



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)

| Item Description | Quantity | Unit Cost | Item Total | Segment Total |
|---|----------|--------------|---------------------|---------------|
| 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)

| Item Description | Quantity | Unit Cost | Item Total | Segment Total |
|--|----------|------------|---------------------|---------------------|
| 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)

| <u>Item Description</u> | <u>Quantity</u> | <u>Unit Cost</u> | <u>Item Total</u> | <u>Segment Total</u> |
|--|-----------------|------------------|-----------------------|----------------------|
| 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)

| <u>Item Description</u> | <u>Quantity</u> | <u>Unit Cost</u> | <u>Item Total</u> | <u>Segment Total</u> |
|---|-----------------|------------------|---------------------|-----------------------|
| 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.



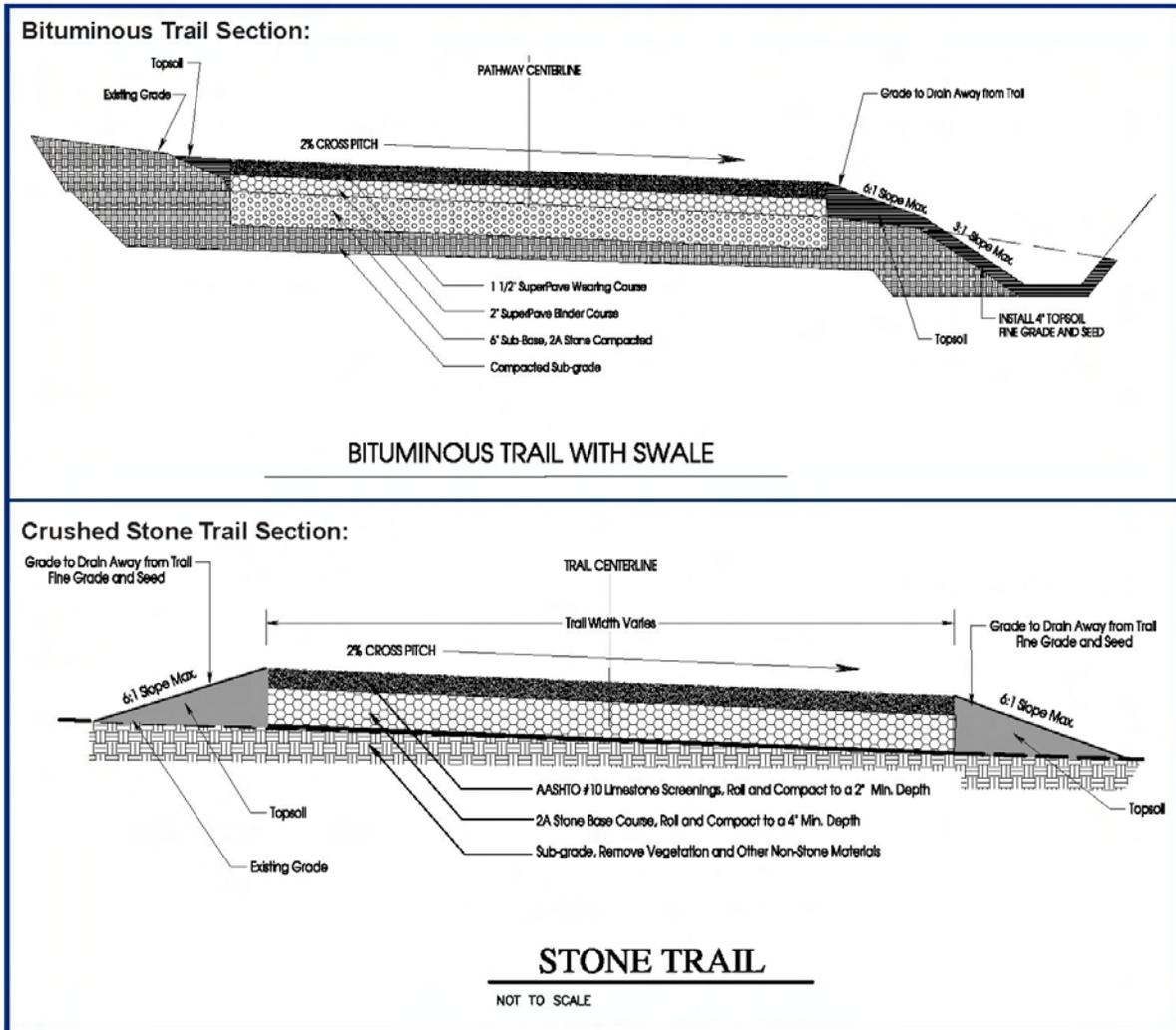
In 2000, the Brandywine Battlefield Task Force developed signage guidelines for the Brandywine Battlefield National Historic Landmark. This system along with schematic plans for signs was published in *Brandywine Battlefield National Historic Landmark Gateway Sign System: Design Intent Documentation*. 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%

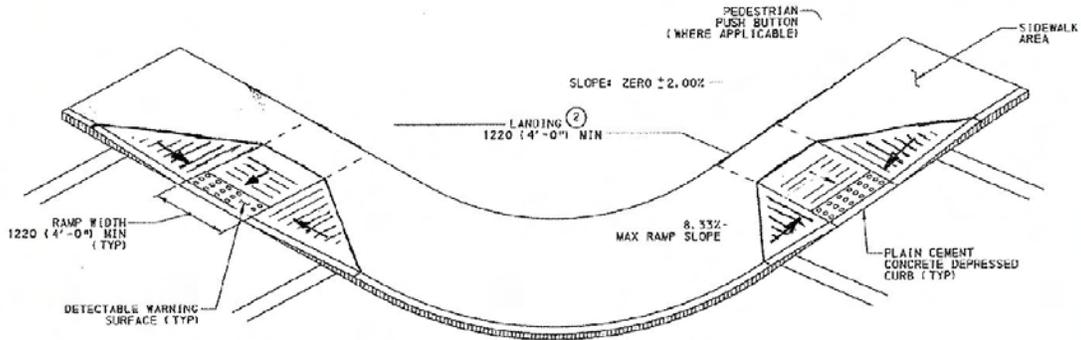
Patriots Path Trail Sections





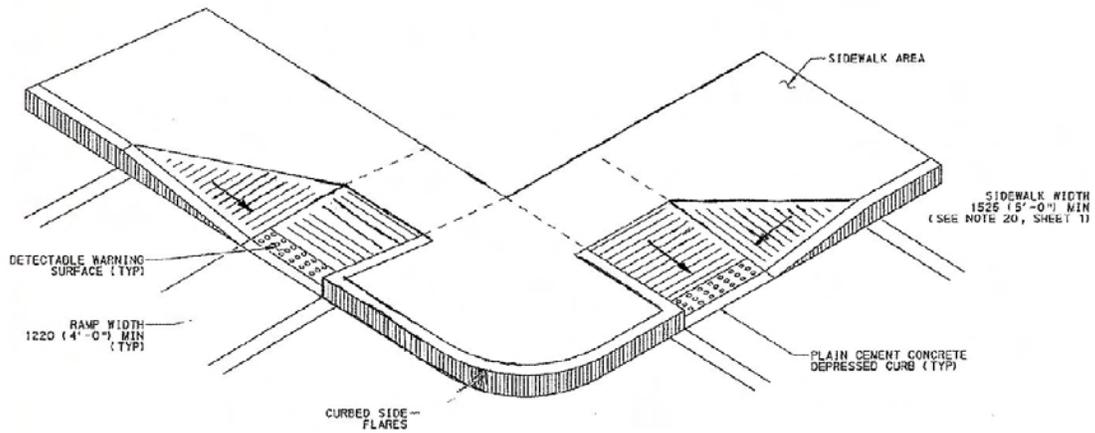
Patriots Path Curb Cuts

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.

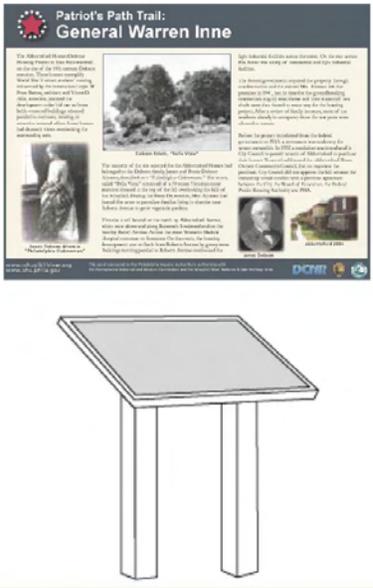


Vinyl Coated Chain-linked Fencing:

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) | Provides matching grants to eligible entities for projects in the following areas: <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/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.

