

DRAFT

The



Patriots Path Plan

**East Whiteland
Township**

**Malvern
Borough**

**Tredyffrin
Township**

**A Development Guide
on How to Design and Build
The Patriots Path Trail Network**

October 2009



The



**Patriots
Path Plan**

**A Development Guide
on How to Design and Build
The Patriots Path Trail Network**





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Patriots Path Overview





PATRIOTS PATH OVERVIEW

Elements of the Patriots Path

The Patriots Path is a proposed trail network in East Whiteland Township, Malvern Borough, and Tredyffrin Township in the Eastern Great Valley area of Chester County. A primary objective of this trail network is to connect three local park and open space sites that have special American Revolutionary War significance:

- Battle of the Clouds Park, a municipal park in East Whiteland Township;
- The Paoli Memorial Grounds, a recreation and open space property in Malvern Borough that is managed by the non-profit Paoli Memorial Association. This property is adjacent to the Paoli Battlefield site, which is owned by Malvern Borough.
- Valley Forge National Historic Park in Tredyffrin Township.

As part of connecting these historic park sites, the Patriots Path trail network will utilize a 6.3-mile section of Chester County's Chester Valley Trail in East Whiteland and Tredyffrin as its east-west spine. In addition to this east-west spine, the Patriots Path network will encompass four north-south segments:

- ***The Valley Forge Segment*** - a 1.8-mile connection between the Chester Valley Trail near the Chesterbrook Boulevard interchange of Route 202 and Valley Forge National Historic Park.
- ***The Cedar Hollow Segment*** - a 1.8-mile trail that will begin at the Chester Valley Trail and run northward on the bed of a former freight rail spur (the Warner Spur) that Tredyffrin Township now owns. In addition, a 1.0 mile extension into East Whiteland Township will connect this segment with one identified below - the Valley Creek Segment.
- ***The Valley Creek Segment*** - a 1.0-mile connection built between the Chester Valley Trail and Valley Creek Park, East Whiteland Township's largest municipal park. This segment will be constructed largely on public rights-of-way.
- ***The Malvern Segment*** - a 1.4-mile link between the Chester Valley Trail in the vicinity of Route 202 and Route 29 in East Whiteland Township and the Paoli Memorial Grounds and Paoli Battlefield in Malvern Borough.



Along the Cedar Hollow Segment

Nature of the Patriots Path

The Patriots Path will be a multi-purpose, non-motorized trail network. Using a combination of paved trails, sidewalks and other pathways, walkers, runners, bike riders and others who use the Patriots Path will have the chance to experience many different recreational and historic amenities. In several areas, the Patriots Path will connect directly with municipal parks and other publicly accessible open spaces.

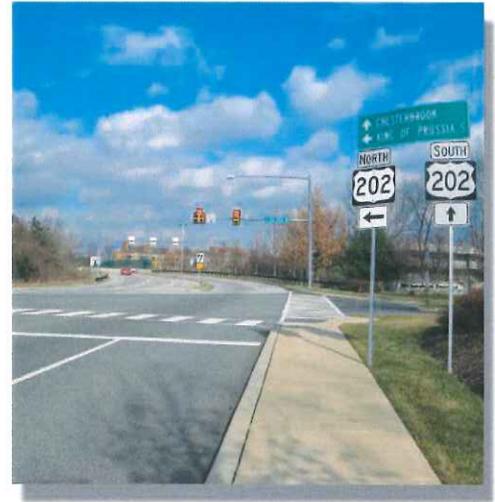
The Patriots Path will traverse a variety of local settings. Some segments of the trail will be in urbanized areas. Other parts will be adjacent to suburban neighborhoods or business parks. Certain segments will be along heavily traveled roadways. Others parts will cross streams, pass through dense woodlands and run through scenic countryside.

Origins of The Patriots Path

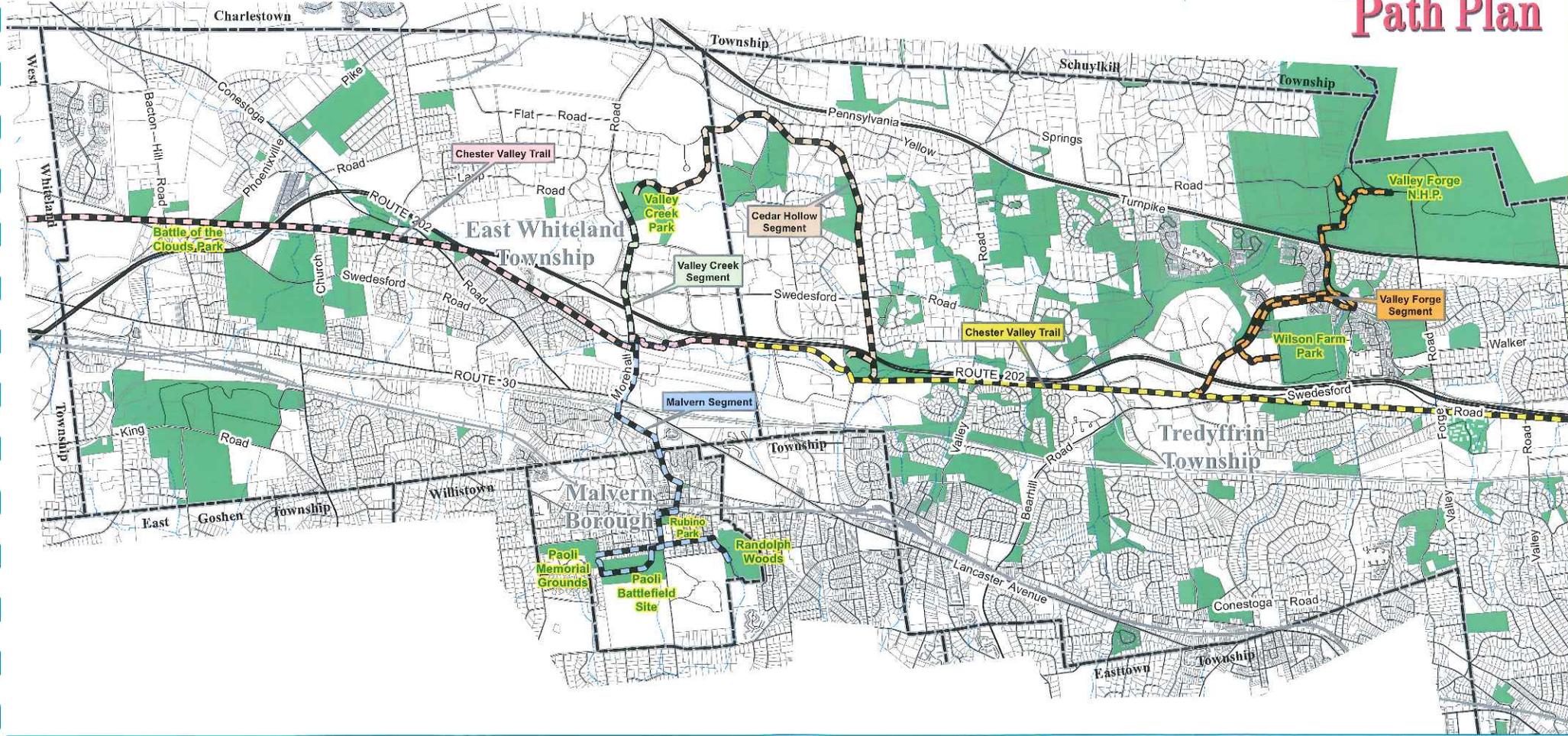
In 2002, the Chester County Board of Commissioners adopted *Linking Landscapes: A Plan for the Protected Open Space Network in Chester County*. That plan called for studying the feasibility of a trail between the site of the Paoli Massacre in Malvern Borough and Valley Forge National Historic Park in Tredyffrin Township. In 2007, The Chester County Planning Commission submitted its *Report to the Chester County Board of Commissioners: An Evaluation of Patriots Path Trail Opportunities in the Eastern Great Valley*.

The 2007 Chester County *Report* accomplished important ground work for the Patriots Path by:

- Recommending the basic alignment for the trail.
- Detailing the historic justification for the trail.
- Enumerating how the trail would address local recreation, historic interpretation and other needs.
- Describing key design challenges that will be faced in building the trail.
- Naming key stakeholders in the area whose cooperation will be needed.



Chesterbrook Boulevard and Route 202



Tredeffrin Township
 East Whiteland Township,
 & Malvern Borough
 Chester County, Pennsylvania

 Urban Research & Development Corporation
 76 West Street, Suite 200, Pottsville, Pennsylvania 17855-0701

 Nearby Parks, Schools and Other Open Spaces



Sources:
 Chester County GIS, PASDA
 and URDC.



Map 1
Patriots Path Overview

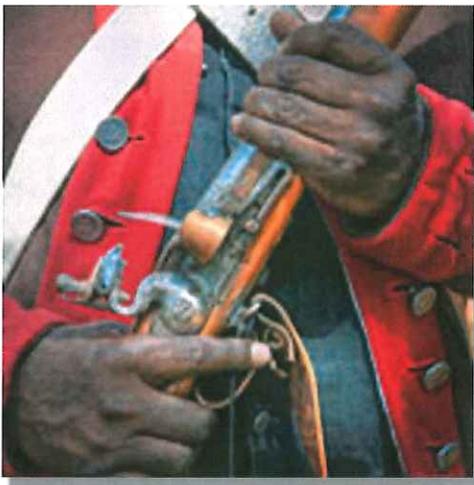


- Identifying important recreation sites and other locations the trail could connect with.
- Noting how the trail is consistent with other municipal, county, and National Park Service plans.
- Raising trail stewardship issues, such as operations, maintenance, security, and funding.
- Recommending next steps, including formulation of this Patriots Path Development Guide.

Following Chester County's lead, East Whiteland Township, Malvern Borough, and Tredyffrin Township each endorsed the Patriots Path concept in municipal planning documents approved by their governing bodies. The National Park Service joined in this consensus because of its interest in historic interpretation opportunities in the vicinity of the national park that could help tell the story of George Washington's famous winter at Valley Forge.

Historic Inspiration For the Patriots Path

The Continental Army's encampment at Valley Forge was the culmination of a phase of the American Revolutionary War called the Campaign of 1777. In August 1777, the British landed the largest armada ever assembled in American waters at the northern end of the Chesapeake Bay. Over 17,000 British troops and Hessian mercenaries then began marching north with the goal of capturing Philadelphia.



On their way to Philadelphia, the British defeated the Continental Army at the Battle of Brandywine. The British then engaged the Americans briefly in the general vicinity of what is now the campus of Immaculata College. Days later, the British killed 53 Continental soldiers in a surprise night time attack known as the Paoli Massacre. These American victims are buried in a mass grave at Paoli Memorial Grounds in Malvern Borough where the attack took place.

By the end of September 1777, the British succeeded in occupying Philadelphia. After failing to dislodge the British at the Battle of Germantown, Washington retreated to the Whitmarsh area and

then up the Schuylkill River to Valley Forge. Here the Continental Army camped in hardship from December 1777 to June 1778. The route of the Patriots Path will traverse some of the same ground that the British and Americans used for troop movements during the Campaign of 1777. While the Patriots Path concept encompasses a variety of recreation opportunities, the project was first inspired by the desire to commemorate the Campaign of 1777.

Goals of the Patriots Path

The Patriots Path will help meet several different needs in the Eastern Great Valley area. As identified in the 2007 Chester County *Report* and elsewhere, objectives for the Patriots Path include the following:

- Memorialize soldiers killed in action locally during the Campaign of 1777.
- Create opportunities for Valley Forge National Historic Park staff or others to lead tours that interpret nearby Revolutionary War era attractions (could also lead to self-guided historic tours).
- Build more walking, running and biking paths in response to the frequently heard desires of local residents and the needs of the area's many business park employees and other workers.
- Link many of the area's numerous publicly-accessible parks and open spaces, schools, neighborhoods, commercial area and other common destinations.
- Coordinate with the National Park Service's plans to upgrade parts of the trail system within Valley Forge National Historic Park.
- Generate more business for various retailers located near the Patriots Path. The positive local economic impacts of popular trails have been well-documented.



Chester Valley Trail in East Whiteland Township



Focus of This Plan

This Patriots Path Plan is designed to answer the following questions:



Obstructions along the Patriots Path trail bed

- What should be the detailed trail alignment, including through challenging design areas?
- What are the key physical limitations along the proposed trail route and how should we overcome them?
- What problems may be created by the trail's proximity to nearby land uses and how should we buffer the trail from these properties?
- What are key recreation sites, commercial destinations and historical interpretation opportunities along the trail?
- What trail construction specifications are most appropriate in the various parts of the trail network?
- What trail support facilities are appropriate?
- What will it cost to build the trail and how should construction be phased?
- What entities should be responsible for building the various parts of the trail?
- How should trail operations, maintenance security, and emergency access be handled?
- What should be the next steps in designing and constructing the trail?

Format of this Plan

Following this overview, the Patriots Path Plan contains the following three chapters:

Physical Inventory – This chapter identifies recreational resources in the three municipalities, emphasizing those to which the Patriots Path can link. Prevailing land use and zoning patterns along the trail route, relevant environmental conditions and the historic nature of the trail are also discussed with a focus on how they should be factored into designing and building the trail.

Detailed Trail Recommendations – The Chester Valley Trail is the spine of the Patriots Path trail network. Chester County’s engineering and design for the Chester Valley Trail is well underway. Accordingly, this chapter focuses on detailed recommendations for the four segments of the Patriot Path network that will extend out from the Chester Valley Trail:

- **The Valley Forge Segment**
- **The Cedar Hollow Segment**
- **The Valley Creek Segment**
- **The Malvern Segment**

For each of these four trail segments, this chapter recommends:

- A detailed alignment
- Specific trail types and uses
- Solutions for special design problems
- Specifications to which the trail should be built
- Required road crossings
- Recommended trail support facilities (signs, parking, restrooms, trail heads, etc.)
- Links to adjacent amenities

Trail Implementation – This chapter identifies the best ways to move the Patriots Path from plans to reality. Preliminary design and construction cost estimates, construction phasing, trail operations and maintenance costs, and trail stewardship responsibilities are the main topics discussed.



Man-made relics along the Patriots Path trail corridor



PHYSICAL INVENTORY





PHYSICAL INVENTORY

RECREATIONAL RESOURCES

Chester Valley Trail

As already noted, the Chester Valley Trail is the east-west trunk line from which the other segments of the Patriots Path trail network will branch out. The portion of the Chester Valley Trail in East Whiteland Township and Tredyffrin Township is the part most immediately relevant to the Patriots Path. However, you need to look at the full extent of the Chester Valley Trail to understand how the Patriots Path will become part of a larger regional trail network.

Chester County is constructing the Chester Valley Trail on former railroad right-of-way between the County's Struble Trail in Downingtown Borough and the Chester County/Montgomery County boundary in King of Prussia. From that point, Chester County and Montgomery County are cooperating on bridging the Schuylkill River to connect the Chester Valley Trail with the Schuylkill Valley Trail in Norristown.

The Schuylkill Valley Trail runs east-west along the Schuylkill River and connects Philadelphia with Valley Forge National Historical Park. It will eventually extend through the Pottstown area to Berks County. The Schuylkill Valley Trail also links to the Perkiomen Trail and other north-south segments of Montgomery County's growing trail network. The accompanying map shows additional trail connections that people using the Chester Valley Trail and the Patriots Path trail network will be able to make.

For planning purposes, Chester County divides the Chester Valley Trail route into three phases:

- *From Downingtown Borough to Ship Road in West Whiteland Township (the western border of the new Exton County Park site):*

The design for this trail segment is not completed, and this segment has not been scheduled for construction.



Chester Valley Trail in Exton

- *From Ship Road to Route 29 in East Whiteland Township:*

This segment is Phase I. Chester County plans to complete final design and begin constructing it soon. The County expects it will take approximately 8 months to build this section once construction begins.

- *From Route 29 to the eastern end of the trail at the Schuylkill River in Montgomery County:*

This segment is Phase II. Chester County has an agreement with PennDOT to assume ownership of this portion of the trail. The County's goal is to begin building Phase II as soon as Phase I is finished.

The Chester Valley Trail is open to the public from the new Exton County Park site in West Whiteland Township to Phoenixville Pike at Battle of the Clouds Park in East Whiteland Township. This "demonstration section" is not yet paved. But the County did clear it, grade it, and surface it with crushed stone.

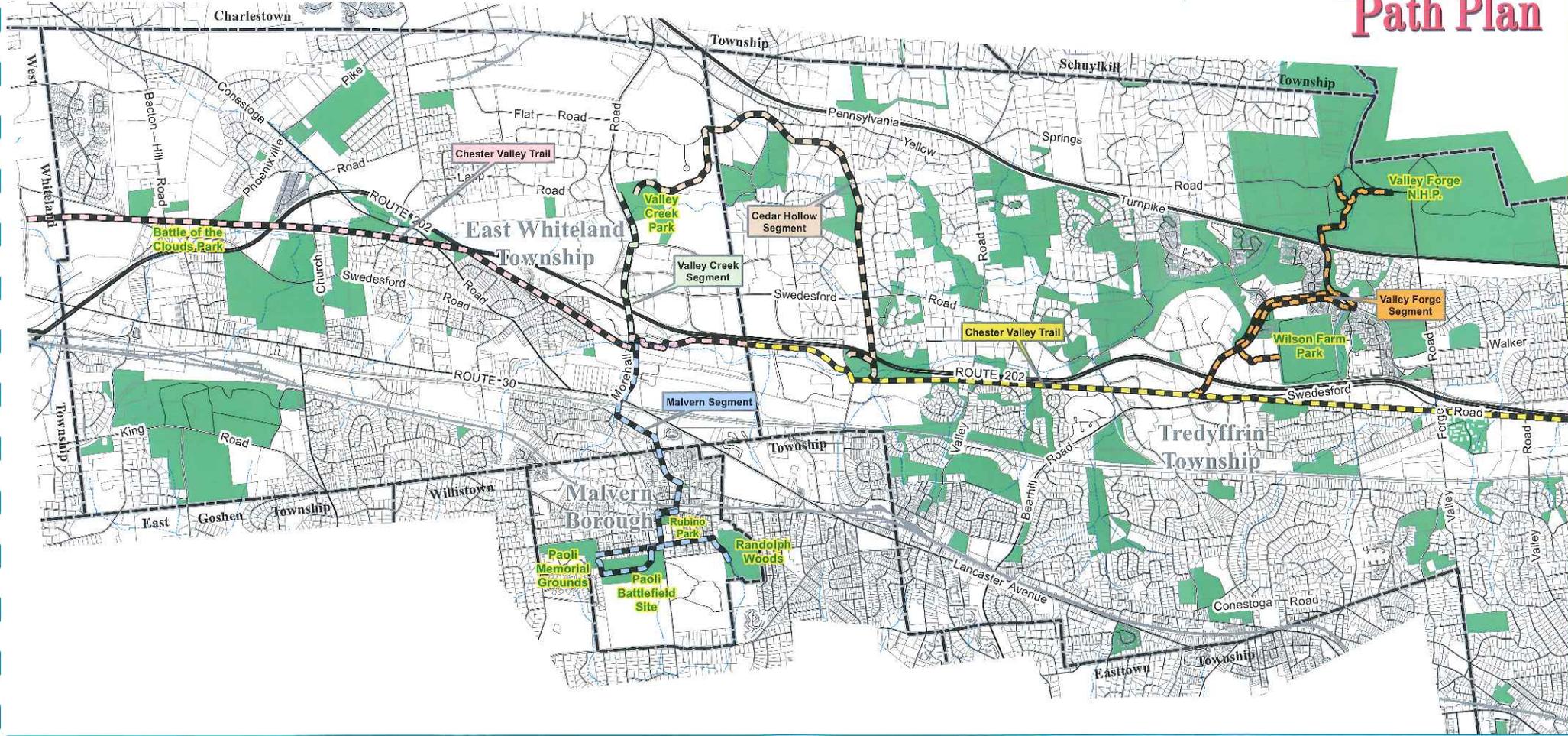
By cooperating with private developers, Chester County has already paved short sections of the trail in the following locations:

- Straddling Route 100 in West Whiteland Township.
- Near Valley Creek Boulevard in West Whiteland Township.
- At Malin Road in East Whiteland Township.

To date, private developers have agreed to build three other sections of the trail:

- A lengthy segment between Valley Creek Boulevard in West Whiteland Township and Mill Road in East Whiteland Township.
- A short segment straddling Route 29 in East Whiteland Township.
- A portion near the intersection of Chesterbrook Boulevard and Route 202 in Tredyffrin Township.

Appendix A lists each place in East Whiteland Township and Tredyffrin Township where the Chester Valley Trail will cross an existing road. That appendix also identifies the type of crossing Chester County will construct at each of these locations.



Tredeffrin Township
 East Whiteland Township,
 & Malvern Borough
 Chester County, Pennsylvania

 Urban Research & Development Corporation
 76 West Street, 3rd Floor, Pottsville, Pennsylvania 17855-0701

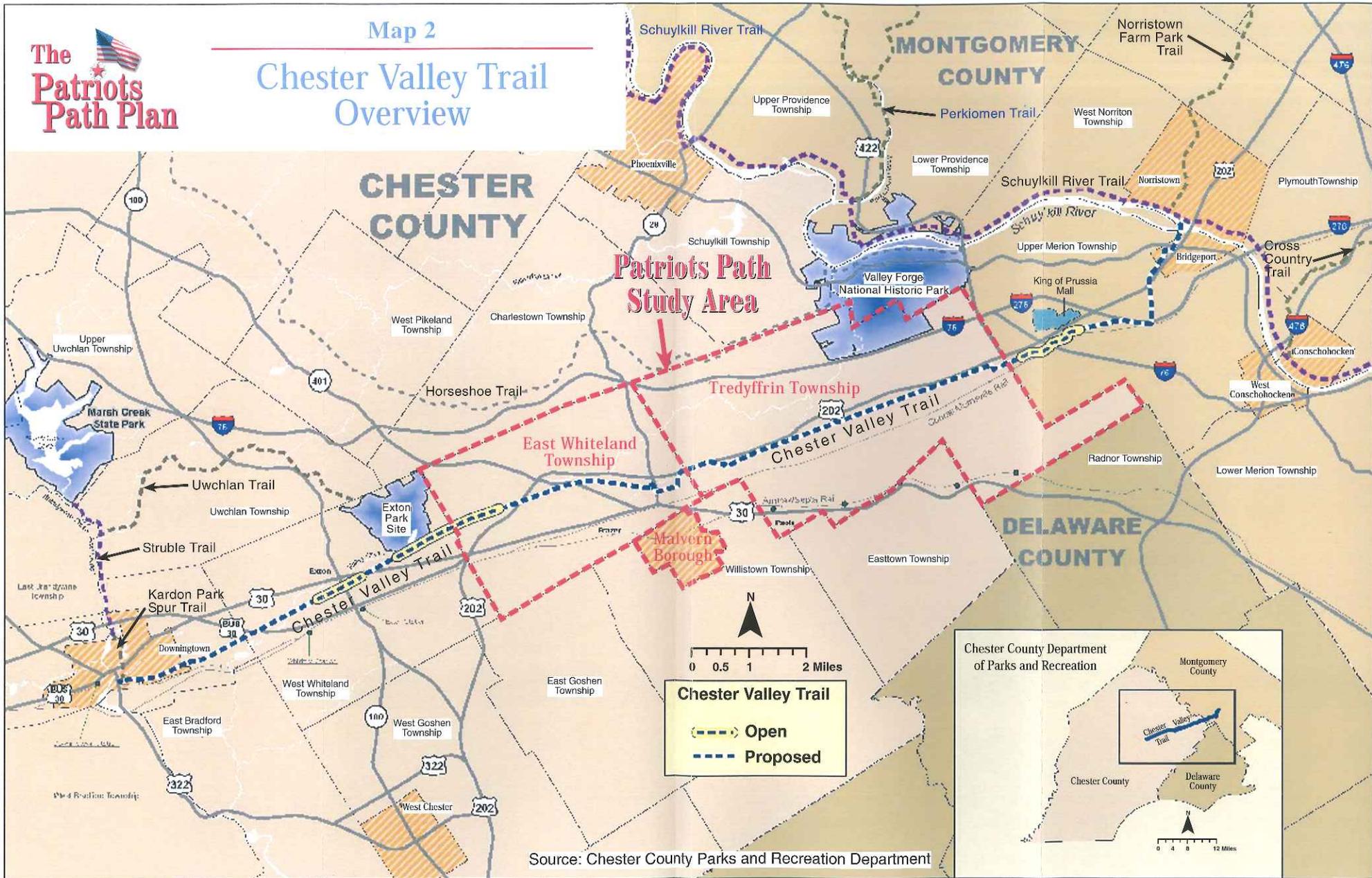
 Nearby Parks, Schools and Other Open Spaces

Sources:
 Chester County GIS, PASDA
 and URDC.



Map 1
Patriots Path
Overview

Map 2
Chester Valley Trail Overview





Parks and Open Spaces in the Three Municipalities

Numerous parks, other publicly-accessible open spaces and homeowner association lands exist alongside or nearby the Patriots Path route in East Whiteland Township, Malvern Borough and Tredyffrin Township. To different degrees, these properties could become featured attractions along the trail route with direct and convenient pedestrian access to the trail itself. Parks and publicly-accessible open spaces in the three municipalities are shown in green on the accompanying map. Appendix B includes detailed maps and listings of parks, schools, and publicly-accessible open spaces in each of the three municipalities.

East Whiteland Township

Three parts of the Patriots Path trail network are located in East Whiteland:

- A part of the Chester Valley Trail.
- The Valley Creek Segment.
- Part of the Malvern Segment.

The 2003 *East Whiteland Township Park and Recreation Plan* identifies 118.0 acres of Township-owned community parks, neighborhood parks, tot lots, nature preserves and other open spaces. The Township is also home to several private recreation properties and public schools.

Battle of the Clouds Park (10.7 acres), an active recreation park on Phoenixville Pike, is the western terminus of the part of the Patriots Path that is evaluated in this plan. An undeveloped Great Valley School District property and a planned Township park currently known as the Swanenburg property (16.2 acres) lie just west of Battle of the Clouds Park adjacent to the Chester Valley Trail.



Soccer in East Whiteland Township

Six recreation-related properties are adjacent to the Patriots Path portion of the Chester Valley Trail in the central part of East Whiteland Township. From west to east, these sites include:

- The Chester Valley Golf Club (171.8 acres).
- K. D. Markely Elementary School (46.6 acres).
- The Conestoga Trail fields at the East Whiteland Township Building (11.2 acres).
- Ecology Park (15.0 acres), a passive open space with walking trails that is directly across Conestoga Road from the Township Building.
- East Whiteland's undeveloped Rubino property (7.0 acres).
- A small common open space property (2.1 acres) in the Chester Valley Knoll neighborhood.

The Valley Creek Segment of the Patriots Path trail network will run north from the Chester Valley Trail east-west spine along Route 29 to East Whiteland's Valley Creek Park (32.2 acres). Valley Creek Park is directly adjacent to the privately-owned Siemen's Fields, adult baseball/softball fields in the Great Valley Corporate Center.

The Patriots Path network in East Whiteland will include part of the Malvern Segment. However, the part of that segment within East Whiteland does not pass alongside any parks or other publicly-accessible open space sites.

Malvern Borough

Malvern has a small but varied park system. The Malvern Segment will connect the main trunk of the Patriots Path near Route 202 and Route 29 in East Whiteland Township to Malvern Borough. Within Malvern Borough, four Borough-owned open spaces and one privately-owned but publicly-accessible open space are adjacent to the proposed route of this segment:

- Burke Park (1.4 acres), a small civic space and pocket park at Warren Avenue and Roberts Avenue.
- Horace J. Quann Park (1.6 acres), a neighborhood park at Warren Avenue and First Avenue.



Marker on the Paoli Battlefield



- The Paoli Memorial Grounds (22.0 acres), which is a property owned by the non-profit Paoli Memorial Association. The Paoli Memorial Association operates the portion of the tract that includes a monument and parade grounds commemorating the Paoli Massacre. The Malvern Park and Civic Association manages the part of the site that features playground equipment, a tennis court, and baseball/softball fields used by the Great Valley Little League.
- Paoli Battlefield Site (40.0 acres), the site where the Paoli Massacre actually took place. It is owned by Malvern Borough.
- Randolph Woods (48.0 acres), which is a wooded, undeveloped parcel owned by Malvern Borough.



Louis D'Ambrosia Park

Tredyffrin Township

Tredyffrin has an extensive park, recreation and open space system. It includes 337.3 acres owned by the township alone. Tredyffrin is home to three parts of the Patriots Path Trail network:

- A part of the Chester Valley Trail.
- The Valley Forge Segment.
- The Cedar Hollow Segment.

Cedar Hollow Road Park (24.1 acres) is an active recreation site on the Chester Valley Trail portion of the Patriots Path. It is situated at the point where the Patriots Path intersects with the Cedar Hollow Segment. Further eastward along this segment of the trail, Tredyffrin has a cluster of parklands situated within approximately $\frac{1}{4}$ -mile of the trail. North of the trail, these include Mill Road Park, a 55.9-acre active recreation site, the undeveloped Duportail South Side Open Space (3.2 acres) and the undeveloped Swedesford Road open space (5.7 acres). Just south of the trail, these include the partially developed Radbill Park (18.0 acres) and the privately-owned Field of Dreams baseball park (15.7 acres). While these four recreation properties are not directly adjacent to the trail, they could be tied to it in the future with short pedestrian connections constructed along roadside rights-of-way.

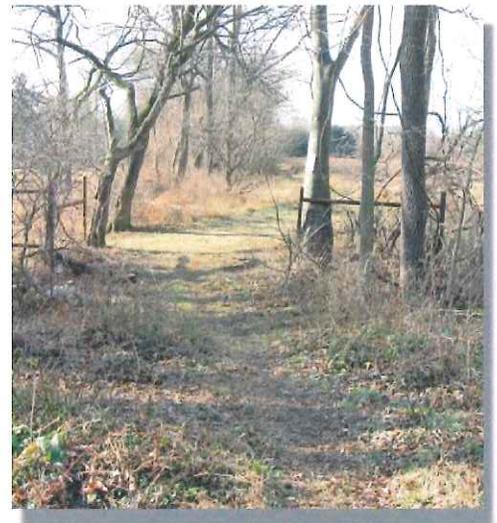
There is a portion of the Chester Valley Trail within Tredyffrin that is east of the Patriots Path. That segment of the Chester Valley Trail is not the immediate focus of this plan. However, it should be noted that Louis D'Ambrosia Park (15.4 acres), the Devon-Stratford Little League's Clark Field (2.4 acres) and certain homeowner association lands are adjacent to that portion of the Chester Valley Trail.

The segment of the Patriots Path that will connect the Chester Valley Trail to Valley Forge National Historic Park runs adjacent to homeowner association lands associated with the Chesterbrook development on both sides of Chesterbrook Boulevard.

At the northern end of this spur, trail users will enter the southwestern corner of Valley Forge National Historic Park (3,500 acres) after walking through a pedestrian tunnel under the Pennsylvania Turnpike. Valley Forge Park features nearly 30 miles of trails for walking, biking and horseback riding. Over 1.3 million people visit the park each year.

In addition to the main trunk line of the trail and the segment connection to Valley Forge National Historic Park, Tredyffrin contains the Cedar Hollow Segment portion of the Patriots Path network. As noted earlier the intersection of the Chester Valley Trail and the Cedar Hollow Segment borders Tredyffrin's Cedar Hollow Road Park, a 24.1 acre active recreation site on the south side of Route 202.

On the north side of Route 202, the Cedar Hollow Segment abuts homeowner association lands that separate a residential neighborhood from Route 202. Further north approaching Swedesford Road, the Cedar Hollow Segment passes within approximately 1/10 of a mile of additional homeowner association property. On the north side of Swedesford Road, the Cedar Hollow Segment runs directly adjacent to Cool Valley Preserve (33.2 acres), which is owned by the Open Land Conservancy. At the northern tip of the Cedar Hollow Segment there are two interconnected Open Land Conservancy properties: Cedar Hollow Preserve (67.0 acres) and Miller Preserve (2.3 acres).



Cool Valley Preserve in Tredyffrin Township



LAND USE PATTERNS

The various segments of the Patriots Path network traverse a wide variety of settings. Prevailing land use and property ownership patterns in the area of each trail leg can be summarized as follows:

The Chester Valley Trail in East Whiteland Township

The portion of the Patriots Path that is coterminous with the Chester Valley Trail in East Whiteland runs through the center of the Township virtually parallel to Route 202. The segment of trail west of Route 29 passes through a suburban environment characterized mainly by residential neighborhoods and some undeveloped residentially-zoned land. With exceptions, most of this residential development consists of single-family detached subdivisions.

In the vicinity of the Route 202/Route 29 interchange, the Patriots Path environment changes significantly. On the east side of Route 29, the Patriots Path runs adjacent to the large, high density Uptown Worthington mixed use development now under construction. The trail borders the Uptown Worthington and Great Valley Corporate Center from the east side of Route 29 to the East Whiteland/Tredyffrin municipal border.



Route 29 and Route 30 intersection

The Valley Creek Segment

Between the Chester Valley Trail and East Whiteland's Valley Creek Park, the Patriots Path will be largely along or within Route 29 right-of-way. This portion of Route 29 is a highly congested roadway with two lanes of traffic in each direction. The road is bordered by the Uptown Worthington development, Great Valley Corporate Center, Valley Creek Park and various office and hotel uses.

The Malvern Segment

The Malvern Segment is situated in East Whiteland Township and Malvern Borough. It begins in a highly developed, heavily congested section of East Whiteland south of Route 202 at the point where the Chester Valley Trail crosses Route 29. The Malvern Segment will then head southward and cross Route 30, a heavily traveled, commercialized, four-lane roadway.

On the south side of Route 30, the Patriots Path will extend through a Norfolk Southern Railroad underpass, which at this time is entirely blocked with fill. On the opposite (south) side of this railroad underpass, the trail will connect to a parking lot that serves the General Warren Inne. To get from this restaurant parking lot southward to King Street in Malvern Borough's business district, the Patriots Path will utilize Old Lancaster Pike, Old Lincoln Highway, and Bridge Street. This leg of the trail presents certain design challenges dealt with elsewhere in this Development Guide. However, as far as characterizing prevailing land patterns, this segment can best be described as an older residential area comprised mainly of small lot detached and attached homes.

Along King Street in Malvern, the Patriots Path will go into the heart of Malvern's busy downtown commercial area. It will then turn south and use residential streets within the Borough to reach the Paoli Memorial Grounds and Paoli Battlefield historic open space and recreation sites.

The Chester Valley Trail in Tredyffrin Township

The portion of the Patriots Path that is comprised of the Chester Valley Trail in Tredyffrin closely parallels Route 202. From west to east, this trail segment begins at the Tredyffrin/East Whiteland municipal border. Here, the trail passes through the wooded portion of the Vanguard Corporate Center tract before it runs alongside Township parkland and passes between Route 202 and several single family detached neighborhoods. It then traverses adjacent business parks before coming to Chesterbrook Boulevard. At Chesterbrook Boulevard, the Patriots Path will turn north to connect with Valley Forge National Historic Park (the portion of the trail to be known as the Valley Forge Segment). East of Chesterbrook Boulevard, the trail will continue as the Chester Valley Trail through Tredyffrin Township and into Montgomery County.



King Street in Malvern

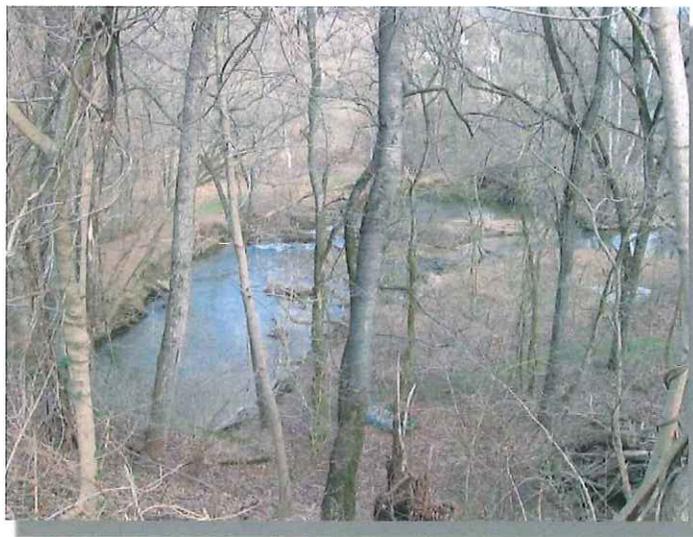


The Cedar Hollow Segment

The Cedar Hollow Segment is mostly in Tredyffrin with a short extension into East Whiteland Township. It begins at the Chester Valley Trail adjacent to Cedar Hollow Park. Running northward, it then crosses over Route 202 on a former railroad bridge. Between Route 202 and Swedesford Road, the trail is bordered on both sides by large lot, low density, single-family residential development. From Swedesford Road north to Church Road, the trail passes through highly scenic, exurban countryside. This segment includes a high, wooded passage over the Valley Creek. In short, the Cedar Hollow Segment takes users from a very congested section of Tredyffrin to some of Township's least densely developed areas.

The Valley Forge Segment

The portion of the Patriots Path network that will connect the Chester Valley Trail with Valley Forge National Historic Park extends through a highly developed part of Tredyffrin. Starting at the Chester Valley Trail on the south side of Route 202, the Patriots Path will make use of the interchange bridge that carries Chesterbrook Boulevard over Route 202. On the north side of Route 202, the trail will be built along existing and new sidewalk on Chesterbrook Boulevard in front of a hotel property. A short connection will tie the trail to Wilson Farm Park via Lee Road, which is bordered by a hotel and business park uses.



Trail crossing over Valley Creek

From the intersection of Lee Road and Chesterbrook Boulevard, the Patriots Path will follow Chesterbrook Road rights-of-way to Wilson Road. On this stretch, Chesterbrook Boulevard is fronted on both sides by townhouses and a shopping center on one side that are part of the large Chesterbrook development. Between Chesterbrook Boulevard and the pedestrian tunnel under the Pennsylvania Turnpike that leads to Valley Forge Park, the trail will follow Wilson Road. This section of Wilson Road, which is limited to Township vehicles only, runs between wooded home owners association property on both sides.

ENVIRONMENTAL CONDITIONS

Three maps are included that illustrate prominent environmental features in the Patriots Path area. These maps and fieldwork conducted along the proposed trail route do not reveal any intractable environmental constraints to designing and constructing the trail as described in the next chapter of this Development Guide entitled *Detailed Trail Recommendations*.

Each of the three municipalities through which the Patriots Path will pass has adopted formal plans devoted at least in part to preserving the natural environment. Each has also adopted zoning and/or subdivision and land development regulations to help protect their community's environmental amenities. Engineering and construction plans for building the Patriots Path that respect sensitive environmental conditions and that comply with relevant municipal regulations should result in a multi-purpose trail that does not adversely affect the integrity of the trail's natural surroundings.

Water Features

The accompanying *Water Features* map shows that the route of the trail lies within two watersheds: the Valley Creek Watershed and the Little Valley Creek watershed. Valley Creek flows southwest to northeast. It is joined by Little Valley Creek, its main tributary, about three miles above the point where Valley Creek flows into the Schuylkill River.

The Patriots Path Plan




Treddyffrin Township
 East Whiteland Township,
 & Malvern Borough
 Chester County, Pennsylvania

-  Proposed Patriots Path
-  Slopes 25%+
-  Slopes 15-25%

 Urban Research & Development Corporation
 28 Music Road Street, Gettysburg, Pennsylvania 17325 815-466-0721



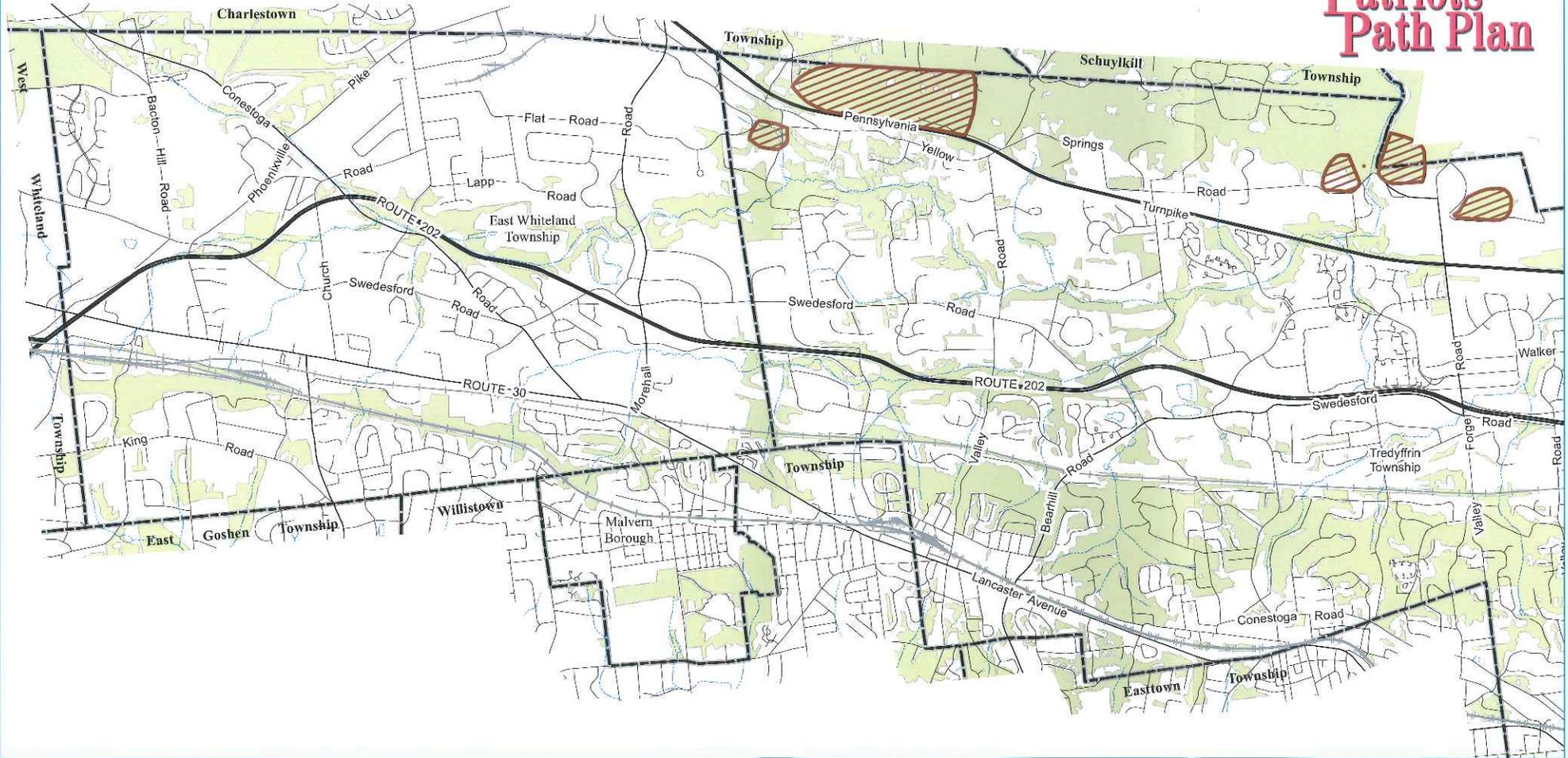
Sources:
 Chester County GIS,
 PASDA and URDC.



Map 4

Steep Slopes

The Patriots Path Plan

Tredeffrin Township
 East Whiteland Township,
 & Malvern Borough
 Chester County, Pennsylvania

-  Proposed Patriots Path
-  Sensitive Natural Areas
-  Woodlands

 Urban Research & Development Corporation
 28 West East Street, Balltown, Pennsylvania 19116 910-663-0101



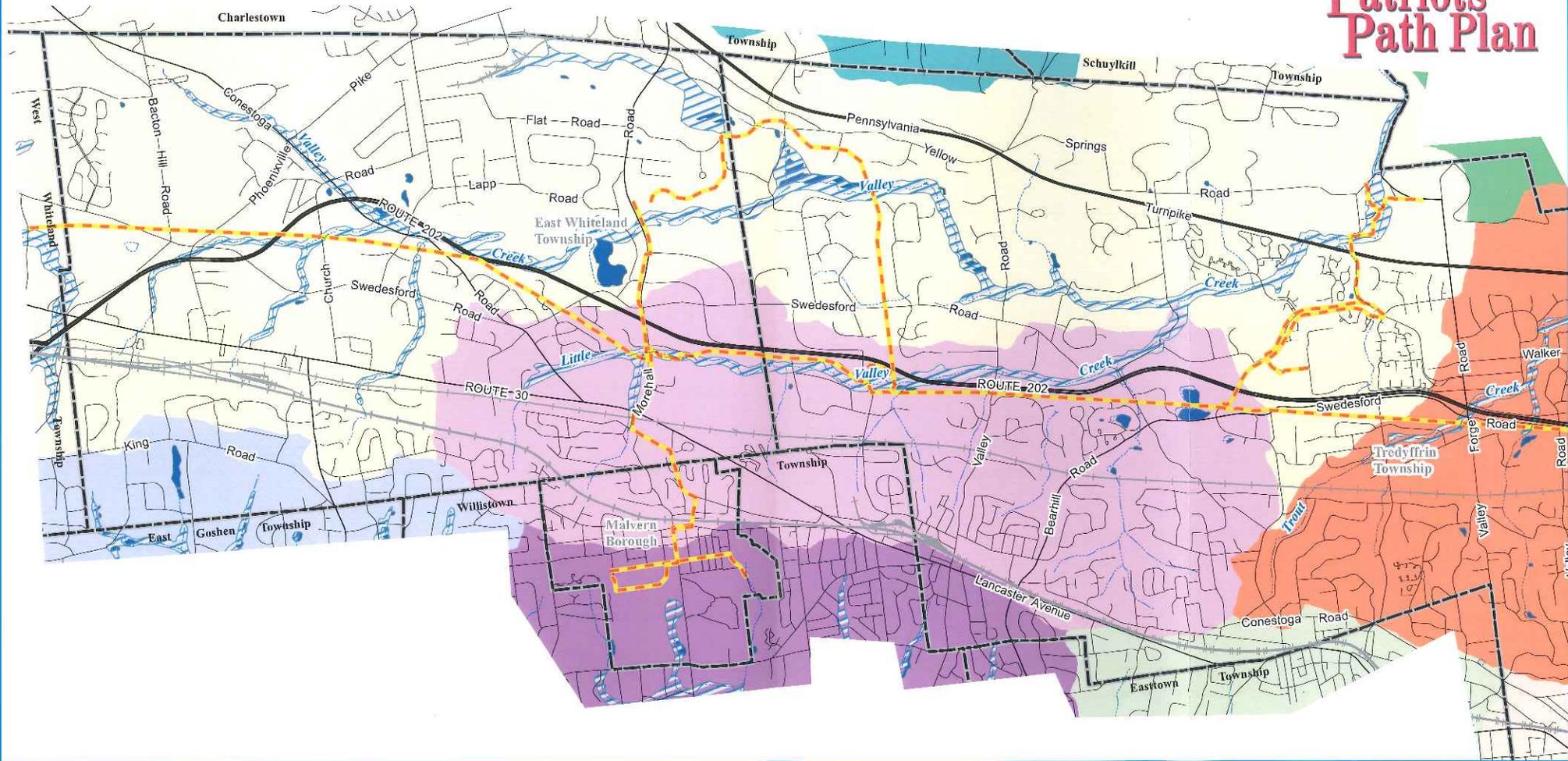
Sources:
 Chester County GIS,
 PASDA and URDC.



Map 5

Woodlands & Sensitive Natural Areas

The Patriots Path Plan



Tredyffrin Township
 East Whiteland Township,
 & Malvern Borough
 Chester County, Pennsylvania

Urban Research & Development Corporation
 28 Wood Street, Suite 100, Malvern, Pennsylvania 19354
 610-866-0711

- Proposed Patriots Path
- Streams
- 100 Year Floodplains
- Wetlands

- Watersheds**
- Crum Creek
 - Darby Creek
 - Little Darby Creek
 - Little Valley Creek
 - Pickering Creek
 - Ridley Creek
 - Schuylkill River
 - Trout Creek
 - Valley Creek

Sources:
 Chester County GIS,
 PASDA and URDC.

Map 6

Water Features



Valley Creek is a State-designated Exceptional Value Waterway. This is the state's highest water quality designation and is the most protected category of waterway. Wastewater discharged into Valley Creek must meet the state's highest treatment standards. Valley Creek is the subject of an active restoration effort involving state government, local government, environmental organizations and others.

The former trail bed upon which the Chester Valley Trail is being built crosses the floodplain of the Valley Creek and its tributaries for short distances at three places in East Whiteland. The proposed Valley Creek Segment of the Patriots Path network crosses streams in two locations: one at the intersection of Route 29 and Route 30 and one north of Route 202 along a portion of Route 29 carried over Valley Creek by a bridge. The Cedar Hollow Segment is proposed to cross Valley Creek north of Swedesford Road in a location high above the creek. The Valley Forge Segment would cross Valley Creek via a bridge in Valley Forge National Historic Park. Completion of the Patriots Path network as proposed in the next chapter will not result in any new disturbance of wetland areas.

Woodlands and Natural Areas

The accompanying Woodlands and Natural Features map shows the route of the Chester Valley Trail running through or alongside woodlands in several locations. Since the Chester Valley Trail follows a former rail line, changing the corridor from a railroad to a trail will not create any new woodland disturbances except: a) where the need has arisen to trim back vegetation that now encroaches on the former rail bed; and b) where there is a need to make brief crossings in certain small locations. The same is true of the Cedar Hollow Segment, which follows the former Warner Spur. The Valley Forge Segment also runs through some wooded areas, both along the Township vehicles only section of Wilson Road and adjacent to trails within the Valley Forge National Historic Park. Through its entire length, the Patriots Path will require only isolated, extremely small areas of woodland encroachment.

Sensitive Natural Areas are the other feature shown on the *Woodlands and Sensitive Natural Features* map. Sensitive Natural Areas are sites of statewide or local importance due to their biotic or geological amenities. The source for these designations is the Natural Areas Inventory, which was prepared by the Pennsylvania

Science Office of the Nature Conservancy. Only two such sites are adjacent to the proposed route of the Patriots Path and each one is permanently protected. One, near the intersection of Church Road and St. John's Road, is owned by the Open Land Conservancy. The other one is on federal property in Valley Forge National Historic Park

Steep Slopes

The accompanying *Steep Slope* map shows steep slopes in two categories: slopes with a grade between 15% and 25%, and slopes over 25%. As noted above, much of the Patriots Path system will be built on former rail corridor, including the Chester Valley Trail and the Cedar Hollow Segment. Much of it will be in road rights-of-way. In these cases, establishing trails over previously disturbed ground will not introduce any new steep slope disturbance.

In certain small areas, such as in north Malvern, portions of the trail are proposed for construction on previously undisturbed areas with steep slopes. Another such area is on the Atwater property, which is proposed for use to help connect the Cedar Hollow Segment with East Whiteland's Valley Creek Park. These sections will present some unavoidable problems with accessibility. However, for a large scale trail project, not all trail segments need to be 100% accessible, as long as there are opportunities for physically handicapped people to get a meaningful and similar recreation experience, which they will be able to get on other parts of the trail.

HISTORIC CHARACTER

As described earlier, the inspiration for the Patriots Path was the desire to construct a pedestrian connection between public open space properties with American Revolutionary War significance - more specifically three locations that relate to the Campaign of 1777. The Valley Creek Segment of the Patriots Path is to be constructed along Route 29 rights-of-way in East Whiteland Township. This is a high growth, recently developed, business corridor with virtually no remaining signs of its historic past. Each of the three other segments (the Cedar Hollow Segment, the Malvern Segment, and the Valley Forge Segment) will feature a trail route that: a) passes by at least one or more buildings with 18th century origins; or b) travels through semi-rural locations reminiscent of Revolutionary War era countryside. The detailed recommendations contained in the next chapter note specific historic properties along or nearby the proposed trail route that merit special attention.



Detailed Trail Recommendations





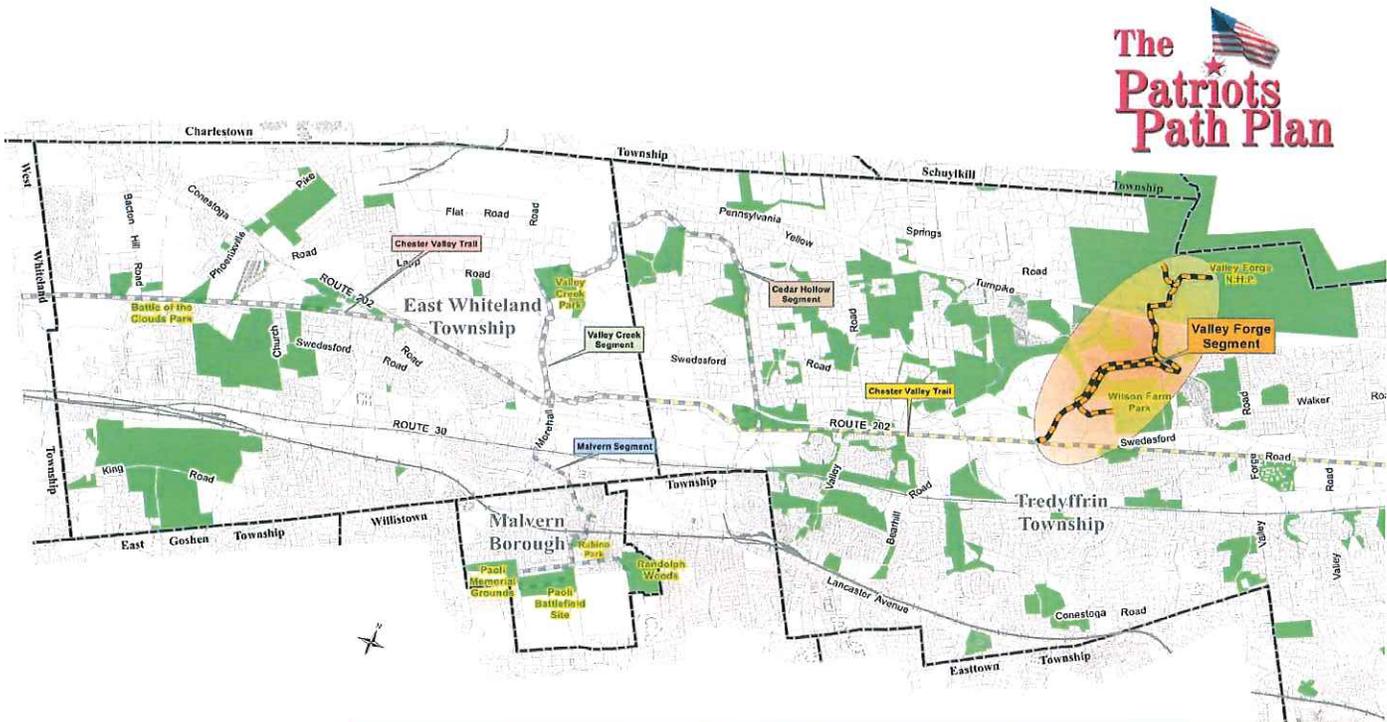


THE VALLEY FORGE SEGMENT

Trail Route

The 1.5-mile Valley Forge Segment is entirely within Tredyffrin Township. Looking from south to north, the proposed trail route begins at the point where the Chester Valley Trail intersects Chesterbrook Boulevard. It then follows Chesterbrook Boulevard northward over Route 202 and through the intersection of Chesterbrook Boulevard & Lee Road. The Valley Forge Segment continues along Chesterbrook Boulevard in a northeasterly direction to Wilson Road.

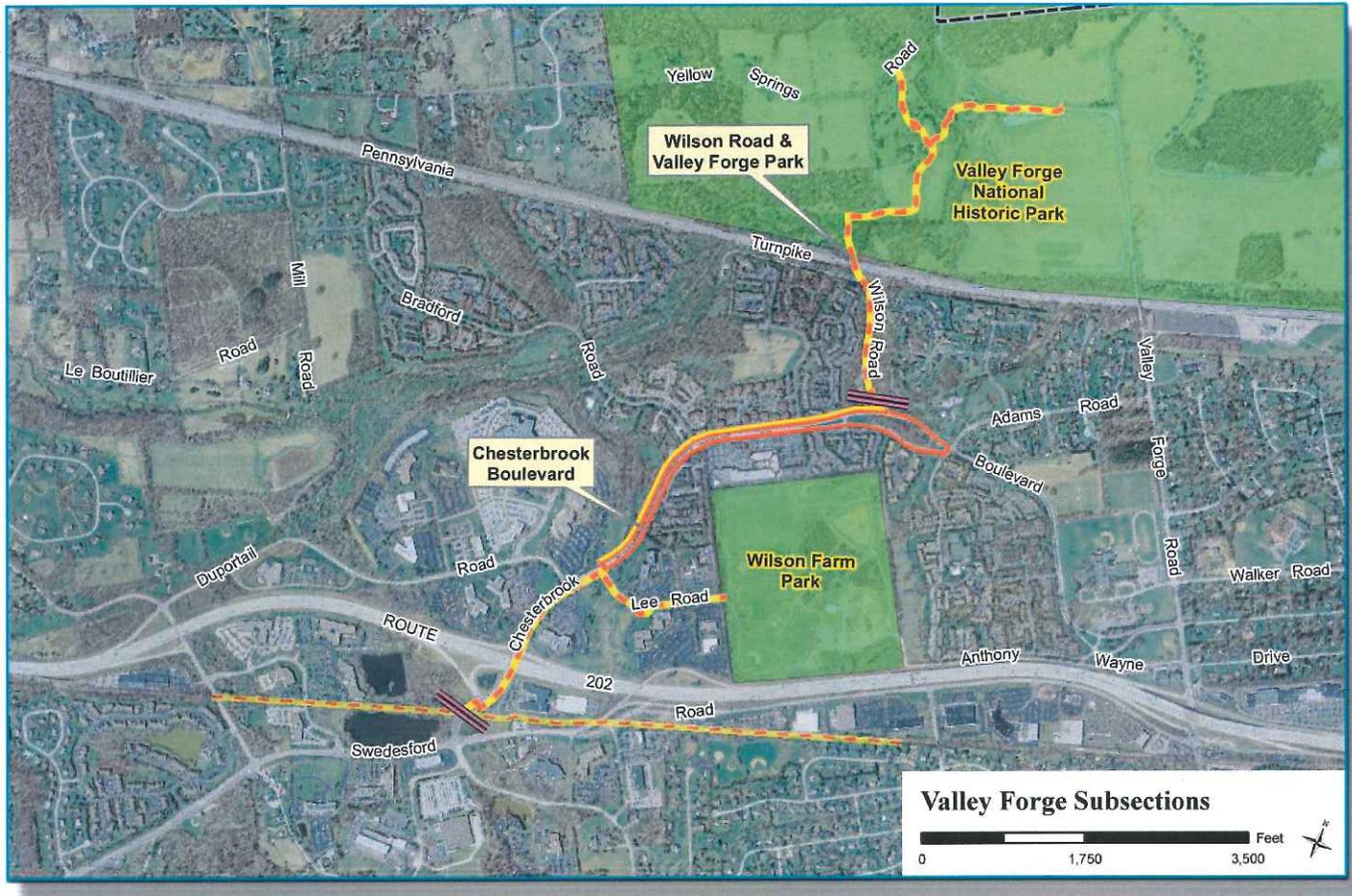
At Wilson Road, the Valley Forge Segment turns due north and follows right-of-way that is restricted to Township vehicles only. Vehicle traffic on Wilson Road ends on the southern side of a pedestrian underpass beneath the Pennsylvania Turnpike. Trail users emerging on the opposite (northern) side of that underpass are now within the boundaries of Valley Forge National Historical Park. Within the National Park, the Valley Forge Segment follows Wilson Road again. It crosses over Valley Creek and connects with the National Park's extensive bike trail and pedestrian path system.



VALLEY FORGE SEGMENT SUBSECTIONS

Because the Valley Forge Segment passes through a variety of settings, the nature of the trail will vary along different parts of the route. Dividing the Valley Forge Segment into the following two subsections permits a closer look at these conditions:

- **Chester Valley Trail to Chesterbrook Boulevard Subsection**
- **Wilson Road and Valley Forge Park Subsection**



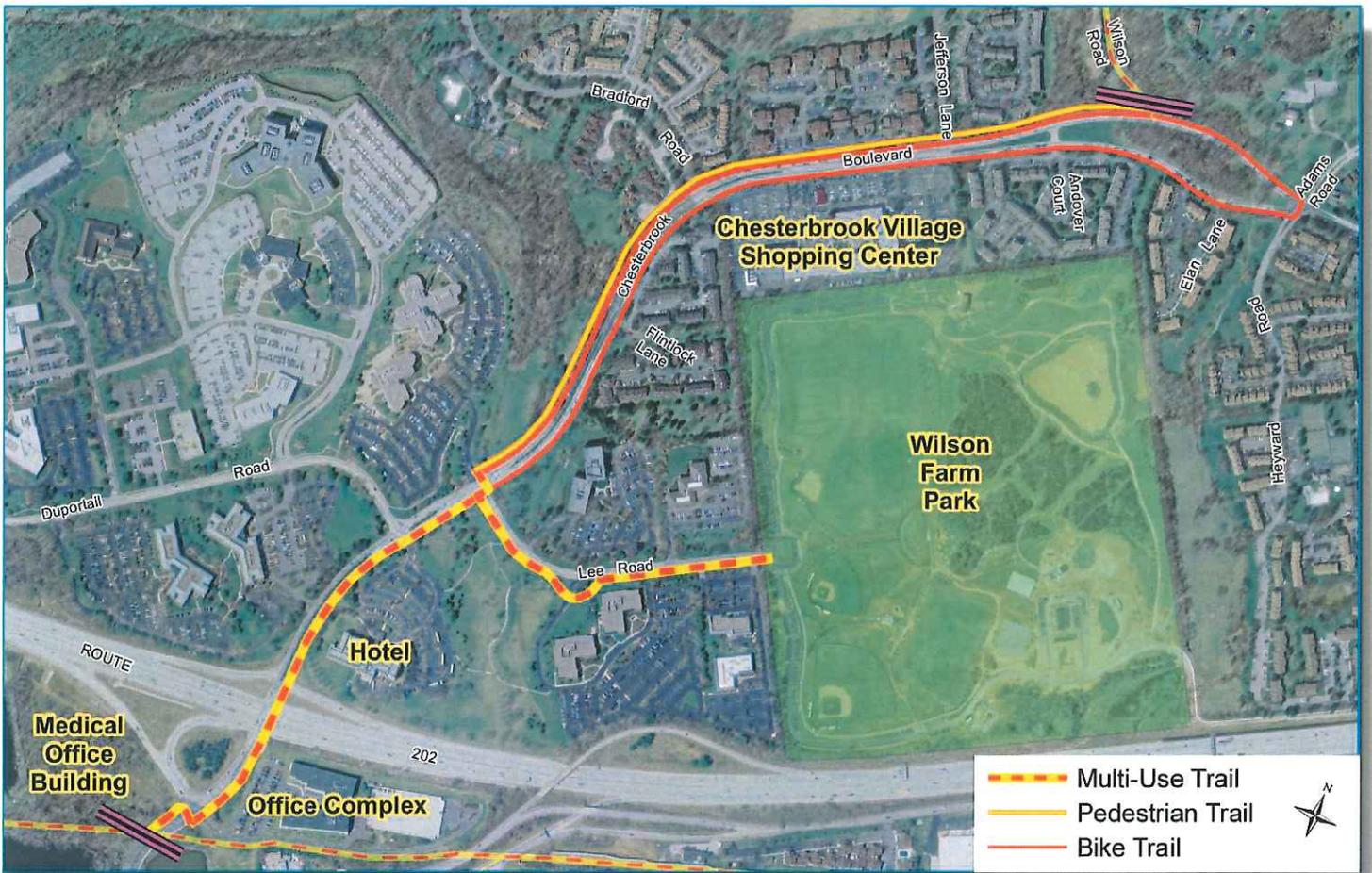


**VALLEY FORGE SEGMENT:
CHESTER VALLEY TRAIL to
CHESTERBROOK BOULEVARD SUBSECTION**

Trail Alignment, Type and Use

The Valley Forge Segment of the Patriots Path system begins in Tredyffrin Township at the point where the Chester Valley Trail right-of-way crosses Chesterbrook Boulevard. That crossing is on the south side of the Route 202 interchange with Chesterbrook Boulevard, adjacent to a medical office building now being built.

The University of Pennsylvania, the developer of this medical office building, is constructing the short segment of the Chester Valley Trail that runs adjacent to their property. They are constructing the junction between Chester Valley Trail and the Valley Forge Segment. They are also building a portion of the Valley Forge Segment.



As shown on the accompanying graphic, this will entail crossing from the new medical office building on the west side of Chesterbrook Boulevard to the east side of Chesterbrook Boulevard. From there, the trail will go northward along the east side of Chesterbrook Boulevard across Route 202 to Lee Road. Along this route, the trail must:

- Cross a drive way that provides ingress/egress to the office complex containing Nationwide Insurance Company;
- Cross the exit ramp from southbound Route 202 to Chesterbrook Boulevard;
- Pass in front of two driveways the provide ingress/egress to a hotel that fronts on Chesterbrook Boulevard;
- Continue to Lee Road.

Because of traffic volumes at the Route 202 Chesterbrook Boulevard interchange, this short stretch of trail will be among the most congested parts of the Patriots Path system. The trail through this section will have to accommodate pedestrians on the existing sidewalks and rely on shared use markings to denote that bicyclists need to utilize the road cartway.

From Lee Road to Wilson Road, the Valley Forge Segment encompasses part of the route along which Tredyffrin Township proposes to establish an on-road bike lane. Township plans call for a bike lane on each side of Chesterbrook Boulevard – one lane for eastbound bike riders and one lane for westbound bike riders. Accommodations for pedestrians on this part of the trail will be built only on the north side of Chesterbrook Boulevard – the side that connects to Wilson Road. That pedestrian path can be built within Chesterbrook Boulevard right-of-way adjacent to the proposed bike lane. It should be separated from the on-road bike lane by the existing roadside curb and by a minimum 3'-wide grass strip for signs and lights.

Road Crossings

Decorative crosswalks, similar to the crosswalk that exists now at the intersection of Lee Road & Chesterbrook Boulevard, will be constructed in each location where the trail crosses intersecting roads. Strict compliance with the latest Americans With Disabilities Act (ADA) regulations will require that the curb ramps from existing sidewalks be realigned and reconstructed. This will also involve installing detectable warnings at each curb ramp. In turn, current road markings for crosswalks and stop bars may need to be repositioned.



Along the north side of Chesterbrook Boulevard, crosswalks will be installed across:

- Two Route 202 ramps
- Two hotel driveways
- Lee Road
- Bradford Road
- Jefferson Lane
- Wilson Road
- Adams Drive

Along the south side of Chesterbrook Boulevard, crosswalks will be installed across:

- Lee Road
- Flintlock Lane
- Chester Valley Shopping Center (two driveways)
- Andover Court
- Elan Lane
- Heyward Road

A crosswalk is also needed to get between the north and south sides of Chesterbrook Boulevard at the western driveway of the Chesterbrook Village Shopping Center. This crosswalk will need to be built across the median that runs down the center of Chesterbrook Boulevard.

*Recommended
Typical Decorative
Crosswalks*



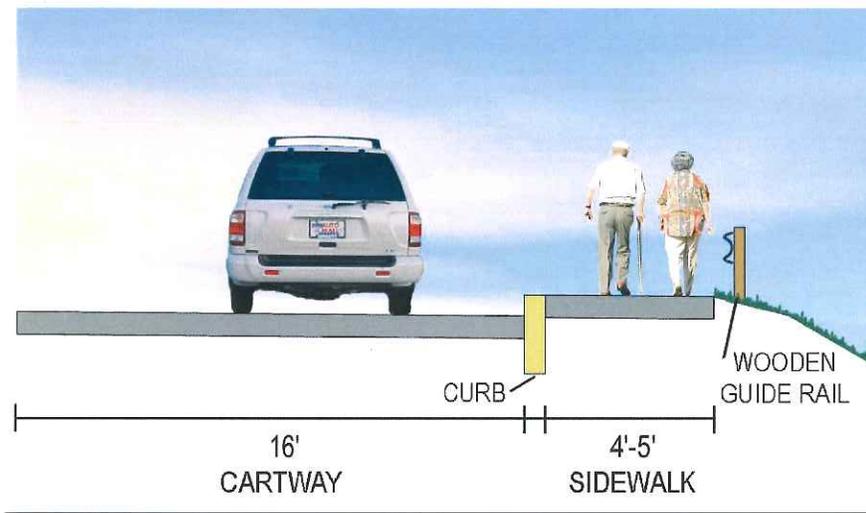
Trail Links to Adjacent Locations

A short link between the intersection of Lee Road & Chesterbrook Boulevard and the Lee Road entrance to Wilson Farm Park already exists to connect the trail to Tredyffrin's newest major recreation site.

Special Design Problems

The need to confine parts of this trail subsection to sidewalks and the need to reconstruct existing curb ramps (both discussed above) are each design constraints. To ensure sidewalk width is adequate on the east side of Chesterbrook Boulevard between the office complex and the exit ramp from Route 202, the wooden guide rail there should be moved back further from the road. There is also a sign with the hotel name on it that fronts on Chesterbrook Boulevard. That sign would need to be relocated to ensure there is room to widen the sidewalk across this frontage.

Another special design consideration along this subsection involves the need to relocate certain signage and landscaping that exists along the north side of Chesterbrook Boulevard between Lee Road and Wilson Road.



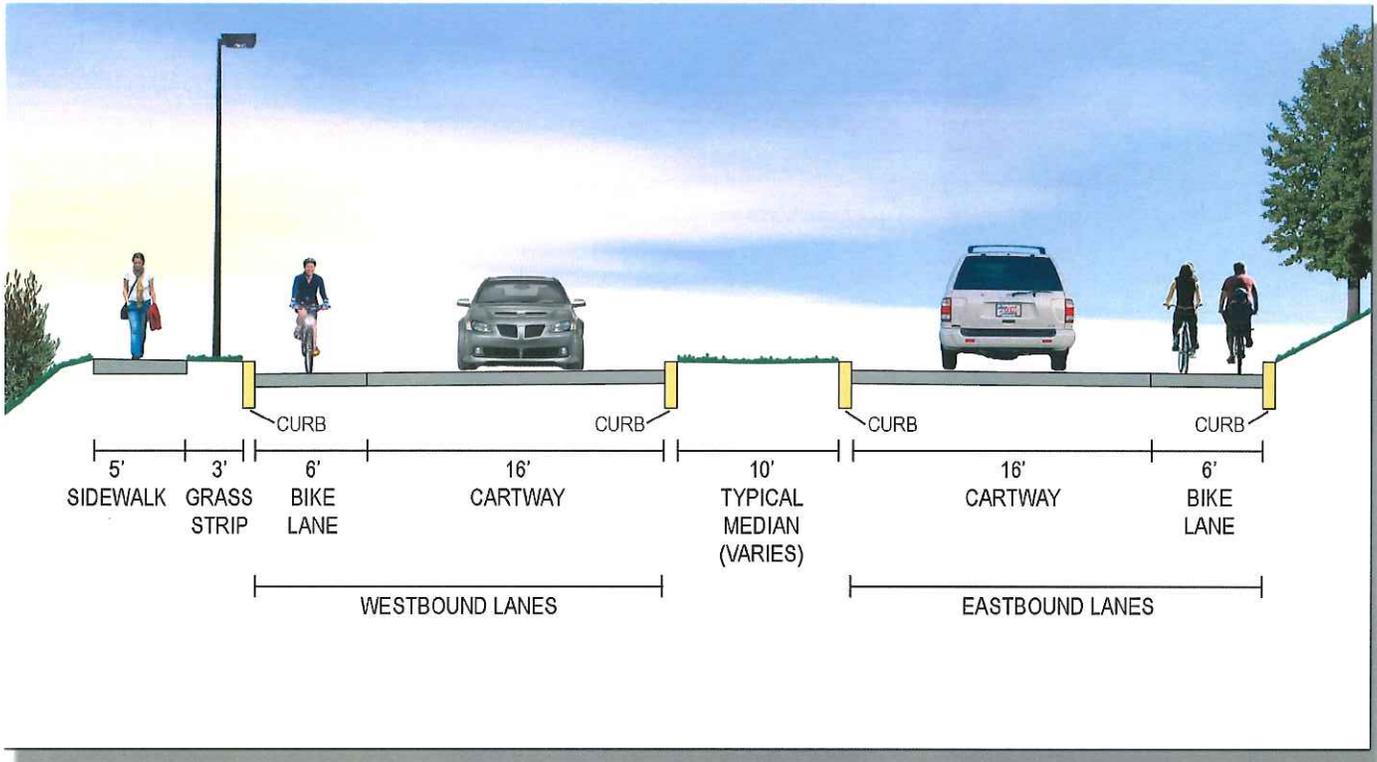
*Typical Section of Chesterbrook Boulevard
(South of 202 Looking North)*



Trail Specifications

In accordance with approved plans for the medical office building, the trail will be carried by 4' to 5' concrete sidewalk south of Route 202 and 4' to 5' bituminous sidewalk north of Route 202/Duportail Road. Between Duportail Road and Lee Road, a 5' to 6' bituminous sidewalk should be built. Between Lee Road and Wilson road, the following specifications should apply:

- The pedestrian path: 5' wide with a bituminous surface.
- The on-road bike lanes: 6' wide markings on existing cartway
- The grass strip separating the bike lane and pedestrian path: 3' wide.



*Typical Section of Chesterbrook Boulevard
(North of Lee Road Looking North)*

Trail Support Facilities

The following sign types should be installed:

- Directional/Wayfinding: to Chesterbrook Village Shopping Center, Wilson Farm Park, the Chester Valley Trail, and Valley Forge National Historic Park
- Road Crossing: At each of the road crossings identified
- Trail Name: Valley Forge Segment



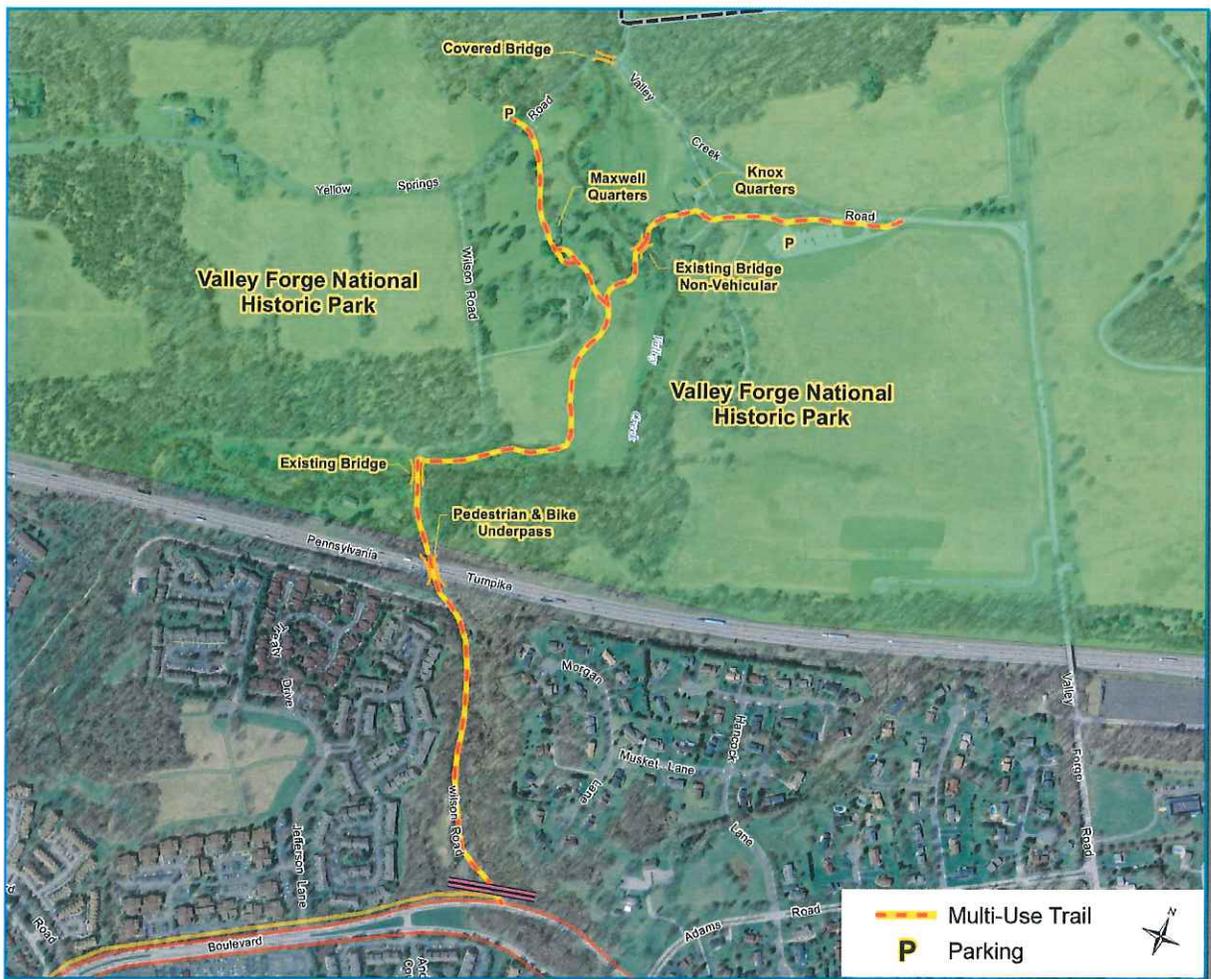


VALLEY FORGE SEGMENT: WILSON ROAD and VALLEY FORGE PARK SUBSECTION

Trail Alignment, Type and Use

This is the northernmost part of the Patriots Path. Its purpose is to link the Patriots Path with Valley Forge National Historic Park’s extensive system of internal roadways, bikeways and hiking trails. In doing so, it will bring the Patriots Path to two logical termination points:

- A small National Park gravel parking lot on Yellow Springs Road that serves as a trailhead for the regional Horseshoe Trail, and
- A large National Park paved parking lot on Valley Creek Road that marks the end of one of the National Park’s internal bike trails.

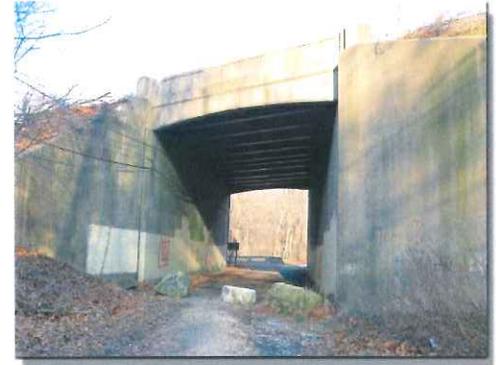


This subsection of the Valley Forge Segment begins at the intersection of Chesterbrook Boulevard and Wilson Road. It proceeds north on Wilson Road for slightly more than one-quarter mile to a pedestrian and bike underpass that carries Wilson Road beneath the Pennsylvania Turnpike. From Chesterbrook Boulevard to this pedestrian and bike underpass, Wilson Road is restricted to Township vehicles only. The entrance to the Turnpike underpass is blocked with bollards that permit only bicyclists and pedestrians to pass. People using the underpass emerge on the opposite side of the Turnpike on to the grounds of Valley Forge Historic National Park.

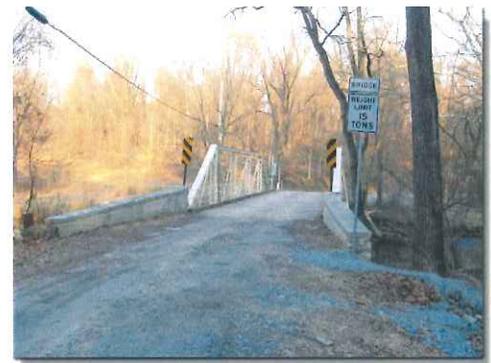
Wilson Road is paved through this subsection of the trail. While most of it is in good shape, some small areas may need resurfacing. The immediate approach to the underpass and the surface within the underpass is currently deteriorated bituminous paving, crushed stone and packed dirt. It will need to be paved for public trail use.

The recommendations that follow refer to constructing a trail and trail support facilities within the National Park, which is federal property. Chester County and the three municipalities planning the Patriots Path look forward to cooperating with the National Park Service on the future construction and operation of this trail. Their goal is to incorporate the Patriots Path into the National Park's management plan and capital programming. However, everyone associated with the Patriots Path needs to understand that the National Park Service makes all final decisions on trail matters within National Park boundaries.

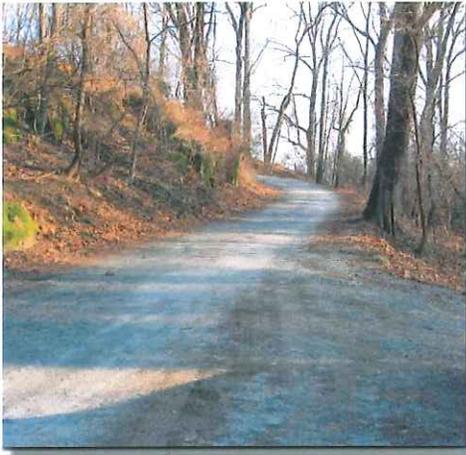
Shortly after Wilson Road emerges from the pedestrian and bike underpass beneath the Pennsylvania Turnpike, the trail crosses a bridge over Valley Creek. At that point, the trail should leave Wilson Road to avoid a section of that roadway that is steep and hindered by inadequate sight distance due to curves. Instead, the trail should follow Valley Creek eastward along the remnants an old wagon path that exists there, cross a grass meadow, and connect to a second, existing bridge (a non-vehicular bridge) that crosses Valley Creek between the former General Maxwell Quarters and the former Henry Knox Quarters.



Turnpike underpass looking north towards Valley Forge National Historic Park



Bridge carrying Wilson Road over Valley Creek



Looking north at the steep, curving segment of Wilson Road that needs to be avoided



Former General Maxwell Quarters from meadow area



Existing non-vehicular bridge over Valley Creek

The accompanying trail route graphic indicates that this section of trail should be multi-use, a trail suitable for both pedestrians and bike riders. However, because Valley Creek is a State-designated Exceptional Value Waterway, particular care should be given to protecting the stream against runoff from adjacent impervious surfaces. The trail surface here should be: a) narrowed to 8' instead of 12'; and b) constructed of crushed stone rather than bituminous paving. The distance between the trail and Valley Creek should be maximized to maintain the widest vegetative buffer possible.

After crossing the existing non-vehicular bridge, this section of trail should be extended to the large National Park parking lot located adjacent to Valley Creek Road. This will require building a short section of improved stone trail with steps to connect the non-vehicular bridge with the site of the former Henry Knox Quarters. From that point, an existing, paved National Park driveway plus a very short section of new paved trail can be utilized to get the trail to the Valley Creek Road parking lot.

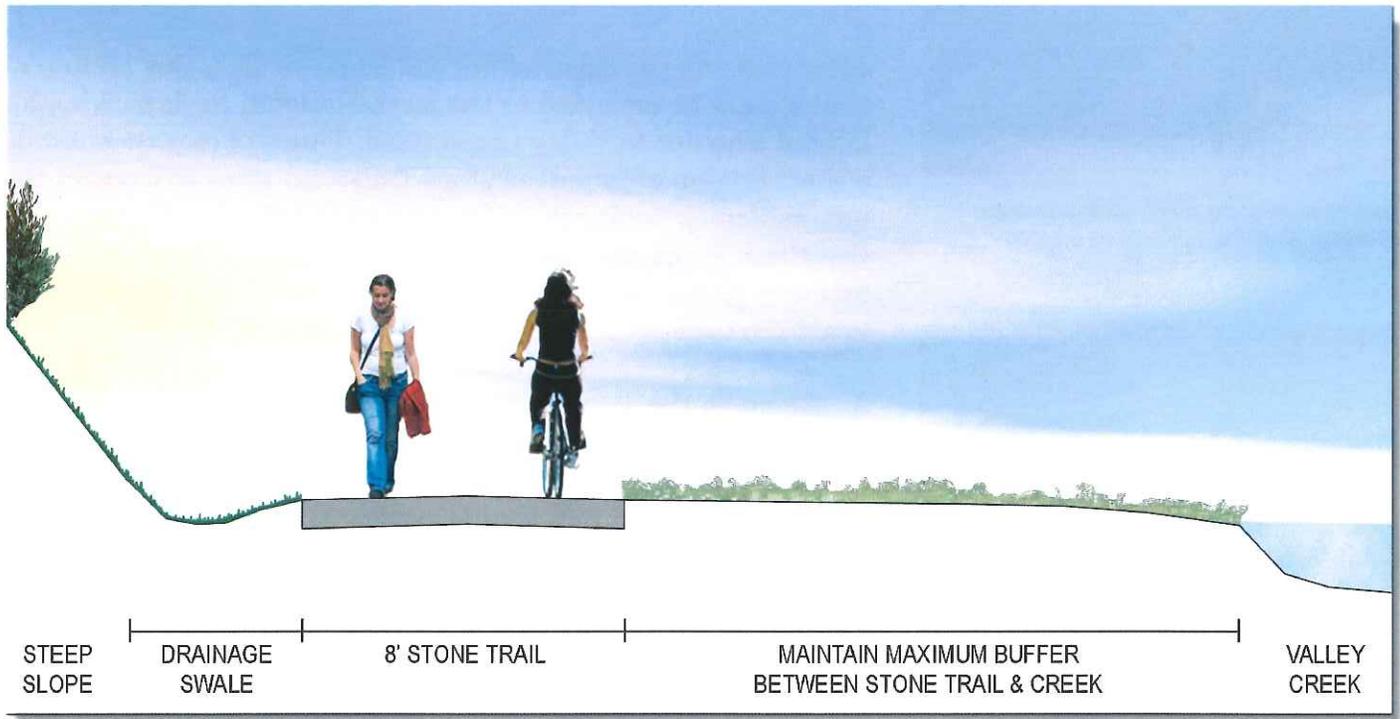
As shown on the accompanying trail route graphic, the proposed trail splits in the grass meadow behind the former General Maxwell Quarters. The recommended path of the eastern fork is described above. The western fork should start with a short, crushed stone connection that extends from the grass meadow to Library Lane. The paved surface of Library Lane can carry the trail to the former General Maxwell Quarters and then Yellow Springs Road. A decorative crossing can then be established to carry the trail across Yellow Springs Road to the parking lot that serves as a trailhead for the Horseshoe Trail.

Road Crossings

The crossing of Yellow Springs Road at Library Lane identified immediately above is the only road crossing in this subsection of the trail.

Special Design Problems

Municipal workers use the section of Wilson Road proposed for this portion of the trail to go to and from a pumping station. Even though this traffic is infrequent, warning signs should be installed to alert trail users to these vehicles. The accompanying trail cross section graphic illustrates how to build the trail near Valley Creek in a way that respects that stream's critical riparian buffer.



Section of Trail Adjacent to Valley Creek

Trail Links to Adjacent Locations

A narrow band of mature hardwood forest lines each side of Wilson Road through this part of the trail route. These woods will continue to separate the trail from the residential developments situated on adjacent properties to both the east and west. However, there are established paths through these woods that connect Wilson Road to both of these neighborhoods – in one case via a substantial footbridge over a tributary. These short links are ideal examples of how to connect the trail to adjacent residential areas and, where applicable, to these neighborhoods' internal trail systems.

Near the proposed northern terminus of the trail, there are two proposed forks. Each of the two forks leads directly to another trail: one to Horseshoe Trail and one to an existing National Park bikeway. In addition, this section of trail will be adjacent to or in the direct vicinity of several National Park attractions, including:

- Lafayette's Quarters
- The General Maxwell Quarters
- Henry Knox Quarters
- The covered bridge over Yellow Springs Road

Trail Specifications

From the intersection of Chesterbrook Boulevard and Wilson Road to the Valley Forge National Historic Park side of the underpass, the trail route is wide enough throughout to accommodate a full 12' multi-use trail. The walls and ceiling of the underpass are plenty high but need to be cleaned and painted. The trail surface should be bituminous paving designed to handle Township maintenance vehicles as well as trail users.

Within Valley Forge National Historic Park, specifications for trail surface and trail width will vary. An 8' crushed stone trail should be constructed where the trail passes close to Valley Creek. The segments of the trail carried by Wilson Road and Library Lane will utilize the paved cartways of these two existing roads. In each case, the road surface should be marked to indicate shared use by both vehicles and trail users.

Trail Support Facilities

- A sign at Chesterbrook Boulevard and Wilson Road to Chester Valley Trail
- A sign warning trail users about municipal vehicles on Wilson Road
- A sign announcing that the underpass beneath the Turnpike leads to Valley Forge National Historic Park
- A sign for people emerging from the pedestrian underpass beneath the Pennsylvania Turnpike that they are now entering the Valley Forge National Historic Park
- Signs regarding the several National Park attractions are nearby (as named above)
- A sign noting that Valley Creek is designated as an Exceptional Value Waterway by the Pennsylvania Department of Environmental Protection (DEP)
- An interpretive sign explaining Valley Creek, the meaning of its Exceptional Value designation, and the importance of riparian buffers would be an excellent in-the-field environmental education device.



Valley Creek is a well-recognized local asset

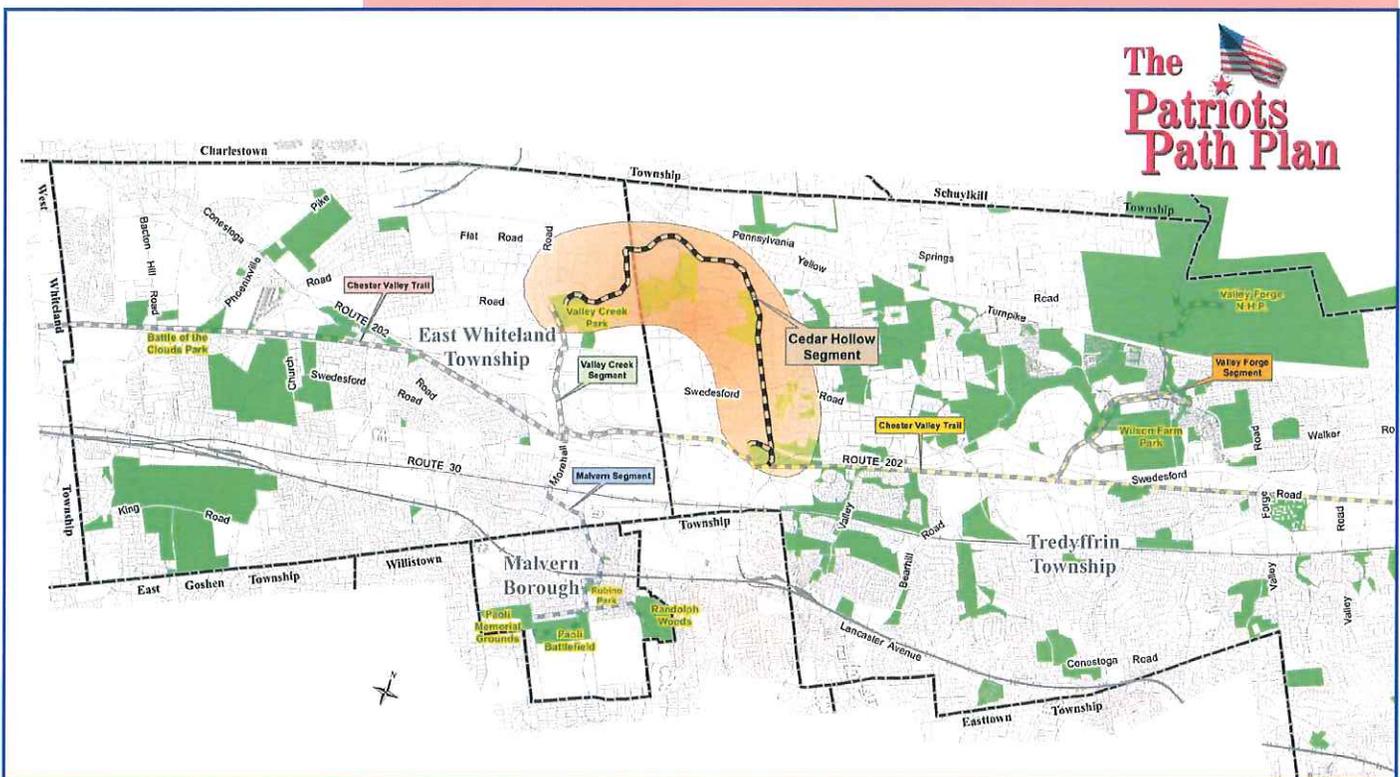


THE CEDAR HOLLOW SEGMENT (PLUS A CONNECTION TO THE VALLEY CREEK SEGMENT)

Trail Alignment, Type and Use

The Cedar Hollow Segment is an abandoned freight rail spur corridor that once connected Warner Quarry in northwest Tredyffrin Township and northeast East Whiteland Township with the railroad line that is now Chester Valley Trail. This corridor's former life as a rail spur provides key advantages for local trail planners. Like most rail to trail projects, the Cedar Hollow Segment has no steep grades and only gradual curves. In addition, all railroad tracks and railroad ties have been removed.

The junction of the Cedar Hollow Spur (which runs north-south) and the Chester Valley Trail portion of the Patriots Path (which runs east-west) is in Tredyffrin Township's 24.1-acre Cedar Hollow Road Park. This park is just south of Route 202 and just east of Cedar Hollow Road. The entire Cedar Hollow Segment is in Tredyffrin Township.



The accompanying trail route graphic illustrates how the vicinity where the Cedar Hollow Segment meets the Chester Valley Trail could accommodate a small trailhead. This trailhead could also feature a seating node with wayfinding and interpretive signage at the point where the Cedar Hollow Segment veers northward away from the Chester Valley Trail. From the junction of these two trails, the paved Cedar Hollow Segment will head due north over a thickly wooded ravine formed by the Little Valley Creek to a bridge that once carried the railroad over Route 202.



Chester Valley Trail near junction with Cedar Hollow Spur

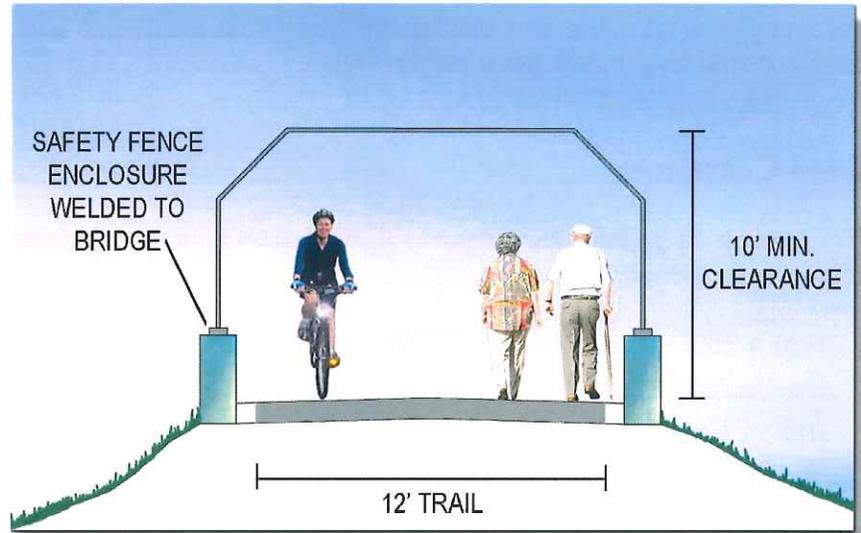


Old railroad bridge over Route 202





In association with the widening of Route 202, PennDOT is elevating this bridge 2' and installing new support structures. The bridge will also be cleaned and painted. Current plans call for chain link fence to be installed on the sides (knee walls) of the bridge. To enhance safety of users and avoid debris being thrown on traffic below, a full enclosure could be constructed, as shown on the accompanying graphic.



*Former Railroad Bridge over Route 202
Improved for Trail Use*

The accompanying trail graphic also shows a second route to reach this same bridge. This second route, in the form of a crushed stone walking path, would begin at the Cedar Hollow Road Park's parking lot where a portable toilet is set up. From the parking lot, this walking path would:

- Run between the existing sand volleyball court and the existing softball/soccer field;
- Skirt the Route 202 side of that sports field;
- Cross into the wooded ravine; and
- Go up the side of the ravine to the former railroad bridge over Route 202.

From the railroad bridge all the way northward to the end of the segment at St. John's Road and Church Road, the trail will follow the old railroad right-of-way. It will be constructed as a full width 12' paved trail for this entire length. The actual termination point of the Cedar Hollow Segment after crossing St. John's Road will be the Church Road side of the Forcine Concrete property. An easement where the former rail spur ran along the edge of that property will accommodate this trail segment to its end point at Church Road. Road crossings, design challenges and other special features (both existing and proposed) along this multi-use trail are identified in the following paragraphs.

Road Crossings

From south to north, the Cedar Hollow Segment will cross the following four roadways:

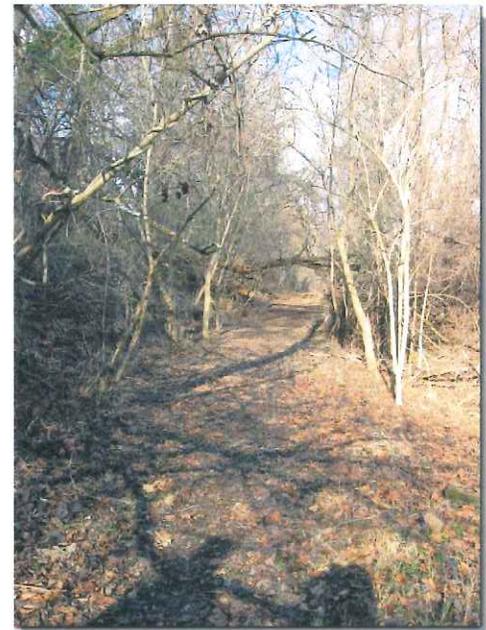
- Route 202
- Swedesford Road
- Indian Run Road
- St. John's Road

The suitability of the former railroad bridge to carry the trail over Route 202 is described above. Continuing northward, Swedesford Road is the next crossing encountered. The former bridge that carried the rail spur over Swedesford Road has been removed. A new pedestrian and bike bridge will have to be built. The steep grade cuts on each side of Swedesford Road and the high volume of traffic that the road carries would make an at-grade crossing inconvenient and unsafe.

The old railroad bridge over Indian Run Road is also now gone. However, the slopes from the former rail bed down to the cartway of Indian Run can accommodate an at-grade crossing provided the high points on each side of the road can be moderated with the proper grading. Vehicular traffic is not an issue because Indian Run Road is a cul-de-sac that serves only a small number of single-family detached homes. St. John's Road is the final road encountered along the route of the Cedar Hollow Segment. The former rail spur crossed this road at-grade. The trail crossing will also be at-grade.



St. Johns Road and Church Road looking eastward



Typical view along Cedar Hollow Spur



At Swedesford Road looking north



Trail Links to Adjacent Locations



Looking westward into Cool Valley Preserve from trail

Most property on each side of the Cedar Hollow Segment is in larger lot, single-family detached residential development. Exceptions include three Open Land Conservancy nature preserves. The Cool Valley Preserve, which is located between Indian Run Road and Swedesford Road, sits directly adjacent to the west side of the trail at the same grade as the trail. A simple sign and opening that can be cut into the minor brush that exists there alongside the trail will provide an easy and very low cost connection between the trail and that preserve. Two more Open Land Conservancy sites, Cedar Hollow Preserve and Miller Preserve, are situated at the northern end of the Cedar Hollow Segment near the intersection of St. John's Road and Church Road. These two adjacent sites and their internal walking paths can be easily accessed from the trail on foot. The Open Land Conservancy does not encourage bike riding on its walking paths.

Special Design Problems

Trail designers will need to address certain key issues to build the Cedar Hollow Segment as proposed:

- It would be prudent to conduct a structural analysis of the former railroad bridge over Route 202. Presumably, the bridge can easily carry the weight of a paved trail since it once carried a freight line. However, there has been no up to date analysis of that old bridge's current structural condition.
- The proposed pedestrian and bike bridge over Swedesford Road will be crucial to establishing a continuous trail along the entire length of the Cedar Hollow Segment. Further engineering will be required to determine if the top of the road banks on each side of Swedesford Road are high enough to allow adequate clearance between the bottom of the new bridge and the surface of the road. If not, grading will be needed to build up the height of the bank on each side of the road.

- While the railroad tracks and railroad ties have been removed along the entire length of the Cedar Hollow Segment, there are a number of places along the trail where obstructions exist due to fallen trees, encroaching vegetation and dumping by adjacent land owners. In one area, someone constructed a small dam across the trail that backs up stormwater along a portion of the trail just south of St. John's Road. At certain locations along the trail, grading improvements will be needed to ensure stormwater flows off the trail surface properly instead of puddling on the trail as it does now.

Trail Specifications

The surface of the walking path that connects the parking lot at Cedar Hollow Road Park to the former railroad bridge over Route 202 will be a crushed stone and 8' wide. The rest of the entire spur length will be a paved and 12' wide. The accompanying graphic shown earlier illustrates conceptual specifications for converting the old railroad bridge over Route 202 to trail use.

Bridges of this size and type needed to span Swedesford Road vary widely in cost depending on the specifications required. For example, a steel bridge at the full trail width of 12' that can accommodate a maintenance vehicle will be much more expensive than a bridge 8' wide that is only planned for pedestrian and bicycle use.



Example of a trail bridge over a roadway

Trail Support Facilities

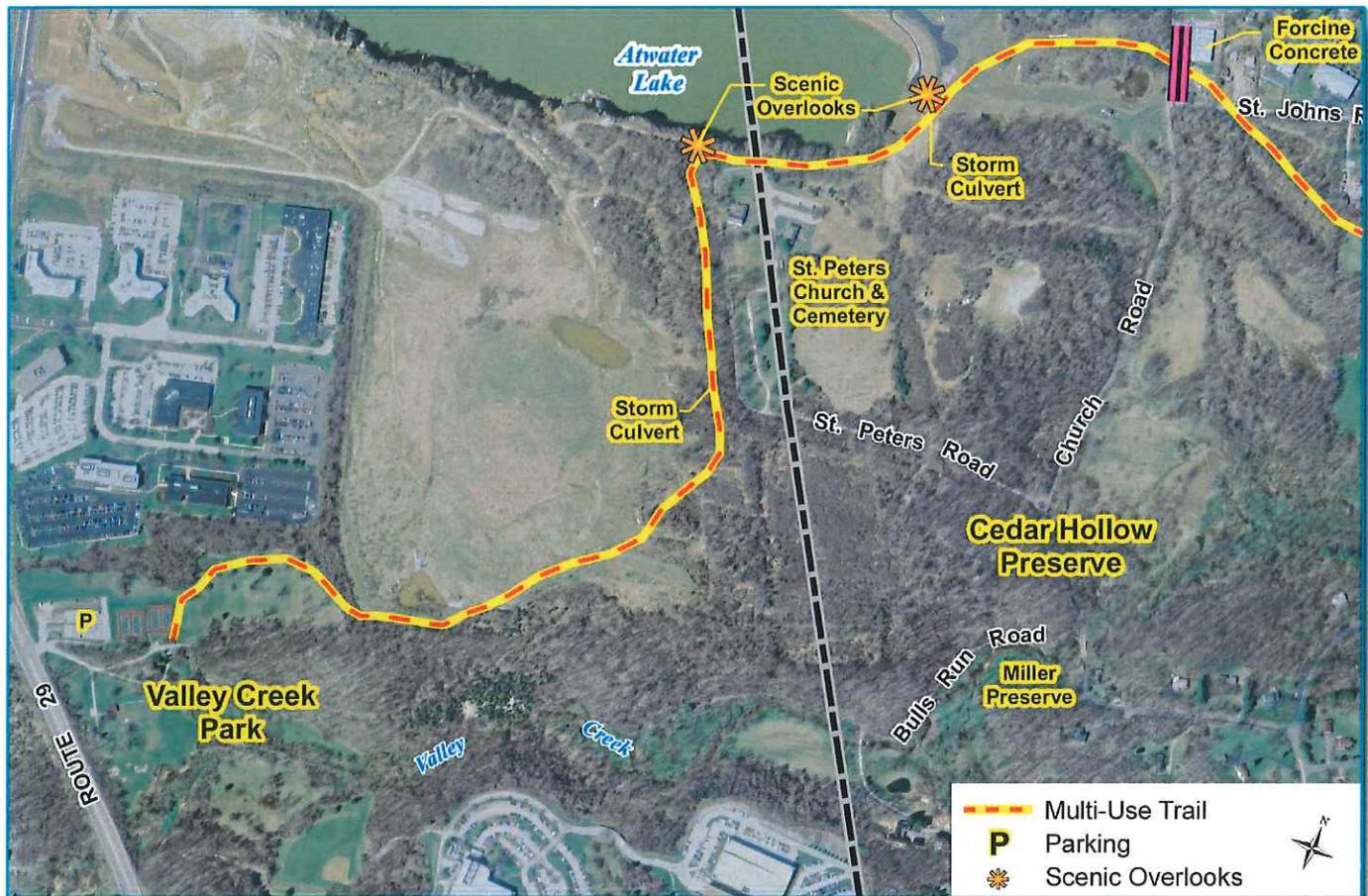
- A trailhead that features a small group of benches at the junction between Cedar Hollow Trail Segment and Chester Valley Trail with wayfinding signs and an interpretive sign describing the former Warner Spur rail line.
- Directional signs pointing to pedestrian openings from the trail into each of the three Open Land Conservancy preserves along the trail route.
- An interpretive sign at the point where the Cedar Hollow Segment crosses Valley Creek.



CONNECTION BETWEEN THE CEDAR HOLLOW SEGMENT AND VALLEY CREEK SEGMENT

Trail Alignment, Type and Use

The Cedar Hollow Segment in Tredyffrin Township and the Valley Creek Segment along Route 29 in East Whiteland Township will run parallel to each other approximately 1.25 miles apart. Undeveloped land between the northern end of the Cedar Hollow Segment and the northern end of the Valley Creek Segment in East Whiteland's Valley Creek Park provides the opportunity to link these two components of the Patriots Path with a 12' wide, paved multi-use trail.



As described previously, the northern terminus of the Cedar Hollow Segment is on the Church Road side of the Forcine Concrete property. From this point, the connection between the two spur trails would begin by constructing a decorative crosswalk across Church Road to enter cleared but undeveloped land at the east end of the Atwater Business Park site. Atwater is an office campus development that fronts on Route 29. The developer of the Atwater Business Park plans in the future to construct additional office space on the site. He has expressed interest in coordinating with East Whiteland Township about the appropriate mix of trail corridor and other open space that should be preserved as part of the site's longer range development.

Once the trail enters the eastern side of the Atwater property, it should turn in the southwestern direction to skirt the edge of a former quarry on-site now called Atwater Lake. In this vicinity, the trail begins to climb a grade. Two scenic overlooks are proposed that will look down upon the old quarry. From there, the trail should proceed southward through a wooded portion of the Atwater site. As the trail approaches Valley Creek, it should turn due west (still remaining on Atwater property) to parallel the course of Valley Creek into the grounds of Valley Creek Park. Once inside the park, the trail should proceed across open meadow to the park's natural amphitheater area and main parking lot.

Road Crossings

Church Road is the only road crossing involved in the connection between Cedar Hollow Segment and Valley Creek Segment. This should be a decorative crossing. Beyond that, removable bollards should be placed at the edge of the Atwater property that will let pedestrians and bike riders in but keep unauthorized vehicles out.

Trail Links to Adjacent Locations

Between Atwater Lake and Valley Creek, the portion of the Atwater property through which this trail connection could pass is adjacent to the historic St. Peters Church and Cemetery property on St. Peters Road. Provided church authorities are amenable, a short path link should be established to bring trail users to this site. The church and cemetery are situated in an attractive wooded setting and listed on the National Register of Historic Places.

The Atwater office campus currently has its own pathway system to which our proposed trail connection should link.



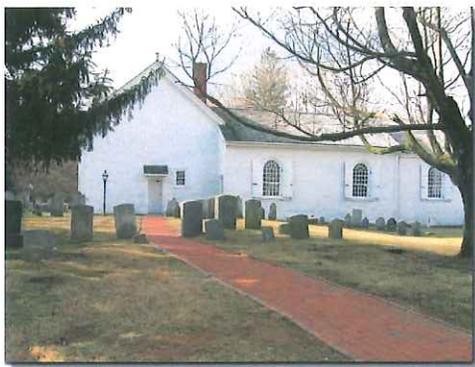
Start of the connection - Forcine Concrete at Church Road looking east



Entrance at Atwater from Church Road looking west



Atwater benches and paths near old quarry



St. Peter's Church and Cemetery



Valley Creek along Bulls Run Road looking east



Footpath along Valley Creek

AN INFORMAL CONNECTION

Open space permanently preserved by two non-profit organizations in the immediate area of the Patriots Path creates the unique opportunity to experience a journey on foot through some of the Tredyffrin-East Whiteland region's most unspoiled natural area. No paved paths are proposed through this existing green ribbon. It is not envisioned as part of the Patriots Path system and it is not suited for bicycle travel. However, people interested in a hike through a truly natural setting should be made aware of an existing opportunity to travel from the northern end of the Cedar Hollow Segment to East Whiteland's Valley Creek Park via an informal footpath that closely parallels Valley Creek.

This trek begins just south of the intersection of St. John's Road and Church Road at the Open Land Conservancy's Cedar Hollow Preserve. By following the walking paths within this preserve, hikers can make their way a short distance south to a point on Church Road just opposite Bulls Run Road. While nominally a Tredyffrin Township right-of-way, Bulls Run Road is a short gravel stub road that primarily serves just one property: a single-family detached home situated adjacent to where the road terminates less than one-quarter mile from its intersection with Church Road. The non-profit Trout Unlimited holds an easement directly alongside Valley Creek that extends from the foot of Bulls Run Road to Valley Creek Park, a distance of approximately 1.1 miles. A narrow, dirt footpath that follows the twists and turns of Valley Creek through a hardwood forest runs the entire length of this easement. In addition to its natural amenities, crumbled foundations and other archeological remnants of a farm that once operated there are visible at points along this walk.

Special Design Problems

Most of the Patriots Path system will be established along former rail lines or along existing road rights-of-way. As a former heavy industrial site, the Atwater property presents certain design challenges not encountered along these other, improved corridors. These matters include the following:

- Certain large stormwater drainage swales cross the proposed trail route
- Topography is steep in certain areas near the former quarry
- Running a trail near a deep, watered quarry raises security and safety concerns that need to be adequately addressed.

The connection between two Patriots Path trail segments made possible by using the Atwater property and the stunning scenic views afforded by the former quarry are unique opportunities. At the same time, building a trail across the Atwater property in the manner proposed will require more engineering than most other sections of the Patriots Path system.

Trail Specifications

The entire length of the connection between the Cedar Hollow Segment and the Valley Creek Segment should be a paved multi-use trail at the full 12' width.

Trail Support Facilities

The following support facilities should be installed along the connection between Cedar Hollow Segment and Valley Creek Segment:

- Directional/wayfinding signs to Valley Creek Park
- Trail crossing warning signs along the trail and Church Road at and in advance of the crossing
- A sign warning bike riders to dismount and walk bikes across Church Road if needed
- Stormwater culverts that cross drainage swales on the Atwater property
- Scenic overlook areas of Atwater Lake with safety railings, seating, trash receptacles and interpretive signs about the former quarry
- Interpretive signage for historic St. Peters Church and Cemetery
- Directional/wayfinding signs to the Cedar Hollow Segment from the Valley Creek Segment and to the Valley Creek Segment (from the Cedar Hollow Segment).

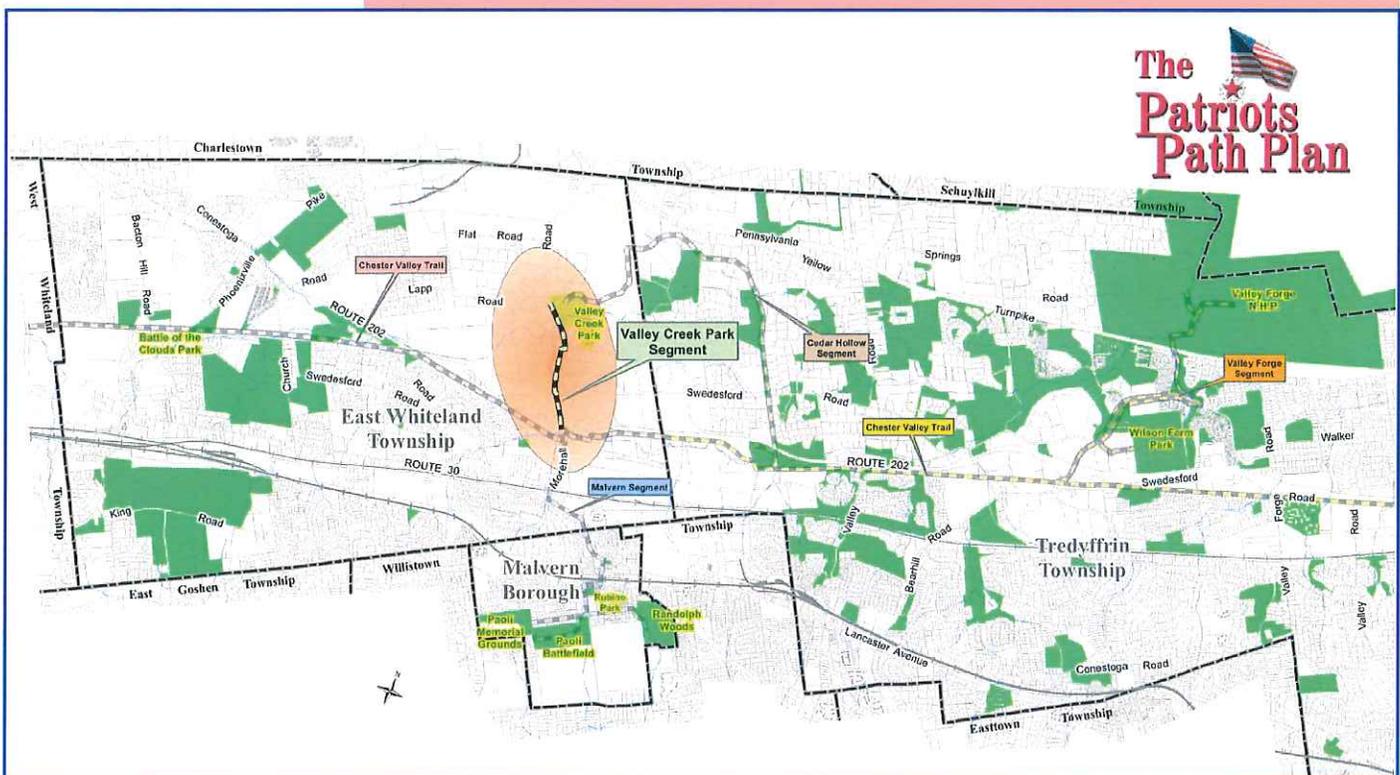


THE VALLEY CREEK PARK SEGMENT

Trail Alignment, Type and Use

The Valley Creek Park Segment of the Patriots Path trail system is in East Whiteland Township along Route 29. This trail section begins at the point where the Chester Valley Trail intersects the west side of Route 29. It extends to Valley Creek Park, which is East Whiteland's largest Township-owned recreation site. The entire length of the Valley Creek Park segment is envisioned as a multi-use trail for both pedestrians and bike riders.

In overall distance, the Valley Creek Park Segment is a short section of trail. However, along its 1.0-mile length adjacent to Route 29, the Valley Creek Park Segment parallels one of the most heavily traveled portions of four-lane roadway in the Great Valley region. The Route 29 interchange of Route 202, the Great Valley Corporate Center, and the large mixed use Uptown Worthington development (now under construction) are each major generators of vehicular traffic to this very busy, highly congested area.



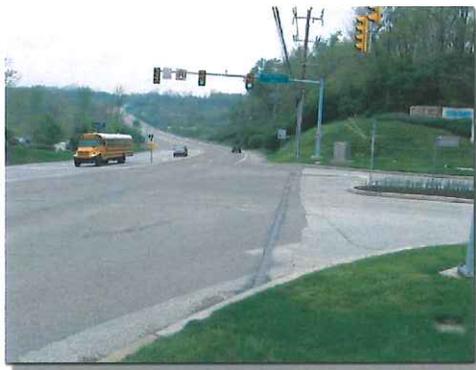
Approaching from the west, the Chester Valley Trail right-of-way intersects Route 29 a short distance south of Lindenwood Drive. When completed, the Chester Valley Trail will cross Route 29 at-grade between Lindenwood Drive and Matthews Road on the south side of this intersection. From there, the Chester Valley Trail is being slightly rerouted from its original right-of-way to become part of the internal path and road system being built through the Uptown Worthington development.

The Valley Creek Park segment of the trail should begin on the west side of Route 29 at Lindenwood Drive. Along the west side of Route 29, the trail should utilize well-marked road shoulder to get from Lindenwood Drive to the bridge that carries Route 29 over Route 202. This bridge is currently being reconstructed. When reconstruction is finished, the bridge will include a sidewalk on its west side that can accommodate the trail. Between Lindenwood Drive and the bridge, the trail must also cross the off-ramp from northbound Route 202 to Route 29.





Liberty Boulevard looking west across Route 29



Route 29 looking north at Valley Stream Parkway



Looking south along Route 29 from Valley Creek Park entrance

On the north side of the bridge carrying Route 29 over Route 202, the Valley Creek Park segment can resume use of road shoulder on the west side of Route 29 to advance the trail to Swedesford Road, which is the next road the trail must cross. Trail users crossing Swedesford Road will be assisted by the concrete island that currently exists in the middle of this intersection to help control vehicular traffic. This island will provide a safe place of refuge for pedestrians to pause before completing the crossing.

The next leg of the trail is between Swedesford Road and Liberty Boulevard. A large office building occupies that entire stretch of Route 29 frontage. The trail can utilize a widened version of the existing sidewalk/trail that currently runs along that whole frontage from Swedesford Road to Liberty Boulevard.

Still on the west side of Route 29, the trail should cross from the south side to the north side of Liberty Boulevard and continue to Valley Stream Parkway on new sidewalk being built as part of a new phase of Great Valley Corporate Center. The trail should then cross at grade from the west side to the east side of Route 29. Once on the east side of Route 29, the trail should cross Valley Stream Parkway and utilize road shoulder again to reach the entrance driveway to East Whiteland Township's Valley Creek Park.

Road Crossings

The Valley Creek Park segment of the Patriots Path will require five road crossings on the west side of Route 29:

- Lindenwood Drive
- The off-ramp from northbound Route 202 to Route 29
- Swedesford Road
- Liberty Boulevard
- The trail will then cross from the west side of Route 29 to the east side. On the east side of Route 29, the trail will then need to cross Valley Stream Parkway.

Lindenwood Drive is a well-landscaped, two-way driveway in and out of Valleybrooke Corporate Center, a moderate-sized office park. The road crossings at the Route 202 off-ramp, Swedesford Road, and Liberty Boulevard are each at high traffic intersections. At the intersection of Route 29 and Liberty Boulevard, there needs to be a crossing. Across Route 29 in the east-west direction, a crossing should be established at Valley Stream Parkway, which is an access way in and out of the Valley Creek Corporate Center. No further crossings will be required before terminating the trail at the driveway of Valley Creek Park.

Each crossing identified above should receive the decorative design treatment discussed elsewhere in this plan. Because it is an at-grade crossing of a major roadway, the Route 29 east-west crossing should be larger and more pronounced than the other crossings along this segment.

Trail Links To Adjacent Locations

The Route 29 corridor along the Valley Creek Park Segment is highly developed and still growing. The potential exists to connect the trail to several adjacent locations:

- A utility right-of-way exists directly across Route 29 from the driveway of Valley Creek Park. Some of the area within this right-of-way is steeply sloped. However, this short right-of-way could provide a direct connection westward to the offices, residential neighborhoods and other locations in the vicinity of the Old Morehall Road and Lapp Road intersection.
- Uptown Worthington is situated in the southeast quadrant of the intersection of Route 29 and Matthews Road. A trail loop that also includes the portion of the Chester Valley Trail to be built through that development would be possible.
- Just north of Valley Stream Parkway, the Valley Creek Park Segment runs right by the existing part of the Great Valley Corporate Center located on the east side of Route 29. It would be logical to tie the trail into the pathway/sidewalk/open space system already established within that development. In addition, there is a privately-owned softball field called Siemens Field in this part of the Great Valley Corporate Center. The field is situated on a parcel directly adjacent to Valley Creek Park. A short offshoot path should be built there to provide an easily walkable link between Siemens Field and Valley Creek Park.
- An additional phase of the Great Valley Corporate Center is being developed on the west side of Route 29 between Liberty Boulevard and Valley Stream Parkway. The Valley Creek Park Segment should include a link to the internal sidewalk /path system being constructed as part of this new office park development.



Looking east across Route 29 to Lindenwood Drive



Looking east across Route 29 at the Valley Creek Park entrance



The mixed use Uptown Worthington Project

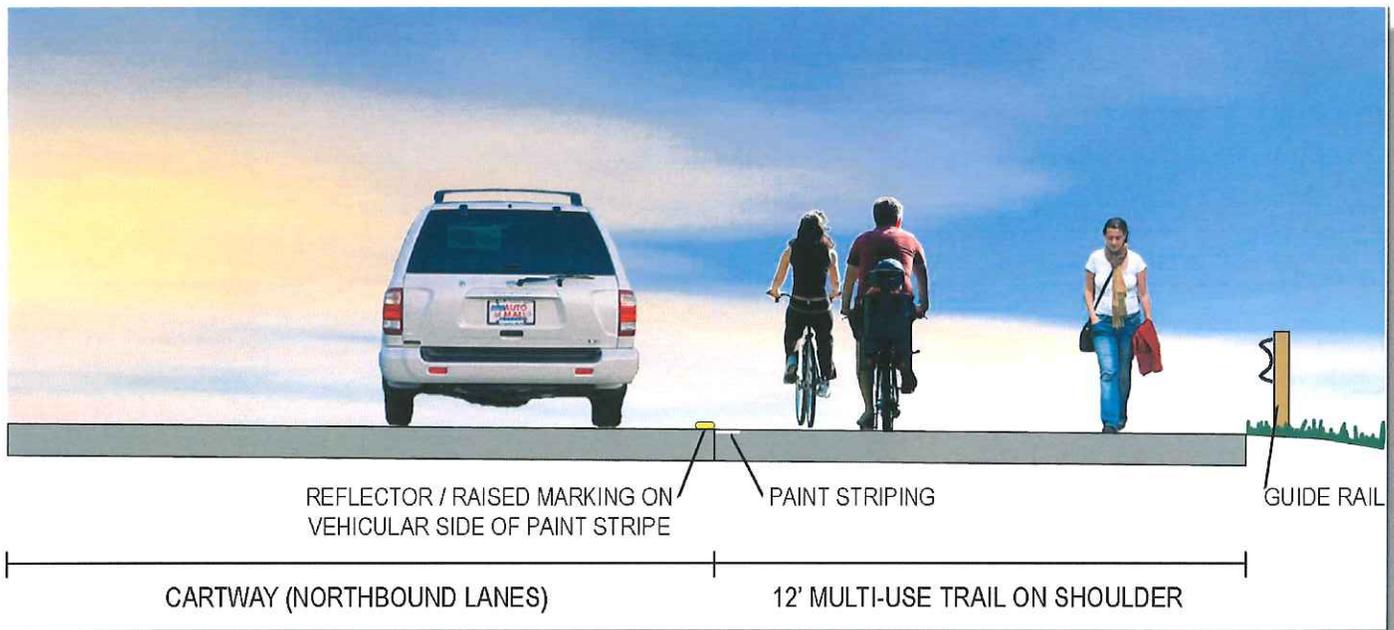


Special Design Problems

The majority of the proposed Valley Creek Segment will need to be along the shoulders of Route 29. These shoulders are wide enough in nearly all places to establish a 10' to 12' trail. The primary problem is how best to separate this trail from the adjacent vehicular travel lanes on Route 29. This is an important concern because of the significant daily volume of higher speed car and truck traffic that runs along this heavily traveled roadway. The safest solution will be to mark the pavement along the trail lane and separate the trail from adjacent vehicular lanes by means of a raised reflective marker and white thermo-plastic paint stripe. The raised marker should be placed on the vehicular side of the paint stripe.

Trail Specifications

On the west side of Route 29, the trail will use both road and shoulder and a widened version of existing and planned sidewalk. On the east side of Route 29 the trail will be built along road shoulder. Based on the specific section concerned, the trail should be between 8' and 12' in width.



Typical Section of Route 29 (looking north)

Trail Support Facilities

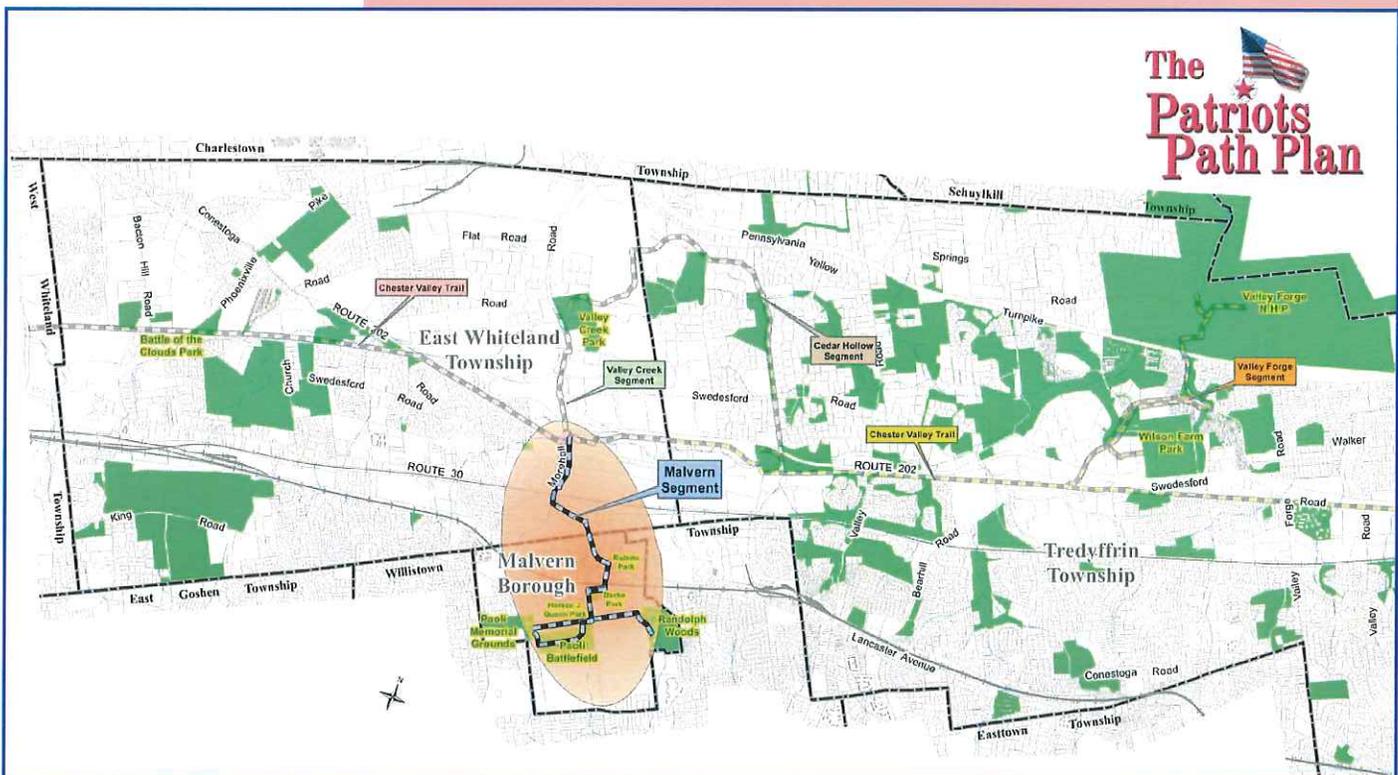
- For parking and restrooms, trail users along the Valley Creek Park Segment can use the facilities at Valley Creek Park. Signs directing users to these facilities should be posted at both ends of this trail segment.
- A four-way stop/pedestrian-only phase should be added to the traffic signals at each signalized intersection where a trail crossing will occur: Lindenwood Drive, Swedesford Road, Liberty Boulevard, and Valley Stream Parkway.
- Signs identifying the Valley Creek Park segment of the Patriots Path trail system should be added at both ends of this trail leg (at Valley Creek Park and at Lindenwood Drive).
- The approaches in both directions to all road crossings will require signage.
- Signs identifying the trail route will be helpful, especially at the Route 29 east-west crossing.
- The feasibility of establishing a trailhead near the entrance to the new Uptown Worthington development should be explored.



THE MALVERN SEGMENT

Trail Alignment, Type and Use

The Malvern Segment of the Patriots Path system will extend from the point where the Chester Valley Trail intersects Route 29 in East Whiteland Township to the Paoli Battlefield and Randolph Woods, two public open spaces in Malvern Borough. The 1.4-mile Malvern Segment is the only part of the Patriots Path trail that will extend south of the Chester Valley Trail. All other parts of the system will be north of the Chester Valley Trail. The Malvern Segment will be designed for both bike riders and pedestrians. For most of its length, the Malvern Segment will accommodate both types of users side-by-side. However, pedestrians will need to be separated from bike riders in some short sections.

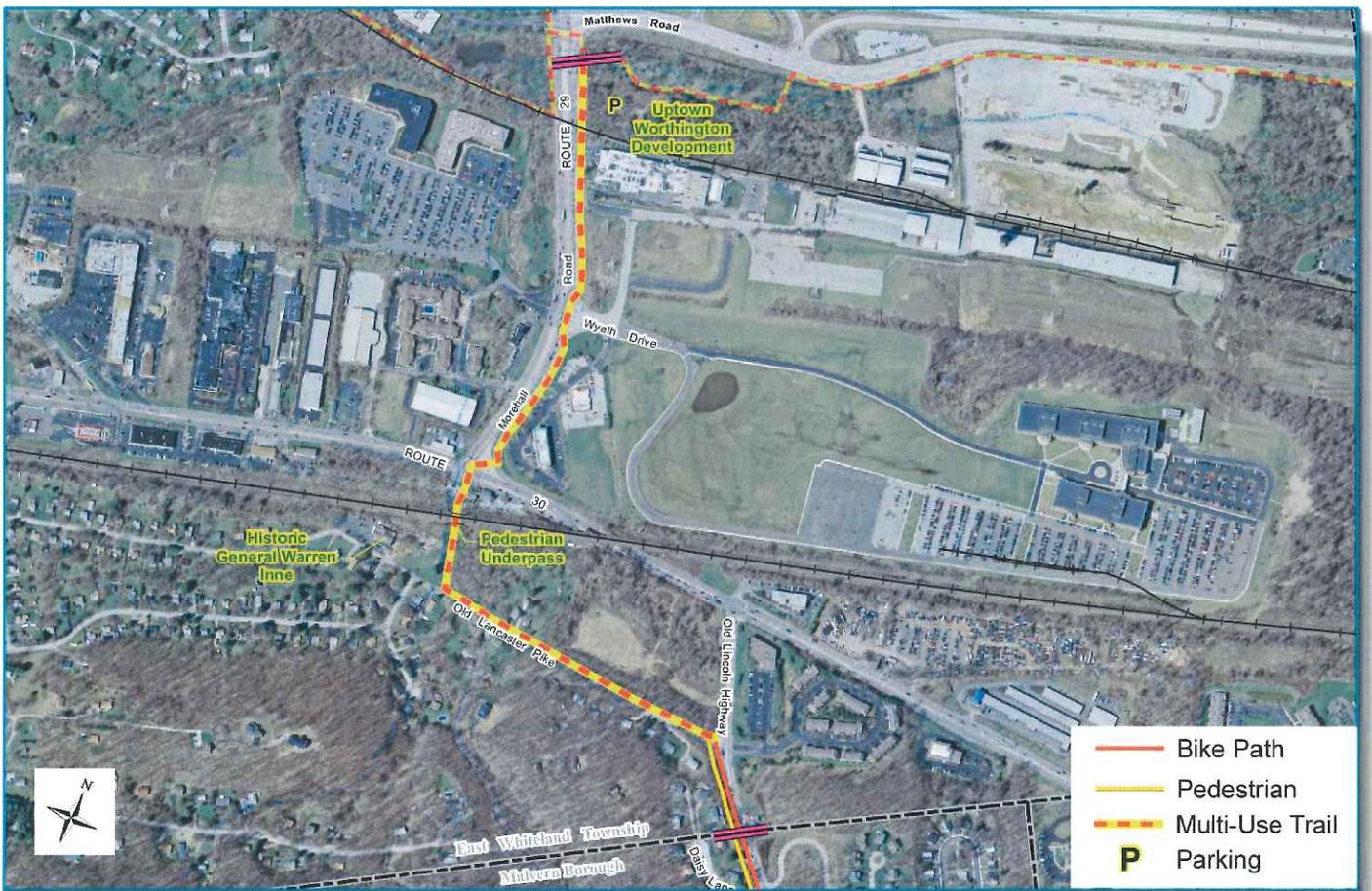


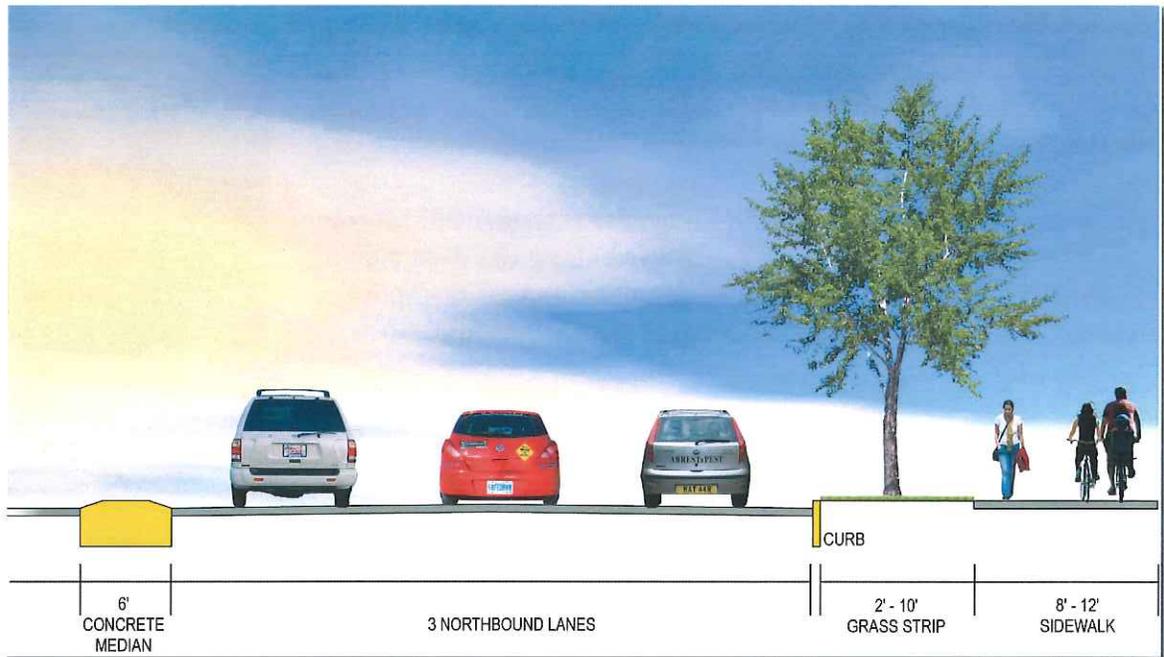
The Malvern segment will begin in East Whiteland Township on the east side of Route 29 at the point where the Chester Valley Trail will cross Route 29 and enter the Uptown Worthington development. Southward along the east side of Route 29, the trail (for both pedestrians and bike riders) should be established on the new sidewalk now under construction from Uptown Worthington to Wyeth Drive.

To augment the new sidewalk being provided to Wyeth Drive, the developer of the hotel project at Route 29 and Route 30 is constructing sidewalk on the east side of Route 29 between Wyeth Drive to Route 30. Thus, the trail can be accommodated on Route 29 on sidewalk all the way from the entrance of Uptown Worthington to Route 30.



Route 29 looking south towards Route 30





Typical Section of Route 29 - Old Morehall Road

Route 29 terminates at Route 30. The signalized intersection of Route 29 and Route 30 brings together two highly traveled four lane roadways. From the east side of Route 29, the trail should extend southward across Route 30, via an existing concrete traffic island, to a parking lot that serves a small commercial office building situated on the south side of Route 30 .



Looking east on Route 30 at Route 29

An elevated portion of the Norfolk Southern Railroad runs across the back of this parking lot. Years ago, Route 29 (Old Morehall Road) extended through a tunnel constructed beneath this elevated rail line. The tunnel is now blocked from road bed to ceiling with fill and the entrances to both sides of the tunnel are overgrown with vegetation. Hopefully, railroad officials and other relevant parties can work together to get this tunnel unblocked and reopened for future trail use.

The tunnel emerges on the south side of the railroad embankment to a parcel now used for access and parking by the adjacent General Warren Inne. This historic restaurant fronts on Old Lancaster Pike and is located in what today is a residential neighborhood. It was a well known landmark during the American Revolutionary War era.

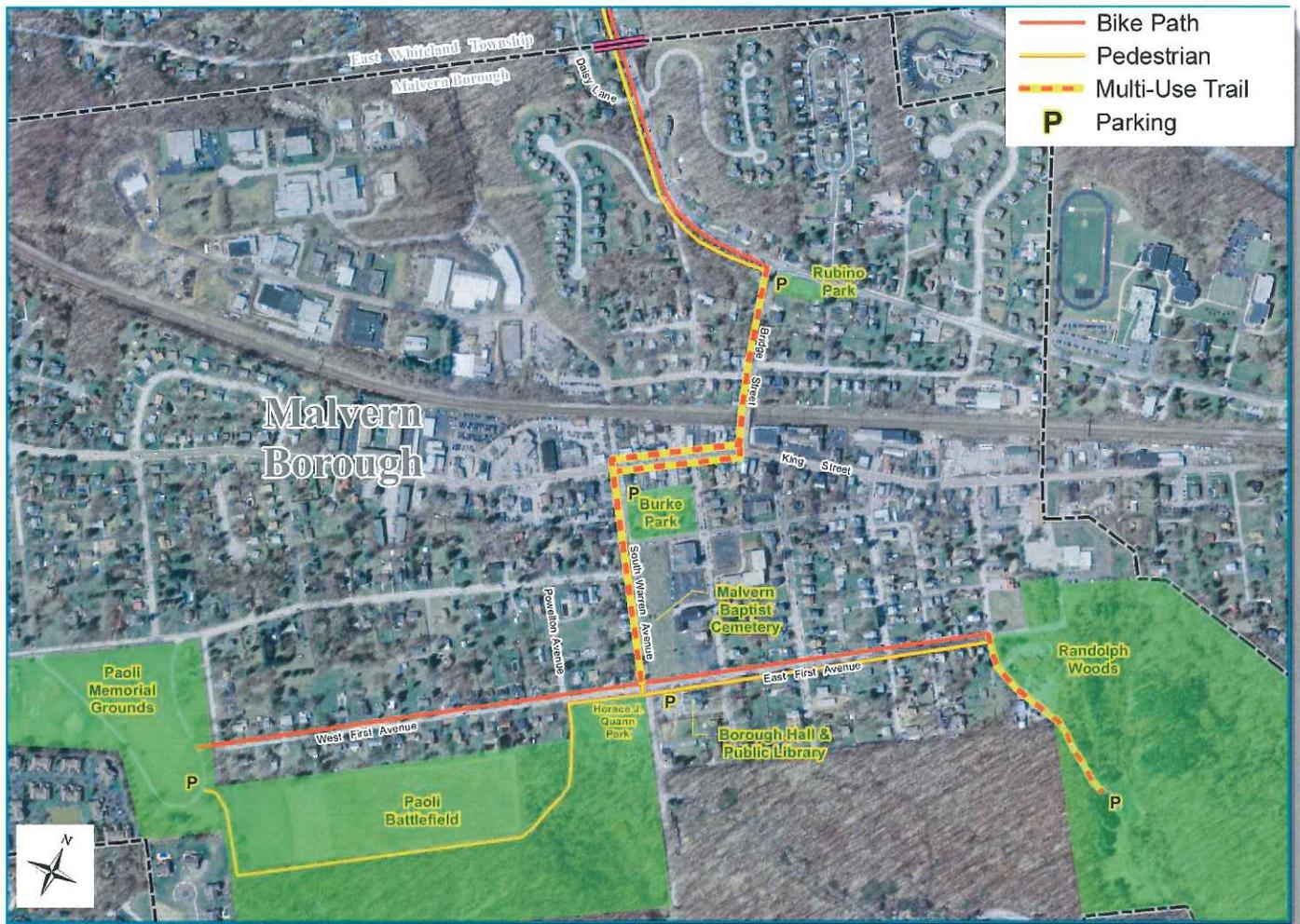
The Patriots Path Plan

From the General Warren Inne, the Patriots Path should run on the north side of Old Lancaster Pike to Old Lincoln Highway on new sidewalk being constructed there by the developer of an approved office park at the northwest corner of Old Lancaster Pike and Old Lincoln Highway.

Beginning at the intersection of Old Lancaster Pike and Old Lincoln Highway, the trail should travel southward along the west side of Old Lincoln Highway across the East Whiteland Township - Malvern Borough boundary to Bridge Street in Malvern Borough.



General Warren Inne on Old Lancaster Pike





Old Lancaster Pike looking east towards Old Lincoln Highway

Old Lincoln Highway is somewhat steep in this area but has a wide road shoulder. If repaved and striped that shoulder can accommodate both bike riders and pedestrians from Old Lancaster Pike to Bridge Street. Some of that distance currently contains sidewalks.

The sidewalk is already in place from Margaret Lane to Daisy Lane. Some sidewalk exists near Bridge Street. Otherwise, the road shoulder will suffice for trail purposes.

The segment of the Patriots Path from Bridge Street southward into the heart of Malvern Borough will have a distinctly different, urban character not found elsewhere in this trail system. The trail will be much narrower. It will be confined to existing sidewalks due to a narrow cartway without shoulders that is hemmed in on both sides by development. Pedestrian trail users will need to share the sidewalk with Malvern's many other daily pedestrians. Bike riders will need to share the narrow roadway with motorists or signs could be posted directing them dismount and walk on the sidewalks rather than ride.



Looking south along Old Lincoln Highway from Margaret Lane

The recommended trail route from the intersection of Old Lincoln Highway and Bridge Street to the Malvern business district is along the west side of Bridge Street. The trail should be established on existing sidewalk there, including the sidewalk over the bridge that spans the SEPTA line.

Bridge Street terminates at King Street in downtown Malvern. Still using the sidewalk for commuters and shared use of the road cartway for bike riders, the trail should be established on both sides of King Street to Warren Avenue where it will turn southward. Trail users traveling along King Street from Bridge Street to Warren Avenue would use the north side of King Street. Trail users going the opposite direction (traveling along King Street from Warren Avenue towards Bridge Street) would use the south side of King Street.

At Warren Avenue, the trail would head southward towards First Avenue using the west side of Warren Avenue. At First Avenue, trail users will have two options:

- Turn right (westward) to go to the Paoli Battlefield and Paoli Memorial Grounds, or
- Turn left (eastward) to go to Randolph Woods, a Borough-owned passive open space site.

The route to Paoli Battlefield and Paoli Memorial Grounds should split according to mode of transport. Walkers should proceed along First Avenue on existing sidewalk past Quann Park to Powelton Avenue, turn left (southward) and join an existing footpath that runs along the perimeter of the Battlefield to Paoli Memorial Grounds.

From the intersection of Warren Avenue and First Avenue, bike riders should use the wide, low-traffic cartway of First Avenue to proceed past the Paoli Battlefield and access the Paoli Memorial Grounds at the western end of First Avenue. An informal footpath entrance has been worn into the Paoli Memorial Grounds at this location. It should be formalized to accommodate bike riders. If bike riders wish to visit the Paoli Battlefield once they have reached Paoli Memorial Park, they must then dismount because the footpath through the Paoli Battlefield is posted for walkers only.

As noted above, trail users at the intersection of Warren Avenue and First Avenue do not necessarily have to turn west to go to the Paoli Battlefield and/or the Paoli Memorial Grounds. Instead, they can go east to Randolph Woods. Bike riders can use that road's low-traffic cartway. Pedestrians should be accommodated on sidewalk. That sidewalk exists on the north side of First Avenue for only one block: the block between Warren Avenue and Channing Avenue. Sidewalk will need to be constructed on the rest of the First Avenue stretch between Channing Avenue and the Ruthland Avenue entrance to Randolph Woods.



Looking south along Bridge Street between Old Lincoln Highway and East Broad Street

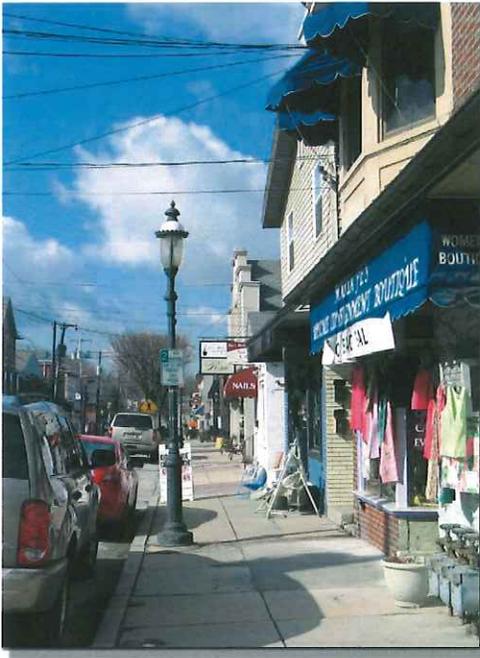


Looking south along Bridge Street at railroad overpass



Trail Links To Adjacent Locations

The portion of Route 29 from Uptown Worthington southward to Route 30 is lined on both sides with commercial uses. There would seem to be little demand for connecting the trail to any of these parcels with the exception of the Wyeth Pharmaceuticals plant. The potential exists to provide an entry from the trail to this property via the sidewalk that exists along the south side of Wyeth Drive, the plant's main driveway.



King Street business district in Malvern

On the south side of Route 30 at its intersection with Route 29, there is an old driveway that leads westward to the New Century Shopping Plaza. This is a potential link for connecting trail users with nearby retail uses.

On the south side of the blocked tunnel through the Norfolk Southern Railroad embankment, the trail connects directly with property used by the General Warren Inne. In addition to its historical interest as a Revolutionary War era rest stop, this restaurant may attract trail users looking for a unique lunch or dinner location.

Old Lancaster Pike, Old Lincoln Highway and Bridge Street along the proposed trail route do not contain notable adjacent uses the trail should connect with, except for Rubino Park at Old Lincoln Highway and Bridge Street.

Once the trail reaches King Street in Malvern, there are a host of commercial and historic attractions for trail users to experience. In addition to the Paoli Battlefield, the Paoli Memorial Grounds and Randolph Woods, which are each noted above, these attractions include:

- The various eateries and other retail establishments found in Malvern's downtown business district
- Burke Park at Warren Avenue and Roberts Lane
- Horace J. Quann Park at Warren Avenue and First Avenue.
- The Malvern Borough Municipal Building and Malvern Public Library at Warren Avenue and First Avenue.

Road Crossings

The Malvern segment of the Patriots Path will require the following road crossings in order to follow the trail route described above:

- Route 29 & Wyeth Drive
- Route 29 & Route 30
- Old Lancaster Pike & Old Lincoln Highway
- Old Lincoln Highway & Daisy Lane
- Old Lincoln Highway & Margaret Lane
- Bridge Street & Broad Street
- Bridge Street & King Street
- King Street & Warren Avenue
- Warren Avenue & Roberts Lane
- Warren Avenue crossing First Avenue from the east side of Warren Avenue
- First Avenue crossing Warren Avenue from the south side of First Avenue
- First Avenue & Channing Avenue
- First Avenue & Woodland Avenue
- First Avenue & Church Street
- First Avenue & Ruthland Avenue
- First Avenue & Powelton Avenue
- First Avenue & Prospect Avenue
- First Avenue & Griffith Avenue
- First Avenue & Wayne Avenue

Each of these intersections should receive a decorative crossing. To the extent possible, these curb ramps should have detectable warnings that conform to Americans With Disabilities Act (ADA) regulations, as enforced by PennDOT.

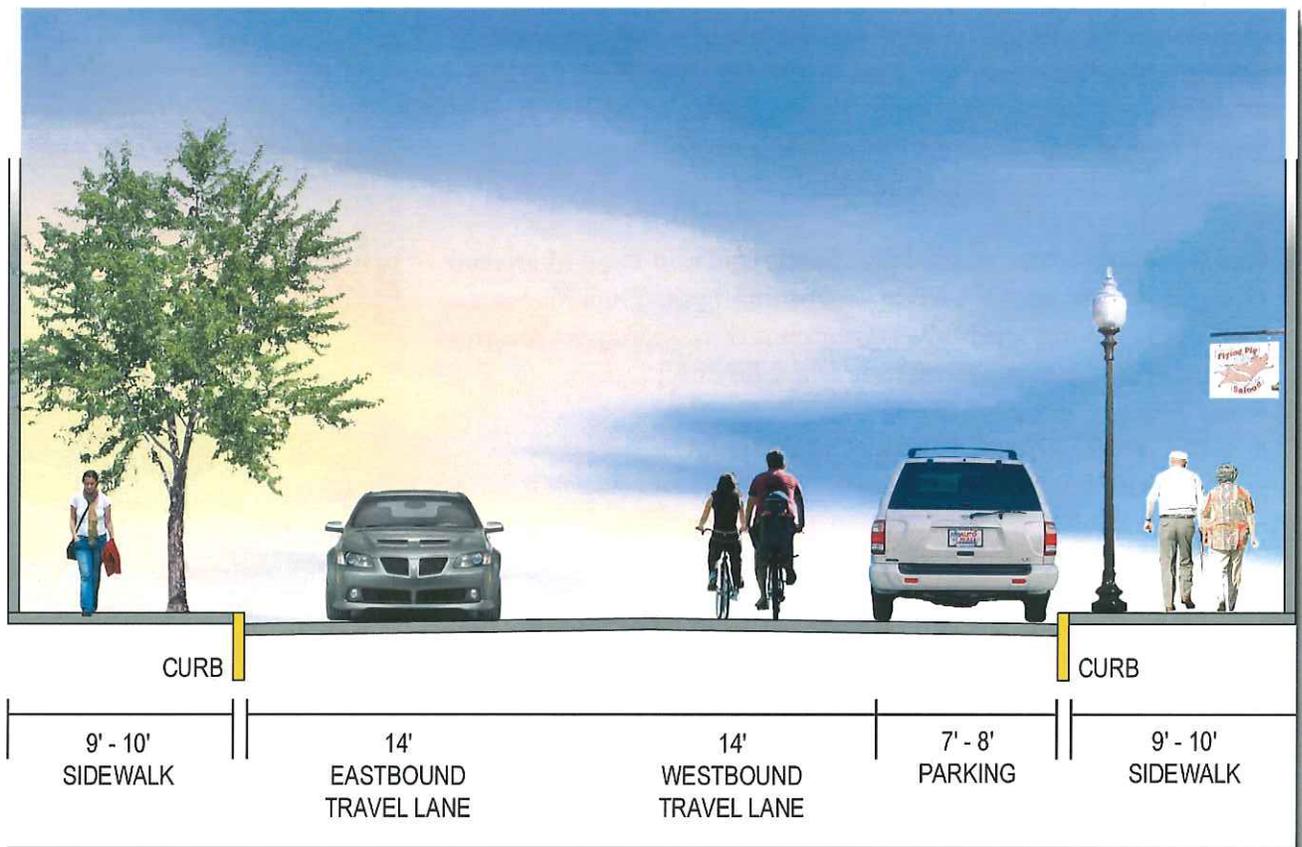
Special Design Problems

The key to getting the Patriots Path from the intersection of Route 29 and Route 30 into Malvern Borough is the unblocking and use of the tunnel through the Norfolk Southern Railroad embankment that parallels Route 30. This will require close coordination with Norfolk Southern officials. The road crossing at the intersection of Route 29 and 30 will also require special attention because: a) it is a wide intersection; and b) it will require the use of an existing concrete traffic island to serve as a pedestrian refuge partway across the intersection.



Trail Specifications

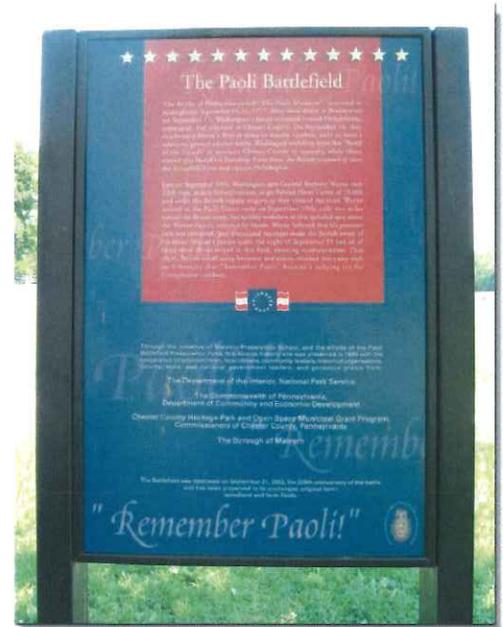
Trail width will vary widely along Malvern segment because several different streets are involved. Along Route 29, the sidewalk being constructed in association with the Uptown Worthington development can be from 8' to 12' wide depending on specific location. On Old Lancaster Pike the trail width will need to be as narrow as needed to deal with that road's narrow and hilly cartway, steep slopes that exist near the edge of the current cartway, and the stone drainage swale that carries stormwater along parts of this road. On Old Lincoln Highway, sufficient road shoulder exists to build a sidewalk and bike lane in the 10' wide range. On Bridge Street, King Street and Warren Avenue trail width will be confined to the width of the existing sidewalk on each of these streets. On First Avenue, somewhat more room is available on both sides of Warren Avenue to construct new sidewalks alongside the existing cartway.



Typical Section of King Street (looking west)

Trail Support Facilities

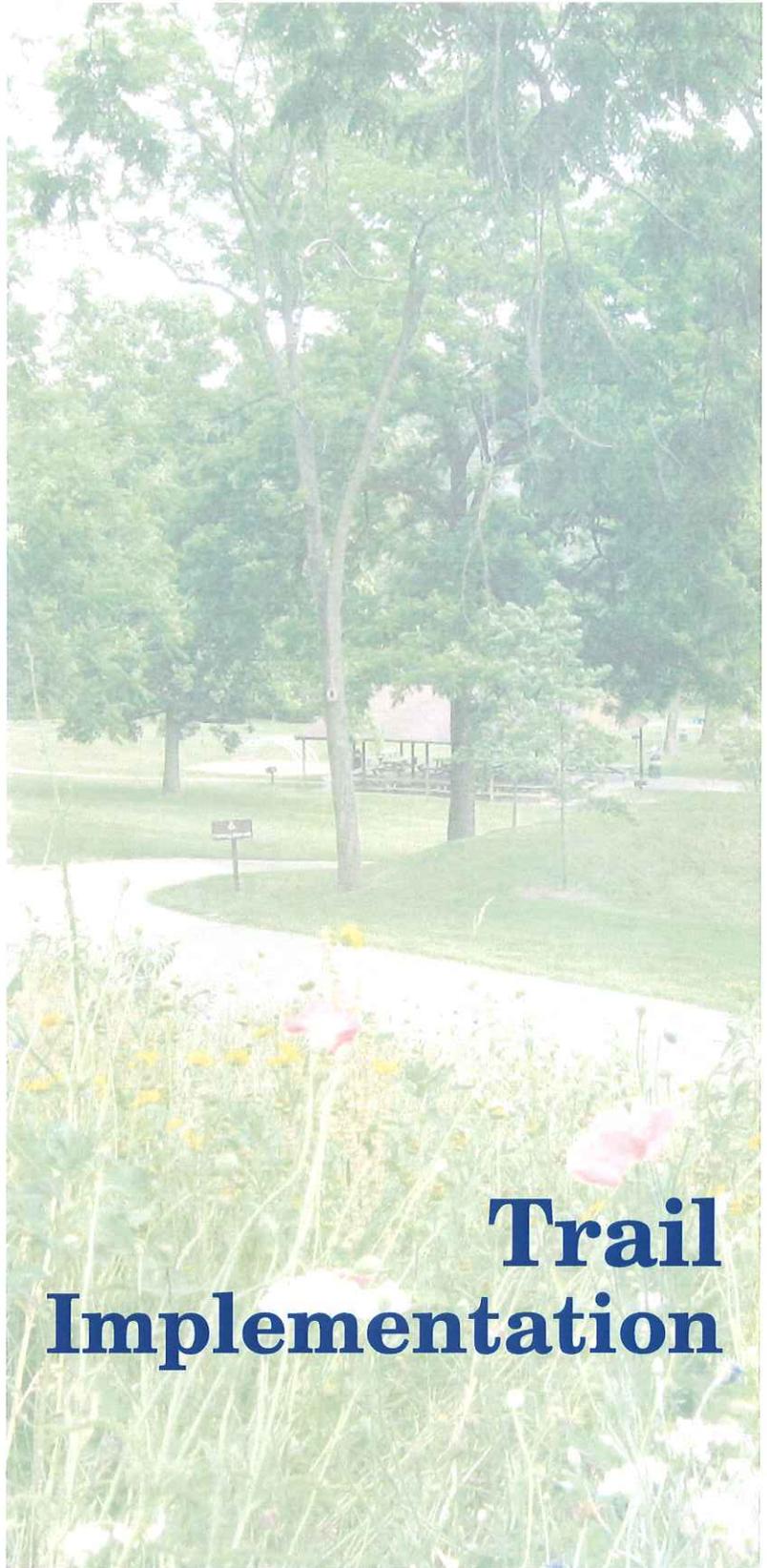
- More so than the other parts of the Patriots Path system, the Malvern Segment runs along several different roads. These range from an intensively used arterial (Route 30) to small, quiet residential streets in Malvern Borough near Randolph Woods. This trail segment involves several turns and much of it will need to be established on existing sidewalks. Consequently, the use of trail identification signs and trail pavement markings should be intensified in the Malvern Segment to clarify the course of the trail route.
- Randolph Woods and the Paoli Battlefield/Paoli Memorial Grounds tracts are the southern termini of the Patriots Path system. A trailhead should be established at Randolph Woods complete with parking spaces, bathroom facilities and an informational kiosk that contains maps of the Patriots Path system and related printed materials.
- Opportunities should be explored for using a portion of the parking area being constructed in the Uptown Worthington development for trail parking. Trail parking at both Uptown Worthington and Randolph Woods will establish parking at each end of the Malvern Segment.
- Excellent signs exist at the Paoli Battlefield and Paoli Memorial Grounds to interpret the events surrounding the Paoli Massacre. Other sites along the Malvern segment that offer opportunities for interpretive signage include the following:
 - The Norfolk Southern railroad tunnel
 - General Warren Inne
 - The National Bank of Malvern at the southwest corner of King Street and Warren Avenue
 - The First Baptist Church of Malvern and its cemetery on the east side of Warren Avenue between Roberts Lane and First Avenue.
 - The Malvern Borough Municipal Building and Malvern Public Library (a former school building)
 - Randolph Woods (environmental education signs)
- A directory sign should be erected to note the location of restaurants and other retail highlights along the King Street corridor in Malvern's business district.



The Paoli Battlefield



Randolph Woods



Trail Implementation







TRAIL IMPLEMENTATION

The previous chapters of this Patriots Path Plan describe the Patriots Path concept, identify physical conditions along the trail corridor and propose specific trail alignments. The focus of this chapter is implementation—how to move the Patriots Path project from the drawing board to reality. The following topics are included:

- Construction costs
- Standards and specifications
- Maintenance costs
- Trail partners
- Potential funding sources

Estimated Construction Costs

The following construction cost estimates are broken down by the four major trail segments identified earlier:

- The Valley Forge Segment
- The Cedar Hollow Segment
- The Valley Creek Segment
- The Malvern Segment

These construction cost estimates include the following items, as applicable, for each trail segment:

- Trail surfaces
- Roadway markings
- Road crossings and associated curb cuts
- Trailheads
- Safety fencing and gates
- Signs

Estimated costs presented here refer only to the trail segments listed above. The Chester Valley Trail in Tredyffrin Township and in East Whiteland Township will link the various Patriots Path segments. However, building the Chester Valley Trail is Chester County’s responsibility and, therefore, not considered in the following cost estimates. The total estimated construction cost for each trail segment includes a line item for design & engineering. In each case, this represents an additional 15% added on to labor and materials. Next, a 10% contingency cost is also added.

Patriots Path Phasing Plan

The Phasing Plan establishes priorities for completion of the various trail segments that comprise the Patriots Path. These priorities reflect the original purpose of the Patriots Path which was to connect the American Revolutionary war sites of Valley Forge National Historic Park and Paoli Battlefield with the with the Chester Valley Trail. Phases with higher priority’s would make these connections to the Valley Forge National Historic Park and Paoli Battlefield.

Phase	Trail Segment	Priority
Phase I	Valley Forge Segment	High
Phase II	Malvern Segment	High
Phase III	Cedar Hollow Segment	Moderate
Phase IV	Valley Creek Segment	Moderate

The phasing chart above suggests those trail segments with a high priority be constructed prior to those of a moderate priority. This is meant to be a guide for trail development which should remain flexible to accommodate individual situations as they arise. For instance, external factors such as ownership or availability of funding may hinder development of all or a portion of one segment. When such situations arise the phases may be adjusted to continue with trail development where it is possible.



Patriots Path Cost Estimate

Cost estimate prepared by URDC in August 2009 - All costs are in 2009 dollars

Valley Forge Park Segment

1.A Valley Forge Park Segment - Valley Forge Park to Chesterbrook Blvd. (Valley Forge National Historical Park & Tredyffrin Township)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Item Total</u>	<u>Segment Total</u>
Sub Section Cost for Valley Forge National Historical Park				
1 Trail Improvements by Valley Forge National Historical Park	1 LS	\$160,000.00	\$160,000.00	
2 Mill & Overlay Library Lane (Yellow Springs Road to stone trail)	1912 SY	\$19.50	\$37,284.00	
3 Stone Trail - 8 ft wide (pedestrian bridge to Wilson Rd.)	1560 SY	\$9.50	\$14,820.00	
4 Shared Lane Markings (Library Lane and Wilson Rd.)	6 each	\$150.00	\$900.00	
5 Decorative crosswalk (at Yellow Springs Rd. and Library Lane)	36 SY	\$125.00	\$4,500.00	
6 Benches (one at each Trailhead)	2 each	\$1,200.00	\$2,400.00	
7 Trash Receptacles (one at each Trailhead)	2 each	\$900.00	\$1,800.00	
8 Bicycle Rack (one at each Trailhead)	2 each	\$1,900.00	\$3,800.00	
9 Pet Waste Station (one at each Trailhead)	2 each	\$600.00	\$1,200.00	
10 Wayfinding Signs	3 each	\$2,200.00	\$6,600.00	
11 Safety Signs	9 each	\$250.00	\$2,250.00	
12 Interpretive Signs	3 each	\$2,200.00	\$6,600.00	
Subtotal			\$242,154.00	
Design and Engineering (15%)	1 LS		\$36,323.10	
Construction Observation and Management (10%)	1 LS		\$24,215.40	
Subtotal			\$302,692.50	
Contingency (10%)	1 LS		\$30,269.25	
Total Sub Section Cost for Valley Forge National Historical Park			\$332,961.75	
Sub Section Cost for Tredyffrin Township				
1 Mill & Overlay Wilson Rd. (stone trail to Chesterbrook Blvd.)	4668 SY	\$19.50	\$91,026.00	
2 Wayfinding Signs	1 each	\$2,200.00	\$2,200.00	
3 Safety Signs	3 each	\$250.00	\$750.00	
Subtotal			\$93,976.00	
Design and Engineering (15%)	1 LS		\$14,096.40	
Construction Observation and Management (10%)	1 LS		\$9,397.60	
Subtotal			\$117,470.00	
Contingency (10%)	1 LS		\$11,747.00	
Total Sub Section Cost for Tredyffrin Township			\$129,217.00	
Total Sub Section Cost			\$462,178.75	

1.B Valley Forge Park Segment - Wilson Rd. to Chester Valley Trail (Tredyffrin Township)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Item Total</u>	<u>Segment Total</u>
1 Bituminous Trail - 6 ft. wide along Chesterbrook Blvd. (Wilson Rd. to Lee Rd.)	2500 SY	\$28.00	\$70,000.00	
2 Paint Striping for bicycle lanes along Chesterbrook Blvd. (Lee Rd. to Adams Rd.)	4500 LF	\$2.50	\$11,250.00	
3 Decorative Crosswalk (2 at Chesterbrook Blvd. and 202 off ramp & 2 at Hotel entrances)	125 SY	\$125.00	\$15,625.00	
4 Bench	1 each	\$1,200.00	\$1,200.00	
5 Trash Receptacle	1 each	\$900.00	\$900.00	
6 Pet Waste Station	1 each	\$600.00	\$600.00	
7 Wayfinding Signs	3 each	\$2,200.00	\$6,600.00	
8 Safety Signs	6 each	\$250.00	\$1,500.00	
Subtotal			\$107,675.00	
Design and Engineering (15%)	1 LS		\$16,151.25	
Construction Observation and Management (10%)	1 LS		\$10,767.50	
Subtotal			\$134,593.75	
Contingency (10%)	1 LS		\$13,459.38	
Total Sub Section Cost			\$148,053.13	
Total Segment Cost				\$610,231.88

Cedar Hollow Segment

2.A) Cedar Hollow Segment - CVT to Church Road (Tredyffrin Township)

Item Description	Quantity	Unit Cost	Item Total	Segment Total
1 Bituminous Paved Trail - 12 ft wide (between CVT and Church Road)	12,665 SY	\$28.00	\$354,620.00	
2 Stone Trail - 5 ft wide (from the Cedar Hollow Park to Cedar Hollow Trail)	450 SY	\$9.50	\$4,275.00	
3 Pedestrian Bridge over Swedesford Road	1 LS	\$250,000.00	\$250,000.00	
4 Grading at Indian Run Road	1 LS	\$40,000.00	\$40,000.00	
5 Safety Fencing (Cedar Split Rail Fence)	2000 LF	\$18.00	\$36,000.00	
6 Decorative crosswalk at Indian Run Road and St. Johns Road	200 SY	\$125.00	\$25,000.00	
7 Safety Gates & Signs (2 at Indian Run Rd., 2 at St. Johns Rd. and 1 at Church Rd.)	5 each	\$5,000.00	\$25,000.00	
8 Trash Receptacle	2 each	\$900.00	\$1,800.00	
9 Bench	2 each	\$900.00	\$1,800.00	
10 Pet Waste Station	2 each	\$600.00	\$1,200.00	
11 Bicycle Rack	2 each	\$1,900.00	\$3,800.00	
12 Wayfinding Signs	3 each	\$2,200.00	\$6,600.00	
13 Safety Signs	10 each	\$250.00	\$2,500.00	
14 Interpretive Signs	3 each	\$2,200.00	\$6,600.00	
Subtotal			\$759,195.00	
Design and Engineering (15%)			\$113,879.25	
Construction Observation and Management (10%)			\$75,919.50	
Subtotal			\$948,993.75	
Contingency (10%)			\$94,899.38	
Total Sub Section Cost			\$1,043,893.13	

2.B) Cedar Hollow Segment - Church Road to Valley Creek Park (East Whiteland Township and Tredyffrin Township)

Item Description	Quantity	Unit Cost	Item Total	Segment Total
Sub Section Cost for Tredyffrin Township				
1 Bituminous Paved Trail - 12 ft wide (Church Rd. to Township Line via Atwater Property)	2,530 SY	\$28.00	\$70,840.00	
2 Decorative crosswalk (duratherm and paint striping at Church Rd.)	35 SY	\$125.00	\$4,375.00	
3 Safety Gates & Signs (at Church Road)	1 each	\$5,000.00	\$5,000.00	
4 Storm culverts (18 inch diameter HDPP Pipe with end walls)	40 LF	\$75.00	\$3,000.00	
5 Wayfinding Signs	2 each	\$2,200.00	\$4,400.00	
6 Safety Signs	3 each	\$250.00	\$750.00	
7 Interpretive Signs	1 each	\$2,200.00	\$2,200.00	
Subtotal			\$90,565.00	
Design and Engineering (15%)			\$13,584.75	
Construction Observation and Management (10%)			\$9,056.50	
Subtotal			\$113,206.25	
Contingency (10%)			\$11,320.63	
Total Sub Section Cost for Tredyffrin Township			\$124,526.88	
Sub Section Cost for East Whiteland Township				
1 Bituminous Paved Trail - 12 ft wide (Township Line to Valley Creek Park via Atwater Property)	5,450 SY	\$28.00	\$152,600.00	
2 Safety Fencing (Vinyl-Coated Chainlink Fence)	1200 LF	\$24.00	\$28,800.00	
3 Benches (2 at each scenic overlook)	4 each	\$900.00	\$3,600.00	
4 Trash Receptacle	2 each	\$900.00	\$1,800.00	
5 Bicycle Rack	2 each	\$1,900.00	\$3,800.00	
6 Storm culverts (18 inch diameter HDPP Pipe with end walls)	40 LF	\$75.00	\$3,000.00	
7 Wayfinding Signs	3 each	\$2,200.00	\$6,600.00	
8 Safety Signs	3 each	\$250.00	\$750.00	
9 Interpretive Signs	1 each	\$2,200.00	\$2,200.00	
Subtotal			\$203,150.00	
Design and Engineering (15%)			\$30,472.50	
Construction Observation and Management (10%)			\$20,315.00	
Subtotal			\$253,937.50	
Contingency (10%)			\$25,393.75	
Total Sub Section Cost for East Whiteland Township			\$279,331.25	
Total Sub Section Cost			\$403,858.13	
Total Segment Cost				\$1,447,751.25



Valley Creek Segment

3.) Valley Creek Segment (SR 29) (East Whiteland Township)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Item Total</u>	<u>Segment Total</u>
1 Bitumious Paved Trail - 8 ft wide (westside of Swedesford Rd. to Valley Stream Pkwy.)	1,600 SY	\$28.00	\$44,800.00	
2 Decorative crosswalk (at 202 Off-ramp, Swedesford Rd., Liberty Blvd. & Valley Stream Pkwy.)	550 SY	\$125.00	\$68,750.00	
3 Paintstripping and raised reflectors (defining trail in shoulder along SR 29)	220 LF	\$3.50	\$770.00	
4 Benches (2 at each scenic overlook)	1 each	\$900.00	\$900.00	
5 Trash Receptacle	1 each	\$900.00	\$900.00	
6 Bicycle Rack	1 each	\$1,900.00	\$1,900.00	
7 Pet Waste Station	1 each	\$600.00	\$600.00	
8 Wayfinding Signs	2 each	\$2,200.00	\$4,400.00	
9 Safety Signs	6 each	\$250.00	\$1,500.00	
10 Interpretive Signs	1 each	\$2,200.00	\$2,200.00	
Subtotal			\$126,720.00	
Design and Engineering (15%)			\$19,008.00	
Construction Observation and Management (10%)			\$12,672.00	
Subtotal			\$158,400.00	
Contingency (10%)			\$15,840.00	
Total Segment Cost				\$174,240.00

Malvern Segment

4.A) Malvern Segment - East Whiteland Township Sub Section (East Whiteland Township)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Item Total</u>	<u>Segment Total</u>
1 Bitumious Paved Trail/Sidewalk - 8 ft wide (Wyeth Drive to Route 30)	650 SY	\$28.00	\$18,200.00	
2 Bitumious Paved Trail/Sidewalk - 8 ft wide (Route 30 to Warren Inn Driveway)	110 SY	\$28.00	\$3,080.00	
3 Clear Railroad underpass of fill	1 LS	\$40,000.00	\$40,000.00	
4 Concrete sidewalk - 8 ft wide on Old Lancaster Pike (Warren Inn to Old Lancaster Pike development)	355 SY	\$65.00	\$23,075.00	
5 Concrete sidewalk - 6 ft wide on Old Lincoln Highway (Old Lancaster Pike to Township line)	255 SY	\$65.00	\$16,575.00	
6 Decorative crosswalk (duratherm & striping at Wyeth Drive, Route 30, Old Lancaster Pike)	600 SY	\$125.00	\$75,000.00	
7 Wayfinding Signs	2 each	\$2,200.00	\$4,400.00	
8 Safety Signs	6 each	\$250.00	\$1,500.00	
9 Interpretive Signs	1 each	\$2,200.00	\$2,200.00	
Subtotal			\$184,030.00	
Design and Engineering (15%)			\$27,604.50	
Construction Observation and Management (10%)			\$18,403.00	
Subtotal			\$230,037.50	
Contingency (10%)			\$23,003.75	
Total Sub Section Cost				\$253,041.25

4.B) Malvern Segment - Malvern Borough Sub Section (Malvern Borough)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Item Total</u>	<u>Segment Total</u>
1 Concrete sidewalk - 6 ft wide (along Old Lincoln Highway from Boro. line to Daisy Lane.)	230 SY	\$65.00	\$14,950.00	
2 Concrete sidewalk - 6 ft wide (along Old Lincoln Highway from Margret Lane to near Bridge St.)	550 SY	\$65.00	\$35,750.00	
3 Concrete sidewalk - 6 ft wide (along East First Avenue from Channing Avenue to Randolph Woods)	850 SY	\$65.00	\$55,250.00	
4 Shared Use Markings (along Bridge Street, King Street, South Warren Street and 1st Avenue, Ruthland Avenue)	24 each	\$65.00	\$1,560.00	
5 Decorative crosswalk (duratherm & striping at Daisy Lane, Margret Lane, Bridge St., Broad st., King St., Warren Ave., Monument Ave., Channing Ave., Woodland Ave., Church St., and Green St.)	1980 SY	\$125.00	\$247,500.00	
6 Benches	4 each	\$900.00	\$3,600.00	
7 Bicycle Rack	4 each	\$1,900.00	\$7,600.00	
8 Trash Receptacle	4 each	\$900.00	\$3,600.00	
9 Pet Waste Station	4 each	\$600.00	\$2,400.00	
10 Wayfinding Signs	4 each	\$2,200.00	\$8,800.00	
11 Safety Signs	12 each	\$250.00	\$3,000.00	
12 Interpretive Signs	2 each	\$2,200.00	\$4,400.00	
Subtotal			\$388,410.00	
Design and Engineering (15%)			\$58,261.50	
Construction Observation and Management (10%)			\$38,841.00	
Subtotal			\$485,512.50	
Contingency (10%)			\$48,551.25	
Total Sub Section Cost			\$534,063.75	
Total Segment Cost				\$787,105.00

Summary of Cost Estimate for Patriots Path

1 Valley Forge Park Segment	\$610,231.88
2 Cedar Hollow Segment	\$1,447,751.25
3 Valley Creek Segment	\$174,240.00
4 Malvern Segment	<u>\$787,105.00</u>

Total Cost of all Trail Segments \$3,019,328.13

Standards and Specifications

Throughout the various segments of the Patriots Path, signs, trailheads, road crossings, roadway markings and other design elements should share a common design. This will standardize the trail and reinforce the fact that each trail segment is part of the overall Patriots Path trail network. The following pages illustrate recommended design themes for important design elements.



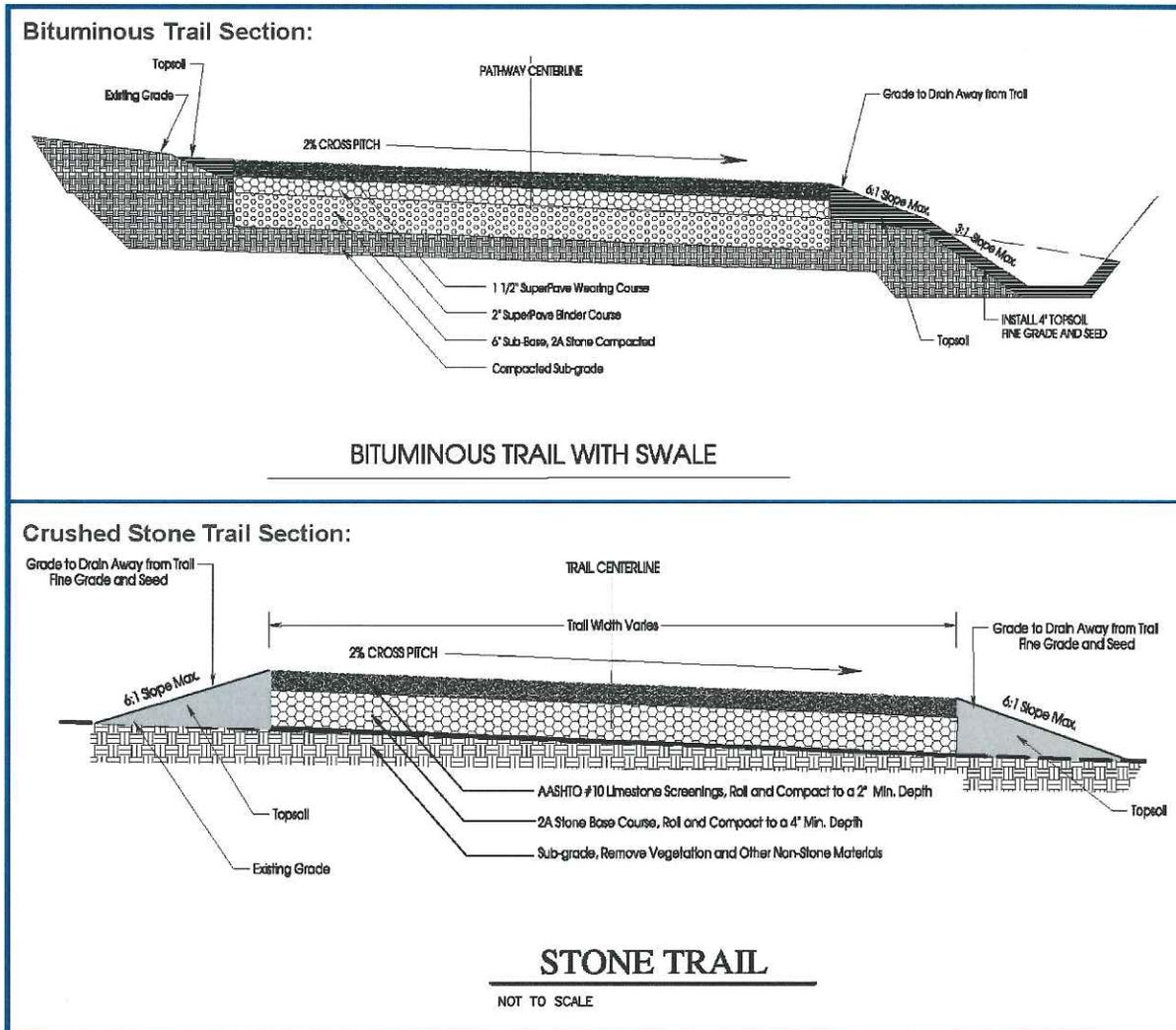
In 2000, the Brandywine Battlefield Task Force developed signage guidelines for the Brandywine Battlefield National Historic Landmark. This system along with schematic plans for signs was published in *Brandywine Battlefield National Historic Landmark Gateway Sign System: Design Intent Documentation*. Signs that follow this system were erected at the Brandywine Battlefield, and the logo developed for this system is present on interpretive signage at the Paoli Battlefield as shown on the photo on page 58. This system should be employed to mark the Patriots Path to graphically link it to the other Revolutionary War sites associated with the Campaign of 1777.

Accessibility

Trails should comply with design criteria established by the *Americans with Disabilities Act (ADA)*. At this time, trails must meet the following technical provisions to be considered accessible:

- Surface - the trail surface shall be firm, stable and slip resistant
- Clear Tread Width - 36" minimum
- Tread Obstacles - 2" high maximum (up to 3" high where running and cross slopes are % or less)
- Cross Slope - 5% maximum
- Passing Space - provided at least every 1,000' where the trail width is less than 60" (5'-0")
- Signs - shall be provided indicating the length of accessible trail segment
- Running Slope (trail grade) shall meet one or more of the following:
 - 5% or less for any distance
 - Up to 8.33% for 200' maximum with resting intervals no more than 200' apart
 - Up to 10% for 30' maximum with resting intervals no more than 30' apart
 - Up to 12.5% for 10' maximum with resting intervals no more than 10' apart.
 - No more than 30% of the total trail length may exceed a running slope of 8.33%

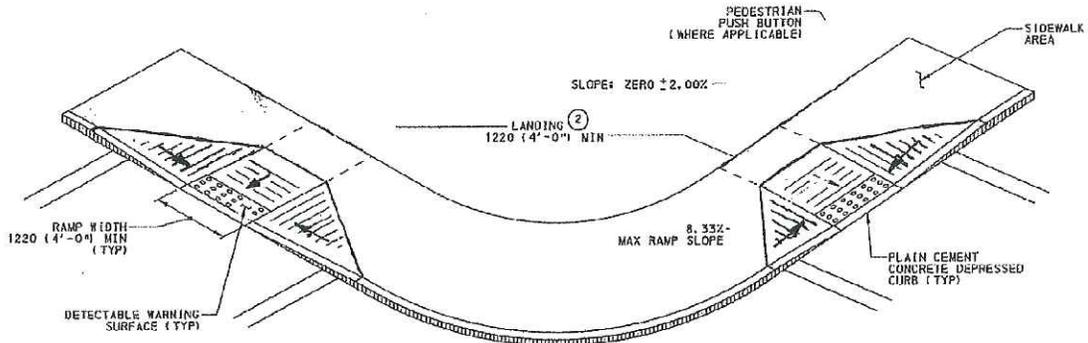
Patriots Path Trail Sections





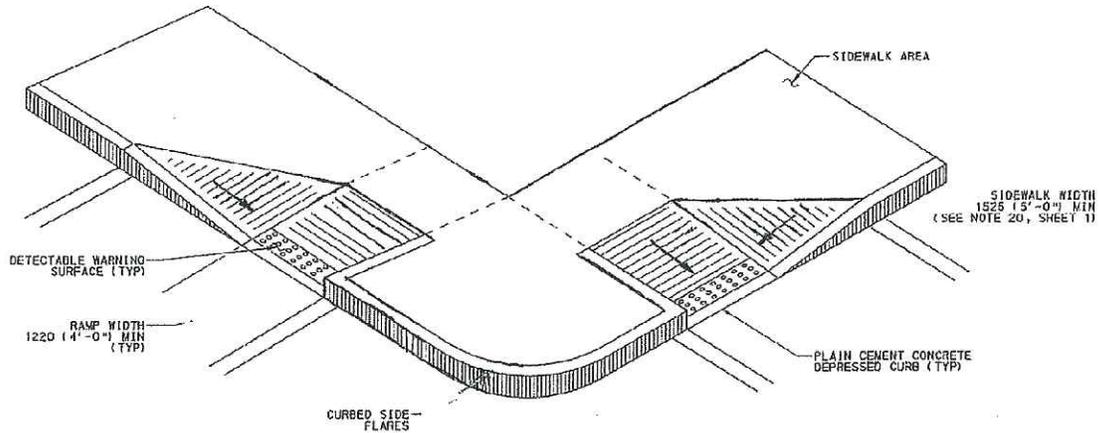
Patriots Path Curb Cuts

PennDot Approved Curb Cut Design:



NOTE: IF SPACE IS LIMITED, IT MAY BE NECESSARY TO CURB THE SIDE FLARES OF THE TYPE 1 CURB RAMPS (SEE ALTERNATE INSTALLATION DETAIL BELOW). PEDESTRIAN TRAFFIC SHOULD NOT BE DIRECTED TO CROSS THE VERTICAL DROP.

**TYPE 1
DOUBLE CURB RAMPS
(PREFERRED INSTALLATION)**



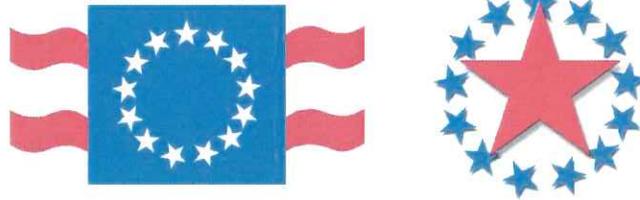
**TYPE 1
DOUBLE CURB RAMPS
(ALTERNATE INSTALLATION)**

Patriots Path Logo

To be used on all wayfinding signs, interpretive signs, and promotional literature.

Note:

Logo options are preliminary. The logo designs shown are suggestions that are subject to additional discussion and are not yet officially approved.



Patriots Path Benches

Recommended Design Criteria:

- Recycled "Plastic Wood"
- Designed to anchor in place
- Backless
- 4' length
- LEED certified



Patriots Path Bike Racks

Recommended Design Criteria:

- Recycled "Plastic Wood"
- LEED Certified
- Designed to anchor in place
- 6' length
- 6 bicycles as average capacity





Patriots Path Trash Receptacles

Recommended Design Criteria:

- Recycled "Plastic Wood"
- LEED Certified
- Designed to anchor in place
- Hinged/Removable top
- 29 gal. outdoor steel receptacle
- 4 openings for trash disposal
- 21" square x 37" height



Patriots Path Pet Waste Station

Recommended Design Criteria:

- 320 Pet Waste Bags
- 12" x 18" Pet Waste Sign
- 8' Steel Channel Post
- 1 Hardware Kit



Patriots Path Fencing

Split Rail Fencing:

Fencing on the Cedar Hollow Segment over the Valley Creek Culvert.

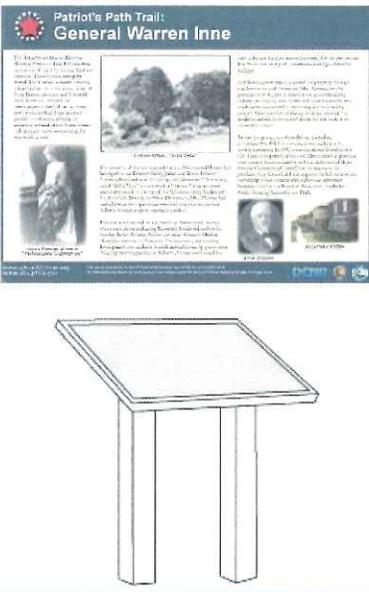


Vinyl Coated Chain-linked Fencing:

Fencing on the Cedar Hollow Segment on the Atwater Property near quarry overlooks.



Patriots Path Sign Types

Sign Type	Sign Style	Example Locations
<p>Wayfinding - signs that identify where you are and announce trail conveniences.</p>		<ul style="list-style-type: none"> • At the beginning and end of each trail segment • At all trailheads • Points near restaurants and convenience stores • Other points of special interest
<p>Safety - signs that warn trail users about upcoming trail hazards.</p>		<ul style="list-style-type: none"> • Approaching all road crossings • In area where bikes must share the road with vehicular traffic
<p>Interpretive - signs that describe a historic or environmental point of interest.</p>		<ul style="list-style-type: none"> • General Warren Inne • Valley Creek • St. Peter's Church



Estimated Trail Maintenance Costs

Once trails are built, they must be maintained. Depending on the specific trail segment involved, the following are among the important trail maintenance responsibilities that need to be overseen and funded. Some of these will be annual activities. Others will be undertaken only as-needed.

- Repaving and patching bituminous trail surfaces
- Refurbishing of crushed stone and concrete trail surfaces
- Pick up of trash and debris
- Pruning and mowing trail side corridors and trail shoulders
- Refurbishing trailside plantings
- Applying herbicide and pesticide applications
- Installing, repairing and replacing signs
- Repainting trail surface markings
- Painting and redecking bridges
- Painting and removing graffiti from tunnels
- Refurbishing and replacing safety fencing
- Trailhead maintenance:
 - Emptying trash receptacles
 - Cleaning, emptying and resupplying portable toilets
 - Landscaping and gardening
 - Repairing and replacing benches and picnic tables
 - Updating information at informational kiosks
 - Repairing kiosks

A rounded average of estimated trail maintenance costs investigated for this study is \$7,000 per trail-mile per year. By trail segment, this would equate to the following annual average trail maintenance costs:

Valley Forge Segment:	1.8 miles = \$12,600
Cedar Hollow Segment:	2.8 miles = \$19,600 - includes 1.0 mile connection to Valley Creek Park
Valley Creek Segment	1.0 miles = \$7,000
Malvern Segment	1.4 miles = \$9,800

Note: These estimated trail maintenance costs were calculated by multiplying an average-per-mile unit cost times the estimated distance of each trail segment. No attempt was made to account for the facts that: a) certain portions of the trail are on private property; and b) certain portions of the trail will be on sidewalks that will be maintained regardless of whether a trail is established on them.

Trail Partners

With the exception of any improvement within Valley Forge Historic Park, each participating municipality will have ultimate responsibility for constructing and maintaining those portions of the Patriots Path situated within its borders:

- Valley Forge Segment: Entirely within Tredyffrin Township
- Cedar Hollow Segment: Extends into both Tredyffrin Township and East Whiteland Township
- Valley Creek Segment: Entirely within East Whiteland Township
- Malvern Segment: Extends into both East Whiteland Township and Malvern Borough

West Whiteland Township will be a significant trail partner because the Patriots Path could extend west along the Chester Valley Trail (CVT) from the Battle of the Clouds Park and link to the Exton park site. Studies suggest that the Exton Park site may have been crossed by Hessian troops marching to the Battle of the Clouds. Thus, the future park could be well-suited as a destination for the Patriots Path. The CVT between the Exton Park site and Route 29 is scheduled to begin construction in 2010, and so this section could be the first long segment of trail built and designated as part of the Patriots Path.

While overall responsibility rests with each host municipality, there are several interested parties that should have an active interest in one or more of the Patriots Path segments. In some cases, these entities may help fund construction and/or maintenance costs. In other cases, they are parties that should be consulted, prior to construction, as the various trail segments undergo design and engineering. Potential Patriots Path trail partners for East Whiteland Township, Malvern Borough, and Tredyffrin Township include the following:

- Chester County Facilities Department - is managing Chester Valley Trail design and construction.



- Chester County Planning Commission - authored the original planning study for the Patriots Path; also may have grants available for design and construction.
- Pennsylvania Turnpike Commission (PTC) – The bridge that carries the Pennsylvania Turnpike over Wilson Road has been considered for replacement. Chester County has contacted the PTC to discuss options for maintaining trail access at this crossing.
- Pennsylvania Department of Transportation (PennDOT) - the bridge that will carry the trail over Route 202 is within section 320 of PennDOT’s Route 202 widening project; also may have grants available for design and construction.
- Pennsylvania Department of Conservation and Natural Resources - is the State’s leading trail agency; also may have grant funds available for design and construction.
- National Park Service - manages Valley Forge National Historic Park, into which the Patriots Path is proposed to extend.
- Norfolk Southern Railroad - owns the blocked railroad underpass near the intersection of Route 30 and Route 29.
- Valley Creek Trustee Council - manages grant monies available to help fund projects that restore and protect Valley Creek.
- Horse-Shoe Trail Club - operates a parking lot at Route 23 and Route 252 in Valley Forge National Historic Park that is recommended as a Patriots Path trailhead site.
- Open Land Conservancy - owns nature preserves to which the Cedar Hollow Segment should connect.
- Owners of selected private properties through which the Patriots Path is recommended to extend (e.g. Atwater, Forcine Concrete) plus the owners of private properties to which Patriots Path could connect (e.g. Great Valley Corporate Center, Uptown Worthington).

- Private developers of property adjacent to the Patriots Path trail corridor - could be required to help fund construction of trail adjacent to their proposed land development project.
- Delaware Valley Cycling Club, Brandywine Bicycle Club, Chester County Cycling Coalition, The Wheelmen - examples of local bicycling advocate groups whose support and input into trail design will be helpful.
- Trout Unlimited - owns an easement along Valley Creek that could provide an unpaved, informal walking connection between the northern end of the Cedar Hollow Segment and Valley Creek Park.



POTENTIAL FUNDING SOURCES

The federal government, state government, county government and private organizations, such as foundations provide various opportunities for the funding trails projects. Funding sources are always changing. New programs are added. Older programs are revised or deleted. Applicants should contact the administering agency to determine requirements in effect at the time of application.

Program	General Description of Program	Administering Agency
1 Community Conservation Partnerships Program (C2P2)	<p>Provides matching grants to eligible entities for projects in the following areas:</p> <ul style="list-style-type: none"> • Planning <ul style="list-style-type: none"> – Comprehensive Recreation, Park, and Open Space Plan – Conservation Plan – Feasibility Study – County/Municipal Greenway/Open Space Network Plan – Specific Greenway, Trail, or Rails-to-Trails Plan – Snowmobile/All-Terrain Vehicle Plan – Master Site Plan – Rivers Conservation Plan • Acquisition <ul style="list-style-type: none"> – Park and Recreation Areas – Greenways/Trails/Rivers Conservation – Rails-to-Trails – Snowmobile/All-Terrain Vehicle – Natural and Critical Habitat Areas • Development <ul style="list-style-type: none"> – Park and Recreation Areas – Greenways and Trails – Rails-to-Trails – Snowmobile/All-Terrain Vehicle – Rivers Conservation • Technical Assistance <ul style="list-style-type: none"> – Education, Training, Implementation – Peer-to-Peer Technical Assistance – Circuit Rider • Pennsylvania Recreational Trails • Land and Water Conservation Fund (LWCF) 	PA DCNR
2 Community Development Block Grant (CDBG)	Offers grants for a wide variety of activities, provided the applicant proves by survey or census that the project will benefit 51% low and moderate income persons or handicapped persons or eliminate "blighted" conditions in officially designated areas. For example, funds can be used for water and sewage improvements, storm drainage, handicapped accessibility, parks / recreation / greenways, street and sidewalk improvements, planning, and historic rehabilitation.	PA DCED
3 Community Revitalization Program	Very broad grant program. Officially intended to promote community stability, increase tax bases and improve quality of life. Applications may be made by municipalities, authorities, economic development organizations, and nonprofit corporations. Public/non-profit/profit partnerships are encouraged. Generally can be used for infrastructure, community revitalization, building rehabilitation, demolition of blighted structures, public safety, and park and greenways projects.	PA DCED & governor's office
4 PA Conservation Corps	Provides funding for work crews for community projects, such as trail improvements.	PA Dept. of Labor and Industry
5 Environmental Protection Agency (EPA) Watershed Initiative's	The Environmental Protection Agency (EPA) provides large Watershed Initiative grants ranging in size from approximately \$300,000 to \$1.3 million. Twenty grants are given out each year. The program is very competitive and requires state endorsement of the proposed project(s).	U.S. EPA (Philadelphia)
6 Growing Greener Program	As part of Pennsylvania's Growing Greener Program, PA DEP offers various grants that can be used for greenway related projects. They include: Watershed Grants, Technical Assistance Grants, and New or Innovative Technology Grants.	PA DEP

Program	General Description of Program	Administering Agency
7 Home Town Streets and Safe Routes to School	The Home Town Streets Program provides funding for a variety of streetscape improvements that are aimed at reestablishing downtown and commercial centers. The Safe Routes to School Program provides grants and is designed to work with both school districts and pedestrian and bicycle safety advocates to make physical improvements that promote safe walking and biking passages to schools. Both programs require a 20% local match.	PennDOT
8 Intermunicipal Projects Grants	Promotes cooperation between neighboring municipalities so as to foster increased efficiency and effectiveness in the delivery of municipal services at the local level.	PA DCED
9 Land & Water Conservation Fund	The Land & Water Conservation Fund (LWCF) provides matching grants to state and local governments for the acquisition and development of public outdoor recreation areas and facilities.	National Park Service in cooperation with PA DCNR
10 Key 93 — Rails to Trails	Provides grants for feasibility studies, master site plans, acquisition, and improvement of former railroad lines for recreation trails. A 50% local match is required. Open to municipalities, authorities, and non-profit agencies.	DCNR
11 Rivers, Trails, and Conservation Assistance Program	The National Parks service operates this program aimed at conserving land and water resources for communities. Eligible projects include conservation plans for protecting these resources, trail development, and greenway development.	National Park Service
12 SAFETEA-LU (part of federal Transportation Equity Act)	Provides grants of up to 80% for: pedestrian and bicycle facilities (including trails), acquisition of scenic easements at scenic or historic sites, development of scenic or historic route programs, landscaping and other scenic beautification along highways, restoration of historic transportation facilities (such as canals), preservation of rail corridors (particularly for multiple-use trails), control and removal of outdoor advertising, archeological research, and mitigation of water pollution due to highway runoff. All projects must have a direct correlation with transportation.	U.S. DOT funds administered by PennDOT
13 Pennsylvania Recreational Trails	Provides matching funds (80/20) to federal state, and local agencies and private organizations to develop and maintain recreational trails and facilities for motorized and nonmotorized use.	PA DCNR
14 Smart Transportation Projects	Supports transportation projects that promote sustainable communities, including walking and bicycling connections.	PennDOT
15 Bikes Belong Coalition Grants Program	Provides grants for bicycling facilities and bicycling education.	Bikes Belong Coalition
16 Chester County Revitalization Program	Grants are available in each of two categories: 1) Transportation; and 2) Below-Ground Infrastructure. All improvements funded under this program must be to municipally-owned property. Eligible activities include improvements related to sidewalks, curbs, street trees, lighting, benches, bike lanes, bus shelters, streets, water facilities, sewer facilities and stormwater facilities, among others. The required match is 25% of total project cost for East Whiteland, Malvern and Tredyffrin.	Chester County

Sources: Publications and internet sites of various agencies; *Pennsylvanian* magazine; PA DCED *Resource Directory* PA DCNR and PA Growing Greener websites, URDC



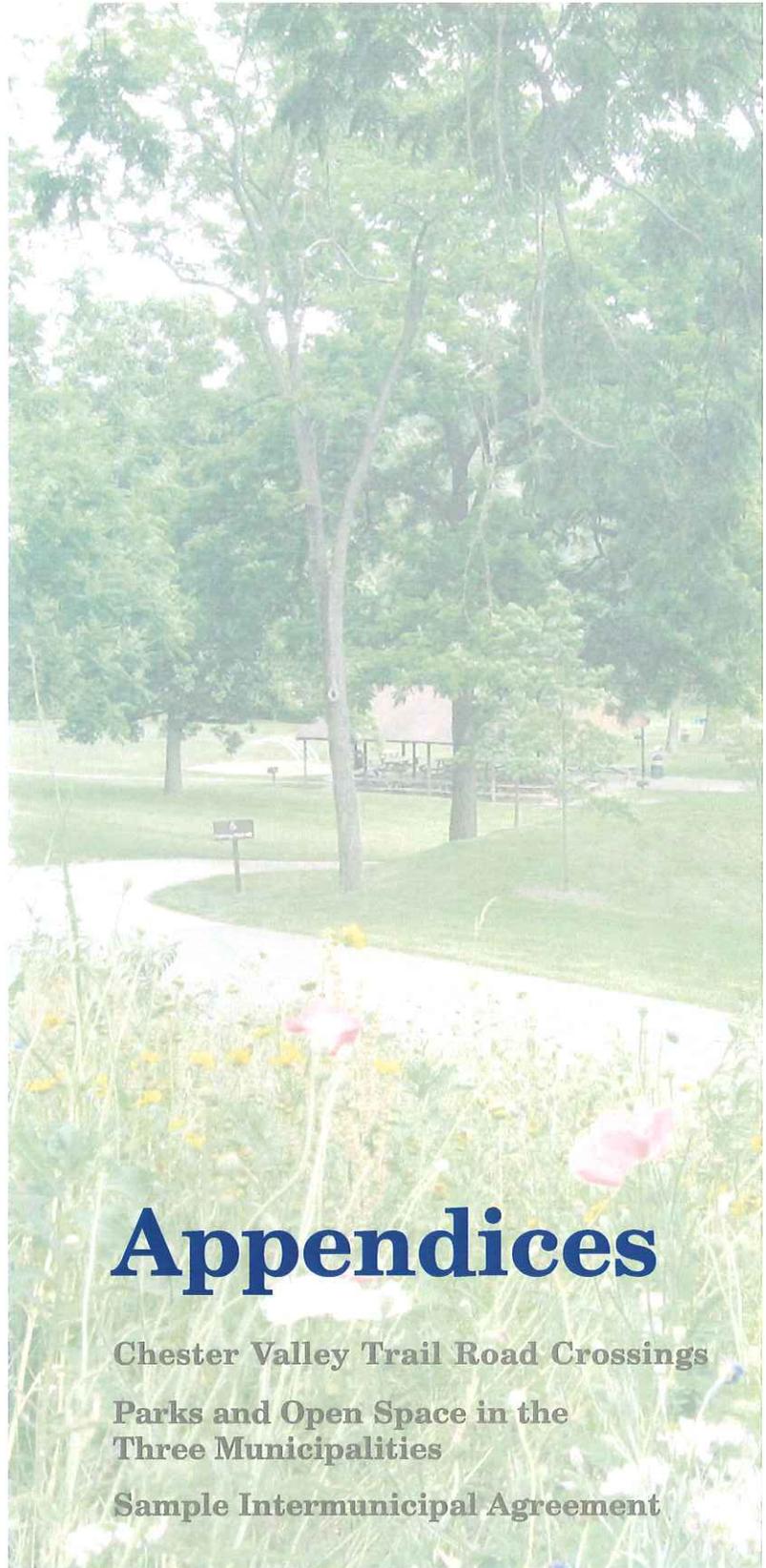
SAFETY AND CRIME DETERRENCE

Responsibility for trail security on the Patriots Path will be divided according to the location and ownership of the trail right-of-way. The National Park Service be responsible for trail safety along that portion of the trail situated within the Valley Forge National Historic Park. The Chester County Parks and Recreation Department will provide security along the part of the Patriots Path located on Chester Valley Trail right-of-way. Responsibility for security and crime deterrence on the remaining sections of the Patriots Path will rest with the three municipal police departments. East Whiteland will patrol that part of the trail within East Whiteland Township; Malvern will oversee security within Malvern Borough; and security will be Tredyffrin's responsibility along those parts of the trail situated in Tredyffrin Township.

MAINTENANCE ACCESS AND EMERGENCY ACCESS

Trail maintenance for the Patriots Path will be handled in the same manner as trail security. The National Park Service, Chester County, and the three municipalities will each maintain those segments of the trail under their respective ownership and control. Emergency medical services in East Whiteland Township, Malvern Borough, and Tredyffrin Township are currently provided by private, volunteer ambulance organizations. Existing arrangements among these organizations regarding primary and secondary coverage areas will continue to apply in the case of medical emergencies along the Patriots Path.

Access to much of the Patriots Path will be convenient for both maintenance and emergency medical personnel because much of the Patriots Path is planned within, or adjacent to, public road right-of-way. Specific access points to each "off-road" portion of the trail will need to be identified as detailed construction plans are prepared for that trail segment. Local emergency medical service officials should be consulted to help determine these locations. Once these access points are designated, they should be noted on applicable construction plans. In addition, the construction plans should: a) indicate where appropriate signs should be posted; and b) include a construction detail showing the size, content and style of these signs. Copies of the approved construction plans should then be furnished to each relevant emergency medical service provider.



Appendices

Chester Valley Trail Road Crossings

**Parks and Open Space in the
Three Municipalities**

Sample Intermunicipal Agreement





**CHESTER VALLEY TRAIL
ROAD CROSSINGS**

East Whiteland Township (West to East)

- Swedesford Road existing box culvert underpass beneath an existing bridge
- Route 29 at-grade (signalized)
- Swedesford Road beneath an existing bridge (is built)
- Knickerbocker Lane at-grade (is built)
- Route 401 at-grade
- Mill Lane at-grade
- Church Road new overpass (proposed bridge)
- Route 202 existing culvert underpass beneath an existing bridge
- Phoenixville Pike at-grade
- Bacton Hill Road at-grade
- Route 29 at Matthews Road at-grade (signalized)

Tredyffrin Township (West to East)

- Cedar Hollow Road at-grade
- North Valley Road overpass (a new bridge)
- West Swedesford Road overpass (will use existing bridge)
- Westlakes Road at-grade
- Chesterbrook Boulevard at-grade (signalized)
- Route 252 / 202 Interchange existing box culvert underpass
- Contention Lane underpass beneath existing bridge
- Valley Forge Road overpass (a new bridge)
- West Valley Road at-grade (signalized)
- Old Eagle School Road existing underpass
- Crossing Route 202 Ramp at-grade (signalized)
- Devon Park Drive at-grade (signalized)
- County Line Road at-grade (signalized)



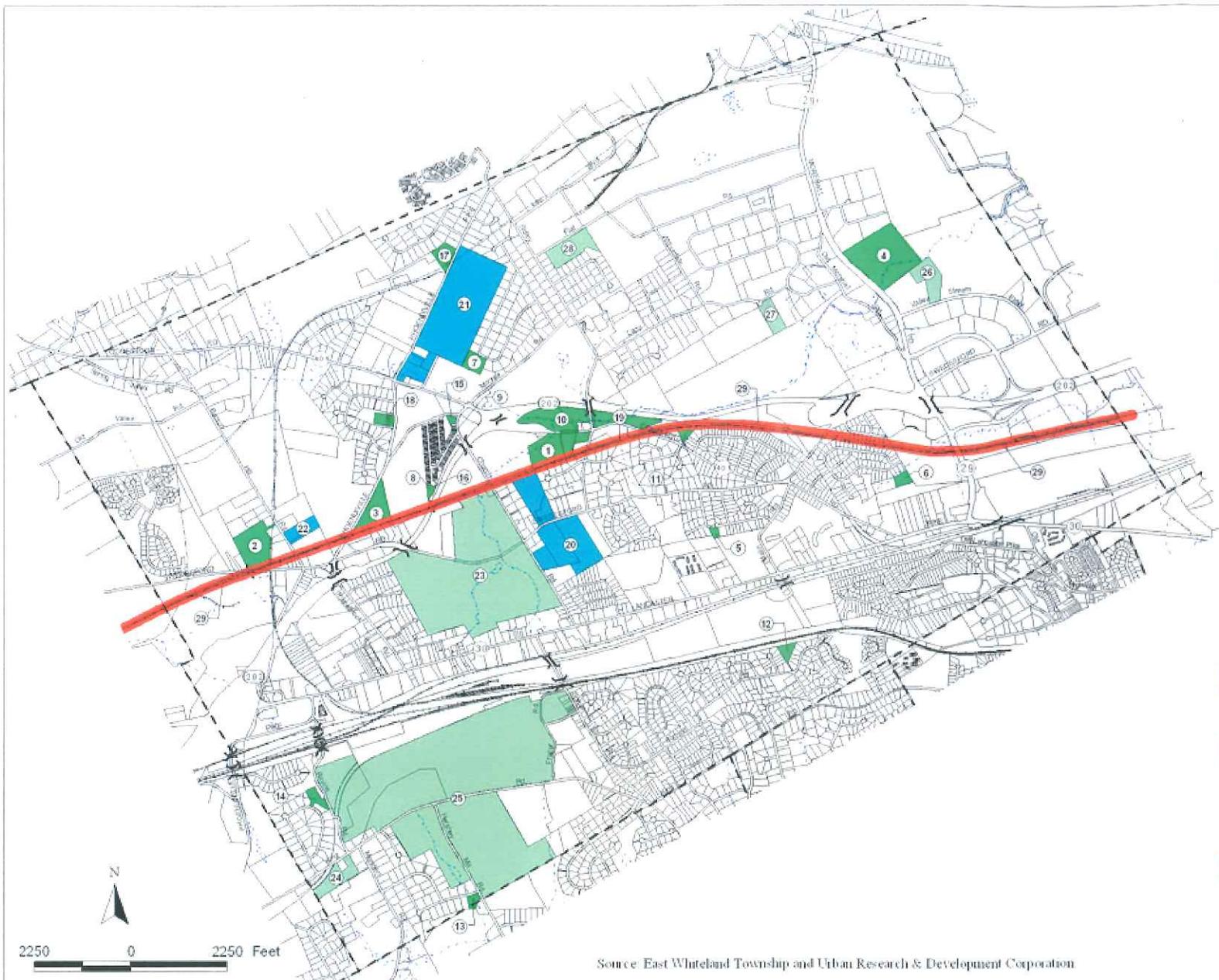
**PUBLICLY ACCESSIBLE RECREATION SITES
EAST WHITELAND TOWNSHIP**

<u>Map # and Name</u>	<u>Acres</u>
Township-Owned Sites	
<i>Community Parks</i>	
1. Conestoga Trail Soccer Field (at Township Building)	11.2
2. Swanenburg Property	16.2
3. Battle of the Clouds Park	10.7
4. Valley Creek Park	32.2
	70.3
<i>Neighborhood Parks</i>	
5. Whiteland Farms Park	1.0
6. Down East Park	2.5
7. Spring Mill Farms Park	4.4
	7.9
<i>Tot Lots</i>	
8. Bryn Erin @ Kelmar	0.3
9. Bryn Erin @ Markel	0.2
	0.5
<i>Nature Preserves</i>	
10. Ecology Park	15.0
	15.0
<i>Open Spaces</i>	
11. Chester Valley Knoll	2.1
12. Oakhill Circle	2.4
13. Brooklands	1.8
14. Glenoch Way	1.4
15. Bryn Erin Moores Road Basin	2.5
16. Bryn Erin Kelmar Avenue Basin	1.1
17. Aston Woods	3.6
18. Wyckfield Subdivision	2.4
19. Rubino Property	7.0
	24.3
Total Township-Owned Acreage	118.0
<i>Public School Sites</i>	
20. Great Valley High School and Middle School	
21. K. D. Markeley Elementary School and District Administration Building	
22. Bacton Hill Road Property	
<i>Major Private Sites</i>	
23. Chester Valley Golf Club	
24. Great Valley Little League Field	
25. Immaculata College	
26. Siemens Fields	
27. Liberty Property Fields	
28. Pickford Run (leased by the School District)	
<i>County-Owned Sites</i>	
29. Chester Valley Trail	

East Whiteland Township Park & Recreation Plan Map 7

PUBLICLY ACCESSIBLE RECREATION SITES

- TOWNSHIP - OWNED SITES**
- COMMUNITY PARKS**
- 1 Conestoga Trail Soccer Field (Township Bldg.)
 - 2 Swanenburg Property
 - 3 Battle of the Clouds Park
 - 4 Valley Creek Park
- NEIGHBORHOOD PARKS**
- 5 Whiteland Farm Park
 - 6 Down East Park
 - 7 Spring Mill Farms Park
- TOT LOTS**
- 8 Bryn Enn @ Keimar
 - 9 Bryn Enn @ Markel
- NATURE PRESERVES**
- 10 Ecology Park
- OPEN SPACES**
- 11 Chester Valley Knoll
 - 12 Oakhill Circle
 - 13 Brooklands
 - 14 Glenoch Way
 - 15 Bryn Enn Moores Road Basin
 - 16 Bryn Enn Keimar Avenue Basin
 - 17 Aston Woods
 - 18 Wyckfield Subdivision
 - 19 Rubino Property
- PUBLIC SCHOOL SITES**
- 20 R. O. Markley Elementary School
 - 21 Great Valley High School and Middle School
 - 22 School-Owned Property
- MAJOR PRIVATE SITES**
- 23 Chester Valley Golf Club
 - 24 Great Valley Little League Field
 - 25 Immaculate College/Convent
 - 26 Siemens Fields
 - 27 Liberty Property Fields
 - 28 Pickford Run (leased by School District)
- COUNTY - OWNED SITES**
- 29 Chester Valley Trail



Source: East Whiteland Township and Urban Research & Development Corporation



Urban Research & Development Corporation
25 W. Broad Street Bethlehem, Pennsylvania 18015



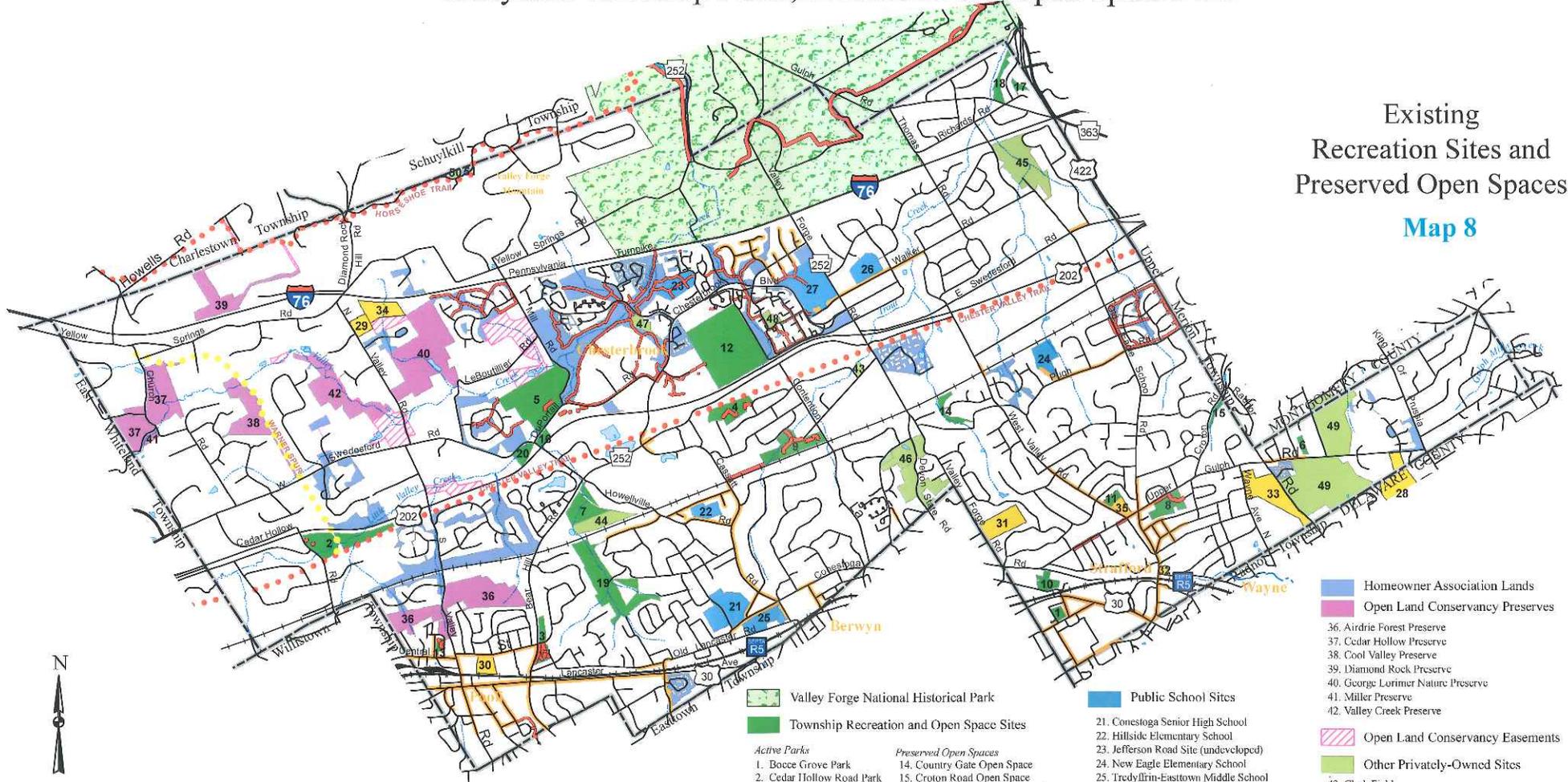
**RECREATION SITES AND PRESERVED OPEN SPACES
IN TREDYFFRIN TOWNSHIP – 2004
(Excluding Homeowner Association lands)**

<u>Map # / Ownership / Name</u>	<u>Acres</u>
<i>Active Parks</i>	
1. Bocce Grove Park	0.7
2. Cedar Hollow Road Park	24.1
3. Friendship Park	8.1
4. Louis D'Ambrosia Park	15.4
5. Mill Road Park	55.9
6. Mazie B. Hall Park	2.3
7. Radbill Park	18.0
8. Strafford Park and Library	13.6
9. Teegarden Park	22.3
10. Westover Park	7.0
11. West Valley Park	9.4
12. Wilson Farm Park	90.0
13. Woodbine Park	2.0
	268.8
<i>Undeveloped Open Spaces</i>	
14. Country Gate Open Space	6.2
15. Croton Road Open Space	2.4
16. DuPortail South Side Open Space	3.2
17. Glenn Circle Open Space	2.1
18. Richards Road Open Space	7.3
19. Crabby Creek Park	48.0
20. Swedesford Road Open Space	5.7
	74.9
<i>Tredyffrin-Easttown School District Sites</i>	
21. Conestoga High School	33.0
22. Hillside Elementary School	9.6
23. Jefferson Road Site (undeveloped)	15.5
24. New Eagle Elementary School	15.0
25. Tredyffrin-Easttown Middle School	16.9
26. Valley Forge Elementary School	16.8
27. Valley Forge Middle School	45.8
	152.6
<i>Private School Sites</i>	
28. Cabrini College	4.8
29. Crossroads School	7.0
30. Delaware Valley Friends School	7.5
31. Devon Preparatory School	19.9
32. The Goddard School	1.6
33. Valley Forge Military Academy	30.6
34. Vanguard School	14.4

<u>Map # / Ownership / Name</u>	<u>Acres</u>
<i>Open Land Conservancy Preserves</i>	
36. Airdrie Forest Preserve	75.2
37. Cedar Hollow Preserve	67.0
38. Cool Valley Preserve	33.2
39. Diamond Rock Preserve	31.0
<i>Open Land Conservancy Preserves (cont.)</i>	
40. George Lorimer Nature Preserve	88.0
41. Miller Preserve	2.3
42. Valley Creek Preserve	46.0
	<u>342.7</u>
<i>Other Major Privately-Owned Recreation Sites</i>	
43. Clark Field	2.4
44. Field of Dreams	15.7
45. Glenhardie Country Club	40.8
46. Jenkins Arboretum	42.1
47. Picket Post Swim & Tennis Club, Bradford Road site	5.3
48. Picket Post Swim & Tennis Club, Chase Road site	3.9
49. St. Davids Golf Club	126.1
50. Valley Forge Mountain Racquetball Club	2.5
51. Valley Forge Mountain Association	1.2
	<u>240.0</u>
<i>Federal Lands</i>	
52. Valley Forge National Historical Park	167.6
	<u>167.6</u>

Tredyffrin Township Parks, Recreation and Open Space Plan

Existing Recreation Sites and Preserved Open Spaces Map 8



Sources: Tredyffrin Township, Chester County DCIS, and URDC

- Valley Forge National Historical Park
 - Township Recreation and Open Space Sites
 - Public School Sites
 - Private School Sites
 - Homeowner Association Lands
 - Open Land Conservancy Preserves
 - Open Land Conservancy Easements
 - Other Privately-Owned Sites
 - Regional Trails
 - Local Pathways
 - Sidewalks
 - Warner Spur Right-of-Way (a proposed trail)
- Active Parks**
1. Bocce Grove Park
 2. Cedar Hollow Road Park
 3. Friendship Park
 4. Louis D'Ambrosia Park
 5. Mill road Park
 6. Mazie B. Hall Park
 7. Radbill Park
 8. Stratford Park and Library
 9. Tesegarden Park
 10. Westover Park (undeveloped)
 11. West Valley Park
 12. Wilson Farm Park
 13. Woodbine Park
- Preserved Open Spaces**
14. Country Gate Open Space
 15. Croton Road Open Space
 16. Duportail South Side Open Space
 17. Glenn Circle Open Space
 18. Richards Road Open Space
 19. Crabby Creek Park
 20. Swedesford Road Open Space
- Public School Sites**
21. Conestoga Senior High School
 22. Hillside Elementary School
 23. Jefferson Road Site (undeveloped)
 24. New Eagle Elementary School
 25. Tredyffrin-Easttown Middle School
 26. Valley Forge Elementary School
 27. Valley Forge Middle School
- Private School Sites**
28. Cabrini College
 29. Crossroads School
 30. Delaware Valley Friends School
 31. Devon Preparatory School
 32. The Goddard School
 33. Valley Forge Military Academy
 34. Vanguard School
 35. Woodlynde School
- Other Privately-Owned Sites**
36. Airdrie Forest Preserve
 37. Cedar Hollow Preserve
 38. Cool Valley Preserve
 39. Diamond Rock Preserve
 40. George Lorimer Nature Preserve
 41. Miller Preserve
 42. Valley Creek Preserve
 43. Clark Field
 44. Field of Dreams
 45. Glenhardie Country Club
 46. Jenkins Arboretum
 47. Picket Post Swim & Tennis Club - Bradford Road site
 48. Picket Post Swim & Tennis Club - Chase Road site
 49. St. Davids Golf Club
 50. Valley Forge Mountain Racquet Club
 51. Valley Forge Mountain Association Park



**PARK, RECREATION AND OPEN SPACE AREAS – 1992 (Names updated to 2009)
MALVERN BOROUGH**

<u>Public / Quasi-Public Areas</u>	<u>Acres</u>
Horace J. Quann Park	1.6
Malvern Community Park	1.4
Paoli Memorial Grounds (including playground and ballfields)	20.7
Randolph Woods	<u>48.0</u>
Total	71.7

Privately-Owned Areas

Schools:

Malvern Prep School
Montessori School
St. Patrick's School

Other:

St. Joseph's-in-the-Hills Retreat
Malvern Public Library
Malvern Fire Company Hall





TOWNSHIP (BOROUGH) OF

Chester County, Pennsylvania

ORDINANCE NO.

AN ORDINANCE AUTHORIZING EAST WHITELAND TOWNSHIP, MALVERN BOROUGH AND TREDYFFRIN TOWNSHIP TO WORK JOINTLY, WHERE APPROPRIATE, TO OVERSEE FURTHER PLANNING, DESIGN AND CONSTRUCTION OF THE PROPOSED PATRIOTS PATH TRAIL

WHEREAS, Chester County, East Whiteland Township, Malvern Borough, and Tredyffryn Township favor the establishment of a multi-purpose trail called the Patriots Path to connect certain area park sites with significance to the American Revolutionary War's Campaign of ;

WHEREAS, East Whiteland Township, Malvern Borough, and Tredyffryn Township have each adopted municipal park, recreation and open space plans that include support for the Patriots Path Trail concept;

WHEREAS, the Chester County Planning Commission prepared a Report to the Chester County Board of Commissioners: An Evaluation of Patriots Path Trail Opportunities in the Eastern Great Valley;

WHEREAS, East Whiteland Township, Malvern Borough, and Tredyffryn Township, in cooperation with Chester County, prepared The Patriots Path Plan: A Development Guide on How to Design and Build the Patriots Path Trail Network;

WHEREAS, East Whiteland Township, Malvern Borough, and Tredyffryn Township desire to continue cooperating with each other, and with Chester County, towards implementation of the Patriots Path Trail concept; and

WHEREAS, the Intergovernmental Cooperation Act , 53 Pa C.S. Section 2301 et seq., permits municipalities to enter into agreements to cooperate in the performance of their respective functions, powers or responsibilities.

NOW THEREFORE BE IT RESOLVED THAT EAST WHITELAND TOWNSHIP, MALVERN BOROUGH AND TREDYFFRIN TOWNSHIP WILL:

- A. Meet quarterly (4 times per year), in coordination with Chester County, to discuss overall planning and implementation of the Patriots Path Trail;
- B. Prepare and submit joint grant applications, where appropriate, to secure trail design and construction funding for the Patriots Path Trail;

