



**A FEASIBILITY STUDY for the  
Pennsylvania Highlands Trail Network  
within  
Musser Scout Reservation  
Montgomery County, Pennsylvania**

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June 2019

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## Executive Summary

The proposed trail within the Musser Scout Reservation is a significant section of the Pennsylvania Highlands Trail Network (PHTN). The PHTN is a 300-mile long network of connected trails that stretch from Riegelsville, Bucks County and Bethlehem, to the Maryland border at South Mountain in Franklin County. When developed, the PHTN within Musser Scout Reservation will provide 2.5 miles of new trail in Marlborough Township, some of it adjacent to the Unami Creek. The ultimate goal is to link the PHTN in Musser Scout Reservation to the Perkiomen Trail to the south and the Milford Township trail system to the north in Bucks County.



## Study Goals

The goal of this study is to determine the feasibility of developing a trail through the trail easement areas within Musser Scout Reservation. By researching and assembling an inventory of relevant history and geography of the area including previous planning studies, topography, land uses, ownership patterns, utility rights-of-way, and existing trail networks, a thorough overview of the study area has been developed. Public and stakeholder participation was garnered through a series of meetings with representatives of the Boy Scouts of America-Cradle of Liberty Council, staff of the Montgomery County Planning Commission, public meetings with Marlborough Township staff and representatives, and DCNR staff. This study integrates these factors and assesses the trail alignment alternatives on the basis of feasibility, potential quality of trail users' experience, cost and practicality.

## Preferred Alignment

This study examined two potential trail alignments, which are shown and described on pages 28-33. Both alignments can be considered feasible and costs vary between the two options. Marlborough Township and the Scouts have expressed interest in pursuing trail Option #2 which follows an alignment along Swamp Creek Road, Price Road and Upper Ridge Road, within the designated trail easement areas. See Map 2 on page 31). This alignment provides for public trail use, but buffers the active scout camp uses from the public trail by the Unami Creek and/or Swamp Creek Road.

## Opinion of Probable Costs

The opinion of probable cost for trail alignment for Trail Option #1, Phase 1 (Swamp Creek Road to the proposed Unami Creek crossing) is between \$1.2 and \$1.9 million. The detailed cost estimate is included on page 32. These figures include the development of design and engineering plans and specifications, and a 10% construction contingency.

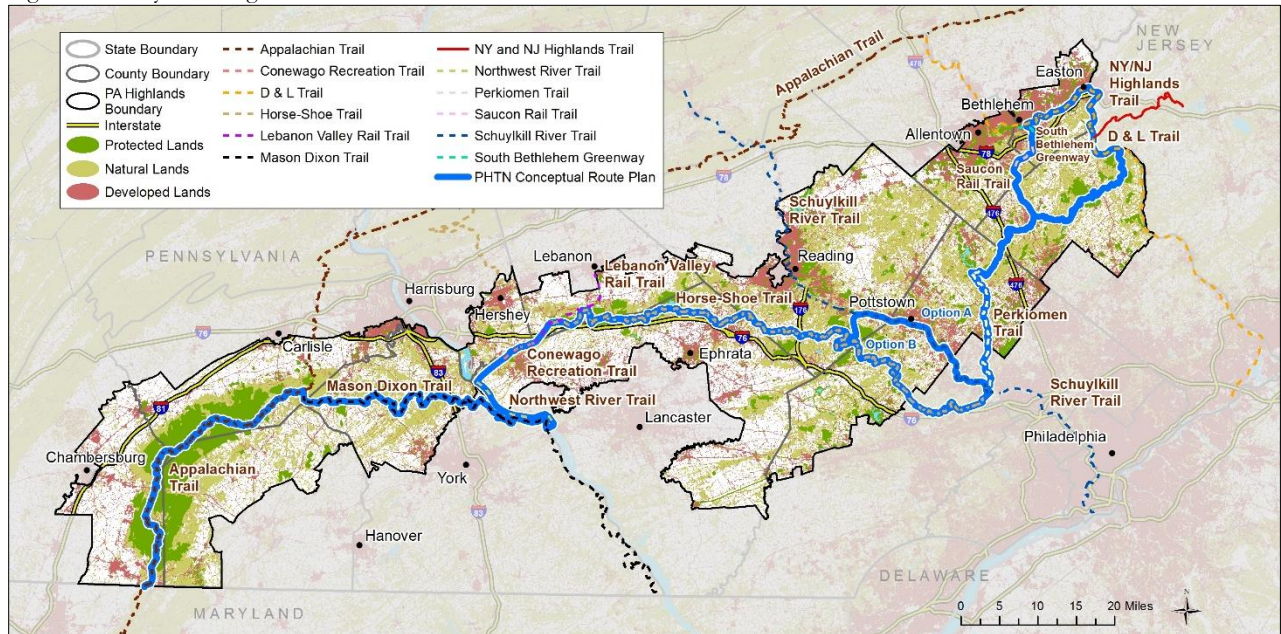
The opinion of probable cost for trail alignment for Trail Option #1, Phase 1 is between \$535,279 and \$803,848. The detailed cost estimate is included on page 33. These figures include the development of design and engineering plans and specifications, and a 10% construction contingency. A range is provided because the exact construction materials will be determined during the engineering phase of the project. Phase 2 will consist of trail development along the east side of Upper Ridge Road and is estimated to cost between \$535,270 and \$803,848.

## Introduction and Context

The Appalachian Mountain Club (AMC) is working with partner organizations and local, state and county governments to develop the Pennsylvania Highlands Trail Network (PHTN) within the 1.9 million-acre, 13 county Pennsylvania Highlands region.

The plan to develop a trail through the Mid-Atlantic Highlands region began to take shape in the early 1990s when the New York-New Jersey Trails Conference began a multi-year effort to establish the NY/NJ Highlands Trail, covering over 160 miles from the Hudson River near Storm King Mountain to the Delaware River at Reigelsville, PA.

Figure 1: Pennsylvania Highlands Trail Network



## Background: The Pennsylvania Highlands Trail Network

In 2006, AMC initiated discussions about extending the Highlands Trail into Pennsylvania when it convened two roundtable meetings that included county planners, state park managers, land conservancies and recreational groups. These discussions helped gauge the potential and level of interest for a PA Highlands Trail Network (PHTN).

An outcome of the roundtable meetings was the formation of a region-wide PA Highlands Trail Steering Committee, which was created in 2007 with participants representing land trusts, state parks, trail organizations and county planning commissions from across the PA Highlands Region. The Steering Committee participants helped form the vision and mission statements for the PHTN.

**Mission Statement:** To create a trail network that promotes and protects the Pennsylvania Highlands and provides communities with a physical connection to the outdoors through close-to-home recreation.

**Vision:** An interconnected trail network linking people to where they live in the Pennsylvania Highlands by providing recreational opportunities and protection of natural, scenic, and historical resources.

The Pennsylvania Highlands Trail Network study area encompasses over 3,000 square miles. To better facilitate the process of locating the trail through such a wide area, the study area in Pennsylvania is divided into six segments:

1. Riegelsville – Quakertown Region
2. Unami Hills – Perkiomen Trail
3. Perkiomen Trail – Horse-Shoe Trail
4. Horse-Shoe Trail – Lebanon Valley – Conewago Trail
5. Conewago Trail – Mason Dixon Trail
6. Mason Dixon Trail - Appalachian Trail

## Unami Hills Trail Gap

The Unami Hills Trail Gap was discussed in the 2015 “Pennsylvania Highlands Trail Network Trail Concept Plan Unami Hills to the Hopewell Big Woods.” The Concept Plan focused on three PHTN planning segments that include the Unami Hills to the Perkiomen Trail (Segment #2), the Perkiomen Trail to the Schuylkill River Trail (Segment #3), and the Big Woods Trail to the Horse-Shoe Trail (Segment #4).

The Concept Plan identified two optional trunk routes for the PHTN in the Unami Hills. Both alternative routes pass through the Musser Scout Reservation in Marlborough Township, Montgomery County. The alternative route maps from the Concept Plan are included in this report. The goal of both route alternatives is to connect existing and planned trails in Upper Bucks County to the Perkiomen Trail.

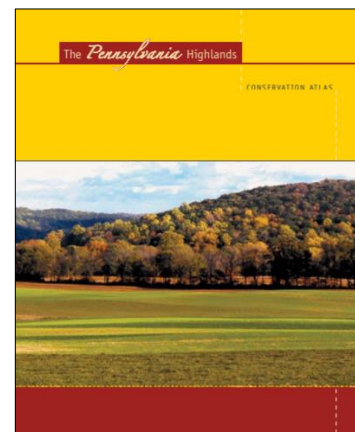
## Study Purpose and Goals

This study investigates more detailed options for trail development through the Musser Scout Reservation located in Marlborough Township (see map on the following page). The study will also determine legal feasibility, including a description of the existing easements held by Natural Lands and Montgomery County. The study will determine if additional easements will be required to develop the trail. The study will also examine trail alignment options given certain site constraints. A major goal is for the trail is to connect to the planned extension of the Unami Creek Trail in Milford Township, Bucks County to the east and to the Perkiomen Trail to the west. The study boundaries are the property boundaries of the Musser Scout Reservation.

After completion of the Feasibility Study, assuming trail development is determined to be feasible, AMC and the Scouts will move forward to secure funding for trail design. It is anticipated that construction will be completed in several phases.

## Description of the Trail Corridor

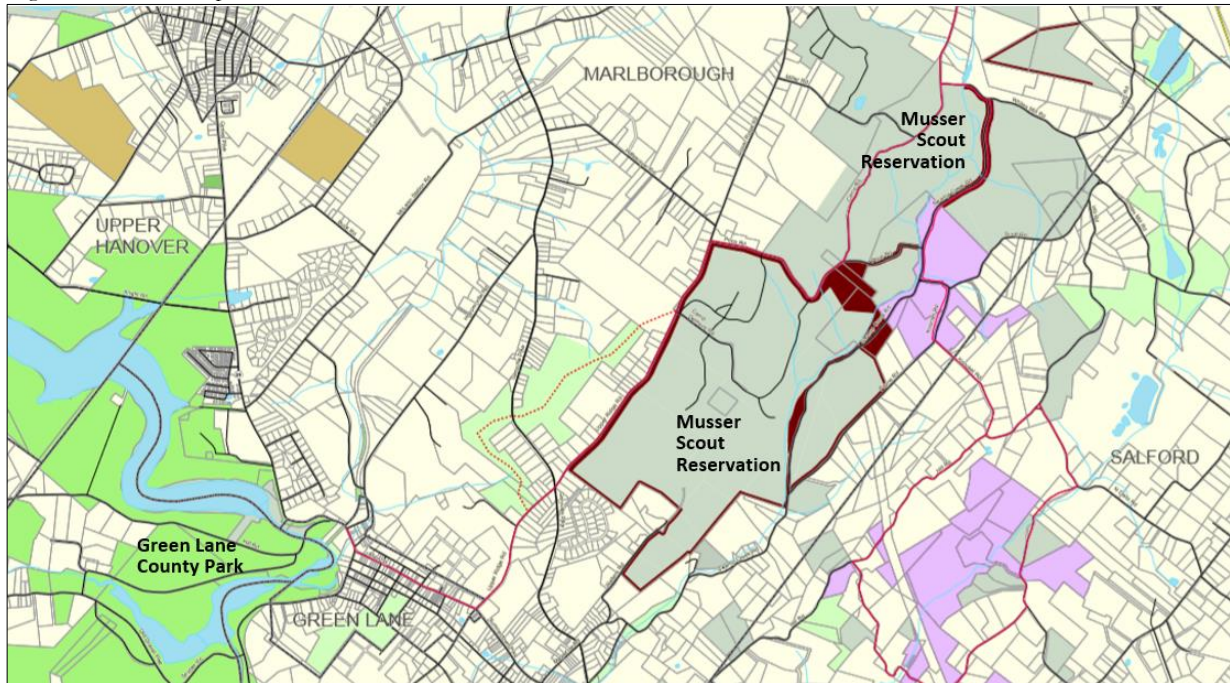
In Montgomery County, the corridor for the Pennsylvania Highlands Trail Network, including the trail corridor within the Musser Scout Reservation, is located in the Unami Forest. The reservation includes two actively used camping areas including Camp Hart and Camp Garrison. A third camp, Camp Delmont is less used. The reservation is characterized by forested uplands, diabase geology and the Unami Creek valley. The Unami Forest is an Audubon Important Bird Area for forest interior birds and is recognized as a conservation area in *The Pennsylvania Highlands Conservation Atlas*. Within Musser Scout Reservation, the trail corridor is generally contained within



existing easements held by Montgomery County (see the brown areas on Figure 2 below). The Scouts wish for the trail corridor to be separate from yet accessible by the active scouting area of the Camp. The trail easement areas are required to be open to the public.

The total area of the Musser Scout Reservation is roughly 1,200 acres, and the land use is private recreation. Significant natural features of the reservation include the forest, the Unami Creek, and the two lakes that are located along the creek that were created through dams. Diabase geology is very pronounced in areas along Swamp Creek Road, with large car-sized boulders located within and adjacent to the Unami Creek. Unusual animal species are found within the Unami Forest, including grey fox, eastern coyote, mink, wood frog, spotted salamander, northern copperhead and bald eagles.<sup>1</sup>

Figure 2: Location Map



### Description of the Surrounding Community

The study area is fully within Marlborough Township. Marlborough is a relatively rural area defined by its woodlands, waterways and unique geology. Significant park and recreation resources also characterize the area, and nearby Green Lane County Park adds to the bucolic setting. One of the main goals of the PHTN in Musser Scout Reservation project is to connect the trail developed in the Scout Reservation to the Perkiomen Trail to the south as well as to Green Lane Borough. Land preserved and owned by Natural Lands is located within the proposed trail corridor in Musser Scout Reservation on Swamp Creek Road. The Zeigler Nature Preserve, a Marlborough Township open space resource, is located north of the scout reservation on Upper Ridge Road and may provide another resource than can be connected to the trail in the Musser Scout Reservation.

<sup>1</sup> The Pennsylvania Highlands Conservation Atlas, 2006, p. 11.

## Demographics

The 2010 Census revealed that 3,178 people resided in Marlborough Township at that time. Households numbered 1,278, with an average household size of 2.48. The median age in the Township in 2010 was 45.2 years. Demographic data for Marlborough Township and adjacent municipalities is discussed in more detail later in this report.

## Study Area

The study area for the Musser Scout Reservation trail can be seen in Figure 3 within the brown trail easement areas. It includes a portion of the scout camp and property owned by Natural Lands. This study focuses on the area from White's Mill Road south to the Lake Delmont (southern) dam, crossing the Unami Creek and heading southwest to Walters Road, As well as Price Road and Upper Ridge Road south of Price Road.

The unique geologic features found in the Unami Forest and the Musser Scout Reservation, as well as the Unami Creek and associated wetland areas will have a significant impact on the alignment and development of the trail. These existing

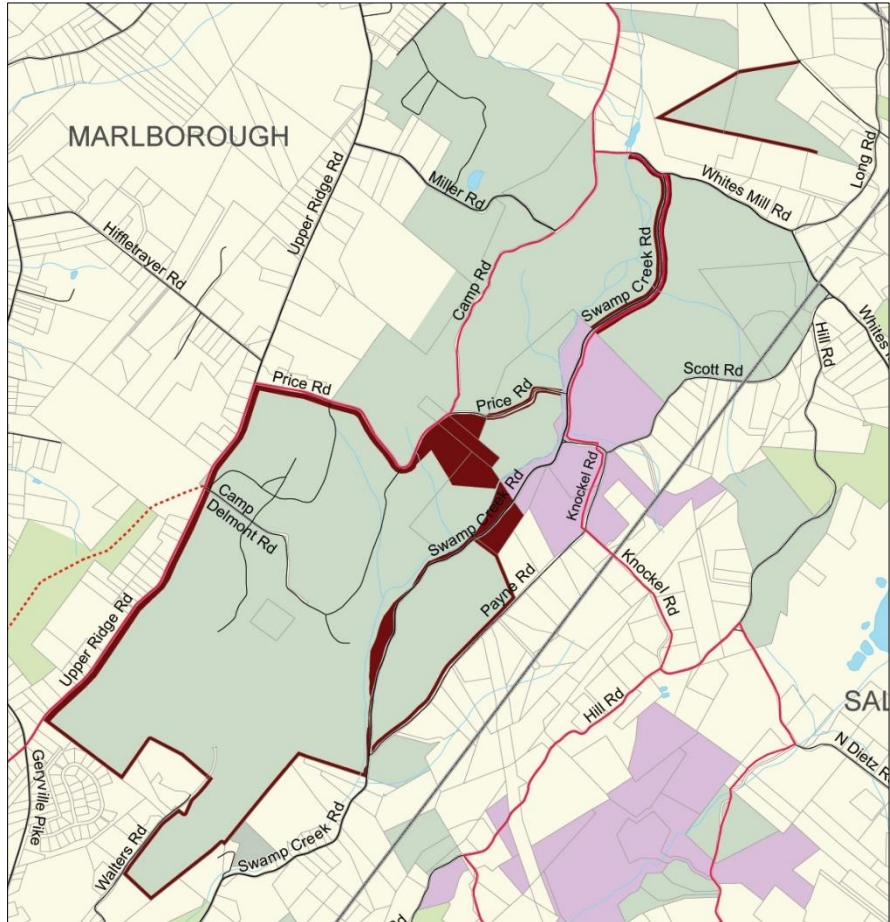
conditions will require consideration throughout the design and engineering process. Furthermore, the design process must also take into consideration the Scouts' desire to keep the trail separate from Scout activity areas.

## Existing Planning Efforts

Trail planning in the Unami Forest and the Musser Scout Reservation is supported in local, regional, county and state plans and maps. The trail in the Musser Scout Reservation has been part of the regional planning efforts of the Pennsylvania Highlands Trail Network for years and is included in "The Pennsylvania Highlands Trail Network Trail Concept Plan: Unami Hills to the Hopewell Big Woods" (2015).

The Montgomery County Planning Commission (MCPC) shows a proposed trail (#20) through the Musser Scout Reservation on its Primary Trails Network Map. A portion of the MCPC map is shown on Figure 4.

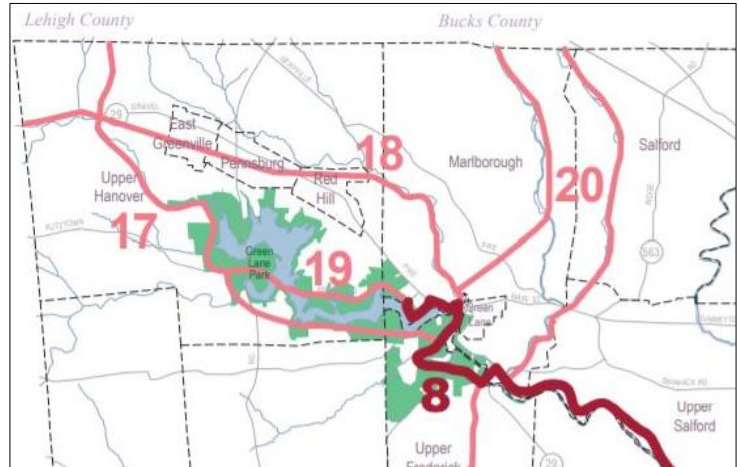
Figure 3: Study Area, Musser Scout Reservation Feasibility Study



Marlborough Township's Open Space Plan specifically discusses the opportunity for trail development and connectivity within Musser Scout Reservation's Camp Delmont.

The Department of Conservation and Natural Resources (DCNR) shows the Unami Hills gap on its Priority Trails Gap Map (Figure 5). The trail through the Musser Scout Reservation will help to fill this gap between the Bucks County border and the Perkiomen Trail.

Figure 4: Montgomery County Primary Trails Map (section)



## Public Participation

Public participation has been extensive and on-going for the Musser Reservation trail project. Methods of accessing public participation are described below and include efforts for the 2015 PHTN Trail Concept Plan and the 2018 Feasibility Study.

### Pennsylvania Highlands Trail Network Trail Concept Plan

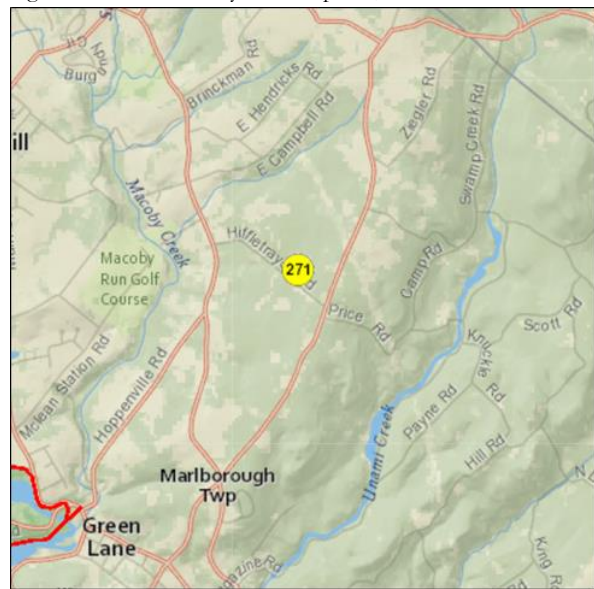
The Unami Hills trail gap has been part of PHTN Steering Committee discussions dating back to 2015, during the preparation of the PHTN Trail Concept Plan. Six (6) PHTN Steering Committee meetings are held per year on alternating months and alternating locations. The Concept Plan was discussed at the PHTN Steering Committee meetings throughout 2014 and the first half of 2015. Discussion mostly focused on alignment options.

### Feasibility Study for the PHTN within the Musser Scout Reservation

In the early 2000's, Natural Lands negotiated with the Boy Scouts Cradle of Liberty Council (CLC) for conservation and trail easements within the Musser Scout Reservation. Beginning in 2017, AMC held several staff level meetings with CLC representatives regarding the development of trails within the easement areas. Several site meetings were held with representatives of the Scouts and staff of the Montgomery County Planning Commission to discuss the options for trail alignment.

In addition to meetings with the CLC and the MCPC, this project was discussed at PHTN Steering Committee meetings held every other month on the fourth or fifth Monday of the month. PHTN Steering Committee meetings that included specific discussion of the PHTN in the Musser Scout Reservation were:

Figure 5: DCNR Priority Trail Gap 271, Unami Hills



- July 31, 2017
- September 25, 2017
- November 27, 2017
- January 29, 2018
- March 26, 2018
- May 21, 2018
- July 30, 2018
- September 24, 2018
- November 19, 2018
- January 28, 2019

## Public Presentations

On February 14, 2018 AMC and its consultant, Campbell Thomas & Company made a presentation to the Board of Supervisors of Marlborough Township regarding the conceptual alignment for the PHTN in the Musser Scout Reservation. Members of the public attended the meeting and provided important input regarding the trail alignment. A representative from Natural Lands was also present.



On March 26, 2018 the PHTN Steering Committee held its regular meeting at Marlborough Township. Members of the public were advised of and attended the meeting and the discussion continued regarding the trail alignment. A Scout representative attended the meeting as well. Concerns expressed by the public at both meetings included:

- How will the trail connect outside of the camp on both the east and west ends?
- Trail surface and width
- Unami Creek flooding issues
- Trail users—equestrian use
- Will private property be taken for the trail?

On January 28, 2019, a presentation was made at the PHTN meeting in Marlborough Township to present the feasibility study results. Members of the Board of Supervisors of Marlborough Township, the Marlborough Township Park and Recreation Committee, members of the Montgomery County Park Board and staff of the Boy Scouts Cradle of Liberty Council were in attendance. Discussion included the proposed alignment, the need to amend the trail easements for trail location and to allow for bicycle use, trail uses in the wintertime, phasing and costs.

## Key Person Interviews

Key person interview forms were extended to community stakeholders as part of the public participation outreach portion of the feasibility study. The answers to the interview questions to those stakeholders who responded to the interview forms are included in the Appendix to this report.

## Public Participation Summary

Project public participation has included Steering Committee meetings and public meetings beginning in 2017. Public participation efforts included Steering Committee meetings and public meetings and presentations where robust conversations took place with Township residents and public officials. Additionally, key person interviews were conducted to gain input from additional project stakeholders.

## Physical Inventory and Assessment

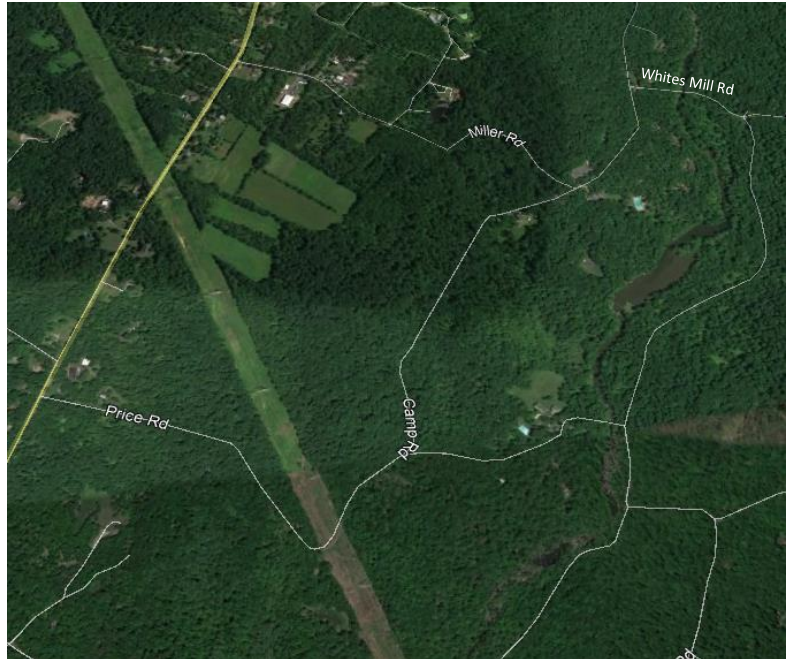
This section will describe the natural and manmade features that will impact the feasibility of trail development in the Musser Scout Reservation.

### Imagery and Mapping

The most recent available imagery shows the land cover and land use of the trail corridor in the Musser Scout Reservation and other features close to the study area (Figure 6 below and Figure 7 on the following page).

This includes vegetation, water bodies, utility clear cuts, residential areas, and roads. The study corridor is heavily wooded. The northern property boundary of the study area boundary is Whites Mill Road (state route 1023). The eastern study area boundary is Swamp Creek Road (state route 1030). In Figure 6 below, the western study area boundary is the Unami Creek. In Figure 7 on page 11, the trail corridor study area is between the Unami Creek and Swamp Creek Road until south of the dam. At this point, the trail is proposed to cross Unami Creek and head west toward Walters Road.

Figure 6: Satellite Imagery, Musser Scout Reservation (White's Mill Road to Price Road)



### Trail Easement

Natural Lands worked with the Boy Scout CLC and Montgomery County to establish a variable width trail easement within Musser Scout Reservation. The trail easement is located between Unami Creek and Swamp Creek Road.

### Topography

Significant natural features of the trail corridor include the forest, Unami Creek, and large diabase boulders that define the Unami Hills area. Manmade features within the corridor include Swamp Creek Road to the east, Whites Mills Road to the north, Price Road and Walters Road to the south.

Price Road bisects the trail study area corridor. Additional manmade features within the trail corridor include a dam and pedestrian bridge north of Price Road and the Price Road bridge. According to a site plan prepared by Irick, Eberhardt and Mentus, Inc., a 200-foot wide PECO easement clear cut with overhead transmission lines bisects the trail corridor south of the Price Road bridge. Immediately adjacent to the 200-foot wide PECO easement is a 100-foot wide PPL easement clear cut. South of the transmission lines is the dam that forms Lake Delmont on the Unami Creek (see Figures 7 and 8 below).

Figure 7: Satellite Imagery, Musser Scout Reservation (Price Road to Walters Road)

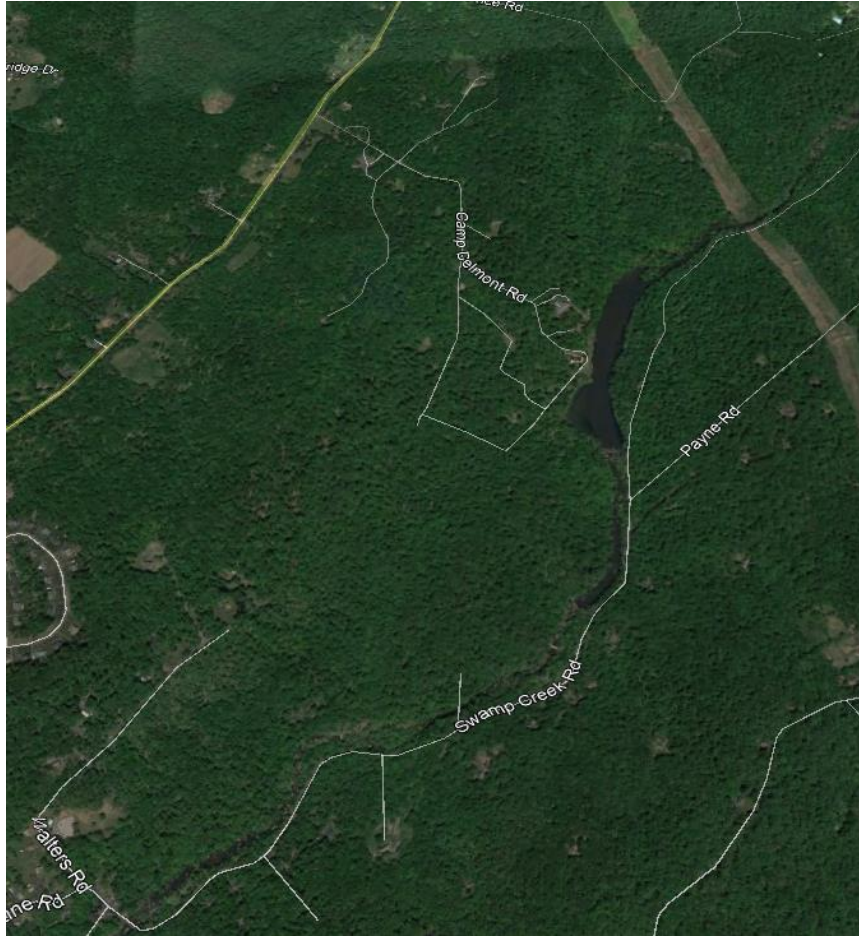
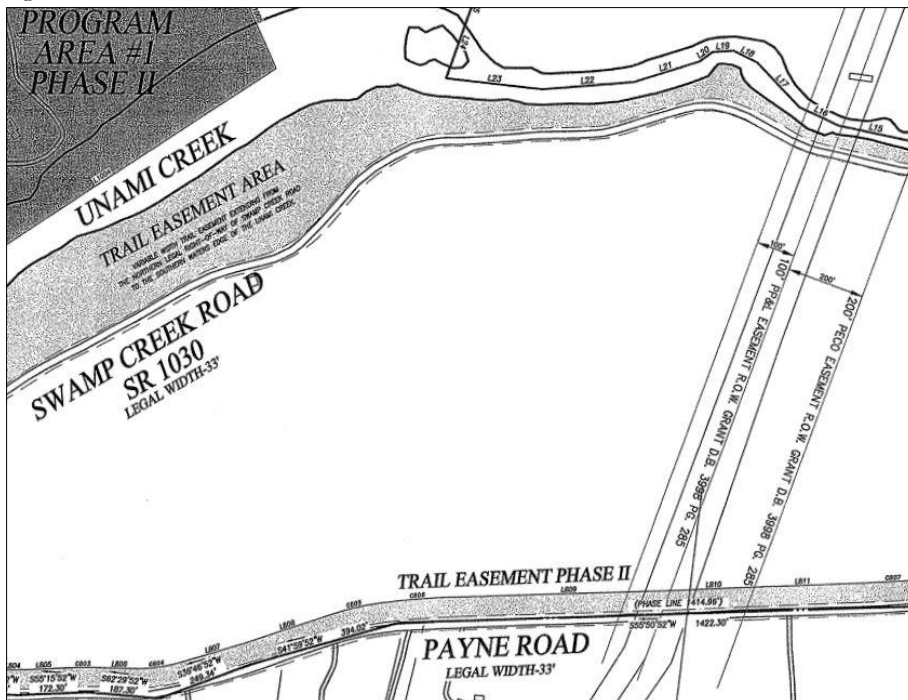


Figure 8: PECO & PPL Easements, Irick, Eberhardt & Mentus Plan of Musser Scout Reservation (section)



## Geology and Soils

Figure 9 shows the geology of Marlborough Township from the township's 2006 Open Space Plan. The trail corridor study area is fully within the diabase geologic formation. The following excerpt is from the Open Space Plan:

### DIABASE FORMATION

This material is formed from the cooling of magma (rock in its liquid form), and is referred to as igneous rock. Diabase is typically found in association with the Brunswick formation. It was formed when magma seeped through large cracks within and around the Brunswick formation. Within these cracks the magma cooled into narrow bands of rock that is very resistant to erosion, weathering, water infiltration and groundwater movement. In Marlborough, the Unami Creek generally follows the arc of the diabase formation. Diabase is notorious for low well yields and difficulty in excavation. Most areas of diabase are steeply sloped and wooded with numerous surface rocks and boulders. Since diabase is formed from magma, which is typically high in mineral content, soils derived from this formation can yield quite unique and rare plant species. This formation is the predominant formation on the east half of the township past Upper Ridge Road (pp. 26-27).

Hydric and alluvial soils are shown in Figure 10. The following excerpt from the Township Open Space Plan describes hydric soils.

Hydric soils are periodically wet soils in an undrained condition that often support the growth of wetland vegetation. In an undisturbed, undrained condition, hydric soils are almost always wetlands, with a seasonal high water table at or near the surface, and therefore are subject to regulation by the U. S. Army Corps of Engineers and the Pennsylvania Department of Environmental Protection (DEP). Since not all hydric soils are found in undrained conditions, not all hydric soils exhibit wetland vegetation. Hydric soils that have been drained for agricultural use is an example. Other soils that have hydric components are found in depressions, bottomlands, swales, drainageways and alluvial soils. These types of soils usually have a high water table and frequently pond. These soils lie on the relatively flat area

Figure 9: Geology, Township Open Space Plan

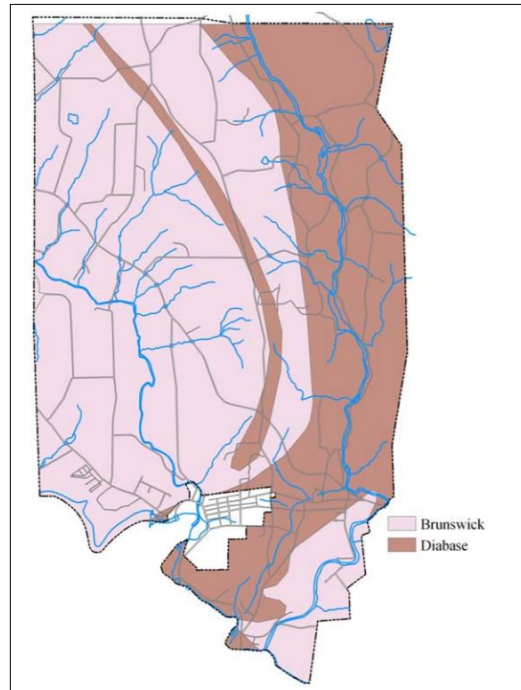
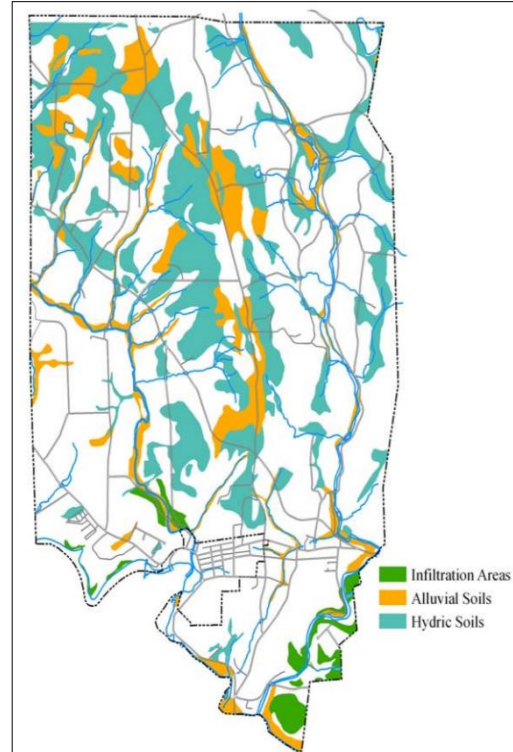


Figure 10: Hydric Soils, Township Open Space Plan



between the Unami and Macoby Creeks.

### Surrounding Land Use

The trail corridor is within the privately-owned Musser Scout Reservation and land privately owned by Natural Lands. Natural Lands has purchased conservation and trail easements on the reservation. To the west of the Musser Reservation, across Upper Ridge Road is single family residential land uses, and the Township building and open space. North of the scout reservation is larger tract single family residential uses. East of the trail corridor/Swamp Creek Road is additional private open space owned by the Scouts and land owned by Natural Lands. The southern end of the trail corridor is adjacent to single family residential homes.

### Drainage

The entire trail corridor drains into the Unami Creek and the study area is within the Perkiomen Creek watershed.

### Political Boundaries

The trail corridor is fully within Marlborough Township, Montgomery County.

### Natural Features

Significant nature features found in the Musser Scout Reservation trail corridor are discussed below.

As described in the previous section, the Unami Creek, diabase geology, and forest cover are the most significant environmental features of the trail feasibility study area. Additionally, wetland areas are a sensitive natural feature of the trail corridor and are shown in Figure 11, from the Township Open Space Plan. Floodplain areas are extensive along the Unami Creek, and are also shown in Figure 11 above.

Extensive areas of diabase geology are found along Unami Creek. This includes large boulders within and adjacent to the creek. In some areas, the boulders are so large and numerous, to accommodate the trail the alignment may need to cross to the east side of Swamp Creek Road for short stretches where the boulders are less numerous. This would likely necessitate the development of new trail easements with the Scouts and/or Natural Lands. Figure 12 shows the diabase boulders along Swamp Creek Road.

Figure 11: Wetlands & Floodplains, Township Open Space Plan

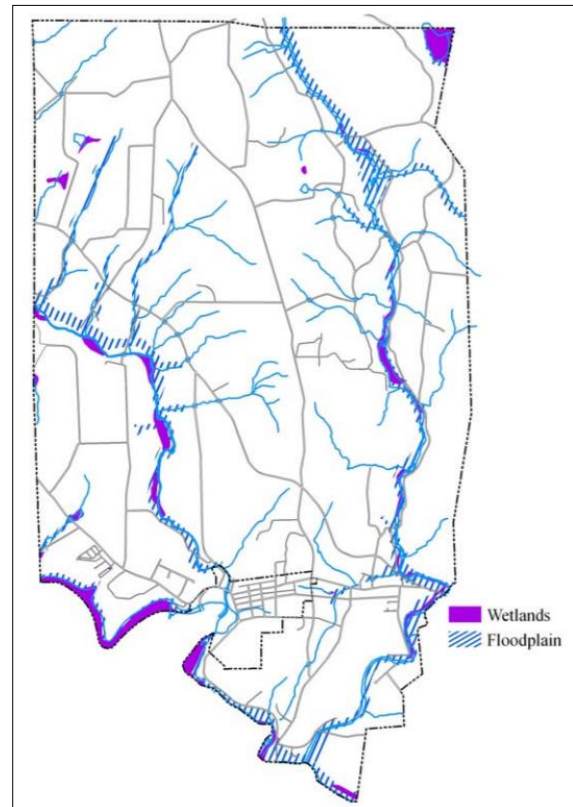


Figure 12: Diabase Geology, Swamp Creek Road



## Existing Vegetation

The extensive woodlands found in Marlborough Township, and particularly along the Unami Creek are an important and sensitive natural feature of the PHTN trail corridor. The Unami Creek, diabase geology and woodlands provide a special habitat for various types of plant and animal species. Woodlands along the Unami Creek are within interior forestlands. Sensitive woodlands and habitat areas are shown on Figure 13. The following excerpt from the Township Open Space Plan describes natural features in this area:

**WHITES MILL SWAMP:** This forested wetland and shrub swamp along the Ridge Valley Creek is one of the largest areas of this type in the county. The site contains several shallow man-made or enlarged ponds with abundant aquatic vegetation. The habitat supports a number of bird and odonate (dragonfly/damselfly) species.

**UNAMI CREEK SITE:** A small population of a sedge of special concern and a threatened species of rush were found in 1994 along Unami Creek. The site is located partially within Hart Boy Scout Camp. The site includes a locally significant boulder belt within the Unami Creek, north of Whites Mill Road bridge (pp. 32-33).

## Existing Wildlife

The PHTN trail corridor study area in Musser Scout Reservation is within an Audubon Important Bird Area (IBA). Species of conservation concern observed in the Unami Creek Conservation Area, as set forth in the Montgomery County Natural Areas Inventory, are included in the Appendix to this report. One hundred and seventy-six (176) species of birds have been recorded in the Unami Creek Valley throughout the year in habitats ranging from interior forest, riparian forest, floodplains, and grasslands to emergent wetlands and ponds. At least 30 species of concern have been noted.<sup>2</sup> These birds include but are not limited to warblers, flycatchers, herons, and owls. In 2018, during a site visit to the study area, an American bald eagle was also spotted along the Unami Creek.

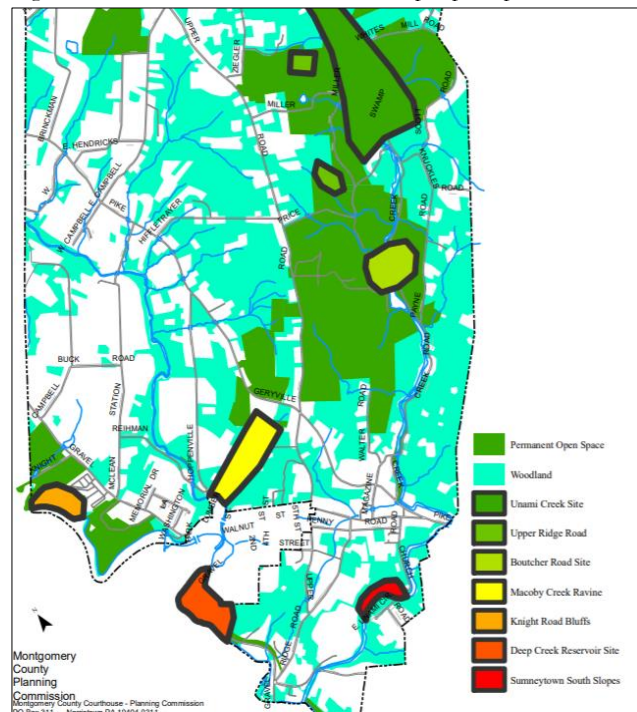
## Scenic and Cultural Features

Several important scenic areas and cultural features are found within the trail study area in Musser Scout Reservation. Figure 14 on the following page shows their locations, as defined in the Marlborough Township Open Space Plan.

## Scenic Areas

Area “D” on Figure 14 is the Whites Mill Road area, and the associated scenic feature is the woodlands in this area. Area “E” is Swamp Creek Road from Geryville Pike to Whites Mill Road, and is another scenic part of the Township, due to its view of the Unami Creek, woodlands and diabase boulder fields.<sup>3</sup>

Figure 13: Woodlands & Habitat, Township Open Space Plan



<sup>2</sup> Montgomery County Natural Areas Inventory, 2007, p. 70.

<sup>3</sup> Marlborough Township Open Space Plan, 2006, p. 36.

### Historic and Archeological Sites

Number 1 on Figure 14 denotes the Sutch Road bridge, a historic stone arch bridge built in the early 20<sup>th</sup> century that is listed on the National Register of Historic Places. Number 4 on the map denotes pre-historic rock structures along the Unami Creek. Number 5 marks the Swamp Creek Road bridge, a stone bridge also listed on the National Register.<sup>4</sup>

### Structures within the Corridor

Structures within the PHTN trail corridor in the Musser Scout Reservation include the dam that created Long Lake, an iron bridge north of Price Road and the Price Road bridge. Other structures include the PECO and PPL transmission lines. South of this easement area is the dam that forms Lake Delmont. North of Price Road is an abutment from a bridge that once served the camp. In between Swamp Creek Road and the Unami Creek the Scouts have constructed a small but well used BMX bike course for campers, located north of the iron bridge. This area also contains a stone access road leading to the bridge. Three floating docks are located along the east side of Long Lake. Structures along Price Road include buildings associated with the camp uses located in the area.

An existing five-foot (5') wide pedestrian bridge is located on the east side of Swamp Creek Road. It crosses a tributary to the Unami Creek.

### Roads

Roads located within the study area include Swamp Creek Road to the east, Whites Mills Road to the north, Upper Ridge Road to the west, and Walters Road to the south. Price Road bisects the trail study area. White's Mill Road and Swamp Creek Road are state roads. The cartway for Swamp Creek measures roughly 20 feet in width.

### Utilities

Roughly 0.6 miles south of the Price Road bridge, a 200-foot wide PECO easement clear cut with overhead transmission lines bisects the trail corridor. Immediately adjacent to this easement is a 100-foot wide PPL easement clear cut. Utility poles are located along the east side of Upper Ridge Road.

Figure 14: Scenic & Historic Resources, Township Open Space Plan

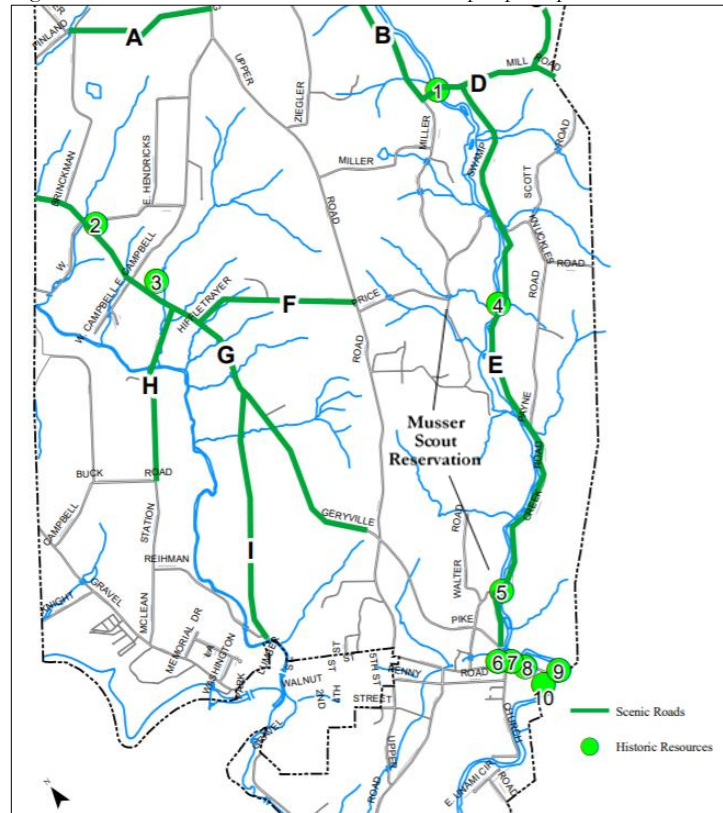


Figure 15: Iron Bridge north of Price Road



<sup>4</sup> Marlborough Township Open Space Plan, 2006, p. 39.

## Environmental Hazards

No known environmental hazards are found within the trail corridor, and no preliminary environmental studies have been performed on the site. A Phase 1 environmental assessment is not required for this project.

## Needs, Wants and Desires

This section discusses information from the public participation process and the site's physical characteristics to further define the trail vision and uses.

### Local, County, Regional and State Planning Efforts

As discussed previously in this report, the PHTN project in the Musser Scout Reservation relates to and implements several planning documents, discussed below.

#### Local Planning Efforts

##### *Marlborough Township Open Space Plan (2006)*

Marlborough Township's Open Space Plan, prepared with the assistance of the Montgomery County Planning Commission, specifically discusses the opportunity for trail development and connectivity within Musser Scout Reservation's Camp Delmont. The following excerpt is from the Open Space Plan:

Due to the significant natural features found in this stream corridor, thousands of acres have already been preserved within the watershed. Some of these lands, including Unami Creek Park and Camps Delmont and Hart in Marlborough and the Fulshaw Craig Preserve in Salford, could be linked together either using trails or as a habitat corridor using preserved open space (p. 42).

#### County Planning Efforts

As stated earlier in this report, the Montgomery County Planning Commission shows a proposed trail (#20) through the Musser Scout Reservation on its Primary Trails Network Map.

In 2003, the Boy Scouts of American, Cradle of Liberty Council and Natural Lands and the Montgomery County Lands Trust entered into a conservation easement agreement for the Musser Scout Reservation. The easements were purchased with funds from the Montgomery County Open Space Program. The purpose of the easements is to conserve and preserve sensitive natural features and to create a public trail. According to the easement agreement, Montgomery County is responsible for trail development and maintenance.

#### Regional Planning Efforts

##### *The 2011 Upper Perkiomen Valley Comprehensive Plan*

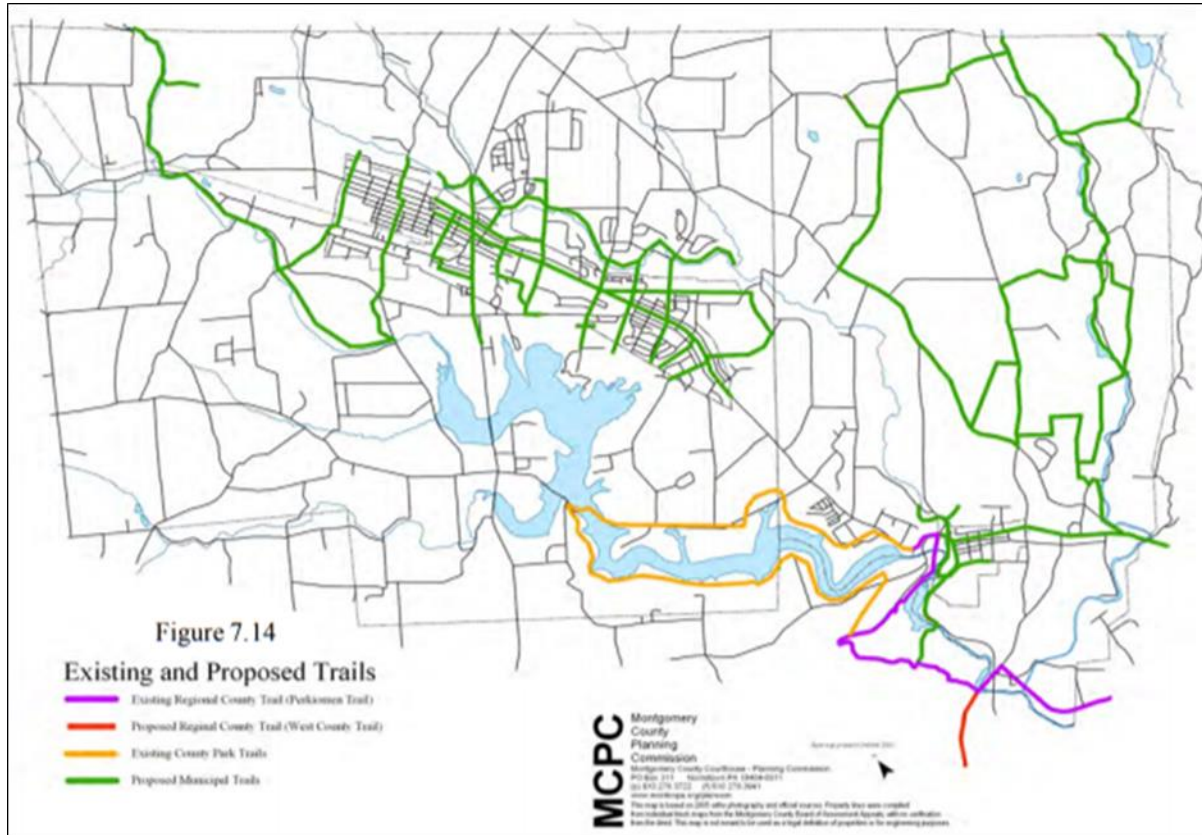
This plan, prepared with assistance from the Montgomery County Planning Commission, shows a "Proposed Municipal Trail" along the Unami Creek within the Musser Scout Reservation. Figure 16 on the following page shows a portion of this map, and shows connections to other municipal, county and regional trail systems.

##### *The Pennsylvania Highlands Trail Network Concept Plan*

The PHTN within the Musser Scout Reservation has been part of the regional planning efforts of the Highlands Coalition and the Pennsylvania Highlands Trail Network for years. The PHTN through the reservation is included in "The Pennsylvania Highlands Trail Network Trail Concept Plan: Unami Hills to the Hopewell Big Woods" (2015). The Unami Hills has been recognized as a conservation resource of the

Pennsylvania Highlands Region by the Highlands Coalition. The Concept Plan envisions the trail in the Musser Reservation to link to the village of Finland and Bucks County to the north and ultimately to the Perkiomen Trail to the south. Maps showing the two conceptual alignments for the PHTN in the Unami Hills, including Musser Scout Reservation that were prepared for the 2015 Concept Plan are set forth on pages 18 and 19.

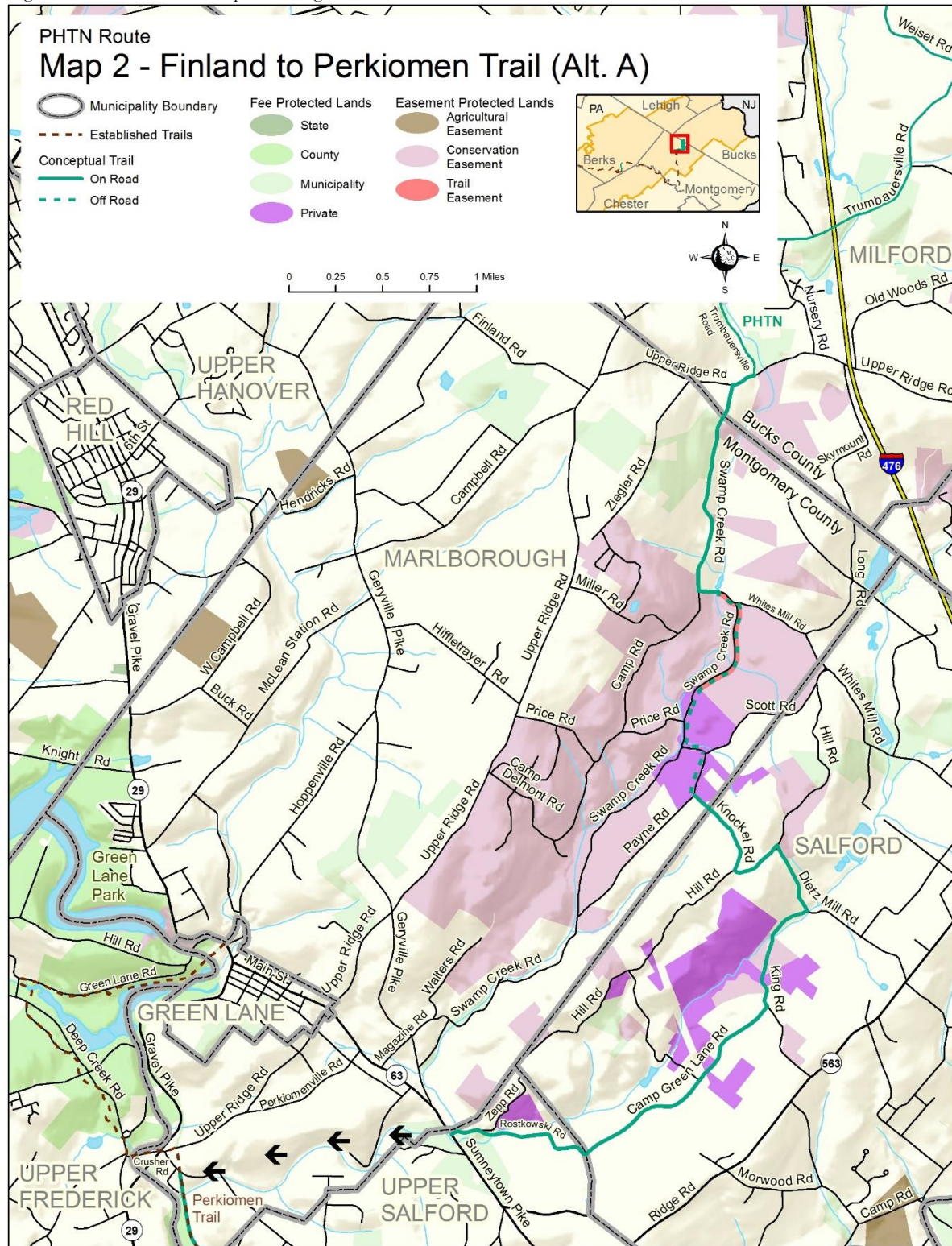
Figure 16: Existing and Proposed Trails Map, UPV Comprehensive Plan, 2011



### State Level Planning Efforts

The Department of Conservation and Natural Resources (DCNR) lists “The Pennsylvania Highlands Greenway” as #3 on its Major Greenway Corridors map in the Pennsylvania Land and Water Trail Network Strategic Plan (2015). This Plan is Appendix H to the Pennsylvania Statewide Comprehensive Outdoor Recreation Plan (2014). Additionally, the Unami Hills area is shown as a priority trail gap on its Priority Gap Map (see page 7 of this report).

Figure 17: PHTN Trail Concept Plan Alignment A





## Character of the Project Area

The 1,200-acre Musser Scout Reservation is located in the Unami Hills area of rural Marlborough Township, Montgomery County. As stated previously in this report, this area is characterized by interior forests, the high value Unami Creek, and the large and numerous boulders of the local diabase geology. The Unami Hills is an Audubon Important Bird Area (IBA). The Musser Scout Reservation is adjacent to open space owned and/or preserved by Natural Lands. The closest urban area is the small borough of Green Lane, located less than a mile from the southern end of the trail corridor project area. Near the project area to the west is Green Lane County Park, reservoir, and the Perkiomen Trail and Perkiomen Creek, which add to the overall rural quality of the project area. Adjacent to the trail corridor study area is Swamp Creek Road, and although a state road, it is generally low-volume. Volume on this road increases during commuting times. Upper Ridge Road is a higher volume road during commuting hours. Price Road is a very low volume road, in part because a portion of the road is gravel.

Diabase Geology in the Unami Creek



## Planned Trail Uses

Planned user types for the PHTN in the Musser Scout Reservation are described below.

### Trail Surface

Trail construction width and material affects uses. Due to the sensitive natural resources found along the Unami Creek, the constraints posed by the diabase boulders and the sometimes narrow width of the land between Swamp Creek Road and Unami Creek, it is intended that this trail will likely be constructed as a crushed-stone trail. The trail may need to cross Swamp Creek Road at certain points to avoid huge boulders that will be infeasible to be moved for construction. Public participation has indicated that the Unami Creek floods along areas of Swamp Creek Road, and flood-prone areas should be paved with bituminous asphalt to avoid washout. Conversations with the Montgomery County Planning commission and Natural Lands have indicated that impervious surfaces in these areas is not desired. MCPC has also expressed reservations regarding development of a crushed stone trail on the west side of Unami Creek in the southern portion of the camp. If a trail is to be built in these areas, MCPC would support a natural surface trail in steeper sloped areas.

### Trail Uses

Due to the crushed stone paving material, uses will limited to pedestrians (hiking, walking, running) and mountain or hybrid bicyclists.<sup>5</sup> Experienced cyclists with touring/thinner-tire bikes may prefer to use Swamp Creek Road rather than the trail. Equestrians may be able to use the trail as well. Winter uses will include hiking, snowshoeing, and cross-country skiing. Trail development will also facilitate access to Unami Creek for fisherman who currently use social trails to reach the creek. The Scouts will also use the trail and have expressed interest in connecting the trail in the Musser Reservation to Green Lane Borough, the county park

<sup>5</sup> The current easement does not allow for bicycle use in the Trail Easement Area. This will have to be renegotiated with the Boy Scouts CLC and Natural Lands.

and the Perkiomen Trail. Trail development and connections will increase recreation programming options for the Scouts.

#### Managed Trail Uses

The managed trail uses that will be accommodated on the PHTN in the Musser Scout Reservation are discussed below.

The trail will be designed and managed primarily as a public recreation trail. This is due in part to existing conditions at the site and its location in a relatively rural area. As stated above, within the recreation managed use, several trail user types will be accommodated:

- Pedestrian (year-round as weather permits: hiking, walking, running; winter months as weather permits: cross country skiing and snowshoeing)
- Bicycling (mountain and hybrid bikes on the trail; touring bikes on the road, with signage)
- Equestrian

Wetzel's Mill



Other complimentary uses for the trail include as a nature trail for the Scouts, local students and trail users in general. The variety and quality of natural resources of the Unami Hills provide an opportunity for interpretive signage along the trail. Historical interpretation may be appropriate as well; the history of the Scout Camp and its conservation could be interpreted. A short walk down Walters Road and Magazine Road at the southern end of the trail study area leads to Wetzel's Mill, a former grist and saw mill that is being restored by the Marlborough Area Preservation Society (MAPS).

#### Population and Demographics

Population and demographic data for the Marlborough region is described below and in Table 1 and Table 2 on the following page. The Marlborough region is defined as Marlborough Township and adjacent townships and boroughs.

##### Population Data

Table 1 below provides population information for the county, the region and each municipality in the region. Green Lane Borough has the lowest population of the region, with 508 residents and 1.7% of the region. Milford Township, Bucks County had the highest population, 9,902 people in 2010 and at that time comprised a third of the region's total population. In 2010, Marlborough's population was 3,178 (10.8% of the region).

Table 1 also provides information about population forecasts for the Marlborough region. Milford Township (Bucks County) and Upper Frederick Townships are projected to have the greatest population gain to 2035, at 41.5% and 28.0% respectively. The municipalities expected to have the lowest population increases to 2035 are Green Lane Borough (2.8%) and Salford Township (11%).

Table 1: Population Data

Municipality	Population 2010	% Region	% County	Population Estimate (2017)	Population Forecast (2030)	Population Forecast (2040)	% Change 2017-2040
Green Lane Borough	508	1.7%	0.1%	507	519	521	2.8%
Milford Township	9,902	33.7%	-	10,091	12,820	14,280	41.5%
Marlborough Township	3,178	10.8%	0.4%	3,344	3,640	3,896	16.5%
Salford Township	2,504	8.5%	0.3%	2,964	3,026	3,290	11.0%
Upper Salford Township	3,299	11.2%	0.4%	3,383	3,904	4,185	23.7%
Upper Frederick Township	3,523	12.0%	0.4%	3,619	4,206	4,634	28.0%
Upper Hanover Township	6,464	22.0%	0.8%	7,718	8,717	9,495	23.0%
<i>Region Total</i>	29,378			31,626	36,832	40,301	27.4%
<i>Montgomery County Total</i>	799,874			826,075	889,516	896,741	8.6%

Source: Pennsylvania State Data Center, 2010 US Census; DVRPC Regional, County, and Municipal Population Forecasts, 2010-2040, 03/13.

### Demographic Data

Table 2 provides information about the region's households and household income. Median household income estimates varied. Green Lane's median household income was \$61,250 and Salford Township was \$98,333. Average household size varied only slightly between the region's municipalities, with a region average of 2.65 persons per household.

Milford Township had the greatest number of households in the region (3,539) and Green Lane Borough had the least (211). Altogether, the region had almost 11,000 households in 2010. The median age varied by roughly five years within the region, with Green Lane at 45.0 and Upper Frederick at 40.7.

Table 2: Demographic Data

Municipality	Median Household Income Estimate	Households	Average Household Size	Median Age
Green Lane Borough	\$61,250	211	2.41	45.0
Milford Township	\$85,405	3,539	2.75	42.2
Marlborough Township	\$85,655	1,278	2.48	45.2
Salford Township	\$98,333	888	2.82	44.9
Upper Salford Township	\$98,063	1,154	2.82	43.7
Upper Frederick Township	\$71,232	1,379	2.51	40.7
Upper Hanover Township	\$81,719	2,354	2.75	42.4
Region Average or Total	\$83,094	10,803	2.65	43.4
Montgomery County Total	\$81,902	307,750	2.53	40.6

Source: American Community Survey, 2017 and US Census, 2010.

### Race and Ethnicity

Table 3 on the following page provides information regarding race and ethnicity in the Marlborough region. The region is predominantly white. African Americans accounted for 3.4% of the region's population in 2020 and Asians totaled 6.3% of the region. Those of Hispanic or Latino heritage comprised 10.9% of the region.

Table 3: Race and Ethnicity

Municipality	White	Black or African American	Native American	Asian	Native Hawaiian & Pacific Islander	Some Other Race	Hispanic or Latino
Green Lane Borough	97.4%	2.0%	0.4%	0.2%	0.0%	0.0%	1.0%
Milford Township	96.5%	2.1%	0.4%	1.8%	0.1%	0.6%	1.8%
Marlborough Township	97.4%	1.0%	0.2%	0.2%	0.0%	0.3%	1.2%
Salford Township	96.8%	0.8%	0.2%	1.0%	0.0%	0.5%	1.3%
Upper Salford Township	96.0%	1.4%	1.0%	1.0%	0.0%	0.6%	1.8%
Upper Frederick Township	96.0%	1.5%	0.1%	0.6%	0.1%	0.5%	2.0%
Upper Hanover Township	95.7%	1.5%	0.0%	1.5%	0.1%	0.5%	1.8%
Region Average/Total	96.5%	10.3%	2.3%	6.3%	0.3%	3.0%	10.9%
Montgomery County Total	81.1%	8.7%	0.1%	6.4%	0.0%	1.6%	4.3%
Sources: PA State Data Center, 2010 US Census							

## Trail User Group Socioeconomic Profile

Trail usage levels and socioeconomic profiles are discussed below, including trail demand, initial usage levels, future usage levels, and seasonal demand.

### Initial Usage Levels

Demand for the trail in Musser Scout Reservation will increase over time as the trail phases are completed and it is connected to the Perkiomen Trail to the south and to the developing trail system in Milford Township, Bucks County. When first developed, the trail will not connect to these other trail systems, so initial trail use will likely be limited to the Scouts, local residents and those of adjacent communities.

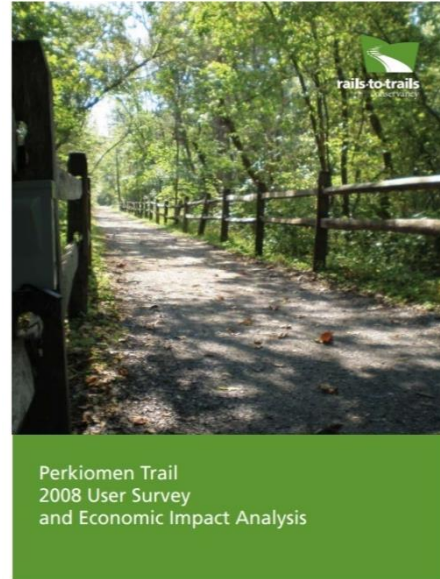
### Future Usage Levels

When the trail in Musser Scout Reservation is connected to Green Lane Borough, Green Lane County Park, and the Perkiomen Trail, trail demand and user rates will increase, and may in the future reflect user rates similar to that of the Perkiomen Trail. Another factor that may influence user rates is whether the trail in the Musser Scout Reservation is included as part of The Circuit trails network. Should this trail be included as part of The Circuit, trail demand and usage levels will also be affected. However, due to the trail being narrower than the Perkiomen Trail and mostly constructed of crushed stone rather than bituminous asphalt, user numbers may be lower than that of the Perkiomen Trail.

### Socioeconomic Profile of Trail Users of the PHTN in the Musser Scout Reservation

Trail users for the PHTN in the Musser Scout Reservation will likely be similar to that of users of the nearby Perkiomen Trail. In 2008, the Rails to Trails Conservancy prepared a [Trail User Survey and Economic Impact Analysis](#) report, that included information about trail users which is set forth on the following page.

The age profile of the Perkiomen Trail study respondents is typical of that found from other trail studies across Pennsylvania and nationally. Sixty-five percent of the survey respondents indicated that they were 46 years of age or older. Children under the age of 15 accompanied trail user respondents 16.7% of the time. The majority of the accompanying children (48.3%) were between the ages of 10 and 15. The usage of the trail by men (55.2%) and women (44.8%) is fairly typical of what has been found during the course of other trail user studies. Bicycling (48.8%) is the predominant activity on the Perkiomen Trail. This is more than 20% lower than the results of studies on Oil Heritage Region Trails and Heritage Rail Trail County in Pennsylvania. Walkers account for the majority of the difference (27.8%). A new response in this survey was for pet walkers; they accounted for 9.1% of the primary trail activity. The type of activity also relates to the amount of time that the survey respondents indicated that they spent on the Perkiomen Trail. The largest percentage of respondents (48.6%) indicated that they spent between one and two hours on a typical trail outing. Just over a quarter of the respondents (26.9%) spent more than two hours on the trail. The remaining quarter of the respondents spent between 30 minutes and an hour engaged in a trail activity (pp.2-3).



The average age of a typical trail user of the PHTN in the Musser Scout Reservation may be slightly younger, due to the average age in the Marlborough region being slightly lower than the average age of trail users in the 2008 Perkiomen Trail report. The average age for the PHTN may also be slightly lower due to the number of Scouts using the trail.

Demand in the spring, summer and fall will be significantly higher than winter months when snow and ice preclude many trail uses. However, this trail will be appropriate for snowshoeing and cross-country skiing.

## Impact of Trail Users on Trail Development and Adjacent Uses

The Musser Scout Reservation is a private recreational land use. Conservation easements protect it from development of non-recreation uses. The proposed trail is permitted to be constructed within the specific trail easement areas. Any development of the trail outside of these easement areas will have to be negotiated with the Boy Scouts Cradle of Liberty Council and Natural Lands.

Trail development will impact Musser Scout Reservation scouting activities that take place between Unami Creek and Swamp Creek Road. North of Price Road, the Scouts use the east side of the creek for fishing and boating, and a mini-BMX bike course is located on the east side of the creek. Signage alerting trail users to active Scout usage in this area will reduce potential conflicts. “Private property”, “Stay on Trail”, and “No Trespassing” signs, in addition to post and rail fence will help keep trail users on the trail and off the Scout property. Trail sections within Natural Lands Property can have similar signage and fencing to keep people on the trail.

Trail width reductions due to site constraints will require additional signage to warn trail users to use caution and reduce speed in these areas. Signage alerting trail users and motorists of any trail crossings and crosswalks on Swamp Creek Road will be required.

## Legal Feasibility

Trail easements have been in place for the Musser Scout Reservation since 2003. The trail easement language is included as an Appendix to this report. The easements vary in width throughout the reservation and allow for the development of a natural surface or crushed stone trail that is open to public use. Natural Lands is the easement holder and Montgomery County is responsible for trail development and maintenance. Section 3.02 of the Conservation Easement (dated June 16, 2003) states the following:

Section 3.02 Trail Easement Area; Public Trail.

Owners freely grant and convey to the County of Montgomery, and its successors and assigns, a perpetual easement and right-of-way over the portion of the Property designated as the Trail Easement Area on the Conservation Easement Plan to permit public access and to permit County of Montgomery to enter the Trail Easement Area to install and maintain a path for the public use as a walking, jogging or bridle trail (the "Public Trail") subject, however to applicable limitations set forth in Article II and reasonable limitations upon the time, place, and manner of use including the following:

- (i) No motorized vehicles or bicycles shall be permitted to use the Trail Easement Area except in the case of emergency or to accommodate construction permitted under Article II.
- (ii) No public use is permitted between the hours of dusk and dawn.

The easement language that does not permit bicycle use on the trail will need to be revised between the Boy Scouts Cradle of Liberty Council and Natural Lands.

### Local Zoning

The Marlborough Township Zoning Map is shown on the following page in Figure 19. The entire Musser Scout Reservation is zoned R-1 Residential and is part of the OS Open Space Conservation Overlay District. The OS District is shown in green on the map on page 26.

### *Legislative Intent of the Ordinance*

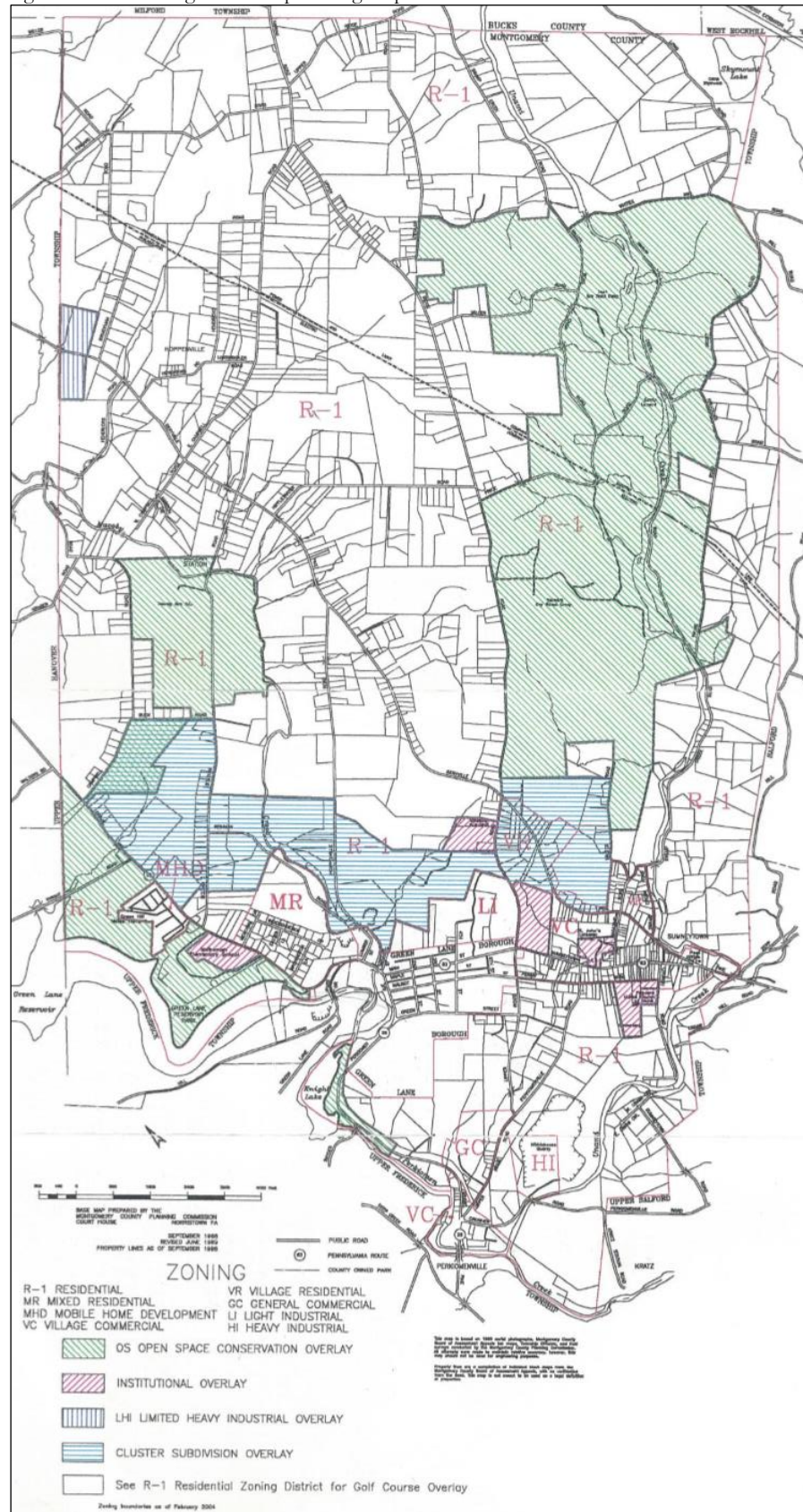
Section 275-131 discussed the intent of the OS Open Space Conservation Overlay District. This section includes the following recreation-related objectives:

- F. Ensure that access to such open space, recreation, and conservation lands is not blocked by private development and that is encouraged through appropriate legal mechanisms.
- G. Establish reasonable standards of performance in order to maintain the desirable benefits of open space, recreation, and conservation areas.
- I. Relate open space, recreation, and conservation areas to existing residential areas and to existing or potential "open space" type areas on adjacent tracts to assure consistency of use and lack of conflict between adjacent areas.

§275-133 of the Marlborough Township Zoning Ordinance discusses permitted uses in the OS Open Space Conservation Overlay District. Trail related uses are permitted within the OS Overlay District, as set forth in §275-133.

- C. Parks and recreation areas providing facilities of a passive or non-intensive nature, including hiking, bicycling, bridle paths, picnicking, fishing areas, boating, swimming, ice skating, golfing (excluding driving range or miniature golf), picnic areas, playing fields, and similar uses.

Figure 19: Marlborough Township Zoning Map



## Trail Concept Plan

Ongoing conversations with MCPC and Natural Lands have resulted in the development of two optional trail alignments, due to the significant site constraints and sensitive environmental resources found in the study area, including the diabase boulders and the Unami Creek. Additionally, due to the estimated project costs, trail construction will be divided into a minimum of two or three phases. Both options are discussed below.

### Proposed Trail Alignment Option #1

The alignment for Option #1 is shown on page 29. The first construction phase for option #1 includes the area from Whites Mill Road south to the location of a proposed pedestrian bridge just south of Lake Delmont. Depending on the availability of grant and other sources of funding this phase could be divided into smaller construction project phases.

Beginning at the intersection of Whites Mill Road and Swamp Creek Road, the trail will follow along the east side of Swamp Creek Road within the designated trail easement areas of the Scout land. This section of trail will run for approximately 4,230 feet and will cross to the west side of Swamp Creek Road at the intersection of Price Road. At Price Road, the trail will run in between the west side of Swamp Creek Road and the Unami Creek for a distance of roughly 2,742 feet and will run through land owned by Natural Lands. Just north of the PPL and PECO easements, the trail crosses back to the east side of Swamp Creek Road and follows along the road for 3,250 feet within land owned by the Scouts, but not within a designated trail easement area. This will have to be negotiated with the Scouts and Natural Lands. The Phase 1 trail project ends on the east side of Swamp Creek Road.

#### Later Project Phases

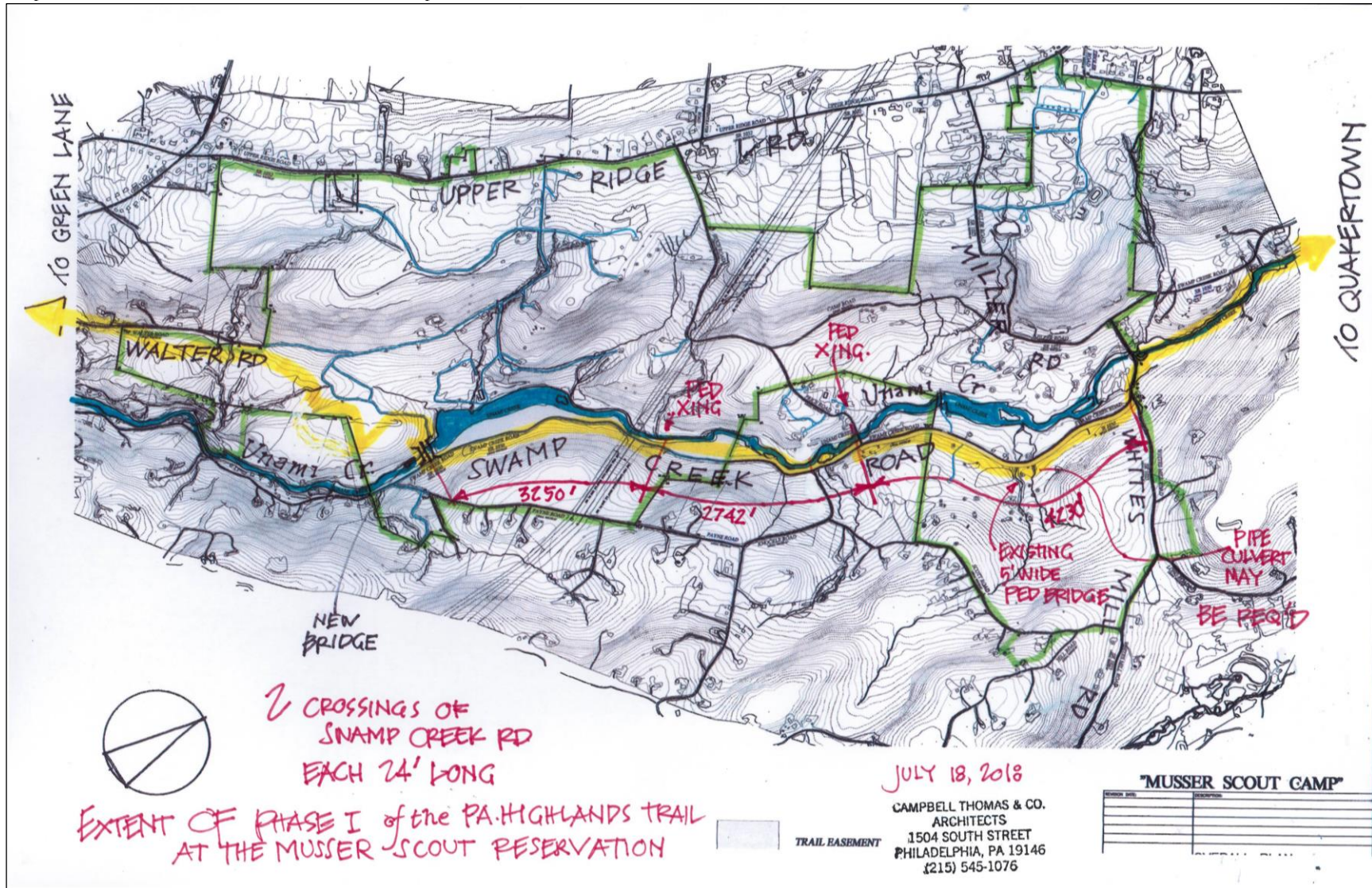
Phase 2 will likely consist of construction of the pedestrian bridge across Swamp Creek south of Lake Delmont and the pedestrian crosswalk on Swamp Creek Road.

Phase 3 will consist of trail construction on the west side of the proposed pedestrian bridge. The trail will head uphill toward Walters Road. This alignment will require revision of the existing easement to allow for trail use within the Musser Scout Reservation between the proposed pedestrian bridge and Walters Road. MCPC has indicated that trail developed in this area be natural surface rather than crushed stone to reduce negative impacts on environmental features in the steeply sloping area of the scout reservation.

#### *Phase 3 Alternative Alignment*

An alternative trail alignment may be considered if funding for Phase 3 cannot be obtained, or site conditions preclude development of a crushed stone trail on the west side of Unami Creek. The Township may consider developing a signed on-road bicycle route along the southern portion of Swamp Creek Road that provides cyclists with directional signage to the Perkiomen Trail access point in Green Lane Borough. Pedestrian trail users would continue within Musser Scout Reservation over the proposed bridge and along a natural surface hiking trail.

Map 1: PHTN in the Musser Scout Reservation, Trail Option #1, Phase 1



## Proposed Trail Alignment Option #2

The proposed alignment for Option #2 is shown on the following page. Beginning at White's Mill Road the trail will be developed as a crushed stone path within the trail easement area on the north side of Swamp Creek Road until it reaches the intersection of Price Road. On Price Road, the trail will be on-road due to the low volume of traffic along this road. A crosswalk will be developed at the intersection of Swamp Creek Road and Price Road, and signage is proposed along Price Road to warn vehicles of the presence of hikers and bicyclists, and identifying the adjacent land as private property. The trail will follow the entire length of Price Road until it reaches Upper Ridge Road, where the trail will turn left and head south along the east side of Upper Ridge Road within the designated trail easement area. The trail along Upper Ridge Road will also be developed as a crushed stone trail. The trail will run along Upper Ridge Road for the entire length of the trail easement area. The trail will follow the trail easement area along the southern property boundary, however in steep slope areas it will likely be a natural surface, and adjustments to the easement will need to be negotiated with Natural Lands and the Scouts.

### Project Phasing

Trail Option #2 could be divided into two development phases, with the trail on Swamp Creek Road and the Price Road signage as the first phase and trail development along Upper Ridge Road as the second phase.

Construction cost estimates for both trail options are discussed beginning on page 32.

Map 2: PHTN in the Musser Scout Reservation, Trail Option #2

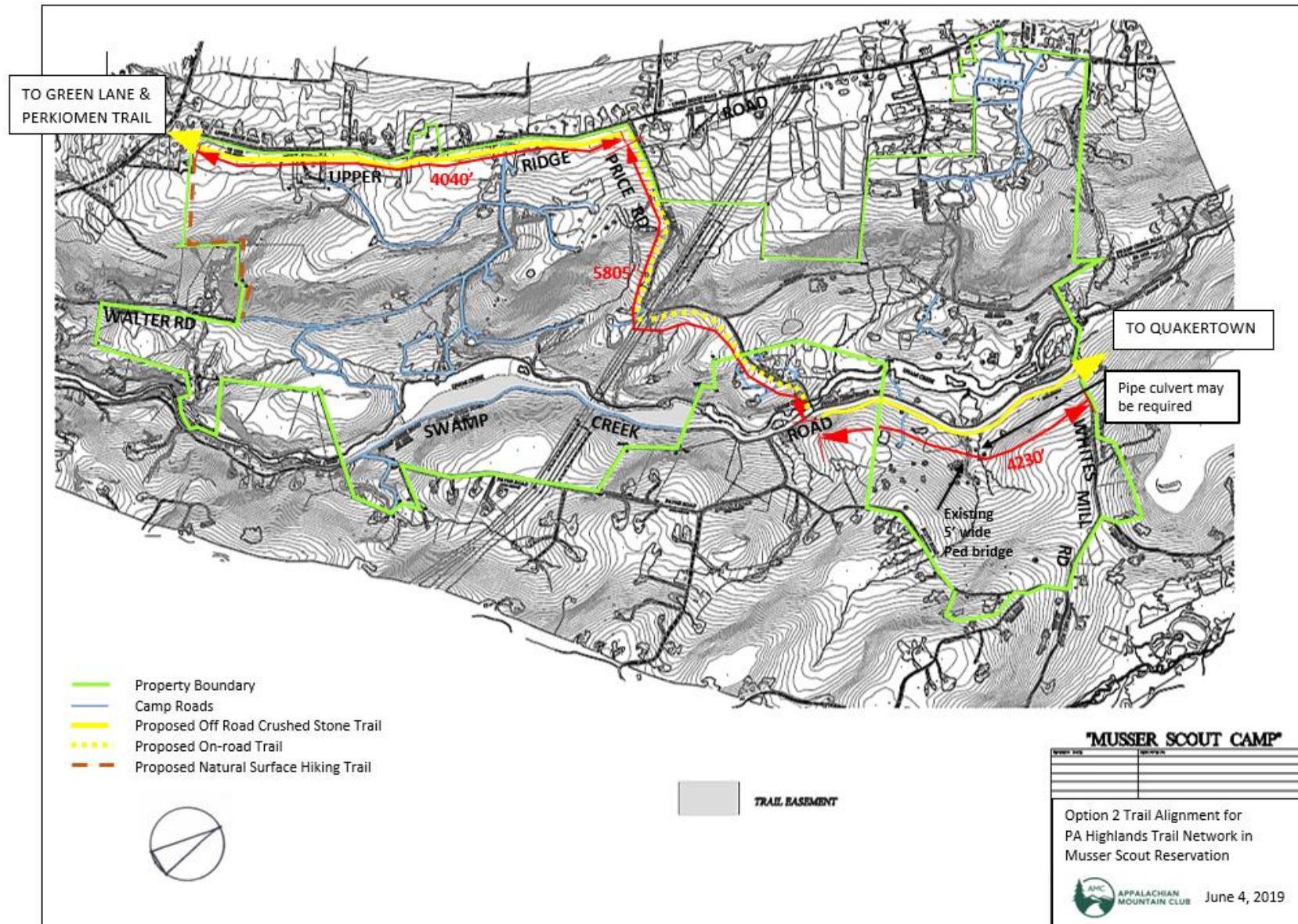




Table 5: Option of Probable Costs, Trail Option #2

Opinion of Probable Costs, Musser Scout Reservation, Trail Option #2	APPROX QUANTITY	UNIT	UNIT COST LOW	to	UNIT COST HIGH	SUBTOTAL LOW	SUBTOTAL HIGH
1 Trail Construction, Swamp Creek and Upper Ridge Roads							
a. 8 to 10 feet wide crushed stone trail	8539	LF	\$75		\$100	\$ 640,425	\$ 853,900
b. Tree removal and trimming	ADD	LS ALLOW	5%		10%	\$ 32,021	\$ 85,390
c. Boulder relocation	ADD	LS ALLOW	10%		20%	\$ 64,043	\$ 170,780
2 Street crossings and General Signage							
a. Install one (1) continental crosswalk-thermoplastic 10 ' wide	30	LF	\$100		\$125	\$ 3,000	\$ 3,750
b. Post mounted warning signage (up to @ +/- 12 SF each)	24	EACH	\$450		\$550	\$ 10,800	\$ 13,200
signs include: caution, stay on trail, private property, Highlands markers, etc.							
3 Drainage							
a. Small pipe culvert (under 18" diameter, less than 20 ft)	2	EACH	\$500		\$1,000	\$ 1,000	\$ 2,000
4 Maintenance and Protection of Traffic during construction	1	ALLOW	\$5,000		\$5,000	\$ 5,000	\$ 5,000
					CONSTRUCTION SUBTOTAL	\$ 756,289	\$ 1,134,020
					CONSTRUCTION CONTINGENCY - 10%	\$ 75,629	\$ 113,402
OPINION OF PROBABLE COSTS OF CONTRUCTION						\$ 831,918	\$ 1,247,422
5 Preparation of plans, specifications and estimate package per PADOT requirements (10% of construction costs, includes permitting, but not detailed survey)	1	ALLOW	\$ 75,629		\$113,402	\$ 75,629	\$ 113,402
OPINION OF PROBABLE COSTS OF IMPLEMENTATION						\$ 907,547	\$ 1,360,824

Note: Costs for the development of the hiking trail portion of the trail is not provided, and may be developed using volunteers and Scouts.

## Multi-year Capital Improvement Program

As discussed above, the alignment selected will affect project phasing. Capital improvements programs for the two options for the PHTN in the Musser Scout Reservation are set forth below and include potential funding sources.

### Trail Option #1

The trail option will be constructed in a minimum of three phases. Phase 1 could be subdivided into additional phases if needed based on the availability of grant and matching funds.

Table 6: Trail Capital Improvements Program- Trail Option #1

Phase	Description	Costs	Funding Sources
1 (Apply in 2020)	Trail along Swamp Creek Road:	Low: \$1,270,594 High: \$1,938,795	DCED GRTP
	10,222 LF crushed stone/paved trail (8'-10' wide)		DCNR C2P2
	Boulder relocation, tree removal		DVRPC TCDI, CMAQ
	Crosswalks (2) and signage		Marlborough Township
	Pipe culvert-under 18 in. diameter		
	Traffic protection during construction		
	Plans, specs, & estimate package per PennDOT		
2 (Apply in 2021)	Pedestrian bridge over Unami Creek	\$1,000,000	DVRPC
	Crosswalks (1) and signage		MC 2020 Implementation Program
3 (Apply in 2022)	Trail from Unami Creek to Walters Road:	Low: \$318,120 High: \$424,160	DCED GRTP
	3,856 LF crushed stone/paved trail (8'-10') wide		DCNR C2P2
	directional signage		
	Plans, specs, & estimate package		
Note: Volunteer trail building services may be available from the AMC's Highlands Trail Stewards crew.			

Table 7: Trail Capital Improvements Program-Trail Option #2

Phase	Description	Costs	Funding Sources
1 (Apply in 2020)	Trail along Swamp Creek Road to Price Road;	Low: \$535,279 High: \$803,848	DCED GRTP
	4,230 LF crushed stone/paved trail (8'-10' wide)		DCNR C2P2
	Boulder relocation, tree removal		DVRPC TCDI, CMAQ
	Crosswalks (1) and signage (includes Price Road signs)		Marlborough Township
	Pipe culvert-under 18 in. diameter		
	Traffic protection during construction		
	Plans, specs, & estimate package per PennDOT		
2 (Apply in 2021)	Trail along Upper Ridge Road to southern property line	Low: \$416,352 High: \$579,552	DCED GRTP, DCNR C2P2
	4,336 LF crushed stone/paved trail (8'-10') wide		MC 2020 Implementation Program
	directional signage		
	Plans, specs, & estimate package per PennDOT		
Note: Volunteer trail building services may be available from the AMC's Highlands Trail Stewards crew and the Scouts.			

## Funding Sources

Potential sources of project funding, including grant and reimbursement programs and in-kind services are set forth in Table 8 below. Six agencies, including DCNR, DVRPC, DCED, PennDOT, Montgomery County and PECO provide funding opportunities for trail development. Certain programs, including DCNR, PECO, and Montgomery County provide funding rounds every year. Other programs may alternate years when funding is available.

Links to the programs' webpages are provided below.

DCNR Trail Grants: <https://www.dcnr.pa.gov/Communities/Grants/TrailGrants/Pages/default.aspx>

DVRPC Regional Trails Program: <https://www.dvrpc.org/trails/RegionalTrailsProgram/>

DCED Greenways, Trails and Recreation: <https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/>

DCED Multi-modal Transportation Fund: <https://dced.pa.gov/programs/multimodal-transportation-fund/>

PennDOT Transportation Alternatives Set Aside:

<https://www.penndot.gov/ProjectAndPrograms/Planning/Pages/Transportation%20Alternatives%20Set-Aside%20-%20Surface%20Trans.%20Block%20Grant%20Program.aspx>

Table 8: Trail Project Funding Sources

GRANT AND REIMBURSEMENT PROGRAMS					
No.	Agency	Program/Fund	Eligible Activities	Max Award	Match
1	DCNR	Keystone Recreation & Park	Construction, Planning, Acquisition	\$500,000	50%
		Environmental Stewardship	Construction, Planning, Acquisition	\$500,000	50%
		PA Recreation Trails Program	Construction, Planning, Acquisition	\$500,000	20%
2	PennDOT	TA Set-Aside	Pedestrian & bike facilities, trails	\$1,000,000	0%
3	DCED	Greenways, Trails & Recreation	Trail development & improvements	\$250,000	15%
		Multimodal Transportation	Development of trans. assets, ped safety	\$3,000,000	30%
4	DVRPC	Regional Trails Program	Planning, design and construction	\$1,000,000	20%
		Trans. & Comm. Dev. Initiative	Bike and pedestrian projects	NA	NA
5	MCPC	MontCo 2040 Implementation	Acquisition and construction	\$200,000	20%
6	PECO	Green Region	Planning & improvements of trails; design	\$10,000	50%
IN-KIND AND VOLUNTEER SERVICES					
Organization/Group			Activities		
7	AMC	Highlands Trail Stewards	Brush clearing, trail development		
8	BSA-CLC	Boy Scouts	Brush clearing, trail development		
9	Marlborough	Public Works	Brush clearing, trail development		
Notes: Certain programs are not available every year. Matching requirements may vary year to year.					

## **Appendices**

Appendix A: Species of Special Concern

Appendix B: Key Person Interviews

Appendix C: Conservation Easement and Map

Appendix D: Pennsylvania Natural Diversity Inventory Report

## Appendix A: Species of Special Concern

Figure 20: Species of Concern, Unami Creek Conservation Area, Montgomery County NAI, 2007.

		Nesting Habitat	Status
Veery	breeding	forest interior	
Ovenbird	breeding	forest interior	
American Redstart	breeding	forest interior	
Scarlet Tanager	breeding	forest interior	PIF regional responsibility
Blue-gray Gnatcatcher	breeding	forest interior	
Black-and-white Warbler	breeding	forest interior	
Hooded Warbler	breeding	forest interior	
Cerulean Warbler	breeding	riparian forest	G5/S2S3B/CR Audubon watch list (extirpated)
Acadian Flycatcher	breeding	riparian forest	PIF regional responsibility
Kentucky Warbler	breeding	riparian forest	Audubon watch list, USFS species of concern
Worm-eating Warbler	breeding	riparian forest	Audubon watch list
Louisiana Waterthrush	breeding	riparian forest	USFS species of concern
Wood Thrush	breeding	Forest understory/ ground	USFS species of concern
Swainson's Thrush	migrant, rare breeder	Understory of mixed forests	S2/S3B/S5N CR
Bay-breasted Warbler	neotropical migrant		USFS Region 5
Canada Warbler	neotropical migrant	Forest understory/ ground	USFS Region 5, national
Eastern screech owl	breeding	Deciduous woods	PIF regional concern
Eastern Towhee	breeding	Forest understory/ ground	PIF regional concern
Chimney Swift	breeding	Chimneys in residential structures	PIF regional concern
American Woodcock	breeding	Forest understory/ ground	PIF continental concern/re- regional responsibility
Olive-sided Flycatcher	fall migrant	Riparian forest	USFS Region 5, national; SXB PX G5
Great Blue Heron	breeding (rookery present)	Wooded swamps	S3/S4B/S4N G5
Green Heron	breeding	Swampy thickets	PIF wetland priority
Little Blue Heron	breeding?	Riparian forest	USFS national
Prairie Warbler	breeding	Open woods, fields	USFS Region 5, national
Golden-winged Warbler	breeding?	Successional/thicket	USFS Region 5, national
Northern Bobwhite	breeding	Forest understory/ ground	PIF piedmont concern; SZ/S3 CA PS
American Black Duck	breeding	Riparian forest	PIF piedmont concern
Blue-winged Warbler	breeding	Successional/thicket	PIF piedmont concern
Field Sparrow	breeding		PIF piedmont concern
Greater Scaup	migrant		PIF piedmont concern
Canvasback	migrant		PIF piedmont concern
Redhead	duck		PIF piedmont concern
Osprey	breeding	Forested wetlands	PIF piedmont concern; S2B PT PT
Green-winged Teal	breeding		S1/S2B/S3N CR
Black-crowned Night Heron	breeding?	Wetlands and streams	S2/S3B CA
Northern Saw-whet Owl	breeding?	Coniferous woodlands	S3B/S3N CU
Great Egret	breeding?	Forested wetlands	S1B PE

PIF=Partners in Flight, USFS=United States Fish and Wildlife Service, G=global rank, S=state rank, C=candidate, PE=Pennsylvania endangered, PT=Pennsylvania threatened.

## Appendix B: Key Person Interviews

Mary Beth Cody

Marlborough Township Manager

1. **In terms of recreation, what user groups (age/type/etc.) appear to be least served and the best served by the current recreation infrastructure in your area (Green Lane Park, municipal parks, etc.)?**

I feel that the township offers covers a well-rounded span of different age groups.

2. **Are there any additions or changes in recreation services or facilities that you feel could improve recreation opportunities for residents and visitors?**

I believe additional walking trails within the parks. Marlborough Township is currently working on updating the walking trail within Finland Road Park through a grant and hope to extend the trail with a walkable gravel through the tree area of the park.

3. **Are there any additions or changes that you feel could specifically improve trail access, use and related trail services or facilities?**

(not answered)

4. **What are the key challenges to connecting your community to existing recreation opportunities nearby?**

Lack of trails or any sidewalk network. Majority of the residents must travel by vehicle to get to our park systems.

5. **What economic benefit will be created by this new trail, and its potential to connect to the Perkiomen Trail and other recreation resources?**

I would hope with a trail network that this would bring an increased to home values in the area and a benefit of healthy living with current residents. People of all ages continue to look for additional outside activities and trail networks and this would open up a larger area to travel.

Don Orcutt

Marlborough Township Park and Recreation Board

Chair, Montgomery County Parks, Trails and Historic Sites Advisory Board

1. **In terms of recreation, what user groups (age/type/etc.) appear to be least served and the best served by the current recreation infrastructure in your area (Green Lane Park, municipal parks, etc.)?**

Least served - Children approximately grades 4 to 9 (they have no way to access recreational facilities because they do not drive & cannot safely ride their bikes). Also, facilities for the handicapped are

very limited. Outside of parking area and trails to a picnic pavilion, most recreational areas have very little to offer in ADA facilities.

Best served -Young families & there's preschool children as well as grades K to 3 (parents & relatives drive them to various tot lots and other facilities)

**2. Are there any additions or changes in recreation services or facilities that you feel could improve recreation opportunities for residents and visitors?**

Area communities would greatly benefit from a trail network that would link up various resources, recreational facilities & housing developments in the region (Townships of Franconia, Salford, Upper Salford, Marlborough, Upper Frederick, Upper Hanover, Milford & West Rockhill and Boroughs of Green Lane, Red Hill, Pennsburg and Villages of Tylersport, Salford Station, Sumneytown, & Perkiomenville). To a degree, the community path system in Lower Salford Township is a localized model for this concept.

**3. Are there any additions or changes that you feel could specifically improve trail access, use and related trail services or facilities?**

An integral core for the local community networks would be the implementation of primary arteries provided by Montgomery County similar to the Perkiomen Trail and the planned AMC Pennsylvania Highlands Trail.

**4. What are the key challenges to connecting your community to existing recreation opportunities nearby?**

The main challenges for many of the communities in Western Montgomery county pertain to financial, vision & leadership. It's not that people don't care, it's just that they don't have the techniques and staff to coordinate large projects involving many resources and facilities. Additionally, their tax base is minimal. One big advantage they do have are the various Regional Planning Commissions through which projects could be coordinated. (Two examples in Montgomery County are the Indian Valley Regional Planning Commission and the Upper Perkiomen Valley Regional Planning Commission.)

**5. What economic benefit will be created by this new trail, and its potential to connect to the Perkiomen Trail and other recreation resources?**

The new trail would serve to connect the area's resources, aka destinations & centers of activity that improve the quality of life. Collectively they serve to promote economic tourism and reflect a vibrant community where businesses want to become established!

## **Appendix C: Conservation Easement and Easement Map**

Included separately

## **Appendix D: Pennsylvania Natural Diversity Inventory Report**

(included separately)