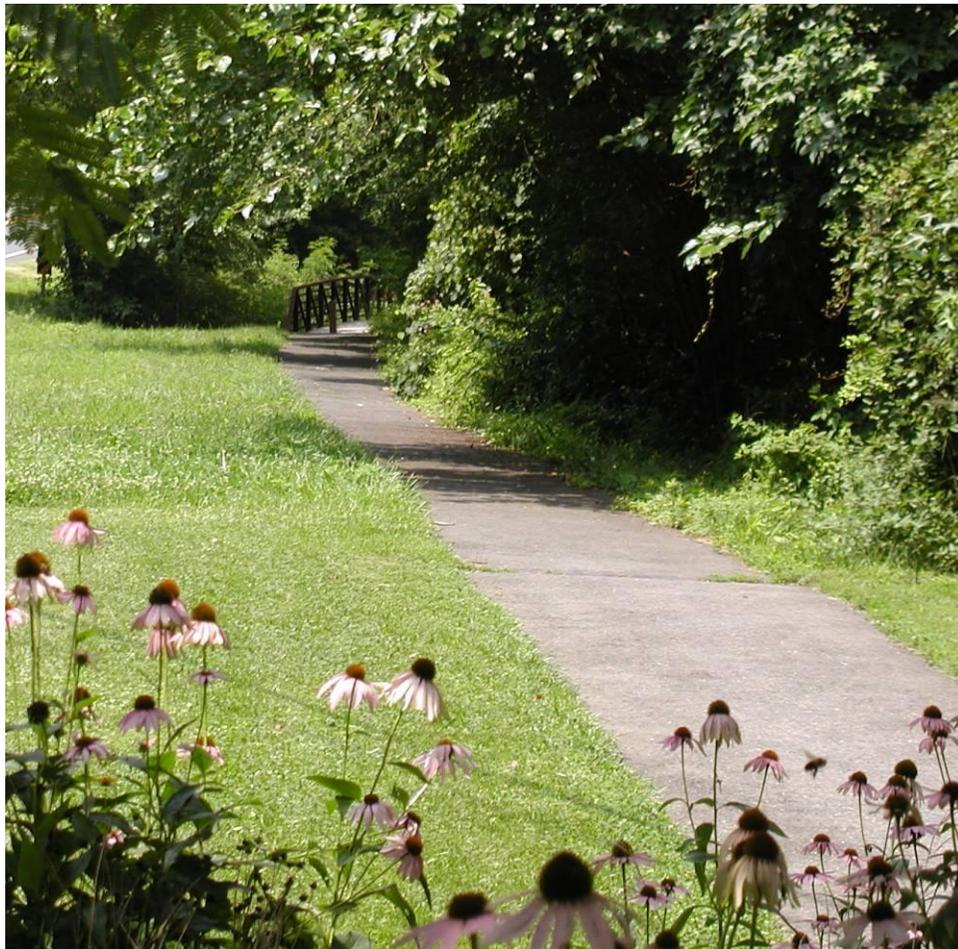


*Final Report*

**Potomac Heritage National Scenic Trail  
Alignment Study  
Fairfax County, Virginia**



*Prepared by:*

**Federal Highway Administration  
Eastern Federal Lands Highway Division**

**November 2004**

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**POTOMAC HERITAGE NATIONAL SCENIC TRAIL ALIGNMENT STUDY**  
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## **Final Report**

### **POTOMAC HERITAGE NATIONAL SCENIC TRAIL ALIGNMENT STUDY**

**Fairfax County, Virginia  
November 2004**

#### **INTRODUCTION**

The Potomac Heritage National Scenic Trail (PHNST), authorized by Congress in 1983 as a component of the National Trails System, is a developing network of locally-managed trails between the mouth of the Potomac River and the Allegheny Highlands. Within Northern Virginia counties, there are almost 40 miles of existing trails and another 76 miles planned. Studies have been endorsed by local jurisdictions demonstrating the feasibility of completing planned segments of the Trail between Locust Shade Park in Prince William County and White's Ferry in Loudoun County. Included in these plans is the completion of the trail from Mount Vernon to U.S. Route 1. Pieces of the trail in this corridor are already in place, and studies have addressed the completion of the remaining portion. However, heightened security requirements at Fort Belvoir and other additional concerns have necessitated that previous alignment plans for this corridor be re-examined in further detail to ensure the trail's eventual completion.

The purpose of this project has been to provide an alignment study for the three-mile corridor from Mount Vernon Circle to U.S. Route 1 along Route 235. An aerial photo of the study area is shown in Figure 1. The study included field reconnaissance, data collection, and examination of both the PHNST Implementation Plan as developed by Fairfax County and the VDOT U.S. Route 1 corridor study. Locations that require easements are provided and cost estimates have been generated for the proposed improvements. This report includes recommendations for an updated alignment that connects missing segments of the existing trail, improves sub-standard sections of the trail, and routes the proposed alignment around Fort Belvoir and out to U.S. Route 1. Concept plans for the recommended trail alignment have been prepared and are included as an appendix to this report. This report is provided for use by the Eastern Federal Lands Highway Division of the Federal Highway Administration for planning the future implementation of trail improvements.

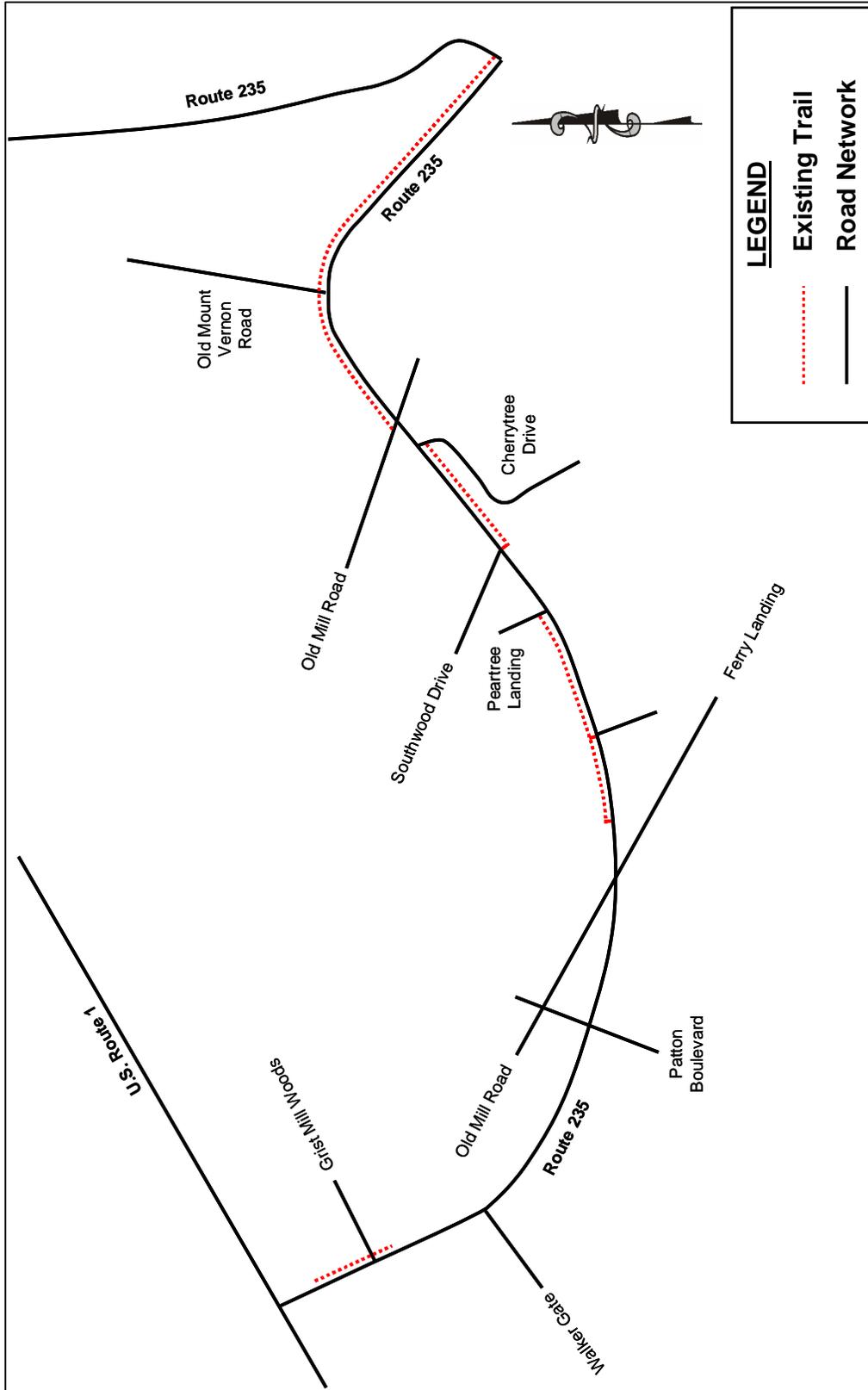
#### **EXISTING CONDITIONS**

Within the study area, several portions of the PHNST have been previously constructed. An overview of the existing segments of the trail is shown in Figure 2.

None of the existing cross-sections meet the current AASHTO guidelines for bicycle facilities. These guidelines call for cross-sections with a minimum 10 feet width (preferably 12 feet) such that appropriate service and police vehicles may access the trail when necessary. Throughout the extent of the existing trail segments, the pavement is in need of milling and overlay. The pavement is in especially poor condition at Mount Vernon, due to the higher volume of pedestrian and bike traffic it receives. Also, overgrown vegetation needs to be trimmed from the path of the trail. In the following description of the trail, "right" and "left" are used to describe the trail in relation to Route 235 traveling from Mount Vernon to U.S. Route 1, generally from east to west.



FIGURE 1 – STUDY AREA



**FIGURE 2 – EXISTING TRAIL**

*Mount Vernon Circle to Old Mount Vernon Road*

In this segment of the corridor, the trail is already in place, although the pavement is deteriorated and does not meet current AASHTO design guidelines. Also, there is significant vegetation encroachment. The start of the trail is located just off the right side of the road and is designated with the trail marker shown in the photo below. A close-up of the existing trail reveals the extent of the pavement deterioration and overgrowth of vegetation. The existing trail at this point is only 7 feet wide on average with approximately 4 feet of clearance on either side.



Start of Trail at Mount Vernon Circle



Pavement Deterioration/Vegetation Overgrowth

From the Mount Vernon Estate to Old Mount Vernon Road, the trail remains on the right side of Route 235 South and proceeds around a bus turnaround and back to parallel Route 235. In the area of the bus turnaround, where there is additional space on either side of the trail, the cross section of the trail expands to roughly 8 feet on average. As the trail nears Old Mill Road, the woods again encroach, with trees often within a foot of the path.



Existing Trail at Bus Turnaround Entrance



Existing Trail at Bus Turnaround Exit

*Old Mount Vernon Road to Old Mill Road*

At Old Mount Vernon Road, the trail crosses the southbound approach of the intersection and continues on the right side of Route 235. A bike/pedestrian crossing zone has been striped for trail users. After the intersection, the trail winds through the woods where, again, the path narrows and trees are often within a foot of the asphalt. After the trail emerges from the woods, it maintains a seven-foot cross section until it reaches Old Mill Road.



Old Mount Vernon Road Intersection



Existing Trail and Vegetation

*Old Mill Road to Southwood Drive*

At the intersection with Old Mill Road, a bike/pedestrian crosswalk is provided on the westbound approach and then on the northbound approach. This connects trail users to a narrow, 5-foot sidewalk located on the left side of Route 235 South, in front of the Washington Farm United Methodist Church. Although somewhat intuitive, there is no signage provided to direct trail users to the sidewalk from this point. This is the first of several breaks in the continuity of the existing trail. The photos show the crosswalks across the westbound and northbound approaches as well as the church sidewalk.



Old Mill Road Intersection



Methodist Church Sidewalk

The sidewalk in front of the church parallels Route 235 on the left side for approximately 400 feet until it reaches Cherrytree Drive. After Cherrytree Drive, the paved trail resumes, continuing on the left side of the road. A crosswalk has not been striped at this intersection. The photos show Cherrytree Drive and the resumed bike trail heading westbound.



Cherrytree Drive Intersection



Existing Trail Departing from Cherrytree Drive

Proceeding on from Cherrytree Drive, the existing trail continues on the left side of the road. Within this segment, the trail width becomes narrow, again constricted by trees. As the path emerges from the woods it leads to the second break in the trail.



Existing Trail and Vegetation



Approach to Southwood Drive Intersection

*Southwood Drive to Peartree Landing*

The second break occurs at the intersection with Southwood Drive, where a sign instructs trail users to cross the street. A crosswalk is provided, along with a warning sign. However, after crossing the street to Southwood Drive, there are no signs instructing trail users where the trail resumes or how to get there. The crosswalk actually leads to a small stone tile pathway leading into a housing development. There is, however, a wide shoulder between Southwood Drive and Peartree Landing. Although the shoulder also doubles as a bus lane and right-turn lane, it provides bicyclists and pedestrians some refuge from the adjacent vehicular traffic.



Southwood Drive Crosswalk and Stone Tiles



Shoulder Area Approaching Peartree Landing

*Peartree Landing to Grist Mill Park*

Once at Peartree Landing, the trail resumes on the right side of the road until Grist Mill Park. The cross section of the trail ranges from 5 feet to 8 feet, including an 8-foot wide bridge. Vegetation encroachment is not currently a problem in this segment. The starting and ending points of this section of trail are depicted in the photos below. The existing trail ends at Grist Mill Park.



Start of Trail at Peartree Landing



Trail Termination at Grist Mill Park

*Grist Mill Park to U.S. Route 1*

After Grist Mill Park, there is generally adequate space for a bike trail of standard cross-section except for a few constricted areas such as the Dogue Creek bridge. The trail could be accommodated for the most part on either side of the road. There is a short stretch of asphalt adjacent to a new housing development (Grist Mill Woods) after Washington’s Grist Mill, on the right side of the road, close to the intersection with U.S. Route 1. The following photos illustrate the existing conditions between Grist Mill Park and U.S. Route 1.



Route 235 South Approaching Patton Blvd



Route 235 South Departing Patton Blvd



Route 235 Approaching Walker Gate/Ft. Belvoir



Dogue Creek Bridge



Route 235/U.S. Route 1 Intersection



Route 235 east of U.S. Route 1 Intersection

## RECOMMENDED ALIGNMENT

The recommended alignment for the new trail takes into account the existing trail, the PHNST Implementation Plan as developed by Fairfax County, the VDOT U.S. Route 1 corridor study, and field research conducted by the study team. An overview of the recommended alignment is shown in Figure 3. Concept plans are included in the appendix (in AutoCAD format over GIS-derived base mapping information provided by Fairfax County). These plans show more specific information as to the estimated location of right-of-way, recommended trail crossings, and other details. Specific solutions with regard to signage, utility conflicts, relocation of utilities and utility poles, and modification to storm drainage would need to be addressed in the detailed design phase of the project.

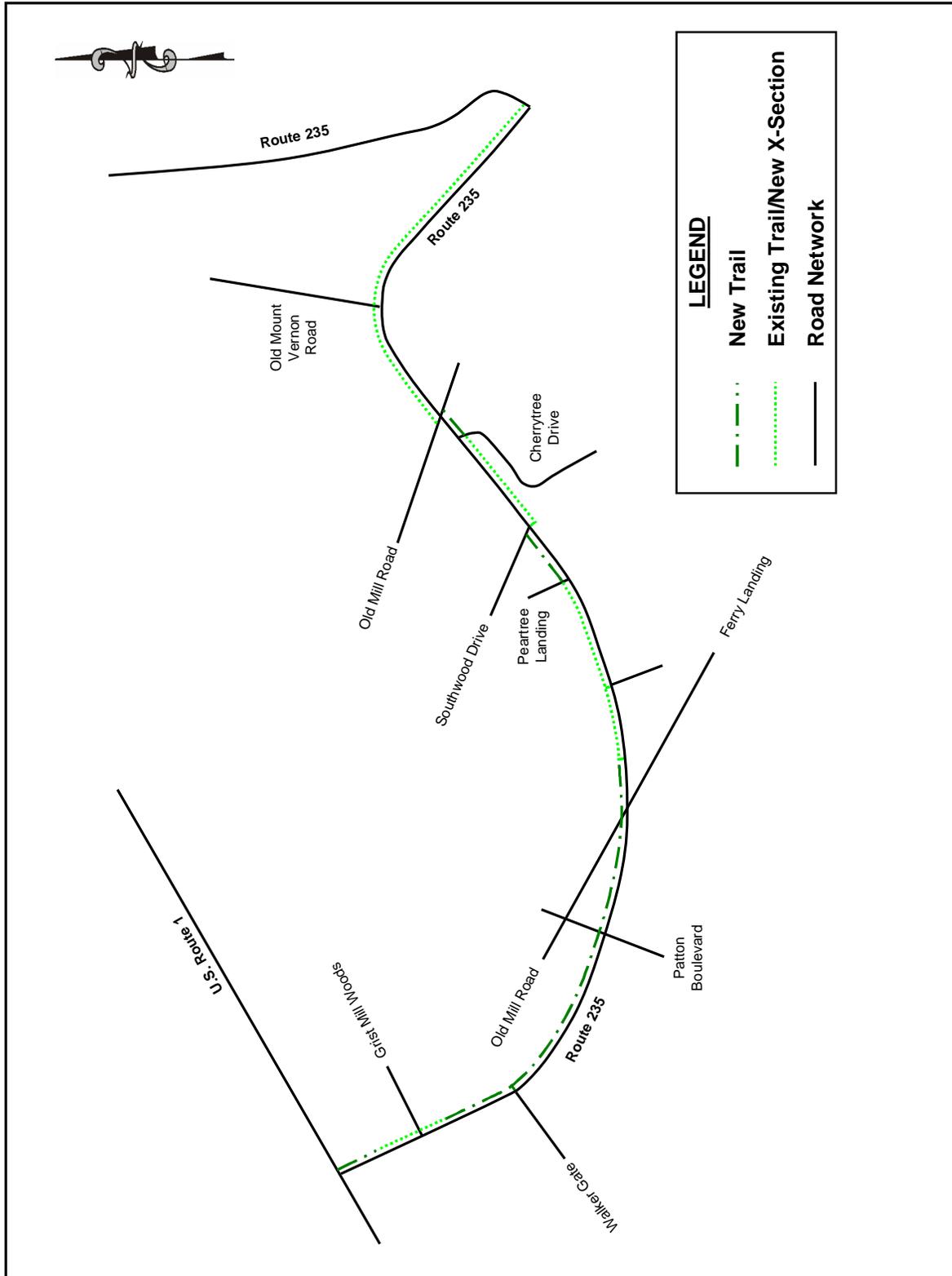
The recommended alignment includes upgrading the existing trail, completing gaps in the existing trail, and continuing the trail to U.S. Route 1. For recommendations regarding the connection of the PHNST from Mount Vernon Circle to the Mount Vernon Trail, see the Mount Vernon Circle environmental assessment (not included with this document). Where the trail is already in place, it is not necessary to develop a new alignment, but rather, the existing alignment can be used, provided that the pavement and cross-section are brought up to current AASHTO guidelines. These guidelines call for a minimum 10-foot cross-section, with 12 feet preferred, to accommodate service and security vehicles. The drawings included in Appendix A of this report use a 12-foot cross section for planning purposes. In those areas where it has been noted that trees are adjacent to the trail, achieving the full cross section will require significant tree trimming and clearing. Throughout the length of the alignment, updated trail signs need to be added to the route to reflect the appropriate trail names (e.g., Route 1 Bikeway and PHNST). Wayfinding signs to and from the Mount Vernon Trail are also needed.

At the first break in the existing trail, starting at the first intersection with Old Mill Road, and continuing until Cherrytree Drive, the existing sidewalk should be replaced with a new asphalt bike trail in accordance with AASHTO guidelines. Such trail reconstruction would likely require the permission (an easement) of the Washington Farm United Methodist Church. Crosswalk pavement markings should be added across Cherrytree Drive.

At the second break in the existing trail, between Southwood Drive and Peartree Landing, it is recommended that the curb be moved toward Route 235 (eliminating the wide shoulder) and a separate trail conforming with AASHTO guidelines be constructed. The area just off the existing curb is identified as a conservation easement. The recommended alignment can be accommodated in this area, however, the nature of the easement will require further research. In the near term, the current striping of the shoulder (used to accommodate the bus stop and right-turns) is confusing and does not adequately indicate the desired uses of this additional pavement. This situation should be corrected until the longer-term trail solution is put in place.

At Grist Mill Park, where the existing trail terminates on the right side of the road, the recommended alignment continues on the right side of Route 235 South, across Old Mill Road/Ferry Landing. The trail alignment recommended for this section is on Grist Mill Park property, given that the existing trail is already on park property.

After Grist Mill Park, the PHNST Implementation Plan recommended that the trail cross Route 235 at Patton Boulevard. This study recommends an alternative alignment that would allow the trail to continue on the north side of the road. The alternative alignment avoids the possible need for construction of a retaining wall along Fort Belvoir property (between Patton Boulevard and Walker Gate) where the shoulder elevation drops off. While the trail would cross several driveways, easements should not be necessary at these locations.



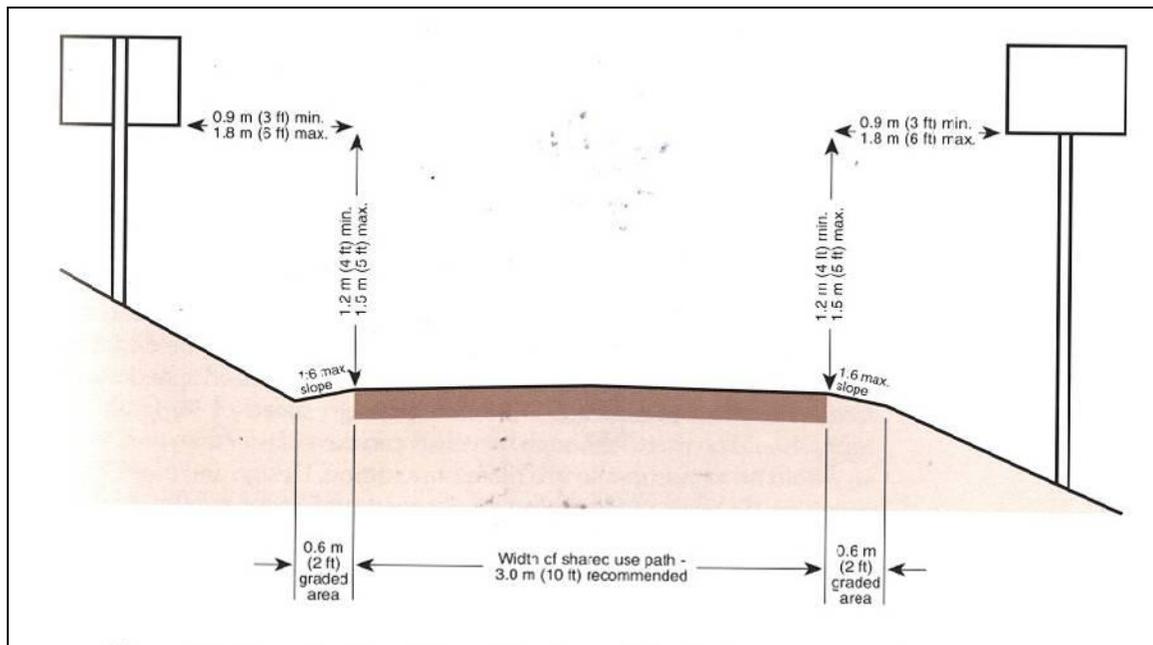
**FIGURE 3 – RECOMMENDED ALIGNMENT**

Continuing along the north side of Route 235, the trail must cross Dogue Creek. The existing bridge for vehicular traffic is not wide enough to provide space for a 12-foot trail separated from traffic, nor are the shoulders wide enough to allow bike lanes for each direction of travel along Route 235. It is recommended that a separate bridge for the trail be constructed, similar to those used on other portions of the PHNST. Since the existing vehicle bridge cannot accommodate a separated trail or bike lanes, the PHNST should not be extended across Dogue Creek until funding is available for a new bicycle trail bridge.

From Dogue Creek to U.S. Route 1, it is recommended that the trail remain on the north side of Route 235 with the recommended cross-section. This alignment will allow for connectivity to Washington's Grist Mill as well as the existing trail that is adjacent to the Grist Mill Woods housing development. However, this recommended alignment may interfere with the proposed alternatives that are presented in the draft U.S. Route 1 Corridor Study. Both alternatives show widening of Route 235 to the north, but not to the south. The Fairfax County DOT is also in the process of designing spot improvements to the Route 1/Route 235 intersection. Should the recommended trail alignment be chosen, design of the widening project and spot improvements will need to be coordinated with the Virginia and Fairfax County Departments of Transportation. The selection of a final alignment would need to be made in the design phase.

## RECOMMENDED CROSS-SECTION

The recommended cross-section is based on AASHTO's *Guide for the Development of Bicycle Facilities, 3<sup>rd</sup> Edition*. This cross section is 10 feet (12 feet where possible) in width. These guidelines are used by the National Park Service when designing new bike facilities. As mentioned previously, all of the existing trail, where feasible, should be upgraded to meet these standards. This upgrade will require that the trail be expanded laterally. The AASHTO cross section is shown in Figure 4.



**FIGURE 4 – RECOMMENDED TRAIL CROSS SECTION**

## COST SUMMARY

The alignment study area in its entirety is approximately 3 miles in length. Of that, approximately 1.5 miles of that length is existing trail, with the remaining portion being new alignment. A breakdown of the costs involved with completing the trail through the corridor is shown in Table 1. There may be additional costs to secure easements from the affected parties. A summary of the cost breakdown is included in Table 1.

**TABLE 1 – COST SUMMARY**

ITEM	UNIT	QTY	UNIT COST	COST
Surveying/Construction Staking	LF	15,840	\$ 1.50	\$ 23,760.00
Clearing/Stump Removal	ACRE	1.4	\$ 8,000.00	\$ 11,200.00
Grading & Drainage	LF	7,920	\$ 12.50	\$ 99,000.00
Pavement Demo/Removal	SY	6,535	\$ 5.00	\$ 32,675.00
Crushed Stone Tread	LF	15,840	\$ 10.50	\$ 166,320.00
2" Asphalt Tread (12' Wide)	LF	15,840	\$ 20.20	\$ 319,968.00
Bridge	SF	2400	\$ 125.00	\$ 300,000.00
<b>SUBTOTAL</b>				\$ 952,923.00
Design and Construction Admin (25%)				\$ 238,230.75
Project Contingency (10%)				\$ 95,292.30
<b>TOTAL</b>				\$ 1,286,446.05

## SUMMARY

This report documents a review of the existing conditions along the Route 235 corridor from Mount Vernon Circle to U.S. Route 1. Based on the existing conditions, a recommended alignment has been provided, in accordance with AASHTO guidelines, and taking into consideration the Fairfax County PHNST Implementation Plan and the U.S. Route 1 Corridor Study. Finally, a cost estimate of upgrading the existing trail and adding the new trail segments has been provided.

The proposed PHNST alignment shown on the concept plans represents a planning-level examination of the existing conditions and project requirements, given GIS mapping obtained from Fairfax County, Virginia.

**APPENDIX A**  
**Concept Plans – Recommended PHNST Trail Alignment**  
**U.S. Route 1 to Mount Vernon**

**APPENDIX B**  
**Agency Review Comments and Responses**

