Chapter 4

Public Access Evaluation

This chapter addresses public access to the Battlefield, focusing on trails, bicycle routes, sidewalks, and other non-motorized transportation. The goal of this chapter is to identify viable pedestrian, bicycle, and water craft corridors that could be used to create an integrated multi-modal network. The purpose of this chapter is not simply to identify a network that will link to historic resources. Rather, the focus will be on identifying a viable pedestrian network, and then determine how it can serve to link to historic sites identified in ***Chapter 3***. Under ideal conditions, a trail network would link population centers to key destinations, which in the Battlefield includes historic sites. However, the Battlefield has already undergone considerable development eliminating the possibility of creating links to some historic sites. Furthermore, the Battlefield includes features such as old roadways and abandoned rail lines which are ideal locations for trails, but do not directly link to key destinations or historic sites. For this reason, trail planning must initially be site sensitive, adapting to conditions on the ground. Links to historic sites can later be identified where physically possible.

The key philosophy underlying this evaluation is a "network approach" to trail, path, and sidewalk planning. The goal is not to build a trail as a single project lasting a year or two, but rather to construct trail or sidewalk segments as part of a long term process which may take decades to complete. A trail network is a form of public infrastructure like the underground pipes that provide drinking water. Such a network is never really "finished," but is periodically improved and extended as needed. Thus, the success of a trail network results not only from the construction of individual segments, but also from the dedication of the community to support the establishment of a network over the long term.

Trails such as this one in Birmingham Township promote physical fitness, safe recreation, and raise awareness of the history of the Battle of Brandywine.

PUBLIC ACCESS BACKGROUND

Planning for Trails, Paths, and Sidewalks as Part of a Network

Until recently, few municipalities in the Battlefield had addressed the need for trails in their community, but that situation is rapidly changing. In areas with open woodlands, vegetated floodplains, or abandoned rail corridors, trails are now being considered as a way to attract trail users to historic crossroads towns like Chadds Ford Village or Kennett Square. In more developed suburbanized areas, municipal officials now find themselves trying to meet the growing recreation needs of their constituents in an environment where there is less open land available for new parks. A common solution to this dilemma is to establish public trails.

Trails are often unobtrusive features that result in minimal disturbance to the landscape. At first glance, establishing a trail may seem like an easy process, sort of like bushwhacking a path through the brush, but with paving. In reality, constructing a trail is more like building a narrow road, but for bikes and pedestrians. Municipalities need to approach trail planning with all the seriousness of a highway project and ensure that their adopted plans and ordinances address trails like any other form of public infrastructure.

Chadds Ford Village is a tourist center near the Brandywine River Museum. It is bisected by US Route 1 at an intersection with no crosswalk.

Trails can, and have, provided an economic boost, benefiting businesses that serve trail users. Trails also increase the value of nearby properties and are an amenity used to sell houses and attract tenants to office parks.[1] However, trails also require ongoing maintenance and security like any other public facility. A properly planned and designed trail can reduce future costs for maintenance and security. Trail planners need to conduct outreach with landowners as part of the planning process, so as to avoid potential future conflicts. The most successful trail projects are those that are designed with input from adjacent landowners.

There is no single standard definition for the word *trail* or *path* either in legal terminology or in the planning or recreation professions. For city dwellers, a trail is a paved surface with signs and restrooms used by large numbers of walkers, bicyclists, and in-line skaters. For someone who grew up in the country, a trail is an informal hiking route marked by blazes painted on trees that is used by small groups of hikers, mountain bike riders, horseback riders, or cross-

[1] For more background see Greenspace Alliance, *Return on the Environment: The Economic Value of Protected Open Space in Southeastern Summary Report*, (Philadelphia: Delaware Valley Regional Planning Commission, 2010)

country skiers. In common use, the term "trail" is a vague catch-all and there are many kinds, including water trails within a stream. A variety of trails and paths are illustrated in ***Figure 4.1***.

Trails, Paths, and Routes: Know Your Terms

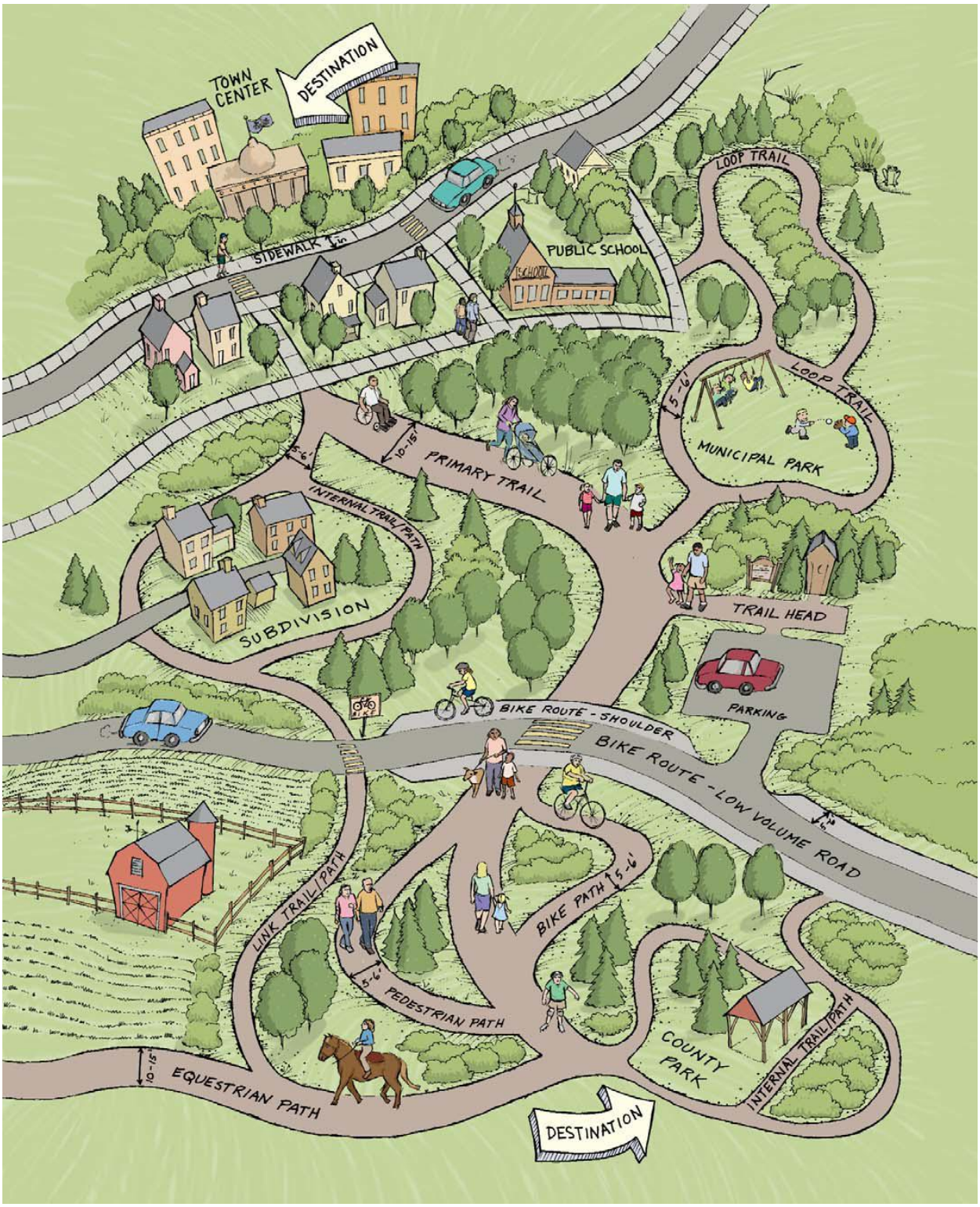
In this chapter, trails, paths, and routes will be discussed using definitions developed by the Chester County Planning Commission for *Linking Landscapes: The Plan for the Protected Open Space Network in Chester County, PA* which was adopted in 2002 as the Open Space Element of the Chester County Comprehensive Plan. These definitions were based on terminology used by the Pennsylvania Department of Conservation and Natural Resources (DCNR).

- ***Trail*** - According to the *Linking Landscapes* definition, a "trail" is an off-road facility with a permanent alignment that is open to the general public. It is designed, constructed, and maintained as part of a public park system and used for a variety of non-motorized forms of travel including walking, hiking, bicycling, cross-country skiing or horseback riding.
- ***Path*** - Trails that are designed, constructed, maintained, and used primarily for one form of travel are called "paths." Thus a "bike path" is an off-road facility that has been designed to be used primarily by bicyclists. Although paths are designed to be used by only one mode of travel, they are often used by other types of users. Limiting the use of a path to one type of user is difficult to enforce, and so path managers commonly must rely on voluntary compliance by the users.
- ***Route*** - *Linking Landscapes* defines a "route" as a facility that utilizes the shoulders of paved streets, or the motor vehicle travel lanes of roads with low traffic volumes. In general, "bicycle routes" extend along streets or rights-of-way owned by the Pennsylvania Department of Transportation (PennDOT). Roadside routes are sometimes used to link together trail segments that cannot be linked by an off-road corridor, and so should be considered in any trail network project.

In terms of trail and path planning, a ***network*** is a combination of trails, paths, sidewalks, and other linear facilities used for pedestrian and non-motorized transportation and recreation. The network also includes destinations. This network approach permits trails and paths to be flexible in meeting the needs of their community. For example, within a municipality, there may be one neighborhood that supports the construction of paved multi-use trails, while another may prefer simple packed-earth hiking paths, also known as "primitive trails." By taking a network approach, differing communities can have their diverse needs met through one coordinated initiative.

This county trail, north of the Battlefield, is a good example of a small local trail that links to a larger multiuse facility that is a "regional collector" trail.

Figure 4.1: Elements of a Trail Network



Source: Chester County Planning Commission, *Trail & Path Planning: A Guide for Municipalities* (West Chester, PA: Chester County Board of Commissioners, 2007), 10.

Environmental and Social Benefits of a Trail Network

Interconnected open space has more value than isolated parcels surrounded by developed land. For example, when wildlife habitat is surrounded by development, the animals cannot move outside their preserve, leading to inbreeding and vulnerability to disease. Therefore, linking habitat through wildlife corridors allows animals to roam more as they do naturally. Such connections also aid plants by permitting seed dispersion. Recreational open space can also suffer from isolation. Isolated parks and playgrounds are more difficult to reach, less likely to be used, and potentially more vulnerable to vandalism. Linking recreational open spaces with pedestrian and bike trails can improve the safety, quality, and cost effectiveness of public parks.

In the past, trails were usually established only within large park settings (such as Valley Forge National Historic Park), while sidewalks were built in downtowns or suburban neighborhoods. More recently, there have been efforts to link trails, walking paths, and sidewalks into one network that can join residential areas and downtowns to parks and recreation facilities. Trails can improve public health by providing a walking facility for the elderly, and helping to reduce the national epidemic of adult and childhood obesity. As a result, many grant programs give funding preference to trail projects which link to parks and other important community destinations.

A large trail network in Anson B. Nixon Park already links to the sidewalk grid of Kennett Square Borough in the southwest part of the Battlefield.

Municipalities are Empowered to Establish Trails

Unlike most states, Pennsylvania is a Commonwealth and as a result is governed by unique set of land use laws that grant substantial rights to local communities. All parcels of land within Pennsylvania fall under the jurisdiction of a municipality (either a city, borough, or township), and there is no unincorporated county land. The Pennsylvania Municipalities Planning Code (MPC), Act of 1968, P.L. 805, No. 247, empowers municipalities with the final authority when it comes to comprehensive plans, official maps, or zoning and subdivision ordinances. The MPC address trail and path planning through:

- **A comprehensive plan** may include a "plan for the movement of people," including "pedestrian and bikeway facilities" and "other similar facilities and uses." (Section 303.a.3)
- **An official map** may include "pedestrian ways and easements." (Section 401.a.3)
- **A subdivision and land development ordinance** may include provisions governing the standards by which "walkways" and "other improvements shall be installed as a condition precedent to final approval of plat."(Section 503.3)

- **A zoning ordinance** may determine location, construction, and "use of structures." Zoning ordinances shall be designed to promote protect and facilitate "public health," and "recreational facilities" and "public grounds." (Sections 603.b.2 and 604.1)

Some parts of the trail network within the Myrick Environmental Center are old farm roads that are still used occasionally by maintenance vehicles.

Because municipalities have such land use authority, they should make sure to clearly define what they mean by the terms "trail" or "path" in any adopted document, such as a zoning ordinance or subdivision and land development ordinance. There is no strict hierarchy in trail planning. Ideally, smaller trails and paths used for only one mode of travel should lead to larger multi-use trails, but trail planners do not often have that option. For example, a narrow right-of-way in a highly developed community may be the only area in which to locate a key link of a multi-use trail. Conversely, a former rail bed donated by a railroad may be used for a simple gravel walking path even though it is wide enough to support a paved wide multi-use trail. Trail planners need to rely on common sense as they adapt to existing features on the landscapes.

Other Trail Planning Considerations

Public involvement is an essential part of trail planning. Planners should solicit comments from surrounding landowners on a proposed trail corridor before determining the alignment for the trail. These landowners might be residential neighbors, retail businesses, or corporations owning industrial parks. Addressing public concerns is of prime importance, especially concerns about crime and accidents. Local landowners can also be used to identify issues, such as areas that flood or locations that are already prone to vandalism. Trail planners and the public should be aware that, in order to function properly and safely, public trails and paths need to be 1) well-designed, 2) well-maintained; and 3) well-policed.

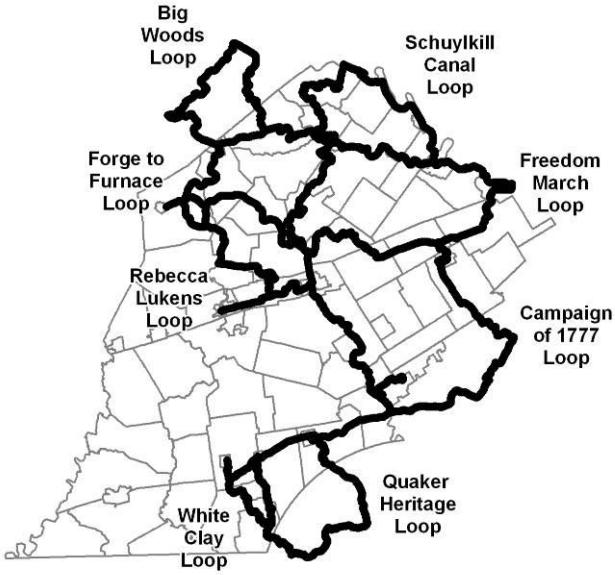
State guidelines regarding transportation projects can also impact trail planning. PennDOT's *2008 Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits* addresses trails and pedestrian facilities. According to these guidelines, a developer who is required to complete a Transportation Impact Study, "shall also describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations."

In Pennsylvania, county-level planning also addresses trails. In 2002, *Linking Landscapes: The Plan for the Protected Open Space Network in Chester County, PA* was adopted as the Open Space Element of the Chester County Comprehensive Plan. *Linking Landscapes* identified Regional Recreation Corridors which are conceptual planning areas that are a prime location for the construction of a multi-municipal trail. As shown in ***Figure 4.2***, the Battlefield is crossed by a

number of Regional Recreation Corridors. In 2011, Chester County mapped "Heritage Loops" which are potential trail corridors that are well suited to link natural or cultural resources. The Battlefield would be a major destination for the 1777 Loop.

Figure 4.2: County Designated Trail and Recreation Corridors

Regional Recreation Corridors from *Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, PA,* CCPC, 2002.



Chester County Heritage Loops
Source: CCPC, 2011

In 2009, *Landscapes2: Bringing Growth and Preservation together for Chester County* was adopted as the Chester County Comprehensive Policy Plan. *Landscapes2* addresses trails and pedestrian facilities in Chapter 6: Planning for Open Space and Greenways and in Chapter 9: Planning for Transportation. Two key objectives presented in *Landscapes2* are:

- **Objective OSG 3: Trails and Greenway Networks -** Encourage landowners to cooperate in the planning, construction, and management of local and regional trail and greenway networks.

- **Objective T 2: Non-motorized -** Provide a safe and functional non-motorized network that increases mobility and accessibility, reduces automotive dependency, and improves air quality.

Examples of Existing Historic Sites that Incorporate Trails

There are a number of existing historic parks that use trails as a key feature offering historical interpretation and recreation opportunities to their visitors. These parks include:

The Minute Man National Historic Park and the Battle Road Trail is located 22 miles outside of Boston, MA. It was created in 1959 to preserve historic structures and landscapes associated with the earliest battles of the American Revolution. Today, it consists of over 900 acres, including original segments of Battle Road, where Minutemen took up arms against the British in 1775. The Park includes one visitor center in Lexington, and another in Concord overlooking the North Bridge, where visitors can see where Colonial militia men fired the famous "shot heard round the world." The Park also includes Daniel Chester French's Minute Man Statue, and the five-mile "Battle Road Trail," where users can retrace the steps of the British as they fled back to Boston under fire. Parts of this trail follow the original route of Battle Road of April 19, 1775. The trail links to the site where Paul Revere was captured, the restored Hartwell Tavern Living History Center staffed by park rangers dressed in period costumes.

White Clay Creek Bi-state Preserve, south of the Battlefield, is a good example of a trail network that links to colonial area resources.

Overmountain Victory National Historic Trail in South Carolina was established in 1980 as the nation's first National Historic Trail. This 20-mile trail follows the route American Troops took in 1780 to defeat the British at the battle of Kings Mountain. Stops along the Trail include Kings Mountain National Military Park, Yellow Mountain Gap, and Roan Mountain State Park. The trail includes a trail route, public motor route, and the actual historic route, which is usually inaccessible. The Trail is managed through a cooperative effort of the National Park Service and the U.S. Forest Service, along with local governments and civic groups.

Fredericksburg & Spotsylvania National Military Park in Virginia is a Civil War park dedicated in 1927. Within the Park is the Spotsylvania Battlefield History Trail, which is a series of loop trails totaling seven miles. The trails are marked by red and blue "blaze" signage to show the paths of Confederate and Union armies. The battlefields are marked with white "blazes." Within the park, there is the Bloody Angle Walking Tour which follows a 200-yard stretch where soldiers fought for over 20 hours. The Park includes a driving tour of the Battle of Todd's Tavern where Union forces were delayed long enough to allow the Confederates to arrive first. Along with guided tours and self guided hikes, the Park offers a variety of programming including "History at Sunset" tours and the National Cemetery Annual Luminaria.

PUBLIC ACCESS EXISTING CONDITIONS

Physical and Community Features

The first step in evaluating a trail network is to determine what natural or man-made landscape features will support or impede the establishment of a trail, path, or sidewalk. ***Map 4.1*** presents the topography of the Battlefield and indicates that most of it has less than a 15 percent slope, making it generally well suited for bicycle or pedestrian travel. The exception is the steeper areas along the Brandywine Creek. These areas could also be used for trail and pedestrian facilities, but would likely require cuts, abutments, or bridges to maintain a level pathway.

Identifying trail destinations is an essential aspect for proper trail planning. Trails that fail to link to a popular destination, like a scenic park or a small town main street, are less likely to be used and more likely to become "party sites." Furthermore, it can be more difficult to market and promote a trail that the public views as a "trail to nowhere." ***Map 4.2*** shows that the Battlefield has ample destinations with the exception of the northwestern quadrant. The eastern and southern sections of the Battlefield have numerous restaurants, many of which cater to tourists visiting Longwood Gardens. There are also many grocery stores that are popular destinations for hikers and bicyclists in need of bottled water, snacks, and other supplies like sunscreen or band aids. The northwestern quadrant of the Battlefield in Pocopson, East Bradford, and West Bradford Townships is more rural and so has only scattered restaurants.

The modern museum building in the Brandywine Battlefield Park is well suited to be trail head because it has parking and public restrooms

The Battlefield contains a number of municipal parks with parking facilities and, in some cases, public restrooms. Such local facilities often have the potential to be upgraded or turned into trail heads for the trails that cross through them. Grocery stores and restaurants can also serve as restroom stops. Although the Battlefield currently has a good distribution of restroom and parking sites, there are likely too few to serve the normal amount of hikers and trail users that would be expected to use a trail network in the Battlefield. As ***Map 4.2*** shows, the following major trail and pedestrian destinations in the Battlefield:

1. Downtown Kennett Square Borough
2. The Willowdale Shopping Area
3. Anson B. Nixon Park
4. US Route 1 Shopping Corridor
5. Longwood Gardens
6. MarshalltonVillage
7. Myrick Center Preserve and Trails
8. Pennsbury Municipal Park Grounds
9. Sandy Hollow Municipal Park
10. Chadds Ford Village and the Brandywine River Museum
11. Brandywine Battlefield Park

The Chadds Ford Historical Society museum is across the street from the John Chad House. This site was an active combat area during the Battle

Other potential destinations are the historic roads which were used during the 1777 battle. These roads are shown on ***Map 4.3*** along with the location of the sites of the fords present in 1777. For the most part, the public is not aware of these resources, but they could become destinations for historic-oriented tourism. Most of these fords have since been replaced by bridges. Others, like the Trimbles Ford which was used by Cornwallis's army to cross the Brandywine, are now on private property that can be difficult to reach even with permission.

- **Issues/Analysis:** The Battlefield engagement zones include some steeply sloping terrain. This situation is understandable since the opposing armies sought to use valleys to conceal their troops and hills to gain the high ground. As a result, some of the key historic interpretation sites are in steeply sloping areas or along floodplains. This situation poses a challenge for pedestrian planning. Ideally, the engagement zones on either side of the Brandywine Creek should have pedestrian links so that visitors can access both shores of the Battlefield. However, the very waterways and hills that drew the opposing armies to this location, pose obstacles to trail construction. Building trails in these areas is likely to require more bridges and abutments than on areas with flat topography.

Roadway and Transportation Features

As ***Map 4.4*** indicates, the Battlefield is crossed by four major roadways:

- **US Route 1** is a four-lane highway used for peak hour commuting and trucking.
- **US Route 202** is a four-lane highway used for rush hour commuting and trucking.
- **PA Route 52** is a two-lane roadway used for rush hour commuting.
- **PA Route 926** is a two-lane roadway used for rush hour commuting.

This map also indicates the locations of high volume roadways. Ideally, these high volume roadways should be avoided when planning for pedestrian or bicycle routes. If they cannot be avoided, they should be safely crossed at a traffic light. ***Map 4.4*** also shows the bridges over the Brandywine Creek and other low lying areas. These bridges represent "choke points" that are in essence the only locations where trail or bicycle routes can cross waterways.

Map 4.4 shows the location of signalized intersections, most of which do not include dedicated crosswalks, and many of which are posted for no pedestrian crossing. ***Map 4.4*** also shows areas that have reported accidents. For the most part, these accident areas are located along high volume roadways or in areas where the roadway has an intersection with an unusual geometry, such as a sharp turn that reduces driver visibility.

Most of the roads in the Battlefield have no shoulders. As a result the Battlefield is not well suited for the establishment of an on-road network of bike route that is primarily located on shoulders. However, many of the Battlefield roads are low volume and are popular with bicyclists. ***Map 4.5*** shows bicycle route mapping developed by the Bicycle Coalition of Southeastern Pennsylvania.

The intersection of US Route 1 and Creek Road bisects Chadds Ford Village. It has no crosswalks for pedestrians visiting village attractions.

This non-profit group periodically publishes a bicycle route map for the five-county Philadelphia Metropolitan Region. According to this independent source, most of the back roads in the Battlefield are moderately well suited for on-road bicycling, and only a few are ideal. Based on the map, the major collectors are to be avoided. ***Map 4.6***, developed by the Chester County Planning Commission, also indicates that most of the Battlefield roadways are well suited, but not ideally suited, for on-road bicycle routes.

Preferred Bicycle Routes

The information presented previously in the chapter was used to designate "Viable On-road Bicycle Routes" as presented in ***Map 4.7***. These routes represent a conceptual schematic of roadways which would be well-suited for a bicycle route that could be built over the long term. Such a network would require further planning and design studies before any sort of construction could occur. This map shows a network which, wherever possible:

- Avoids high volume roadways
- Crosses high volume roadways at a signalized intersection wherever possible
- Forms a closed loop
- Links to key destinations
- Follows roadways used as marching corridors in 1777

Map 4.7 identifies some areas where further bicycle route issues need to be resolved (numbers relate to the numbered sites on the map):

1. **Willowdale** - This popular shopping area is not accessed by the routes.
2. **Northbrook Road Intersection** - This area would ideally be an east-west bicycle route link, but it is in an area with reported accidents.

3. **Birmingham Road Intersection** - This is a high volume intersection, but it is the only viable pedestrian stream crossing in the immediate area.
4. **Route 52 Bridge** - This is a high volume bridge with a narrow, isolated sidewalk, but it is the only viable pedestrian stream crossing in the immediate area.
5. **Route 926 Bridge** - This is a high volume bridge with a narrow, isolated sidewalk, but it is the only viable pedestrian stream crossing in the immediate area.
6. **Route 52 Improvements** - This high volume roadway is slated for improvements including the addition of trails that roughly parallel the roadway.
7. **Creek Road Corridor** - This is a winding roadway with insufficient shoulders, but it is quite popular with bicyclists especially on weekends, and so it should be addressed as part of the network.
8. **Brandywine Battlefield Park** - The network includes a dead end at this location. However, this dead end is the only feasible route to access this significant Battlefield site, which also has a building with restrooms and ample parking.
9. **Pleasant Grove Intersection** - A viable bike route crosses the high volume roadway of US Route 202 at this intersection, but there is no traffic signal there. Instead there is a signal just to the north, but it cannot be easily accessed by bicyclists.
10. **Bike Route to Media, PA** - This roadway is commonly used by bicyclists riding in from Media Borough, a popular downtown similar in nature to Kennett Square Borough.

Linking Off-Road Trails and Pedestrian Facilities

Currently, the Battlefield has a limited number of existing trails and they are largely isolated. ***Map 4.8*** shows these existing trails in magenta. This map also shows trail corridors (in yellow) that have been recommended in municipally-adopted comprehensive plans. The more northern municipalities generally have more ambitious trail plans.

The most extensive public trail network in the battlefield is in Pocopson Township, whose trails link to the Pocopson Elementary School campus.

Kennett Square Borough and Kennett Township are currently updating their comprehensive plan to address trails in more detail. Overall, ***Map 4.8*** indicates that the Battlefield does not yet have a fully linked regional trail network. However, some of the Battlefield municipalities have addressed trails in the local planning, especially Pocopson Township. This township is located in the center of the Battlefield and so its trails could serve as a foundation for a network extending outward.

Regional trail planning has already been initiated for the five municipalities east and north of Chadds Ford Village. In 2010, the Brandywine Battlefield Task Force prepared a memorandum that presented a concept for a trail to link Brandywine Battlefield Park with Sandy Hollow

Township Park. This preliminary study was endorsed through resolution by Chadds Ford Township (9/1/2010), Pennsbury Township (9/22/2010), Pocopson Township (9/13/2010), and Thornbury Township (10/19/2010).

Map 4.9 identifies areas that could serve as key "Trail Destinations" and also "Link Concepts" which are areas where trails might be planned for the future over the long term. What this map shows is that there is a greater potential for trail links in the less developed central, western and northern parts of the Battlefield. The southern and eastern parts of the Battlefield are more developed and so have more roads and housing developments that pose physical obstacles that can complicate the construction of trails.

In the southwestern part of the Battlefield, US Route 1 is a divided highway that posses major obstacles to the extension of trails and sidewalks.

The Trail Destination sites on ***Map 4.9*** are:

1. **Marshallton Village** - This popular village center includes a small number of restaurants and has long been a gathering place for equestrians.
2. **Myrick Center Preserve Trails** - The Myrick Center Preserved is owned by a the non-profit Brandywine Valley Association. They permit public access to the trails on their property and have coordinated with Pocopson Township to link the trails within the preserve to the network of municipal trails that extend through the township.
3. **Willowdale Shopping Center** - This popular shopping area has small shops and cafes that could be used by visitors to buy water and for restroom breaks.
4. **Downtown Kennett Square Borough** - This revitalized historic downtown links via sidewalks to trails and a large multi-municipal park.
5. **Municipal "Share the Road" Trails** - Pocopson Township is proposing to establish municipal "Share the Road Trails" which are low volume roadways along the south side of the Brandywine Creek. These scenic areas could be a destination.
6. **Pocoposon Municipal Trails** - Pocopson Township has already begun to install a network of trails linking residential communities to the Pocopson Elementary School grounds. For local residents, these trails are a destination.
7. **Longwood Gardens Shopping Corridor** - Longwood Gardens is a premier international tourist destination for the region. The nearby shops along US Route 1 include grocery stores, restaurants, and antique shops.
8. **Chadds Ford Village** - This popular village center includes two museums, a small number of restaurants, and shopping, including antiques.
9. **Sandy Hollow Municipal Park** - This municipal park is a popular destination, mostly for walkers and families using its internal trails.
10. **Brandywine Battlefield Park** - This park is mostly used by local residents much like Sandy Hollow, but it also has ample parking and public restrooms.

- **Issues/Analysis:** The existing off-road trails within the Battlefield are isolated. Although there has been some regional trail planning, no region-wide trail plan has been considered to date. Establishing a trail network within the Battlefield will likely be more challenging than establishing an on-road bicycle route network because trails require rights-of-way, while bicyclists can utilize existing roadways. There is also a major challenge of provding trail access across the Brandywine Creek.

Water Trails, Bridges, and Access to Historic Fords

A canoe rental company vehicle arriving at a put in site just south of the US Route 1 Bridge in Chadds Ford Village near the Brandywine River Museum.

Except for its East Branch, the Brandywine Creek is used by canoe and tubing rental companies. Northbrook Canoe Company leads tours beginning at Harveys Bridge northwest of the Battlefield, and ending downstream at Thompson's Bridge in Delaware.[2] This trip takes a full day, but half day trips are also available. In a sense, a "water trail" the within Battlefield has already been established.

There is no certainty as to the exact location of the 1777 fords because the alignment of the Brandywine Creek has likely moved over the past two centuries. Nonetheless, it is known that many of these fords were located near existing bridges. For the purposes in this evaluation, the 2010 ABPP KOCOA mapping was used to determine the location of the fords, as shown on ***Map 3.2***. This map shows that some of these fords are surrounded by development and private property which is not well suited for conversion into trails or sidewalk corridor. However, other fords are in areas that are more rural and could possibly be linked into a trail network.

There are sidewalks on three of the bridges located near ford sites, but all these sidewalks are only on one side. All of these sidewalks are on the north side of the bridges. The sidewalks on the PA Route 52 and US Route 1 bridges are narrow but separated from traffic with a Jersey barrier. The sidewalk on the Bridge Street Bridge is standard width, but has no barrier. However, traffic volumes are not as high there as at the other bridges. None of the sidewalks on these three bridges link to other sidewalks or trails, and so they are all isolated.

[2] Northbrook Canoe Company, Personal communication, (2012).

The best way to view the ford sites is from bridges or from watercraft in the stream. Depending on recent rainfall and water depth, it is also possible to walk into the stream in the northern parts of the Battlefield. There are a number of informal trails near the bridges that are used by people going fishing. These trails are sometimes used to access the water with small paddle boats or inner tubes.

Local residents walking with their dog in the Brandywine Creek north of the Bridge Road Bridge near the historic Buffingtons Ford site.

A preliminary inventory of the Battlefield fords in terms of access is presented below:

Trumles Ford, West Bradford and Pocopson Townships, Chester County

Trimbles Ford was along this reach of the creek.

- **Associated Bridge:** No bridge. The closest road is Camp Linden Road.
- **Traffic Issues:** The nearby low volume roadway is well suited for bicycling.
- **Pedestrian Issues:** No public access. There are no nearby trails or sidewalks.
- **Surrounding Land Use:** The north and south shores are rural private residential.
- **Scenic Issues:** Trees generally block the view from the roadway.

Jefferis Ford, West Bradford and Pocopson Townships, Chester County

This bridge at this ford is popular with bicyclists.

- **Associated Bridge:** Allerton Road Bridge.
- **Traffic Issues:** This low volume roadway is well suited for bicycling.
- **Pedestrian Issues:** No sidewalk. There is a potential future trail access to West Chester Borough via Miner Street.
- **Surrounding Land Use:** The north and south shores are fields used for cattle.
- **Scenic Issues:** This attractive truss bridge is easily visible from the road.

Buffingtons Ford Bridge, East Bradford Township, Chester County

There is a sidewalk on the north side of the bridge.

- **Associated Bridge:** Bridge Road Bridge.
- **Traffic Issues:** This low volume roadway is well suited for bicycling.
- **Pedestrian Issues:** There is access via informal trails to the south.
- **Surrounding Land Use:** The north shore is large lot private residential. The south shore is a municipal park.
- **Scenic Issues:** This modern 20th century bridge is largely hidden behind trees.

Wistar Ford, Birmingham and Pocopson Townships, Chester County

Most of the bridge spans across the floodplain.

- **Associated Bridge:** PA Route 52 Bridge.
- **Traffic Issues:** This high volume road is poorly suited for bicycling.
- **Pedestrian Issues:** There is a sidewalk on part of the bridge and an informal walkway with wooden steps leading to it.
- **Surrounding Land Use:** The west shore is industrial. The east shore is private recreational.
- **Scenic Issues:** This stone arch is quite visible from surrounding properties.

There is sidewalk on half of the bridge's north side.

The sidewalk ends at an informal wooden stairway.

Jones Ford, Birmingham and Pocopson Townships, Chester County

The bridge at this ford site has narrow shoulders.

- **Associated Bridge:** PA Route 926 Bridge.
- **Traffic Issues:** This high volume roadway is poorly suited for bicycling.
- **Pedestrian Issues:** No sidewalk. The shoulders on the bridge are narrow.
- **Surrounding Land Use:** The west shore is cultivated farm fields. The east shore is commercial.
- **Scenic Issues:** This modern 20th century bridge is visible from nearby roads.

➢ **Issues/Analysis:** The PA Route 926 Bridge is slated for replacement, and as of the writing of this publication, is undergoing design by the Pennsylvania Department of Transportation (PennDOT). This two lane roadway has become a major commuter corridor in the past decades with high traffic volumes during rush hour. The new bridge will be a longer structure than the existing bridge. It must span not only the river but also the adjacent wetlands and floodplains. Furthermore, the new bridge will have wider shoulders, which would better accommodate bicyclists.

Hydrologic studies are currently underway to determine how the new bridge will impact and be impacted by the occasional high water flood event. These studies will determine how wide the shoulders can be. If at least one of the shoulders is eight feet wide, then it would be possible to install a sidewalk with a barrier at a future date. Thus, the hydrologic studies will have a major impact on whether this bridge can be used for future pedestrian access, and ultimately for viewing the historic ford site.

Brintons Ford, Birmingham and Pennsbury Townships, Chester County

The rail line runs close to the old ford site.

- **Associated Bridge:** No Bridge. There was formerly a bridge at Briton Bridge Road.
- **Traffic Issues:** None. The former road beds leading to the bridge are now a dead end and a rail corridor.
- **Pedestrian Issues:** No public access.
- **Land Use:** The west shore is an active rail corridor. The east shore is farm meadow.
- **Scenic Issues:** Trees generally block the view from nearby roadways.

Chadds Ford, Pennsbury Township, Chester Co. and Chadds Ford Township, Delaware Co.

The creek at Chadds Ford is wide but well hidden.

- **Associated Bridge:** US Route 1 Bridge.
- **Traffic Issues:** This high volume highway is poorly suited for bicycling.
- **Pedestrian Issues:** The narrow sidewalk on the north side is isolated and unused.
- **Land Use:** The west shore is an active rail corridor and vacant wooded lots. The east shore is an power line corridor.
- **Scenic Issues:** Trees generally block the view from the nearby roadway.

This site is not well-suited for a crosswalk.

There is a sidewalk next to a wide shoulder.

- **Issues/Analysis:** Two trails exist along the east side of the Creek near the US Route 1 Bridge. One is south of the bridge and the other just north. These trails are informally connected by a commonly used beaten path that goes under the bridge in the vicinity of an old mill race. This informal path is well suited as a location for a public trail which could link to future stairs leading up to the eastern end of the sidewalk on the north side of the Bridge. This sidewalk could be widened an additional two to three feet which would be possible because the roadway shoulder is wide. Such a process would involve moving (or rebuilding) the existing Jersey barrier and perhaps raising it up to four feet in height.

  The sidewalk on the western end of the Bridge is not far from the campus of the Pocopson Elementary School. There are only two parcels of land that would need to be crossed to connect the sidewalk to the school: a narrow, slow speed freight rail corridor and an oblong vacant wooded lot measuring 2.7 acres. A sidewalk or trail would be feasible through these properties, and would link the school with the Brandywine Conservancy grounds, the planned Harvey Run trail, and possibly the Brandywine Battlefield Park.

Gibsons Ford, Pennsbury Township, Chester Co. and Chadds Ford Township, Delaware Co.

The ford was likely in the upper left of this photo.

- **Associated Bridge:** There is no bridge or existing road access.
- **Traffic Issues:** None. The closest road is Stabler Road.
- **Pedestrian Issues:** No access. There are no nearby public sidewalks or trails.
- **Land Use:** The west and east shores are large rural private properties.
- **Scenic Issues:** Trees generally block the view of the creek from both sides.

Pyles Ford, Pennsbury Township, Chester Co. and Chadds Ford Township, Delaware Co.

This bridge in located in a rural open area.

- **Associated Bridge:** South Creek Road Bridge.
- **Traffic Issues:** This low volume roadway is moderately well suited for bicycling.
- **Pedestrian Issues:** There are no nearby sidewalks or trails.
- **Land Use:** The west and east shores are large rural private properties.
- **Scenic Issues:** This concrete arch bridge is generally visible from the roadway.

PUBLIC ACCESS TRAIL PLAN

Viable Trails and Paths

The information presented previously in this chapter was used to identify an Inventory of Viable Trails and Paths show in ***Map 4.11***. These conceptual corridors represent where trails could be built over the long term, one segment at a time. Further design studies would be required before any construction occurs. This map proposes a network which, wherever possible:

- Avoids high volume roadways
- Crosses high volume roadways at a signalized intersection
- Forms a closed loop
- Links to key destinations

This map depicts five "Trail Link Areas," which are locations well-suited for the establishment of a trail network. These areas were developed based on input from local governments, county planners, and input from residents and stakeholders who attended public meetings. These areas should be studied in more detail to determine feasible trail alignments. Each area could be pursued as a separate project or as phases of a larger project. This "modular" approach would allow local communities to work on a project which would not require the significant coordination of a large scale trail. Yet these smaller projects would support the ultimate establishment of a trail extending throughout the Battlefield. These Trail Link Areas are (numbers relate to the numbered sites in the map):

1. **Kennett Square Pedestrian Network** includes the sidewalk grid within Kennett Square Borough and the nearby trails and sidewalks that lead to it.
2. **US Route 1 Improvements** include future trails and sidewalks that could be constructed over the long term while this major highway is gradually improved.
3. **PA Route 52 Improvements** include future trails and sidewalks anticipated to be constructed over the long term as this roadway undergoes planned improvements.
4. **The Central Battlefield** includes the network of trails that are proposed to extend throughout Pocopson Township and the Myrick Environmental Center.
5. **The Battle Path North** includes local trails that link the residential communities north of Chadds Ford with the Brandywine River Museum and the Brandywine Battlefield Park.
6. **Chadds Ford Village Pedestrian Links** could connect the Brandywine Battlefield Park with Chadds Ford Village, the Brandywine River Museum, and the US Route 1 pedestrian crossing over the Brandywine Creek.

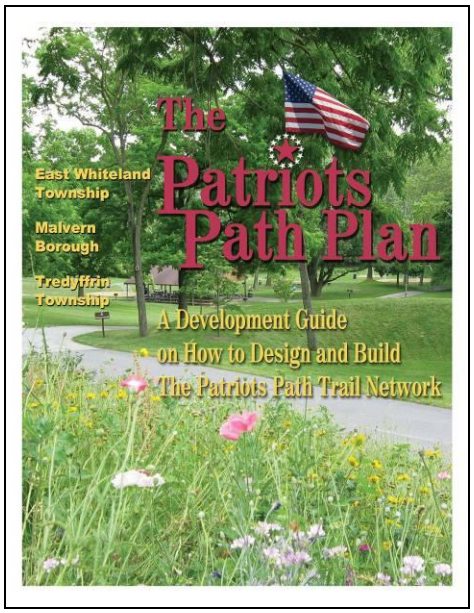
The riverside grounds of the Brandywine River Museum combine art, gardens, and trail amenities to create an attractive pedestrian destination.

Map 4.12 presents a conceptual schematic of a network of off-road trail and on-road bicycle routes that would extend throughout all parts of the Battlefield. The bicycle routes would provide access to much of the Battlefield area used in 1777 marching corridors, but would not extend through the area along the boundary between Pocopson and Pennsbury Townships.

However, this central area would be accessed by the off-road trails that could ultimately link Chadds Ford Village to Kennett Square. Chadds Ford Village has already been identified as a major destination for the proposed Battle Path. If the Battle Path were extended to the west, Kennett Square Borough could serve as another destination.

Regional Trail Planning Opportunities

Map 4.13 shows how trails within the Brandywine Battlefield could link to a wider trail network that would extend to significant historic sites through Philadelphia and its western suburbs. The central feature of this network would be the proposed 1777 Loop, shown in yellow on ***Map 4.13.*** This trail loop would connect the Brandywine Battlefield Park with Valley Forge National Historical Park and with the Paoli Battlefield. All of these locations are important sites relating to the Revolutionary War's Philadelphia Campaign of 1777. The Brandywine Battlefield Park could serve as the southern gateway and trailhead to the 1777 Loop.



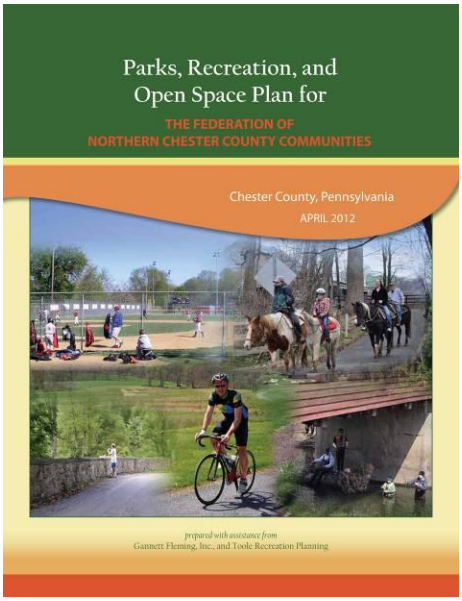
The Patriots Path Plan *proposed a network of trails, paths, and sidewalks linking resources associated with the Paoli Massacre.*

The 1777 Loop could begin at the Brandywine Battlefield Park in Delaware County, and extend east along the inactive Octoraro Rail line. It could pass through the historic Newlin Grist Mill Park, and end near the new Wawa Train Station and the existing Darlington Loop Trail. At this point, the 1777 Loop could extend up the existing Rocky Run Trail in Middletown Township, which links to trails in Tyler Arboretum and Ridley Creek State Park. From there the 1777 Loop would extend north through Historic Sugartown, and onto the sidewalk grid of Malvern Borough. Malvern Borough is the location of the Paoli Battlefield and also has a train station.

From Malvern, the 1777 Loop could follow the alignment of the proposed Patriots Path which extends up the PA Route 29 Corridor to the Chester Valley Trail. The Patriots Path extends east to Valley Forge National Historic Park, and west to the future Chester County Park at Exton. The Patriots Path was initially studied by the Chester County Planning Commission in *An Evaluation of Patriots Path Trail Opportunities in the Easter Great Valley*. In 2010, the *Patriots Path Plan: A Development Guide on How to Design and Build the Patriots Path Trail Network* was adopted by the three municipalities crossed by the proposed trail.

From the western end of the Patriots Path in Exton, the 1777 Loop would follow existing Uwchlan Township trails to the County Struble Trail, which is anticipated to link with Marsh Creek State Park in the coming years. The Struble Trail extends south into Downingtown Borough. There are a number of planned township trails along the Brandywine Creek, which would link central Downingtown Borough to the US Route 1 Bridge over the Brandywine Creek. From here, the 1777 Loop would extend east to Brandywine Battlefield Park in Delaware County, thus creating a closed loop.

An additional long term trail opportunity involves Valley Forge National Historic Park and Hopewell Furnace Historic Park. Both of these sites focus on the Revolutionary War era, and both extend into Northern Chester County. In 2012, the Federation of Northern Chester County Communities, a regional planning commission including nine municipalities in Northern Chester County, adopted a regional *Parks, Recreation and Open Space (PROS) Plan.*



Trail plans for northern Chester County recommend trail links from Valley Forge to Hopewell Furnace National Historic Parks.

Recommendation 4.3 of this Plan called for a trail to be constructed along the French Creek Corridor that would link Hopewell Furnace National Historic Site with Phoenixville Borough some 15 miles to the east. Montgomery County, PA has also proposed a trail that would link Phoenixville Borough to Valley Forge National Historic Park. If these two trail projects were realized, there would be a "Forge to Furnace" trail that could serve as a spur to the 1777 Loop and link the Battlefield with two national parks.

PUBLIC AND STAKEHOLDER COMMENTS

Trails and public access were a major topic of discussion at the public meetings. Some residents were concerned that more trails would attract too many tourists and so diminish the rural character of the Battlefield, which is what makes it such a valuable historic resource. They were also concerned that pedestrian tourists would have to cross high traffic roadways.

Trail planning was a major source of discussion at the second public meeting. Residents, business representatives, and equestrians all gave input.

Business representatives suggested that trails would make it easier for visitors to access the shops and restaurants especially along US Route 1. Their desire was to accommodate tourists visiting Longwood Gardens who might be more inclined stop and walk around Chadds Ford Village and Kennett Square if there were a good network of trails and sidewalks. Equestrians also called for more trails that accommodate horses. They argued that keeping horses on the Battlefield would add to its historic character.

Other stakeholder comments are summarized below:

Comments about Public Access from the Public Meeting
The PA Municipalities Planning Code permits municipalities to adopt an Official Map that can show where trails, sidewalks, and roads should go. Pocopson Township has already adopted an Official Map. The other Battlefield municipalities should do that as part of a coordinated effort. Official Maps can work but they have technicalities that can keep action from being taken.
A major obstacle for connecting the Park to the rest of community is the lack of a pedestrian crossing across US Route 1 at Ring Road. The Brandywine Conservancy is working on a trail that will go to Ring Road, but will have to get a grant to start the planning needed to make the road crossing. The municipalities want traffic from employers, but that discourages people from walking.
There is a need for more linkages and connections whether on roads, trails, bikeways, or sidewalks. The Battlefield area should have a "Necklace of Sites" that can be visited, not just a single park. Trails are great but cost money. Municipalities do not always support them.
Delaware County already has the Colonial Plantation at Ridley Creek State Park. It should be linked to the Battlefield. The Battlefield facilities need to connect with other areas to survive. They need to be linked to Valley Forge Park as well as Philadelphia and Lancaster County tourism.
Trails in the Landmark should be explored first. In Pocopson, trail corridors are preserved in most new developments. It would be nice to have a loop trail not just one where you have to walk up and back.
Historic, cultural, and artistic sites should be linked. The whole landscape has never been interpreted.
Why does everything in the Battlefield need to be connected? Many residents moved here for privacy.
State Bike Route "L" goes down some heavy traffic roads. That route should be changed or eliminated.
The intersection of Meetinghouse Road and Creek road is dangerous and should not be used as a pedestrian destination. Also, you cannot see traffic coming along that hilly part of Meetinghouse Road.
There are many people in Birmingham Township who ride horses and any trail planning should consider equestrian trails. They would like more places to ride, so don't forget them.
The businesses in Chadds Ford Village would like to be connected to historic sites by trails. They need a safer pedestrian crossing at the intersection of US Route 1 and Creek Road. In this tough economy anything we can do to make it easier for people to get to our shops will be a help.
You need to balance the desired of businesses to have trails with the desires of residents who don't want them. Trail panning should focus on business centers and respect landowner's privacy.

RECOMMENDATIONS

The recommendations listed below are presented as possible work efforts that could be initiated in the short term, which for these purposes is approximately three years. Long term and ongoing recommendations are listed in ***Appendix E***. The priorities and cost estimates for all these recommendations are presented in ***Appendix C***.

Recommendations for Establishing Bicycle Routes

With the exception of the US Route 1 corridor, most of the Battlefield is at least moderately well-suited for on-road bicycling. Bicyclists already ride many of the back roads, especially on weekends. The following recommendations focus on expanding bicycling in the Battlefield in a way that will be safe and provide improved access to historic landscapes and resources.

4.1: Establish safe and secure bicycle parking facilities in destination areas. Bike racks should be installed throughout the Battlefield in locations where they are needed. There should be an effort to plan these sites so that they are safe and easy to find. Bike racks that are installed in out-of-the-way areas often remain unused. Bike racks should also be located in places where they can be easily seen by passersby, thus reducing the likelihood of theft.

4.2: Work with local communities and businesses to develop bicycle tourist destination areas. The Battlefield already possesses a number of destinations that are popular with bicyclist such as Chadds Ford Village. These destinations could be improved to better accommodate bicyclists by establishing trail segments that permit bicyclists to avoid high volume roadways. Trail head bulletin boards and local businesses could also post information to direct bicyclist to public restrooms, local eateries, and stores where they can get supplies.

Recommendations for Establishing Off-road Trails

There are a limited number of off-road trails already in place in the Battlefield and they are largely isolated facilities. The Battlefield is bisected by the Brandywine Creek and a number of high volume roads which are obstacles to establishing trails. As a result, there are only two areas in which a multi-municipal trail network is feasible in the foreseeable future: the Kennett Square area and the Chadds Ford Village area. The following recommendations focus on efforts to establish trails wherever possible in the Battlefield with an emphasis on creating larger systems in the two areas best suited for trails.

4.3: Establish a trail and sidewalk network linking central Kennett Square to its surrounding communities, and perhaps north to Unionville Village. Municipal comprehensive plans and regional planning have already identified the viability for a trail along the PA Route 82 corridor north of Kennett Square Borough. However, overall development and increased traffic concerns pose complications for linking pedestrian corridors. More detailed planning and design studies should be conducted for this trail.

The sidewalk grid in Kennett Square Borough is already linked to the Red Clay Creek Trail and is well positioned to link to larger regional trails.

4.4: Adopt standards for the placement and design of trails and paths within the zoning ordinance and the subdivision and land development ordinances of each Battlefield municipality. Trails and paths are often built as part of the land development process or as mitigation for highway improvement projects. In order to provide guidance in such instances, municipal ordinances should include trail design standards which may include schematic drawings of trail construction cross sections.

Recommendations for Establishing and Improving Pedestrian Facilities

Sidewalks and crosswalks are not common in most of the Battlefield communities. The exception is Kennett Square Borough and its surrounding neighborhoods which have an extensive sidewalk grid. The following recommendations focus on expanding sidewalks in the Borough and providing crosswalks in areas that are crossed by trails or paths, or could be in the future.

4.5: Pursue small-scale and major improvement to the sidewalks and crosswalks in Chadds Ford Village. Chadds Ford Village is a significant destination from a historical and tourist perspective. There are a number of pedestrian friendly landscapes, but they are bisected by US Route 1, a high volume roadway. There is a pressing need to improve pedestrian access across this roadway. The sidewalk grid of Chadds Ford Village could be extended to the west along the north side of US Route 1 to the US Route Bridge over Brandywine Creek.

4.6: Pursue the establishment of a sidewalk on the PA Route 926 Bridge over the Brandywine Creek. As of the writing of this report, PennDOT is completing design studies for the PA Route 926 Bridge over the Brandywine. This bridge is one of only a few viable locations for a pedestrian crossing over the Creek. It would therefore be ideal for this bridge to have a sidewalk, or at least a shoulder wide enough for a pedestrian walkway to be constructed there at a future date.

Recommendations for Establishing a Regional Trails Network

The Stroud Preserve in the northern Battlefield has installed uniform signage with trail guide boxes for visitors.

The roads and waterways that cross the Battlefield pose many obstacles to establishing a regional trail network that would extend throughout all parts of the Battlefield. The Battlefield possesses gently rolling topography, unique tourist destinations, and other features which would make such a network viable over the long term. The following recommendations address actions that will serve as the preliminary steps needed to establish a regional network. These actions will have positive benefits even if pursued individually.

4.7: Use a unified signage system to mark trails, paths, sidewalks, and way-finding signs in the Battlefield. A coordinated graphic design system should be use to mark the trails and paths within the Battlefield. Such a system can also be used on publicly available mapping, as well as for signage on the trails.

Recommendations for Further Initiatives

4.8: Study options for a trail connection along the PA Route 52 Bridge near the Wistars Ford Site. It is technically possible for pedestrians to walk across the Brandywine Creek using the PA Route 52 Bridge sidewalk and an informal wooden walkway. However, the eastern end of this pathway is located on a private property which is not linked to any other pedestrian walkway. The western end of the bridge sidewalk ends at a railroad crossing and does not link to any other sidewalk. Although the current condition of this "social trail" does not conform to modern standards for public walkways, it is a potentially valuable resource given the rarity of creek crossings. This pathway should be studied to determine what steps might be taken to establish a public walkway following its general alignment.

4.9: Conduct a bike and pedestrian study for the Creek Road corridor that will address ways to improve safety for the many bicyclists who ride it on weekends. Through general field observations and interviews with local stakeholders, it became clear that the Battlefield is a favorite location of bicyclists, especially on the weekends. Scenic Creek Road is especially well-known as a major destination for bicyclists. However, it is also a commuter route with narrow shoulders and a winding alignment. There is a strong potential to improve or somehow alter this roadway to better accommodate both bicycles and traffic. A first step in this process would be to document who rides the road and when. Also, there should be documentation and mapping to show what surrounding roads are used by the bicyclists who travel on the Creek Road Corridor.