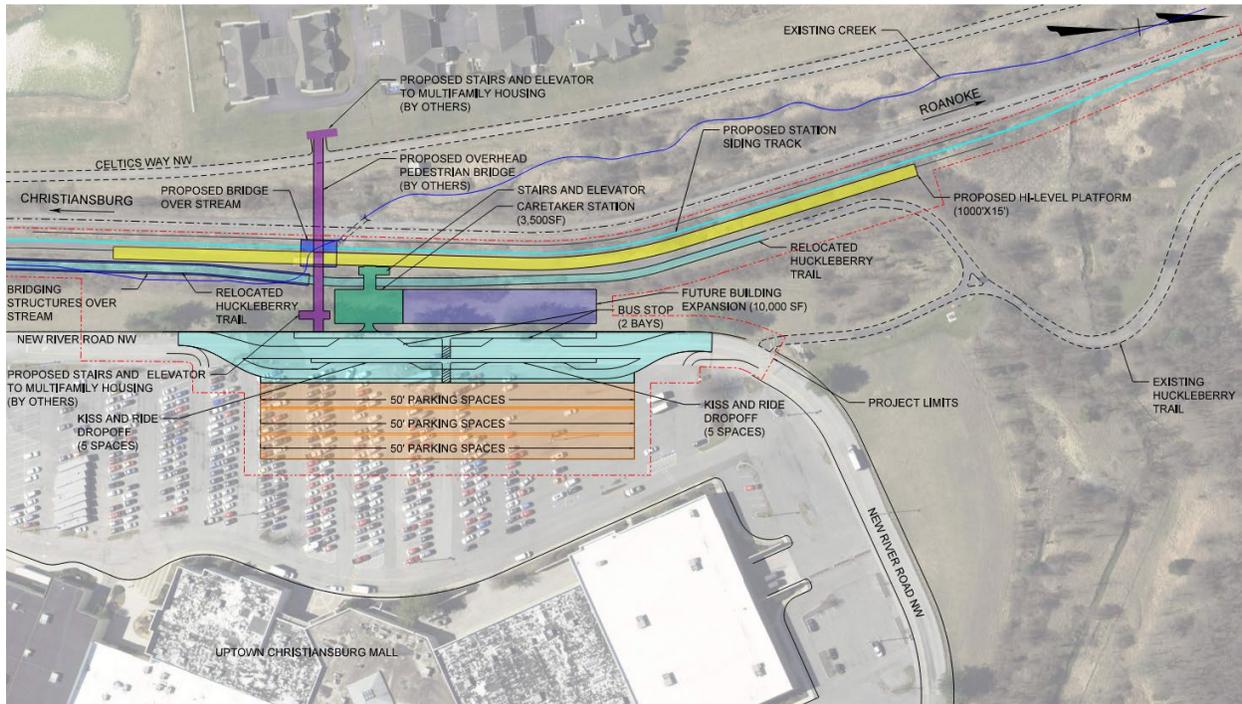


FIGURE 4.19: NRV-W CONCEPT DESIGN

Bicycle and Pedestrian Access – An existing shared-use path, called the Huckleberry Trail, crosses the NRV-W Alternative. The Huckleberry trail connects the area's recreational, cultural, and historical assets and serves as the spine for a 60-mile paved and natural surface trail that includes the Coal Mining Heritage Park, McDonald Hollow Trail Network, Gateway Trail, Poverty Creek Trail System as well as other local systems. Accommodations for continuity and function of the trail will be addressed in the design of the project.

Railroad Operations – A proposed track must be constructed to provide a connection between the former Virginian Line and the Blacksburg Branch as shown in **Figure 4.10**.

4.2.3 ADDITIONAL INFRASTRUCTURE REQUIREMENTS

Similar to NRV-N, it will be necessary to construct a connecting track between the Virginian Line and the Blacksburg Branch for the NRV-W Alternative. The connecting track concept design developed for NRV-N (see **Figure 4.10**) would be the same as required for the NRV-W Alternative.

Railroad Operations– A proposed track must be constructed to provide a connection between the former Virginian Line and the Blacksburg Branch as shown in **Figure 4.10**.

4.3 Ellett Alternative

Located on the Virginian Line, Ellett is more than two miles from US 460 Business. This is a critical distinction for this alternative. 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. The railroad is relatively straight at this location with a grade sloping down from west to east. A screening analysis shown in **Table 4.1** resulted in a constructible concept with more environmental impacts than the NRV-N and NRV-W Alternatives.

In Screening One, the Ellett Alternative did not have any fatal flaws related to safety or railroad operations. In Screening Two, resulted in similar environmental impacts within the associated Study Area as the other three remaining alternatives.

The following section evaluates the impacts of the Ellett Alternative in Screening Three.

4.3.1 ENVIRONMENTAL CATEGORY SCREENING FINDINGS

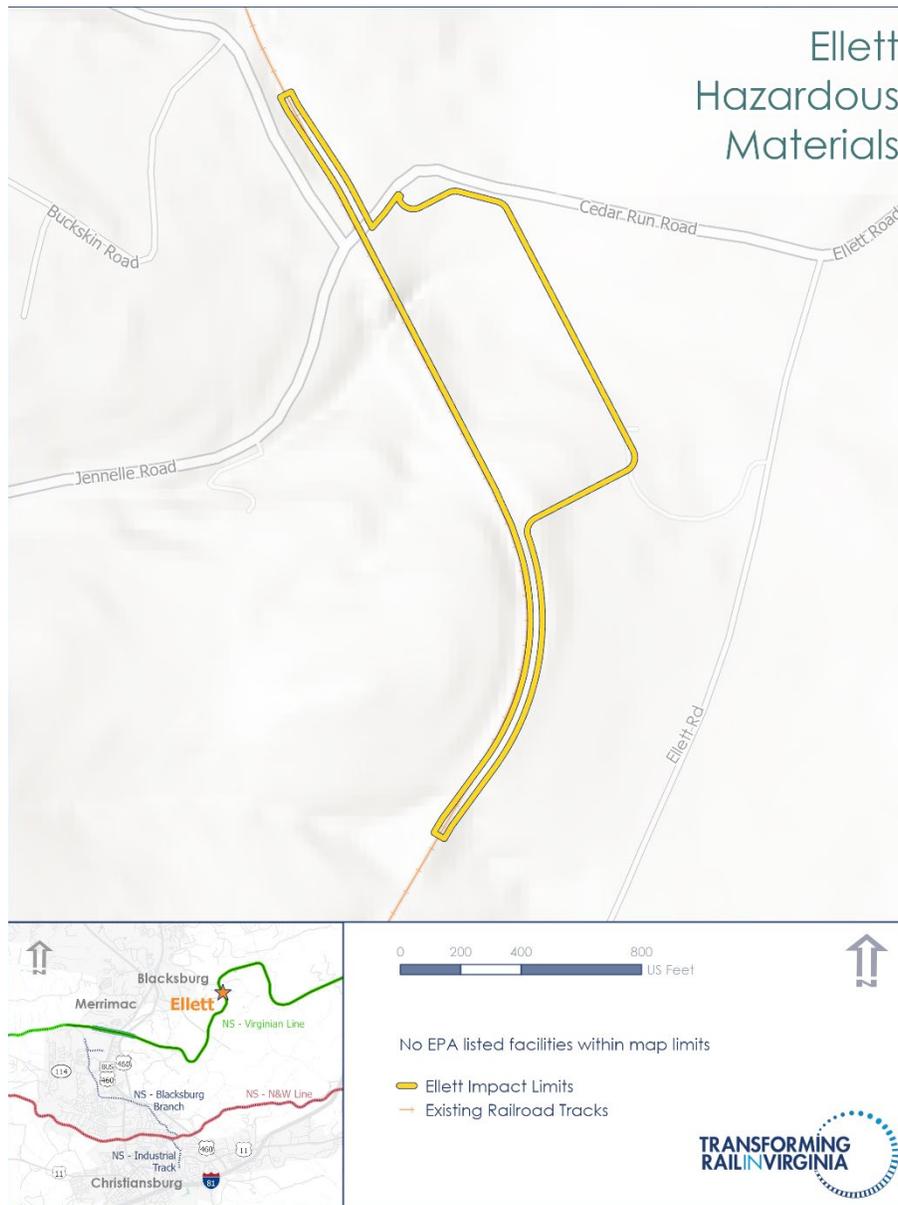


FIGURE 4.20: ELLETT HAZARDOUS MATERIALS

Hazardous Materials – Within the Ellett Alternative impact limits in **Figure 4.20**, there were no known instances of a recorded hazardous waste site identified.

Noise & Vibration – The Ellett Alternative would result in the nearest receptor being a residence east of the existing tracks, approximately 193 feet from the potential station location.



FIGURE 4.21: ELLETT PRIME FARMLAND

Prime Farmland – The impact limits in **Figure 4.21** contain no Prime Farmland and 64% Farmland of Statewide Importance.



FIGURE 4.22: ELLETT ESSENTIAL HABITAT

Protected Species & Critical Habitat – The screening indicated that a Tier I T&E Species Essential (Critical) Habitat identified in the Virginia Wildlife Action Plan may be present within the Alternative footprint as shown in **Figure 4.22**. The actual species associated with this habitat was not identified in the GIS database and would need to be evaluated during subsequent studies.

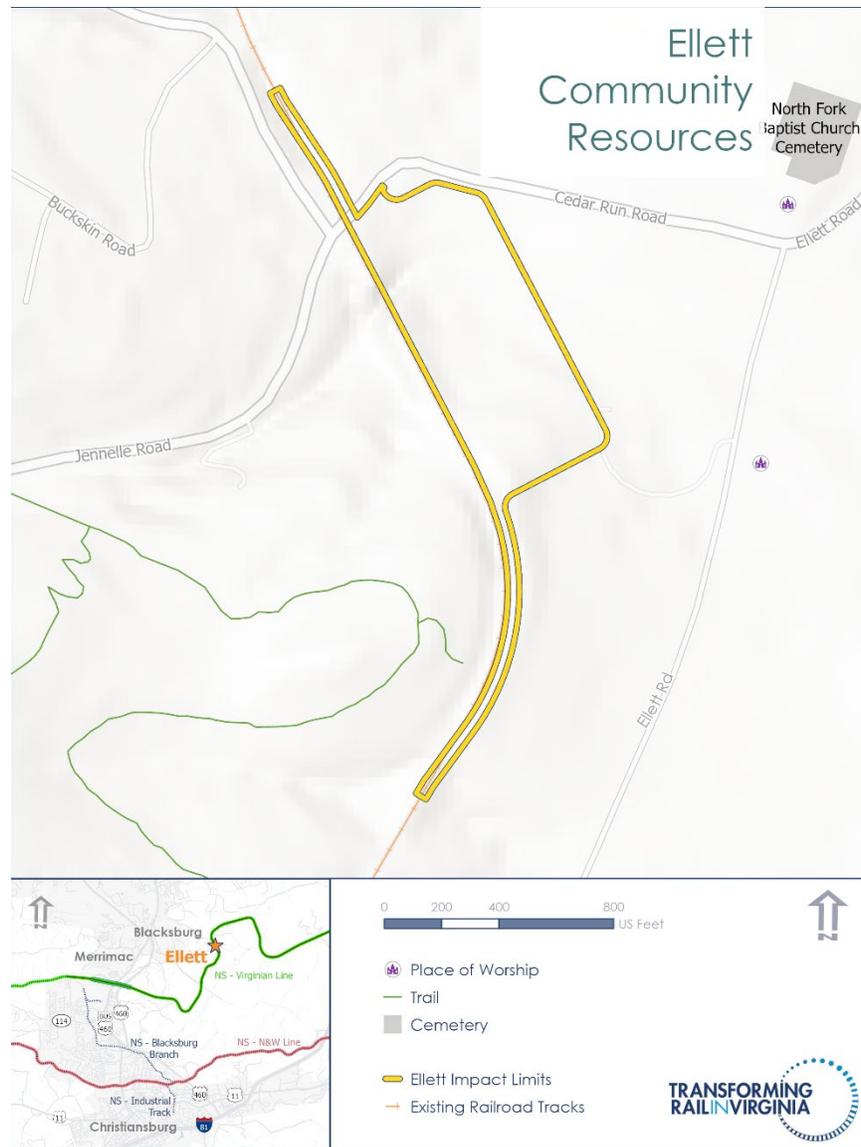


FIGURE 4.24: ELLETT COMMUNITY RESOURCES

Community Resources – There are no community resources within the Ellett impact limits as shown in **Figure 4.24**.

Cultural & Historic Resources – The findings of the cultural and historic resources report found no impacts at this site. See “Cultural and Historic Resources Report” in **Appendix E** for additional information.

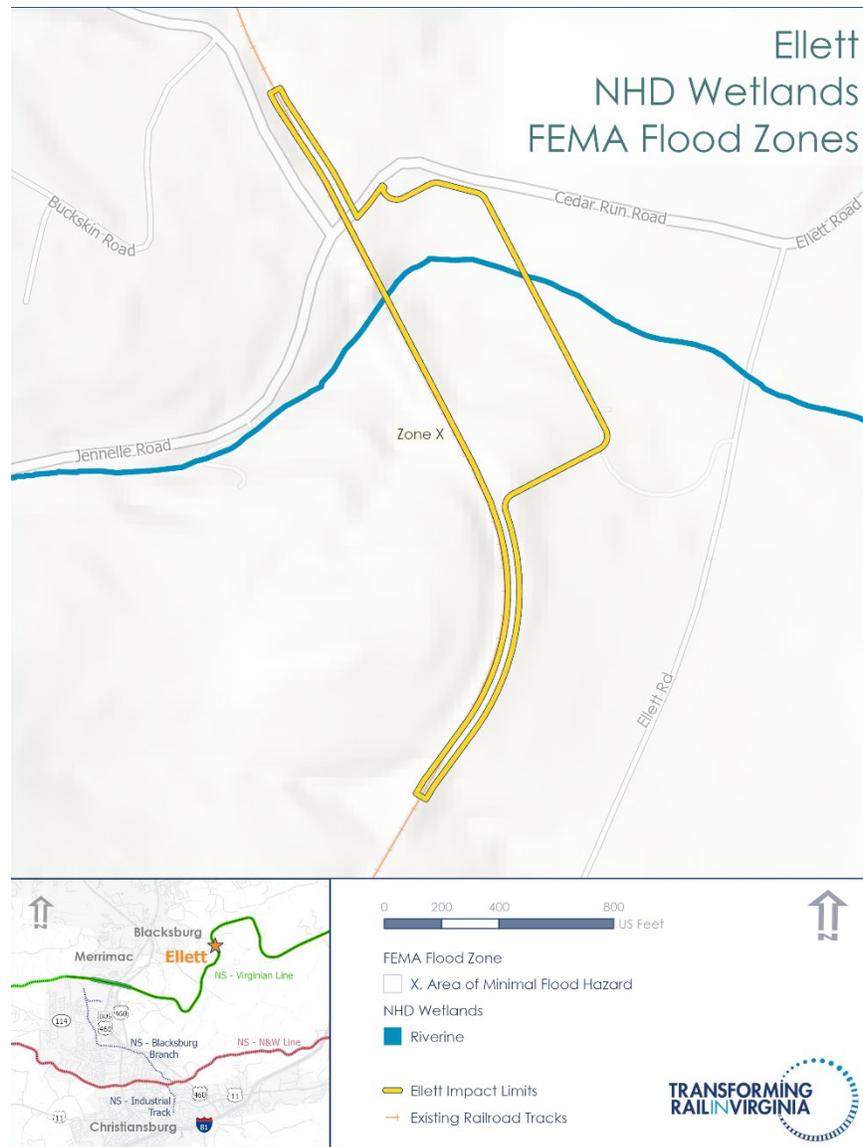


FIGURE 4.25: ELLETT NHD WETLANDS & FEMA FLOOD ZONES

Water Resources – This alternative has one jurisdictional waters feature (stream) within the impact limits as shown in **Figure 4.25**. The stream runs east-west through the impact limits and will need careful design engineering to minimize impacts.

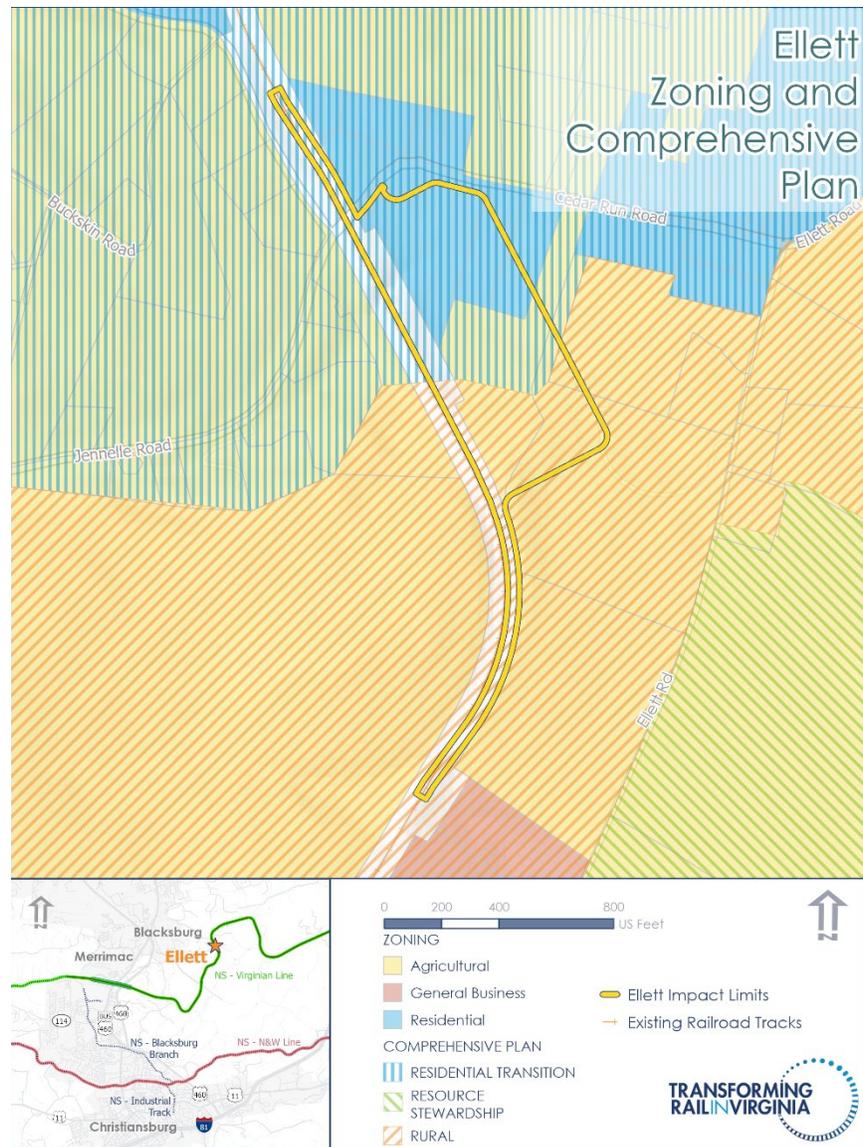


FIGURE 4.26: ELLETT ZONING AND COMPREHENSIVE PLAN

Land Use & Zoning – The land uses in the impact limits shown in **Figure 4.26** are residential and agricultural. Zoning is Residential and Agricultural with resource overlay districts from the Comprehensive Plan. The Ellett Alternative straddles both zoning areas and would require rezoning.



FIGURE 4.27: ELLETT CENSUS TRACTS

Environmental Justice Potential Communities – There is a potential Environmental Justice Community impact associated with Census Tract 208.01 as shown in **Figure 4.27**. The low-income population is 46% within this census tracts as compared to a Statewide average of 25%. The People of Color population is 21%, lower than the statewide average of 38%. The linguistically isolated population is 2%, lower than the statewide average of 3%.

4.3.2 CONCEPT DESIGN CATEGORY SCREENING FINDINGS

A concept design for an Ellett Alternative is shown in **Figure 4.28** followed by the screening criteria findings for this alternative.

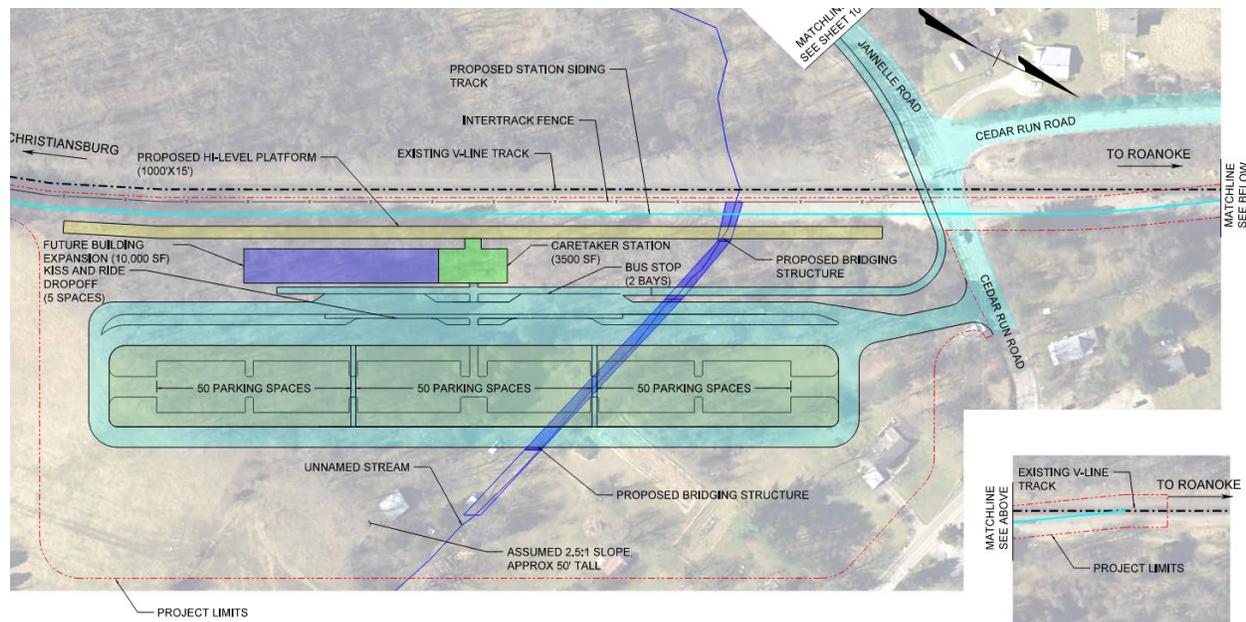


FIGURE 4.28: ELLETT CONCEPT DESIGN

Bicycle and Pedestrian Access – In the existing condition, the area immediately around the Ellett Alternative does not have infrastructure for pedestrians, specifically for pedestrians or cyclists. The nearest roads do not have sidewalks, and shoulders are narrow. A paved pedestrian-cyclist shared-use path over two miles long will need to be constructed to link the Ellett Alternative to South Main Street in Blacksburg (shown in **Figure 4.29**) to provide bicycle and pedestrian access.

Constructability – The proposed Ellett Alternative lies on a slope and requires embankment and may require construction of retaining walls.

Property Acquisition – The proposed Ellett Alternative lies on about six parcels.

Relocations – The proposed Ellett Alternative will require one relocation.

Topography – The proposed Ellett Alternative lies on a large slope. The greatest difference between proposed and existing ground is about 40 feet; fill slopes and retaining walls will be required.

Track Alignment – The proposed station siding is approximately 2,600 feet long and will connect to the existing Virginian Line at both ends with Number 10 turnouts.

Traffic Impacts – The proposed Ellett Alternative construction would have impacts on local traffic.

Transit Access – The proposed Ellett Alternative is approximately 2.1 miles from existing bus routes operated by Blacksburg Transit. It is assumed that Blacksburg Transit would modify bus service to serve the Ellett Alternative.

Utilities – Stations will require utilities including potable water, sewer, electrical and telephone/broadband internet. Research of existing utilities has not been conducted at this stage. However, the Ellett Alternative is on residential and undeveloped properties and will require new utility lines to serve the alternative.

4.3.3 ELLETT ADDITIONAL INFRASTRUCTURE

Each station site requires additional infrastructure to access and support the station. The analysis found that bicycle, pedestrian, and transit access to the Ellett Alternative requires a widened road and the addition of a shared use path off of the station site. This concept is shown in **Figure 4.29** and is followed by the screening criteria findings for this road and shared-use path to Ellett.

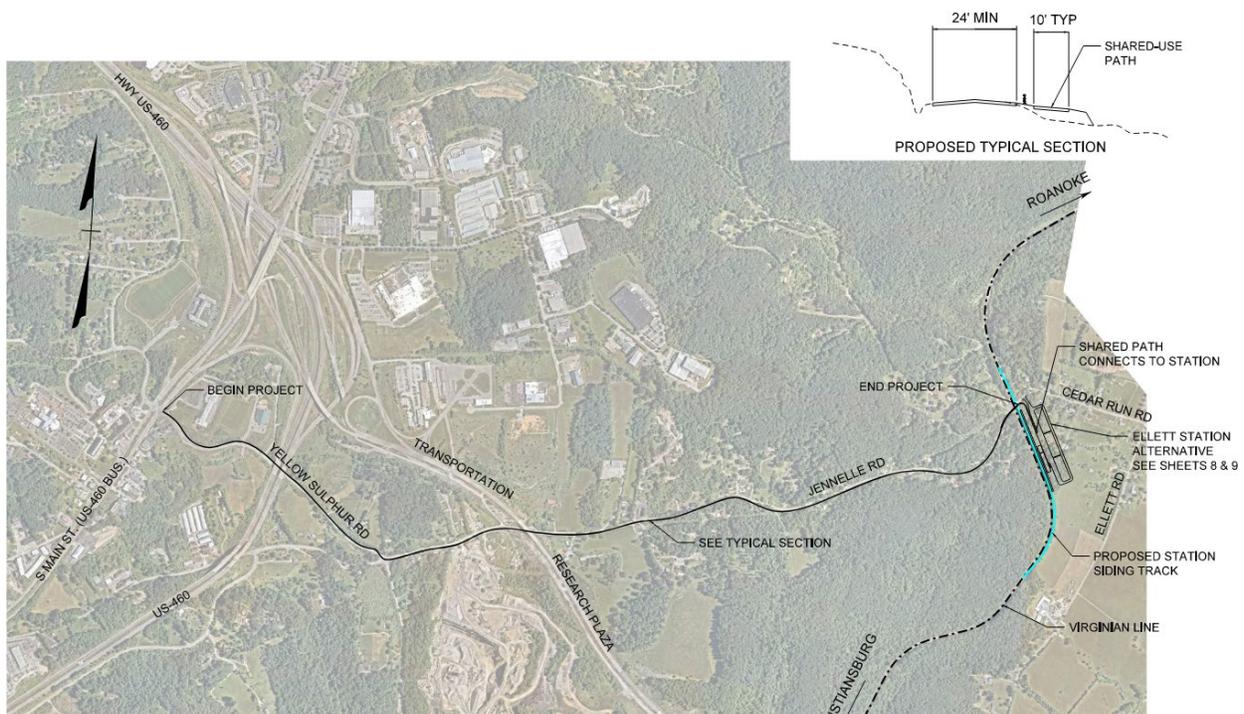


FIGURE 4.29: ROAD & SHARED-USE PATH TO ELLETT

Local Road Access– The Ellett Alternative is adjacent to Cedar Run Road and does not require new access roads. However, to accommodate the multimodal infrastructure needed to support the proposed rail station the existing roadway(s) that would serve the Ellett station will need to be redesigned. Roadway designs would be proposed between Ellett and South Main Street, as indicated on Figure 4.29, to widen the existing roads to include two 12-foot wide travel lanes and a 6-foot multiuse path on either side of the roadway. The concept design of road design and a shared-use path would serve the route from the proposed Ellett station alternative to South Main Street. Specific concepts that alternate the lane widenings from one side of the road to the other to minimize impacts and widening proposal requires more detailed studies to determine precise impacts to traffic, topography, and private property boundaries. As proposed, any concept to widen Cedar Run Road, Jennelle Road, and Yellow Sulphur Road will likely result in numerous property impacts, potential for relocations, and environmental impacts.

Any concept to widen Cedar Run Road, Jennelle Road, and Yellow Sulphur Road will result in numerous property impact, potential for relocations, and environmental impacts. Comparative

analysis of environmental and design categories by impact area indicated that the Ellett Alternative was less feasible than the NRV-N and NRV-W Alternatives and was thus dismissed from further consideration.

4.4 Merrimac Alternative

The Merrimac station alternative is located on the Virginian Line and is approximately one mile from US 460 Business. The somewhat remote location, like the Ellett site outlined in 4.3, is a critical distinction for the Merrimac station alternative. The Merrimac station is proposed on private property south of the Virginian Line and the site was selected and designed to minimize the environmental impacts to the topography and existing stream on the north side of the Virginian Line at this location. The railroad track is relatively straight at this location with a grade sloping down from east to west. A screening analysis resulted in a constructible concept with more environmental impacts than the NRV-N and NRV-W Alternatives.

In Screening One, the Merrimac Alternative did not have any fatal flaws related to safety or railroad operations. In Screening Two, it had similar environmental impacts within the associated Study Area as the other three remaining alternatives.

The following section evaluates the impacts of the Merrimac station alternative that were identified in Screening Three.

4.4.1 ENVIRONMENTAL CATEGORY SCREENING FINDINGS

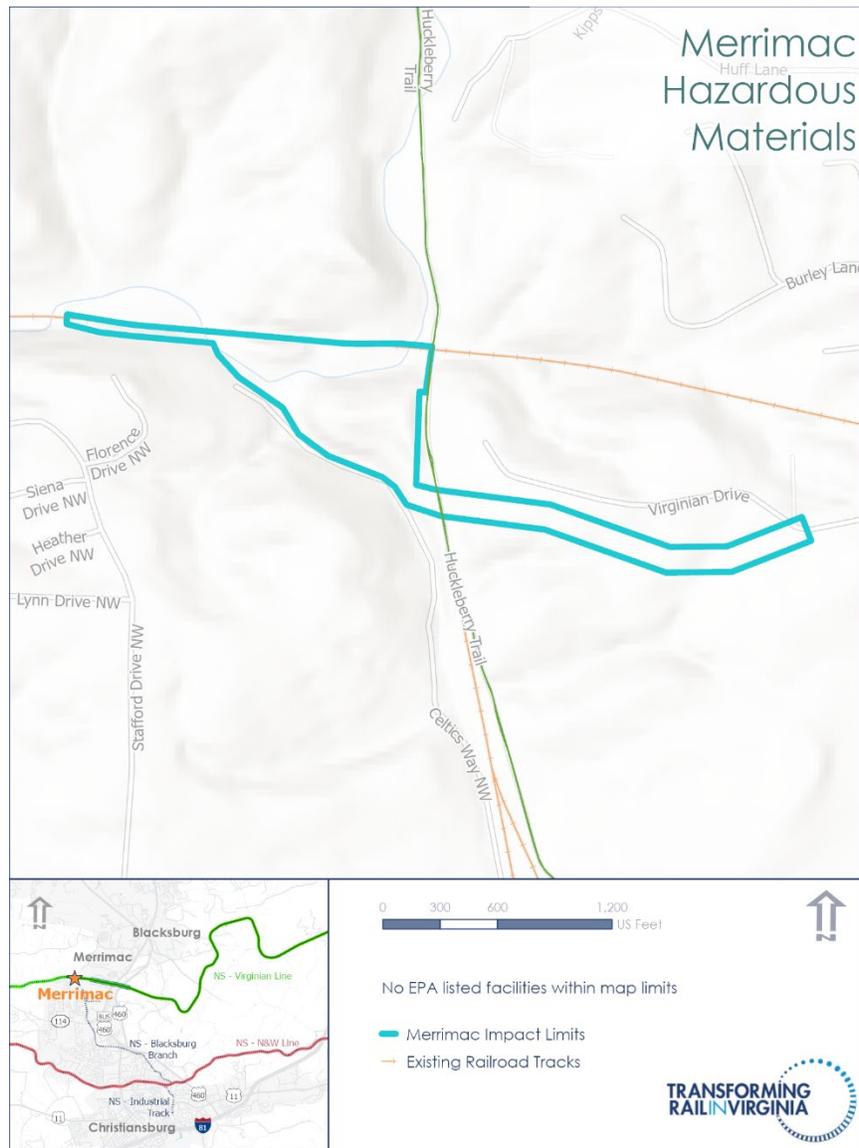


FIGURE 4.30: MERRIMAC HAZARDOUS MATERIALS

Hazardous Materials – Within the Merrimac impact limits in **Figure 4.30**, there were no known instances of recorded hazardous waste sites identified.

Noise & Vibration – The Merrimac alternative would result in the nearest receptor being a residence approximately 650 feet from the potential station location.

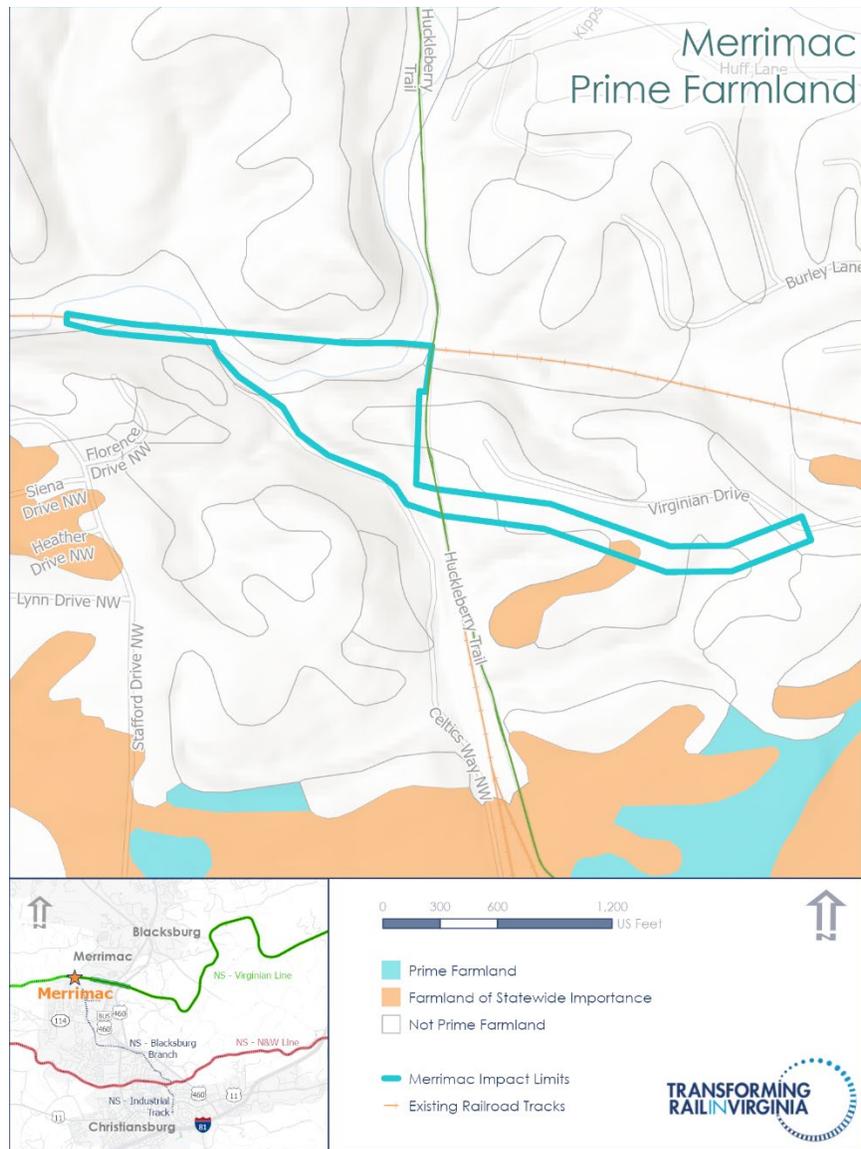


FIGURE 4.31: MERRIMAC PRIME FARMLAND

Prime Farmland – The Merrimac Alternative impact limits in **Figure 4.31** contains no Prime Farmland and 1% Farmland of Statewide Importance.

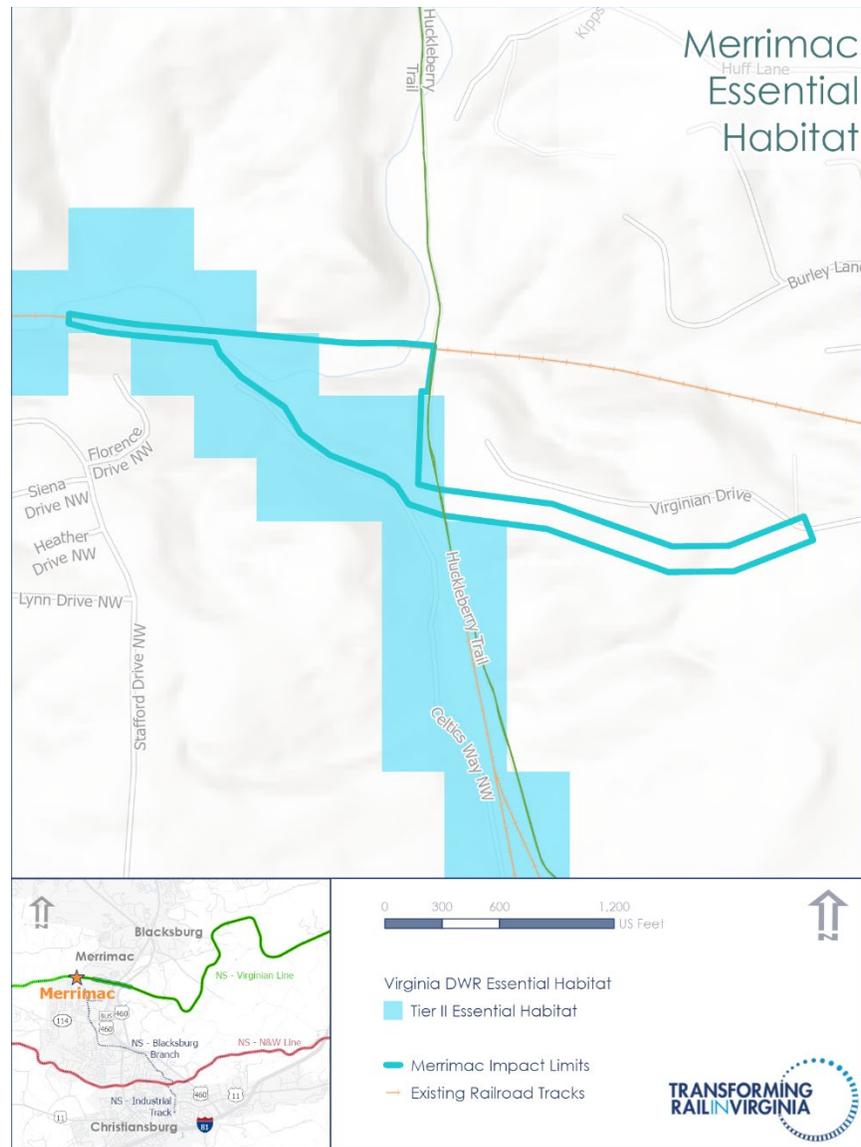


FIGURE 4.32: MERRIMAC ESSENTIAL HABITAT

Protected Species & Critical Habitat – The screening indicated that a Tier II T&E Species Essential (Critical) Habitat identified in the Virginia Wildlife Action Plan may be present within the Alternative footprint as shown in **Figure 4.32**. The actual species associated with this habitat was not identified in the GIS database and would be evaluated during subsequent studies.

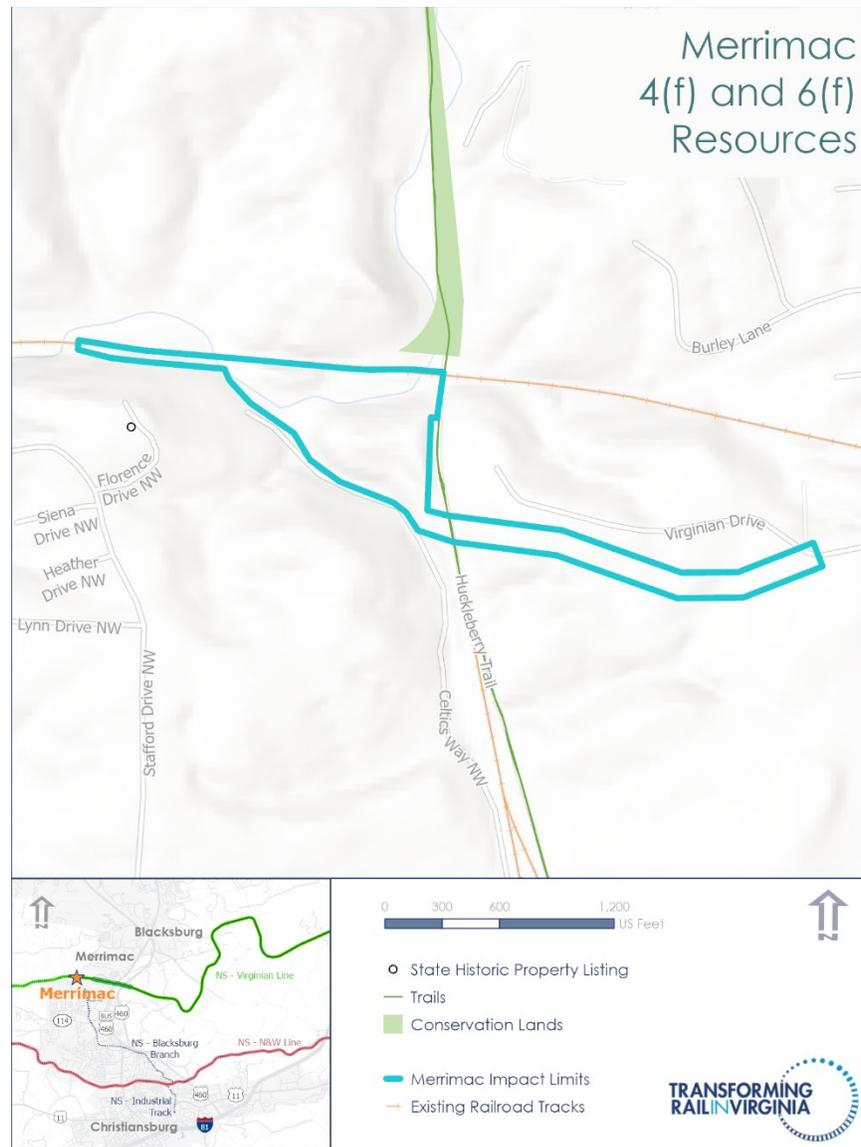


FIGURE 4.33: MERRIMAC 4(F) AND 6(F) RESOURCES

Section 4(f) and 6(f) – FRA environmental reviews comply with 23 CFR Part 774 (Section 4(f)). Properties defined in 23 CFR Part 774 are not located within the impact limits of the alternative shown in **Figure 4.33**. The Virginia Department of Conservation and Recreation maintains a GIS database of Section 6(f) properties. This database indicated part of the Huckleberry Trail as a Section 6(f) property. The Huckleberry Trail is identified as a potential Section 6(f) impact that may be mitigated to a de minimis impact by relocating the trail while maintaining public use of the trail.

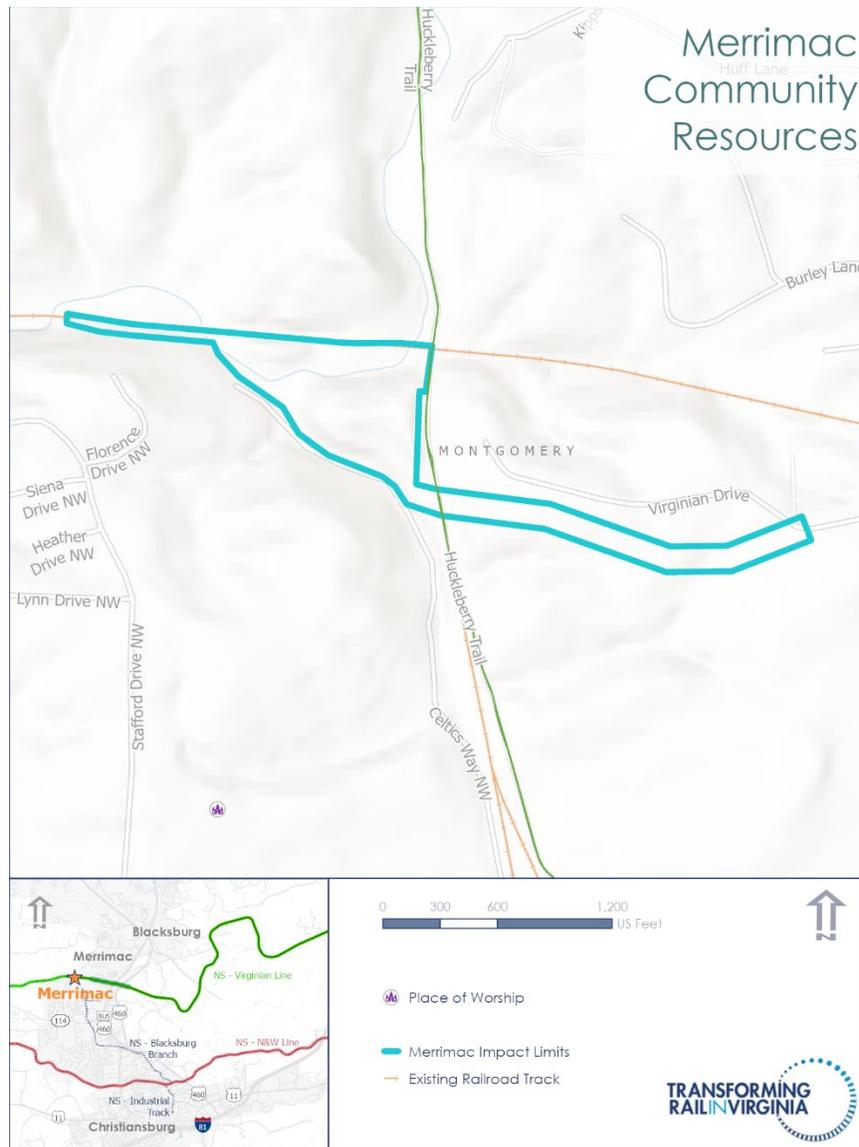


FIGURE 4.34: MERRIMAC COMMUNITY RESOURCES

Community Resources – The Huckleberry Trail is within the impact limits of the Merrimac alternative as shown in **Figure 4.34**. With proper planning, the Huckleberry Trail and the rail station could complement the use of each other.

Cultural & Historic Resources – According to the analysis, no historical and cultural impacts were identified for the Merrimac site. See **Appendix E** “Cultural and Historic Resources Report” for additional details.

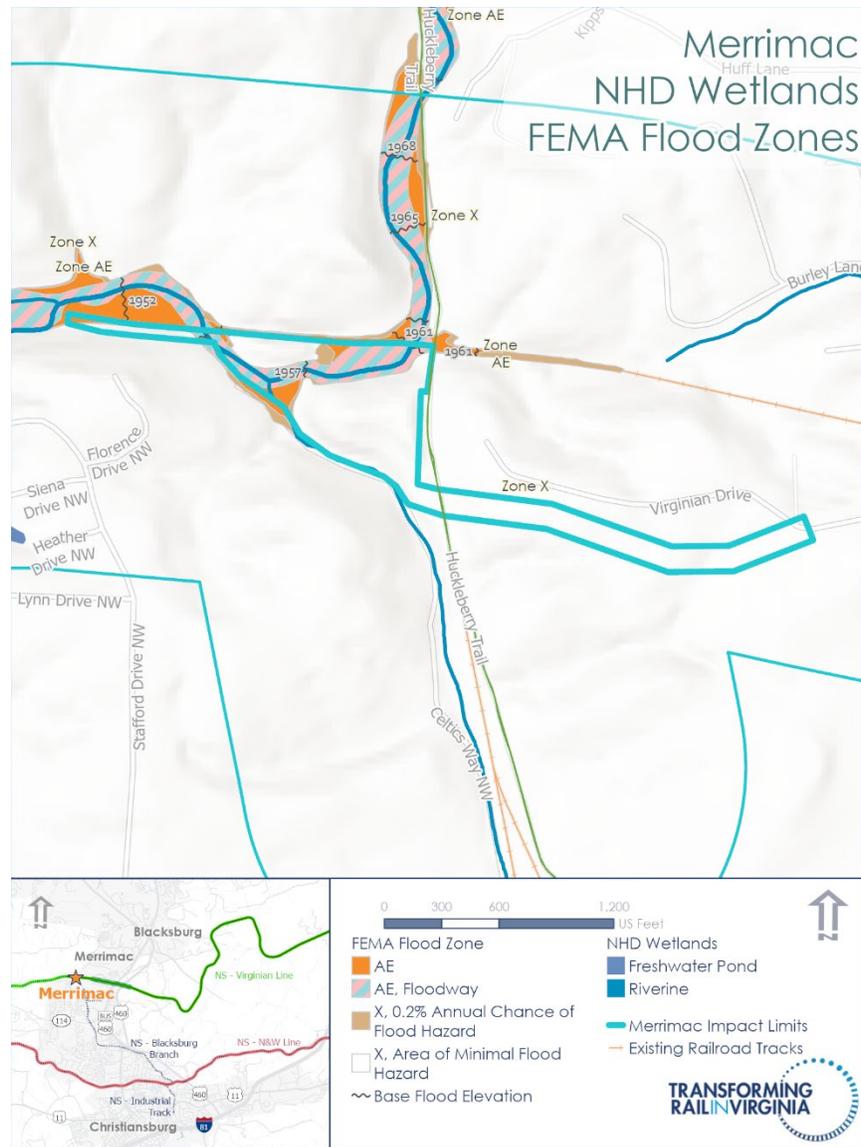


FIGURE 4.35: MERRIMAC NHD WETLANDS & FEMA FLOOD ZONES

Water Resources – There are wetlands, floodplains, and two streams meandering through the impact limits of the Merrimac Alternative as shown in **Figure 4.35**. The design to accommodate these water resources will be challenging, and extensive coordination throughout design and permitting will be required to accommodate station construction within these impact limits. FEMA mapped floodplains in the Merrimac Alternative impact limits are associated with streams; construction in these areas will require mitigation measures that result in no change to the Base Flood Elevation or revisions to the published Flood Insurance Rate Map.



FIGURE 4.36: MERRIMAC ZONING AND COMPREHENSIVE PLAN

Land Use & Zoning – The land uses in the impact limits in **Figure 4.36** are currently wooded with residential to the southwest. Zoning within the impact limits is a mix of Agricultural, Residential, and Planned Mixed Residential. It is anticipated that rezoning would be required.

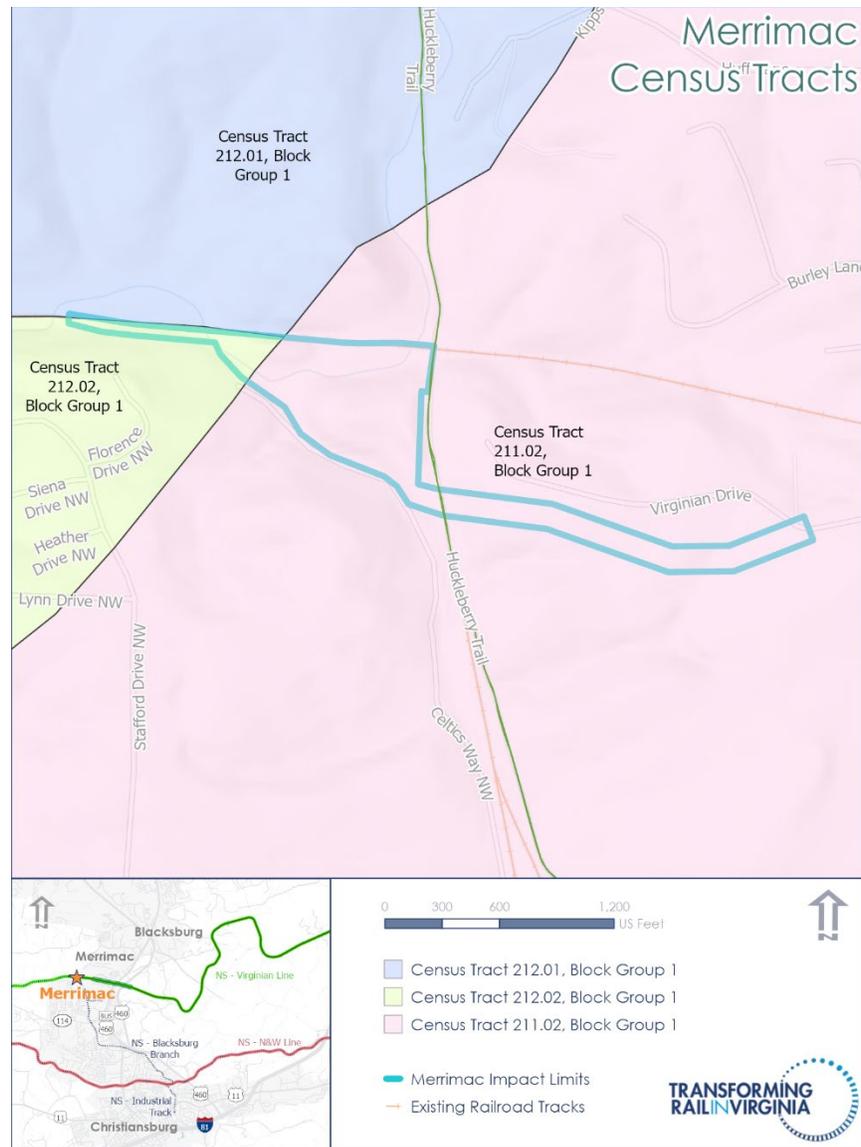


FIGURE 4.37: MERRIMAC CENUS TRACTS

Environmental Justice Potential Communities – There are no potential Environmental Justice Communities within the impact limits as shown in **Figure 4.37**. The low-income population is 25% within these census tracts as compared to a Statewide average of 25%. The People of Color population is 10%, lower than the statewide average of 38%. The linguistically isolated population is 1%, lower than the statewide average of 3%.

4.4.2 MERRIMAC CONCEPT DESIGN CATEGORY SCREENING FINDINGS

A concept design for a Merrimac Alternative is shown in **Figure 4.38** followed by the screening criteria findings for this alternative.

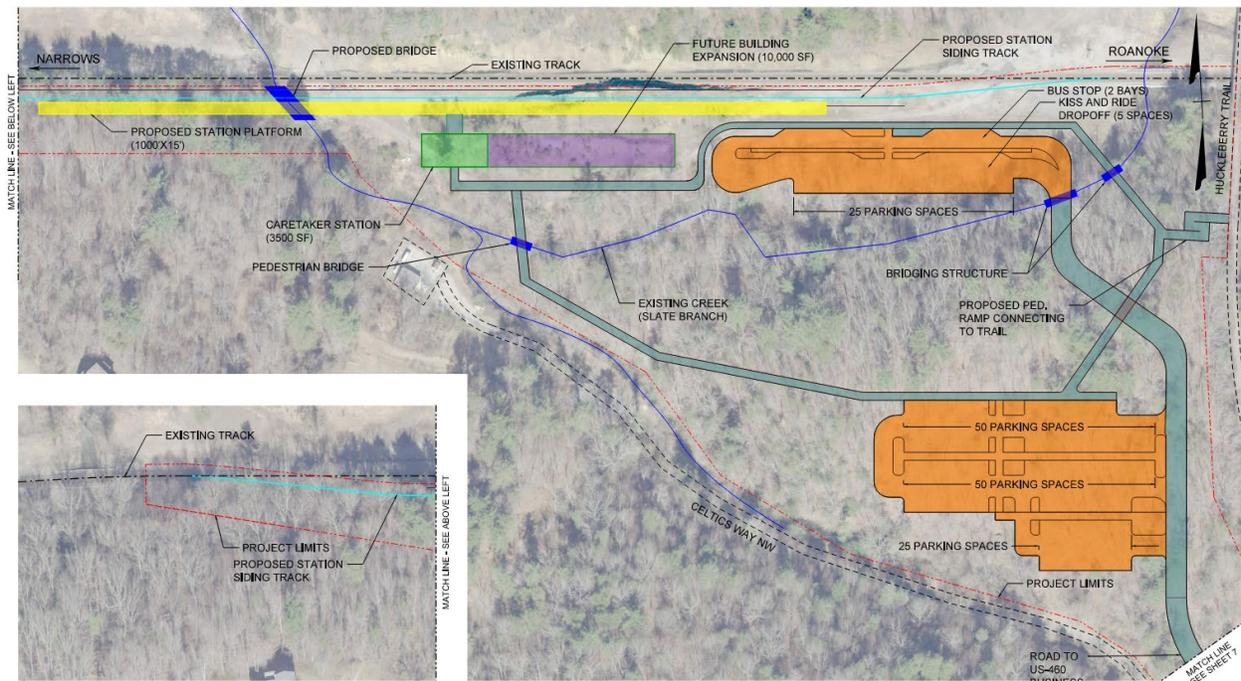


FIGURE 4.38: MERRIMAC CONCEPT DESIGN

Bicycle and Pedestrian Access – An existing shared-use path, called the Huckleberry Trail, is adjacent the Merrimac Alternative but at a significant elevation difference. A paved path and ramps are proposed to connect the Merrimac Alternative to the Huckleberry Trail. The Huckleberry trail connects the area's recreational, cultural, and historical assets and serves as the spine for a 60-mile paved and natural surface trail that includes the Coal Mining Heritage Park, McDonald Hollow Trail Network, Gateway Trail, Poverty Creek Trail System as well as other local systems. Accommodations for continuity and function of the trail will be addressed in the design of the project.

Constructability – The Merrimac Alternative generally sits on a slope and requires excavation and may require construction of retaining walls.

Property Acquisition – The Merrimac Alternative and access road lies on about six parcels.

Relocations – The Merrimac Alternative will require one potential relocation.

Security – The Merrimac Alternative and station siding track are in an undeveloped area that is very hilly, making trespassing difficult. However, intertrack fencing will be provided to prevent passengers from approaching the Virginian Line track.

Topography – The Merrimac Alternative lies on a hilly area; the highest existing ground within the impact limits (excluding the access road) is approximately 100' above the lowest proposed point.

Track Alignment – The proposed station siding is approximately 1700' long and will connect to the existing Virginian Line at both ends with number 10 turnouts.

Traffic Impacts – The Merrimac Alternative construction would have impacts on local traffic.

Transit Access – The Merrimac Alternative is relatively removed from existing transit lines and is approximately 0.8 miles from the nearest bus routes, operated by Blacksburg Transit.

Utilities – Stations will require utilities including potable water, sewer, electrical and telephone/broadband internet. Research of existing utilities has not been conducted at this stage. However, the Merrimac Alternative is undeveloped and will require new utility lines to serve the alternative.

4.4.3 MERRIMAC ADDITIONAL INFRASTRUCTURE

Each station site requires additional infrastructure to access and support the station. The analysis found that in order to provide access to the Merrimac Alternative, a concept design for a new road connecting the site to US 460 (by connection to existing Midway Plaza Drive) will be required. This concept is shown in **Figure 4.39** followed by the screening criteria findings for this road.

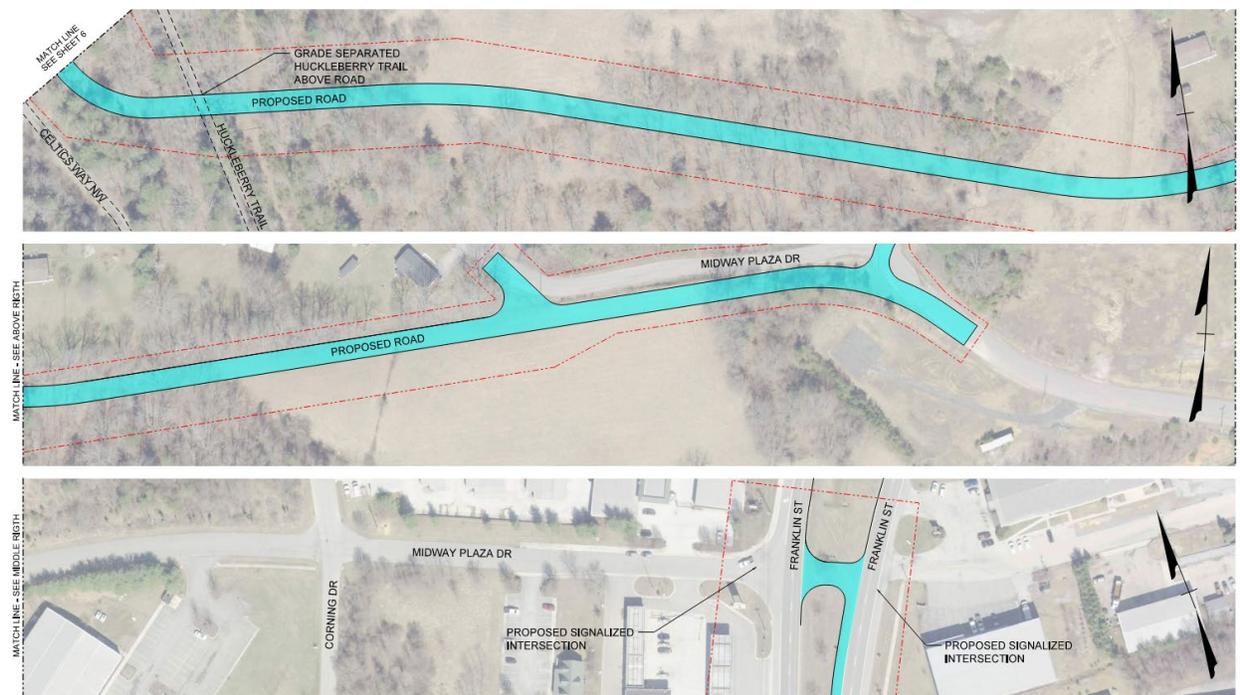


FIGURE 4.39: ROAD TO MERRIMAC

Local Road Access—An access road of about half a mile in length will need to be constructed predominantly across existing private property.

5 Conclusion

The result of the screening analysis developed by this Study, two alternatives will move forward for further environmental review and engineering design by VPRA. Of the five locations for passenger rail stations that entered the screening Study from previous studies there were fatal flaws found in Screening One and in Screening Three stages of the impact analysis.

As indicated in **Figure 5.1**, Screening One – Operational Screening found a fatal flaw in the North Franklin East location resulting in the dismissal of that location. Four remaining locations entered Screening Two – Comparison Study Area Analysis. Environmental comparisons within large study areas resulted in all four areas moving forward. Screening Three – Comparison Alternative Screening compared the environmental impacts and design categories within the concept station alternative impact limits. The final result was that the NRV-N and NRV-W were the two alternatives retained as the most feasible.

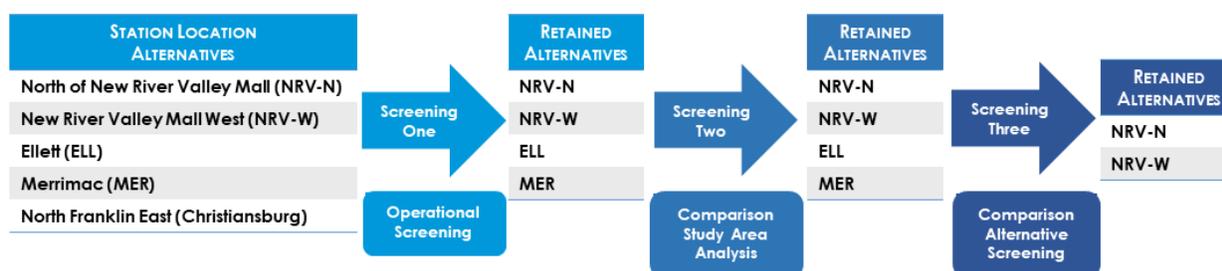


FIGURE 5.1: SCREENING CONCLUSION

The concept designs described in **Chapter 4** above were based on avoiding environmental resources identified during Screening Two. The Comparison Alternative Screening developed a more detailed analysis of environmental and design impacts within the footprint (impact area) of the concepts for each station alternative. Two alternatives, NRV-N and NRV-W emerged as the most feasible based on analysis of available data for this screening.

Therefore, the Study recommended that NRV-N and NRV-W are carried forward and for VPRA to complete additional environmental review and engineering design for the two alternatives.

Should federal funding be awarded to the future NRV Station, the NEPA environmental process will commence. The study areas and concept design areas for the two NRV Mall alternatives are overlapping, and additional study will examine whether or not a combined “NRV Mall” alternative be recommended in the future.