VRE MANASSAS LINE
Rail-with-Trail Feasibility Study

Phase 1: Downtown Manassas to Bull Run Occoquan Trail

MANASSAS PARK VIRGINIA

Manassas
HISTORIC HEART. MODERN BEAT.

PRINCE WILLIAM COUNTY

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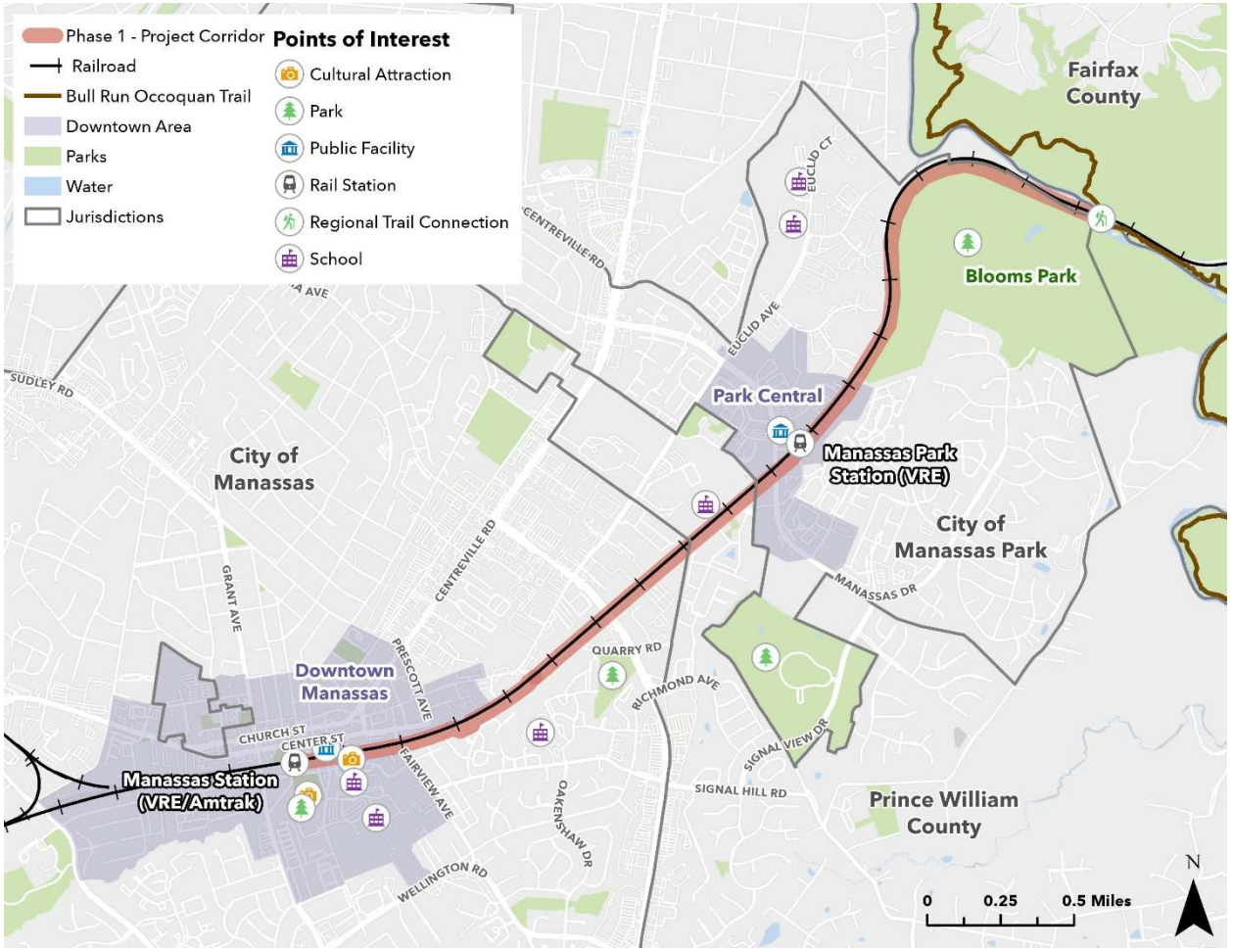
Introduction and Project Understanding

Project Understanding

This study evaluated the feasibility of implementing Phase 1 of the Virginia Railway Express (VRE) Manassas Line Rail-with-Trail, focusing on a 3-mile connection between Downtown Manassas and the Bull Run Occoquan Trail in Fairfax County, shown in **Figure 1**. The Manassas Line Trail is identified in the Northern Virginia Transportation Authority's (NVTA) TransAction long-range multimodal transportation plan (ID 439), as well as Visualize2050 – the long-range transportation plan for metropolitan Washington, D.C. approved by the National Capital Region Transportation Planning Board (TPB).

Figure 1: VRE Manassas Line Trail – Phase 1 Corridor



A rail-with-trail (RWT) is a shared-use path or multi-use trail that is developed adjacent to or within an active railroad corridor, where freight rail, passenger rail, or rail transit operations continue to occur. Unlike abandoned rail corridors, rail-with-trail facilities coexist with active rail infrastructure and are typically separated from rail operations through a combination of distance, fencing, grade separation, and other context-sensitive design and safety treatments.

Rail-with-trail projects are often confused with rail-to-trail conversions, but the two represent fundamentally different corridor conditions and implementation contexts.

- Rail-to-trail projects convert inactive or abandoned rail corridors into trails, typically through the railbanking process, and do not involve active rail operations.
- Rail-with-trail projects retain active rail service and introduce a parallel trail facility within or alongside the same right-of-way.

From a transportation perspective, rail-with-trails expand active transportation options by creating low-stress, off-street facilities for walking and bicycling, often in corridors that directly connect population centers, employment areas, and activity hubs. Rail-with-trails can also deliver economic and community benefits, including increased property values, enhanced tourism, and support for local businesses along the corridor.

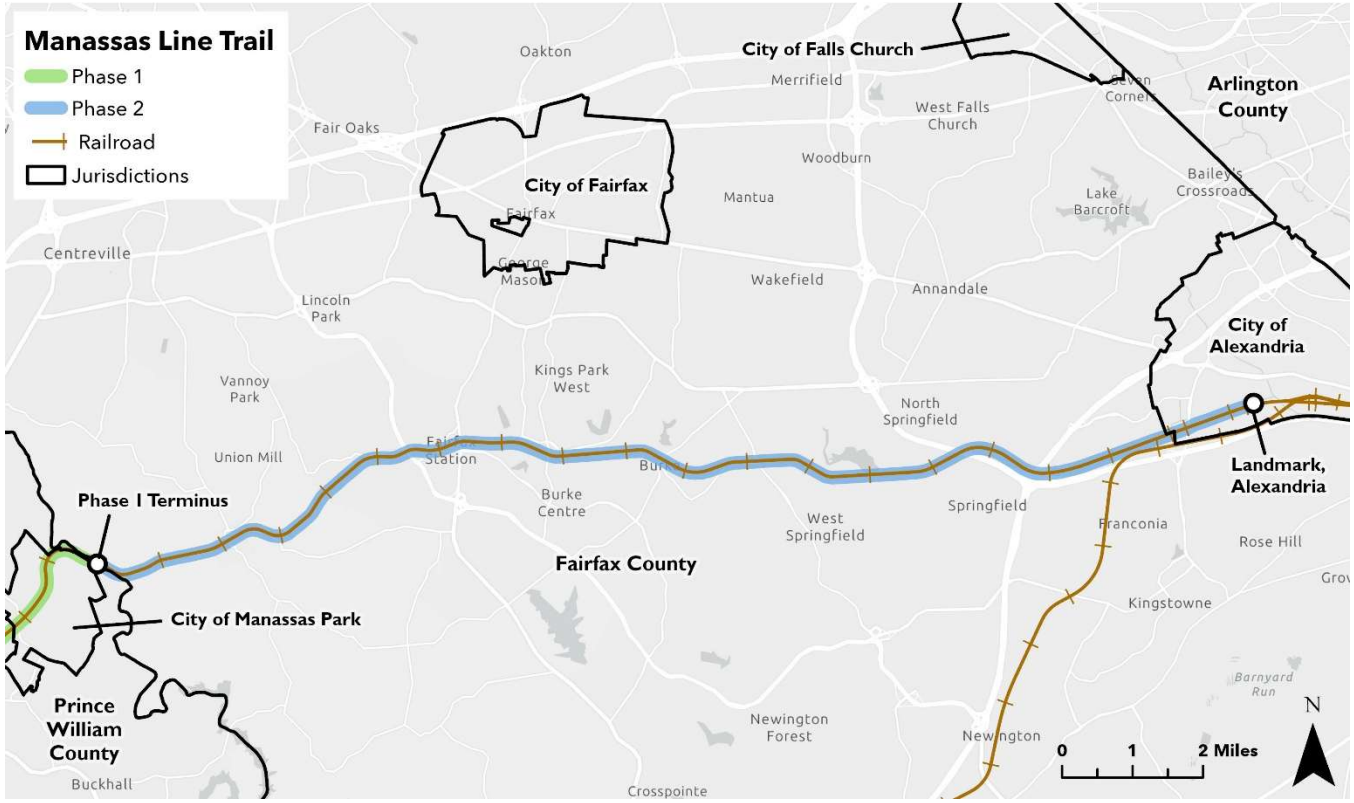
Safety is a central consideration in rail-with-trail planning, and the Federal Highway Administration (FHWA) and the Federal Railroad Administration (FRA) guidance is clear that rail-with-trails can be designed and operated safely when appropriate design, operational, and maintenance practices are applied. National studies conducted over 15 years found no documented cases of rail-with-trail facilities increasing railroad trespassing casualties, and in some cases observed reductions in trespassing due to improved corridor definition and fencing.

FHWA's *Rails-with-Trails: Best Practices and Lessons Learned* report identifies effective safety strategies, including physical separation, access control, coordinated maintenance agreements, clear signage, and early and ongoing coordination with rail operators. The report emphasizes that rail-with-trail projects are not "one-size-fits-all" solutions, but rather require corridor-specific analysis to balance trail user safety with railroad operational needs.

FHWA recognizes rail-with-trails as part of a broader approach to combined transportation corridors, where multiple modes such as rail, pedestrian, and bicycle facilities are accommodated within a shared right-of-way.

When complete, the Manassas Line Trail corridor will be part of a continuous connection between Downtown Manassas and Landmark, Alexandria along the VRE Manassas Line. Phase 2 of the trail, shown in **Figure 2**, intends to complete the corridor by connecting the eastern terminus of Phase 1 at Bull Run to the VRE/Amtrak station in Landmark, Alexandria. The completed corridor will extend more than 20 miles and provide pedestrian and bicycle connections to VRE and Amtrak passenger rail service and many key destinations across six jurisdictions – the City of Manassas, Prince William County, City of Manassas Park, Fairfax County, Town of Clifton, and City of Alexandria. This would be a monumental facility that is one of a kind for these jurisdictions, making essential progress in active transportation access across the region.

Figure 2: Manassas Line Trail – Phase 2



The project team identified several key outcomes for this Phase 1 feasibility study, with goals to:

- Determine the most feasible alignment for the trail along the corridor through an assessment of existing conditions and field reconnaissance

- Determine the optimal surface type for different contexts along the corridor
- Garner support from various stakeholders, property owners, and the public
- Develop cost estimates and concept developments to pursue implementation funding

About the Area

The City of Manassas hosts the western terminus of the project corridor at the Manassas VRE Station, located within its historic downtown which serves as an activity hub for the region. The City spans 10 square miles and is home to more than 42,000 residents. Catalyzed by an update to its Mobility Master Plan completed in 2025, the City has made significant recent investments in bicycle and pedestrian improvements. These include shared-use paths, sidewalks, and bike lane projects filling critical gaps in the network, as well as safety studies, streetscape improvements, and early planning for a future Downtown Mobility Hub.

The City of Manassas Park hosts the eastern terminus of the corridor in Blooms Park. The City spans 3 square miles and has around 17,000 residents. Park Central—the city's transit-oriented, mixed-use town center—sits adjacent to the trail corridor as well. The City recently completed an Active Transportation Plan and a Vision Zero Action Plan, which aims to fill critical bicycle and pedestrian network and safety gaps with several targeted improvements, including the Rail-with-Trail project. The City has initiated and completed several of these projects, which have improved multimodal safety and connectivity in key areas.

Prince William County hosts the trail corridor as it crosses between the City of Manassas and City of Manassas Park, bridging a key connection point between the two. Prince William County is the second largest jurisdiction in Virginia and partners with regional entities to plan, fund, and implement transportation projects. The County has invested in strategic planning efforts for active transportation including a Comprehensive Traffic Safety Action Plan and the pending Trails Master Plan, anticipated to be adopted in Spring 2026. These plans, along with improved trail connections between parks and ongoing efforts to implement policies outlined in the County's Mobility Chapter of the Comprehensive Plan, aim to expanded active transportation connections throughout the County.

Stakeholder Engagement

During the feasibility study process, the project team partnered and consulted with stakeholders along the corridor including VRE, the Virginia Passenger Rail Authority (VPRA), Dominion Energy, Fairfax County, Virginia Department of Transportation (VDOT), Virginia Department of Conservation and Recreation (DCR), and the Northern Virginia Regional Park Authority (NOVA Parks). Additionally, the team understood future requirements and coordination with Norfolk Southern, as the City of Manassas has implemented multiple pedestrian at-grade railroad crossings with Norfolk Southern. These stakeholders play various roles within the project area, including rail operators (Norfolk Southern, VRE, and Amtrak), landowners (VPRA, NOVA Parks, VDOT, and Fairfax County), lessees (Dominion Energy), and maintenance (VDOT for the roads and Norfolk Southern for the railroad). Meetings were held with each stakeholder entity to communicate project information, discuss the feasibility of locating the trail within or adjacent to their right-of-way, and understand any future development plans that may affect the feasibility of the Phase 1 Manassas Line Trail.

Needs Analysis

The Phase 1 Manassas Line Trail will be accessible by 18,629 residents within a half mile of the corridor. This will enable residents to use the trail for commuting and accessing various destinations. As detailed further in the Public Engagement section, many community members have expressed they intend to use the trail frequently for their routine trips and activities, and they see it as a high value add to their quality of life. The trail will also drive more activity for local businesses, increase ridership on rail and bus transit, and foster greater social participation for the growing communities. The anticipated benefits of the trail can be summarized into the following categories:

MOBILITY AND CONNECTIVITY

Connecting users to their destinations and to other modes of transportation.

HEALTH AND QUALITY OF LIFE

Boosting the physical and mental health of the community by offering space for recreation and connections to natural environments.

ENVIRONMENT

Mitigating the impact of greenhouse gases by reducing the number of trips taken by vehicle.

ECONOMIC

Creating more access and activity for local businesses and events.

SAFETY

Providing safe routes for walking and biking as an alternative to sharing busy roads with cars.

REGIONAL CONNECTIONS

Providing an important first piece of what will be an impactful regional active transportation corridor—and connecting to regional rail and bus transit.

Users and Purposes Served

Phase 1 of the Manassas Line Trail will serve as an important multimodal transportation connection for the region and will support several types of users, connect key destinations, and various trip purposes including:

- Daily commutes to work or school
- Neighborhood trips to the grocery store, restaurants, medical offices, retail, and more
- Recreational trips for exercise or to parks and natural environments

The fundamental purpose of the Phase 1 Manassas Line Trail is to provide active transportation connections to support local mobility and to serve as a catalyst for beginning Phase 2 and achieving regional mobility. As mentioned, the Phase 1 trail will connect Downtown Manassas with the Manassas Park VRE station, which had a combined 625 daily boardings by travelers between January and July 2025. Also in 2025, VRE and the City of Manassas Park opened a new parking garage at the Manassas Park station, bringing 540 additional parking spaces to VRE riders and visitors of Park Central. This is in addition to the existing parking lot at the station with 600 spaces for riders. The garage was constructed in response to an identified need to accommodate growing ridership at the station and significant residential development in the surrounding area. On the other hand, the Downtown Manassas station is surrounded by existing mixed-use development with very limited opportunity to expand parking capacity for commuters. The City of Manassas partnered with VRE and the Potomac and Rappahannock Transportation Commission (PRTC) on a long-term study for a potential Downtown Mobility Hub that would provide centralized transit connection and serve as a vibrant public space with diverse mobility options.

The Phase 1 Manassas Line Trail will accommodate and attract increased ridership and activity at these developing mobility hubs by magnifying the walk- and bike-sheds around both stations, as well as provide essential first- and last-mile active transportation connections for residents, commuters, and visitors. Like the VRE stations, the trail will also expand access to the downtown activity hubs, key destinations, and surrounding points of interest. And when considering connections to other existing and planned bicycle and pedestrian facilities, the Phase 1 Manassas Line Trail will allow residents and visitors to walk and bike for trips they currently take with a vehicle, and provide new access to those who do not own a vehicle.

Key Destinations Connected

Focused on expanding transportation options and local mobility, the Phase 1 Manassas Line Trail will provide essential connections to key destinations across the Cities of Manassas and Manassas Park and Prince William County, serving the various users described above. These destinations are summarized in **Figure 3** below.

Figure 3: Key Destinations Served

DOWNTOWN MANASSAS

The historic core of the city—a vibrant, walkable environment offering various dining, shopping, cultural, and community experiences.

PARK CENTRAL

The City of Manassas Park's recently developed mixed-use activity center serving as the hub of the community. Park Central is home to City Hall, has diverse dining and shopping options, and hosts many community events throughout the year.

COMMUTER RAIL STATIONS

VRE stations in Manassas and Manassas Park connect commuters to their jobs in Fairfax City, Fairfax County, Alexandria, Arlington, and Washington, D.C.

BUS TRANSIT

OmniRide bus stations in Manassas and Manassas Park offer connections to other local and regional destinations such as Manassas Mall, Northern Virginia Community College, and Tysons Corner Center.

SCHOOLS

Connections to local elementary, intermediate, and high schools for students, families, and staff.

PARKS

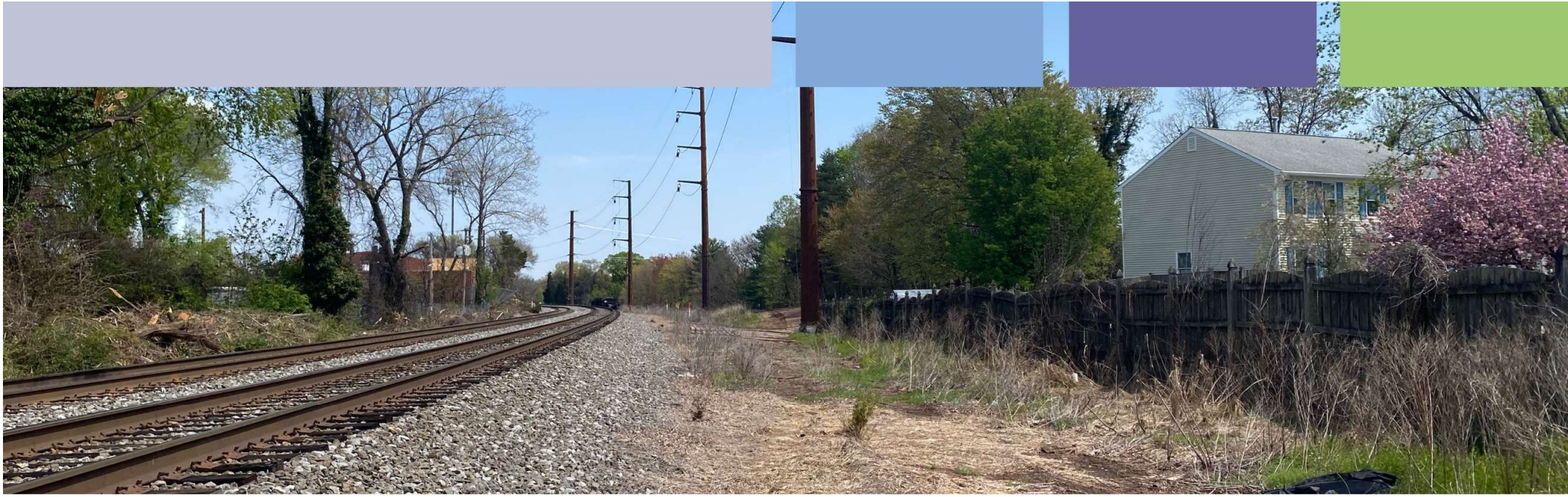
The trail will connect through Blooms Park—280 acres of forest, streams, wildlife, and trails, bordered to the north by Bull Run. The trail will also provide connections to Signal Hill Park, Baldwin Park, and Hemlock Overlook Regional Park.

BULL RUN

The Phase 1 trail's northeastern endpoint will include a bridge across Bull Run to connect Blooms Park to the Bull Run Occoquan Trail—a 19.7 mile trail that connects through Bull Run Regional Park and Hemlock Overlook Regional Park. Bull Run itself serves as a designated blueway and offers kayaking and fishing activities.

COMMUNITY AND CULTURAL EVENTS

Experiences along the trail corridor include the Manassas Farmers Market, Manassas Museum, Mayfield Fort Site, and other events that happen in Downtown Manassas and Park Central.



Existing Conditions

Existing Conditions

Data Collection and Base Mapping

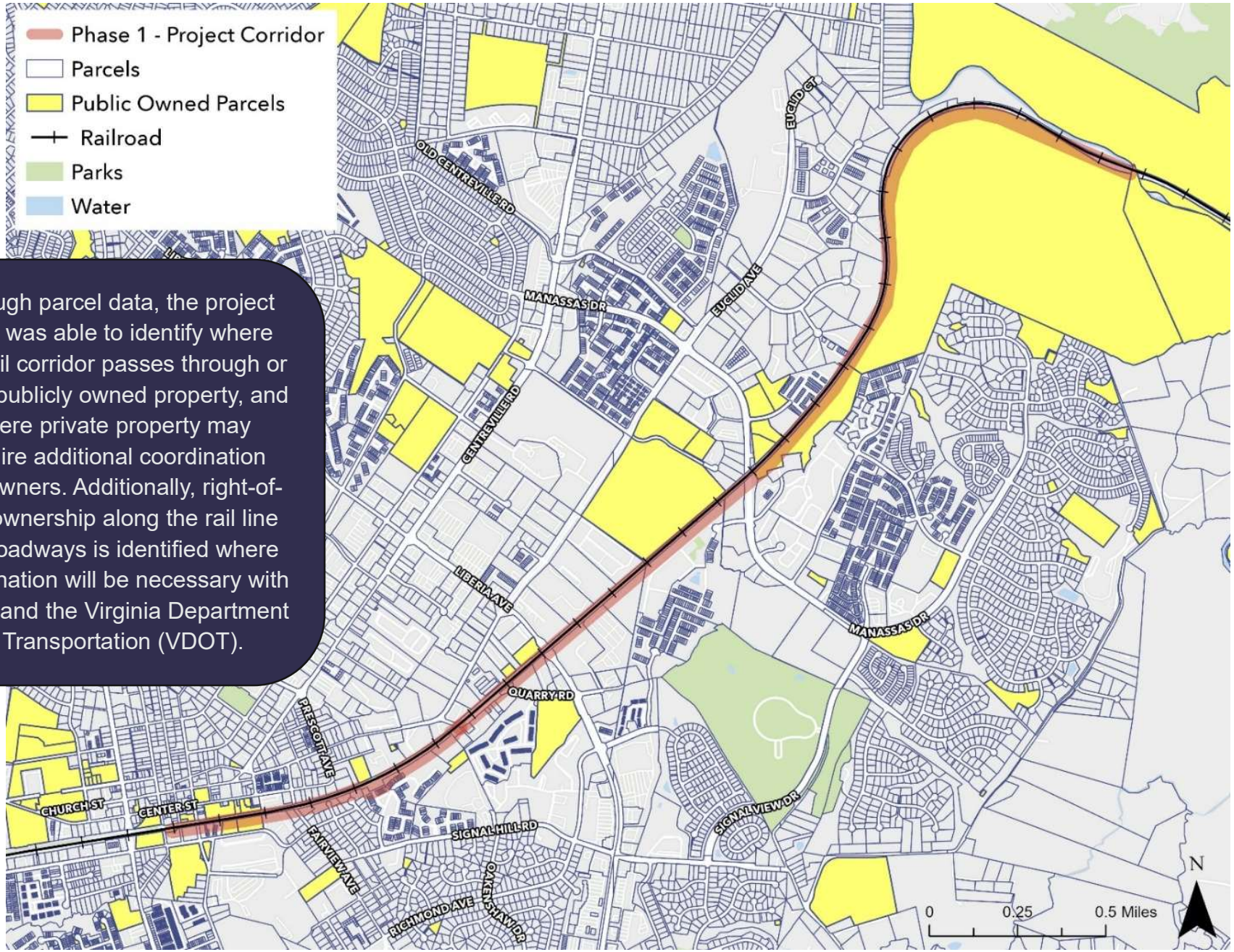
A key first step in the feasibility study process was gathering and assessing relevant spatial data that could present benefits, strengths, or constraints along the trail alignment. **Table 1** and **Figure 4 - Figure 10** detail and display the data that was collected and used for desktop analysis to inform the development of potential trail alignments. This effort focused on leveraging existing strengths—such as connections to key destinations and other multimodal facilities—while identifying potential constraints posed by environmental factors, such as wetlands or conservation easements. Additionally, this data collection helped identify areas where additional coordination with owners of adjacent properties, easements, or rights-of-way would be required.

Table 1: Data Collection Summary

Associated Figure	Data	Source	Spatial Analysis Application
Figure 4: Parcels	**Parcels**	City of Manassas, City of Manassas Park, Prince William County	Used to help identify publicly owned parcels within the project area to avoid impacts to private properties.
Figure 5: Existing Multimodal Facilities	**Existing Multimodal Facilities** *Bicycle, Pedestrian, Public Transit*	City of Manassas, City of Manassas Park, Prince William County, Fairfax County, OmniRide	Used to identify potential connections to existing local and regional transportation facilities.
	Rail Stations	Virginia Railway Express	Used to identify potential connections to regional passenger rail service.

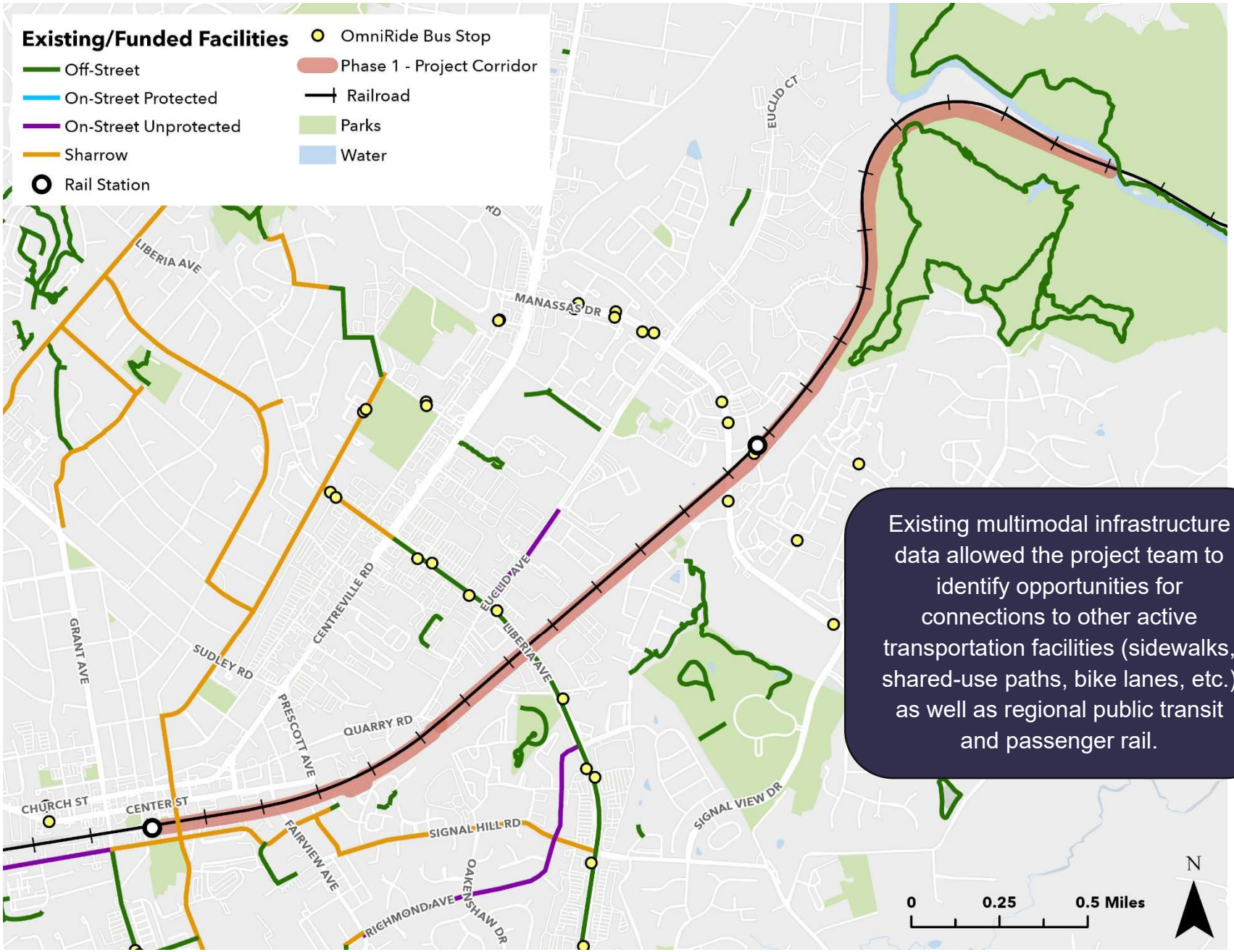
Associated Figure	Data	Source	Spatial Analysis Application
Figure 6: Key Destinations - Western Area **Figure 7:** Key Destinations - Eastern Area	**Points of Interest**	City of Manassas, City of Manassas Park, Prince William County	Used to identify potential connections to nearby key destinations and activity centers.
	Parks	City of Manassas, City of Manassas Park, Prince William County, Fairfax County	Used to identify potential connections to nearby parks as key destinations.
Figure 8: Wetlands in Blooms Park **Figure 9:** Contours in Blooms Park	**Wetlands**	National Wetlands Inventory	Used to identify and avoid potential wetland impacts of the trail alignment.
	Conservation Easements	Virginia Department of Conservation and Recreation	Used to identify and avoid impacts to conservation easements.
	Contours	Fairfax County	Used to identify and navigate steep slopes along the trail alignment.
N/A	**Dominion Electric Easement**	Dominion Energy	Used to identify sections of the trail alignment where coordination with Dominion Energy will be necessary.

Figure 4: Parcels



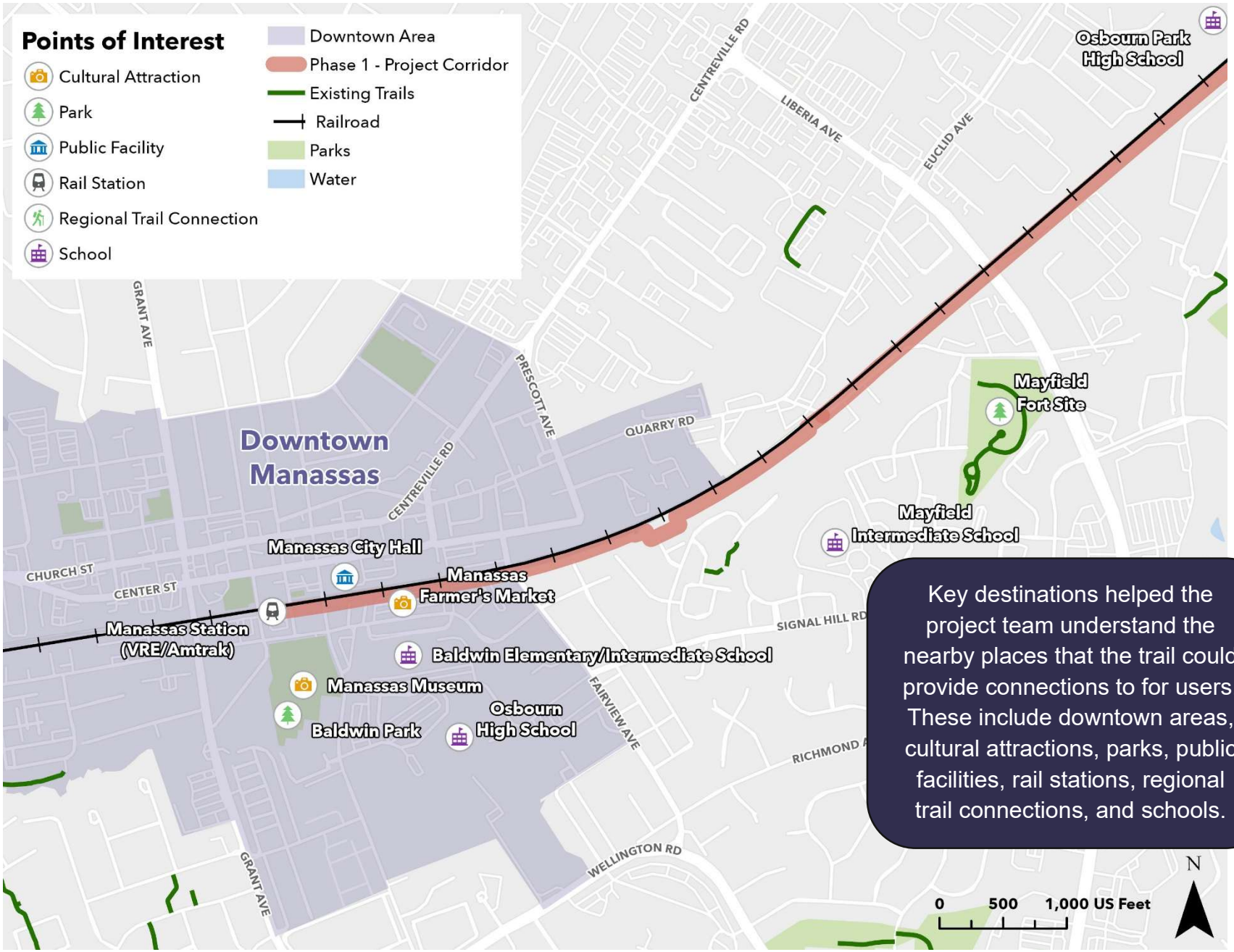
Through parcel data, the project team was able to identify where the trail corridor passes through or along publicly owned property, and where private property may require additional coordination with owners. Additionally, right-of-way ownership along the rail line and roadways is identified where coordination will be necessary with VPRA and the Virginia Department of Transportation (VDOT).

Figure 5: Existing Multimodal Facilities



Existing multimodal infrastructure data allowed the project team to identify opportunities for connections to other active transportation facilities (sidewalks, shared-use paths, bike lanes, etc.) as well as regional public transit and passenger rail.

Figure 6: Key Destinations - Western Area



Key destinations helped the project team understand the nearby places that the trail could provide connections to for users. These include downtown areas, cultural attractions, parks, public facilities, rail stations, regional trail connections, and schools.

Figure 7: Key Destinations - Eastern Area

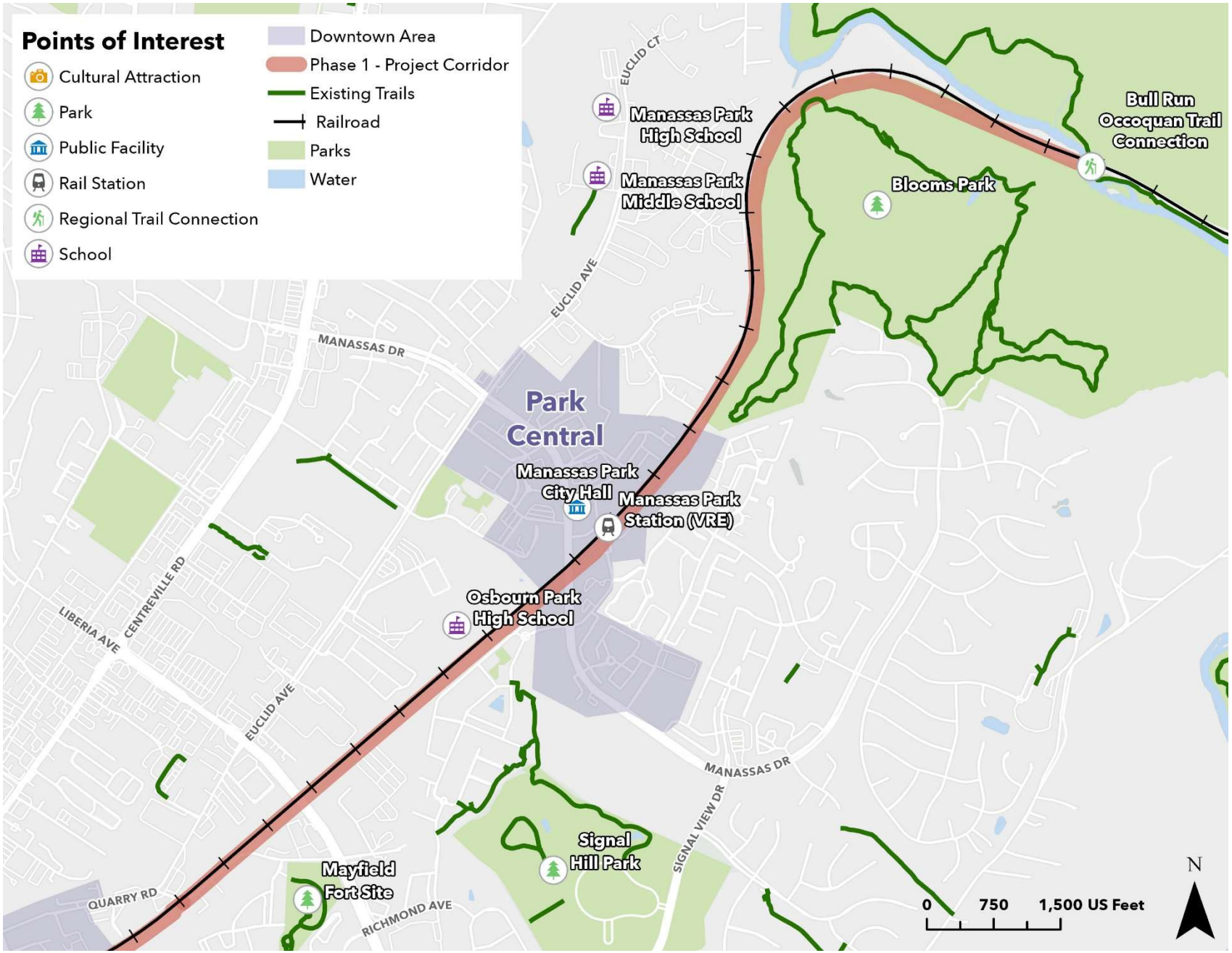
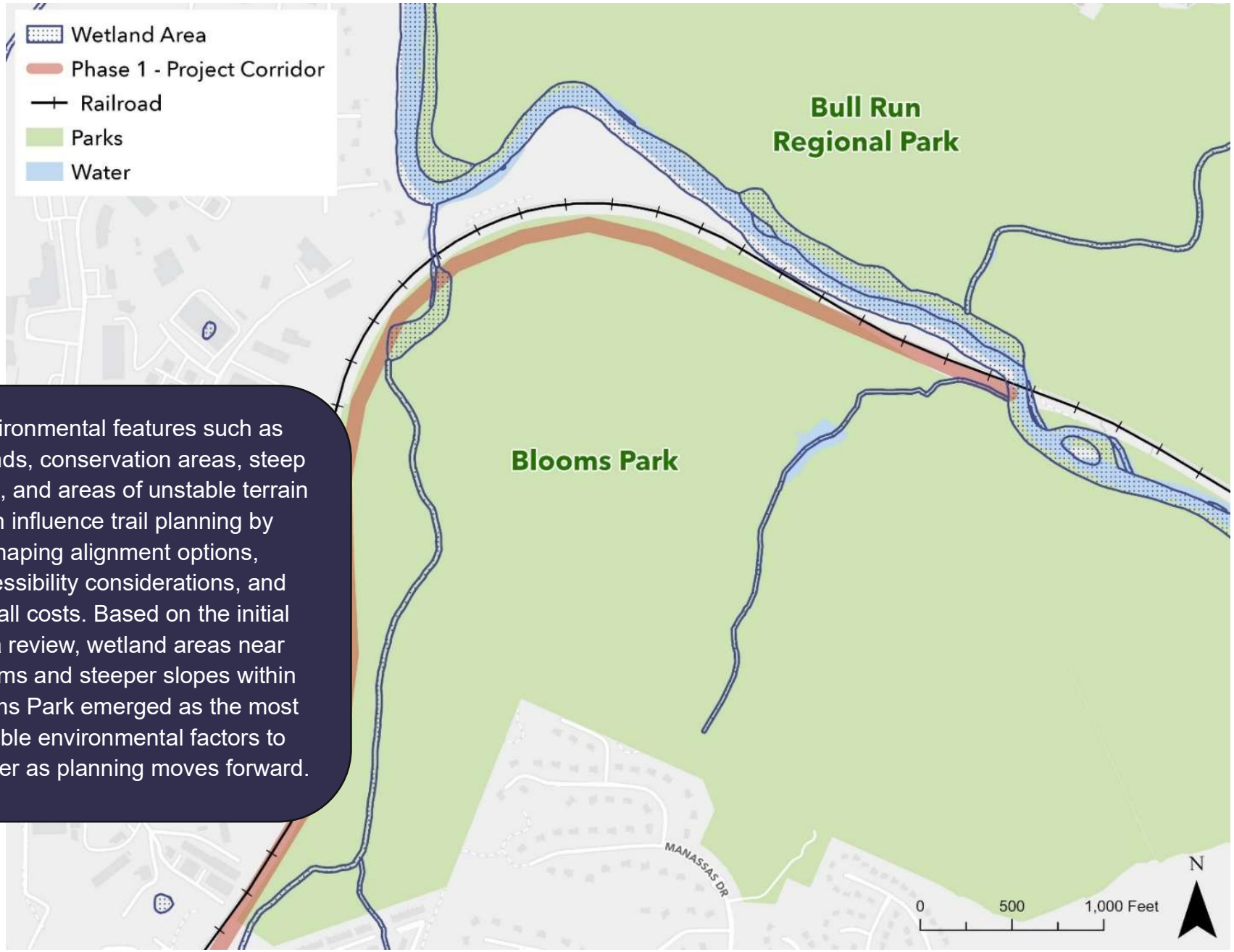


Figure 8: Wetlands in Blooms Park



Environmental features such as wetlands, conservation areas, steep slopes, and areas of unstable terrain can influence trail planning by shaping alignment options, accessibility considerations, and overall costs. Based on the initial data review, wetland areas near streams and steeper slopes within Blooms Park emerged as the most notable environmental factors to consider as planning moves forward.

Figure 9: Contours in Blooms Park

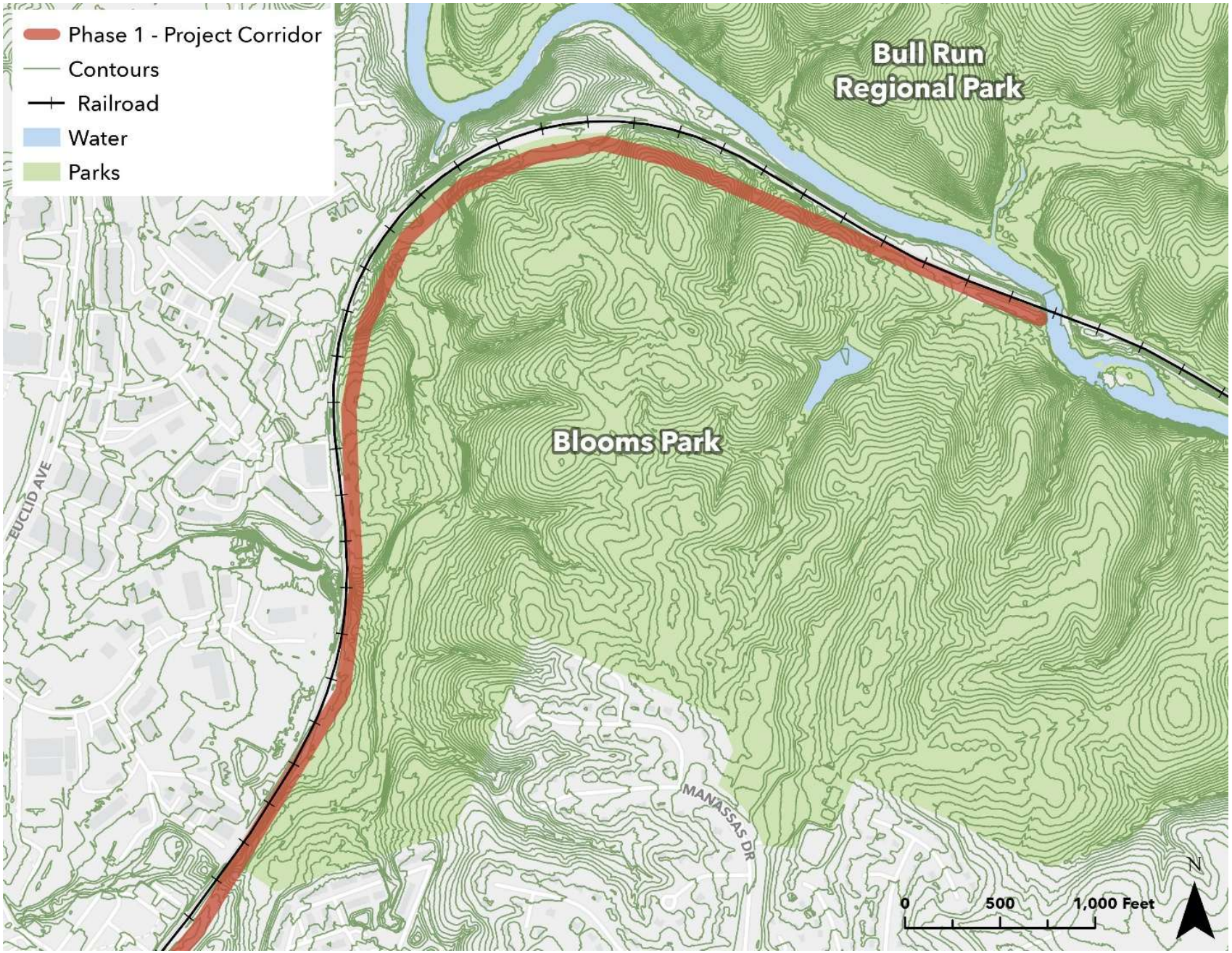


Figure 10: Potential Road Crossings

Field Reconnaissance

The project team conducted four field visits throughout the feasibility study. These field visits allowed the project team to further investigate potential challenges and opportunities that were identified through spatial data assessment, as well as gain an on-the-ground understanding of the corridor that was essential to assessing the preferred trail alignment and identifying potential alternatives. Each field visit is summarized below.

Field Visit #1: Assessing Challenges and Opportunities Along the Corridor (4/14/2025)

The purpose of this first field visit was to review several areas along the corridor that were identified as areas of potential challenges or opportunities during the data collection phase. These included wetlands, spatial constraints from property lines or utility easements, rail line or road crossings, and connections to existing facilities or key destinations.

During the field visit, the team traveled and assessed the context along nearly the entire corridor, reviewing each of 10 areas identified prior. Beyond the areas found in desktop analysis, the field visit helped the team identify further opportunities and challenges along the corridor that spatial data alone could not reveal. The additional context gained from the field visit included elements such as steep slopes, constrained areas between the rail line and adjacent property lines, barriers such as fences along property lines, and utility easement areas.

Field Visit #2: Assessing Potential Alignment in Blooms Park (5/12/2025)

Following initial base mapping and the first field visit assessing the entire corridor, the project team determined that additional review was needed within Blooms Park to determine the most feasible and optimal alignment. Blooms Park in the City of Manassas Park presents a unique opportunity for the Phase 1 trail with over 270 acres of publicly owned park land, a beautiful natural landscape for users to experience, and a network of existing paved trails. However, it also presents challenges due to steep

slopes, low-lying wetland, rough terrain, and dense forest throughout. In addition, a utility easement owned by Dominion Energy runs adjacent to the rail line throughout the park.

Through this field visit, the project team gained valuable context on the spatial and environmental characteristics within Blooms Park and gathered information that was essential in determining an optimal alignment within a critical part of the Phase 1 corridor. The information gathered from this field visit includes an understanding of how the trail alignment could harness the natural landscape while navigating challenging terrain and capitalizing on existing facilities and cleared, flattened land within and around the Dominion Energy easement.

Field Visit #3: Assessing Alignment in Downtown Manassas (6/9/2025)

This field visit focused on alignment challenges identified along the rail line east of Fairview Avenue in Downtown Manassas. This section includes constrained right-of-way and rough terrain between the rail line and adjacent private property, with limited room for a paved trail.

During this field visit, the project team further assessed constraints in this section of the rail line corridor and identified two potential alternative routes. These alternatives would divert from the rail line and utilize existing facilities, thereby avoiding the challenges along this section.

Field Visit #4: Assessing the Connection to Fairfax County Across Bull Run (12/10/2025)

This final field visit focused on the northeastern terminus of the Phase 1 trail, where a connection will be made across Bull Run to the Bull Run Occoquan Trail (BROT) in Fairfax County, and where Phase 2 of the corridor will eventually be continued. This was a collaborative field visit with representatives from Fairfax County and NOVA Parks—owners of Bull Run Occoquan Trail in attendance—along with the Phase 1 project team. While previous coordination with Fairfax County and NOVA Parks had included discussion on this connection, all parties agreed that a field visit was necessary in determining the most feasible crossing of Bull Run, as well as a connection that would provide an optimal launching point for the eventual Phase 2 of the corridor.

Challenges and Opportunities

Through base mapping and field reconnaissance, the project team identified several key challenges and opportunities impacting feasibility along the trail corridor, which are summarized in **Table 2** below.

Table 2: Identified Challenges and Opportunities

STRENGTHS	CONSTRAINTS
Dedicated bicycle and pedestrian facilities between the City of Manassas and City of Manassas Park downtown areas	Constrained space between the rail line, road, and private property lines
Improved mobility options for nearby neighborhoods and apartment complexes with dense population	Limited space within right-of-way along roads to allow for a bikeable facility
Expanded access to key destinations such as parks, shopping centers, farmer's markets, schools, city halls, and community centers	Environmental Challenges such as slopes and wetland areas
Opportunity to connect to other multimodal transportation facilities such as rail stations, bus stations, and other existing and planned pedestrian and bicycle facilities	Crossings needed across rail line, road, and major roads

Feasibility Analysis

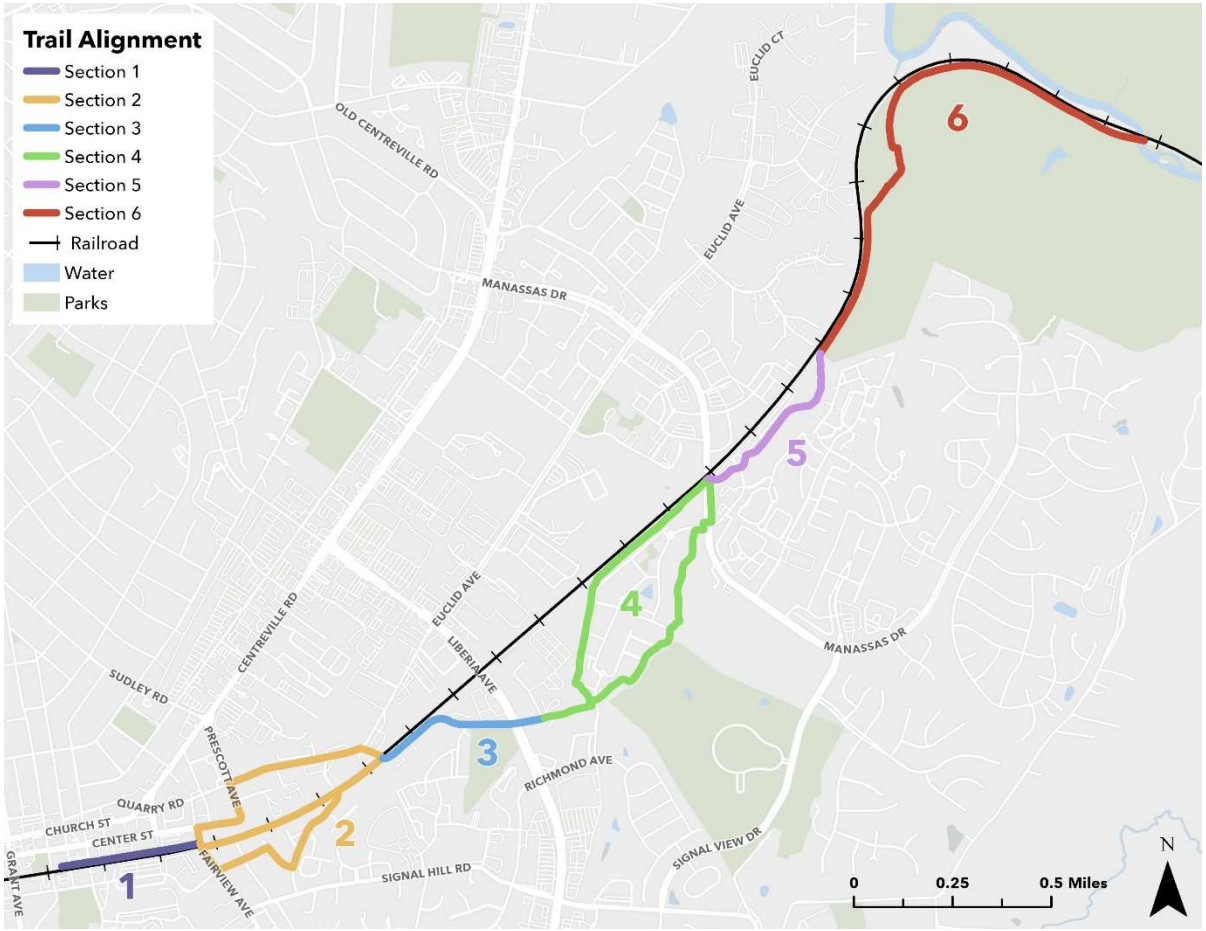
Feasibility Analysis

Draft Alignment

Through existing conditions data collection, field reconnaissance, and an analysis of challenges and opportunities along the corridor, the project team identified a draft alignment for the Phase 1 trail, shown in the map series in **Figure 11**. The draft alignment was divided into six sections along the corridor length to allow for more detailed analysis. There are two areas along the corridor where the alignment deviates from the rail line due to conditions that would make the trail infeasible along those sections. In the area around Liberia Avenue (section 3), there is minimal space between the rail and adjacent development, especially as the rail line passes under Liberia Avenue. In the northwest section of Blooms Park (section 6), steep elevation changes adjacent to the rail would make it difficult to maintain trail accessibility. Due to these challenges, the project team determined that it is most feasible to divert the trail away from the rail line at these locations – utilizing Quarry Road, passing along the Richmond Station and Walker Station residential complexes, and capitalizing on a flatter, scenic landscape along a stream in Blooms Park.

Additionally, there are two sections of the corridor where potential challenges led the project team to identify and compare multiple alternative alignment options. For a half-mile section of the rail corridor between Fairview Avenue and Quarry

Figure 11: Draft Alignment - Sections



Road (section 2), three potential alternatives were assessed. The reason for the assessment is shown in **Figure 12**—a constrained area with rough terrain east of Fairview Ave between the rail line and private property, with utility poles occupying space as well.

Figure 12: Constrained Area East of Fairview Avenue

In the area around the Richmond Station and Walker Station residential complexes (section 4), two potential alternatives were assessed. The identification of an alternative alignment for this section was driven by several challenges, including the substantial coordination required with homeowner associations for residential properties and Dominion Energy. The preferred alignment would be situated within their utility easement, which is located adjacent to the rail line.

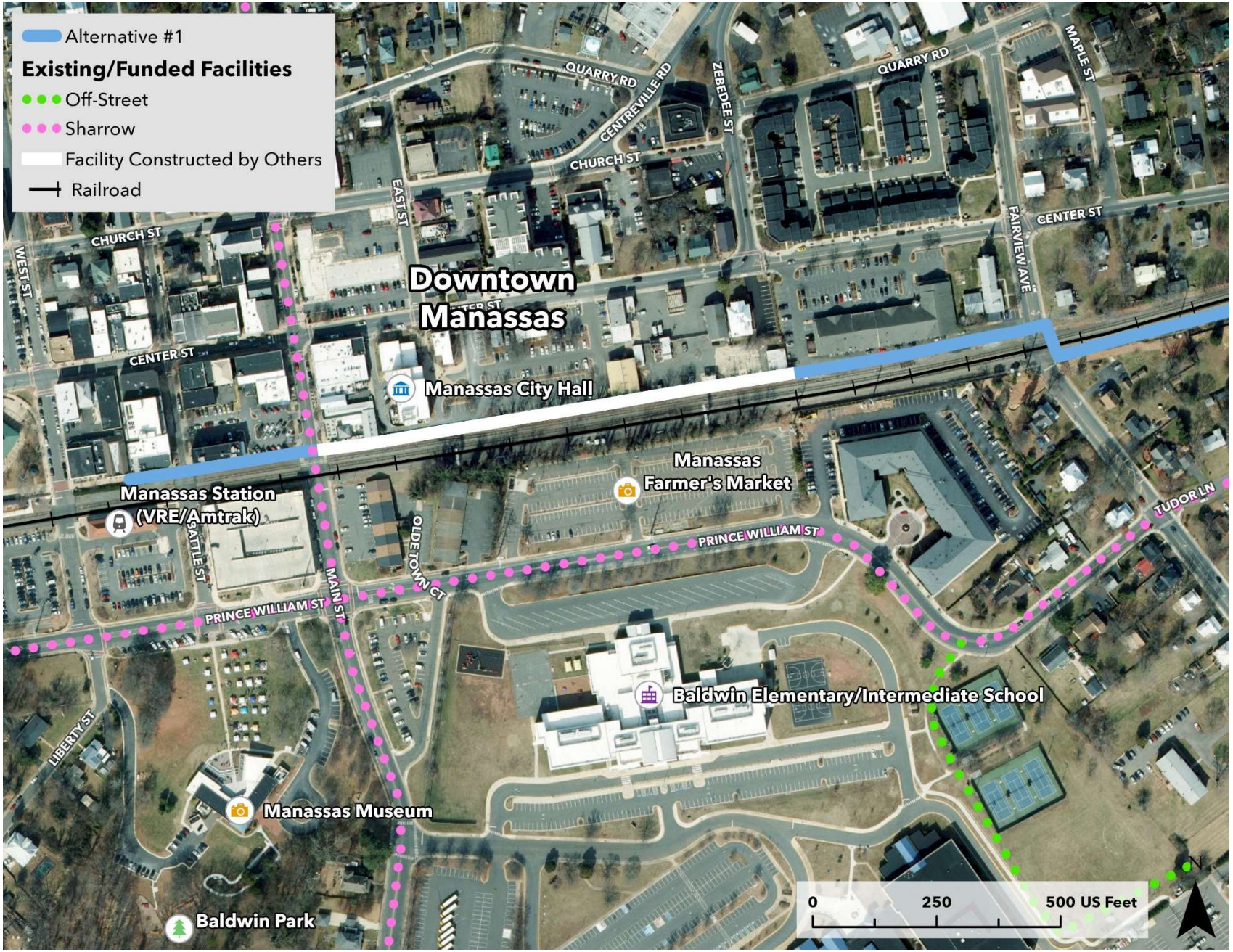
Comparison of Alternatives

For each section of the draft alignment, strengths and constraints were assessed and documented along with the length of facility types. Factors that were assessed for each section included:

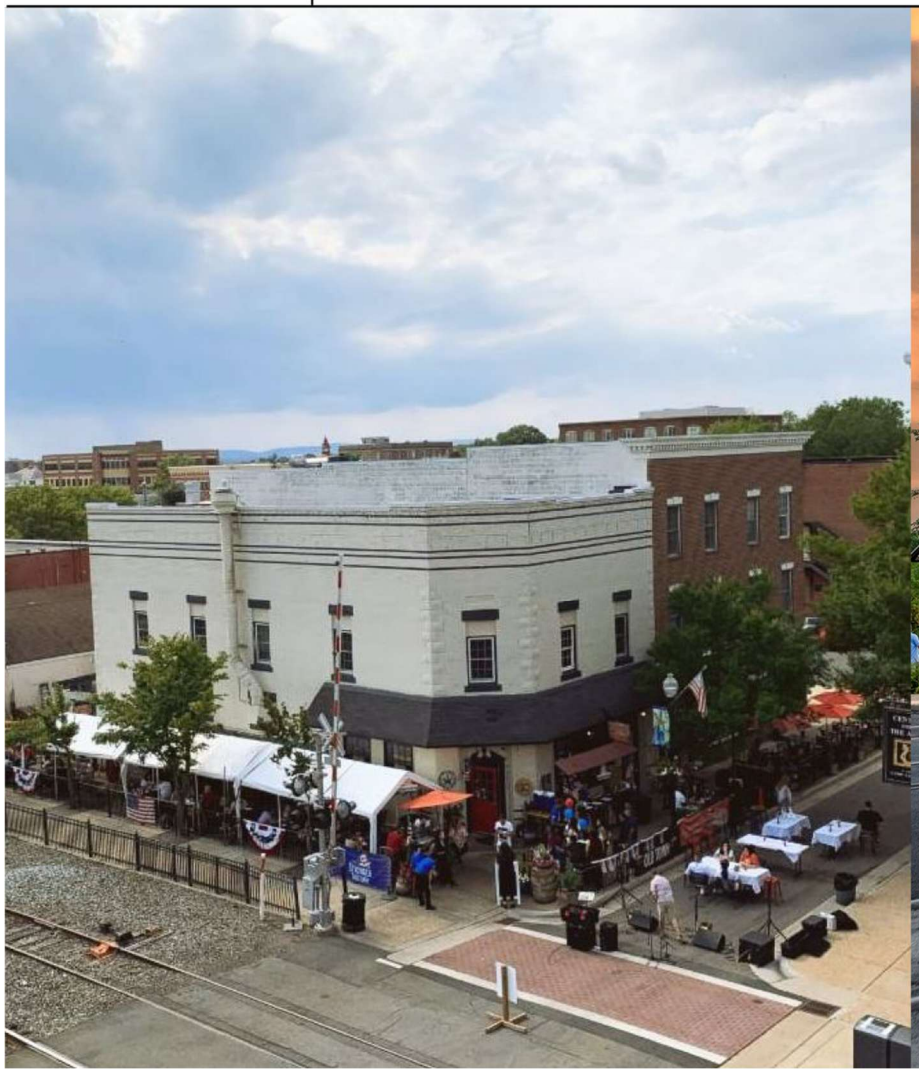
- **Length of facility types:** Where the trail would utilize existing facilities or where different surface types and complementary bicycle facilities would be constructed
- **Number of road and rail line crossings**
- **Environmental considerations:** Wetland and stream impacts, steep elevation changes, rough terrain
- **Property impacts:** Adjacent residential and business properties
- **Agency coordination needed:** VPRA, Dominion Energy, Norfolk Southern, VDOT
- **Population served:** Within half mile buffer of the draft trail alignment
- **Connections to key destinations:** Within 1/8 mile buffer of the draft trail alignment
- **Connections to transportation facilities:** Within 1/8 mile buffer of the draft trail alignment

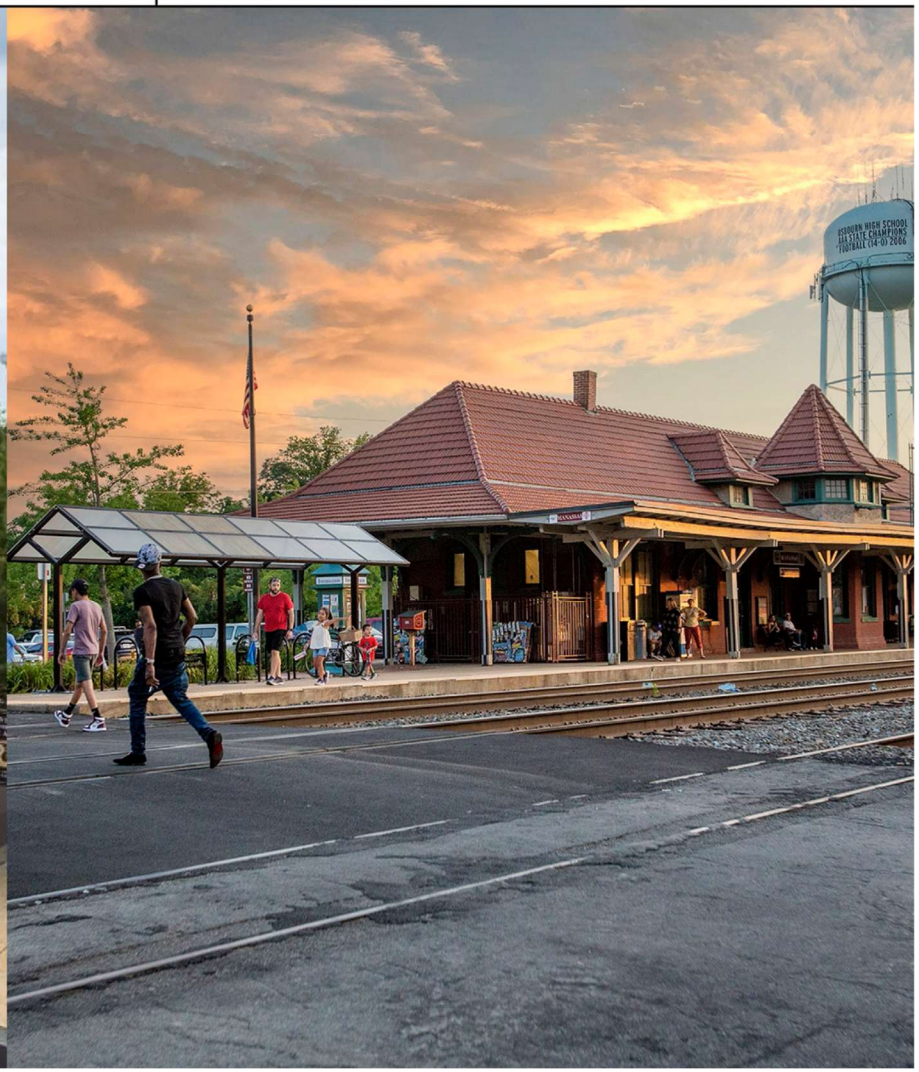
This analysis of all sections allowed the project team to assess the feasibility of potential alignment options, as well as potential strengths and constraints for implementation, guiding the development of a preferred alignment for the trail. For sections where multiple alternative alignments were assessed, comparisons were made among alignment options based on the factors included in the analysis. The results for each section of the draft alignment are summarized on the following pages, and detailed results can be found in **Appendix A**.

Section 1

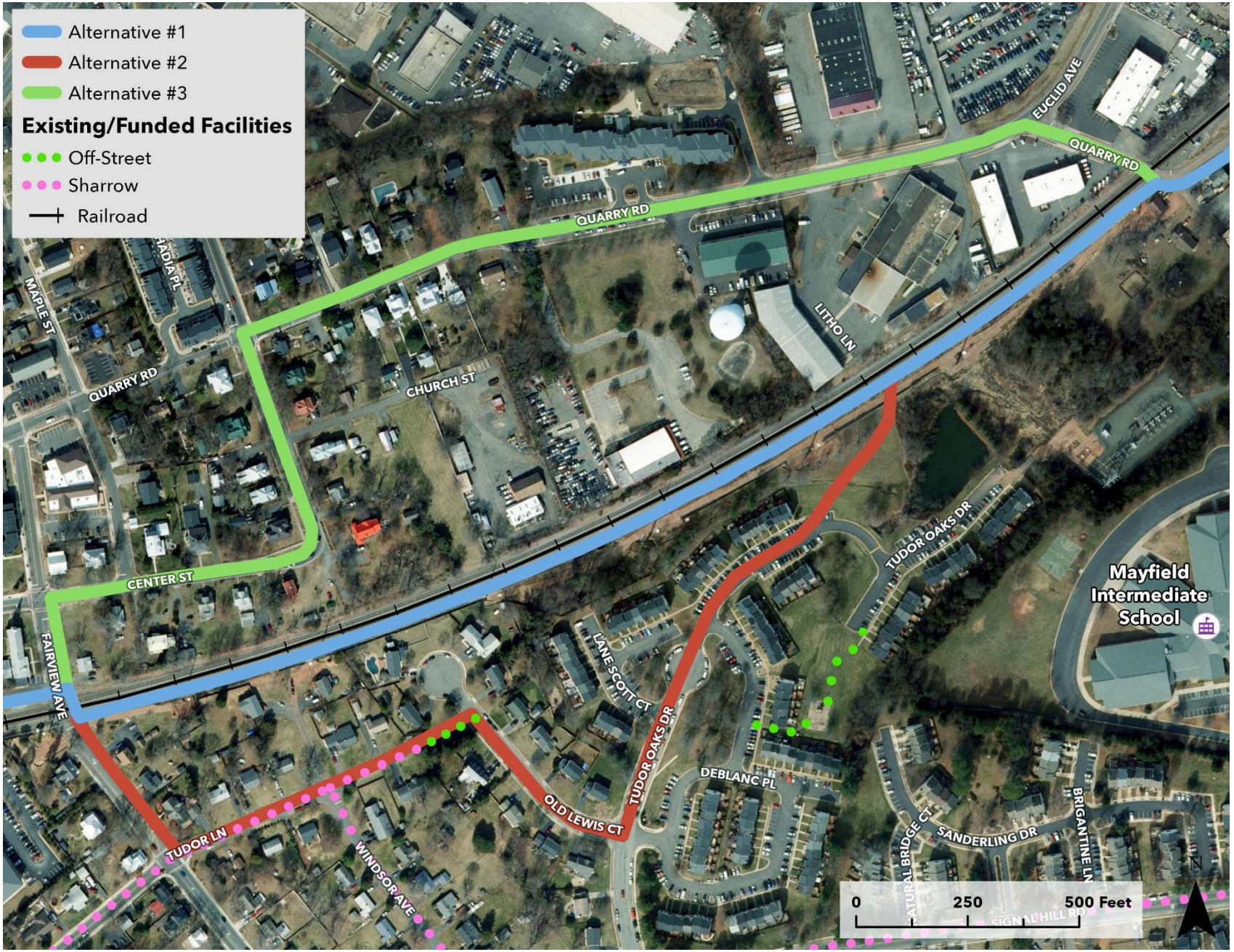

Alternative #1
Existing/Funded Facilities
Off-Street
Sharrow
Facility Constructed by Others
Railroad
Downtown Manassas
Manassas City Hall
Manassas Station (VRE/Amtrak)
Manassas Farmer's Market
Baldwin Elementary/Intermediate School
Manassas Museum
Baldwin Park
QUARRY RD
CENTREVILLE RD
ZEBEDEE ST
CHURCH ST
EAST ST
WEST ST
CENTER ST
FAIRVIEW AVE
MAPLE ST
PRINCE WILLIAM ST
MAIN ST
OLDE TOWN CT
BATTLE ST
LIBERTY ST
TUDOR LN
0
250
500 US Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ Offers connections to existing bicycle and pedestrian networks, the Manassas VRE/Amtrak Station, and other key destinations. ▶ This alignment would serve over 7,000 residents within a half mile. ▶ A sidewalk from Main Street to City Hall is included as part of the VRE Manassas Platform Extension project. The remainder of the sidewalk in this area will be completed by redevelopment.	▶ This alignment would require a new road crossing at Fairview Avenue. ▶ There is limited separation between the existing rail line and alignment; fencing and safety barriers will be required. ▶ One shopping center property would be impacted west of Fairview Avenue.





Section 2


Alternative #1
Alternative #2
Alternative #3
Existing/Funded Facilities
Off-Street
Sharrow
Railroad
QUARRY RD
EUCLID AVE
LITHO LN
MAPLE ST
CHURCH ST
CENTER ST
FAIRVIEW AVE
TUDOR OAKS DR
Mayfield Intermediate School
LANE SCOTT CT
DEBLANC PL
OLD LEWIS CT
TUDOR LN
WINDSOR AVE
SANDERLING DR
BRIGANTINE LN
0
250
500 Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ The alignment follows directly along the rail line, providing a continuous, straight route for easy wayfinding. ▶ The entire segment would be a multi-use trail, providing access for a variety of users.	▶ The area targeted for the alignment is heavily constrained between the rail line and adjacent properties east of Fairview Avenue. ▶ This alignment would require extensive coordination with VPRA, Dominion Energy, and adjacent property owners. ▶ With the alignment south of the rail line, a new rail crossing at Fairview Avenue would be required. ▶ Coordination with Norfolk Southern
ALTERNATIVE #2	▶ This alignment would utilize existing facilities in the neighborhood south of the rail line. ▶ This alignment would utilize an existing path connector between Tudor Lane and Old Lewis Court. ▶ Since the alignment is not along the rail line, it would require less coordination with partner agencies.	▶ The alignment diverts away from the rail line for the majority of the section, and would be twice the total length of Alternative #1. ▶ The alignment navigates through neighborhoods with multiple turns, causing wayfinding challenges. ▶ A majority of the segment would be sidewalk with sharrows for bicyclists, which may be less comfortable for users and cause conflict with traffic. ▶ This alignment would require coordination with the Tudor Oaks HOA and other property owners. ▶ This alignment would require a bicycle and pedestrian crossing at Fairview Avenue, Old Lewis Court, and Lane Scott Court. ▶ The trail would impact a wetland adjacent to Tudor Oaks Drive as the alignment returns to the rail line.
ALTERNATIVE #3	▶ A majority of the alignment would use existing pedestrian facilities, resulting in limited impact to private properties. ▶ Since the alignment is not along the rail line, it would require less coordination with partner agencies. ▶ The alignment would provide connections to eastern Downtown Manassas.	▶ This alignment would be diverted away from the rail line and would be more than twice the total length of Alternative #1. ▶ The alignment would travel through neighborhoods with multiple turns, causing wayfinding challenges. ▶ The alignment would be on sidewalks with on-street bicycle facilities, which may be less comfortable for users and cause conflict with traffic. ▶ This alignment would require a bicycle and pedestrian crossing at Quarry Road..

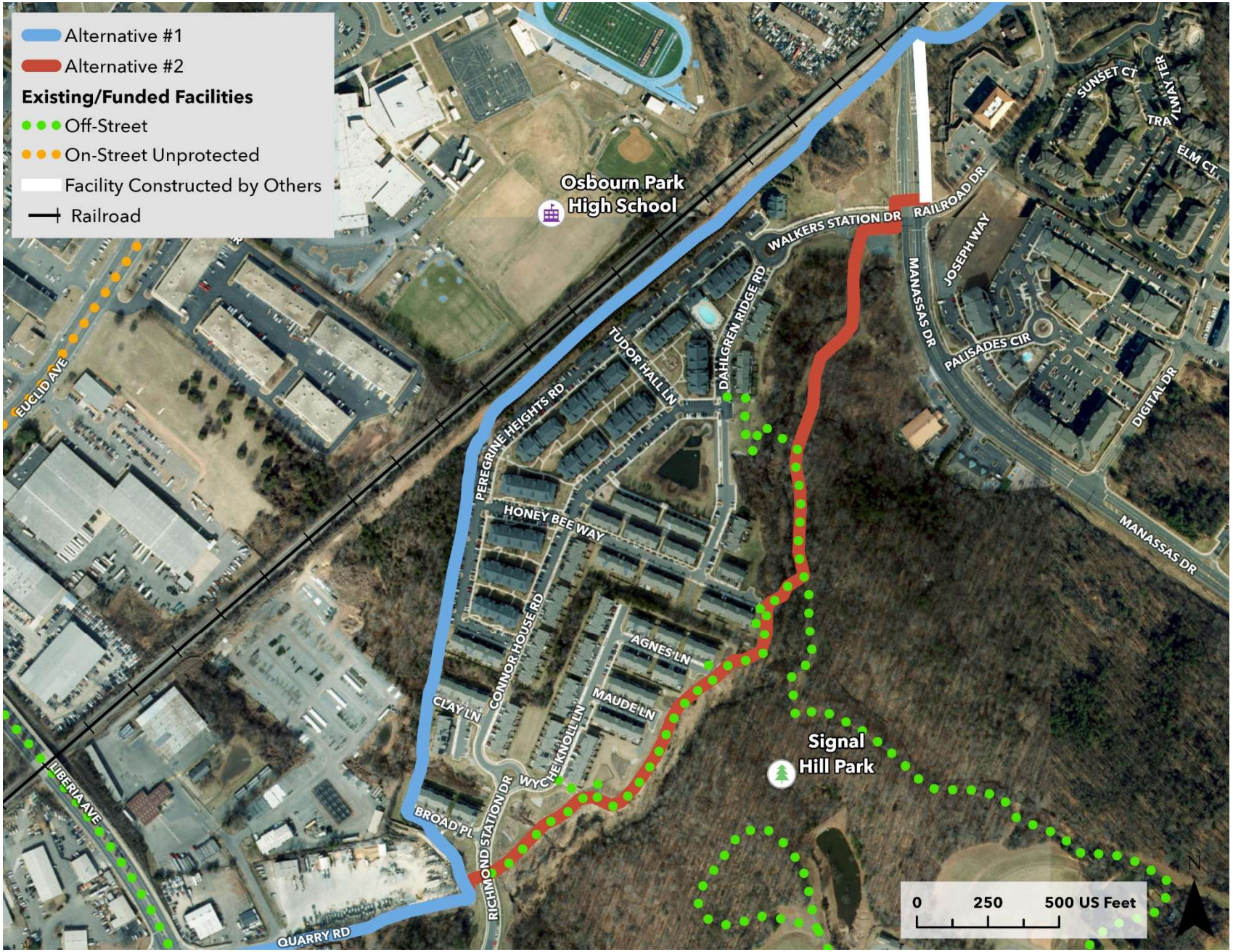


Section 3

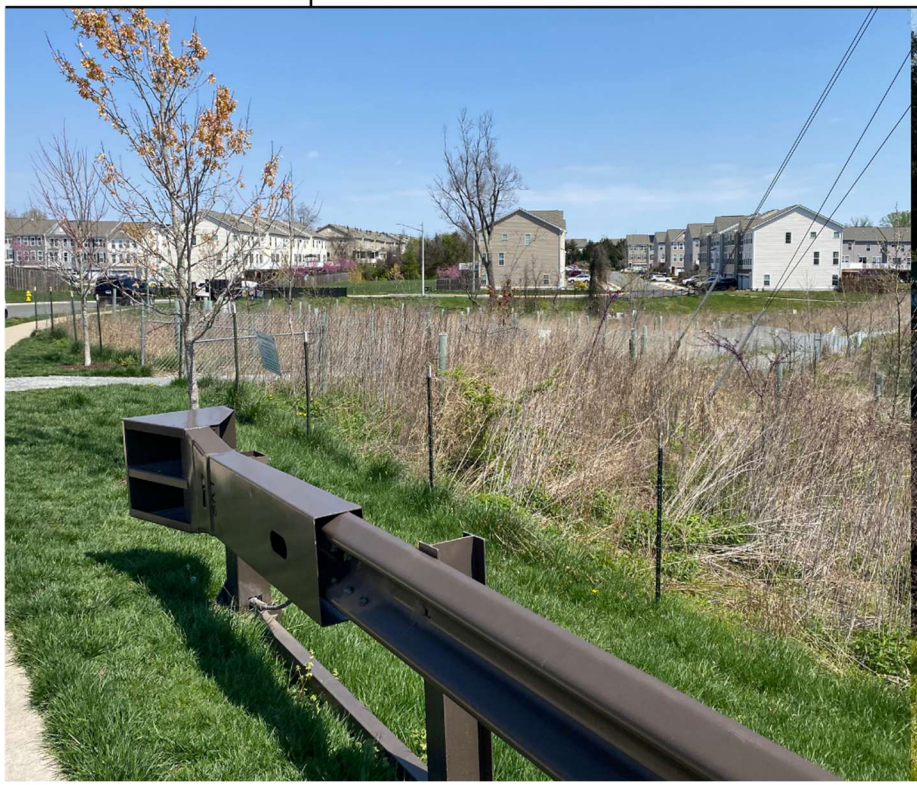

Alternative #1
Existing/Funded Facilities
Off-Street
On-Street Unprotected
Facility Constructed by Others
Railroad
JERRYS CIR
LIBERIA AVE
EUCLID AVE
QUARRY RD
QUARRY RD
QUARRY RD
BATTERY HEIGHTS BLVD
CANNONEER CT
LIBERIA AVE
Mayfield
Fort Site
BUTTRESS LN
JAYHAWK TER
TAPOK DR
RICHMOND AVE
0
250
500 US Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ This segment would provide connections to adjacent apartments, Mayfield Fort Site, public transit, and existing pedestrian and bicycle facilities. ▶ 340 feet of new sidewalk will be constructed by an adjacent property owner. An adjacent property owner is constructing 340 feet of new sidewalk along Quarry Road. ▶ Quarry Road offers plenty of available right-of-way for trail facilities west of Liberia Avenue. ▶ The alignment avoids a very constrained area as the rail line passes under Liberia Avenue.	▶ The segment diverts away from the rail line with a less direct route. ▶ This segment would interact with existing driveways crossings, and would require a new roadway crossing at Liberia Avenue and Quarry Road. ▶ Coordination would be required with several private businesses along Quarry Road. ▶ Limited right-of-way along Quarry Road adjacent to the rail line causes challenges to building new facilities. ▶ Coordination would be required with VPRA, as they own the right-of-way on Quarry Road adjacent to the rail line. ▶ Coordination with Norfolk Southern will be required.

Section 4


Alternative #1
Alternative #2
Existing/Funded Facilities
Off-Street
On-Street Unprotected
Facility Constructed by Others
Railroad
Osbourn Park High School
Signal Hill Park
WALKERS STATION DR
RAILROAD DR
SUNSET CT
TRAIL TER
ELM CT
JOSEPH WAY
MANASSAS DR
PALISADES CIR
DIGITAL DR
DAHLGREN RIDGE RD
TUDOR HALL LN
PEREGRINE HEIGHTS RD
HONEY BEE WAY
CONNOR HOUSE RD
AGNES LN
MAUDE LN
CLAY LN
WYCHE KNOLL LN
RICHMOND STATION DR
BROAD PL
EUCLID AVE
LIBERIA AVE
QUARRY RD
0
250
500 US Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ This alternative would maintain a portion along the rail line. ▶ The clear, direct route and many access points would provide value for adjacent residents. ▶ This alternative would provide access to nearly 8,000 residents within a half mile, which is more than Alternative #2. ▶ This would provide nearby access to transit service and an existing trail connecting to Signal Hill Park.	▶ This alternative would require coordination with Dominion Energy and three adjacent HOAs. ▶ Rough terrain and wetland impacts on the connection between Quarry Road and Richmond Station Drive would present challenges for construction. ▶ A low, wetland area west of Manassas Drive would require a pedestrian bridge. ▶ A new road crossing would be required at Manassas Drive.
ALTERNATIVE #2	▶ This route would utilize 0.4 miles of existing trail that provides a direct connection to Signal Hill Park. ▶ This alternative would not impact the Dominion Energy easement, requiring less coordination. ▶ This route would provide access to nearby transit service along Manassas Drive. ▶ The connection to the existing trail would provide access points to the adjacent residential community. ▶ 600 feet of sidewalk along Manassas Drive would be constructed by another entity	▶ This alternative would require two new road crossings and coordination with VDOT and adjacent HOAs. ▶ The entire segment would be diverted from the rail line, and a winding, forested area would cause wayfinding challenges. ▶ Rough terrain and wetland impacts on the connection between Quarry Road and Richmond Station Drive would present challenges for construction. ▶ Streams adjacent to Signal Hill Park would cause potential wetland impacts.



Section 5


Alternative #1
Existing/Funded Facilities
Off-Street
Railroad
Park Central
Manassas Park City Hall
Manassas Park Station (VRE)
MANASSAS DR
BANK ST
THOMAS LN
PERCY PL
PERCY CT
PARK CENTRAL TER
TASSITA LN
AMBROSE LN
PULLMAN PL
AWDRY WAY
CORBETT CIR
HENDERSON PL
HOLMES PL
BATTALION WAY
ELZEY PL
WALKER WAY
DIGITAL DR
WEST CARONDELET DR
BELO GATE DR
MARKET ST
PARK CENTRAL PLZ
BROAD ST
NAYLOR DR
CONNER DR
MANASSAS DR
RAILROAD DR
RUSSIA BRANCH VIEW DR
CREEK VIEW TER
LOCUST TER
CHRISTINA PL
0
250
500 US Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ This segment would provide connections to Park Central with access to key destinations and public facilities. ▶ The Manassas Park VRE Station provides direct connections to passenger rail and bus transit service. ▶ This segment would provide access to more than 7,700 residents within a half mile.	▶ A new road crossing would be required at Railroad Drive. ▶ Multiple stream crossings would be required in the forested area adjacent to the VRE parking lot.

Section 6


Alternative #1
Existing/Funded Facilities
Off-Street
Railroad
LAKE DR
EUCLID CT
VASSAU CT
INDUSTRY DR
ENTERPRISE CT
OWENS DR
VENTURE CT
PERCY CT
PERCY PL
CORBETT PL
ARNIE CT
GOLF CT
EAGLE CT
FAIRWAY CT
MANASSAS DR
JOSHUA CT
KATELYN CT
SHANNON CT
Blooms Park
Bull Run
Occoquan Trail
Connection
0
500
1,000 Feet
N

ROUTE	STRENGTHS	CONSTRAINTS
ALTERNATIVE #1	▶ This segment would be entirely within Blooms Park, which is publicly-owned and has an existing trail system and scenic natural environments. ▶ The eastern terminus of the trail would connect across Bull Run to the Bull Run Occoquan Trail in Fairfax County. ▶ The existing Dominion Energy easement provides a cleared corridor along the rail line, ideal for a potential trail alignment.	▶ Rough terrain, steep slopes, and wetland conflicts in Blooms Park would provide challenges for trail alignment and facility type ▶ Coordination would be required with Dominion Energy to align the trail within their easement. ▶ Tree clearing would be required, as Blooms Park is densely forested. ▶ The crossing of Bull Run would require extensive coordination and a pedestrian bridge. ▶ ADA compliance will impact design choices in this area

Public Engagement

Public Engagement

As a key part of the feasibility study process for the Phase 1 Manassas Line Trail, the project team offered public engagement opportunities for community members and held a series of meetings with stakeholder entities along the trail corridor to communicate project intent, share draft alignments, and gather input and feedback. Feedback from community members was gathered through a community survey and a public meeting held in July 2025. Additionally, coordination with local homeowner associations, including Tudor Oaks, was part of the engagement efforts.

Project Webpage

A key piece of public engagement was a project webpage hosted on the City of Manassas webpage: https://www.manassasva.gov/rwt, which was linked on both Prince William County and Manassas Park websites. The webpage communicated project background and updates throughout the planning process, as well as details on the public meeting and community survey that are described further below.

Public Meeting

The project team held a public meeting on July 30, 2025 at Manassas Park City Hall with the goal of communicating project information, analysis findings, and draft alignments to community members. This also offered attendees an opportunity to ask questions and express opinions for the proposed project. Materials presented at the public meeting included a project overview map, draft alignments and surface types (including alternative alignments), and sample renderings of what the trail may look like when constructed.

Bilingual material was available for the public meeting, and there was also an interpreter present at the meeting to support non-English speaking attendees. The public meeting was advertised through direct mail to property owners within 300 feet of the proposed alignment in the City of Manassas, through direct contact with the homeowner association and school within Prince William County limits, and through social media and website accounts in each locality.

Summary of Feedback

More than 30 community members attended the meeting to learn more about the Phase 1 Manassas Line Trail and provide feedback on draft alignments and sample renderings. The feedback was overwhelmingly positive, with many people expressing support and excitement for the trail. However, a few property owners adjacent to the draft trail alignment voiced concerns and opposition to the trail alignment on their property, citing noise, safety, and privacy.

Community Survey

At the public meeting, an online project survey was launched to the community and hosted on the project webpage. The survey was designed to gather input from the public on the following topics:

- Awareness of the project
- General support of the project
- Potential benefits of the trail
- Propensity for use of the trail
- Intended use of the trail
- Future trail amenities desired
- Potential alternative alignments
- Preference for surface type

Summary of Feedback

The survey received 163 responses and feedback was overwhelmingly positive, ***with 89% of respondents in full support of the trail project*** *and another 5.5% offering support, but with some reservations. Additionally,* ***94% of respondents indicated that they would be likely to use the trail if it were built****.*

Figure 13 and **Figure 14** below show a summary of responses of potential benefits of the trail and intended use of the trail, and **Figure 15** highlights direct quotes pulled from survey responses of community members. A full summary of survey results can be viewed in **Appendix B**.

Figure 13: Potential benefits of the trail perceived by the public

What do you believe are the potential benefits of this Rail-with-Trail project?

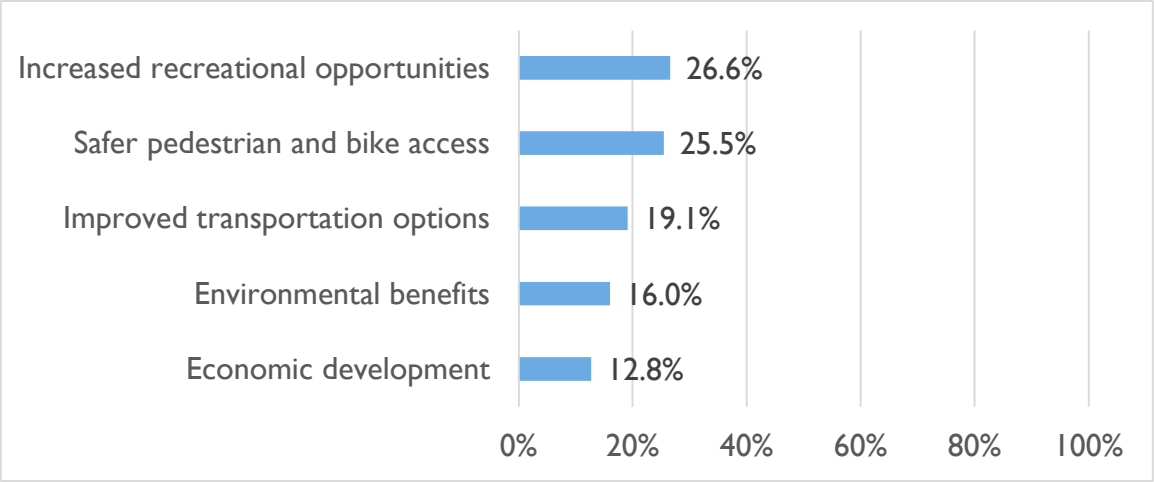


Figure 14: Intended use of the trail by the public

For what purposes would you most likely use the trail?

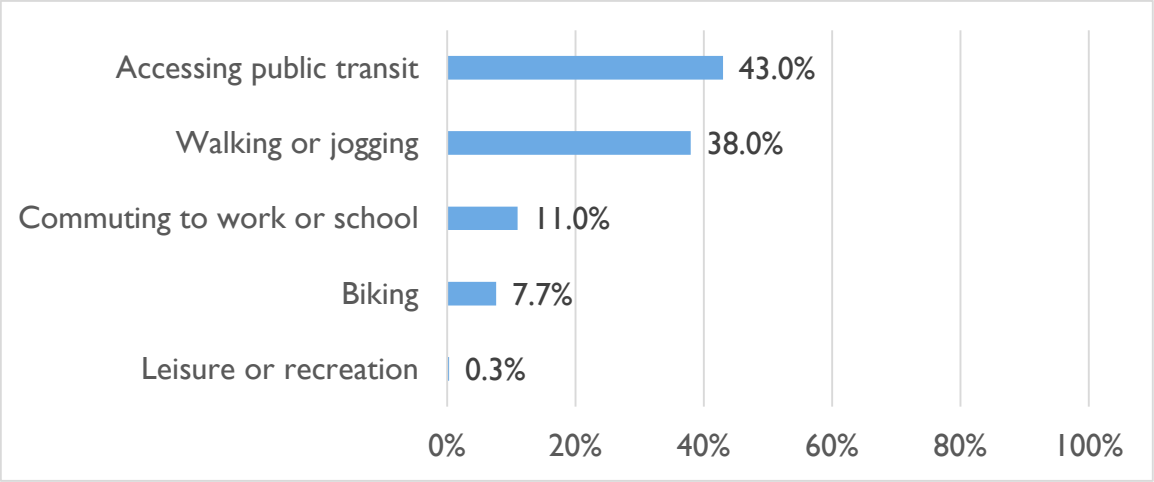
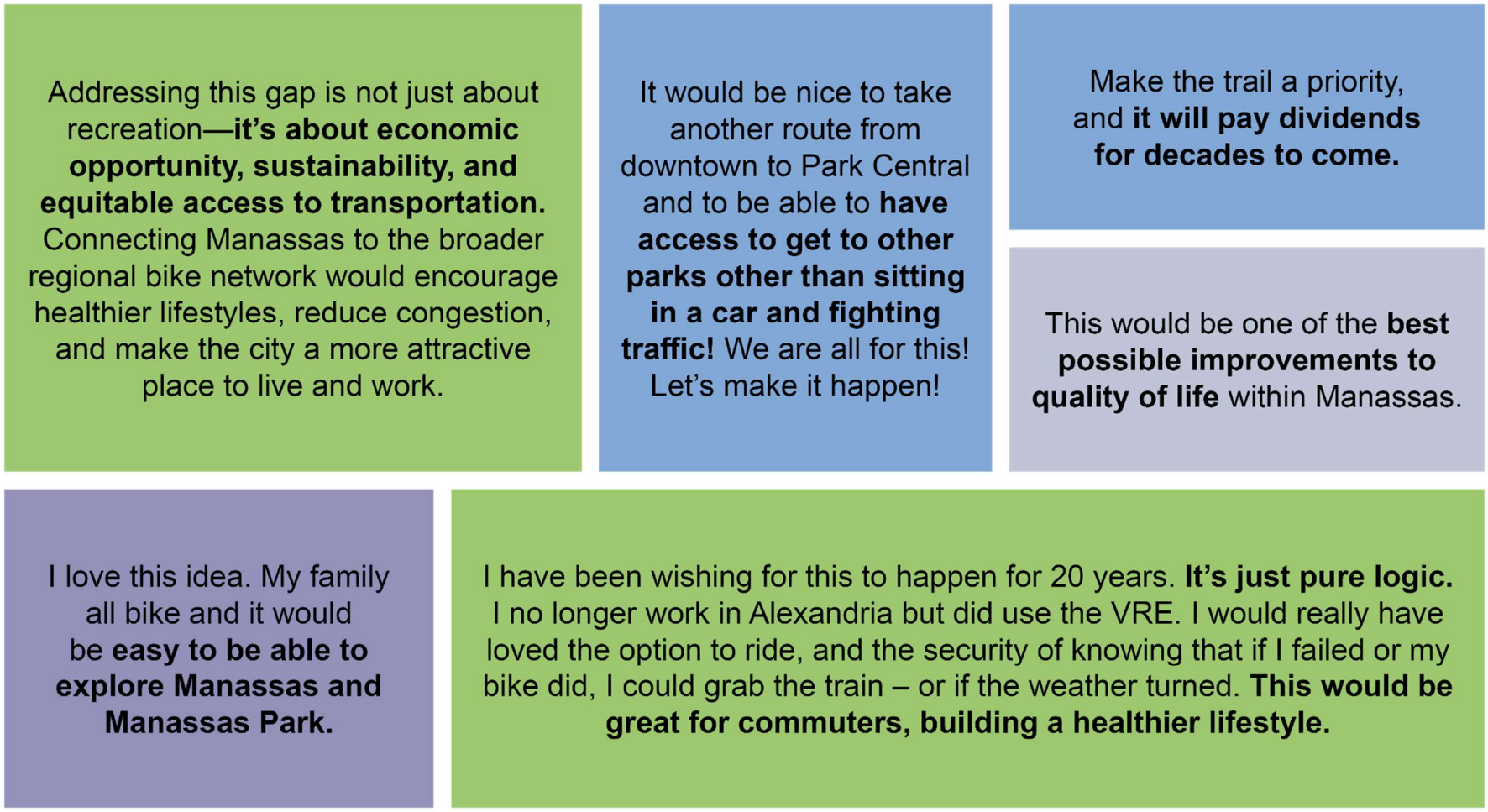


Figure 15: Quotes from community members



While a majority expressed support, some community members expressed reservations. Similar concerns were heard at the public meeting; owners of adjacent property to the draft alignment voiced concerns with disruption of their property, noise from trail users, and safety concerns from strangers having closer access to their property. As the preferred alignment design progresses, coordination with adjacent property owners will be required to mitigate concerns and minimize perceived impacts on private property, including potential fencing improvements, trash management, and signage.

Preferred Alignment & Concept Development

Preferred Alignment

Based on findings from the feasibility evaluation of the draft alignments and associated alternatives, the project team identified a preferred alignment for Phase 1 of the Manassas Line Trail. **Figure 16** shows this preferred alignment broken into sections. As detailed in the Feasibility Analysis, Sections 2 and 4 of the trail were considered for alternative alignments due to corridor challenges. In both sections, the project team determined that alternative 1 in both sections was the most feasible for the following reasons:

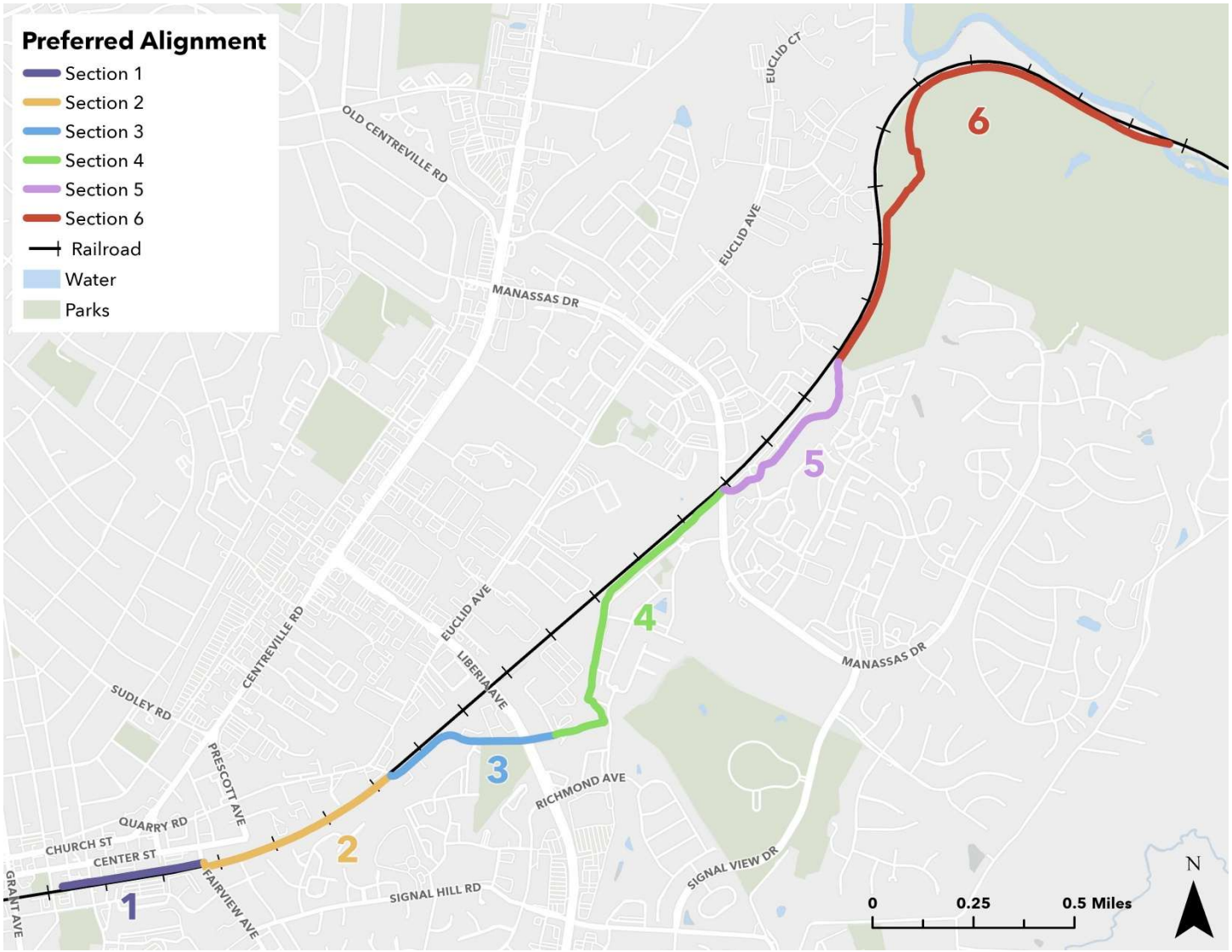
SECTION 2

Alternative #1 was selected for the final alignment due to the opportunity of a continuous, multi-use path directly along the rail corridor allowing for clear access and wayfinding for both pedestrians and bicyclists. These benefits offset the challenges of the constrained area and additional agency coordination needed. The other alternatives presented unique challenges such as difficult wayfinding, separated facilities for pedestrians and bicyclists, and diversion away from the rail corridor – while not providing opportunities to outweigh these challenges compared to the preferred alignment.

SECTION 4

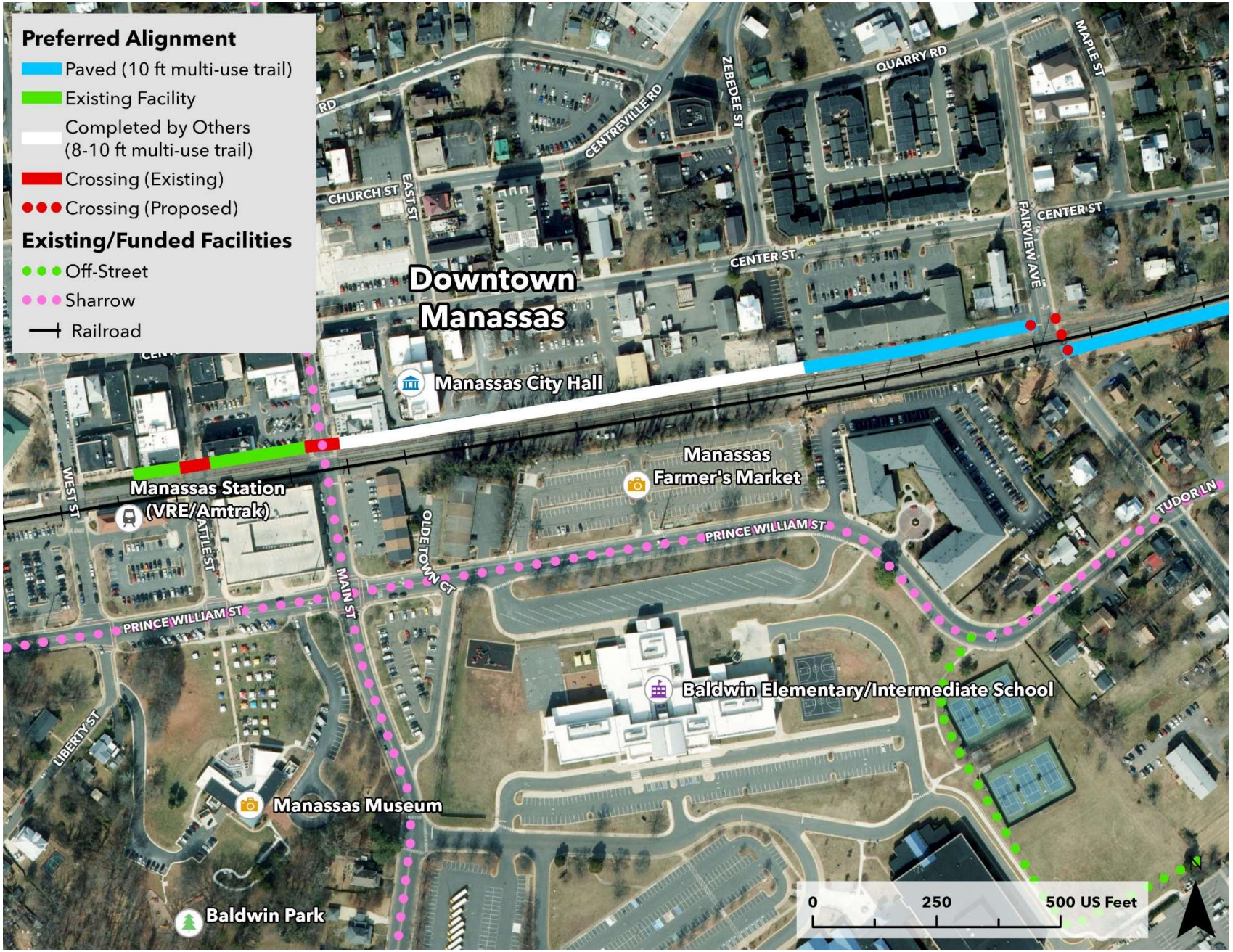
Alternative #1 was selected for the final alignment due to the route maintaining significant alignment along the rail line and providing accessibility for the adjacent residential complex. The preferred alignment also maintains a straight, multi-use path with high visibility to attract potential users, providing added wayfinding and accessibility benefits compared with the alternative alignment.

Figure 16: Preferred Alignment



The following pages show each alignment section in greater detail, including proposed facility types and crossings, along with a summary of opportunities and challenges of each planned section.

Section 1

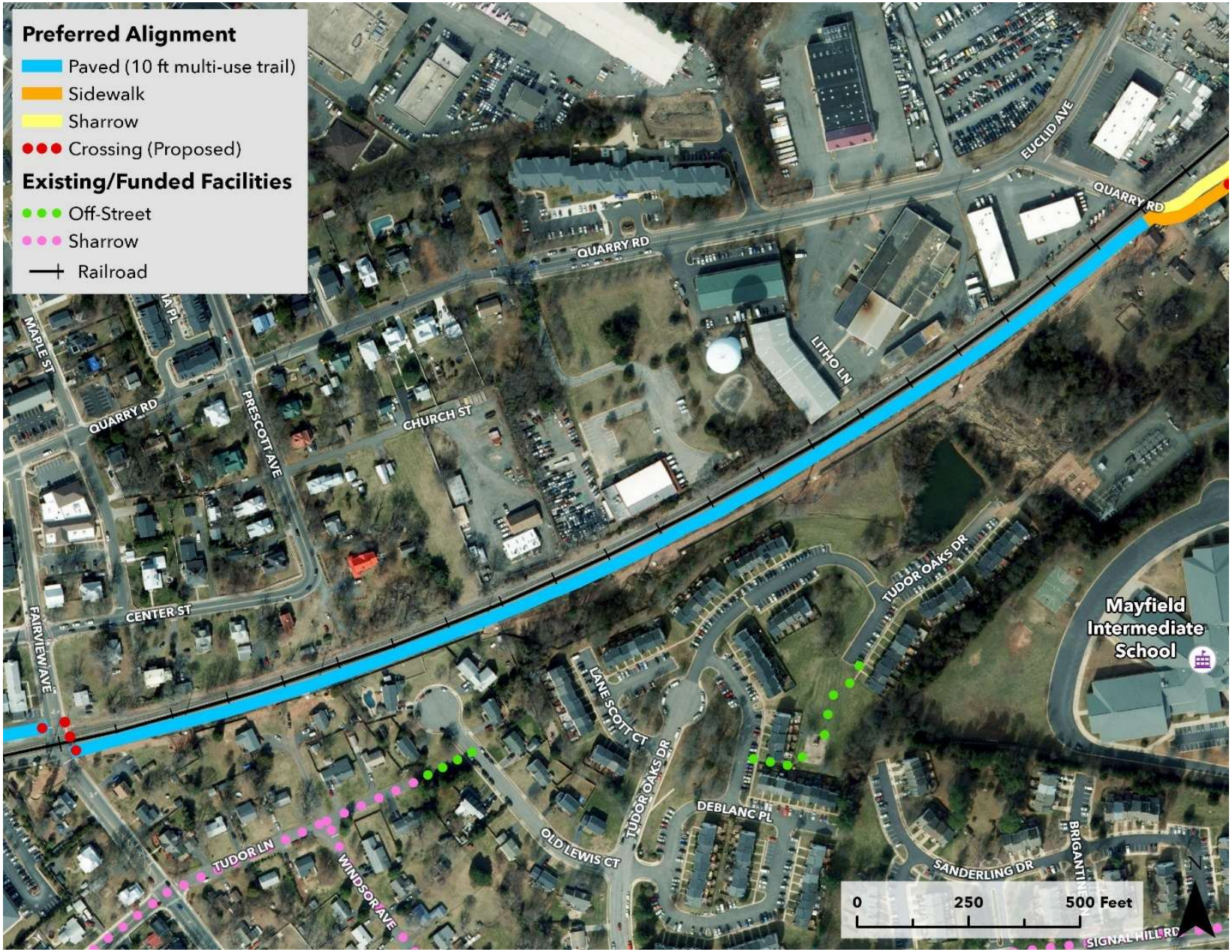

Preferred Alignment
Paved (10 ft multi-use trail)
Existing Facility
Completed by Others (8-10 ft multi-use trail)
Crossing (Existing)
Crossing (Proposed)
Existing/Funded Facilities
Off-Street
Sharrow
Railroad
Downtown Manassas
Manassas City Hall
Manassas Station (VRE/Amtrak)
Manassas Farmer's Market
Baldwin Elementary/Intermediate School
Manassas Museum
Baldwin Park
CENTREVILLE RD
ZEBEDEE ST
QUARRY RD
MAPLE ST
CHURCH ST
EAST ST
CENTER ST
FAIRVIEW AVE
WEST ST
ATTLE ST
OLDE TOWN CT
MAIN ST
PRINCE WILLIAM ST
TUDOR LN
LIBERTY ST
0
250
500 US Feet

Preferred Alternative: Alternative #1

***Alignment Description*:** For Section 1 of the Manassas Line Trail, the preferred alignment is on the north side of the rail corridor, expanding upon the existing wide sidewalks in Downtown Manassas to the west of Main Street. Fifty-five percent of this segment will be designed and constructed through VRE and redevelopment from Main Street to the eastern end of City Hall property; beyond that point, it is proposed that a wide sidewalk or a 10-foot multi-use trail will continue to Fairview Avenue for approximately 400 feet. Due to the proximity of the trail to the rail line, a fence will be required. A required street crossing will be needed across Fairview drive, north of the rail line, and then across the rail line to connect with segment 2.

***Alignment Benefits*:** This segment and preferred alternative is a key component of the Rail-with-Trail project connecting directly into Downtown Manassas, a high-activity area with many adjacent connections to key destinations and existing transportation facilities. This alignment would allow for direct connection to the Downtown Manassas Station with VRE and Amtrak passenger rail service that connects Manassas to Washington, D.C., Fairfax County, Alexandria, and other cities along the East Coast. Additional benefits will be provided through VRE's Manassas Station Improvement project, which plans to extend the existing station platform to be continuous between West Street and Main Street, and construct a new 300-foot platform with a canopy west of the station. The VRE project will extend the existing sidewalks on both sides of the rail line near City Hall and the Prince William Parking Lot. In addition, a fence will be installed between the tracks to separate those serving the station and to prevent unsafe pedestrian crossings. This alignment will also be connected to the extensive downtown sidewalk network as well as on-street bicycle facilities north and south on Main Street and east and west on Prince William Street. The trail will provide multimodal connections to students and families of Osbourn High School and Baldwin Elementary and Intermediate Schools. Other key destinations in the area include the Manassas Farmers Market, Manassas Museum, Baldwin Park, City Hall, and several downtown dining and retail options.

Section 2

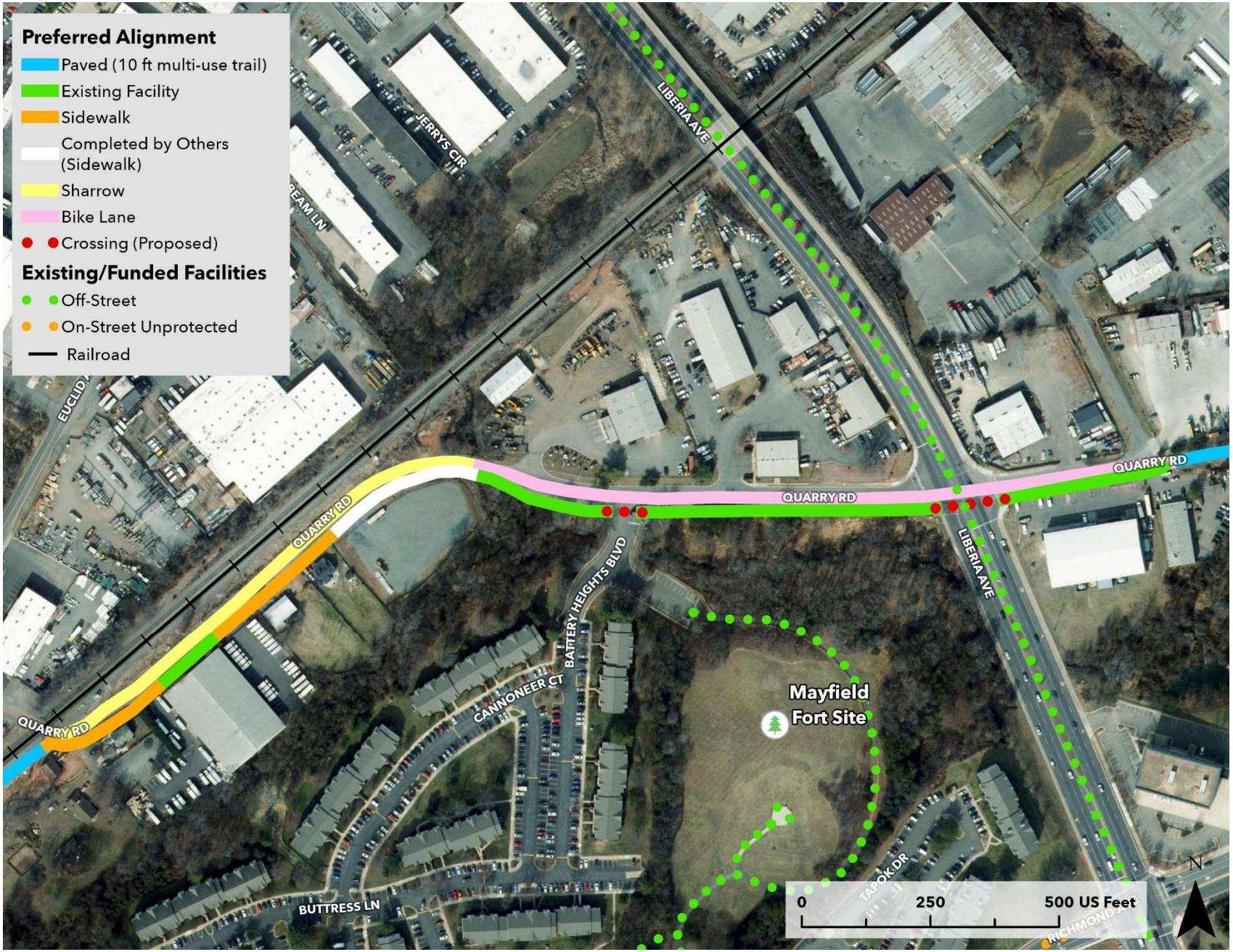

Preferred Alignment
Paved (10 ft multi-use trail)
Sidewalk
Sharrow
Crossing (Proposed)
Existing/Funded Facilities
Off-Street
Sharrow
Railroad
QUARRY RD
EUCLID AVE
LITHO LN
MAPLE ST
PRESCOTT AVE
CHURCH ST
CENTER ST
FAIRVIEW AVE
TUDOR OAKS DR
Mayfield Intermediate School
LANE SCOTT CT
DEBLANC PL
OLD LEWIS CT
SANDERLING DR
TUDOR LN
WINDSOR AVE
SIGNAL HILL RD
0
250
500 Feet
N

Preferred Alternative: Alternative #1

Alignment Description: This section begins with a proposed bike/pedestrian rail crossing at an existing roadway crossing at Fairview Avenue, which will require coordination with Norfolk Southern. The section will then continue on the south side of the rail line with 0.5 miles of paved multi-use trail directly adjacent to the rail line. A key aspect of this section is the tightly constrained space between the rail line and adjacent property lines which will require thoughtful safety considerations including a fence barrier to separate users from active rail operation. Extensive coordination will also be needed with VPRA to build within their right-of-way and with Dominion Energy, owners of an electric easement along the rail line. Additionally, private residential property is impacted adjacent to Quarry Road, requiring coordination with the owners to acquire right-of-way.

Alignment Benefits: This section of straight and continuous multi-use trail will provide easy access and wayfinding for a variety of users, including more than 6,000 residents within a half mile of the alignment. Connections will be available via Fairview Avenue to the Tudor Oaks neighborhood to the south and its network of sidewalks and paths, as well as on-street bike facilities along Tudor Lane, Windsor Avenue, and Signal Hill Road. Potential future connections south of the proposed alignment may also provide more direct access to Tudor Oaks and Mayfield Intermediate School.

Section 3

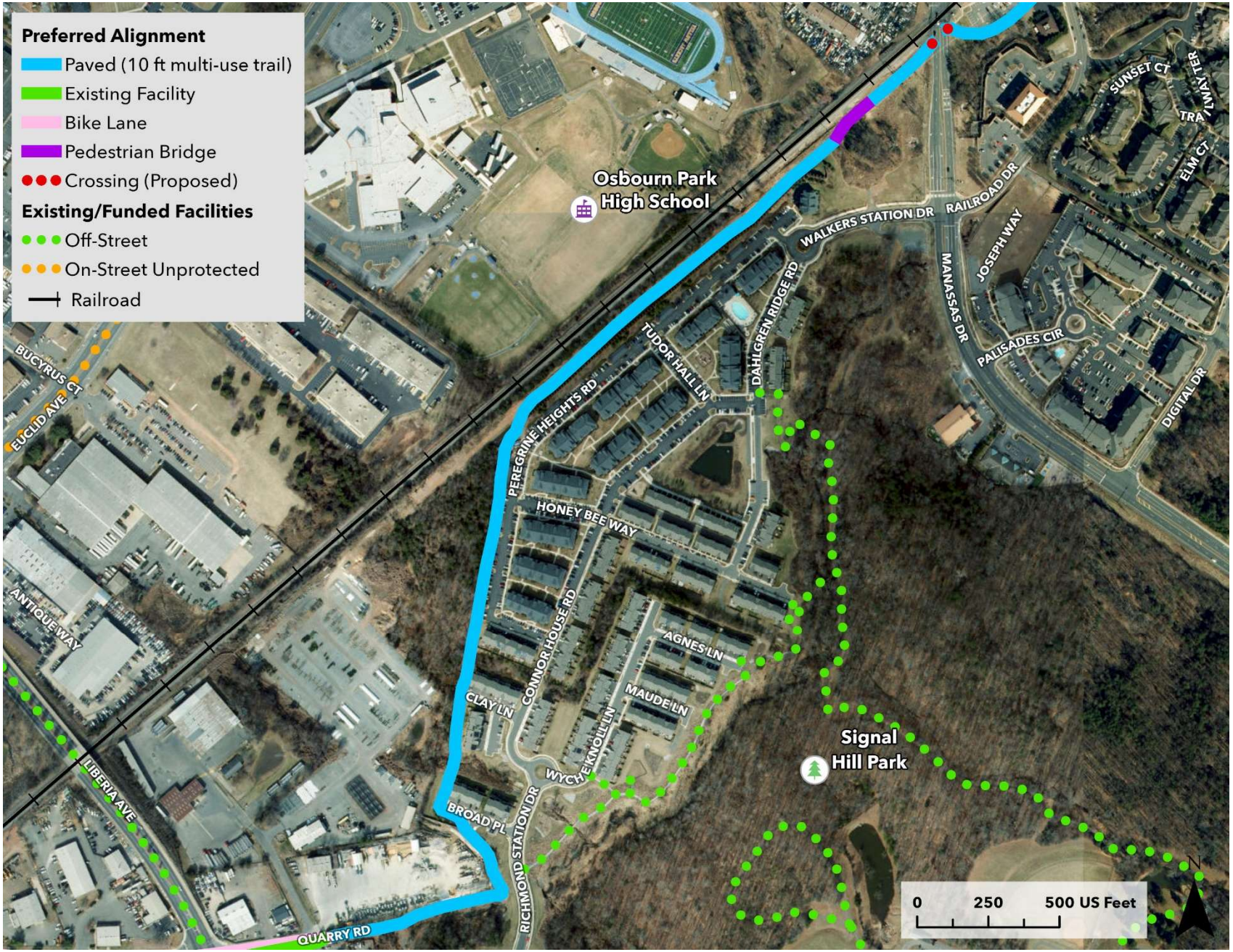

Preferred Alignment
Paved (10 ft multi-use trail)
Existing Facility
Sidewalk
Completed by Others (Sidewalk)
Sharrow
Bike Lane
Crossing (Proposed)
Existing/Funded Facilities
Off-Street
On-Street Unprotected
Railroad
LIBERIA AVE
JERRYS CIR
QUARRY RD
BATTERY HEIGHTS BLVD
CANNONEER CT
BUTTRESS LN
Mayfield Fort Site
TAPOK DR
RICHMOND
0
250
500 US Feet
N

Preferred Alternative: Alternative #1

Alignment Description: This section utilizes both existing and planned new facilities along Quarry Rd and diverts away from the rail line to avoid a heavily constrained space as the rail line passes under Liberia Avenue. Due to limited right-of-way on Quarry Road adjacent to the rail line, a combination of sidewalk and sharrows is proposed, including a 340-foot section of sidewalk planned to be constructed by an adjacent property owner. The road widens as the trail continues to the east, where an on-street bike lane is proposed in addition to the existing sidewalk. Two new road crossings will be implemented in this section at Battery Heights Boulevard and Liberia Avenue which is a large, high-traffic corridor. Coordination will be needed with four private business property owners adjacent to newly constructed facilities, and with VPRA and Norfolk Southern, who own and maintain the Quarry Road right-of-way along the rail line.

Alignment Benefits: This section includes a key connection to the Battery Heights residential complex and other communities, providing access for more than 5,000 residents within a half mile. Additional connections are available to the Mayfield Fort Site and its existing trails, a shared-use path along Liberia Avenue extending north and south, and an OmniRide bus stop at Liberia Avenue that provides transit connection to Downtown Manassas and Park Central.

Section 4


Preferred Alignment
Paved (10 ft multi-use trail)
Existing Facility
Bike Lane
Pedestrian Bridge
Crossing (Proposed)
Existing/Funded Facilities
Off-Street
On-Street Unprotected
Railroad
Osbourn Park High School
Signal Hill Park
WALKERS STATION DR
RAILROAD DR
MANASSAS DR
JOSEPH WAY
PALISADES CIR
DIGITAL DR
SUNSET CT
TRAVELER
ELM CT
DAHLGREN RIDGE RD
TUDOR HALL LN
PEREGRINE HEIGHTS RD
HONEY BEE WAY
CONNOR HOUSE RD
AGNES LN
MAUDE LN
CLAY LN
WYCHE KNOLL LN
BROAD PL
RICHMOND STATION DR
BUCYRUS CT
EUCLID AVE
ANTIQUE WAY
LIBERIA AVE
QUARRY RD
0
250
500 US Feet
N

Preferred Alternative: Alternative #1

Alignment Description: This section consists of 0.8 miles of newly constructed multi-use trail connecting between Quarry Road and Richmond Station Drive before passing along the perimeter of the Richmond Station, Signal Hill Station, and Walker Station residential complexes as the trail returns adjacent to the rail line. The trail continues along the rail line and across Manassas Drive, where a new bike/pedestrian crossing will be needed. This section also includes a 150-foot pedestrian bridge traversing a steep, marshy area west of Manassas Drive. Additionally, the connection between Quarry Road and Richmond Station Drive has rough terrain and a stream that will cause environmental and accessibility challenges. This section will require coordination with the adjacent Richmond Station, Signal Hill Station, and Walker Station HOAs, and with Dominion Energy, as the alignment is planned within their easement in the segment along the rail line.

Alignment Benefits: This section provides access to the Phase 1 trail for nearly 8,000 nearby residents, and provides first- and last-mile bicycle/pedestrian connection to the Manassas Park VRE Station. The continuous multi-use trail with many access points provides easy access and wayfinding for a variety of users. The section also presents an opportunity to connect across Richmond Station Drive to adjacent trails with direct access to Signal Hill Park, which has open space, pavilions, athletic fields, and a waterpark. Additionally, an existing dog park along Peregrine Heights Road offers an amenity for dog owners.

Section 5

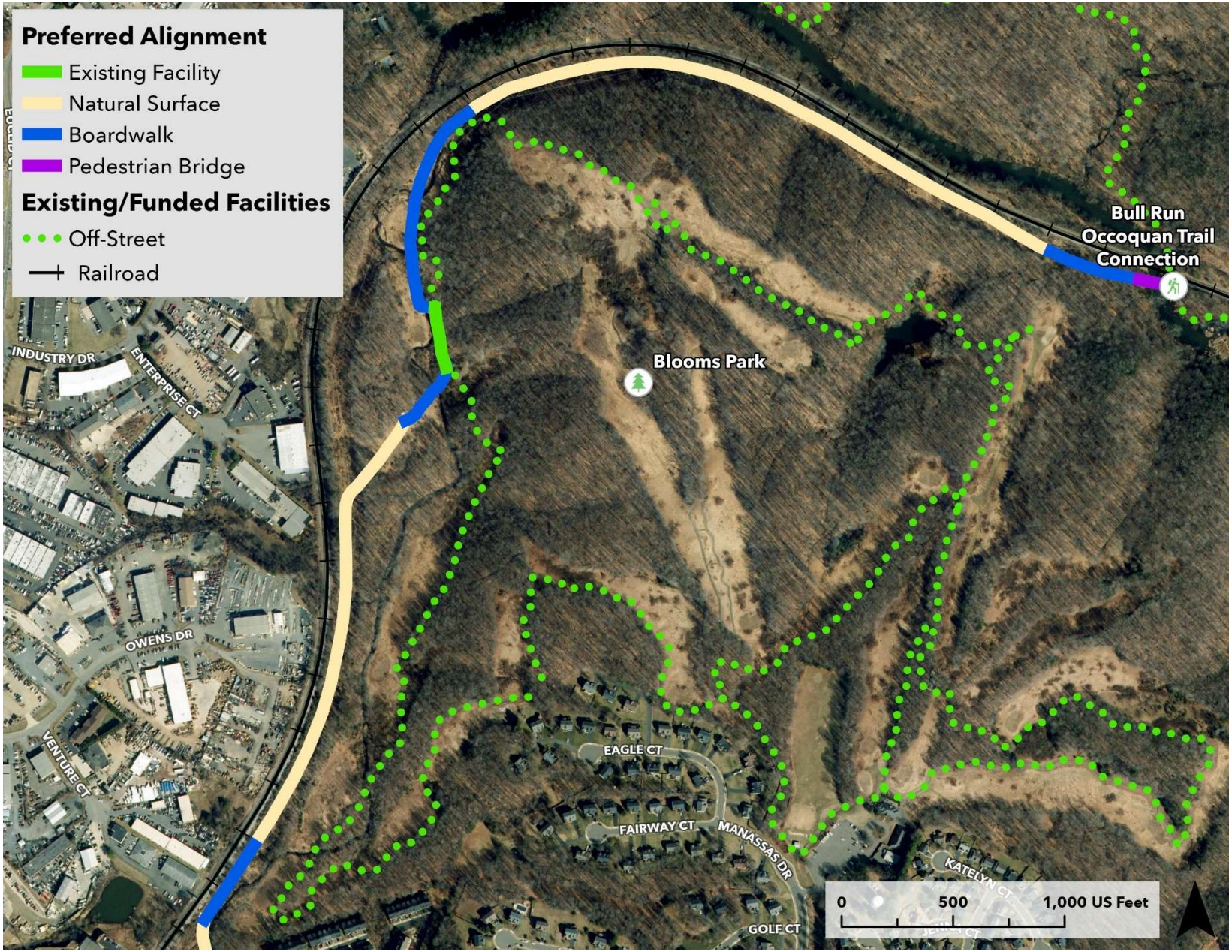

Preferred Alignment
Paved (10 ft multi-use trail)
Natural Surface
Boardwalk
Crossing (Proposed)
Existing/Funded Facilities
Off-Street
Railroad
Park Central
Manassas Park City Hall
Manassas Park Station (VRE)
MARKET ST
PARK CENTRAL PLZ
BROAD ST
NAYLOR DR
MANASSAS DR
RAILROAD DR
THOMAS LN
PERCY PL
PERCY CT
PARK CENTRAL TER
TASSITA LN
PULLMAN PL
AMBROSE LN
AWDRY WAY
CORBETT CIR
HANDERSON PL
HOLMES PL
BATTALION WAY
ELZEY PL
WALKER WAY
DIGITAL DR
WEST CARONDELET DR
BELO GATE DR
RUSSIA BRANCH VIEW DR
CREEK VIEW TER
LOCUST TER
CHRISTINA PL
0
250
500 US Feet
N

Preferred Alternative: Alternative #1

Alignment Description: This section begins with paved trail that lines the perimeter of the Manassas Park VRE Station parking lot. Boardwalk will be utilized entering the forested area adjacent to the VRE station parking lot in order to navigate streams and wetland areas. The trail then transitions to natural surface path until entering into Blooms Park. A new bike/pedestrian crossing will be needed in this section at Railroad Drive.

Alignment Benefits: This section provides key connections to Park Central, Manassas Park's mixed-use, central activity center which is home to City Hall and hosts diverse dining and shopping options as well as community events throughout the year. This section of the trail will also provide access for more than 7,700 residents, including those living at the Parq 170 and Village at Manassas Park residential complexes north of the rail line, and Palisades, Manassas Yards, and Manassas Park Station south of the trail. For these residents, the trail will provide a first- and last-mile multimodal connection to the Manassas Park VRE Station, with passenger rail service to Washington, D.C. and multiple destinations along the way.

Section 6


Preferred Alignment
Existing Facility
Natural Surface
Boardwalk
Pedestrian Bridge
Existing/Funded Facilities
Off-Street
Railroad
Bull Run Occoquan Trail Connection
Blooms Park
INDUSTRY DR
ENTERPRISE CT
OWENS DR
VENTURE CT
EAGLE CT
FAIRWAY CT
MANASSAS DR
KATELYN CT
GOLF CT
0
500
1,000 US Feet

Preferred Alternative: Alternative #1

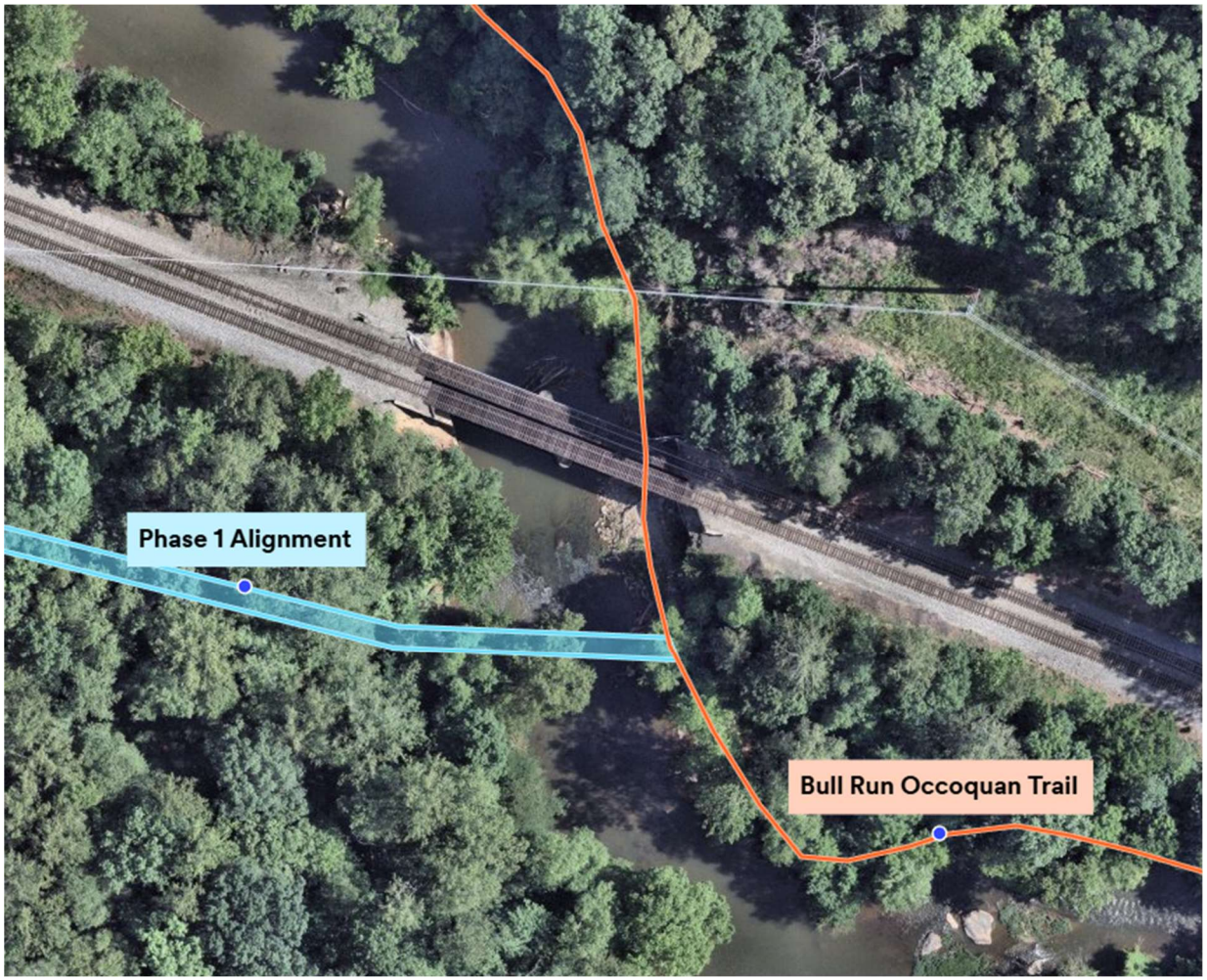
Alignment Description: This section navigates through Blooms Park, beginning a section of boardwalk adjacent to a stream in the southwest portion of the park, then transitioning back to natural surface path. The path will continue north along the rail line within the cleared area of the Dominion Energy easement, before diverting from the rail line due to steep elevation changes in the northwest area of the park. This diverted segment will transition back to boardwalk to navigate a wetland area, but will utilize a portion of an existing paved trail as well. The alignment will return to the proximity of the Dominion Energy easement and continue along the rail line as a natural surface path. Toward the eastern terminus of the Phase 1 trail, boardwalk will be utilized in another wetland area. The Phase 1 trail will end with a 150-foot pedestrian bridge across Bull Run, connecting to Fairfax County. This bridge connection is described in detail in the section below and additional coordination will be needed with Fairfax County and NOVA Parks for the connection across Bull Run.

Alignment Benefits: This section of the alignment will be entirely within Blooms Park, a converted golf course with 270 acres of public-owned forest, streams, wildlife, and trails offering a scenic experience for trail users. Additionally, the bridge across Bull Run will connect to the existing Bull Run Occoquan Trail in NOVA Park in Fairfax County and serve as a key trail connection between jurisdictions.

Connection to the Bull Run Occoquan Trail

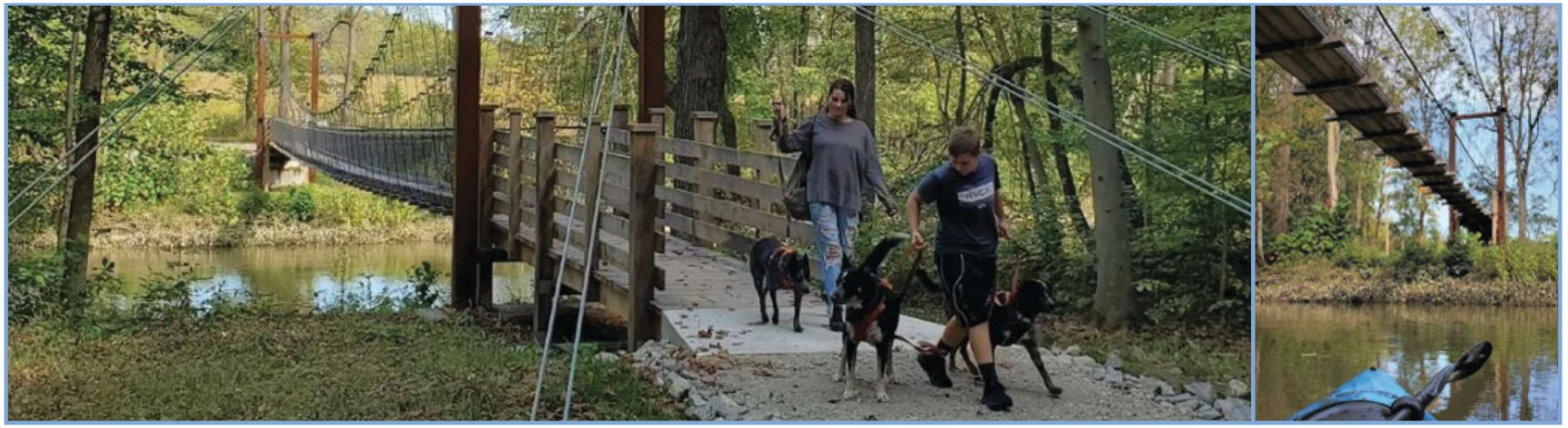
Section 6 of the preferred alignment includes the eastern terminus of the trail – a connection across Bull Run into Fairfax County. The project team's proposal for this connection (**Figure 17**) includes a pedestrian bridge suspended across Bull Run and connecting to the Bull Run Occoquan Trail (BROT), which extends for several miles northwest and southeast of the Phase 1 terminus through natural parkland and forests in Fairfax County. Within this section of the BROT, biking is not permitted. The Bull Run Occoquan Trail also passes under the rail line adjacent to the Phase 1 terminus, offering an opportunity for Phase 2 of the trail to continue on either the north or south side of the rail.

Figure 17: Bull Run Crossing Proposal



Existing Conditions

Examples of Proposed Suspension Bridge



Design & Next Steps

As part of this feasibility study, the project team recommends that the bridge be constructed at a height that accommodates a 10-year water surface elevation (WSE) which is 142.5 ft. However, water gauge data would need to be used to further understand water level fluctuation.

During the design of the Phase 1 trail, the following steps should be taken, considering that the proposed location is on the border of Fairfax County and Prince William County, is in a resource protection area (RPA), and is in a floodway:

- FEMA conditional letter of map revision (CLOMR) – pre-construction
- FEMA letter of map revision (LOMR) – post-construction
- Floodplain study (Fairfax County and Prince William County)
- Water quality impact assessment (Fairfax County and Prince William County)
- Floodplain use determination (Fairfax County)

Supporting Infrastructure and Amenities

The Manassas Line Trail is unique in that it follows adjacent to an active rail line, which requires careful consideration of supporting infrastructure to ensure the comfort and safety of all users. As part of the Phase 1 trail, safety barriers such as fencing or walls will be implemented in sections where the trail is closely adjacent to the rail line to create a comfortable separation between trail users and daily rail operation. **Figure 18** and **Figure 19** show examples of what these barriers may look like. Saftey fence example number one is a shorter, more decorative fence like the existing fence in Downtown Manassas. The second safety fence option will be included when adjacent to the roadway and must follow the design laid out in the NS public project manual.

Pedestrian-scale lighting will also be implemented along the trail between the two VRE stations to improve safety and visibility for users during low-light conditions. Since this trail will serve as a first- and last-mile connection for commuters, lighting will be essential for comfort and safety in the morning and evening, especially during winter months when daylight hours are limited.

Figure 18: Safety Fence Example #1

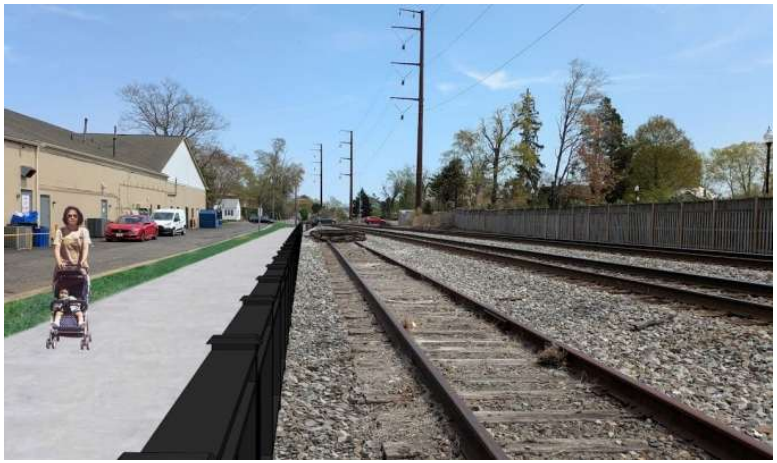
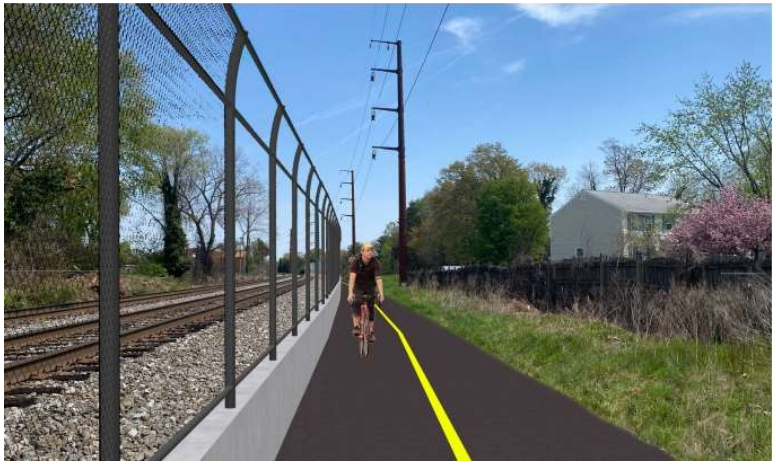


Figure 19: Safety Fence Example #2



Another integral part of creating a comprehensive trail experience for users is thoughtful consideration of wayfinding and amenities along the trail corridor. Since the proposed alignment for the Phase 1 Manassas Line Trail changes directions in some locations and transitions between different surface types along the corridor, adequate wayfinding is important for users to know that they are on the trail and enable navigation to key destinations. In addition to well-designed wayfinding, amenities along the trail can enhance the user experience, attract more users, and expand the positive impact on the community. **Figure 20** below provides examples of wayfinding and amenities that will be considered in locations along the Phase 1 Manassas Line Trail, along with some photo examples on other regional trails.

Figure 20: Example Wayfinding and Amenity Types

A key step in the potential future development of the Phase 1 trail will be determining necessary and optimal locations for wayfinding and amenities. For example, directional signs can be helpful to users at locations where the trail has a sharp turn or transitions to a different facility type and can also include directions to nearby destinations. Bike signs can also be placed at

access points to the trail to signify to bicyclists that the trail is a bikeable facility. An important consideration for implementing wayfinding on the trail will be keeping signage consistent across the City of Manassas, City of Manassas Park, and Prince William County to provide clear direction for users traveling across jurisdictions. However, signage and branding should also embody the unique community identity of each jurisdiction and help advertise and connect users to local businesses, community destinations, and points of interest.

Another important element of trail success that will be considered for future implementation is trail activity counters. These are automated devices placed at key points along the trail to count the number of users. Some advanced counters can detect user type as well, distinguishing between pedestrians, cyclists, and others. This data provides valuable metrics for trail managers to assess overall usage as well as patterns such as user type trends, high activity areas, or peak daily/weekly usage times. This information can be used to assess benefits of the trail or prioritize investment in wayfinding, amenities, maintenance, and future development around the trail.

Concept Development

With the preferred alignment and proposed facility types established, the project team developed 10% concept plans for the entire Phase 1 trail alignment, including typical sections of each facility type. The full plans are available in **Appendix C**.

The conceptual design is a detailed product of the feasibility evaluation and the identification of constraints and opportunities along the trail alignment. The concept plans will inform potential future phases of planning and design for a rail-with-trail corridor. The concept reflects the proposed surface types in the **Preferred Alignment** section with a combination of paved multi-use path, sidewalk, natural surface trail, and bridge and boardwalk structures, navigating varying physical conditions, environmental sensitivities, and right-of-way constraints along the corridor.

Development of the concept was based on a thorough review of existing conditions using high-resolution aerial imagery and available GIS data which is detailed in the **Data Collection and Base Mapping** section. These data sources were used to establish base mapping and identify key features such as rail infrastructure, property boundaries, waterways, wetlands, topography, roadway crossings, and adjacent land uses. This information informed preliminary alignment considerations and supported evaluation of potential trail surface types and structural needs.

Field Reconnaissance also supported the concept development, with site visits focused on observing right-of-way limitations, drainage patterns, topographic changes, environmental constraints, and potential constructability considerations including rail clearances and access points. Information gathered during these site visits was used to refine the conceptual alignment and

assess where elevated structures—such as bridges or boardwalks—may be appropriate to address physical or environmental constraints.

The resulting concept illustrates a continuous and context-sensitive trail alignment that responds to site-specific conditions. Shared-use path segments are proposed where sufficient width and suitable conditions exist to support a paved facility. In more constrained or environmentally sensitive areas, the concept transitions to boardwalks, bridges, or natural surface trail segments to maintain connectivity while minimizing impacts. This approach supports flexibility in design and reflects feasibility considerations related to environmental resources, right-of-way, and constructability. The conceptual design is intended to communicate general alignment, trail typologies, and key features at a planning level rather than represent final design. Further refinement will be conducted in future project phases through detailed surveying, environmental studies, and coordination with relevant stakeholders as the project advances.

In addition to the concept plans, sample renderings were created to visualize the trail appearance at various locations along the corridor once constructed. **Figure 21 – Figure 25** show examples of these renderings.

Figure 21: Downtown Manassas Rendering

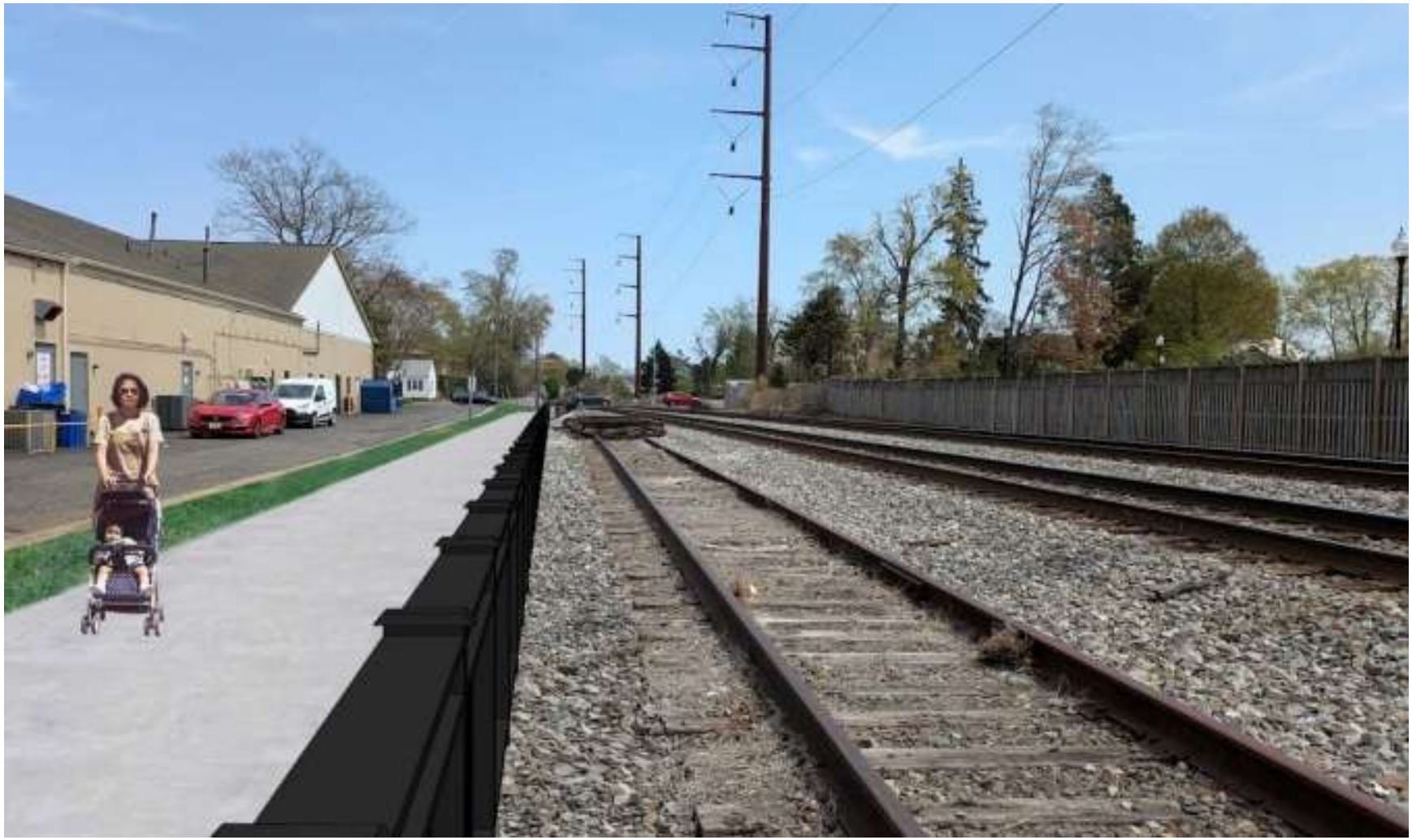


Figure 22: East of Fairview Ave Rendering

Figure 23: West of Manassas Dr Rendering

Figure 24: Blooms Park Boardwalk Rendering

Figure 25: Blooms Park Northeast Rendering

Next Steps

Next Steps

This feasibility study demonstrates that Phase 1 of the Manassas Line Rail-with-Trail is technically feasible and can deliver meaningful transportation, safety, and quality-of-life benefits. The analysis confirms that, while the corridor presents notable constraints related to right-of-way, rail operations, and environmental considerations, these challenges can be addressed through context-sensitive design, targeted coordination with partner agencies, and phased implementation. Collectively, the findings support advancement of the project from planning into the early stages of implementation.

The project has the potential to significantly improve multimodal connectivity, expand access to regional trail networks, and provide a safe, continuous facility for walking and bicycling. Public and stakeholders input gathered during the study further reinforces the project's value, indicating strong interest in the trail for both recreational and utilitarian trips and highlighting its role in supporting broader community and economic goals.

To continue to advance this project towards implementation, the following next steps are recommended:

- **Advance Concept Development and Preliminary Design**
  Expand upon the 10% design plans and move to 30% design plans to further refine the preferred alignment, confirm typical sections, and further evaluate crossings, access points, and transitions near constrained areas. This phase should also include additional field verification and coordination with partner agencies to confirm design assumptions and safety requirements.
- **Formalize Agency Coordination.**
  Continued coordination with VRE, VPRA, Dominion Energy, Norfolk Southern, and adjacent jurisdictions, Fairfax County and NOVA Parks, will be critical to implementation. Establishing clear roles, responsibilities, and approval processes will help reduce risk and support timely project delivery.
- **Pursue Environmental Documentation and Permitting.**
  Begin the appropriate level of environmental review and permitting to address potential impacts and regulatory requirements. Early initiation of this process will help identify risks and inform final design decisions. This project passes through multiple jurisdictions and impacts the RPA and floodway, therefore FEMA CLOMR and LOMR, Floodplain Study, Floodplain Use Determination and Water quality impact assessment should be evaluated and developed.
- **Plan for Phased Implementation.**
  Given corridor constraints and funding considerations, a phased approach may be appropriate. Early phases could focus

on segments with fewer constraints or high connectivity value, building momentum while longer-term challenges are addressed.

- **Memorandum of Understanding**
  A Memorandum of Understanding (MOU) is needed to move the trail into implementation by formalizing partner commitments and establishing clear responsibilities for further design, construction, and long-term maintenance once the trail is implemented.
- **Continue Public and Stakeholder Engagement.**
  Ongoing engagement will be essential as the project moves forward. Future outreach should focus on sharing design refinements, construction phasing, and anticipated timelines, while continuing to incorporate community feedback into decision making.

Funding

The City of Manassas, City of Manassas Park, and Prince William County submitted an application to fund the implementation of the Phase 1 Manassas Line Trail in July 2025. This application included the preferred alignment of the trail with proposed facility types, the projected benefits of the trail, such as the impacted population, and cost estimates for implementation. These cost estimates are summarized in **Table 3**, and are adjusted for projected inflation for the target years for preliminary engineering, right-of-way acquisition, and utilities, and construction. The full cost estimates can be viewed in **Appendix D**.

Table 3: Phase 1 Cost Estimates

Category	Cost
Preliminary Engineering	**$2,714,414** **Adjusted for 3% annual inflation to 2030*
Right-of-Way Acquisition and Utilities	**$3,017,295** **Adjusted for 3% annual inflation to 2032*
Construction	**$24,534,285** **Adjusted for 3% annual inflation to 2033*
Project Total	**$30,265,994**

***Since the development of the cost estimates, the proposed bridge type has been modified. However, it is anticipated that the cost would be less than originally estimated.*

If the jurisdictions are awarded funding for the Phase 1 trail, the next steps toward implementation would include further and final design, environmental documentation and permitting, right-of-way acquisition, and construction.

Appendices

Appendix A

Feasibility Analysis of Alternatives

Appendix B

Community Survey Results Summary

Appendix C

Concept Design

Appendix D

Cost Estimates

**Since the development of the cost estimates, the proposed bridge type has been modified. However, it is anticipated that the cost would be less than originally estimated.*