PRINCE WILLIAM
—Parks & Recreation

# Potomac Heritage National Scenic Trail Feasibility Study

## Gap Area 1 – Belmont Bay to Town of Occoquan

Prince William County, VA

July 2025

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# List of Acronyms

AASHTO - American Association of State Highway and Transportation Officials

ADT – Average Daily Traffic

CAA – Clean Air Act

CADD – Computer-aided Design and Drafting

CBPA – Chesapeake Bay Preservation Act

CIP – Capital Improvement Plan

CRP - Carbon Reduction Program

DCR – Virginia Department of Conservation and Recreation

DEQ – Virginia Department of Environmental Quality

DPR – Prince William County Department of Parks and Recreation

DWR – Virginia Department of Wildlife Resources

EPA – Environmental Protection Agency

ERIS – Environmental Risk Information Services

ERNS – Emergency Response Notification Systems

ESA – Endangered Species Act

FEMA – Federal Emergency Management Agency

FLAP – Federal Lands Access Program

GIS – Geographic Information Systems

IPaC – Information, Planning, and Conservation

LOD – Limits of Disturbance

NAAQS – National Air Ambient Air Quality Standards

NEVI - National Electric Vehicle Infrastructure

NLEB – Northern Long-eared Bat

NPS – National Park Service

NRHP – National Register of Historic Places

NTS – National Trail System

NVTA – Northern Virginia Transportation Authority

NWI – National Wetlands Inventory

PHNST – Potomac Heritage National Scenic Trail

PIR – Priority Investment Rating

RCRA – Resource Conservation and Recovery Act

RPA – Resource Protection Area

RTA – Recreational Trails Program

SQG – Small Quantity Generators

TAP - Transportation Alternatives Program

T & E – Threatened and Endangered

USDA – U.S. Department of Agriculture

USFWS – United States Fish and Wildlife Service

VAFWIS – Virginia Fish and Wildlife Information System

VCRIS – Virginia Cultural Resource Information System

VDHR – Virginia Department of Historic Resources

VDOT – Virginia Department of Transportation

VSQG – Very Small Quantity Generators

WOTUS – Water of the US

WSS – Web Soil Survey

# Executive Summary

This study was performed by ATCS Incorporated (ATCS / The Consultant) on behalf of Prince William County Department of Parks and Recreation (DPR). ATCS was contracted by DPR to perform feasibility studies including preliminary engineering and to identify a recommended alternative for the identified Gap Area described in this report. The study included a background section with a purpose and needs, an evaluation of existing conditions in the Gap Study Area, development of three feasible trail alternatives, screening and evaluation of the three alternatives, resulting in a recommendation for a preferred alternative to be advanced for implementation.

This report evaluates Gap Area 1, which is located along the Interstate 95 (I-95) corridor within Prince William County. The Gap Area begins east of Richmond Highway near the Belmont Bay community and continues west along the Occoquan River – to the Fairfax County line in the north, Occoquan Road to the south, and ends at the Town of Occoquan in the west.

The evaluation of the three trail alternatives included all standard factors in an environmental study such as socioeconomic resources, natural resources, hazardous materials, air quality and noise, historic resources, Section 4(f)/6(f) resources, and safety. It also evaluated right-of-way impacts and costs. For the preferred alternative, ATCS developed plan view drawings and planning level cost estimates for construction. Additionally, ATCS developed a Phasing Plan for the Gap Area as well as a narrative of Next Steps to move the project(s) forward.

After evaluation, Alternative 1.1 was determined to be the alternative that best meets the Purpose and Needs while balancing costs and impacts. Based on meeting these criteria, Alternative 1.1 is the recommended alternative for Gap Area 1.

The recommended alignment begins on Belmont Bay Drive adjacent to the former Belmont Bay Golf Course. The alignment travels north through the former golf course land where it crosses under the CSX railroad tracks and Richmond Highway. From this point, the alignment moves south towards Annapolis Way, following Annapolis Way to Marina Way after which it moves north along Marina Way and through the area currently part of the Destination Place residential rezoning application. This proposed route has the potential to provide residents of the existing Rivergate apartments and the proposed Destination Place development with a direct connection to the PHNST as well as a connection to the I-95 / Route 123 Park & Ride lot, which is accessed from Annapolis Way.

The alignment continues west and south along Annapolis Way and connects to Route 123, tying into the existing and proposed pedestrian facilities associated with the VDOT I-95 and Route 123 Interchange Improvements Project. This alternative then continues northwest along the east side of Gordon Boulevard for seven-tenths of a mile before turning right onto Sea Ray Lane. In order to incorporate the natural beauty of the Occoquan River, the alignment continues along the west side of Sea Ray Lane, passing Occoquan

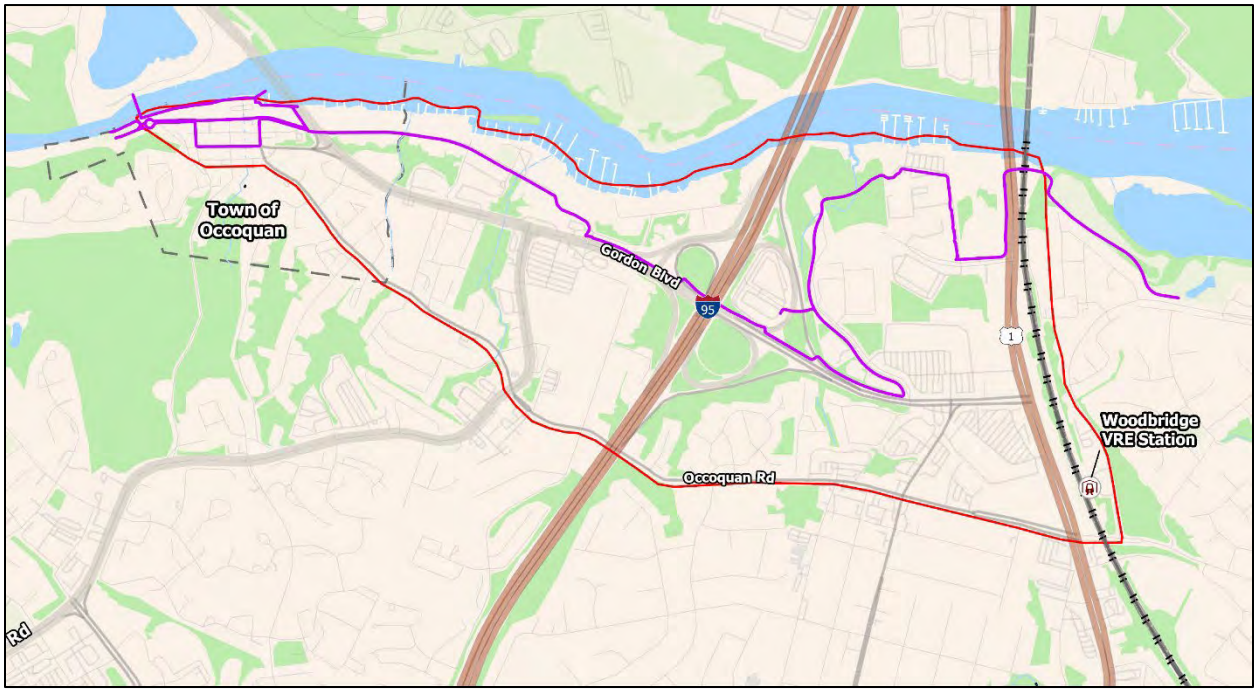
Park before heading north onto Poplar Lane for three-tenths of a mile. At this point, the alignment connects to the existing bicycle and pedestrian path through the Historic Town of Occoquan before tying into an existing pedestrian bridge crossing the Occoquan River west of the Town.

This recommendation considered constructability, feasibility, and input from the County and the public. The recommended alternative meets the Purpose and Needs by:

- Increasing access and mobility by providing additional travel mode choices and available travel routes to those living in or around Gap Area 1.
- Improving health, safety, and quality of life by providing a dedicated trail separated from traffic and increasing choices for travel and to move throughout the study area.
- Providing economic benefits to the region by providing residents with additional connections and modes of access between retail centers, downtowns, and residential areas.

Overall, construction costs are estimated at $4.7 million for the Gap Area 1 recommended alternative.

GAP AREA 1 RECOMMENDED ALTERNATIVE



# 1.0 Introduction, Background, and Purpose

## 1.1 Introduction

Prince William County's Department of Parks and Recreation (DPR) applied for and received a National Park Service (NPS) Federal Lands Access Program (FLAP) grant for a Potomac Heritage National Scenic Trail (PHNST) gap analysis. The goal of the project is to support NPS's goals of closing gaps in the PHNST network and allowing visitors and residents continuous access and enjoyment of the trail in Prince William County.

Trails are most often considered a recreational resource used for pleasure or exercise. However, trails play a key role in creating a resilient, interconnected, and multimodal transportation system by providing safe, reliable, alternative transportation options to individuals. Crucially, trails provide individuals with a choice in the mode of transportation which best suits their needs for any given trip. Creating and providing accessible transportation options is a key component of a well-developed mobility network and provides healthy alternatives for individuals while also reducing vehicle traffic and associated greenhouse gas emissions.

The Potomac Heritage National Scenic Trail Gap Analysis Feasibility Study analyzes the feasibility of providing a connection in three Gap Areas within Prince William County. This report evaluates Gap Area 1. The Study will identify a planned alignment that provides feasible, safe, and convenient access to bicycle and pedestrian modes of transportation as well as recreational trail opportunities. This new connection

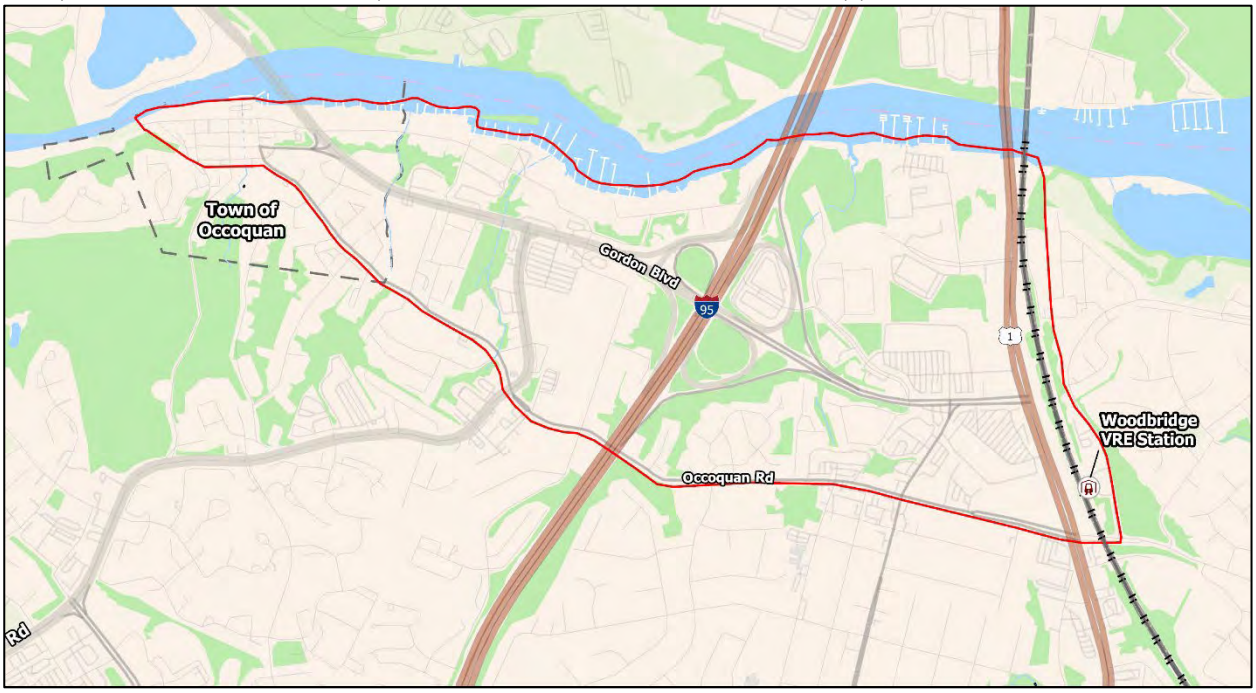



*Figure 1 – PHNST Gap Area 1 Study Area*

will be beneficial to the physical and mental health of residents and trail visitors alike, while providing recreation and active transportation opportunities in locations where they do not currently exist.

Gap Area 1 shown in *Figure 1* above is located along the Interstate 95 (I-95) corridor within Prince William County. The Gap Area begins east of Richmond Highway near the Belmont Bay community and continues south along the Occoquan River / Fairfax County line in the north and Occoquan Road to the south, ending at the Town of Occoquan in the west.

## 1.2 Background

### History

The National Trail System (NTS) was established through the National Trail System Act of 1968. This act aimed to create and protect a network of scenic, historic, and recreational trails across the United States, providing opportunities for outdoor recreation, promoting the enjoyment and appreciation of the nation's scenic, historic, natural, and cultural resources. One of the most significant additions to the NTS is the PHNST. Designated by Congress in 1983 through an amendment to the National Trail System Act, the PHNST represents a major effort to preserve and celebrate the unique heritage of the Potomac River corridor. Spanning nearly 900 miles (Commission, 2023) of existing and planned trails, the PHNST traverses multiple states in the Potomac River basin, extending from the Laurel Highlands Trail in western Pennsylvania to the mouth of the Potomac River in Virginia. Across its length, the PHNST consists of both paved and unpaved sections, offering varied hiking experiences suited for many different skill levels.

*Figure 2 - PHNST Extent*

The PHNST winds its way through five physiographic provinces as shown in *Figure 2*, including a diverse range of landscapes and ecosystems. It also passes through the nation's capital, Washington, D.C., and includes 140 miles of trails in Northern Virginia. This extensive trail system is composed of both existing and planned sections, each tracing the natural, historical, and cultural features of the Potomac River corridor. Hikers, cyclists, and outdoor enthusiasts using the PHNST can explore significant sites, such as Civil War battlefields, colonial settlements, and areas of rich natural biodiversity, all while enjoying the scenic beauty of the Potomac River and its surroundings.

Visitors to the PHNST are offered a unique opportunity to traverse the same paths once walked by George Washington, who owned roughly 12,000 acres of land dispersed throughout the Potomac River corridor. The PHNST not only allows for a journey through history but also provides access to a rich tapestry of natural and cultural resources. The Potomac River corridor is a haven for biodiversity, featuring a variety of endangered species and an array of vibrant wildflowers. Along the trail, hikers and nature enthusiasts can

enjoy the natural beauty of the area, experiencing areas and ecosystems that have remained largely untouched for centuries.

In addition to its natural resources, the trail is steeped in historical significance. It passes by numerous historic sites that played pivotal roles in the founding of the United States of America. Visitors can explore remnants of early American settlements, colonial-era structures, and landmarks that tell the story of the nation's birth and development. Whether one is a history buff, a nature lover, or simply looking for a picturesque outdoor adventure, the PHNST provides an enriching experience that combines the natural splendor and historical depth of the Potomac River corridor.

## Social and Economic Benefits

The PHNST provides significant health, social, economic, and transportation benefits to the Northern Virginia region. According to a 2022 study, users of the PHNST in Northern Virginia walk a combined 13.6 million miles and bike a combined 45 million miles each year. These impressive numbers highlight the trail's extensive use and its importance to the community, in those areas where it has been completed. The health benefits of the PHNST are also substantial. The trail is estimated to generate $404 million in health benefits annually. These benefits include reduced healthcare costs due to increased physical activity, lower rates of chronic diseases, and improved mental health among users who are able to enjoy the natural and recreational aspects of the trail. Economically, the PHNST also plays a vital role in the region, contributing $86 million in direct economic benefits each year. These benefits stem from increased tourism, local spending at businesses near the trail, and enhanced property values in communities connected by the trail. The trail helps to create

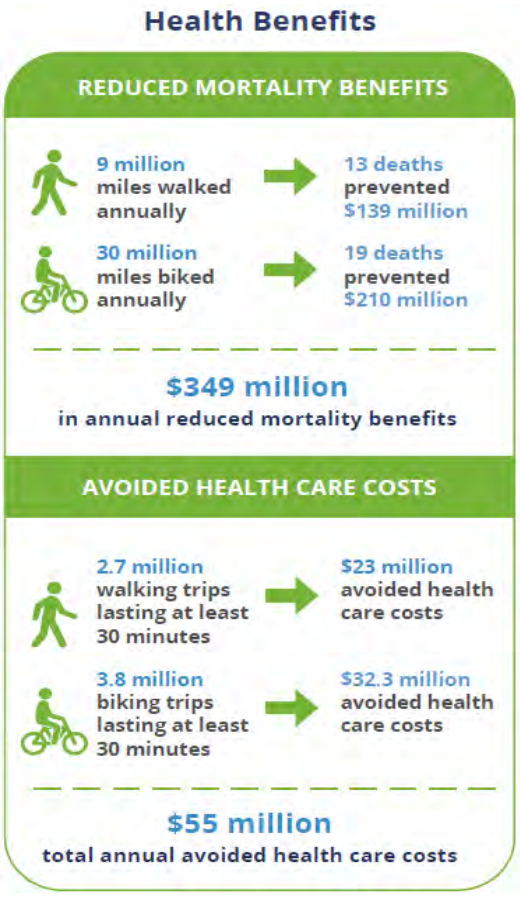



*Figure 3 - Health Benefits*

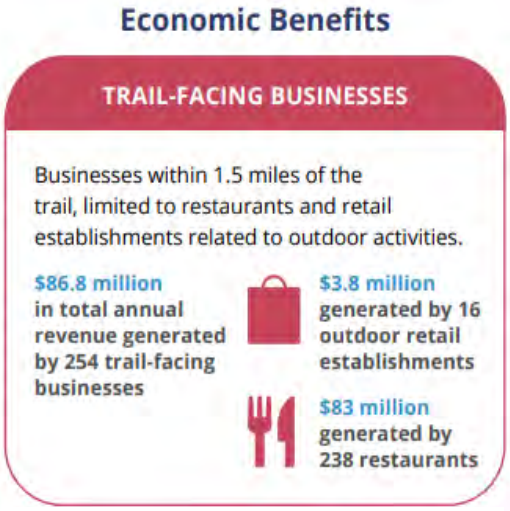



*Figure 4 - Economic Benefits*

jobs and stimulate local economies, demonstrating its value beyond recreational use. From a transportation perspective, the PHNST offers considerable savings. It is estimated to save $4 million in avoided transportation costs annually. By providing a safe and scenic route for walking and biking, the trail reduces the reliance on motor vehicles, which in turn lowers traffic congestion, reduces greenhouse gas emissions, and decreases wear and tear on public roadways.

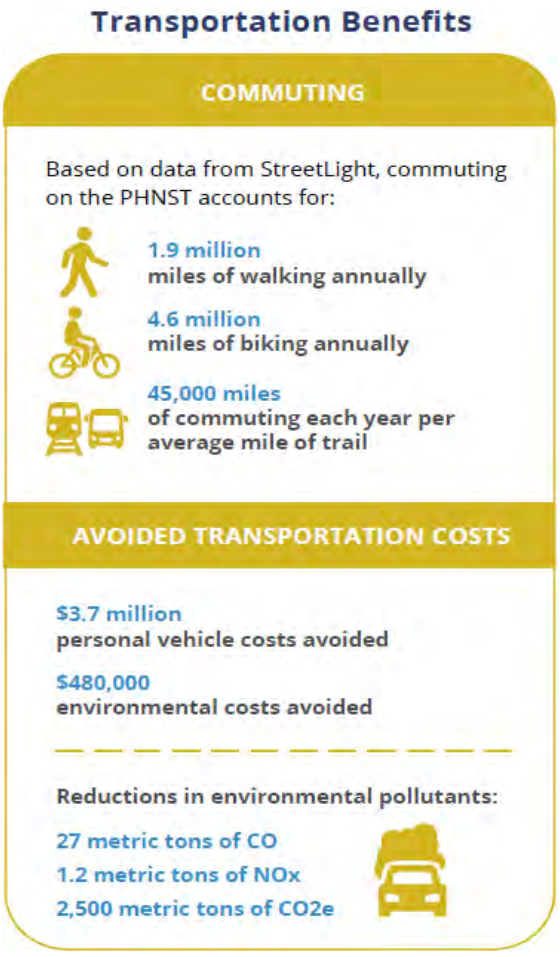



*Figure 5 - Transportation Benefits*

Connecting and completing gaps within the existing PHNST network has the potential to amplify these benefits. Filling gaps could result in $5.2 million in avoided healthcare costs and $34.1 million in mortality reduction benefits. These figures underscore the importance of a continuous and accessible trail network for maximizing public health outcomes. In addition to the health and economic benefits, closing gaps in the PHNST network could lead to significant transportation savings. It is estimated that in the Northern Virginia region, 630,000 miles of commuting could be avoided each year. This reduction in commuting miles would not only save individuals time and money but also contribute to environmental sustainability by decreasing the number of vehicles on the road (Northern Virginia Potomac Heritage National Scenic Trail: Health, Social Equity, and Economic Impact Study, 2022).

Overall, the PHNST is an asset to the Northern Virginia region. Its contributions to public health, the economy, and transportation are substantial, and further investments in connecting and completing the trail network promise even greater returns for the community.

## Social and Demographic Data Along the Trail Study Areas

The population of Prince William County, Virginia in 2022 was 486,943, increasing 19.9% since 2010 (TIGER/Line Shapefiles, 2024). The county has experienced a significant amount of growth and prosperity over this time; however, there are still communities that are considered disadvantaged. A disadvantaged community is defined as a community which has been denied access to and use of the same tools or resources needed for self-sufficiency. Disadvantaged areas and groups of individuals are identified by the patterns of inequitable access to resources as well as barriers encountered (rather than the fact of race, poverty, or sex). Groups may be considered disadvantaged if they face one or more barriers in access to

resources. Considering demographics within a trail system is a critical tool in aiding the reconnection of communities to resources where access is limited (A snapshot of disadvantage in the United States, 2022).

Trail systems like the PHNST in the Northern Virginia region greatly contribute to the health, economy, and transportation in the communities they touch. Closing gaps in the PHNST trail system will enhance disadvantaged communities by providing an alternate and cost-effective mode of transportation that reduces the need for motorized vehicles while promoting exercise and improving health. In return, the communities along the PHNST will have access to use the tools needed for self-sufficiency to achieve an overall better quality of life.

## Previous Planning and Studies

Prince William County has conducted several studies to assess the needs of the existing and planned trail system within the county. The County also understands that parks and recreation facilities are an essential service for residents and that these facilities often serve as an indicator for measuring quality of life. Green spaces and recreational areas offer residents and visitors a place to engage in physical activity, enjoy nature, and participate in community events, all of which contribute to overall well-being and community cohesion.

Closing the gaps in the PHNST trail system within Prince William County will better provide residents and visitors with a unified trail experience. By addressing the gaps in the trail system, the County can enhance connectivity, making it easier and safer for people to traverse the region on foot or by bicycle. Additionally, a unified trail system encourages more consistent usage, additional tourism, and a shared responsibility for maintaining the trail as a valuable public resource.

### *Prince William County 2040 Comprehensive Plan*


The County's transportation goals contained within the Mobility Chapter of the 2040 Comprehensive Plan (Prince William County 2040 Comprehensive Plan: Mobility, 2022) are centered around offering a diverse array of public and private transportation options to the region, ensuring that accessibility and affordability are prioritized for all individuals. By reducing reliance on single-occupancy vehicles, the County aims to enhance community connectivity and walkability. Additionally, the County has committed to minimizing environmental impacts and preserving the region's natural environment while improving transportation infrastructure. Multi-use and recreational trails such as the PHNST help meet these transportation and environmental goals.

The County's environmental goals focus on maximizing the protection and enhancement of the region's open spaces, green spaces, and wildlife preserves (Prince William County 2040 Comprehensive Plan: Environment, 2022). This includes efforts to preserve these areas by providing connections to the vast array of county, state, and federal parks/wildlife refuges located in proximity to the PHNST in Prince William

County, including Occoquan Bay Wildlife Refuge, Featherstone Wildlife Refuge, Leesylvania State Park, and Prince William Forest Park (a NPS park). Connecting the gaps in the PHNST will help enhance and promote walking and bicycling as modes of transportation, making it easier to access county, state, and federal lands and recreational attractions while also providing safe routes to schools in Prince William County. To achieve these objectives, environmental impacts will be key metrics in this analysis, helping to identify alternatives that align with local, state, and federal environmental goals.

The County's economic goals are focused on improving the economic well-being of the community and enhancing the quality of life for residents, including investments in parks and trails. The PHNST represents a multi-state initiative aimed at integrating natural, cultural, economic, and tourism assets to boost the economic resilience of the Potomac River watershed. This project aligns with the County's comprehensive and strategic plan and will foster economic development by generating new opportunities in recreation and tourism (Prince William County 2040 Comprehensive Plan, 2022).

### *Prince William County 2040 Mobility Chapter*

A primary goal of the Mobility Chapter, contained in the 2040 Comprehensive Plan, is to provide an accessible, safe, and comprehensive multimodal transportation network that allows for the safe and efficient movement of goods and people throughout the county and into neighboring areas (Prince William County 2040 Comprehensive Plan: Mobility, 2022). The Mobility Chapter recognizes that current infrastructure will need to adapt and expand to meet the increasing demands of a growing population through policies that support a safe, equitable, and connected mobility network.


The County acknowledges the importance of offering diverse transportation options to help residents fulfill their residential, recreational, commercial, and work-related travel needs. This means adapting to changing mobility trends, improving multimodal options, increasing the use of public transit, and increasing travel time reliability. Additionally, the Mobility Chapter emphasizes the need for sustainable and environmentally friendly transportation solutions to reduce greenhouse gases and promote a healthier environment.

Focusing population, jobs, and infrastructure within walkable and bikeable communities throughout the county will help reduce roadway congestion and manage future demand by reducing the reliance on automobiles. Integrating connections and expanding the county's recreational trail network also fosters healthier communities, enhances cross-county connectivity, provides commuter transportation alternatives, and boosts economic growth through tourism.

### *Prince William County 2040 Countywide Trails Plan*

As part of the Mobility Chapter, the County adopted a Countywide Trails Map (Countywide Trails Plan, 2022) that identifies an interconnected network of recreational and active transportation trails, which the County

intends to serve as the backbone for a countywide trail network. Development of an interconnected, multimodal, countywide active mobility and trail network requires substantial investment and careful planning. Coordination among local governments, developers, and community stakeholders will help ensure the seamless integration of various transportation modes. High priority should be given to trails identified on the Countywide Trails Map when reviewing land development applications and allocating funding sources such as development proffers, grants, and bonds. Proper prioritization will expedite the establishment of these trails.

The Mobility Chapter recommends that all communities within the county work to incorporate appropriate pedestrian connections, including sidewalks, paths, and recreational trails. These connections will enable residents to easily access the countywide trail network from their homes. Implementing this infrastructure will not only enhance connectivity but also promote healthier lifestyles by encouraging additional walking and cycling. Moreover, it will improve access to recreational areas, public transit, and places of employment, all while reducing reliance on automobiles. This decrease in vehicle dependency will help alleviate traffic congestion, reduce environmental impacts, and create a more sustainable and livable community for all residents.

Trails, like the PHNST, align with the goals of the Mobility Chapter by providing a safe, reliable, and interconnected multimodal network that enables residents to choose the mode of transportation that best suits their needs ranging from exercise, access to transit, or commuting to work or school. In addition, trails like the PHNST give residents a healthy alternative to reach their destination while reducing vehicle traffic as well as greenhouse gas emissions. Addressing the gaps along the PHNST will provide access to safe bicycle and pedestrian transportation pathways as well as recreational opportunities that are beneficial to physical and mental health. Connecting the current gaps in the trail will also bring these features to communities where similar recreation opportunities do not currently exist.

### *2019 Prince William County Parks and Recreation Needs Assessment Survey*

In 2019, Prince William County Department of Parks and Recreation conducted a Community Needs Assessment Survey (Recreation, 2019). The results from the survey, shown in ***Figure 6*** below, found that 105,676 out of total 145,961 (72%) households had a need for walking and biking trails. In addition, 43% of households responded that walking and biking trails were the most important recreational facilities within the county. This percentage was almost double that of the next highest rated facility (natural wildlife habitats (22%)). Walking and biking trails received a Priority Investment Rating of 200.0 based on the survey results. The Priority Investment Rating (PIR) identifies the facilities and programs residents think should receive the highest priority for investment. A rating of 100 or above indicated a relatively high level of unmet needs and that residents find it important to fund improvements to these areas. In return, improvements to areas with a high PIR will likely have a positive impact on the greatest number of households.

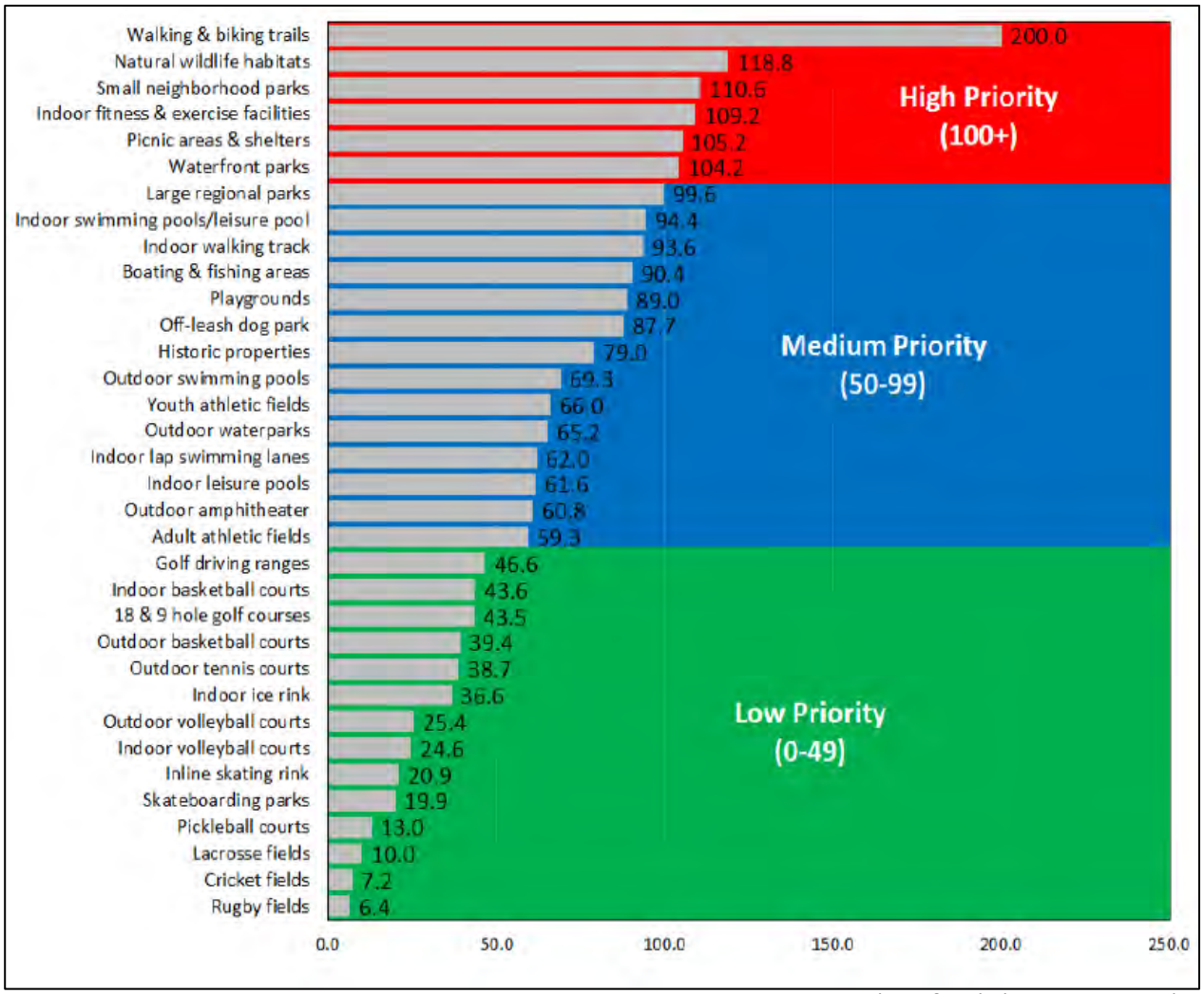



*Figure 6 - Priority Investment Rating*

## 1.3 Purpose and Needs

### Purpose

The purpose of this Feasibility Study is to examine potential routes for the PHNST through Gap Area 1, and to directly address provision of service and trail access to underserved communities in the County. As stated previously, providing connections within gap areas will allow access to underserved communities, provide safe and convenient access for cyclists and pedestrians, and provide recreational opportunities to improve physical and mental health where these opportunities do not currently exist. Completing these gaps will bring the overall completion of the PHNST closer to fruition, after which the County and its residents will be able to partake in the social and economic benefits of a contiguous National Scenic Trail.

### Needs

The gaps within the existing PHNST corridor present challenges for residents and visitors attempting to use the trail for either transportation or recreation. These gaps prevent residents from using the trail as an access point to destinations and prevent visitors from having a unified and safe trail experience. Providing connections between these trail gaps will help meet the needs described below.

#### *Access and Mobility*

Trails are an essential piece of the County's existing and planned transportation network and contribute to the County's goal of providing an interconnected, multimodal countywide active mobility and trail network. As discussed in *Section 1.2*, trails provide safe, reliable, and interconnected transportation alternatives to residents and visitors throughout the county. They provide alternative methods of transportation which allow individuals to choose the most appropriate method of transportation based on their needs.

Providing connections between existing sections of the PHNST will increase county residents' ability to utilize the PHNST as a mode of transportation to access areas throughout the county which were previously only accessible via automobile. These connections will provide the freedom for residents to choose the mode of transportation which best suits their daily needs and will increase the resilience of the transportation network by eliminating vehicle trips from local roadways. Providing trail access for residents not only provides a choice in the method of transportation individuals use, but it can also provide residents in traditionally underserved areas with access to goods and services that were otherwise out of reach.

#### *Health, Safety and Quality of Life*

Physical activity such as biking and walking can significantly enhance both the physical and mental well-being of individuals. Those who incorporate biking or walking into their daily routines are less prone to health issues such as diabetes, obesity, and hypertension. These physical activities help improve cardiovascular health, strengthen muscles, and boost overall fitness levels. Additionally, engaging in activities like walking or biking can reduce stress, anxiety, and depression by promoting the release of endorphins, which are natural mood lifters.

Furthermore, an active lifestyle fosters a sense of community and social interaction. People who walk or bike regularly are more likely to connect with their neighbors, creating a supportive social network that

enhances their sense of belonging and emotional well-being. This community engagement can lead to increased motivation to maintain an active lifestyle, creating a positive feedback loop of health and social benefits.

The cumulative health benefits of an active population also help alleviate the burden on the local healthcare system. With fewer individuals suffering from chronic illnesses, there is less demand for medical services, leading to reduced healthcare costs and expenses. Preventative health measures, such as promoting physical activity, are cost-effective strategies that benefit both individuals and society. By encouraging active lifestyles, communities can foster healthier, happier populations and create more sustainable and economically viable healthcare systems.

Safety is also a key component of the County's vision for developing a comprehensive and well-connected mobility network. Addressing the gaps in the PHNST is critical to achieving this goal. By closing these gaps, the County will create a cohesive trail experience, ensuring that users can traverse these trail sections without interruption. Furthermore, closing these gaps will significantly enhance safety for trail users. Currently, visitors face relatively dangerous situations when navigating sections of the trail that require crossing heavily trafficked roads with no dedicated pedestrian or bicycle infrastructure. These crossings pose risks and diminish the overall experience for users. Closing the trail gaps will allow users to be able to follow a continuous, well-designed route that minimizes exposure to traffic hazards. This improvement will not only promote safety but also encourage more people to use the trail, ultimately supporting the County's broader goals of fostering active transportation and recreational opportunities. Combined, the health and safety benefits of the trail will provide overall improvements to the quality of life for residents and visitors alike.

### *Economic Benefits*

A robust interconnected trail system offers numerous economic benefits. Local businesses along the trail see increased foot traffic and revenue, while employees enjoy convenient transportation options. Additionally, neighborhoods with trail access often experience higher property values due to the recreational and lifestyle advantages provided by trails.

Completing gaps in the PHNST will enhance its appeal as a destination trail, attracting more tourists who will spend on lodging, dining, and other services, thereby boosting local revenue. Events like marathons and cycling races hosted on these trails also contribute to economic growth. Moreover, using the trail for commuting can lead to significant fuel cost savings for individuals, reducing the economic burden of vehicle maintenance and contributing to a more sustainable transportation system (Stafford County Virginia, 2019).

Addressing the trail gaps will also decrease reliance on automobiles which can create significant savings for individual households and the local jurisdiction through reduced road improvements and maintenance needs.

# 2.0 Stakeholder Coordination

Involvement of Gap Area Partners is an important aspect of this feasibility study. Stakeholders included trail users, trail advocates, and others who have important knowledge to include in the feasibility study. Groups involved in the stakeholder meetings included: PWC Trails and Blueways Council, Northern Virginia Regional Commission, Greater Prince William Trails Coalition, the Town of Occoquan, and representatives from local homeowner's associations and the development community. The County Government was also represented by staff from the Department of Parks and Recreation, Office of Transportation, and Office of Planning. Two rounds of stakeholder meetings were held during the course of the study. The first round was held in September 2024 as the existing conditions phase of the study neared completion, and the second round was held in early February 2025 to review the evaluated alternatives and the recommended alternative.

## 2.1 Stakeholder Meetings – Round 1

The first stakeholder meeting was held on September 18, 2024, at the offices of the Prince William County Department of Parks and Recreation. A virtual option was also provided for those attendees who were unable to join in person. Following a presentation from the project team, discussion was held to solicit feedback from those in attendance. Overall, the meeting attendees expressed a desire for a scenic trail; a preference for waterfront or water views; an off shoot to the water where waterfront views are not possible; and a desire for amenities, such as benches and signage, along the trail.

## 2.2 Stakeholder Meetings – Round 2

A second round of stakeholder meetings was held in February 2025, with the second stakeholder meeting for Gap Area 1 held on February 26, 2025, at the offices of the Prince William County Department of Parks and Recreation. It was a hybrid meeting with attendees in person as well as online. During this meeting, the consultant presented the work completed, including the existing conditions analyses, and development and screening of alternatives. The consultant presented the three alternative alignments for the Gap Area, as described in *Chapter 4.0*, and the screening process to determine which alternatives had been advanced for further evaluation, as described in *Chapter 5.0*. Results of the detailed evaluation, including potential impacts to evaluated resources associated with Alternatives 1.1 and 1.2 were presented. Finally, the rationale for the recommended alternative, 1.1, was explained.

Overall, attendees appeared to agree with and were receptive of the recommended alternative as the most feasible alignment. Some stakeholders expressed a desire to move or locate the trail closer to the river if circumstances change to make such an option feasible. Additionally, there was a desire to have trail connections to the river's edge, even if the trail itself could not be along the river.

# 3.0 Evaluation of Existing Conditions and Potential Environmental Consequences

Existing Conditions Analysis was performed utilizing field and desktop review across a variety of environmental resources, demographic factors, and elements of the built environment within Gap Area 1. During field visits, photos, video, and extensive notes were taken detailing the observed resources. The desktop review utilized socioeconomic data, environmental data, previous studies performed within the Gap Area, traffic analysis, and analysis of aerial imagery. This combined approach ensured a thorough understanding of the current conditions, forming a solid foundation for future planning and decision-making.

The Existing Conditions Analysis provided the study team with essential information to identify constraints and potential issues within the Gap Area. Many of the resources described below are shown on the existing conditions mapping located in *Appendix A*. General details about each evaluated resource are provided below. Additional supporting documentation and analysis associated with the individual resource evaluations was prepared by ATCS, as part of this study. This supporting documentation and analysis has been provided to DPR as a separate data file and is not included as an appendix to this report due to size.

## 3.1 Traffic Data and Crossings

GIS Data, VDOT Traffic Data, aerial imagery, and field review were used to analyze traffic volumes, safety issues, and crossings of concern within the Gap Area. The results for each of the conditions analyzed are presented below.

### 3.1.1 Traffic Volumes

Traffic volumes were documented with the objective of placing the trail along roads with lower volumes of traffic when possible. Within Gap Area 1, the highest traffic volumes were identified on Route 123 west of I-95 with an Average Daily Traffic (ADT) volume of 58,000 vehicles, and on Richmond Highway in the vicinity of Route 123 with an ADT of 37,000 vehicles.

### 3.1.2 Crossings

Major crossings were documented with the objective of avoiding these crossings when possible. Several major roadway crossings were identified including crossings of Richmond Highway, I-95, and the I-95 ramps. Sidewalks located along Route 123 are narrow and the curb ramps along this route are not ADA compliant. Additionally, a significant number of driveways and business entrances were noted in this area, which reduces the safety and comfort of pedestrians traversing the corridor. The existing sidewalk ends before reaching the I-95 ramps; however, the I-95/Route 123 Interchange Project includes plans to construct a shared use path through this section of the Gap Area.

### 3.1.3 Safety Issues Identified

To identify potential safety issues, crash data was sourced from the Virginia Department of Transportation (VDOT) Full Crash Layer published on ArcGIS Online. This data layer shows crashes since 2016. When considering crashes for multimodal projects, it is important to identify conflict points which have the potential to cause increased pedestrian or bicycle crashes following construction. As such, a high density of crashes was identified along Route 123 as well as at potential trail crossing locations at intersections along Richmond Highway.

Bicycle and pedestrian specific crashes were also identified, with a total of 21 crashes identified along Route 123. A particular area of concern was identified at the intersection of Occoquan Road and Richmond Highway as well as the nearby intersection of Dawson Beach Road and Express Drive. Four pedestrian collisions, as well as two additional crashes that involved a bicyclist occurred between these two intersections.

## 3.2 Trails and Connections

Prince William County has a robust trail network and as such, there are several existing trails that traverse the Gap Area. Closing gaps within the existing PHNST network will not only help unify the PHNST experience, but it will also allow for increased mobility throughout the regional trail system by increasing connectivity between existing trails.

Gap Area 1 includes existing sidewalks and shared use paths along Route 123 near the intersection with Richmond Highway; however, there are gaps in this trail network. Connecting the PHNST to these existing paths would provide residents and visitors to the trail with access to the Woodbridge VRE Station on Richmond Highway as well as amenities in Fairfax County such as Occoquan Regional Park, located north of the study area on Route 123.

## 3.3 Major Destinations, Attractions, and Military Facilities

Evaluation was performed to determine which existing amenities and services would be potential destinations and attractions for residents and visitors to the expanded and connected PHNST. Gap Area 1 has a high concentration of potential destinations and attractions due to its geographic location, as well as the length of trail located within the Gap Area. Perhaps the most prominent attraction is the Historic Town of Occoquan which includes local restaurants, shops, art studios, historic buildings, museums, and River Mill Park. The Town also provides access to recreational activities including boating, kayaking, and fishing along the Occoquan River. This Gap Area also provides connections to amenities within Fairfax County such as Occoquan Regional Park and the Workhouse Arts Center.

## 3.4 Utilities

Above-ground utilities, including utility poles, overhead power lines, and communication infrastructure, were assessed through aerial imagery, Geographic Information Systems (GIS) data, and on-site inspections to ensure accuracy. For underground utilities, identification was

limited to visible surface features such as stormwater drains, manhole covers, and other utility access points, as subsurface utility investigations were not conducted at this stage.

All identified utilities were documented and incorporated into base mapping to facilitate integration into the proposed trail alignments. This process ensured that potential conflicts with existing infrastructure were identified early in the planning phase, allowing for necessary adjustments to minimize disruptions and maintain safety standards. Additional coordination with utility providers will be performed during subsequent project phases to obtain detailed subsurface utility information and confirm the precise locations of underground infrastructure.

## 3.5 Topography

Topography across the Gap Area varies significantly and ranges from 2 feet to 108 feet above sea level. Additionally, there are extensive existing roads which the proposed trail will need to traverse over, under, or along as well as streams, wetlands and floodplains the proposed trail connection will need to cross. While the lowest points are generally found along the Occoquan River, there are still significant topographic obstacles which present an issue for a trail alignment which directly parallels the river. The most direct path with the least topographic obstacles between the eastern and western ends of this Gap Area would likely follow Route 123. Additional analysis was performed during the design and alignment phase of this study to determine feasible alignments for the potential trail and is discussed in more detail in *Chapter 6.0.*

## 3.6 Environmental Resources

Potential impacts and consequences to environmental resources were evaluated as part of this feasibility study. The resources described below include many of those that would be evaluated within a federal environmental document or final design evaluation. The impacts described are estimates to be used for planning purposes should the study be carried forward to additional phases of design or study. Individual resources were evaluated using a combination of aerial photography, desktop analysis, and database review. Additionally, Geographic Information Systems (GIS) data from Prince William County and other publicly available data sources were used to perform estimated impact analyses.

### 3.6.1 Socioeconomic Resources

#### *Community Facilities*

Community facilities including schools, libraries, parks and recreation areas, community centers, police, fire and rescue services, hospitals, places of worship, and cemeteries were identified using data from the Prince William County GIS Data Portal, aerial photography, and field review. Analysis identified seven facilities including a school, a police facility and five places of worship. The identified facilities were taken into consideration when determining potential trail alignments and efforts were made to provide connections to these facilities to increase connectivity and provide easy access to residents within the Gap Area.

### *Land Use, Parcels, and Available Right of Way*

A detailed survey was not performed as part of this feasibility study. Instead, parcel data from the Prince William County GIS Data Portal was utilized to identify existing parcels and right-of-way. While the data is useful for high-level evaluation of right-of-way needs for the project, the estimates given in subsequent sections of this report are subject to change based on an official survey which will be carried out as part of future phases of design or study.

### *Open-Space Easements*

The Gap Area was evaluated for existing open-space easements utilizing data from Prince William County GIS Data Portal. The review identified four easements running along the Occoquan River from the southern end of the Gap Area boundary to south of the Route 123 bridge across the Occoquan River. The remaining easements include two HOAs as well as Occoquan Park.

### *Significant State and Federal Lands*

Significant State and Federal Lands located within the Gap Area were evaluated using data from Prince William County's GIS Data Portal, aerial photography, and field review. Following review, no significant State or Federal Lands were identified.

### *Environmental Justice Populations*

Evaluation of environmental justice populations was not performed as part of this study. Due to the implementation of Executive Order 13990 in February of 2025, environmental justice is no longer to be considered as part of Federal decision-making for environmental evaluation and documentation. Should Federal guidance change in the future, environmental justice may need to be evaluated as part of the next phases of this project.

### *Soils & Farmland of Statewide Importance*

The U.S. Department of Agriculture's (USDA) Web Soil Survey (WSS) Tool was utilized to evaluate soil type and the presence or absence of Farmlands of Statewide Importance. Much of the Gap Area is developed and therefore the potential for impacts to these resources is minimal.

## 3.6.2 Natural Resources

### *Wetlands and Streams*

Desktop review was used to evaluate the Gap Area for potential wetlands and streams that could be impacted by the proposed trail project. Available aerial imagery, GIS data, and National Wetlands Inventory (NWI) data were utilized to identify potential wetlands and streams. Approximately 13.09 acres wetlands and 52,125 linear feet of streams were identified within the Gap Area boundaries.

These totals are estimates and will be confirmed via field review during the preliminary engineering and final design phases of the project to determine more precise totals and the appropriate amount and type of mitigation required should impacts to these resources occur.

### *Floodplains*

A review of the Federal Emergency Management Agency's (FEMA) online floodplain database shows that portions of the Gap Area are located within FEMA identified floodplains (FEMA FIRM Numbers 51153C and 51179C). Floodplains located within the Gap Area are classified as A, AE, and X and include floodways associated with the Occoquan River and its tributaries. Proper planning and design considerations will need to be implemented during development to ensure that the proposed alignments will not permanently increase downstream flooding and that any temporary impacts during construction will be handled in accordance with all necessary floodplain/floodway regulations

### *Resource Protection Areas*

Waterways within Prince William County feed the Potomac River which drains into the Chesapeake Bay. Prince William County adopted the Chesapeake Bay Preservation Act (CBPA) into its local ordinances. Part of this ordinance requires Resource Protection Areas (RPA) to be established along all streams within the county. RPAs are defined by Prince William County as, "… the land area within 100 feet of a perennial stream bank or edge of wetlands adjacent to the perennial stream. RPA areas are protected under state law and local ordinances. In general, no development, land disturbance, or vegetation removal is allowed in an RPA, although water access paths (boardwalk trails) may be permitted as long as the boardwalk does not cause erosion.

A desktop review was performed to evaluate the Gap Area for potential RPAs that had the potential to be impacted by the proposed trail project. To perform this analysis, Prince William County's RPA GIS Data as well as available aerial imagery was utilized. The analysis identified 75.9 acres of RPAs within the Gap Area. Proper planning and design considerations for any boardwalk trail segments will need to comply with RPA regulations.

### *State and Federally Listed Threatened and Endangered Species*

A desktop review was performed to identify possible State and Federally threatened and endangered (T & E) species and critical habitat present within the vicinity of the Gap Area. The Virginia Department of Wildlife Resources (DWR), Virginia Fish and Wildlife Information Service (VAFWIS), and the Virginia Department of Conservation and Recreation (DCR), and the United States Fish and Wildlife Service (USFWS) online Information, Planning, and Conservation (IPaC) databases were searched looking for species with confirmed or potential occurrences within the Gap Area.

Preliminary database reviews of State listed species returned several species known to occur within the immediate Project Area, or within a 2-mile buffer surrounding the Project Area. A review of Federally listed species and designated critical habitat, including Bald Eagles, was completed and returned several endangered species within the immediate project area. As the project progresses, additional coordination with DWR, DCR, and USFWS will be necessary to determine whether the project will impact any of the identified species, and determine whether time-of-year restrictions, species surveys or other species restrictions will be required.

### 3.6.3 Hazardous Materials

A hazardous materials search was performed using multiple databases to obtain information on potentially contaminated areas, including areas with hazardous materials. The Virginia Department of Environmental Quality (DEQ) recommends searching multiple databases to obtain information on potentially contaminated areas, including areas with hazardous materials. A third party, Environmental Risk Information Services (ERIS) was utilized to perform a database review of the proposed Gap Area.

The database review revealed a total of 271 potentially contaminated sites. The sites identified included but were not limited to Resource Conservation and Recovery Act (RCRA) Small Quantity Generators (SQG), RCRA Very Small Quantity Generators (VSQG), RCRA Non-generators (Non GEN), Emergency Response Notification System (ERNS), LST, UST, AST, INST, and VRP sites. This evaluation is preliminary and does not replace the need for a Phase I Site Analysis later during project development. Proper planning and consideration will be taken to avoid any of the listed sites during the construction phase of the project.

### 3.6.4 Air Quality

The proposed improvements were assessed for potential air quality impacts and compliance with applicable air quality regulations and requirements defined under Clear Air Act (CAA) 42 USC §7401 et seq. and EPA's 40 CFR § 93.114 and § 93.115. The assessment indicates that the project will not cause or contribute to a new violation, increase the frequency or severity of any violation, or delay timely attainment of the National Air Ambient Air Quality Standards (NAAQS) established by the Environmental Protection Agency (EPA ) as the project does not involve the construction of transportation facilities with the potential to increase the number of vehicles within the Gap Area.

### 3.6.5 Noise

Evaluation of the Gap Area, potential project alignments, and the project scope resulted in the determination that this project does not qualify as a Type I Project per 23 CFR §772.5 and the VDOT noise manual for purposes of a noise analysis. Therefore, the project was not evaluated for potential noise impacts.

### 3.6.6 Historic Resources

A desktop review utilizing The Virginia Department of Historic Resources (VDHR) archives database, Virginia Cultural Resource Information System (VCRIS) was conducted to identify possible architectural or archeological resources and cemeteries within the vicinity of the Gap Area. As discussed below, several resources were identified within the study area and were taken into account when developing potential alignments.

#### *Architectural Resources*

The VCRIS search results identified 52 architecture resources. Of those identified resources, two resources have been previously surveyed and were determined to be listed in the National Register of Historic Places (NRHP) or eligible for listing in the NRHP.

*Archaeological Resources*

The VCRIS search results identified four archeological resources, none of which have been listed or are eligible for listing in the NRHP.

*Cemeteries*

No cemeteries were identified within Gap Area 1.

### 3.6.7 Parks and Recreational Facilities

Parks and Recreational Facilities were identified using a combination of data from the Prince William County GIS Data Portal, aerial imagery, field review, and coordination with Prince William County Staff. Three resources were identified including two parks (Occoquan Park and Mamie Davis Park) and a boat ramp (Occoquan Kayak Launch Hand-carry Ramp). There was an identified preference for alignment options that created an opportunity for the PHNST to connect to and/or pass through a County or local park. As such, these facilities were taken into consideration during alternative development.

### 3.6.8 Visual Quality

The presence and use of trails can alter the landscape in ways that are visible and noticeable to people, at times detracting from the natural or aesthetic qualities of an area. Visual impacts will be considered during the final design of the trail, including construction elements, maintenance plans, and cultural and aesthetic elements. At this stage of the project, when evaluating potential alignments, consideration was given to alignment locations that provided improved visual quality to trail users.

### 3.6.9 Section 4(f) and 6(f) Resources

The Gap Area was evaluated to determine the presence of potential Section 4(f) and 6(f) Resources in accordance with 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 project development. Based on a review of available mapping databases, there are currently no planned acquisitions of property under the protection of Section 6(f), other unique areas, or special lands. However, as discussed in *Section 3.6.6*, there are a number of historic resources scattered throughout the Gap Area which could be considered Section 4(f) resources. Special consideration will need to be given during preliminary and final design to avoid and minimize impacts to any historic resources. Should impacts to these resources be unavoidable, formal coordination will need to occur between VDHR, NPS, the County, and any other formal stakeholders to determine if there is an official Section 4(f) "use".

# 4.0 Proposed Alternatives

This section describes the proposed alternatives developed for Gap Area 1 as part of this feasibility study. Alignment alternatives generally follow design criteria and guidance laid out in the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (American Association of State Highway and Transportation Officials, 2012). A total of three preliminary alternatives were developed based on the Purpose and Needs, stakeholder feedback, and identified existing conditions. The proposed alignment base mapping is included in *Appendix B*. Additionally, Computer-aided Design and Drafting (CADD) Plan Sheets have been developed to show a greater level of engineering detail and are also included in *Appendix B*. These Plan Sheets are preliminary in nature. Additional engineering evaluations will need to be performed during future studies and trail development.

It should be noted that the Destination Place Development located along the Occoquan River east of I-95 was currently undergoing rezoning and design during this feasibility study. At the time of this study's alternative development, the team did not have access to design drawings of the proposed site. Therefore, the route through this development, as shown in Alternative 1.1 and 1.2, follows the path of least potential impact. This route is subject to change and may be dependent upon proffer conditions accepted in conjunction with the Destination Place Development rezoning. Given stakeholder feedback received during this feasibility study, and the recommendations contained in the County's North Woodbridge Small Area Plan, it is the recommendation of the study team that the trail alignment in the Destination Place Development be located along the waterfront to the extent practicable.

## 4.1 Gap Area 1 Alternative Concepts

### Alternative 1.1

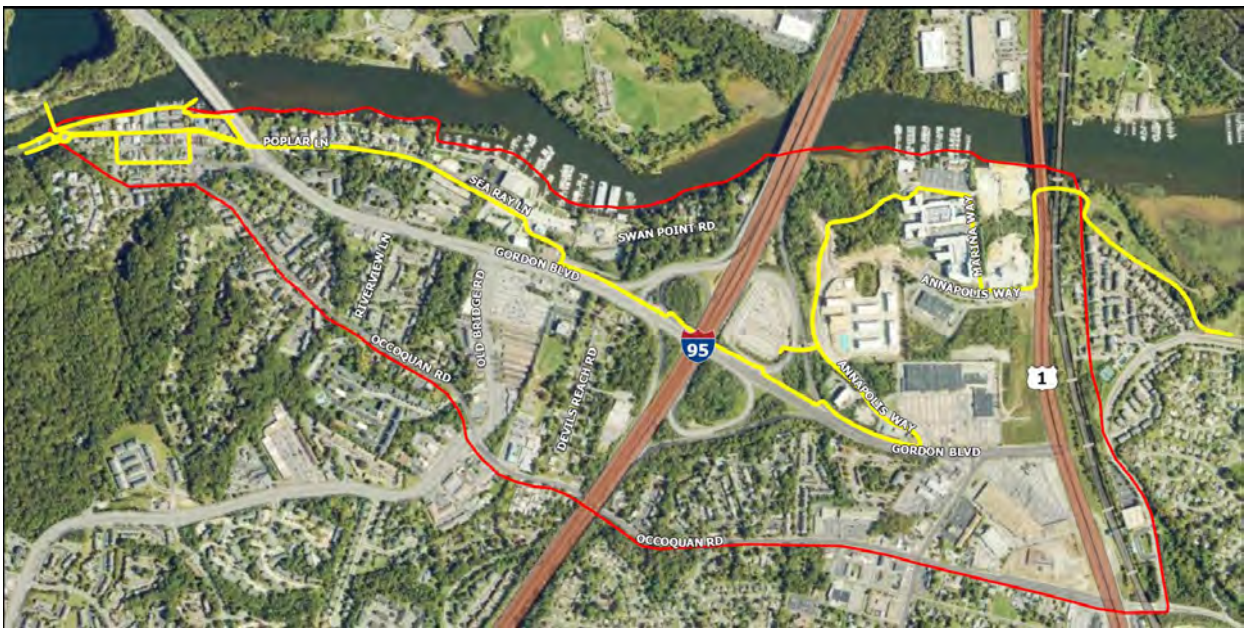



*Figure 7 - Alternative 1.1 Alignment*

Proposed Alternative 1.1 begins on Belmont Bay Drive adjacent to the former Belmont Bay Golf Course. The alignment travels north through the former golf course land where it crosses under the CSX railroad tracks and Richmond Highway. From this point, the alignment moves south towards Annapolis Way, following Annapolis Way to Marina Way after which it moves north along Marina Way and through the area currently part of the Destination Place residential rezoning application. This proposed route has the potential to provide residents of the existing Rivergate apartments and the proposed Destination Place development with a direct connection to the PHNST as well as a connection to the I-95 / Route 123 Park & Ride lot, which is accessed from Annapolis Way.

The alignment continues west and south along Annapolis Way and connects to Route 123, tying into the existing and proposed pedestrian facilities associated with the VDOT I-95 and Route 123 Interchange Improvements Project. This alternative then continues northwest along the east side of Gordon Boulevard for seven-tenths of a mile before turning right onto Sea Ray Lane. In order to incorporate the natural beauty of the Occoquan River, the alignment continues along the west side of Sea Ray Lane, passing Occoquan Park before heading north onto Poplar Lane for three-tenths of a mile. At this point, the alignment connects to the existing bicycle and pedestrian path through the Historic Town of Occoquan before tying into an existing pedestrian bridge crossing the Occoquan River west of the Town.

## Alternative 1.2

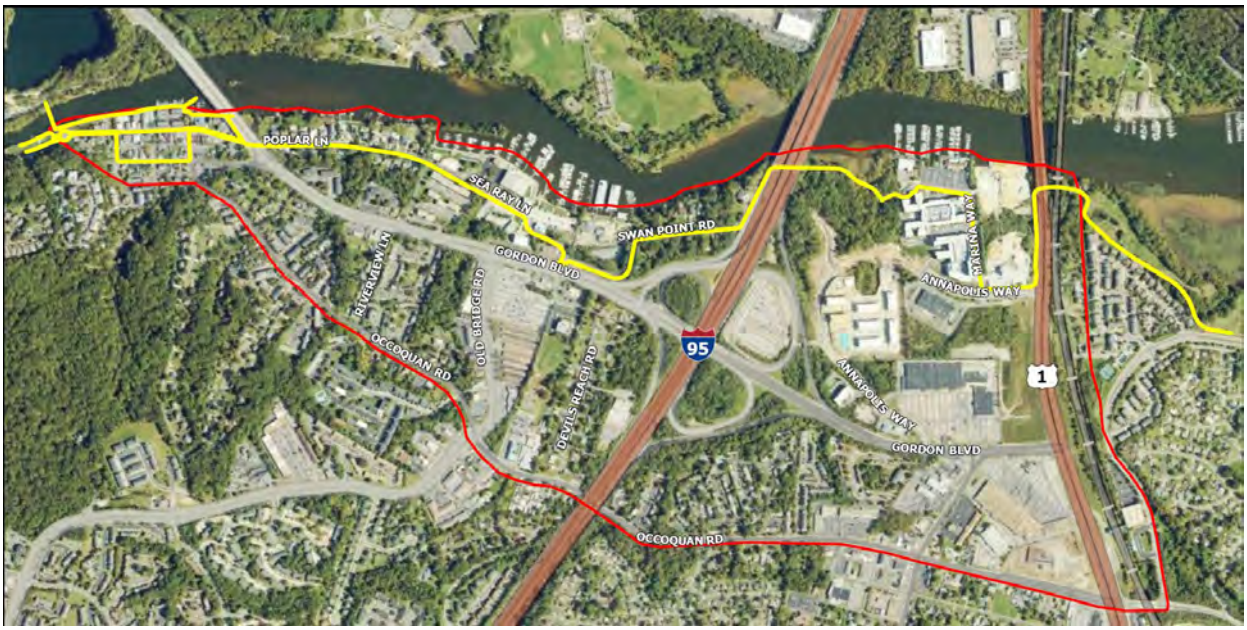



*Figure 8 - Alternative 1.2 Alignment*

Proposed Alternative 1.2 begins on Belmont Bay Drive adjacent to the former Belmont Bay Golf Course and travels north through the former golf course land where it crosses under the CSX railroad tracks and Richmond Highway. From there, the alignment moves south towards Annapolis Way, following Annapolis Way to Marina Way, after which it moves north along Marina Way and through the proposed Destination Place development. Alternative 1.2 has the potential to provide residents of the Rivergate apartments and the proposed Destination Place development with a direct connection to the PHNST, by utilizing existing trail easements within the Rivergate community. West of the Destination Place development, this alignment would then pass underneath I-95, at which point it would need to traverse private property to connect to Swan Point Road. This route was evaluated following stakeholder feedback indicating the desire for the alignment to stay alongside the Occoquan River as much as possible.

As the alignment moves to the west of I-95, it continues along Swan Point Road for two-tenths of a mile before proceeding along Devils Reach Road and connecting to Sea Ray Lane. In order to incorporate the natural beauty of the Occoquan River, the alignment continues along the west side of Sea Ray Lane, passing Occoquan Park before heading north onto Poplar Lane for three-tenths of a mile. At this point, the alignment connects to the existing bicycle and pedestrian path through the Historic Town of Occoquan before tying into an existing pedestrian bridge that crosses the Occoquan River at the west of the Town, connecting to Fairfax County at a desired connection point for the PHNST.

## Alternative 1.3


*Figure 9 - Alternative 1.3 Alignment*

Proposed Alternative 1.3 begins where Belmont Bay Drive becomes Express Drive. It continues along Express Drive to Woodbridge VRE Station. It goes into the VRE Station allowing trail users to use the pedestrian bridge over the rail tracks. The trail would use existing sidewalks for users to get to the intersection of Richmond Highway and Dawson Beach Road, where they will need to cross Richmond Highway. A pedestrian bridge over Richmond Highway is planned in this location which could improve this crossing in the future. Once on the west side of Richmond Highway, this alignment continues north along Richmond Highway, utilizing the existing shared use path. It crosses Route 123/Gordon Boulevard to the north side and turns left. The alignment then continues along Route 123 for 2.9 miles after which it ties into the existing and proposed pedestrian facilities associated with the VDOT I-95 and Route 123 Interchange Improvement Project. At this point, the alignment moves off Route 123, turning right onto Riverview Lane before connecting to Poplar Lane for three-tenths of a mile. The alignment then connects to the existing bicycle and pedestrian path through the Historic Town of Occoquan before tying into an existing pedestrian bridge, crossing the Occoquan River into Fairfax County, at the west of the Town.

# 5.0 Alternatives Screening and Evaluation

## 5.1 Screening and Evaluation

As an initial screening tool the three alternatives presented in *Chapter 4.0*, were evaluated by how well each met the need elements identified in *Section 1.3 (Purpose and Needs)*. Potential environmental consequences associated with each alternative as well as Stakeholder and public input were also considered as part of the alternative evaluation process, with proximity to the Occoquan River and a trail wide enough for pedestrians and cyclists being top priorities.

### Access and Mobility

As discussed in *Section 1.3*, providing connections between existing sections of the PHNST will increase county residents' ability to utilize the PHNST as a mode of transportation to access areas throughout the county which were previously only accessible via automobile. These connections will provide the freedom for residents to choose the mode of transportation which suits their daily needs best and will increase the resilience of the transportation network by eliminating vehicle trips from roadways. Providing trail access for residents not only provides a choice in the method of transportation individuals use, but it can also provide residents in traditionally underserved areas with access to goods and services that were otherwise out of reach. Creating active mobility connections where residents are able to use trails for commuting purposes is also a priority in the County's Comprehensive Plan.

Each of the three proposed alternative alignments was evaluated for its ability to meet the needs identified and described above. It was determined that the following alternative did not meet this need:

- Proposed *Alternative 1.3* did not meet this need because it does not provide access to residents of the Rivergate Apartments, the proposed Destination Place development, or the I-95 / Route 123 Park & Ride lot.

### Health, Safety, and Quality of Life

The cumulative health benefits of an active population also help alleviate the burden on the local healthcare system. With fewer individuals suffering from chronic illnesses, there is less demand for medical services, leading to reduced healthcare costs and expenses. Preventative health measures, such as promoting physical activity, are cost-effective strategies that benefit both individuals and society. By encouraging active lifestyles, communities can foster healthier, happier populations and create more sustainable and economically viable healthcare systems.

Safety is also a key component of Prince William County's vision for developing a comprehensive and well-connected mobility network. Addressing the gaps in the PHNST is critical to achieving this goal. By closing these gaps, the County will create a cohesive trail experience, ensuring that users can traverse these trail sections without interruption. Furthermore, closing these gaps will significantly enhance safety for trail users. Currently, visitors face relatively dangerous situations when navigating sections of the trail that

require crossing heavily trafficked roads with no dedicated pedestrian or bicycle infrastructure. These crossings pose risks and diminish the overall experience for users. Instead, users will be able to follow a continuous, well-designed route that minimizes exposure to traffic hazards. This improvement not only promotes safety but also encourages more people to use the trail, ultimately supporting the County's broader goals of fostering active transportation and recreational opportunities. Combined, the health and safety benefits of the trail will provide overall improvements to the quality of life for residents and visitors alike.

Each of the three proposed alternative alignments was evaluated for its ability to meet the need identified and described above. It was determined that the following alternative did not meet this need:

- Proposed *Alternative 1.3* did not meet this need because much of the alignment is located along Richmond Highway and Route 123. These are high-volume roadways that have the potential to create an undesirable and unsafe environment for trail users.

### Economic Benefits

Completing gaps in the PHNST will enhance its appeal as a destination trail, attracting more tourists who spend on lodging, dining, and other services, thereby boosting local revenue. Events like marathons and cycling races hosted on these trails also contribute to economic growth. Moreover, using the trail for commuting can lead to significant fuel cost savings for individuals, reducing the economic burden of vehicle maintenance and contributing to a more sustainable transportation system (Stafford County Virginia, 2019). Addressing the trail gaps will also decrease reliance on automobiles which can be a significant savings to individual households as well as communities overall through reduced road improvements and maintenance needs.

Each of the three proposed alternative alignments was evaluated for its ability to meet the need identified and described above. It was determined that each of the three alternatives meet this need as they all connect the Town of Occoquan to the Belmont Bay community, providing access to businesses and potential commuter routes through the study area.

## 5.2 Screening Summary

*Table 1* below provides an overview of the screening evaluation for each alternative. Based on this analysis, two alternatives were recommended to be carried forward for detailed evaluation.

Table 1 - Ability of Proposed Alternatives to Meeting Purpose and Need Elements

| Gap Area | Alternative | Provides Access and Mobility | Increases Health, Safety, and Quality of Life | Provides Economic Benefits |
|---|---|---|---|---|
| 1 | 1.1 | Yes | Yes | Yes |
| | 1.2 | Yes | Yes | Yes |
| | 1.3 | No | No | Yes |

# 6.0 Retained Alternatives and Impact Evaluation

Based on the screening evaluation and analysis of the concepts, two alternatives (Alternative 1.1, Alternative 1.2) were recommended to be carried forward and receive detailed evaluation. Descriptions of each retained alternative can be found in *Section 4.1.* By examining different alternatives, the study team identified solutions that not only improve physical connectivity and allow access to underserved communities but provide safe and convenient access for cyclists and pedestrians and provide recreational opportunities for physical and mental health where these opportunities do not currently exist.

The following chapter presents summaries of potential impacts of the retained alternatives within the Gap Area. This chapter also presents information on potential minimization and mitigation measures for unavoidable impacts, where applicable. The discussion in this chapter is limited to the data, information, and issues that would have an impact on the identification of a recommended alternative for the Gap Area.

In coordination with the Prince William County Department of Parks and Recreation, it was determined that the proposed designs should account for a 10-foot-wide shared-used-path. From this design, a limit of disturbance (LOD) was created in order to account for impacts associated with the proposed designs. An illustrative planning-level limit of disturbance (LOD) was developed for each alternative and is shown in *Appendix B.* The LODs are based on planning-level engineering, which accommodates potential short-term and permanent impacts, and construction access and will be further refined during final design. The LODs for this Study also include a buffer area that is 15 feet beyond the limits of construction for a total width of 40 feet. The impacts quantified and described in this chapter are anticipated to be a worst-case scenario and impacts may be minimized during future design phases of the project. Refinement of the LODs will occur during future design and development.

## 6.1 Gap Area 1 Retained Alternatives Impact Evaluation

A summary of the impacts for Gap Area 1 is shown in *Table 2* below.

Table 2 - Gap Area 1 Retained Alternatives Impact Summary

| Resource Category | Resource | Alternative 1.1 | Alternative 1.2 |
|---|---|---|---|
| Socioeconomics | Community Facility Relocations | 0 | 0 |
| | Community Facilities (acres) | 0 | 0 |
| | Residential Property Relocations | 0 | 0 |
| | Commercial/Business Relocations | 0 | 0 |
| | Right-of-Way Impacts (/acres) | 75 (9.50) | 80 (8.85) |
| | *Residential* | 2.61 | 2.34 |
| | *Commercial* | 2.11 | 1.71 |
| | *Industrial* | 0.51 | 0.51 |
| | *Agricultural* | 0 | 0 |
| | *Municipal / Governmental* | 0 | 0 |
| | *Mixed Use* | 4.27 | 4.29 |
| Natural Resources | Northern Long-eared Bat *(Myotis septentrionalis)* | Potential Habitat Present | Potential Habitat Present |
| | Tri-colored Bat *(Perimyotis subflavus)* | Potential Habitat Present | Potential Habitat Present s |
| | Wetlands (acres) | 0.4 | 8.9 |
| | Streams (linear feet) | 2,037 | 2,677 |
| | Floodplains (acres) | 4.93 | 9.28 |
| | RPAs (Acres) | 3.94 | 1.89 |
| Hazardous Materials | Hazardous Materials Sites | 25 | 26 |
| Historic and Section 4(f) / 6(f) Resources | Historic Architectural Resources | 1 | 1 |
| | Historic Archaeological Resources | 0 | 0 |
| | Section 4(f) Resources | 0 | 0 |
| | Section 6(f) Resources | 0 | 0 |
| Safety | Major Road Crossings | 4 | 0 |

### 6.1.1 Socioeconomic Resources

This section describes the potential environmental consequences for the following socioeconomic resources: community facilities, land use, and environmental justice.

#### *Community Facilities*

Alternative 1.1: Alternative 1.1 would not result in direct impacts to any identified community facilities within the study area. Overall, this alternative is expected to improve access to the identified community facilities by providing the option for additional modes of transportation and creating new access points throughout the study area.

Alternative 1.2: Alternative 1.2 would not result in direct impacts to any identified community facilities within the study area. Overall, this alternative is expected to improve access to the identified community facilities by providing the option for additional modes of transportation and creating new access points throughout the study area.

#### *Land Use*

Alternative 1.1: Approximately 9.50 acres required for implementation on Alternative 1.1 are on land zoned for residential, commercial, industrial, and mixed-use land uses. The largest amount of the total, approximately 45 percent, is on land zoned for mixed use. The next largest amount, approximately 27 percent, is on land zoned for residential uses, followed by commercial uses at 22 percent and industrial uses at 6 percent.

Alternative 1.2: Approximately 8.85 acres required for implementation of Alternative 1.2 are on land zoned for residential, commercial, industrial, and mixed-use land uses. The largest amount of the total, approximately 48 percent, is on land zoned for mixed use. The next largest amount, approximately 26 percent, is on land zoned for residential uses, followed by commercial uses at 19 percent and industrial uses at 7 percent.

Trail construction has the potential to reduce the time and cost of travel in a region, thereby enhancing the attractiveness of properties on surrounding and nearby land and is not expected to contribute to land use changes within the Gap Area.

### 6.1.2 Natural Resources

This section describes the potential environmental consequences for the following natural resources: threatened, endangered, and special status species and Waters of the US (WOTUS) including Streams, Wetlands, Floodplains, and Resource Protection Areas (RPAs).

#### *Threatened, Endangered, and Special Status Species*

Based upon a query of agency databases, a total of 17 Federally or State listed threatened or endangered listed species were identified for evaluation as having the potential to occur within the Study Area

Evaluation of all Federally listed species that would be considered in an Endangered Species Act (ESA) Section 7 determination was performed based on the list above. Based upon an understanding of the life histories of the listed species, potential habitat was verified within the Study Area for two potential species described in *Table 3*. No confirmed maternity roost trees or hibernacula for the NLEB (Northern Long-eared Bat) are located within five miles of the Study Area (NLEB Regulatory Buffer Interactive Tool, 2024). Also, no hibernacula or maternity roosts for tri-colored bat are located within the vicinity of the Study Area.

Regarding the tricolored bat (Perimyotis subflavus), the species is currently proposed for federal listing as an endangered species. Although it is not currently federally listed, the species is included in this analysis as habitat for the species occurs in the Project Study Area and coordination with USFWS for the species would be required if the project advances Section 7 coordination/consultation.

Should this project progress to more detailed design, field surveys may be required to verify the presence or absence of Section 7 listed species.

Table 3 - Species with Habitat Identified Within the Vicinity of the Study Area

| Species | Type of Habitat Impacted | Alternative 1.1 | Alternative 1.2 |
|---|---|---|---|
| Northern Long-eared Bat | Summer roosting habitat | Potential Habitat Present | Potential Habitat Present |
| Tri-colored Bat | Summer roosting habitat | Potential Habitat Present | Potential Habitat Present |

### *WOTUS: Including Streams, Wetlands, Floodplains, and Resource Protection Areas (RPAs)*

Wetlands and streams were not delineated, and a jurisdictional determination was not received as part of this study. A desktop review was conducted to evaluate the Gap Areas for potential wetlands and streams that could be impacted by the proposed trail project. ATCS utilized available aerial imagery, GIS data, and National Wetlands Inventory (NWI) data to identify potential wetlands and streams within the LOD of the proposed trail alignments in Gap Area 1. The total acreage of wetlands, streams, RPAs, and Floodplains is shown in *Table 4* below. Should any of these alignments be carried forward to final design, detailed analysis will be required to determine the full extent of each resource.

Table 4 - Water Resources Mapped within the Vicinity of the Study Area

| Factor | Alternative 1.1 | Alternative 1.2 |
|---|---|---|
| Wetlands Impacted (Acres) | 0.4 | 8.9 |
| Streams (feet) | 2,037 | 2,677 |
| RPAs (Acres) | 3.94 | 1.89 |
| Floodplain (Acres) | 4.93 | 9.28 |

### 6.1.3 Hazardous Materials

The Virginia Department of Environmental Quality (DEQ) recommends searching multiple databases to obtain information on potentially contaminated areas, including areas with hazardous materials. A third party, Environmental Risk Information Services (ERIS), was utilized to perform a database review of the proposed Gap Area.

Based on the above-mentioned databases, 25 sites of potential concern were identified along the proposed Alternative 1.1 alignment, and 26 sites of potential concern were identified along the proposed Alternative 1.2 alignment.

Based on the database search and field inspection, there is the potential for impacts to hazardous materials sites during construction activities. Potential issues due to contaminated groundwater are of particular concern. Additional survey will need to be performed prior to construction to ensure the avoidance and minimization of any impacts to the above-mentioned sites.

### 6.1.4 Air Quality and Noise

Alternative 1.1 and Alternative 1.2 were assessed for potential air quality impacts and compliance with applicable air quality regulations and requirements defined under Clear Air Act (CAA) 42 USC §7401 et seq. and EPA's 40 CFR § 93.114 and § 93.115. The assessment indicates that the project will not cause or contribute to a new violation, increase the frequency or severity of any violation, or delay timely attainment of the NAAQS established by the EPA as the project does not involve the construction of transportation facilities with the potential to increase the number of vehicles within the Gap Areas.

Evaluation of the potential project alignments, and the project scope resulted in the determination that this project does not qualify as a Type I Project per 23 CFR §772.5 and the VDOT noise manual for purposes of a noise analysis. Therefore, a noise analysis is not required as part of this project.

### 6.1.5 Historic Resources

#### *Architectural Resources and Archaeological Resources*

As discussed in *Section 3.7*, a number of historic resources are located within Gap Area 1. However, Alternative 1.1 and Alternative 1.2 have the potential to impact only one NRHP listed architectural resource identified as the Occoquan Historic District (DHR ID: 272-0012). The Occoquan Historic District is comprised of sixty structures situated on the south bank of the Occoquan River. To the north, the district is bounded by wooded bluffs. The streets are laid out in a simple grid pattern that stretches up a slight sloping hill to the north. Five major streets, Mill, Union, Commerce, Washington, and Ellicott, comprise the district.

The buildings are predominantly frame, two-story, residential structures although the earliest examples are constructed of stone or brick. Most of the residential buildings date to the late 19th century and are variations of the builder vernacular type, many characterized by German siding and decorative porches. During recent years many of these buildings have been converted to specialty shops. The major commercial structures date to the early 20th century and line Mill Street. Occoquan's proximity to Washington DC and

its suburbs, its convenient access to Interstate 95, and its picturesque setting on the river, have converted the early milling town to a bustling tourist center.

Alternative 1.1 and Alternative 1.2 propose utilizing shared lane markings/"sharrows" located on Mill Street, Ellicott Street, Commerce Street, and Washington Street to allow bicyclists and motorists to share the road. Pedestrians will be directed to the proposed Occoquan boardwalk to travel through this portion of the project. The proposed improvements are unlikely to significantly alter the character or integrity of the existing historic district and are expected to constitute a "no adverse effect" finding. However, additional evaluation and coordination with VDHR will be necessary during preliminary and final design to coordinate and confirm a "no adverse effect" finding.

### 6.1.6 Section 4(f) / 6(f) Resources

As discussed above and in *Section 3.7*, there are historic resources and parks located within Gap Area 1. However, there are no wildlife or waterfowl refuges present. There are currently no planned acquisitions of property under the protection of Section 6(f), other unique areas, or special lands. However, as discussed in *Section 3.7.6*, there are a significant number of historic resources within the Gap Area which have the potential to be considered Section 4(f) resources. Special consideration will be given during preliminary and final design to avoid and minimize impacts to any historic resources. Currently, no Section 4(f) use is expected under Alternative 1.1 or Alternative 1.2 as no permanent or temporary right-of-way is expected to be acquired from properties classified as Section 4(f), and therefore no constructive use is expected to occur.

### 6.1.7 Safety

#### *Road Crossings and Traffic Volumes*

Alignments 1.1 and 1.2 follow existing trail alignments in Belmont Bay and use the existing utility access road under the CSX railroad tracks and Richmond Highway to reach the west side of Richmond Highway. The alignments then turn onto Annapolis Way into the existing Rivergate development and then into the proposed Destination Place Development.

Alternative 1.1 continues along Annapolis Way to connect to Gordon Boulevard, where it will use the shared use path from Annapolis Way to Devils Reach Road to be constructed with I-95/Route 123 Interchange Project. There are four freeway ramp crossings in this segment, two on the east side of I-95 and two on the west side with ADT volumes ranging from 2,500 to 11,000 vehicles per day. All ramp crossings are to be constructed to enhance safety with clear pavement markings and signage. After these ramp crossings, Alternative 1.1 turns onto Sea Ray and continues along Poplar Lane into the Town of Occoquan. Alternative 1.1 is adjacent to high volume roadways on Richmond Highway for a short distance north of Annapolis Way and on Gordon Boulevard from Annapolis Way to Devils Reach Road. Otherwise, it is on shared use paths or low volume roads.

Alternative 1.2 follows the same alignment as Alternative 1.1 until it is in the proposed Destination Place development just east of I-95. From this development the trail would cross under I-95 with the trail to be

constructed at the base of the I-95 bridge on the south bank of the Occoquan River. The trail would then need to pass through a private parcel in order to connect to Swan Point Road and then along Devils Reach Road for a brief segment before turning on Sea Ray Lane. Alternative 1.2 has no major road crossings and minimizes being adjacent to high volume roadways; however, access through a private parcel raises concerns and would need to be addressed before this route is feasible.

# 7.0 Recommended Alternative

This chapter presents the recommended alternative (i.e. preferred alignment) based on the environmental, technical, and community considerations discussed throughout this report. The recommended alternative reflects a balance between enhancing recreational opportunities, preserving natural resources, and addressing stakeholder input gathered throughout the planning process. The recommended alternative aims to provide a flexible solution that aligns with the project's overall needs while considering potential impacts and feasibility. By presenting this alternative, we aim to support informed decision-making and ensure the selected trail alignment delivers the greatest value to the community and environment.

## 7.1 Alternative 1.1

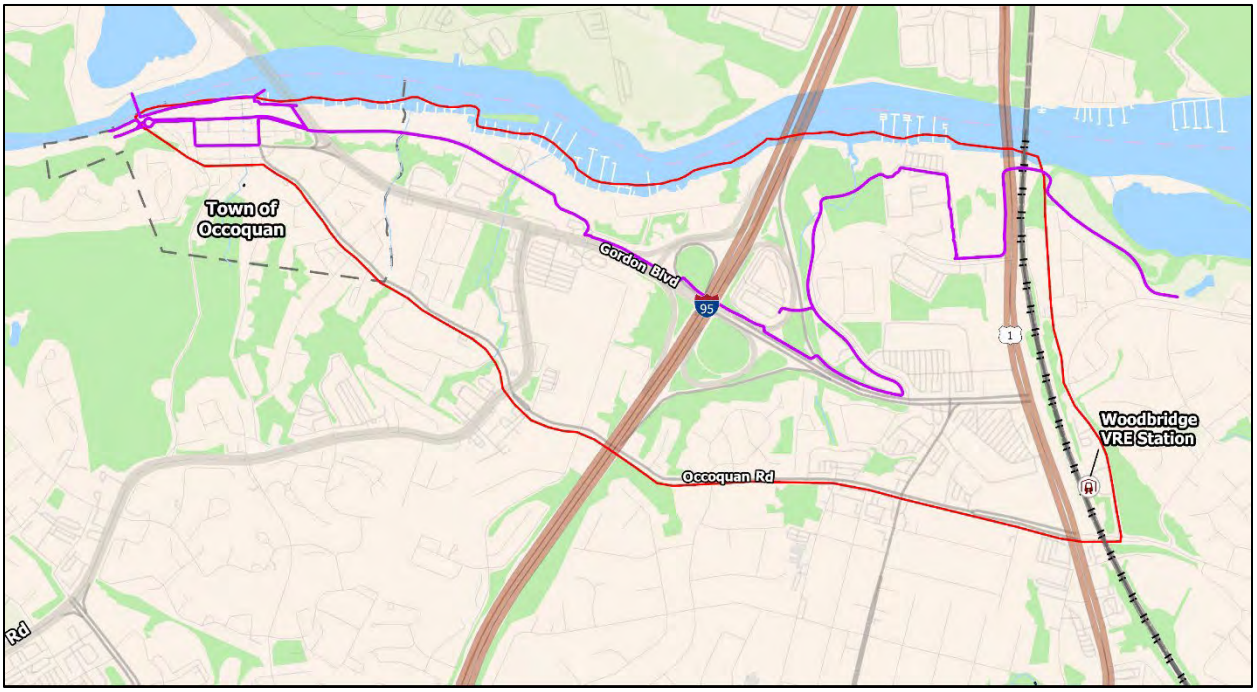



*Figure 10 - Recommended Alternative Alignment*

After evaluation, Alternative 1.1 was determined to be the alternative that best meets the Purpose and Needs while balancing costs and impacts. Based on meeting these criteria, Alternative 1.1 is the recommended alternative for Gap Area 1. See *Chapter 4.0, Section 4.1* for additional details on Alternative 1.1's proposed alignment.

The identification of the recommended alternative also considers constructability, feasibility, and input from the County and the public. Alternative 1.1 will meet the Purpose and Needs by:

- Increasing access and mobility by providing additional travel mode choices and available travel routes to those living in or around Gap Area 1.

- Improving health, safety, and quality of life by providing a dedicated trail separated from traffic and increasing choices for travel and to move throughout the study area.
- Providing economic benefits to the region by providing residents with additional connections and modes of access between retail centers, downtowns, and residential areas.

### Trail Attractiveness

Trail Attractiveness is evaluated by the extent to which the trail is separated from traffic, its scenic value and level of bicyclist comfort. Due to Alternative 1.1's alignment along Gordon Boulevard for a brief span, it does not have significant separation from traffic for a portion of the alignment. Additionally, trailheads, waysides, and opportunities for interpretation were not included in the design of this study. However, there will be opportunities to address these visual additions to the alignment when the project progresses to more detailed design.

### Cost of Construction

The construction cost estimate process is described in detail in *Chapter 8.0* and additional details are provided in *Appendix C.* Overall, construction costs are estimated at $4.7 million for Alternative 1.1.

### Long Term Recommendations

Although the scope of this study was to evaluate and recommend the most feasible route under current conditions, DPR staff and the consultant team recognize and echo stakeholder sentiment to keep the PHNST route as close to the waterfront as possible whenever opportunities become available to do so. The recommended alternative (Alternative 1.1) allows the County to move forward with a more near-term solution to closing the gaps in the PHNST between the Belmont community and the Town of Occoquan as several sections will be constructed in the coming years through approved and funded County roadway improvement projects. However, it is recommended that the County continue to pursue the alignment shown in Alternative 1.2 as the long-term vision and ultimate route of the PHNST. Further, it is recommended that the alignment shown in Alternative 1.2 continue to be shown as a proposed route in the County Comprehensive Plan, Countywide Trails Master Plan, and other long-range planning documents related to the PHNST.

# 8.0 Project Costs

A planning-level cost estimate was developed for each evaluated alignment within the Gap Area to support analysis and help inform decision-making. This estimate incorporates a comprehensive range of cost factors essential to the successful implementation of each alternative. Key components included are described below. Each of these components were integrated into the feasibility study to ensure the estimates reflected realistic and context-sensitive project requirements. Additionally, a contingency amount of 50% was included for each alternative, reflecting recent VDOT guidance. It should be noted that engineering and design costs were not included as part of this estimate.

Following the completion of the conceptual alignment designs, preliminary construction cost estimates were prepared for each recommended alternative alignment. To facilitate a fair and objective comparison, the methodology for calculating quantities and associated costs was standardized across all alignments. This standardized approach was aligned with VDOT's established cost estimation procedures, ensuring consistency, accuracy, and transparency in the evaluation process.

Each cost estimate was organized into key engineering and construction disciplines to clearly identify the scope and associated cost implications. The estimates were broken down as follows:

- Mobilization/Construction Survey – Project setup, site access, and initial surveying activities.
- Roadway/Trail – Pavement, grading, curbs, gutters, and other road/trail infrastructure elements.
- Hydraulics – Stormwater management systems, drainage structures, erosion & sediment control, and water quality features.
- Traffic – Traffic control measures, signage, signals, and pavement markings.
- Structures/Bridges –Bridges, retaining walls, culverts, and other structural elements.
- Earthwork/Geotechnical – Excavation, embankment, grading, and soil stabilization measures.

Each of the previously listed items was individually estimated and incorporated into the overall cost of major construction components, including asphalt paving, aggregate base, curb and gutter installations, ADA-compliant ramps, fencing, stormwater drainage piping, pavement markings, raised walkways, retaining walls, and other key infrastructure elements. Quantity take-offs for these items were developed based on the proposed alignment lengths, supplemented by available GIS data—particularly for earthwork estimation—and verified using aerial imagery to ensure accuracy at this conceptual stage.

Given the preliminary nature of this feasibility study, certain cost elements were included as allowances rather than being based on detailed quantity calculations. These items included stormwater management facilities, maintenance of traffic (MOT), roadside development, and signage. This approach provides flexibility to accommodate future refinement as the design progresses.

For all estimated items, representative unit cost data was applied. Where applicable, unit pricing was derived using VDOT's cost estimation tools and databases, referencing comparable recent roadway and multi-use trail projects within the Northern Virginia region. This ensured alignment with current market conditions and regional construction cost trends. In cases involving specialized infrastructure, additional guidance and input were obtained from local industry experts to develop a more accurate and context-sensitive estimate. Once the overall estimated project construction costs were completed, it was separated according to the proposed project phasing outlined in *Chapter 9.0* of this report. These estimates are for construction costs in current year (2025) dollars and do not include right-of-way acquisition or utility relocation. However, right-of-way, utility relocations, and environmental costs can be generally calculated based both on the amount of impact and the number of impacts as described below.

- *Right-of-Way*: Right-of-way impacts include both permanent right-of-way acquisition and the necessity for permanent and temporary easements. These can be the result of the physical trail construction itself, and the easements required to build, access, and maintain the trail. The number of individual parcels affected by the trail can be quantified for each alignment option. Once the number of parcels is known, an estimated area can be calculated and a cost placed for comparison.
- *Utility Relocation:* During the initial investigation phase, existing utility infrastructure locations were noted and placed on GIS mapping. The layout of the multiple trail alignments was then designed to avoid areas with major utility conflicts. The number and length of the remaining impacted utilities can then be included as an evaluation criterion.
- *Environmental Mitigation*: Potential sensitive areas, including wetlands, streams, and historical locations and properties, were similarly noted within the overall study area during the initial investigation phase. Trail alignments attempted to avoid and minimize impacts to these areas where possible. Where impacts were unavoidable, it was proposed to bridge these resources to limit the area affected. Each potentially affected area could then be quantified for comparison similar to the utility and right-of-way items.

These estimates are based on the best data available as described above. Detailed cost estimates based on current survey data will need to be developed at the onset of the design and engineering stage of each project. *Table 5* contains a summary of the costs for the evaluated gap area. Detailed summaries, cost breakdowns, and supporting details are included in *Appendix C*.

Table 5 - Estimated Alternative Costs

| Alternative | Estimated Cost |
|---|---|
| Alternative 1.1 | $4.7 Million |
| Alternative 1.2 | $11.4 Million |

# 9.0 Project Phasing

Phasing a trail project allows for a strategic, incremental approach to development, ensuring efficient use of resources while delivering benefits early. Dividing the project into manageable phases can allow funding to be secured incrementally, minimize construction disruptions, and integrate community feedback throughout the process. Prioritizing key segments—such as high-use areas, critical connections, or sections with available funding also helps build momentum and support for the full trail network over time. Graphical illustrations of the proposed project phasing can be found in *Appendix D.*

## 9.1 Phasing Within Gap Area 1:

It was determined that the most critical segment of the proposed alignment is the crossing of I-95. Recommended Alternative 1.1 leverages the VDOT I-95/Route 123 Interchange Project, utilizing the shared use path being constructed along Route 123 from Sea Ray Lane to Annapolis Way. Currently, the project is scheduled to be under construction from Spring 2025 to Late 2028. Phase 1 segments should be constructed in conjunction, or as soon after construction as practical. The proposed phases are described in additional detail below.

*Phase 1A*

- Install pavement markings and signage for on-street section in Town of Occoquan.
- Connect to proposed pedestrian boardwalk within the Town and existing pedestrian bridge
- *Estimated Cost: $125,500*

*Phase 1B*

- Construct trail segment along existing Annapolis Way and connection with the existing Park-and-Ride Lot, to be coordinated with VDOT I-95/Route 123 Interchange Project.
- *Estimated Cost: $571,700*

*Phase 1C*

- Construct the connection between Belmont Bay community and Marina Way, including improvements at the underpass of Richmond Highway.
- *Estimated Cost: $840,400*

*Phase 2*

- Construct the shared use path behind existing curb on Poplar Lane. This segment could potentially be included in Phase 1 and instead be marked with sharrows and signage as an interim improvement.
- *Estimated Cost: $1,648.700*

### *Phase 3A*

- Construct trail segment between the Park-and-Ride connection and the existing trail at Marina Way. This segment should be coordinated and included in the rezoning and plans for the proposed Destination Place development.
- *Estimated Cost: $595,000*

### *Phase 3B*

- Construct the shared use path along Sea Ray Lane.
- *Estimated Cost: $972,900*

The phasing plan outlined above represents a strategic approach to planning and implementation for the Gap Area described as part of this feasibility study. With that in mind, it is possible that design details, proposed alignments, and potential impacts may change in the future, which could preclude or allow for the construction of some, or all the phases described above. The information included in this report can be used by the County and DPR to move forward with closing gaps in the PHNST. Additional information about potential next steps and funding opportunities is included in *Chapter 10*.

# 10.0 Next Steps

Following the completion of this feasibility study, the next steps focus on advancing the project from planning to implementation. Incorporation of the preferred alignment into relevant planning documents should occur as soon as possible. As project funding becomes available for each phase, preliminary design should be initiated and required environmental approvals should be obtained, including securing all necessary permits and approvals. Funding opportunities, including grants and public-private partnerships, should be pursued to support project implementation. Additionally, right-of-way acquisition and land agreements need to be secured through negotiations with property owners and municipalities. A phased construction plan should be developed to align with funding availability and community priorities, with a timeline that considers seasonal and environmental constraints. Design and engineering will be subject to review by pertinent agencies through the County's land development and permitting process. By following these steps, this project can continue to move toward becoming a valuable community asset that enhances connectivity, recreation, and environmental sustainability.

## 10.1 Incorporation of Recommended Alternative into Relevant Plans

It is the recommendation of the study team that the preferred alignment be incorporated into the County's Trail Plan, in the Mobility Chapter of the Comprehensive Plan, at such time that the Trail Plan map is updated. This will be helpful for advancing the project. It should be noted that some segments of the recommended alternatives are already consistent with the Trails Plan. As soon as practical or as soon as funding is obtained, the preferred alignment for this Gap Area should also be added to the County's Capital Improvement Plan (CIP). The CIP has a section for the PHNST and for FY 2026-FY2031, of which two sections of the trail were included: Featherstone Refuge and Neabsco Wetland Preserve Boardwalk. Both of these PHNST trail sections are currently under construction and the County should begin to secure funding for completion of Gap Area 1, to maintain this momentum for completion of the PHNST in Prince William County. Additionally, the County should submit this Gap Area 1 alignment as an addition to TransAction (Northern Virginia's long-range multimodal transportation plan) at the next cycle in 2027, so that it is eligible for funding from the Northern Virginia Transportation Authority (NVTA).

## 10.2 Funding Opportunities

Funding is necessary for the project(s) to advance to design and construction. The County could fund the projects fully, or leverage County funds to obtain State or Federal funding assistance. Listed below are the primary funding programs from which the County could seek funds to advance these projects. This list is not intended to be comprehensive, and the County should continue to look for new and additional funding opportunities. Securing funding for projects like the PHNST can be complex and it is recommended that the County consider opportunities to "stack" or "braid" funding sources to support development and delivery of the full PHNST.

### 10.2.1 Federal Sources

At the time of this report, a number of changes to Federal funding criteria are being made by the current presidential administration, particularly with regard to discretionary funding provided to projects including equity activities, Diversity, Equity, and Inclusion (DEI) activities, climate change activities, environmental justice (EJ) activities, gender specific activities, when the primary purpose is bicycle infrastructure (i.e., recreational trails and shared-use paths, etc.), electric vehicles (EV), and EV charging infrastructure. In these cases, projects are being reviewed to identify and potentially remove scope items as noted.

Federal formula funding programs (with the exception of the Carbon Reduction Program (CRP), the National Electric Vehicle Infrastructure (NEVI), and PROTECT), are generally flowing, including those with eligibilities pertaining to non-traditional transportation and mobility such as the Transportation Alternatives Program (TAP). Given that the Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law, is the current federal transportation authorization and remains in effect until at least September 30, 2026, it is reasonable to continue to consider federal formula program funding as potential opportunities to support advancing the PHNST. For example, the Notice of Funding Opportunity for the Safe Streets and Roads for All (SS4A) Program was issued in March 2025.

#### *Transportation Alternatives Program (TAP)*

This Federal reimbursement program provides funding for a variety of transportation projects such as pedestrian and bicycle facilities; construction of turnouts, overlooks, and viewing areas; community improvements such as historic preservation and vegetation management; environmental mitigation related to stormwater and habitat connectivity; recreational trails; safe routes to school projects; and vulnerable road user safety assessments. The TAP is a critical component to support Complete Streets that are safe for all users and achieve safe, connected, and equitable on-and off-road networks. “On- and off-road trails for pedestrians, bicyclists, and other non-motorized forms of transportation” is first on the list of eligible project categories, so the PHNST is well aligned to this program.

VDOT administers the TAP under the auspices of FHWA and, under VDOT’s guidelines. Funding is focused on providing pedestrian and bicycle facilities and community improvements that expand or enhance the non-motorized travel network. Eligible projects must meet a transportation purpose. VDOT administers TAP as a competitive grant program with a biennial application cycle. The current application cycle recently began on April 1, 2025 with project selections scheduled in calendar year 2026, and funding anticipated to be made available beginning in FY 2027. Assuming no change to VDOT’s application cycle, the next round of applications will begin in Spring 2027. VDOT recommends early coordination with the Northern Virginia District Office, and the anticipated timeline for the next round of TAP funding aligns well with accomplishing other needed actions, such as adding these segments to local plans and gaining appropriate approvals.

Funding is provided on a reimbursement basis, like most federal funds, with an 80% federal share and a 20% local share. Projects are to be under construction within four years of the initial allocation. Project costs are capped at $2.5 million per project.

### *Virginia Recreational Trails Program (RTP)*

RTP is a federal program funded by the Infrastructure Investment and Jobs Act at 80% federal and 20% local funding levels. The Virginia DCR administers the RTP in conjunction with FHWA. The program's purpose is to develop and maintain public recreational trails for motorized and non-motorized use and therefore, by definition, projects eligible for funding under RTP do not generally serve a transportation purpose. Therefore, classifying the recommended alternatives as recreational for purposes of applying for RTP funding could preclude or complicate pursuing the transportation funding sources described above, which have far larger funding pools available, although they are historically oversubscribed.

### *Federal Lands Access Program (FLAP)*

This is the program that is funding the current feasibility study. Consequently, the recommended alternatives are logically eligible for continued project funding for implementation. This program is administered by FHWA. The purpose of this program is to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. It supplements state and local funds with an emphasis on high-use recreation sites and economic generators. Generally, the federal share of FLAP grants would be 80%. For FY 2027- FY 2029, approximately $8.5 million is available for this program. However, at the time of this report's publication, the deadline for applications for that cycle has passed.

## 10.2.2 Non-Federal Sources

### *VDOT Revenue Sharing*

This program is for construction, reconstruction, or improvement of highway systems. It provides state matching funds at a 50% state share and a 50% local share. It may include sidewalks and trails that accommodate pedestrian and bicycle access along the state highway network. Consequently, only the segments of the recommended alternatives that are along VDOT roadways are likely to be eligible for this funding source. Furthermore, the projects must contain a construction component; projects cannot be limited to the environmental approval or design phase. This program is a competitive application-based program and applicant projects are prioritized based on criteria published by VDOT. VDOT accepts applications on a biennial basis in odd numbered years, with the application period open in the April-May time frame. As with TAP, VDOT recommends early coordination with the Northern Virginia District Office.

### *NVTA TransAction*

The NVTA is the regional organization that develops and funds the long-range transportation plan for Northern Virginia. TransAction is the long-range multimodal transportation plan for Northern Virginia containing transportation needs through 2045, including bicycle and pedestrian improvements that provide connectivity in the region. This plan is updated every five years, with the last update approved at the end of 2022. The next update is anticipated to be completed by the end of 2027. As a regional facility with a transportation purpose, the PHNST is aligned as a candidate project for TransAction. Currently, TransAction includes other regional bike-ped projects such as improvements to the W&OD Trail.

Additionally, there are several PHNST adjacent or overlapping projects included in the current TransAction Plan. In Gap Area 1, there is a project to develop a multi-use trail along Richmond Highway connecting Alexandria to Woodbridge via Fort Belvoir (Project 433).

## 10.3 Conclusion

This feasibility study has documented a range of factors necessary for completion of approvals for the preferred Gap Area 1 alignment. However, the formal process for environmental approval, often completed simultaneously with the preliminary design phase, still requires additional detailed study. Based on the work done in this feasibility study, it is likely that each of the recommended alternatives would be eligible for evaluation under a Categorical Exclusion (CE) due to a lack of individual or cumulative significant effects on the human environment. However, this will need to be determined during the next phase of the project based on the overall scope of activities.

The funding programs described above represent the most likely sources to advance the project. Funding for transportation projects is far more abundant than funding for recreation projects and competition for these funds is fierce. While the funding landscape is quite volatile at the publication of this report, it will likely continue to evolve. Filling gaps in the PHNST, must remain a priority, not only for residents of and visitors to Prince Willaim County, but for the greater strengthening the National Trail System.

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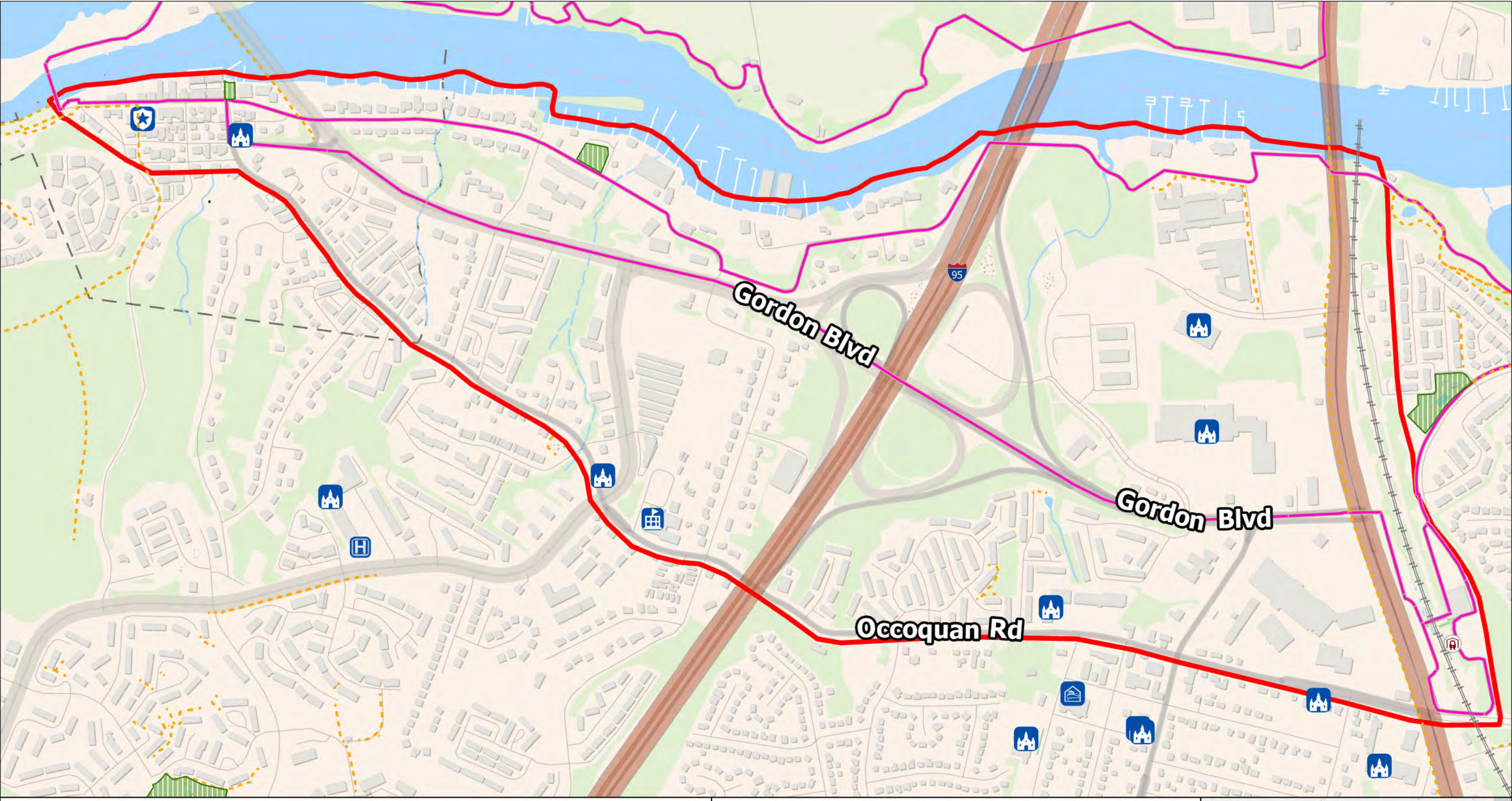
# Appendix A- Existing Conditions Mapping

## A.1 - Community Resources

## A.2 - Existing Trails and Utilities

## A.3 - Water Resources



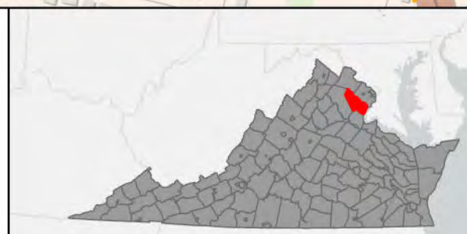

PHNST Trail
Parks
Rail_Stations
Railroad
Schools
Police Facilities
Places of Worship
Library
Hospitals
Fire Stations
Existing Trails
Study Area
Golf Courses

# A.1 - Community Resources Map

Gap Area 1
From: Town of Occoquan
To: Virginia Railway Express Station

0 0.1 0.3 Miles

Date Produced: 8/28/2024



Town of Occoquan
POPLAR LN
SEA RAY LN
SWAN POINT RD
GORDON BLVD
123
RIVERVIEW LN
OLD BRIDGE RD
DEVILS REACH RD
OCCOQUAN RD
95
ANNAPOLIS WAY
MARINA WAY
1
CORBETT PL
Woodbridge VRE Station

Study Area
Utilities
Historic Town of Occoquan
Existing Trails
Railroad
PHNST Trail
Parks

# A.2 - Existing Trails and Utilities

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

0 700 1,400 Feet

PRINCE WILLIAM —Parks & Recreation

Date Produced: 4/8/2025

POPLAR LN
SEA RAY LN
SWAN POINT RD
GORDON BLVD
RIVERVIEW LN
OLD BRIDGE RD
OCCOQUAN RD
DEVILS REACH RD
MARINA WAY
ANNAPOLIS WAY
CORBETT PL
95
123
1

Study Area
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Floodway
Wetlands
Freshwater Pond
Lake
Streams

# A.3 - Water Resources Map

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

0 600 1,200 US Feet

Date Produced: 4/8/2025

PRINCE WILLIAM
—Parks & Recreation

# Appendix B- Alternatives and Impact Mapping

## B.1 – CADD Plan Sheets

## B.2 – Community and Cultural Resources

## B.3 – Water Resources

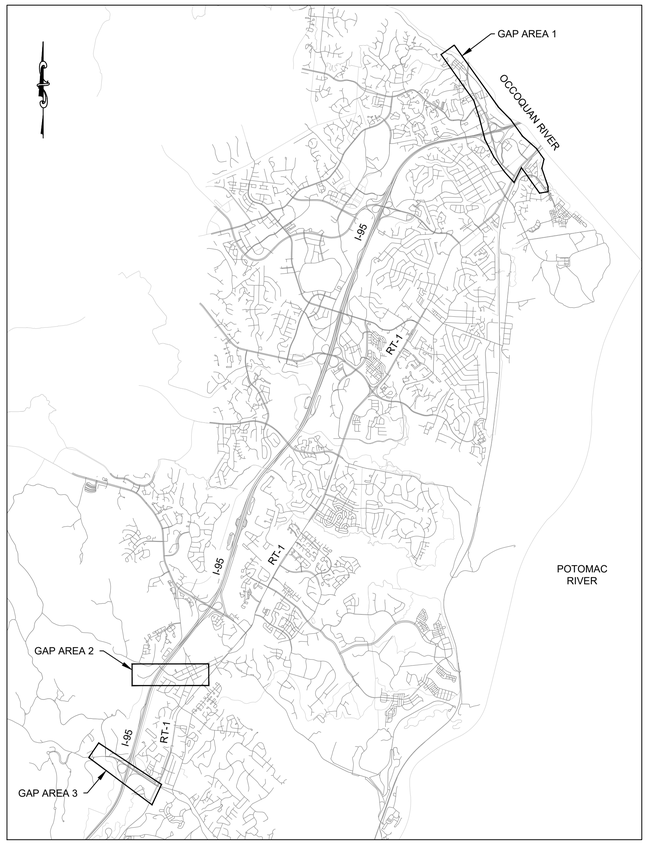
Appendix B.1

# POTOMAC HERITAGE NATIONAL SCENIC TRAIL (PHNST) GAP ANALYSIS FEASIBILITY STUDY

PREPARED FOR:

PRINCE WILLIAM COUNTY DEPARTMENT
OF PARKS AND RECREATION
14420 BRISTOW ROAD
MANASSAS, VIRGINIA 20112

| SHEET LIST TABLE | | |
|---|---|---|
| SHEET NUMBER | SHEET TITLE | SHEET DESCRIPTION |
| 01 | GI001 | COVER SHEET |
| 02 | CP100 | PHNST - PREFERRED ALIGNMENT - GAP 1 OVERALL |
| 03 | CP101 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 04 | CP102 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 05 | CP103 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 06 | CP104 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 07 | CP105 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 08 | CP106 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 09 | CP107 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 10 | CP108 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 11 | CP109 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 12 | CP110 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 13 | CP111 | PHNST - PREFERRED ALIGNMENT - GAP 1 |
| 14 | CP200 | PHNST - PREFERRED ALIGNMENT - GAP 2 OVERALL |
| 15 | CP201 | PHNST - PREFERRED ALIGNMENT - GAP 2 |
| 16 | CP202 | PHNST - PREFERRED ALIGNMENT - GAP 2 |
| 17 | CP203 | PHNST - PREFERRED ALIGNMENT - GAP 2 |
| 18 | CP204 | PHNST - PREFERRED ALIGNMENT - GAP 2 |
| 19 | CP300 | PHNST - PREFERRED ALIGNMENT - GAP 3 OVERALL |
| 20 | CP301 | PHNST - PREFERRED ALIGNMENT - GAP 3 |
| 21 | CP302 | PHNST - PREFERRED ALIGNMENT - GAP 3 |
| 22 | CP303 | PHNST - PREFERRED ALIGNMENT - GAP 3 |
| 23 | CP304 | PHNST - PREFERRED ALIGNMENT - GAP 3 |




VICINITY MAP
SCALE: 1"=5000'

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FEASIBILITY STUDY
COVER SHEET
POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS
LOCATION:
PRINCE WILLIAM COUNTY

AUTHOR: KMK
CHECK: -
PROJ.#: 007078
DATE: FEB 2025

SHEET
GI001
SHEET: 01 OF 23


PLOT DATE: 2/19/2025 10:45:09 AM; BY: SCOTT SPERLIK
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GAP 1 - PREFERRED ALIGNMENT - OVERALL PLAN




0 200' 400' 800'

SCALE: 1" = 400'

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PHNST - PREFERRED ALIGNMENT - GAP 1 OVERALL

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
PRINCE WILLIAM COUNTY

| | |
|---|---|
| AUTHOR: | KMK |
| CHECK: | - |
| PROJ.#: | 007078 |
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SHEET

CP100

SHEET: 02 OF 23


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MATCHLINE - SEE SHEET CP102

NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
- SHARROW MARKINGS
- PROPOSED SIGN
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- PEDESTRIAN CROSSWALK
- YIELD LINE TRIANGLES
- RAISED CONCRETE MEDIAN
- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

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CP101
SHEET: 03 OF 23

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MATCHLINE - SEE SHEET CP101

MATCHLINE - SEE SHEET CP103

NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
- SHARROW MARKINGS
- PROPOSED SIGN
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- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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PHNST - PREFERRED ALIGNMENT - GAP 1

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CP102
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MATCHLINE - SEE SHEET CP102

MATCHLINE - SEE SHEET CP104

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## NOTES

## KEYNOTES

## LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
- SHARROW MARKINGS
- PROPOSED SIGN
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
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- RAISED CONCRETE MEDIAN
- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
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|---|---|
| AUTHOR: | KMK |
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SHEET
CP103
SHEET: 05 OF 23


NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
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- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
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- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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CP104
SHEET: 06 OF 23



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## MATCHLINE - SEE SHEET CP104


## MATCHLINE - SEE SHEET CP106

### NOTES

### KEYNOTES

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- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
- SHARROW MARKINGS
- PROPOSED SIGN
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
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- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRAIL (PHNST) GAP ANALYSIS

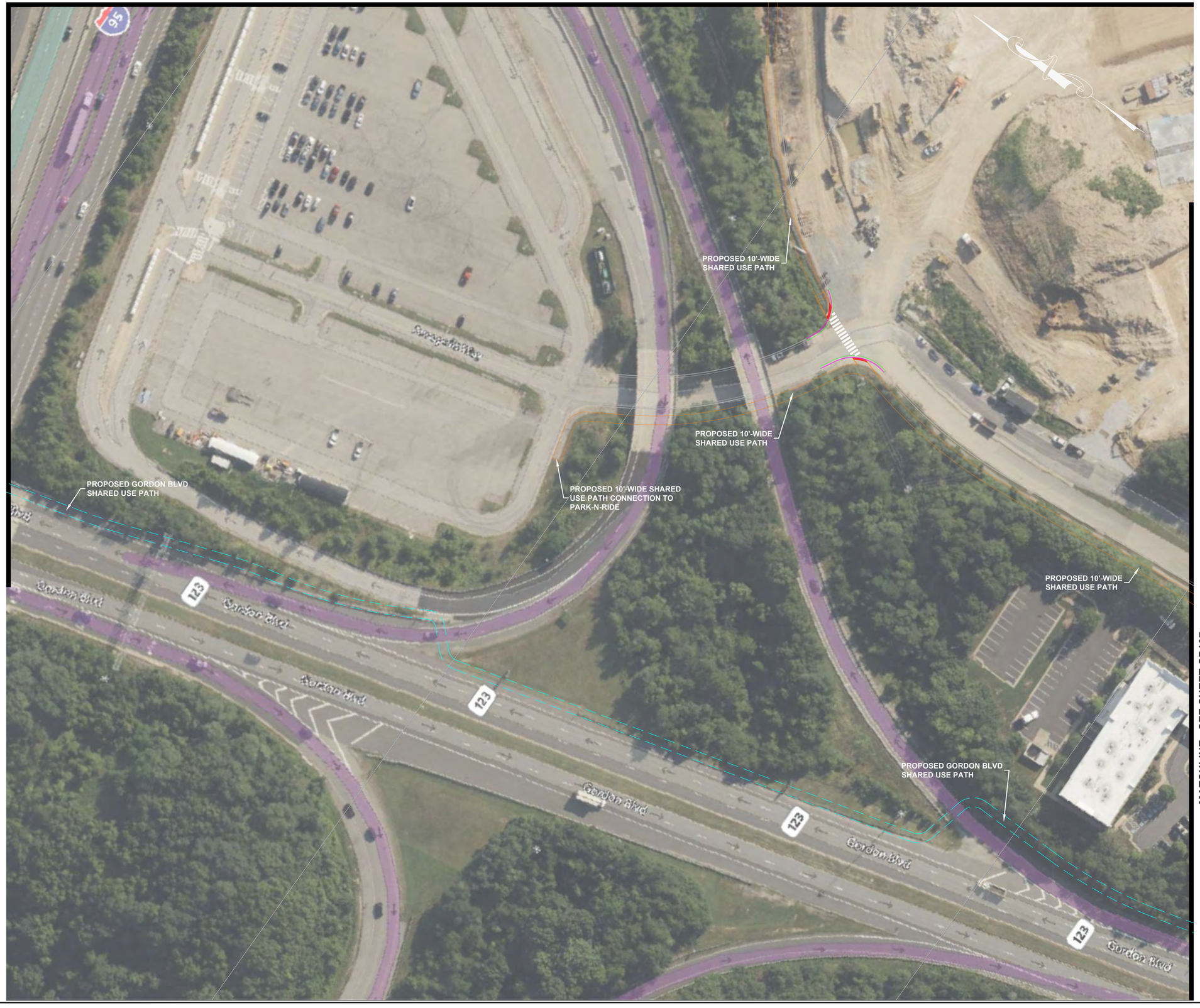
LOCATION:
PRINCE WILLIAM COUNTY

| | |
|---|---|
| AUTHOR: | KMK |
| CHECK: | - |
| PROJ.#: | 007078 |
| DATE: | FEB 2025 |

SHEET
CP105
SHEET: 07 OF 23

MATCHLINE - SEE SHEET CP108

MATCHLINE - SEE SHEET CP105




MATCHLINE - SEE SHEET CP107

NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
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- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

| REVISION | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
PRINCE WILLIAM COUNTY

| | |
|---|---|
| AUTHOR: | KMK |
| CHECK: | - |
| PROJ.#: | 007078 |
| DATE: | FEB 2025 |

SHEET
CP106
SHEET: 08 OF 23


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**MATCHLINE - SEE SHEET CP106**


## NOTES

## KEYNOTES

## LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
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- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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|---|---|---|
| NO. | DATE | DESCRIPTION |
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FEASIBILITY STUDY

PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
PRINCE WILLIAM COUNTY

AUTHOR: KMK
CHECK: -
PROJ.#: 007078
DATE: FEB 2025

SHEET
CP107
SHEET: 09 OF 23



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MATCHLINE - SEE SHEET CP109

NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
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- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
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|---|---|
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| DATE: | FEB 2025 |

SHEET
CP108
SHEET: 10 OF 23

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MATCHLINE - SEE SHEET CP108

MATCHLINE - SEE SHEET CP110

NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
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- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

| REVISION | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
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PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
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SHEET
CP109
SHEET: 11 OF 23


PLOT DATE: 2/19/2025 10:46:33 AM; BY: SCOTT SPERLIK
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PLOT DATE: 4/4/2025 2:02:10 PM; BY: KRISTIN KASZYCA
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MATCHLINE - SEE SHEET CP108


MATCHLINE - SEE SHEET CP111

LEGEND

- PROPOSED SHARED USE PATH
- EXISTING SHARED USE PATH
- PROPOSED PROJECT BY OTHERS
- CURB AND GUTTER
- FENCE (BY OTHERS)
- SHARROW MARKINGS
- PROPOSED SIGN
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- PEDESTRIAN CROSSWALK
- YIELD LINE TRIANGLES
- RAISED CONCRETE MEDIAN
- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

SCALE: 0 ### ### ###

KEYNOTES

NOTES

**FEASIBILITY STUDY**

**PHNST - PREFERRED ALIGNMENT - GAP 1**

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

**LOCATION:**
**PRINCE WILLIAM COUNTY**

SHEET
**CP110**
SHEET: 12 OF 23

AUTHOR: KMK
CHECK:
PROJ #: 007078
DATE: FEB 2025

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REVISION

| NO. | DATE | DESCRIPTION |
|---|---|---|
| ---- | ---- | ---- |
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| | | |

MATCHLINE - SEE SHEET CP110


NOTES

KEYNOTES

LEGEND

- PROPOSED SHARED USE PATH
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- ADA RAMP
- STORM PIPE
- GRAVEL PAVEMENT
- PEDESTRIAN TUNNEL
- PEDESTRIAN BRIDGE

0 25' 50' 100'
SCALE: 1" = 50'

| REVISION NO. | DATE | DESCRIPTION |
|---|---|---|
| --- | --- | --- |
| --- | --- | --- |

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FEASIBILITY STUDY

PHNST - PREFERRED ALIGNMENT - GAP 1

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
PRINCE WILLIAM COUNTY

| | |
|---|---|
| AUTHOR: | KMK |
| CHECK: | - |
| PROJ.#: | 007078 |
| DATE: | FEB 2025 |

SHEET
CP111
SHEET: 13 OF 23


PLOT DATE: 4/4/2025 2:02:15 PM; BY: KRISTIN KASZYCA
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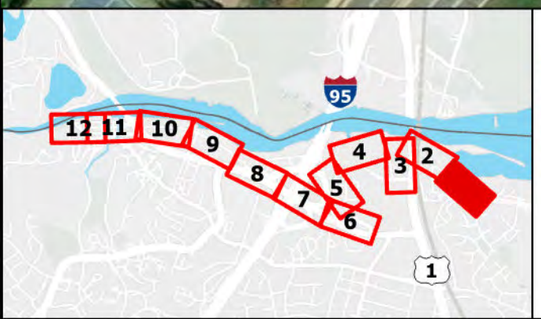



Community Facility
Cultural Resources
Schools
Police Facilities
Places of Worship
Library
Hospitals
Fire Stations
40ft Impact Buffer
Study Area
Parks
Cemetery Preservation Areas
State and Federal Land
Protected Open Space

0 90 180 US Feet

# Community & Cultural Resources

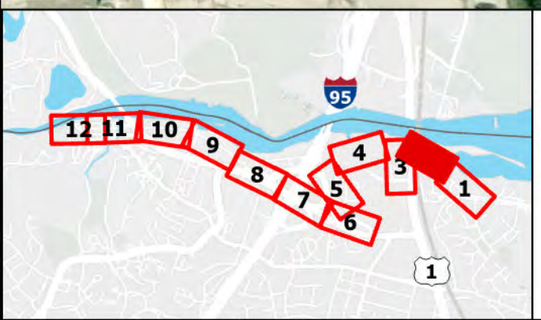
Potential Impacts
Alternative 1.1

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

Appendix B.2

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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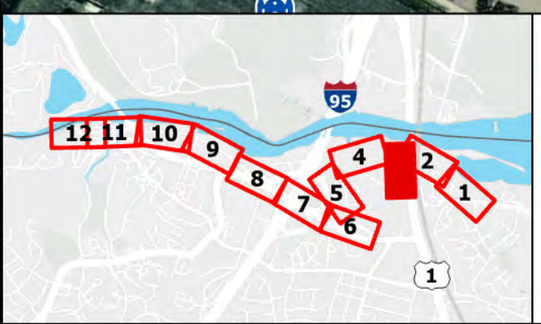
# Community & Cultural Resources

Potential Impacts
Alternative 1.1

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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Gap Area 1
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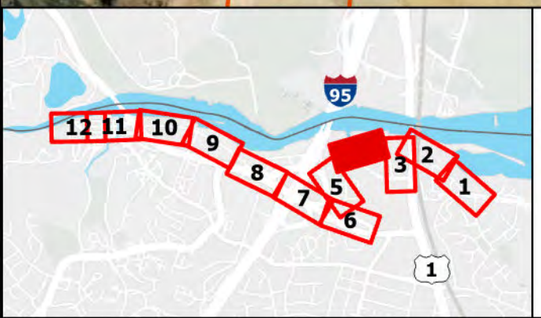
PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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Potential Impacts
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From: Belmont Bay Community
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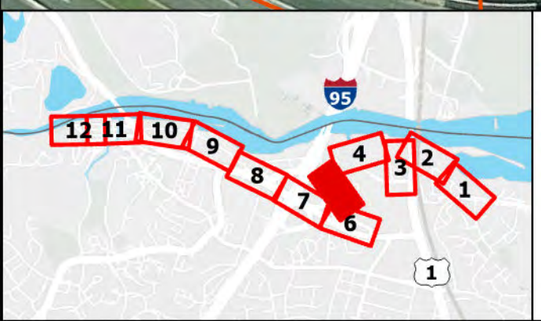
PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
Cultural Resources
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Potential Impacts
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Gap Area 1
From: Belmont Bay Community
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PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025



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# Community & Cultural Resources

Potential Impacts
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From: Belmont Bay Community
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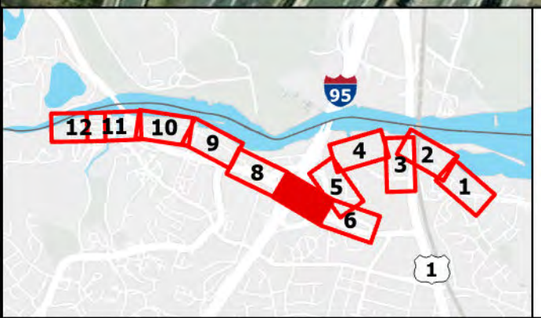
PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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# Community & Cultural Resources

Potential Impacts
Alternative 1.1

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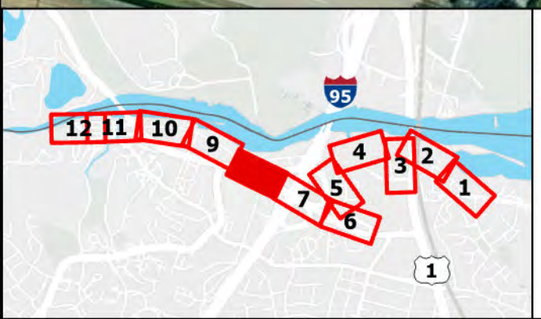
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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0 90 180 US Feet

# Community & Cultural Resources

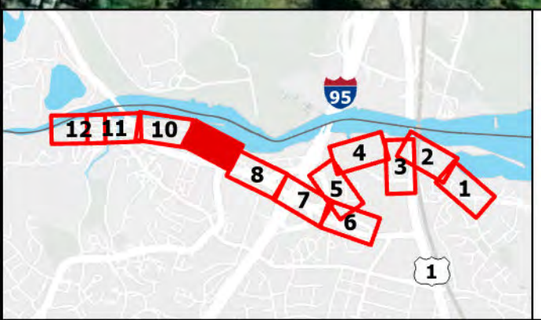
Potential Impacts
Alternative 1.1

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

POTOMAC HERITAGE NATIONAL SCENIC TRAIL

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


- Community Facility
- Cultural Resources
- Schools
- Police Facilities
- Places of Worship
- Library
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- Fire Stations
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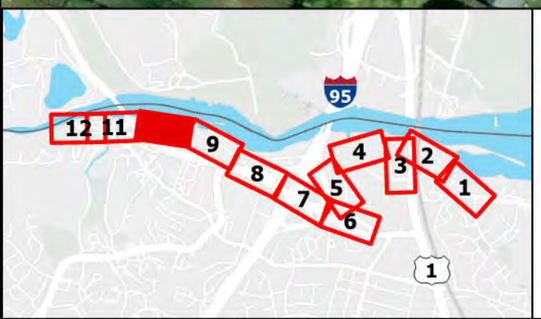
# Community & Cultural Resources

Potential Impacts
Alternative 1.1

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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# Community & Cultural Resources

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PRINCE WILLIAM
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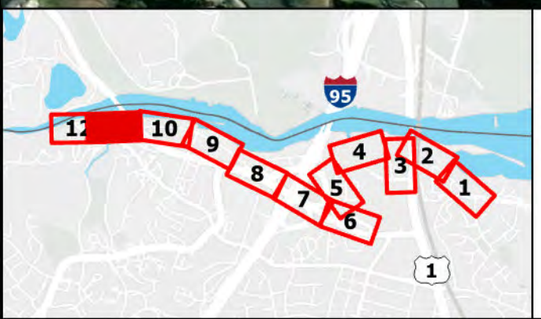


Community Facility
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# Community & Cultural Resources

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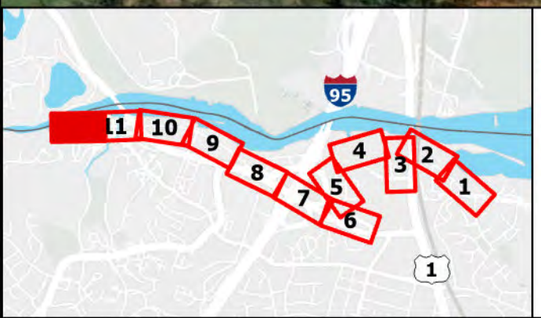


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# Community & Cultural Resources

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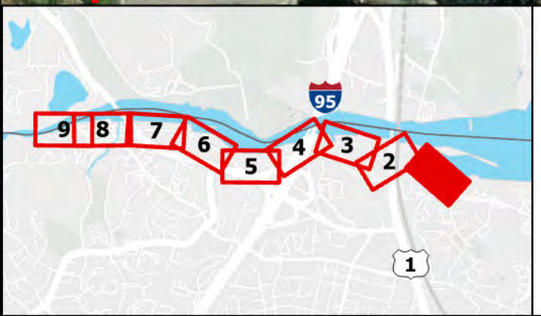


Community Facility
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0 100 200 US Feet

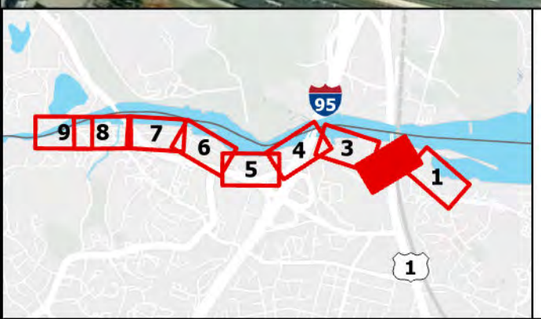
# Community & Cultural Resources

Potential Impacts
Alternative 1.2

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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# Community & Cultural Resources

Potential Impacts
Alternative 1.2

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

POTOMAC HERITAGE NATIONAL SCENIC TRAIL

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025



Community Facility
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# Community & Cultural Resources

Potential Impacts
Alternative 1.2

Gap Area 1
From: Belmont Bay Community
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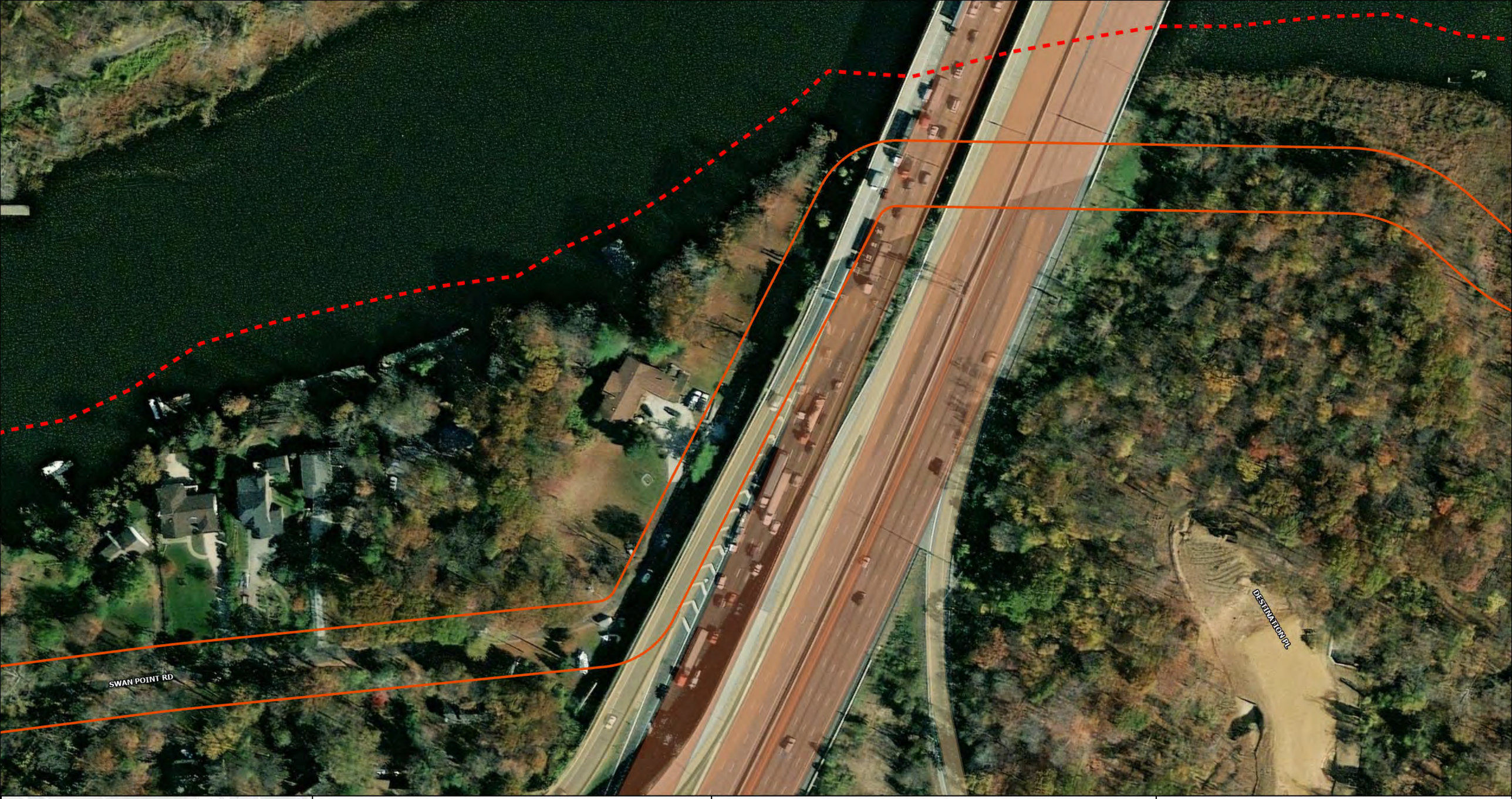
PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025





- Community Facility
- Cultural Resources
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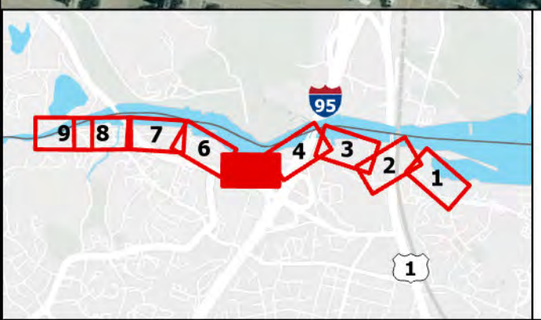
# Community & Cultural Resources

Potential Impacts
Alternative 1.2

Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Community Facility
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# Community & Cultural Resources

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PRINCE WILLIAM
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Date Produced: 3/31/2025



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Alternative 1.2

Gap Area 1
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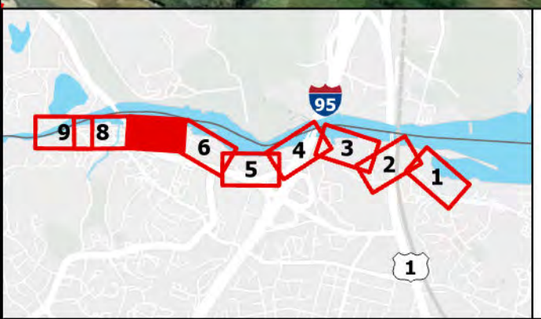
Date Produced: 3/31/2025


Community Facility
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PRINCE WILLIAM
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Date Produced: 3/31/2025



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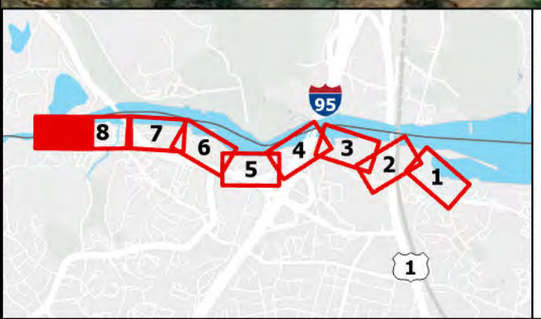


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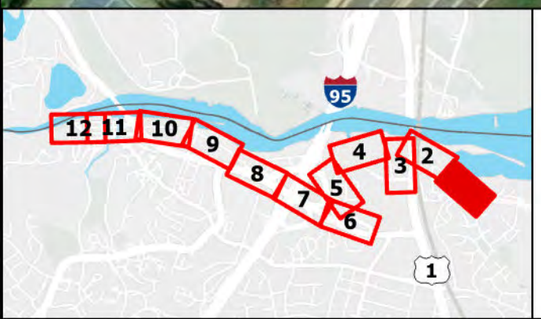



Wetlands
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Floodway
Streams
40ft Impact Buffer
Study Area

0 90 180 US Feet

# Water Resource Impacts

Potential Impacts
Alternative 1.1

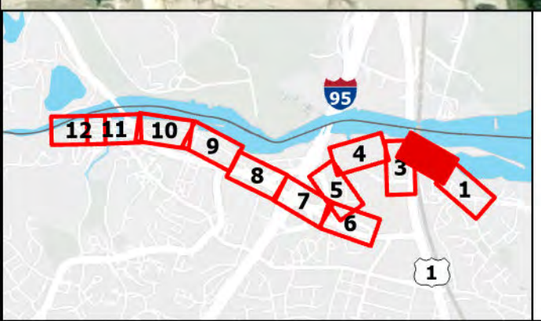
Gap Area 1
From: Belmont Bay Community
To: Town of Occoquan

Appendix B.3

Potomac Heritage National Scenic Trail

Prince William —Parks & Recreation

Date Produced: 3/31/2025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0 90 180 US Feet

# Water Resource Impacts

Potential Impacts
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Gap Area 1
From: Belmont Bay Community
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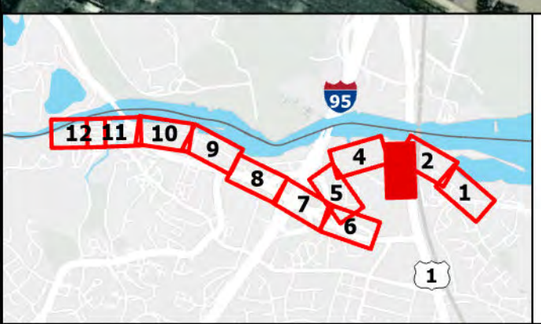


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# Water Resource Impacts

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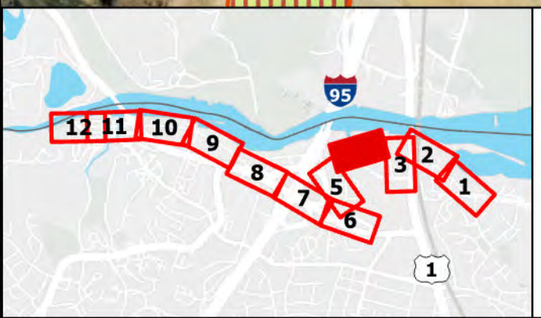


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# Water Resource Impacts

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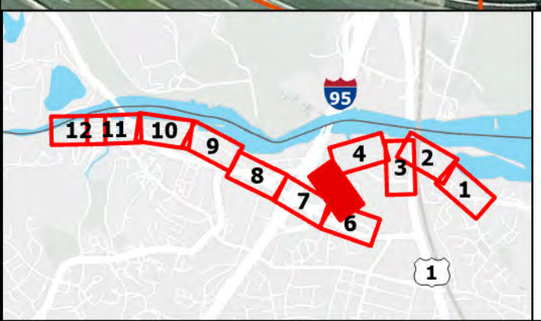
PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025


Wetlands
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Study Area

0 90 180 US Feet

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To: Town of Occoquan

PRINCE WILLIAM
—Parks & Recreation

Date Produced: 3/31/2025



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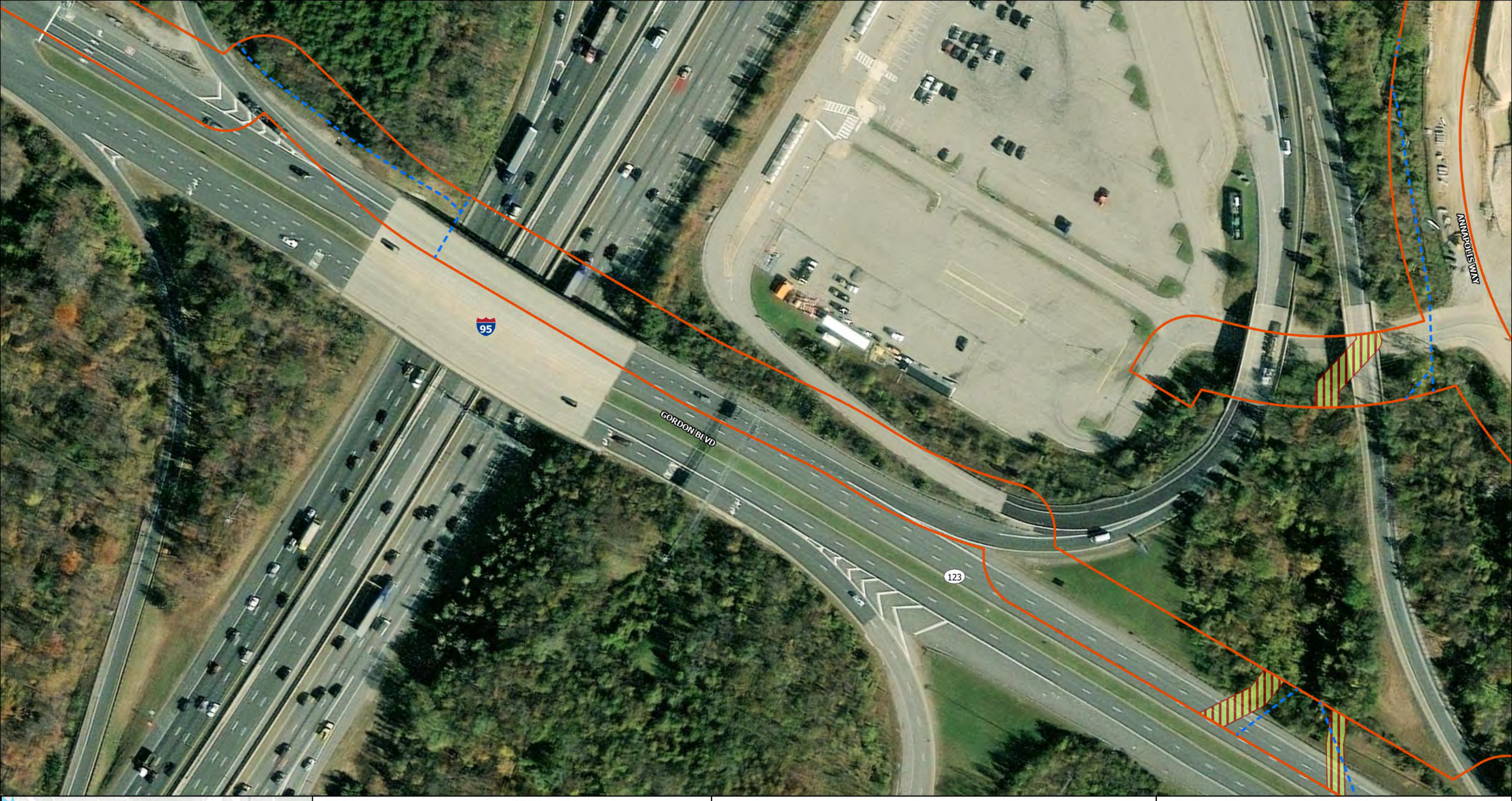


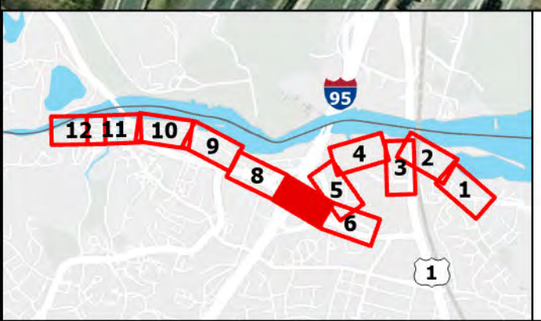


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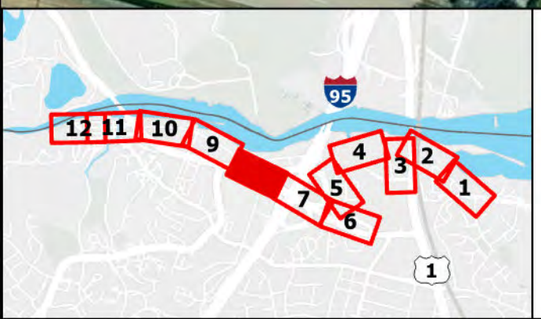


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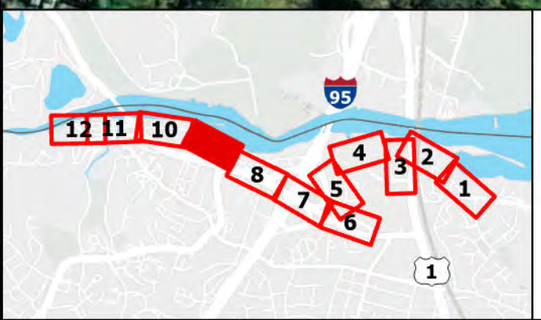


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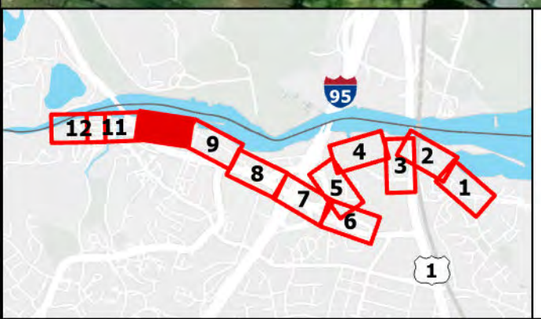


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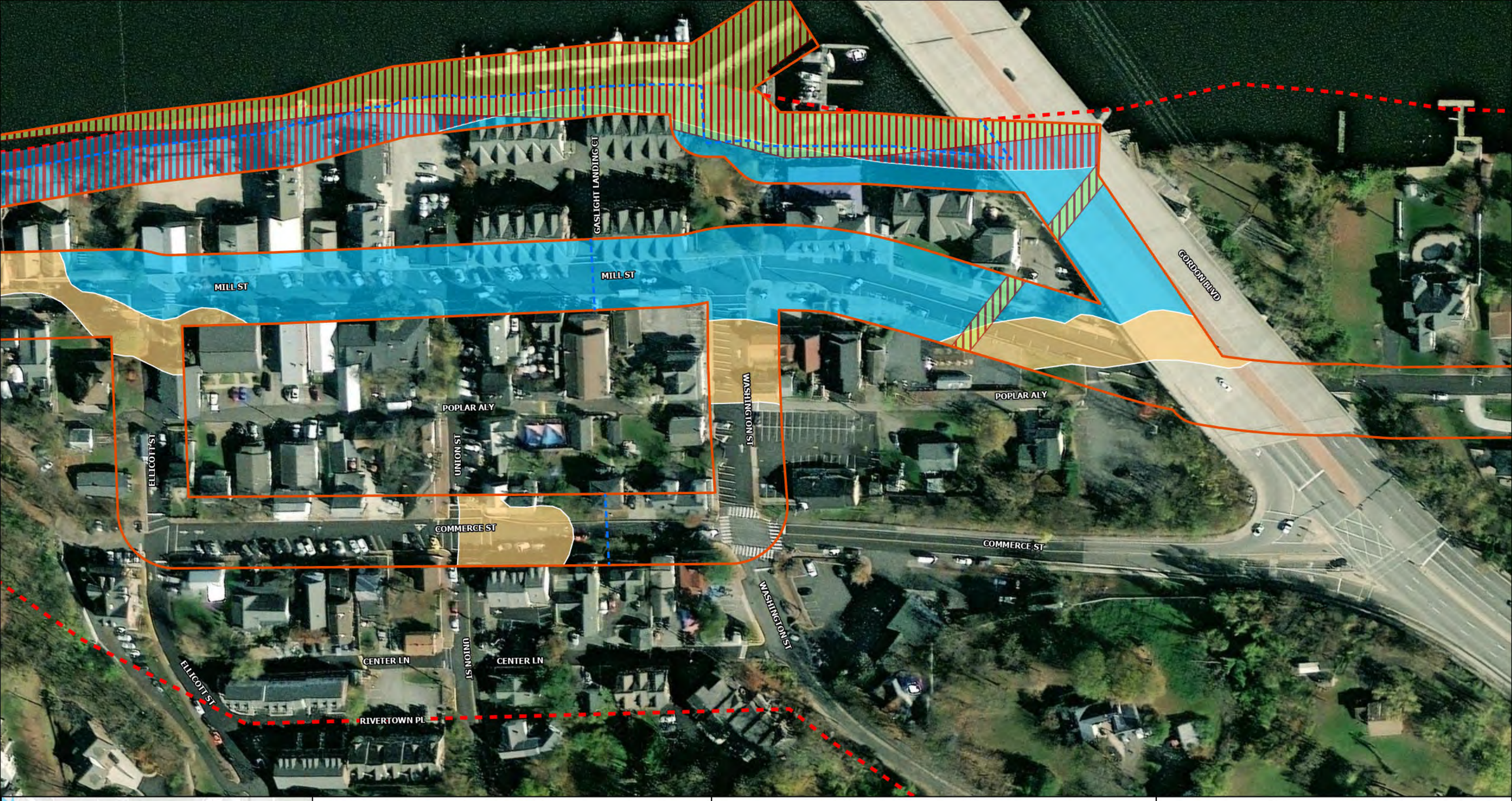


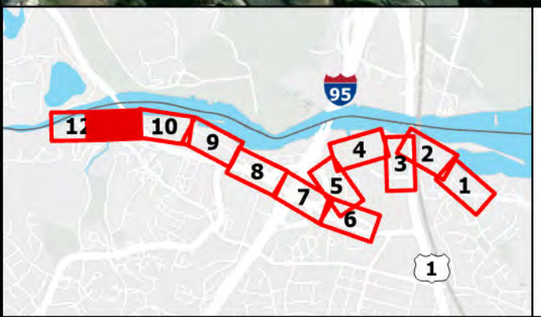


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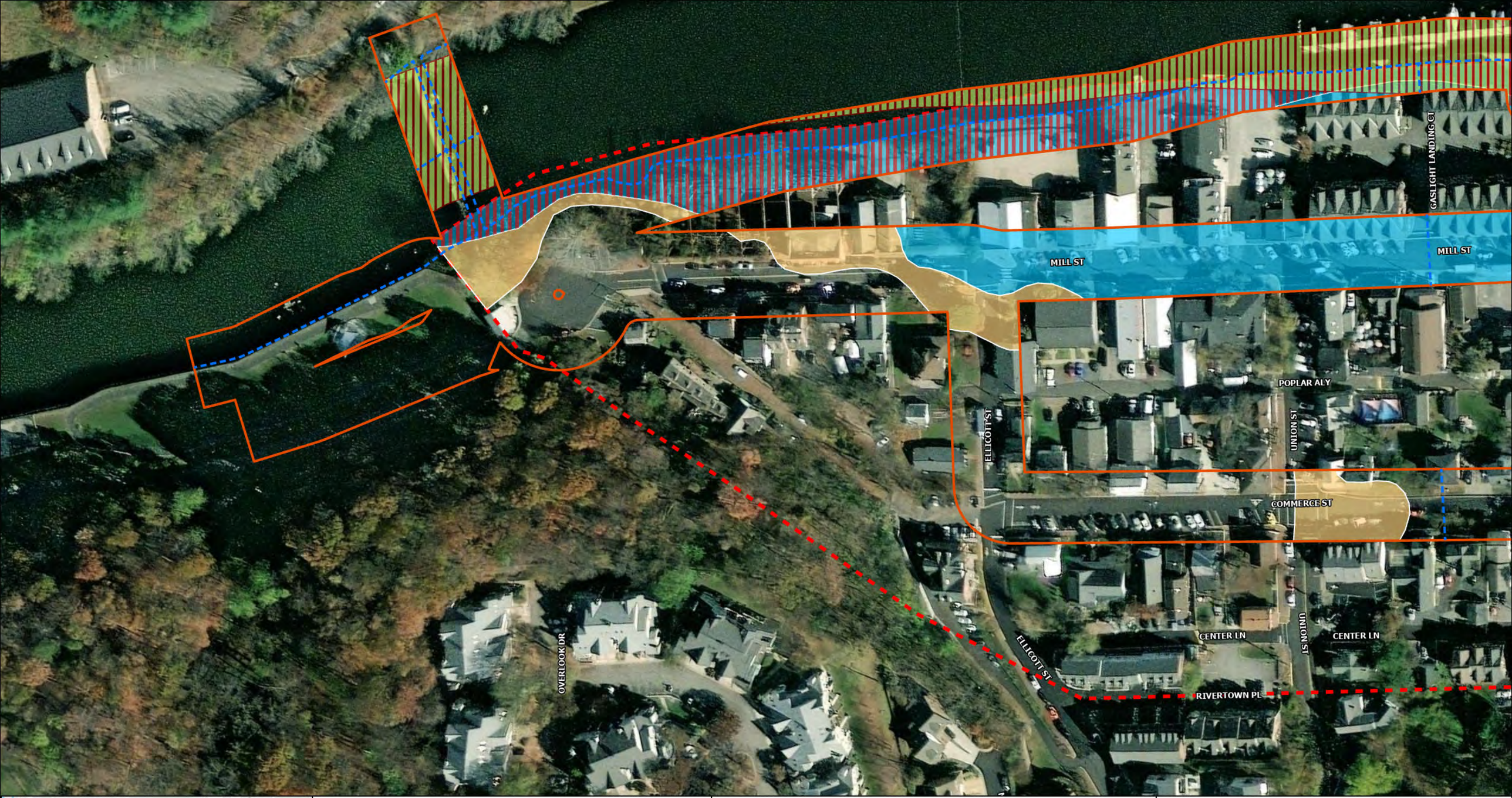


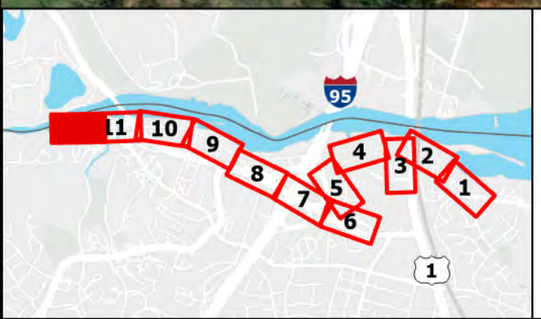


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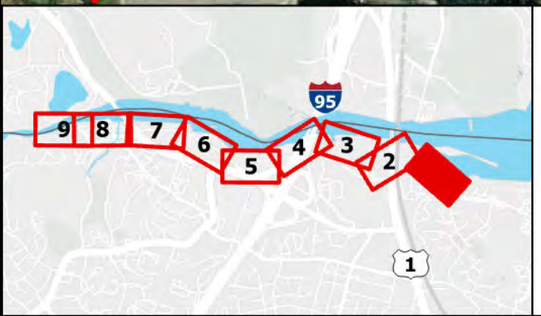


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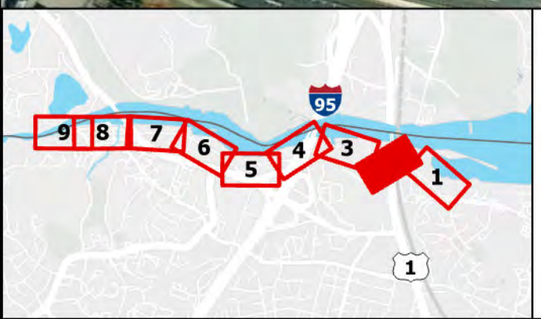


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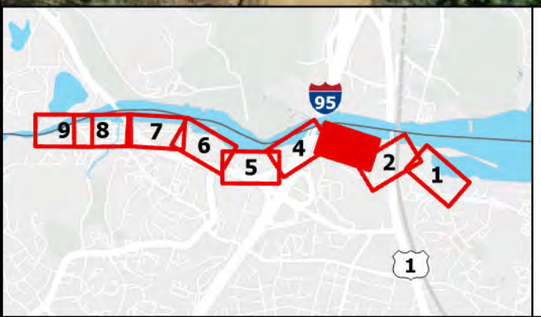


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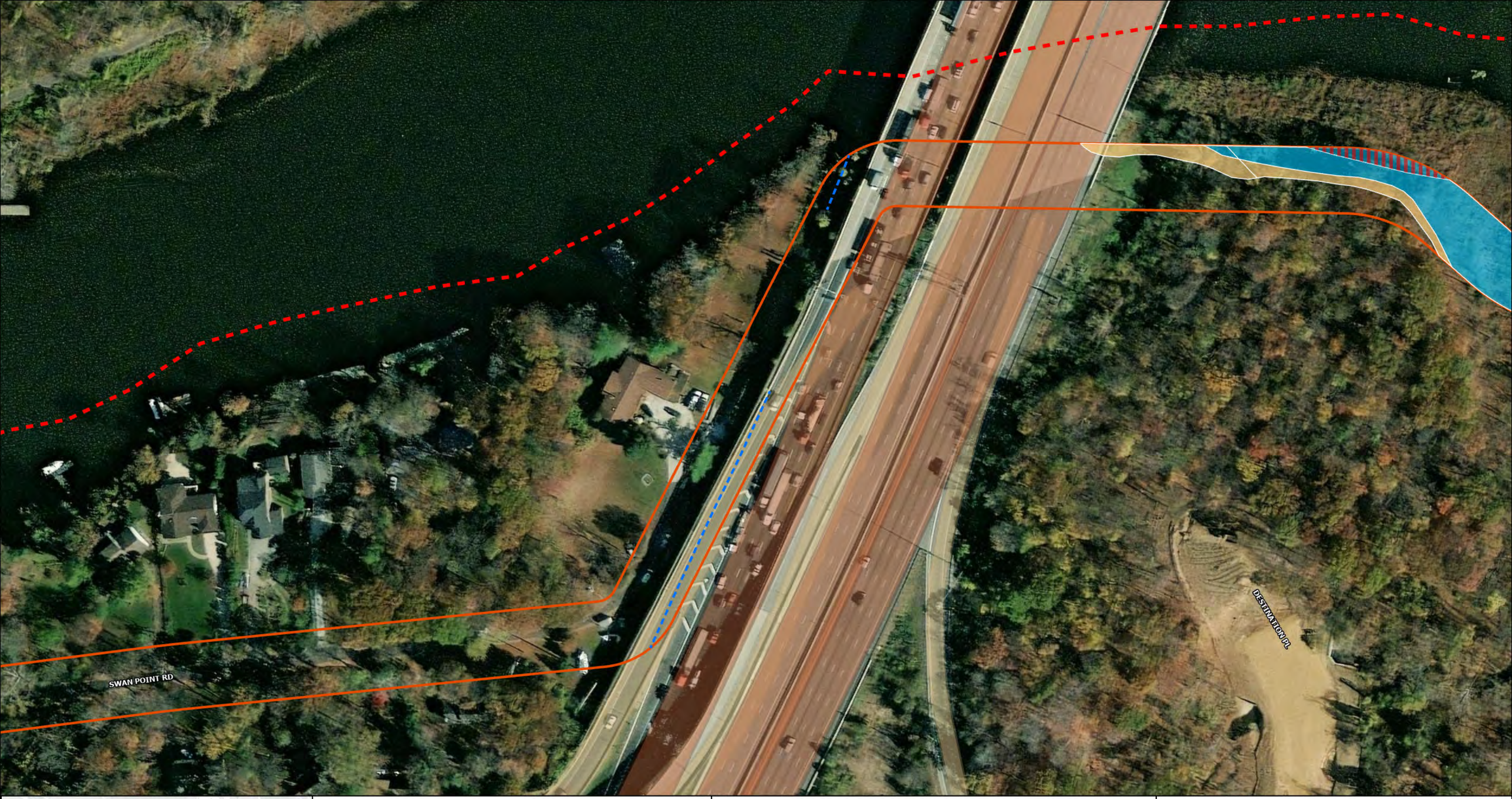



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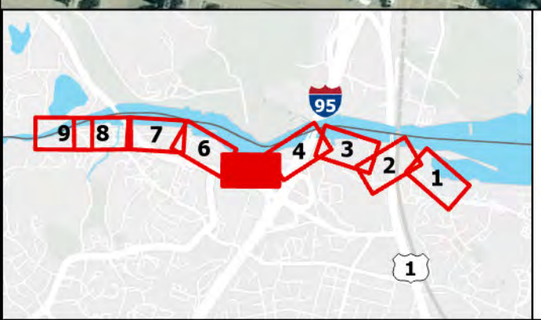


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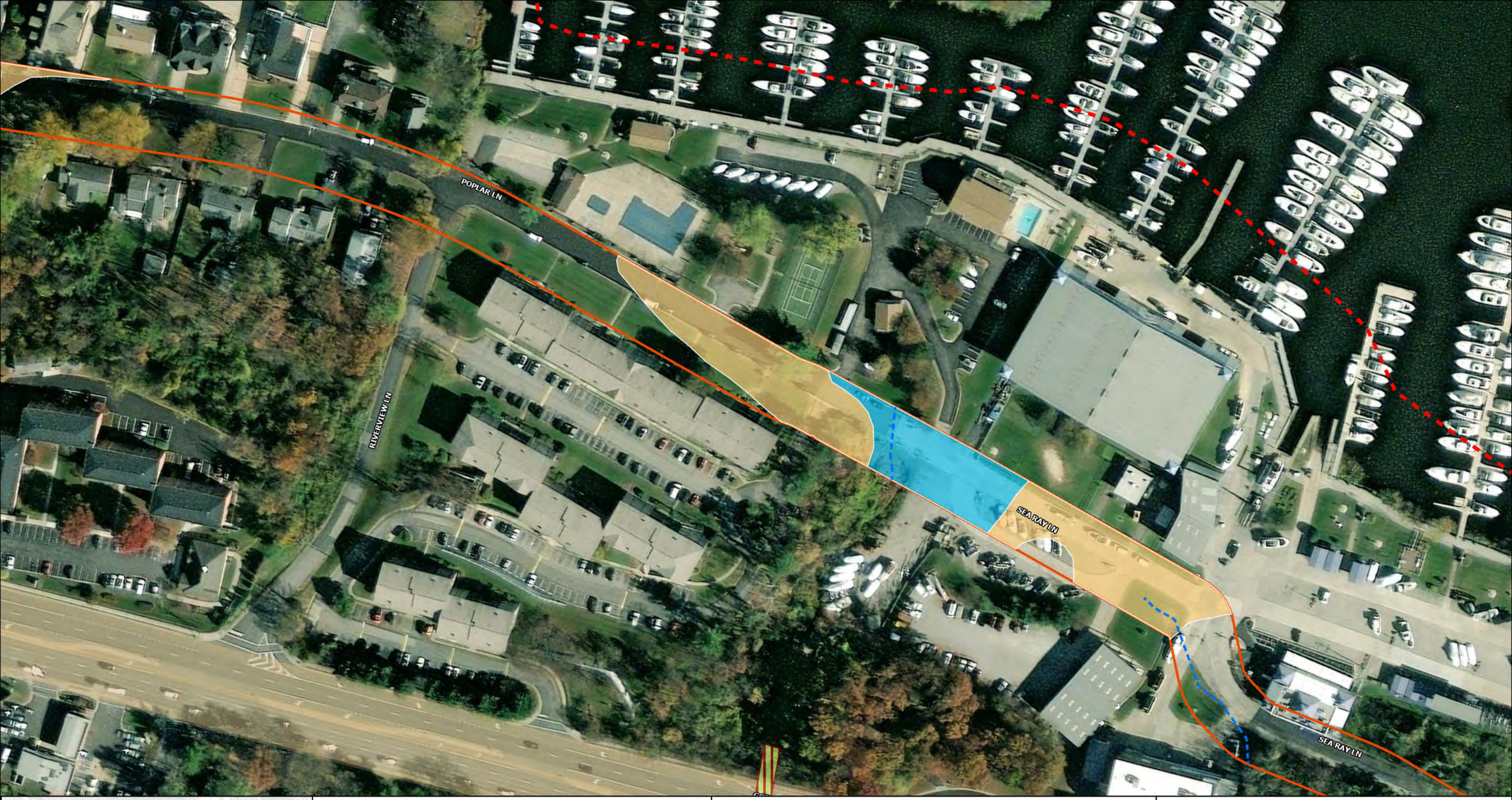


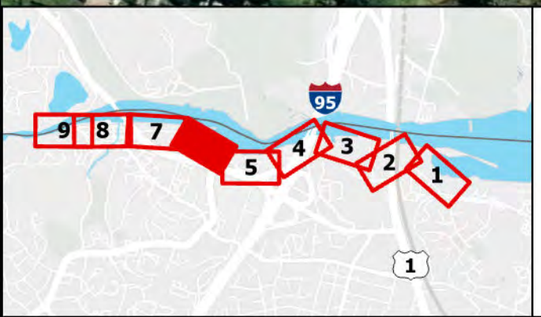


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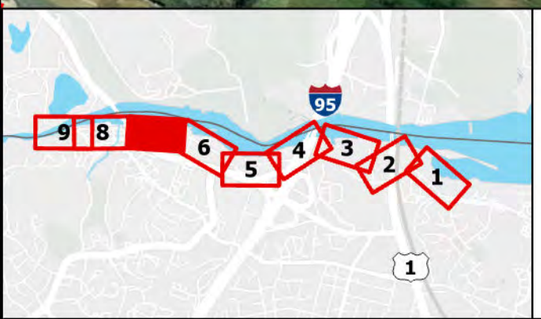


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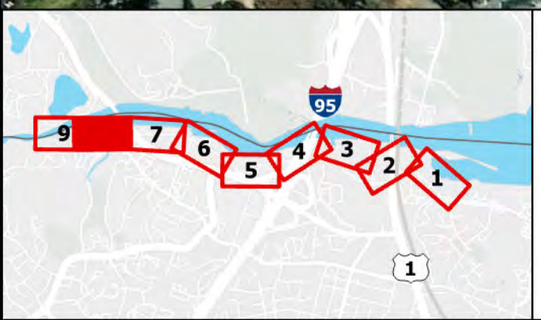


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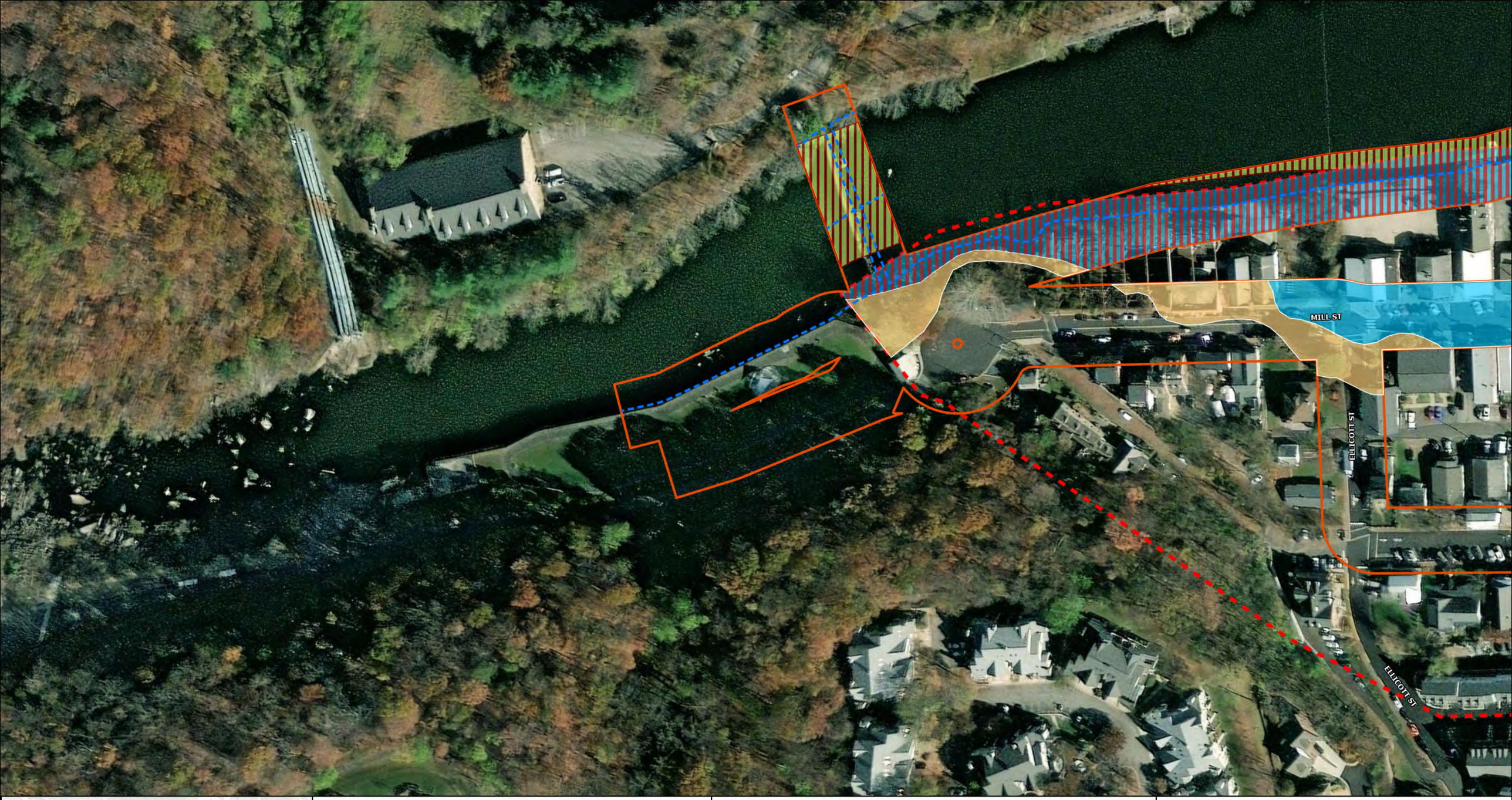


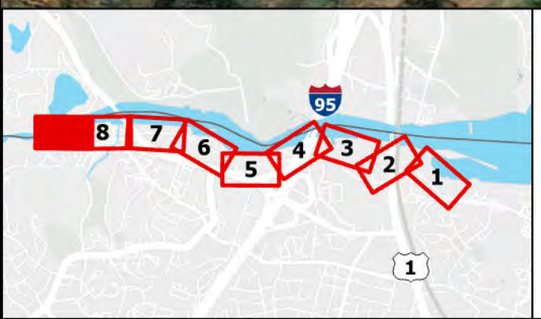


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# Appendix C- Project Costs

## C.1 – Cost Summary by Alignment

## C.2 – Detailed Cost Comparison by Alignment

## C.3 – Phased Cost Estimates

Appendix C.1

| Gap 1 | | | | | |
|---|---|---|---|---|---|
| | Overall Trail Length (LF) | Trail built by others (LF) | Net Trail Length (LF) | Cost | Cost/LF |
| Alignment 1 | 16,160 | 5,350 | 10,810 | $ 4,754,228.15 | $ 439.80 |
| Alignment 2 | 12,980 | 1,610 | 11,370 | $ 11,420,242.58 | $ 1,004.42 |
| Alignment 3 | 13,940 | 5,080 | 8,860 | $ 5,124,973.23 | $ 578.44 |

Appendix C.2 - Potomac Heritage National Scenic Trail Feasibility Study -- Cost Comparisons

| Gap 1 | | Alignment 1 (Overall length = 16,160') | | | | Alignment 2 (Overall length =12,980') | | | | Alignment 3 (Overall length = 13,940') | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Construction (CN) Phase:** | | **Quantity** | **Unit** | **Unit Cost** | **Extended Cost** | **Quantity** | **Unit** | **Unit Cost** | **Extended Cost** | **Quantity** | **Unit** | **Unit Cost** | **Extended Cost** | |
| *Mobilization/Constr Survey* | | | | | | | | | | | | | | |
| 513SD20-0001 | Mobilization | 1 | LS | $ 179,000.00 | $ 179,000.00 | 1 | LS | $ 388,000.00 | $ 388,000.00 | 1 | LS | $ 190,000.00 | $ 190,000.00 | |
| 517SD20-0001 | Constuction Surveying | 1 | LS | $ 30,000.00 | $ 30,000.00 | 1 | LS | $ 72,000.00 | $ 72,000.00 | 1 | LS | $ 32,000.00 | $ 32,000.00 | |
| *Roadway* | | | | | | | | | | | | | | |
| 315SD20-0002 | Asphalt Concrete TY. SM-12.5D Const | 1310 | TON | $ 250.00 | $ 327,500.00 | 1310 | TON | $ 250.00 | $ 327,500.00 | 1050 | TON | $ 250.00 | $ 262,500.00 | |
| 308SD20-0012 | Aggr. Base Matl. TY. 1 No. 21B | 4530 | TON | $ 80.00 | $ 362,400.00 | 4570 | TON | $ 80.00 | $ 365,600.00 | 3640 | TON | $ 80.00 | $ 291,200.00 | |
| 510SX20-0001 | Remove Sidewalk and Entrance | 430 | SY | $ 45.00 | $ 19,350.00 | 430 | SY | $ 45.00 | $ 19,350.00 | 420 | SY | $ 45.00 | $ 18,900.00 | |
| 510SX20-0016 | NS Remove Exist. Fence | 300 | LF | $ 30.00 | $ 9,000.00 | 300 | LF | $ 30.00 | $ 9,000.00 | 300 | LF | $ 30.00 | $ 9,000.00 | |
| 505SD20-0073 | Remove Existing Guardrail | 0 | LF | $ 15.00 | $ - | 0 | LF | $ 15.00 | $ - | 340 | LF | $ 15.00 | $ 5,100.00 | |
| 505SD20-0030 | Guardrail GR-2 | 0 | LF | $ 55.00 | $ - | 0 | LF | $ 55.00 | $ - | 340 | LF | $ 55.00 | $ 18,700.00 | |
| 502SD20-0011 | Curb, Std CG-2 | 560 | LF | $ 70.00 | $ 39,200.00 | 2430 | LF | $ 70.00 | $ 170,100.00 | 0 | LF | $ 70.00 | $ - | |
| 502SD20-0022 | Comb. Curb & Gutter, Std CG-6 | 2500 | LF | $ 60.00 | $ 150,000.00 | 2500 | LF | $ 60.00 | $ 150,000.00 | 2630 | LF | $ 60.00 | $ 157,800.00 | |
| 504SD20-0003 | Hydr. Cement Concrete Sidewalk, 4" | 380 | SY | $ 95.00 | $ 36,100.00 | 380 | SY | $ 95.00 | $ 36,100.00 | 380 | SY | $ 95.00 | $ 36,100.00 | |
| 504SD20-0004 | Hydr. Cement Concrete Sidewalk, 7" | 240 | SY | $ 260.00 | $ 62,400.00 | 220 | SY | $ 260.00 | $ 57,200.00 | 230 | SY | $ 260.00 | $ 59,800.00 | |
| 504SD20-0002 | CG-12 Detectable Warning Surface | 50 | SY | $ 660.00 | $ 33,000.00 | 50 | SY | $ 660.00 | $ 33,000.00 | 50 | SY | $ 660.00 | $ 33,000.00 | |
| 507SD20-0031 | Pedestrian Fence 6' | 300 | LF | $ 225.00 | $ 67,500.00 | 300 | LF | $ 225.00 | $ 67,500.00 | 1400 | LF | $ 225.00 | $ 315,000.00 | |
| 316SD20-0030 | Concrete Entrance Pave. 7" | 50 | SY | $ 180.00 | $ 9,000.00 | 50 | SY | $ 180.00 | $ 9,000.00 | 40 | SY | $ 180.00 | $ 7,200.00 | |
| 504SD20-0015 | Handrail HR-1, Type III | 0 | LF | $ 320.00 | $ - | 0 | LF | $ 320.00 | $ - | 320 | LF | $ 320.00 | $ 102,400.00 | |
| | Roadway Defined Item Subtotal | | | | $ 1,115,450.00 | | | | $ 1,244,350.00 | | | | $ 1,316,700.00 | |
| *Hydraulics* | | | | | | | | | | | | | | |
| 302SD20-0201 | 18" Conc. Pipe | 650 | LF | $ 190.00 | $ 123,500.00 | 650 | LF | $ 190.00 | $ 123,500.00 | 620 | LF | $ 190.00 | $ 117,800.00 | |
| 302SD20-0030 | 18" End Section, ES-1 | 2 | EA | $ 2,100.00 | $ 4,200.00 | 2 | EA | $ 2,100.00 | $ 4,200.00 | 2 | EA | $ 2,100.00 | $ 4,200.00 | |
| 302SD20-0039 | 24" Conc. Pipe | 870 | LF | $ 250.00 | $ 217,500.00 | 868 | LF | $ 250.00 | $ 217,000.00 | 850 | LF | $ 250.00 | $ 212,500.00 | |
| 302SD20-0205 | 24" End Section, ES-1 | 1 | EA | $ 2,500.00 | $ 2,500.00 | 1 | EA | $ 2,500.00 | $ 2,500.00 | 1 | EA | $ 2,500.00 | $ 2,500.00 | |
| 302SD20-0241 | Drop Inlet, Curb | 10 | EA | $ 10,100.00 | $ 101,000.00 | 10 | EA | $ 10,100.00 | $ 101,000.00 | 10 | EA | $ 10,100.00 | $ 101,000.00 | |
| 302SD20-0237 | Drop Inlet, DI-1 | 1 | EA | $ 7,700.00 | $ 7,700.00 | 1 | EA | $ 7,700.00 | $ 7,700.00 | 1 | EA | $ 7,700.00 | $ 7,700.00 | |
| 303SD20-0030 | Inlet Protection Type A | 3 | EA | $ 570.00 | $ 1,710.00 | 3 | EA | $ 570.00 | $ 1,710.00 | 1 | EA | $ 570.00 | $ 570.00 | |
| 303SD20-0031 | Inlet Protection Type B | 20 | EA | $ 525.00 | $ 10,500.00 | 13 | EA | $ 525.00 | $ 6,825.00 | 24 | EA | $ 525.00 | $ 12,600.00 | |
| 303SD20-0034 | Temp. Silt Fence Type A | 4150 | LF | $ 6.00 | $ 24,900.00 | 4480 | LF | $ 6.00 | $ 26,880.00 | 4120 | LF | $ 6.00 | $ 24,720.00 | |
| 303SX20-0022 | NS Erosion Control (Tree Protection) | 7790 | LF | $ 2.50 | $ 19,475.00 | 8720 | LF | $ 2.50 | $ 21,800.00 | 5020 | LF | $ 2.50 | $ 12,550.00 | |
| | Hydraulics Defined Item Subtotal | | | | $ 512,985.00 | | | | $ 513,115.00 | | | | $ 496,140.00 | |
| *Traffic* | | | | | | | | | | | | | | |
| 704SD20-0010 | Type B Class I Pvmt Line Marking 24" | 298 | LF | $ 16.00 | $ 4,768.00 | 284 | LF | $ 16.00 | $ 4,544.00 | 712 | LF | $ 16.00 | $ 11,392.00 | |
| 704SD20-0007 | Type B Class I Pvmt Line Marking 6" | 312 | LF | $ 5.00 | $ 1,560.00 | 312 | LF | $ 5.00 | $ 1,560.00 | 312 | LF | $ 5.00 | $ 1,560.00 | |
| | Pavement Marking Arrow | 2 | EA | $ 500.00 | $ 1,000.00 | 2 | EA | $ 500.00 | $ 1,000.00 | 2 | EA | $ 500.00 | $ 1,000.00 | |
| | Sharrow Pvmt Marking | 30 | EA | $ 400.00 | $ 12,000.00 | 30 | EA | $ 400.00 | $ 12,000.00 | 30 | EA | $ 400.00 | $ 12,000.00 | |
| 704SD20-0086 | Yield Symbol Marking | 15 | EA | $ 78.00 | $ 1,170.00 | 15 | EA | $ 78.00 | $ 1,170.00 | 15 | EA | $ 78.00 | $ 1,170.00 | |
| | Flashing RRFB | 2 | EA | $ 16,500.00 | $ 33,000.00 | 2 | EA | $ 16,500.00 | $ 33,000.00 | 2 | EA | $ 16,500.00 | $ 33,000.00 | |
| | Traffic Defined Item Subtotal | | | | $ 53,498.00 | | | | $ 53,274.00 | | | | $ 60,122.00 | |
| Structures/Bridges | | | | | | | | | | | | | | |
| 401SX20-0001 | Wooden Bridge | 0 | SF | $ 235.00 | $ - | 9280 | SF | $ 235.00 | $ 2,180,800.00 | 0 | SF | $ 235.00 | $ - | Husam's previous project = $1,004,881 for 265' bridge = $3792 per LF. == $235 per sf |
| | Retaining Wall | 420 | LF | $ 700.00 | $ 294,000.00 | 2390 | LF | $ 700.00 | $ 1,673,000.00 | 710 | LF | $ 700.00 | $ 497,000.00 | $1660/cy, assuming 6' height -- 11sf/LF |
| | Structures/Bridges Defined Item Subtotal | | . | | $ 294,000.00 | | | | $ 3,853,800.00 | | | | $ 497,000.00 | |
| Earthwork/Geotech | | | | | | | | | | | | | | |
| 303SD20-0001 | Regular Excavation | 6025 | CY | $ 65.00 | $ 391,625.00 | 8145 | CY | $ 65.00 | $ 529,425.00 | 2800 | CY | $ 65.00 | $ 182,000.00 | |
| 305SD20-0001 | Borrow Excavation | 2650 | CY | $ 50.00 | $ 132,500.00 | 3400 | CY | $ 50.00 | $ 170,000.00 | 3190 | CY | $ 50.00 | $ 159,500.00 | |
| 301SD20-0002 | Clearing and Grubbing | 4.9 | AC | $ 35,000.00 | $ 171,500.00 | 6.1 | AC | $ 35,000.00 | $ 213,500.00 | 4.0 | AC | $ 35,000.00 | $ 140,000.00 | |
| 303SD20-0006 | Extra Excavation | 600 | CY | $ 95.00 | $ 57,000.00 | 810 | CY | $ 95.00 | $ 76,950.00 | 280 | CY | $ 95.00 | $ 26,600.00 | |
| | Earthwork/Geotech Defined Item Subtotal | | | | $ 752,625.00 | | | | $ 989,875.00 | | | | $ 508,100.00 | |
| Defined Item Subtotal (for Allowance Calculations) | | | | | $ 2,728,558.00 | | | | $ 6,654,414.00 | | | | $ 2,878,062.00 | |
| Allowances | Stormwater Management Allowance | 2.0% | | | $ 54,571.16 | 1.0% | | | $ 66,544.14 | 2.0% | | | $ 57,561.24 | |
| | MOT | 5.0% | | | $ 136,427.90 | 5.0% | | | $ 332,720.70 | 7.5% | | | $ 215,854.65 | Typ 5-15%, Most of work is outside of rdwy, but will be in rdwy to work |
| | Roadside Development (Minimal RD, Grass) | 1.0% | | | $ 27,285.58 | 1.0% | | | $ 66,544.14 | 1.0% | | | $ 28,780.62 | 0.5%-2% |
| | Signage | 0.5% | | | $ 13,642.79 | 0.5% | | | $ 33,272.07 | 0.5% | | | $ 14,390.31 | 1%-2% for signage and pavement markings |
| Construction Subtotal (for Mobilization and Constr Survey) | | | | | $ 2,960,485.43 | | | | $ 7,153,495.05 | | | | $ 3,194,648.82 | |
| **Construction Subtotal** | | | | | **$ 3,169,485.43** | | | | **$ 7,613,495.05** | | | | **$ 3,416,648.82** | |
| **Contingency** | | **50%** | | | **$ 1,584,742.72** | **50%** | | | **$ 3,806,747.53** | **50%** | | | **$ 1,708,324.41** | |
| **Total** | | | | | **$ 4,754,228.15** | | | | **$ 11,420,242.58** | | | | **$ 5,124,973.23** | |

| Gap 1 | | | Alignment 1 (Overall length = 16,160') | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Construction (CN) Phase:** | | **Extended Cost** | **Phase 1A** | **Phase 1B** | **Phase 1C** | **Phase 2** | **Phase 3A** | **Phase 3B** |
| *Mobilization/Constr Survey* | | | | | | | | |
| 513SD20-0001 | Mobilization | $ 179,000.00 | $ 8,950.00 | $ 26,850.00 | $ 35,800.00 | $ 42,960.00 | $ 39,380.00 | $ 25,060.00 |
| 517SD20-0001 | Constuction Surveying | $ 30,000.00 | $ 1,500.00 | $ 5,100.00 | $ 9,600.00 | $ 7,200.00 | $ 4,200.00 | $ 2,400.00 |
| *Roadway* | | | | | | | | |
| | Roadway Defined Item Subtotal | $ 1,115,450.00 | $ - | $ 218,588.00 | $ 313,223.00 | $ 361,311.00 | $ 108,255.00 | $ 114,073.00 |
| *Hydraulics* | | | | | | | | |
| | Hydraulics Defined Item Subtotal | $ 512,985.00 | $ - | $ 5,600.00 | $ 8,400.00 | $ 468,490.00 | $ 15,562.50 | $ 14,932.50 |
| *Traffic* | | | | | | | | |
| | Traffic Defined Item Subtotal | $ 53,498.00 | $ 50,004.40 | $ 1,430.40 | $ 1,430.40 | $ 632.80 | $ - | $ - |
| Structures/Bridges | | | | | | | | |
| | Structures/Bridges Defined Item Subtotal | $ 294,000.00 | $ - | $ - | $ - | $ - | $ - | $ 294,000.00 |
| Earthwork/Geotech | | | | | | | | |
| | Earthwork/Geotech Defined Item Subtotal | $ 752,625.00 | $ - | $ 63,287.50 | $ 150,072.50 | $ 162,865.00 | $ 209,231.25 | $ 167,168.75 |
| Defined Item Subtotal (for Allowance Calculations) | | $ 2,728,558.00 | $ 50,004.40 | $ 288,905.90 | $ 473,125.90 | $ 993,298.80 | $ 333,048.75 | $ 590,174.25 |
| Allowances | Stormwater Management Allowance | $ 54,571.16 | $ 5,457.12 | $ 14,188.50 | $ 9,822.81 | $ 13,097.08 | $ 8,185.67 | $ 3,819.98 |
| | MOT | $ 136,427.90 | $ 13,642.79 | $ 35,471.25 | $ 24,557.02 | $ 32,742.70 | $ 6,821.40 | $ 23,192.74 |
| | Roadside Development (Minimal RD, Grass) | $ 27,285.58 | $ 2,728.56 | $ 7,094.25 | $ 4,911.40 | $ 6,548.54 | $ 4,092.84 | $ 1,909.99 |
| | Signage | $ 13,642.79 | $ 1,364.28 | $ 3,547.13 | $ 2,455.70 | $ 3,274.27 | $ 955.00 | $ 2,046.42 |
| Construction Subtotal (for Mobilization and Constr Survey) | | $ 2,960,485.43 | $ 73,197.14 | $ 349,207.03 | $ 514,872.84 | $ 1,048,961.38 | $ 353,103.65 | $ 621,143.38 |
| **Construction Subtotal** | | **$ 3,169,485.43** | **$ 83,647.14** | **$ 381,157.03** | **$ 560,272.84** | **$ 1,099,121.38** | **$ 396,683.65** | **$ 648,603.38** |
| **Contingency (50%)** | | **$ 1,584,742.72** | **$ 41,823.57** | **$ 190,578.52** | **$ 280,136.42** | **$ 549,560.69** | **$ 198,341.83** | **$ 324,301.69** |
| **Total** | | **$ 4,754,228.15** | **$ 125,470.71** | **$ 571,735.55** | **$ 840,409.26** | **$ 1,648,682.07** | **$ 595,025.48** | **$ 972,905.07** |

# Appendix D- Project Phasing

SPLIT GAP 1 INTO 3 PHASES:

**PHASE 1 - BUILD EAST AND WEST ENDS**

**PHASE 1A (OCCOQUAN HISTORIC DISTRICT):**
- INSTALL PAVEMENT MARKING AND SIGNAGE FOR ON-STREET SECTION IN HISTORIC DISTRICT
- CONNECT TO PROPOSED PEDESTRIAN BOARDWALK AND EXISTING PEDESTRIAN BRIDGE

**PHASE 1B (FROM VDOT PARK & RIDE TO VDOT GORDON BLVD PROJECT)**
- CONSTRUCT CONNECTION BETWEEN PARK-N-RIDE LOT AND VDOT'S GORDON ROAD PROJECT.

**PHASE 1C (FROM FUTURE PARK TO MARINA WAY)**
- CONNECT TO EXISTING PATH NEAR GOLF COURSE (EAST END) AND CONSTRUCT SHARED USE PATH UNDER AND ALONG RT 1 TO CONNECT TO EXISTING DEVELOPMENT PATH

**PHASE 2 - BUILD ALONG POPLAR LANE (FROM SEA RAY LN TO GORDON BLVD OVERPASS)**

CONSTRUCT SHARED USE PATH BEHIND NEW CURB ALONG POPLAR LANE
- WOULD REQUIRE SOME CLEARING AND GRADING FOR PATH CONSTRUCTION
- RIGHT OF WAY REQUIRED ALONG MULTIPLE PROPERTIES

**PHASE 3 - BUILD CENTER PORTION**

INCLUDES HIGH/HIGHER COST ITEMS AND INCREASED COORDINATION AND UNKNOWN ALIGNMENT DUE TO ADJACENT PROJECTS

**PHASE 3A (FROM MARINA WAY TO ANNAPOLIS WAY)**
- ALIGNMENT THROUGH/ADJACENT TO DESTINATION PLACE DEVELOPMENT SUBJECT TO CHANGE PENDING DEVELOPMENT DESIGN.

**PHASE 3B (FROM VDOT GORDON BLVD PROJECT TO SEA RAY LN)**
- MORE SUBSTANTIAL CLEARING/GRADING ALONG SEA RAY LANE
- ANTICIPATED NEED FOR RETAINING WALLS

LEGEND

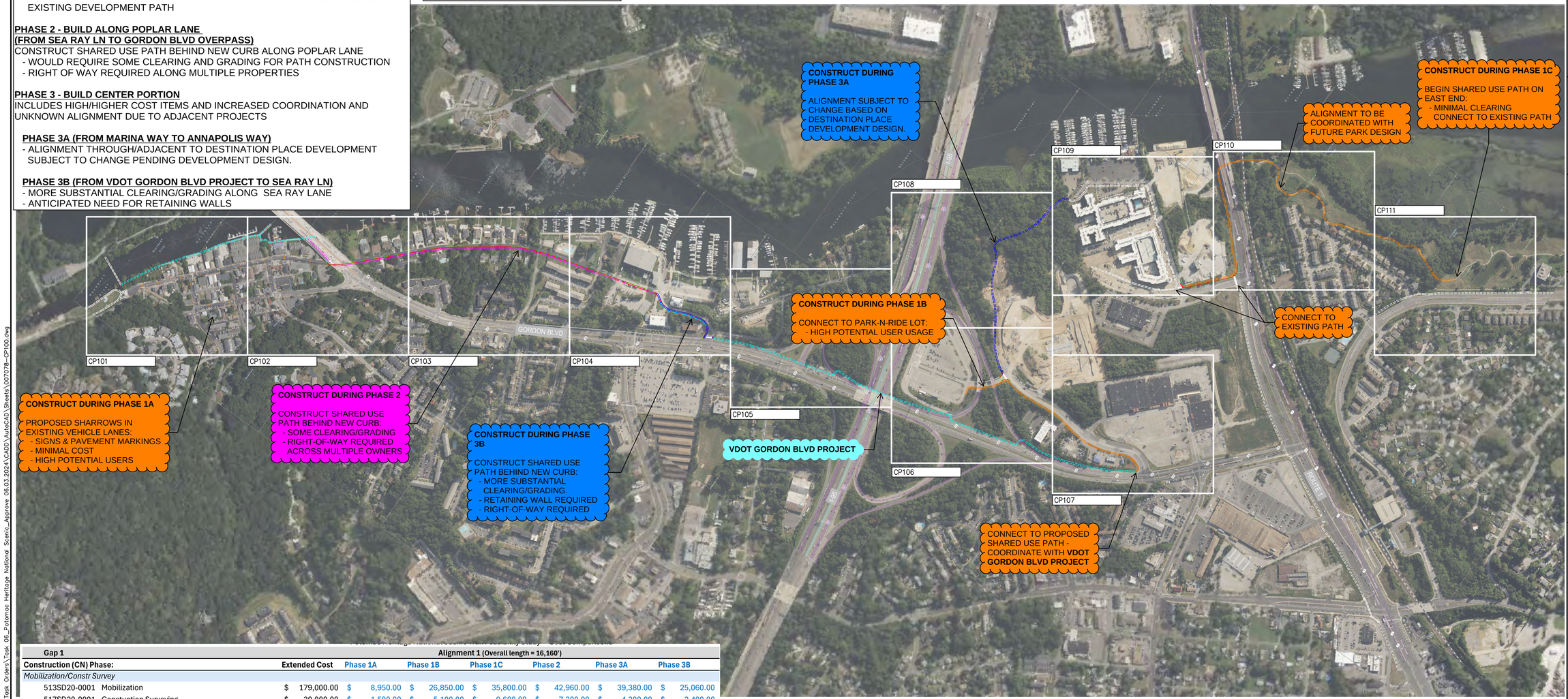
PHASE 1A, 1B, 1C

PHASE 2

PHASE 3A, 3B

PATH TO BE BUILT BY OTHERS

# GAP 1 - PREFERRED ALIGNMENT - OVERALL PLAN




| Gap 1 | | Alignment 1 (Overall length = 16,160') | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Construction (CN) Phase:** | | **Extended Cost** | **Phase 1A** | **Phase 1B** | **Phase 1C** | **Phase 2** | **Phase 3A** | **Phase 3B** |
| *Mobilization/Constr Survey* | | | | | | | | |
| 513SD20-0001 | Mobilization | $ 179,000.00 | $ 8,950.00 | $ 26,850.00 | $ 35,800.00 | $ 42,960.00 | $ 39,380.00 | $ 25,060.00 |
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| *Roadway* | | | | | | | | |
| | Roadway Defined Item Subtotal | $ 1,115,450.00 | $ - | $ 218,588.00 | $ 313,223.00 | $ 361,311.00 | $ 108,255.00 | $ 114,073.00 |
| *Hydraulics* | | | | | | | | |
| | Hydraulics Defined Item Subtotal | $ 512,985.00 | $ - | $ 5,600.00 | $ 8,400.00 | $ 468,490.00 | $ 15,562.50 | $ 14,932.50 |
| *Traffic* | | | | | | | | |
| | Traffic Defined Item Subtotal | $ 53,498.00 | $ 50,004.40 | $ 1,430.40 | $ 1,430.40 | $ 632.80 | $ - | $ - |
| Structures/Bridges | | | | | | | | |
| | Structures/Bridges Defined Item Subtotal | $ 294,000.00 | $ - | $ - | $ - | $ - | $ - | $ 294,000.00 |
| Earthwork/Geotech | | | | | | | | |
| | Earthwork/Geotech Defined Item Subtotal | $ 752,625.00 | $ - | $ 63,287.50 | $ 150,072.50 | $ 162,865.00 | $ 209,231.25 | $ 167,168.75 |
| Defined Item Subtotal (for Allowance Calculations) | | $ 2,728,558.00 | $ 50,004.40 | $ 288,905.90 | $ 473,125.90 | $ 993,298.80 | $ 333,048.75 | $ 590,174.25 |
| Allowances | Stormwater Management Allowance | $ 54,571.16 | $ 5,457.12 | $ 14,188.50 | $ 9,822.81 | $ 13,097.08 | $ 8,185.67 | $ 3,819.98 |
| | MOT | $ 136,427.90 | $ 13,642.79 | $ 35,471.25 | $ 24,557.02 | $ 32,742.70 | $ 6,821.40 | $ 23,192.74 |
| | Roadside Development (Minimal RD, Grass) | $ 27,285.58 | $ 2,728.56 | $ 7,094.25 | $ 4,911.40 | $ 6,548.54 | $ 4,092.84 | $ 1,909.99 |
| | Signage | $ 13,642.79 | $ 1,364.28 | $ 3,547.13 | $ 2,455.70 | $ 3,274.27 | $ 955.00 | $ 2,046.42 |
| Construction Subtotal (for Mobilization and Constr Survey) | | $ 2,960,485.43 | $ 73,197.14 | $ 349,207.03 | $ 514,872.84 | $ 1,048,961.38 | $ 353,103.65 | $ 621,143.38 |
| **Construction Subtotal** | | **$ 3,169,485.43** | **$ 83,647.14** | **$ 381,157.03** | **$ 560,272.84** | **$ 1,099,121.38** | **$ 396,683.65** | **$ 648,603.38** |
| **Contingency (50%)** | | **$ 1,584,742.72** | **$ 41,823.57** | **$ 190,578.52** | **$ 280,136.42** | **$ 549,560.69** | **$ 198,341.83** | **$ 324,301.69** |
| **Total** | | **$ 4,754,228.15** | **$ 125,470.71** | **$ 571,735.55** | **$ 840,409.26** | **$ 1,648,682.07** | **$ 595,025.48** | **$ 972,905.07** |

0 200' 400' 800'

SCALE: 1" = 400'

| NO. | DATE | REVISION DESCRIPTION |
|---|---|---|
| - | - | - |

NOT FOR CONSTRUCTION


ATCS
690 TOWN CENTER DRIVE, SUITE 201
NEWPORT NEWS, VIRGINIA 23606
(757) 504-2976 - FAX (757) 637-0276
HERNDON, VA. - BLACKSBURG, VA. - NEWPORT NEWS, VA.
RICHMOND, VA. - HARRISONBURG, VA. - LARGO, MD. - BALTIMORE, MD.
RALEIGH, NC. - HARRISBURG, PA.
WWW.ATCSCORP.COM


FEASIBILITY STUDY

PHNST - PREFERRED ALIGNMENT - GAP 1 OVERALL

# POTOMAC HERITAGE NATIONAL SCENIC TRIAL (PHNST) GAP ANALYSIS

LOCATION:
PRINCE WILLIAM COUNTY

AUTHOR: KMK
CHECK: -
PROJ.#: 007078
DATE: FEB 2025

SHEET
CP100
SHEET: 02 OF 23


PLOT DATE: 5/21/2025 2:53:31 PM; BY: KRISTIN KASZYCA
FILE PATH: S:\Projects\007078_PWC Design RFP\7058104_5653658\03_Task Orders\Task 06_Potomac Heritage National Scenic_Approve 06.03.2024\CADD\AutoCAD\Sheets\007078--CP100.dwg

# Appendix E- VDOT Comments

# Virginia Department of Transportation
# Project Review Comment & Resolution Form

| | | |
|---|---|---|
| **VDOT Project No.: ---** | **UPC No: ---** | **Location: PWC** |
| **Description: PHNST Gap Area Feasibility Studies (Areas 1, 2, 3)** | **Phase:** | **Design Originator: ATCS/Prince William Co. – Parks & Rec** |

| Item | Page No. | Review Comment | | Response | | Final Disposition |
|---|---|---|---|---|---|---|
| | | **Name: Heidi Mitter**<br>**Discipline: VDOT Transportation Planning**<br>**Date: 9/19/2025** | | **Name: Patti Pakkala**<br>**Discipline: Planning Manager, PWC DPR**<br>**Date: 10/8/2025** | | **Name:**<br>**Discipline:**<br>**Date:** |
| | | **By VDOT Reviewer**<br>**1. Requirement**<br>**2. Recommendation**<br>**3. Clarification** | **Code** | **A. Agree with Comment (Document Will Be Revised)**<br>**B. Comment To Be Evaluated (by Whom)**<br>**C. Disagree with Comment (Provide Justification)** | **Code** | |
| PHNST Gap Area 1 Study – Belmont Bay to Town of Occoquan | | | | | | |
| 1 | 23 | Regarding Alt 1.3 not meeting access/mobility: new developments on Annapolis Way/Destination Pl. will have – or already have- pedestrian/bike facilities that link residents to the PHNST/Route 123 - and a connection to the P&R is not precluded with Alt. 1.3 - so it is unclear how people would not have nearby Trail access with Alt. 1.3.<br>The presence of facilities already built (or approved to be built) may also improve/modify the cost estimates (shown on page 36). | 3 | Acknowledged. Evaluation is subjective and based on consultant's analysis of existing conditions. No change to report. | | |
| 2 | 30 | Regarding the sentence "Alternative 1.1 is adjacent to high volume roadways … on Gordon Boulevard from Annapolis Way to Devils Reach Road. Otherwise, it is on shared use paths or low volume roads." – if this is just referencing **current** conditions, please clarify (as it is noted there will be SUP there when current construction is finished). | 3 | Acknowledged. This is a statement of existing conditions. No change to report. | | |
| 3 | 31 | It *does* appear challenging to get the trail from under I-95 to Swan Point Rd given the geographic/topographic constraints and private residential parcel(s). | 3 | Acknowledged. This is a statement of existing conditions. No change to report. | | |
| 4 | 33 | Regarding "several sections will be constructed in the coming years through approved and funded County roadway improvement projects", please modify to "County **and state** roadway improvement projects". | 3 | DPR acknowledges this minor clarification but does not believe it alters the final outcome of the report. No change to report. | | |

# Virginia Department of Transportation
# Project Review Comment & Resolution Form

| | | |
|---|---|---|
| **VDOT Project No.: ---** | **UPC No: ---** | **Location: PWC** |
| **Description: PHNST Gap Area Feasibility Studies (Areas 1, 2, 3)** | **Phase:** | **Design Originator: ATCS/Prince William Co. – Parks & Rec** |

| Item | Page No. | Review Comment | | Response | | Final Disposition |
|---|---|---|---|---|---|---|
| | | **Name: Heidi Mitter**<br>**Discipline: VDOT Transportation Planning**<br>**Date: 9/19/2025** | | **Name: Patti Pakkala**<br>**Discipline: Planning Manager, PWC DPR**<br>**Date: 10/8/2025** | | **Name:**<br>**Discipline:**<br>**Date:** |
| | | **By VDOT Reviewer**<br>**1. Requirement**<br>**2. Recommendation**<br>**3. Clarification** | **Code** | **A. Agree with Comment (Document Will Be Revised)**<br>**B. Comment To Be Evaluated (by Whom)**<br>**C. Disagree with Comment (Provide Justification)** | **Code** | |
| 5 | 33 | Regarding the selection of Alt 1.1 as the recommended alignment but showing Alt 1.2 as the long-term vision and showing it as the alignment in the comprehensive plan: this will likely create confusion. As capital projects come along, they will consult the Comprehensive Plan alignment, which is the document for long-range plans for trails/roads. This study is saying there's a difference between the preferred alignment and the long-range plan/vision. Please clarify how that will work. (Will the comp plan be updated in the next round to show Alt 1.1?) | 1 | Acknowledged. The scope of this report was to identify a route that is currently most feasible, which is the recommended alignment. For this gap the "Long Term Recommendations" paragraph was added at the direction of the DPR Director to address stakeholder desires to continue to pursue waterfront opportunities in this area of the County should they arise in the future. DPR will work with County Planning staff to clarify how this is shown in future updates of the Comprehensive Plan. No change to report. | | |
| 6 | 34 | Regarding the use of cost estimating materials: Thank you for consulting the VDOT cost estimating manual and procedures. It is noted that VDOT (at least transportation planning) will not be verifying any cost estimating work. | 3 | Acknowledged. Cost estimates were done as part of the scope of work for this project and are intended to be purely for planning purposes. No change to report. | | |
| 7 | 36 | The study could consider a narrower/lighter facility for Poplar Lane than a shared use path given the low speed/low volume residential context | 2 | Acknowledged. This will be evaluated further when DPR/County pursue completion of the PHNST through this area (design and construction). A shared use path was evaluated in this study in an effort to provide trail consistency, to the greatest extent possible. No change to report. | | |
| 8 | Gen | Prince William Co. DOT's planned Old Bridge Road/Route 123 interchange project may impact some of the trail concept, like at Sea Ray Lane. | 3 | Acknowledged. This is an evaluation of current conditions. Additional analysis will be undertaken with each phase of implementation. No change to report. | | |

PHNST Gap Area 2 Study – Town of Dumfries

# Virginia Department of Transportation
# Project Review Comment & Resolution Form

| | | |
|---|---|---|
| **VDOT Project No.: ---** | **UPC No: ---** | **Location: PWC** |
| **Description: PHNST Gap Area Feasibility Studies (Areas 1, 2, 3)** | **Phase:** | **Design Originator: ATCS/Prince William Co. – Parks & Rec** |

| Item | Page No. | Review Comment | | Response | | Final Disposition |
|---|---|---|---|---|---|---|
| | | **Name: Heidi Mitter**<br>**Discipline: VDOT Transportation Planning**<br>**Date: 9/19/2025** | | **Name: Patti Pakkala**<br>**Discipline: Planning Manager, PWC DPR**<br>**Date: 10/8/2025** | | **Name:**<br>**Discipline:**<br>**Date:** |
| | | **By VDOT Reviewer**<br>**1. Requirement**<br>**2. Recommendation**<br>**3. Clarification** | **Code** | **A. Agree with Comment (Document Will Be Revised)**<br>**B. Comment To Be Evaluated (by Whom)**<br>**C. Disagree with Comment (Provide Justification)** | **Code** | |
| 1 | General | Please consult VDOT IIM-TE-384.1 for future crossings at unsignalized locations, especially at locations like crossing Route 1 | 1 | Acknowledged. All pertinent roadway design standards will be considered as DPR/County pursue completion and build-out of the recommended alignment (i.e. formal design and construction). This is simply a feasibility study. No change to report. | | |
| | | | | | | |
| PHNST Gap Area 3 Study – Interstate 95 and Joplin Road | | | | | | |
| 1 | 19 | Regarding the construction of the pedestrian tunnel: This would have to be further evaluated by VDOT Structure & Bridge section if/when this design moves forward. | 1 | Acknowledged. At this point, this is purely a recommendation of the consultant and DPR/County acknowledge additional review will be required as each phase moves through Design and Construction. No change to report. | | |
| 2 | 20 | Please clarify how a shared use path would fit alongside Joplin Road under I-95 considering the sloping bridge abutments, drainage features, and constrained space. Has a 'raised walkway' per the concept plan been used before in this setting? | 3 | Consultant is familiar with a similar "raised walkway" enhancement made at the I-90/State Rt 18 interchange in Washington State and believes similar modifications could be made along Joplin Rd to accommodate the trail alignment. No change to report. | | |
| 3 | 20 | Regarding crossings at/around I-95 ramps: Paths built in limited access right-of-way, like interstate right of way, may have to go through a CTB approval process for a change in the limited access line. | 2 | Acknowledged. DPR/County will pursue all necessary approvals as each phase of development proceeds. No change to report. | | |

# Virginia Department of Transportation
# Project Review Comment & Resolution Form

| | | |
|---|---|---|
| **VDOT Project No.: ---** | **UPC No: ---** | **Location: PWC** |
| **Description: PHNST Gap Area Feasibility Studies (Areas 1, 2, 3)** | **Phase:** | **Design Originator: ATCS/Prince William Co. – Parks & Rec** |

| Item | Page No. | Review Comment | | Response | | Final Disposition |
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| | | **Name: Heidi Mitter**<br>**Discipline: VDOT Transportation Planning**<br>**Date: 9/19/2025** | | **Name: Patti Pakkala**<br>**Discipline: Planning Manager, PWC DPR**<br>**Date: 10/8/2025** | | **Name:**<br>**Discipline:**<br>**Date:** |
| | | **By VDOT Reviewer**<br>**1. Requirement**<br>**2. Recommendation**<br>**3. Clarification** | **Code** | **A. Agree with Comment (Document Will Be Revised)**<br>**B. Comment To Be Evaluated (by Whom)**<br>**C. Disagree with Comment (Provide Justification)** | **Code** | |
| 4 | Gen | Please consult VDOT IIM-TE-384.1 for future crossings at unsignalized locations, including for mitigations or other features may need to be included. | 1 | Acknowledged. All pertinent roadway design standards will be considered as DPR/County pursue completion and build-out of the recommended alignment (i.e. formal design and construction). This is simply a feasibility study. No change to report. | | |
| | | | | | | |
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