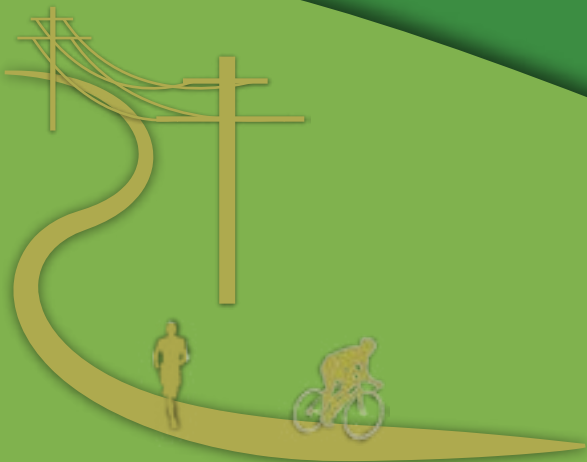


# POWER LINE TRAIL CONNECTOR FEASIBILITY STUDY

MONTGOMERY TOWNSHIP,  
MONTGOMERY COUNTY, PA

December 2013



*Parkway to Powerline...Making the Connection*



PREPARED BY:

GILMORE & ASSOCIATES, INC.  
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# ACKNOWLEDGMENTS

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The preparation of this report was financed in part through funds made available by the Delaware Valley Regional Planning Commission from a grant by William Penn Foundation.

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**PROJECT SCOPE**

The purpose of the Montgomery Township Power Line Connector Trail Feasibility Study is to evaluate routing options that will best connect the recently constructed Route 202 Parkway Trail to the partially constructed Power Line Trail. Both of these trails are identified on Montgomery County’s proposed primary trail network plan, which was prepared by the Montgomery County Planning Commission. Feasibility criteria include pedestrian safety, physical barriers, financial consideration, connectivity to residential populations and to existing and proposed amenities within Montgomery Township as well as surrounding municipalities.

**REGIONAL CONTEXT**

Montgomery Township is situated on the eastern edge of Montgomery County, bordered by Horsham Township, Lower Gwynedd Township, Upper Gwynedd Township, Lansdale Borough, Hatfield Township and New Britain Township, Bucks County to the East. The Township is densely populated and composed of a large range of residential and non-residential uses. In addition to the multitude of existing sidewalk networks, several multi-use, regional trail routes run through the Township. The Route 202 Parkway trail is a

nine (9) mile multi-use trail that runs from Doylestown to Montgomeryville. The other significant trail network that is proposed within the Township is the Power Line Trail. This proposed seventeen (17) mile trail will extend from Evansburg State Park in Skippack Township to the Pennypack Trail and Cross County Trail in Upper Moreland Township. The Trail follows a PECO utility corridor. Approximately five (5) miles of the trail has been constructed in adjacent Horsham Township.

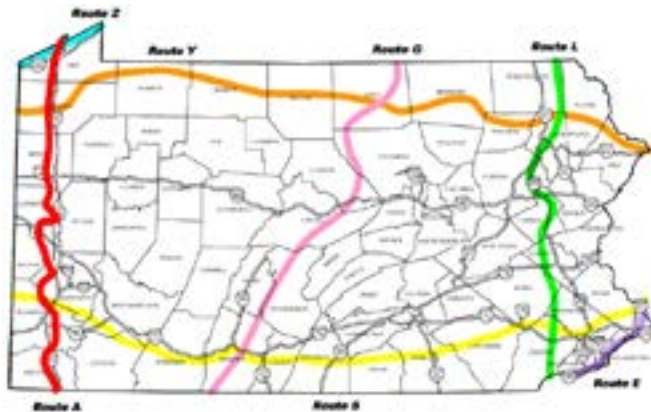


DEDICATED BIKE LAND AND SIDE TRAIL

In addition to these regional, off road trails, Pennsylvania Department of Transportation’s Bicycle PA Bike Route S utilizes portions of Route 309, Hartman Road, Horsham Road and Kenas Road within Montgomery Township. This on-



road bike route extends four hundred sixteen miles in length, beginning at the West Virginia state line just west of West Alexander and extending east to the New Jersey state line in Washington Crossing. Although the Bicycle PA routes do not necessarily provide specific bicycle facilities, they are intended to provide experienced bicyclists with a guide to available highways and rail trails to traverse across the state.



BICYCLE PA ROUTES

## PROJECTED USE

Montgomery Township anticipates the Power Line Connector Trail to be a Multi-Use trail, utilized by bicyclists and pedestrians for transportation and exercise. The proposed Trail system will provide a multitude of recreational opportunities for the Township and Surrounding Communities by linking residents to regional trail networks. These trail networks provide access to various parks, open space, commercial areas and cultural/historical sites. Implementation of the trails will also open up opportunities for enhancement of natural areas.



**TRAIL CHARACTERISTICS**

This feasibility study considers several types of trails to create the link between the Parkway Trail and the Power Line Trail. Multi-Use, or Shared Use trails

which are physically separated from vehicular traffic, as well as On-Road cycling routes are noted as potential routes.



TYPICAL SEPARATED MULTI-USE TRAIL  
OFF ROAD



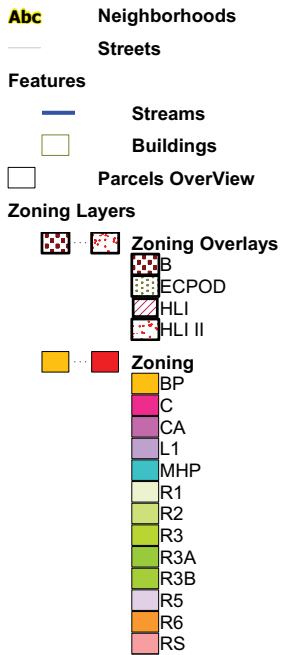
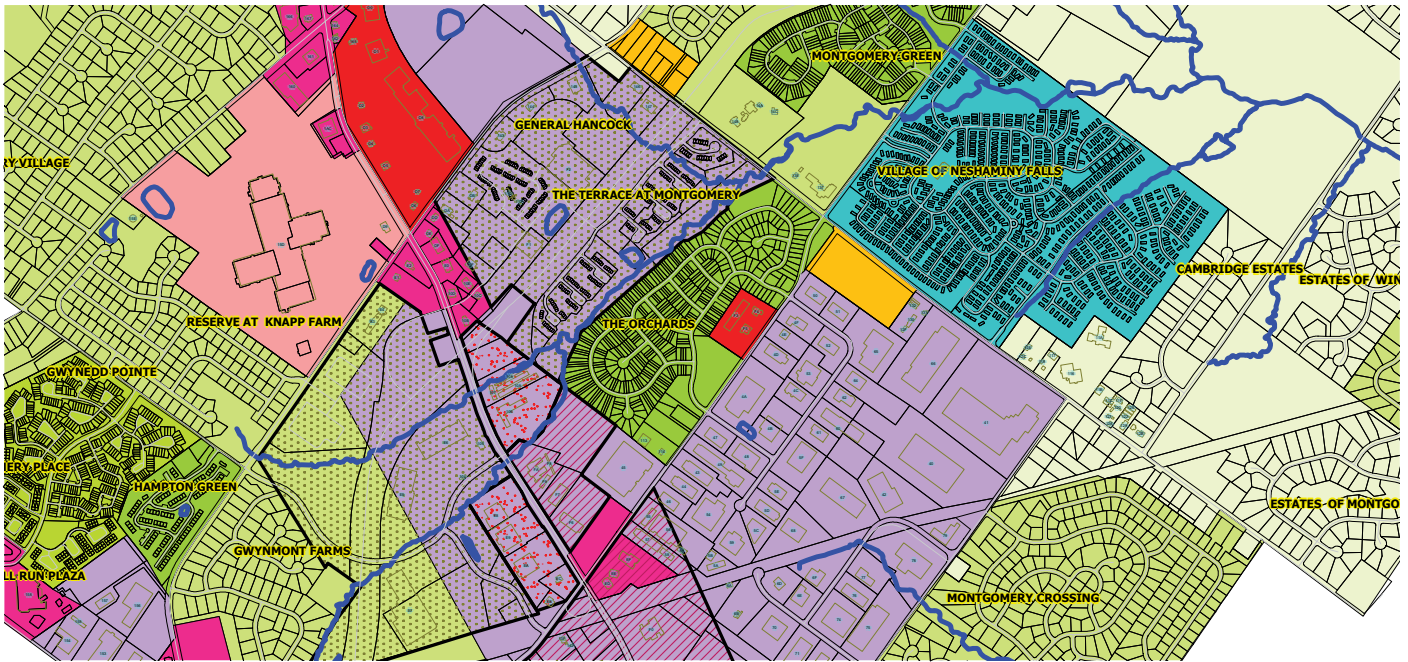
TYPICAL ON ROAD SHARED ROUTE



# PHYSICAL CONDITIONS

## Land Use

The land that exists between the 202 Parkway Trail and the proposed connection to the Power Line Trail is primarily urbanized land with rolling topography. Land uses include a wide range of Industrial, Commercial and Mid-Density Residential.



### Natural Areas and Parks

Due to the highly urbanized and densely populated condition of the project area, there are limited Natural Areas. There is a vegetated corridor that follows the path of the Little Neshaminy Creek which flows through the project site as well as vegetated tributary areas. These tributary areas exhibit signs of the highly urbanized environment in which they are located, having eroded banks from high velocity flows.



LITTLE NESHAMINY CREEK

There is a Township Park located within the project area. Whispering Pines Park is located at Orchard and Stump Roads.

### Notable Sites

The area of the Connector Trail contains several notable sites that were influential in the recommended trail routing. The first site is The Joseph Ambler Inn property. Several historic structures

are located on this property, including a stone-bank barn which was constructed in 1820, a cottage built in 1929, The Thomas Wilson House and The John Roberts House. The land was originally owned by William Penn and was granted to Richard Pearce, who then sold a piece to William Morgan. Joseph Ambler acquired the property after the death of William Morgan. This site is full of history and charm.

Another important site in the project area is the Montgomery Township Municipal Complex. The Township complex is home to the Township's Government, Administration and Police. There are existing trails and open space on this site as well. This complex has ample parking, and could serve as a trail head for the Connector Trail.

Looking to the future, there is one more notable site within the Connector Trail project area. The approximately twelve (12) acre site is located on the south side of Horsham Road, to the east of Stump Road. This is the future home of the Montgomery Township Community Center. This will be a wonderful asset to the community, providing programs and amenities for residents of all ages. The facility will also have ample parking and could serve as a trail head for the Connector Trail.



## USAGE FEASIBILITY

The Connector Trail connects into the existing network of sidewalks that reach into densely populated residential neighborhoods, providing the necessary hierarchy of access to the available regional trail systems and their associated amenities and resources. The proposed trail route avoids roadways with high volume vehicular traffic where possible to create a safe, inviting environment for trail users. In addition to the access provided to residential properties, it is also important to recognize the proximity to the many employees that work in the Commercial and Industrial sites within the project area. This creates opportunities for before-work, lunch break and after-work use of the trail system. Pedestrian commuting is also a potential benefit to employees living and working in close proximity to this trail network.

## LEGAL FEASIBILITY

Proposed Easements will be necessary to obtain from all properties not owned by Montgomery Township or within Township road rights-of-way, including PECO and PennDOT. The recommended routes, as described, utilize Township owned property where possible to limit the number of easements that would be necessary from private property owners. Trail construction and maintenance easements would need to be executed.



## EXISTING PLAN AND FIELD INVENTORY

The Montgomery County Trail Plan which was prepared by the Montgomery County Planning Commission identifies the Power Line Trail and 202 Parkway Trail within the Township.

This Feasibility Study was prepared utilizing aerial imagery flown in 2005, and obtained from the Delaware Valley Regional Planning Commission (DVRPC), as well as Geographical Information System (GIS) parcel data obtained from the Montgomery Township GIS database.

Potential Trail Routes were walked and a photographic inventory of conditions was taken.

## PUBLIC PARTICIPATION

The Draft Plan and Routing Options were presented publicly at the Township’s Planning Commission meeting in April 2013, the Park & Recreation meeting in June 2013, the Environmental Advisory Committee meeting in September of 2013 and the Open Space Committee meeting in October of 2013. General consensus was reached to support the proposed trail routes.

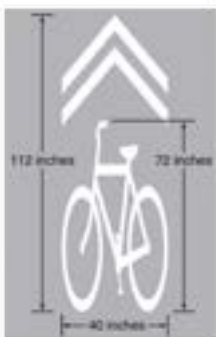
## DESIGN CRITERIA

There are several guidelines for the design of Multi-Use Trails, the most current of which are still in draft form as of the date of this report. The following chart provides a comparison between the most current recommendations as provided by the Architectural and Transportation Barriers Board (Access Board) and the American Association of State Highway and Transportation Officials (AASHTO). These criteria were considered during the preparation of this feasibility study and shall also be utilized to guide the detailed design and engineering of the Connector Trail.

The American Association of State Highway and Transportation Official’s (AASHTO) current guidelines for Shared Use Paths recommend a minimum width of ten (10) feet for a two-directional Shared Use Path. A graded, shoulder area of at least three (3) feet should also be provided. These guidelines also recommend a minimum lane width of fourteen (14) feet for Shared Lanes on roadways, in conjunction with proper signage and roadway markings.



Shared Use Trail Design Guidelines				
Trail Type	Required Width	Agency/Guideline	Signage	Markings
Off Road	10' minimum with 2' clear shoulders having 6:1 max. slope (3) 5' clear shoulders shall be provided where there is an adjacent water hazard or downward slope of 3:1 or greater	American Association of State Highway and Transportation Officials (AASHTO) Design of Shared Use Path (Feb. 2010) (DRAFT)	Part 9 of MUTCD	Solid/Broken Retroreflectorized Yellow line to clarify the direction of travel and organize pathway traffic
Off Road (Adjacent to Roadways)	10' minimum with a minimum of 5' clear to adjacent roadway	American Association of State Highway and Transportation Officials (AASHTO) Design of Shared Use Path (Feb. 2010) (DRAFT)	Part 9 of MUTCD	Solid/Broken Retroreflectorized Yellow line to clarify the direction of travel and organize pathway traffic
On Road (Shared Lanes)	Minimum of 14' lane width. (1)	American Association of State Highway and Transportation Officials (AASHTO) Design of On-Road Facilities (Feb. 2010) (DRAFT)	W11-1 & W16-1P (Share the Road) R4-11 (Bicycles May Use Full Lane)	Bike Lane Symbol Marking Placement immediately after an intersection and at intervals not greater than 250 ft.
On Road (Bike Lanes)	Minimum of 4' where no curb and gutter and there is no on-street parking Adjacent to On-Street Parking: 6' recommended (5' min.) 7' Adjacent to Narrow Parking Lane with High Turnover 6-8' In Area of High Bicycle Use	American Association of State Highway and Transportation Officials (AASHTO) Design of On-Road Facilities (Feb. 2010) (DRAFT)	R3-17 (Bike Lane) & R3-17aP/bP (Ahead/Ends) Spaced as needed, based on context	4" Solid White Line and Bike Lane Symbol Marking spaced as needed, based on context
On Road (Paved Shoulder)	4' with no vertical obstructions adjacent 5' with vertical obstruction adjacent	American Association of State Highway and Transportation Officials (AASHTO) Design of On-Road Facilities (Feb. 2010) (DRAFT)	W11-1 & W16-1P (Share the Road) R4-11 (Bicycles May Use Full Lane)	W11-1 & W16-1P (Share the Road) R4-11 (Bicycles May Use Full Lane)
Path within a Public Right-Of-Way functioning as a sidewalk		Public Rights of Way Accessibility Guidelines (PROWAG)		
Shared Use Path in Independent Corridors		Architectural Barriers Act Accessibility Guidelines for Outdoor Developed Areas (ADOGA)		
(1) Less than 14' may be designated for bicycles with adequate signage and markings				
(2) Shared Lane Marking not to be used on roadways having a speed limit greater than 35 mph				
(3) 8' width is allowable in rare cases/physical constraints				



## TRAIL ALIGNMENT

Multiple potential trail alignments were explored and evaluated through the process of determining the feasibility of the connector trail. The various trail options are described below.

**Option A - Off-Road: (Route shown in RED on the overall trail feasibility diagram on Page 17 and shown in detail on Pages 18-20)**

Route A proposes to connect to the existing stub trail that currently connects to the 202 Parkway Trail at the western property edge of the Joseph Ambler Inn property. The trail follows along the northern property line of the Joseph Ambler Inn, heading east towards the Montgomery Township Municipal Complex. Easements will need to be secured to cross the Joseph Ambler Inn property. The trail would extend across the western property line of the Montgomery Township Municipal Complex into a wooded area. A stream crossing would be necessary to traverse over the Little Neshaminy Creek, which flows through the Township property and under Horsham Road. An alternate to this stream crossing would be a routing out to Horsham Road to utilize the existing road crossing. The negatives of this routing would be a less

scenic route and safety concerns utilizing the highly trafficked State roadway. The trail would then connect to the existing paved trails north of the parking area for the municipal complex. Safety improvements such as signage and striping would be needed to better identify the pedestrian crossing of the driveway which provides access to the municipal complex from Stump Road. The trail would then follow the existing access drive and traverse along the eastern side of the municipal building and meet the intersection of Horsham and Stump Roads. Gated access and fencing is recommended to secure the access area and storage tanks.

Pedestrian crossing buttons exist at the intersection of Horsham and Stump roads. These signals and curb ramps should be closely evaluated to ensure they are fully compliant with PennDOT requirements since they fall within Horsham Road's right-of-way, which is a State road. Continental crosswalk striping should be implemented to create better vehicular awareness of the pedestrian crossings. The trail would then continue east along Horsham Road and follow the vacated road parcel which is located between two storm-water management facilities, the eastern facility

being located on the site of the future Montgomery Township Community Center. Routing the trail through the Community Center site is a great opportunity to connect to a major Community Amenity. The trail would continue east, along the southern property line, following the existing tree line. The trail then crosses over several properties where easements would need to be obtained. The first is the Cedar Run Landscapes property. There are existing storage areas and bulk mulch bins located in the area where the trail is proposed. Once past the Cedar Run property, the trail accesses the property of TEVA Pharmaceuticals. The TEVA facility is completely enclosed by an eight (8) foot high chain link fence. There is lawn and landscape area between the property line and the chain link fence that would be ample to support the ten (10) foot wide trail. Following the perimeter of the TEVA property, the trail crosses over to the parcel to the south of TEVA, the Hartman Corporate Center property. Again, ample area exists between the parking area for the Hartman Corporate Center and the TEVA fence line. This route provides a continuous trail which is not impeded by a significant number of roadway or driveway

crossings. The trail continues between the TEVA and Hartman Corporate Center properties until it reaches Hartman Road. The trail then advances across the entrance drive to the Hartman Corporate Center and continues south along Hartman Road. A five (5) foot wide concrete sidewalk exists along portions of this stretch of the proposed trail. There are also several obstacles to traverse along this stretch, including existing culvert crossing head walls, wet areas, utility poles and slopes. The trail will intersect with the PECO power line corridor which is the future location of the Power Line Trail, heading towards Horsham Township to the east. A mid-block crossing will be needed to cross Hartman Road at this location.

Preliminary discussions with property owners along this Route, particularly in the vicinity of the TEVA parcels, which indicated that this route would likely not be a viable option due to security concerns as well as potential future development. Therefore, an alternate route is also shown on the plan, which would basically become a side trail along Horsham and Hartman Roads. There are existing concrete sidewalks which could be widened or replaced to accommodate the multi-use trail



width that is required. This option appears to be viable with the drawback of the proximity to the high volumes of vehicular traffic along Horsham Road.

**Option B - On-Road (Shown in ORANGE on the overall trail feasibility diagram located on Page 17 and shown in detail on Pages 21-23)**

Route Option B traverses through the industrial complex. This route proposes to separate the walkers from the cyclists. Evaluating this route identified approximately twenty (20) access driveways would need to be crossed in order to move through the campus. These crossings would create dangerous conditions for cyclists, in particular. The proposed routing utilizes the existing thirty (30) foot wide paved cart way as an on-road shared roadway. In addition to the shared roadway for cyclists, a five (5) foot wide walkway would be located on the south side of Commerce Drive. The walkway would be continued along the east side of Stump Road to fill in the sidewalk gap that exists in that area, which connects to an existing mid-block crossing, connecting to The Village Shopping Center. Once on the west side of Stump Road, this also creates a link to Whispering Pines Park, which has

a tot lot, basketball court, street hockey court and opens lawn. Signage, street markings and bicycle safe storm drain grates are needed to properly mark the shared roadway. The walkway continues along the western side of Commerce Drive to eliminate the need for a crossing at Domorah Drive, along Hartman Road, in order to connect with the Power Line Trail. A culvert extension would be necessary where a piped tributary currently exists. At the intersection of Domorah Drive and Hartman Road, the ten (10) foot wide multi-use trail would head south on the western side of Hartman Road and connect to the future Power Line Trail system by way of a mid-block crossing with a pedestrian refuge island in Hartman Road. The intersection of the Township's Connector Trail and Power Line trail would have a kiosk containing information and maps of the various trail systems for users to utilize to determine their desired route and identify amenities and destinations along the trails.

An alternative to the continuation of the route as described above is to divert the trail through the secondary PECO power line corridor prior to Domorah Drive. The difficulty with this routing option is the ability to safely navigate through the Public Works area to connect with the primary



PECO power line corridor. Significant changes to the parking and vehicle access would need to take place to accommodate a safe pedestrian route through this area.

**Option C: (Route shown in BLUE on the overall trail feasibility diagram on Page 17)**

This route explores the use of an existing privately owned open space/utility easement adjacent to The Terrace at Montgomery residential development. This area is to the east side of the development, following the existing Little Neshaminy Creek stream corridor. This corridor, at first blush, appears to be a promising opportunity due to the fairly flat terrain and lack of mature trees and vegetation. This route would also need to traverse some steep slopes, cross the Little Neshaminy Creek, provide a mid-block crossing of Stump Road and navigate through an existing auto dealership property. Evaluating the overall feasibility and value to the Township and its residents, we do not feel this route provides the most value

for several reasons:

1. Duplicate Routing. Option A routing would provide convenient trail access to the Terrace at Montgomery residents, however they currently have access to the 202 Parkway trail that runs parallel, just to the west. An existing sidewalk network and crosswalks provide convenient, safe access to the 202 Parkway Trail where it intersects with Horsham Road.
2. Bypass Notable Township Sites. Routing Option A would parallel the 202 Parkway and Route 309 corridors, rather than connect to the Township's historic and cultural resources, including the Joseph Ambler Inn, Montgomery Township Municipal Complex and future Community Center.
3. Financial Consideration. Trail Routing Option A does not allow for utilization of existing infrastructure and Township owned properties. This will increase the cost and complexity of acquiring easements and constructing the necessary infrastructure to support trail implementation.



**PROPOSED EASEMENTS**

Proposed Easements will be necessary to obtain from all properties not owned by Montgomery Township or within Township road rights-of-way, including PECO and PennDOT. The recommended routes as described utilize Township owned property where possible to limit the number

of easements that would be necessary from private property owners. Anticipated easements will be necessary from the following property owners/parcels:

<b>List of Potential Easements Needed to Facilitate Connector Trail (On-Road Route)</b>		
<b>Parcel Block and Unit #</b>	<b>Owner Name</b>	<b>Approximate Easement Area Required</b>
Block 15, Unit 10	N/L Joseph Inn Real Estate	13,125 s.f.*
Block 18A, Unit 9	N/L Lloyd, William P	4,800 s.f.**
Block 18, Unit 63	N/L PECO	3,100 s.f.**
Block 18, Unit 62	N/L Ambrose, Francis J. & Freida	3,500 s.f.**
Block 18, Unit 61	N/L Lansdale Realty Assoc.	2,650 s.f.**
Block 18, Unit 60	N/L Vink & Beri LLC	2,150 s.f.**
Block 18, Unit 59	N/L RMS Development Company, LP	7,700 s.f.**

\*Based on a 15’ wide easement across the length of the property.

\*\* Based on a 10’ wide easement across the length of the property.







1 PARKWAY TRAIL



2 SEWER EASEMENT



3 SECONDARY PECO CORRIDOR THROUGH MONTGOMERY TOWNSHIP PUBLIC WORKS



**LEGEND**

- - - - - ROUTE OPTION A (OFF ROAD ROUTE)
- - - - - ROUTE OPTION B (ON ROAD ROUTE)
- - - - - ROUTE OPTION C (UTILITY EASEMENT)
- - - - - EXISTING 202 PARKWAY TRAIL
- - - - - FUTURE POWER LINE TRAIL (TO HORSHAM)



4 COMMERCE DRIVE



5 HARTMAN CORPORATE CENTER ENTRANCE DRIVE



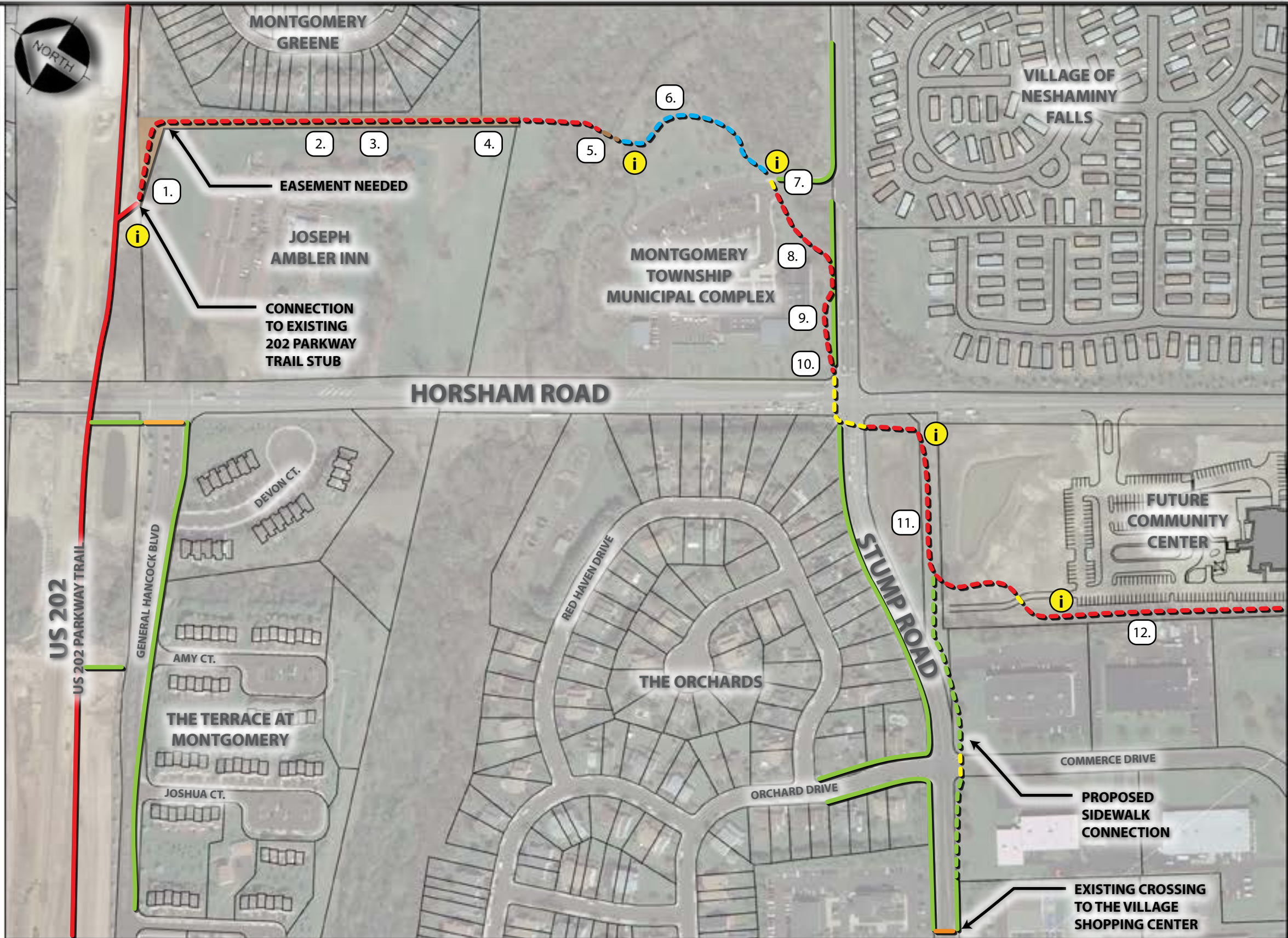
6 POWER LINE



**POWER LINE TRAIL CONNECTOR**  
**OVERALL TRAIL FEASIBILITY DIAGRAM**  
 MONTGOMERY TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA



LOCATION REFERENCE PLAN  
SCALE: 1"=1500'



**LEGEND**

- PROPOSED 10' MULTI-USE TRAIL (OFF ROAD)
- EXISTING MULTI-USE TRAIL
- PAINTED CROSS WALK
- EXISTING PAVED TRAIL
- SHARE THE ROAD BIKE ROUTE
- PROPOSED SIDEWALK/PEDESTRIAN CONNECTION
- EXISTING SIDEWALK
- EXISTING CROSS WALK
- PEDESTRIAN BRIDGE
- EASEMENT NEEDED
- PHOTO REFERENCE
- KIOSK/INFORMATION

# POWER LINE TRAIL CONNECTOR

Feasibility Study- Option A (Off-Road)  
MONTGOMERY TOWNSHIP - PENNSYLVANIA

PREPARED BY: GILMORE ASSOCIATES, INC. CONSULTING ENGINEERS - 65 EAST BUTLER AVENUE, SUITE 100 - NEW BRITAIN - PENNSYLVANIA 18901





LOCATION REFERENCE PLAN  
SCALE: 1"=1500'



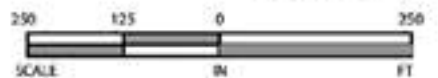
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- EXISTING SIDEWALK
- EXISTING CROSS WALK
- - - PEDESTRIAN BRIDGE
- EASEMENT NEEDED
- 1. PHOTO REFERENCE
- i KIOSK/INFORMATION

# POWER LINE TRAIL CONNECTOR

Feasibility Study- Option A (Off-Road)  
MONTGOMERY TOWNSHIP - PENNSYLVANIA

PREPARED BY: GILMORE ASSOCIATES, INC. CONSULTING ENGINEERS - 65 EAST BUTLER AVENUE, SUITE 100 - NEW BRITAIN - PENNSYLVANIA 18901





LOCATION REFERENCE PLAN  
SCALE: 1"=1500'



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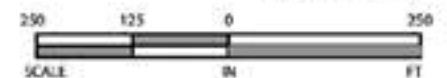
# POWER LINE TRAIL CONNECTOR

Feasibility Study- Option A (Off-Road)  
MONTGOMERY TOWNSHIP - PENNSYLVANIA

PREPARED BY: GILMORE ASSOCIATES, INC. CONSULTING ENGINEERS - 65 EAST BUTLER AVENUE, SUITE 100 - NEW BRITAIN - PENNSYLVANIA 18901

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20

SCALE: 1"= 250'

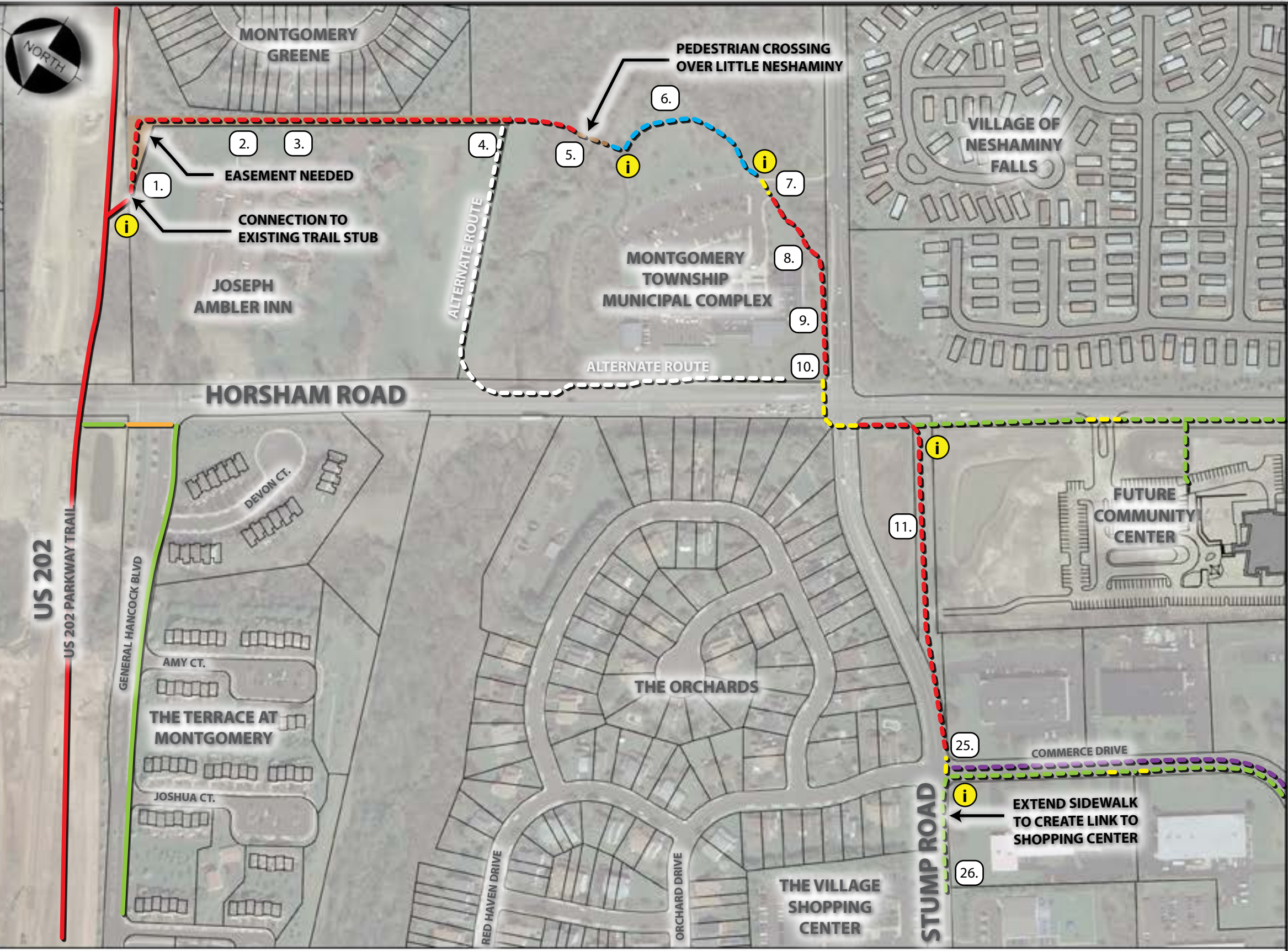


PROJECT NO.: 1303011  
DATE: NOVEMBER 20, 2013





LOCATION REFERENCE PLAN  
SCALE: 1"=1500'



**LEGEND**

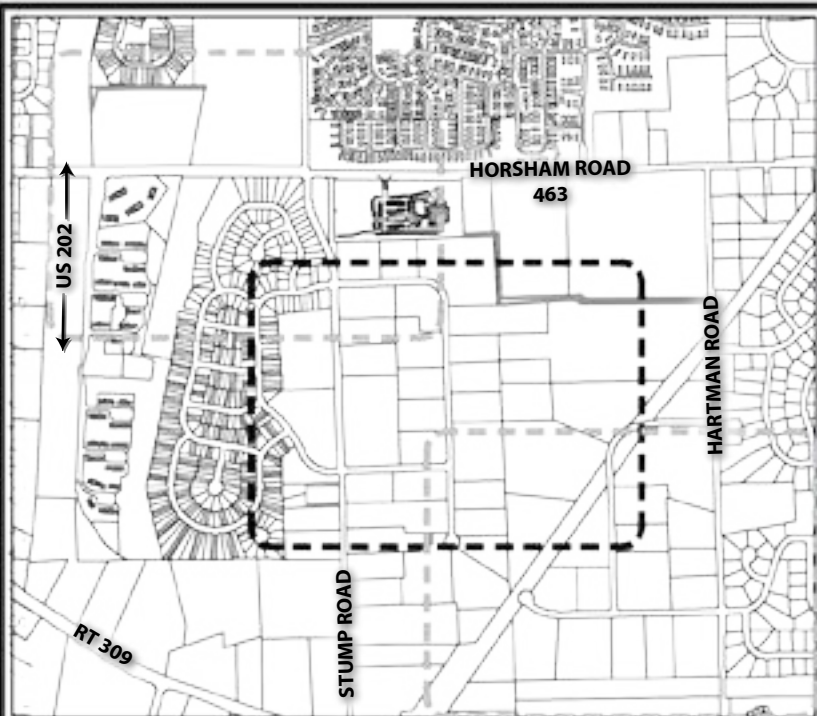
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- EXISTING SIDEWALK
- EXISTING CROSS WALK
- - - ALTERNATE TRAIL ROUTE
- - - PEDESTRIAN BRIDGE
- EASEMENT NEEDED
- 1. PHOTO REFERENCE
- i KIOSK/INFORMATION

# POWER LINE TRAIL CONNECTOR

Feasibility Study - Option B (On-Road)  
MONTGOMERY TOWNSHIP - PENNSYLVANIA

PREPARED BY: GILMORE ASSOCIATES, INC. CONSULTING ENGINEERS - 65 EAST BUTLER AVENUE, SUITE 100 - NEW BRITAIN - PENNSYLVANIA 18901





LOCATION REFERENCE PLAN  
SCALE: 1"=1500'



**LEGEND**

- PROPOSED 10' MULTI-USE TRAIL (OFF ROAD)
- EXISTING MULTI-USE TRAIL
- PAINTED CROSS WALK
- EXISTING PAVED TRAIL
- SHARE THE ROAD BIKE ROUTE
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- PEDESTRIAN BRIDGE
- EASEMENT NEEDED
- PHOTO REFERENCE
- KIOSK/INFORMATION

# POWER LINE TRAIL CONNECTOR

## Feasibility Study - Option B (On-Road)

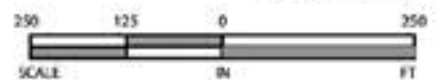
MONTGOMERY TOWNSHIP - PENNSYLVANIA

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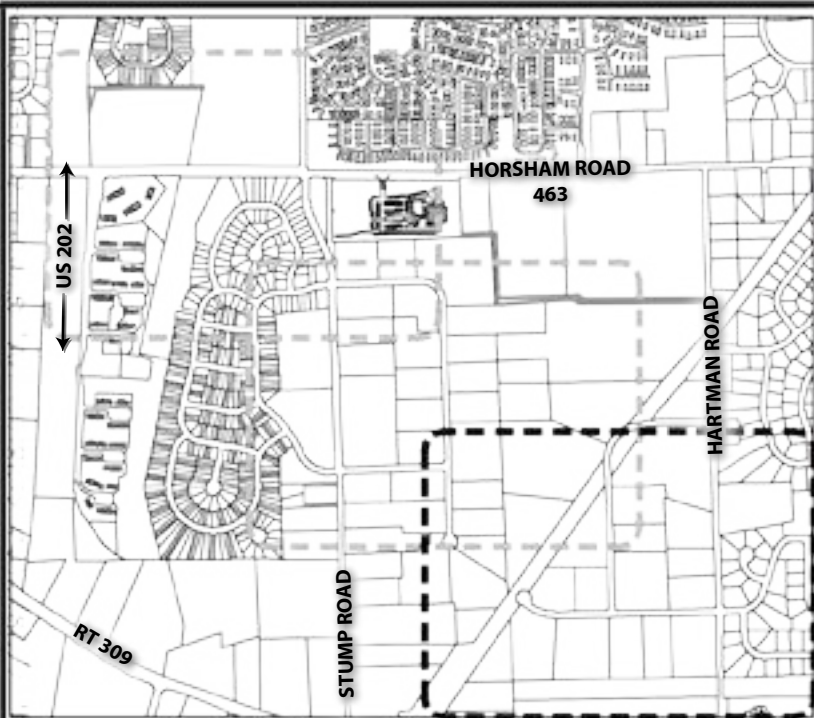
22

SCALE: 1"= 250'



PROJECT NO.: 1303011  
DATE: NOVEMBER 19, 2013





LOCATION REFERENCE PLAN  
SCALE: 1"=1500'

**LEGEND**

- PROPOSED 10' MULTI-USE TRAIL (OFF ROAD)
- EXISTING MULTI-USE TRAIL
- PAINTED CROSS WALK
- EXISTING PAVED TRAIL
- SHARE THE ROAD BIKE ROUTE
- PROPOSED SIDEWALK/PEDESTRIAN CONNECTION
- EXISTING SIDEWALK
- EXISTING CROSS WALK
- ALTERNATE TRAIL ROUTE
- PEDESTRIAN BRIDGE
- EASEMENT NEEDED
- PHOTO REFERENCE
- KIOSK/INFORMATION



# POWER LINE TRAIL CONNECTOR

## Feasibility Study - Option B (On-Road)

MONTGOMERY TOWNSHIP - PENNSYLVANIA

PREPARED BY: GILMORE ASSOCIATES, INC. CONSULTING ENGINEERS - 65 EAST BUTLER AVENUE, SUITE 100 - NEW BRITAIN - PENNSYLVANIA 18901



**OPERATION AND MAINTENANCE**

The long-term success of the trail will rely on a regular maintenance schedule. This is important for the enjoyment of the trail user as well as the risk management of the Township, in its role as the trail operator. It is anticipated that the proposed trail route will be maintained by the Montgomery Township Public Works Department, in conjunction with the maintenance

performed at the Township Park facilities. The following list represents a generalized list of maintenance activities that may pertain to the Connector Trail. A detailed trail maintenance manual and schedule should be provided by the trail design consultant upon completion of detailed design drawings for the trail.

<b>Trails Maintenance Checklist</b>			
<b>Activity</b>	<b>Description</b>	<b>Frequency</b>	<b>Notes</b>
Mowing	Maintain 4' wide mow strip adjacent to trail.	Monthly During Growing Season	Use Flail-Type Mower
Pruning	Prune woody plant material to maintain 4' clear adjacent to trail and provide 14' vertical clearance.	Annual. Check trail after severe storms.	Treat & Remove invasive vines
Tree Removal	Removal of hazard trees	Annual. Check trail after severe storms.	
Signage			
Trail Surface	Crack Seal/Resurfacing	As needed	Anticipated 15 year cycle
Drainage Structures	Remove debris from inlets & swales	Annual. Check trail after severe storms.	
Litter Removal	Trail-side litter pickup	Monthly	Encourage Carry In-Carry Out policy
Trash Collection	Empty Trash Receptacles	Weekly	
Bridge Inspection	Inspection by Professional Engineer	Every 2 years	Inspection conducted by Municipal Engineer
Graffiti Removal	Painting/Graffiti Removal	Annual/As Needed	





## IMPLEMENTATION

The total length of the proposed Connector Trail is approximately two (2) miles. Implementation is assumed to be completed in one phase. Depending upon the timing of construction of the Community Center, pieces of the trail could potentially be constructed in conjunction with that site work, independent of the remainder of the trail.

## OPINION OF PROBABLE COST

The total cost of the Connector Trail will potentially include easement acquisition costs, design costs and actual construction costs. Opinion of Probable Costs have been prepared for both the Off-Road Option (Option A) and the On-Road (Option B) as described in this study. See anticipated cost breakdowns on the following pages.



**G GILMORE & ASSOCIATES, INC.**  
**&A ENGINEER'S OPINION OF PROBABLE COST**

**RECOMMENDATIONS**

**CLIENT:**

MONTGOMERY TOWNSHIP

**PROJECT NAME:**

POWERLINE CONNECTOR TRAIL FEASIBILITY STUDY - OPTION A (OFF ROAD)

**PROJECT NUMBER:**

2013-03011

**DATE:** 20-Nov-13

#	DESCRIPTION	UNITS	QTY	UNIT PRICE	AMOUNT
1	Easement Acquisition	SF	16,500	\$ 1.60	\$ 26,400.00
2	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00
3	E & S: 18" Silt Fence	LF	16,800	\$ 1.50	\$ 25,200.00
4	Clear/Grub	SY	1,750	\$ 3.00	\$ 5,250.00
5	Remove Concrete Sidewalk (4" Thick)	SF	3,800	\$ 35.18	\$ 133,684.00
6	Drainage Improvements/SWM	LS	1	\$ 50,000.00	\$ 50,000.00
7	Grading	LS	1	\$ 50,000.00	\$ 50,000.00
8	Seeding/Mulching	SY	5,600	\$ 0.20	\$ 1,120.00
9	Landscaping	LS	1	\$ 25,000.00	\$ 25,000.00
10	Pedestrian Bridge (12' Width, 80' Span)	LS	1	\$200,000.00	\$ 200,000.00
11	Bypass Pumping for Bridge Installation	LS	1	\$ 15,000.00	\$ 15,000.00
12	3" 19mm Superpave Wearing Course	SY	9,500	\$ 16.50	\$ 156,750.00
13	6" Aggregate Subbase	SY	9,500	\$ 10.00	\$ 95,000.00
14	PennDOT/ADA Compliant Curb Ramp	EA	14	\$ 4,500.00	\$ 63,000.00
15	Pedestrian Refuge Island	EA	1	\$ 5,000.00	\$ 5,000.00
16	Pedestrian Scale Stop Sign	EA	18	\$ 150.00	\$ 2,700.00
17	Wayfinding Signage	EA	15	\$ 150.00	\$ 2,250.00
18	Wayfinding/Information Kiosk	EA	4	\$ 15,000.00	\$ 60,000.00
19	Split Rail Fencing	LF	250	\$ 75.00	\$ 18,750.00
20	6' High Privacy Fencing	LF	500	\$ 120.00	\$ 60,000.00
21	Double Sided Guard Rail (Hartman Road Separation)	LF	2,750	\$ 120.00	\$ 330,000.00
22	Segmental Block Retaining Wall	SF	150	\$ 55.00	\$ 8,250.00
23	Line Striping	LF	8,400	\$ 3.00	\$ 25,200.00
24	Painted Crosswalk (24")	LF	620	\$ 100.00	\$ 62,000.00
25	Pedestrian Warning Signal	EA	1	\$ 25,000.00	\$ 25,000.00
26	Pedestrian Warning Signage	EA	4	\$ 200.00	\$ 800.00
Subtotal:					\$ 1,466,354.00
15% Contingency:					\$ 219,953.10
15% Design/Engineering:					\$ 219,953.10
<b>Total Estimated Construction Cost:</b>					<b>\$ 1,906,260.20</b>

**G GILMORE & ASSOCIATES, INC.**  
**&A ENGINEER'S OPINION OF PROBABLE COST**

**RECOMMENDATIONS**

**CLIENT:**

MONTGOMERY TOWNSHIP

**PROJECT NAME:**

POWERLINE CONNECTOR TRAIL FEASIBILITY STUDY - OPTION B (ON ROAD)

**PROJECT NUMBER:**

2013-03011

**DATE:** 20-Nov-13

#	DESCRIPTION	UNITS	QTY	UNIT PRICE	AMOUNT
1	Easement Acquisition	SF	37,205	\$ 1.60	\$ 59,528.00
2	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00
3	E & S: Silt Fence 18"	LF	17,600	\$ 1.50	\$ 26,400.00
4	Clear/Grub	SY	1,750	\$ 3.00	\$ 5,250.00
5	Remove Concrete Sidewalk (4" Thick)	SF	1,500	\$ 35.18	\$ 52,770.00
6	Grading	LS	1	\$ 50,000.00	\$ 50,000.00
7	Drainage Improvements/SWM	LS	1	\$ 50,000.00	\$ 50,000.00
8	Seeding/Mulching	SY	6,000	\$ 0.20	\$ 1,200.00
9	Landscaping	LS	1	\$ 25,000.00	\$ 25,000.00
10	Pedestrian Bridge (10' Width, 80' Span)	LS	1	\$ 200,000.00	\$ 200,000.00
11	Bypass Pumping for Bridge Installation	LS	1	\$ 15,000.00	\$ 15,000.00
12	3" 19mm Superpave Wearing Course	SY	3,500	\$ 16.50	\$ 57,750.00
13	6" Aggregate Subbase	SY	3,500	\$ 10.00	\$ 35,000.00
14	PennDOT/ADA Compliant Curb Ramp	EA	14	\$ 4,500.00	\$ 63,000.00
15	Concrete Pavement	SY	3,150	\$ 27.00	\$ 85,050.00
16	Pedestrian Refuge Island	EA	1	\$ 5,000.00	\$ 5,000.00
17	Pedestrian Scale Stop Sign	EA	18	\$ 150.00	\$ 2,700.00
18	Wayfinding Signage	EA	15	\$ 150.00	\$ 2,250.00
19	Wayfinding/Information Kiosk	EA	4	\$ 15,000.00	\$ 60,000.00
20	Double Sided Guardrail (Hartman Road Separation)	LF	550	\$ 120.00	\$ 66,000.00
21	6' Privacy Fencing	LF	500	\$ 125.00	\$ 62,500.00
22	Line Striping	LF	3,150	\$ 3.00	\$ 9,450.00
23	Painted Crosswalk (24")	LF	1,160	\$ 100.00	\$ 116,000.00
24	Thermoplastic Sharrow Marking	EA	40	\$ 300.00	\$ 12,000.00
25	Bicycle Safe Inlet Grates	EA	10	\$ 750.00	\$ 7,500.00
26	Share the Road Signs	EA	40	\$ 150.00	\$ 6,000.00
27	Pedestrian Warning Signal	EA	1	\$ 25,000.00	\$ 25,000.00
28	Pedestrian Warning Signage	EA	4	\$ 200.00	\$ 800.00
Subtotal:					\$ 1,121,148.00
15% Contingency:					\$ 168,172.20
15% Design/Engineering:					\$ 168,172.20
<b>Total Estimated Construction Cost:</b>					<b>\$ 1,457,492.40</b>



## FUNDING

Trail development continues to be a high priority for grantors. It is recommended to discuss the project with Regional Advisors from each potential funding source to have the best opportunity to secure funds for implementation. The following represents a comprehensive list of current potential grant sources specifically for regional trail projects:

### **Montgomery County Open Space Funds**

Montgomery County has a history of supporting trail development throughout the County, dedicating over \$2.8 million through 2016. Although most of this funding has already been allocated, the County's commitment to regional trails indicates that future funding may become available. Due to the connectivity of the proposed connector trail to the 202 Parkway Trail and the Power Line Trail, there may also be opportunities for multi-municipal partnerships. <http://www.montcopa.org/>

### **Act 13: Marcellus Shale Impact Fees**

Act 13/Impact Fee provides for the imposition of an unconventional gas well fee (also called an impact fee), and the distribution of those funds to local and state governments. Act 13/Impact Fee also contains provisions regarding how the impact fee may be spent. A significant portion of the funds collected will be distributed directly to local governments to cover the local impacts of drilling. Also, several state agencies will receive funding to be used for a variety of other purposes. More information can be found at: [http://www.puc.state.pa.us/filing\\_resources/issues\\_laws\\_regulations/act\\_13\\_impact\\_fee\\_.aspx](http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_13_impact_fee_.aspx)

### **DVRPC Regional Trails Program**

This program, administered by the Delaware Valley Regional Planning Commission, with funding from the William Penn Foundation, aims to capitalize upon opportunities for trail development by providing funding for targeted, priority trail design, construction and planning projects that will promote a truly connected, regional network of multi-use trails with Philadelphia and Camden as its hub. The program will also provide technical assistance to trail developers, counties, municipalities and nonprofit organizations. Although funding is currently depleted, additional funding may be added due to the success of the program. More information can be found at: <http://www.dvrpc.org/RegionalTrailsProgram/>



### **PA DCNR Bureau of Recreation and Conservation**

One of the priorities for these grants are regionally significant trail development in the state. Grant applications are slated to open January 15, 2014 and are due April 16, 2014. The grants typically require an 80-20 or 50-50 match. More information can be found at: <http://www.dcnr.state.pa.us/brc/grants/c2p2programguidance/index.htm>

### **PA DCED Greenways, Trails and Recreation Grant Program**

Funding for projects which involve development, rehabilitation and improvements to public parks, recreation areas, greenways, trails and river conservation. Grants shall be awarded to eligible applicants for projects that do not exceed \$250,000. Most projects require a 50% local match of the total project cost. Applications from municipalities with a population of fewer than 5,000 require a 20% match of the total project cost. Match may be cash or non-cash and must be directly related to the approved scope of work. More information can be found at: <http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/greenways-trails-and-recreation-program-grtrp>

### **MAP-21**

Under MAP-21, programs continue for active transportation programs including Transportation Enhancements, Safe Routes to School and Recreational Trails programs. More information can be found at: <http://www.fta.dot.gov/map21/>

### **Transportation Alternatives Program (TAP)**

Transportation Alternatives (TA) are Federal highway and transit funds set-aside under the Surface Transportation Program (STP) for community-based “non-traditional” projects designed to strengthen the cultural, aesthetic, and environmental aspects of the nation’s inter-modal transportation system. The TE funding category, which has historically funded many pedestrian and bicycle supportive projects such as streetscape improvements, was originally established by Congress in 1991 under the IS-TEA transportation authorization legislation, and was most recently affirmed as TA under the Moving Ahead for Progress in the 21st Century Act (MAP-21). The next selection cycle for the PA Transportation Alternatives Projects may occur in FY2014. More information can be found at: <http://www.dvrpc.org/TA/>



### **Recreational Trails Program**

MAP-21 authorized funding for the Recreational Trails Program (RTP) as a setaside of the new Transportation Alternatives Program (TAP) (23 U.S.C. 213). The RTP funding is the same as the FY 2009 amount (unless the State opts out; see below): whatever a State received for the RTP in FY 2009 (as revised) will be the RTP amount. This will be up to \$84.16 million nationwide, annually, for FY 2013 and 2014. More information can be found at: [http://www.fhwa.dot.gov/environment/recreational\\_trails/overview/map21.cfm](http://www.fhwa.dot.gov/environment/recreational_trails/overview/map21.cfm)

### **Safe Routes To School**

MAP-21 establishes a new program to provide for a variety of alternative transportation projects that were previously eligible activities under separately funded programs. This program is funded at a level equal to two percent of the total of all MAP-21 authorized Federal-aid highway and highway research funds, with the amount for each State set aside from the State's formula apportionments. Unless a State opts out, it must use a specified portion of its TA funds for recreational trails projects. Safe Routes to Schools Program is an eligible activity under this program. More information can be found at: <http://www.dot.state.pa.us/Internet/Bureaus/CPDM.nsf/SRTSHomepage>

### **PECO Green Region Grants**

The aim of these grants is to assist communities in their efforts to acquire and improve open lands. Green Region grants are available to municipalities in amounts up to \$10,000. The grants can be used with other funding sources to cover a wide variety of planning and direct expenses associated with developing and implementing open space programs, including consulting fees, surveys, environmental assessments, habitat improvement, and capital improvements for passive recreation. More information can be found at: <https://www.peco.com/Community/CharitableGiving/GreenRegion/Pages/GrantDetails.aspx> and the Green Region Program Administrator, Holly Harper (610)353-5587.

## PERMITTING AND COORDINATION

Pennsylvania Department of Transportation (Penn-DOT) will require permitting for all trail construction which occurs within a State owned road rights-of-way. State owned roads within our project area include:

- 1) S.R. 0463 (Horsham Road)
- 2) Hartman Road

Pennsylvania Department of Environmental Protection (DEP) will require:

- 1) Permitting for pedestrian bridge stream crossings. It is likely the General Permit Seven (GP-7) will be required for a Minor Road Crossing.
- 2) National Pollution Discharge Elimination System (NPDES) permit will be required for construction disturbance greater than one (1) acre in size. This permit is coordinated through the Montgomery County Conservation District in conjunction with the Erosion and Sedimentation Control permitting that is required.

Montgomery County Conservation District will require:

- 1) Permitting for Erosion and Sedimentation Control Measures

Montgomery Township will require:

- 1) Grading Permit and review of proposed storm-water management design by the Township Engineer.
- 2) Approval of plans and specifications by the Board of Supervisors in order to authorize the solicitation of bids for construction.



# APPENDIX

## PHOTO REFERENCES:

- 1- 202 PARKWAY STUB
- 2- SWALE AT JOSEPH AMBLER INN
- 3- PARKING AT JOSEPH AMBLER INN
- 4- WOODED AREA AT JOSEPH AMBLER INN
- 5- POTENTIAL STREAM CROSSING LOCATION
- 6- EXISTING TRAIL SYSTEM AT MUNICIPAL COMPLEX
- 7- EXISTING MUNICIPAL COMPLEX ENTRANCE DRIVE
- 8- EXISTING ACCESS DRIVE AT MUNICIPAL COMPLEX
- 9- EAST SIDE OF MUNICIPAL COMPLEX
- 10- CORNER OF HORSHAM & STUMP ROADS
- 11- EXISTING STORMWATER MANAGEMENT WEST OF FUTURE COMMUNITY CENTER SITE
- 12- SOUTHERN PROPERTY LINE OF FUTURE COMMUNITY CENTER SITE
- 13- SOUTHERN SIDE OF CEDAR RUN LANDSCAPE PARCEL
- 14- SOUTHERN SIDE OF TEVA PARCEL
- 15- LAWN STRIP BETWEEN TEVA & HARTMAN CORPORATE CENTER
- 16- HARTMAN CORPORATE CENTER ENTRANCE DRIVE
- 17- HORSHAM ROAD AT POWER LINE LOOKING EAST
- 18- EXISTING WALKWAY ALONG HARTMAN ROAD
- 19- HARTMAN ROAD AND DOMORAH DRIVE
- 20- HARTMAN ROAD - SOUTH OF DOMORAH DRIVE
- 21- HARTMAN ROAD - ADJACENT WET AREA
- 22- HARTMAN ROAD - HEAD WALL
- 23- HARTMAN ROAD - UTILITY POLE AND SLOPE
- 24- LINK TO FUTURE POWER LINE TRAIL
- 25- STUMP ROAD AND COMMERCE DRIVE
- 26- MISSING SIDEWALK CONNECTION TO COMMERCE DRIVE
- 27- CROSSING TO VILLAGE SHOPPING CENTER
- 28- COMMERCE DRIVE
- 29- DOMORAH DRIVE - EXISTING GRATE
- 30- COMMERCE DRIVE AND DOMORAH CONNECTION
- 31- PECO CORRIDOR
- 32- PECO CORRIDOR AND PUBLIC WORKS
- 33- EXISTING WALK ALONG HORSHAM ROAD AT TEVA
- 34- EXISTING WALK ADJACENT TO WETLANDS
- 35- EXISTING WALK ALONG HARTMAN ROAD AT TEVA





1. 202 PARKWAY STUB



2. SWALE AT JOSEPH AMBLER INN



3. PARKING AT JOSEPH AMBLER INN



4. WOODED AREA AT JOSEPH AMBLER INN



5. POTENTIAL STREAM CROSSING LOCATION



6. EXISTING TRAIL SYSTEM AT MUNICIPAL COMPLEX



7. EXISTING MUNICIPAL COMPLEX ENTRANCE DRIVE



8. EXISTING ACCESS DRIVE AT MUNICIPAL COMPLEX



9. EAST SIDE OF MUNICIPAL COMPLEX



10. CORNER OF HORSHAM & STUMP ROADS



11. EXISTING STORMWATER MANAGEMENT WEST OF FUTURE COMMUNITY CENTER SITE



12. SOUTHERN PROPERTY LINE OF COMMUNITY CENTER SITE



13. SOUTHERN SIDE OF CEDAR RUN LANDSCAPE PARCEL



14. SOUTHERN SIDE OF TEVA PARCEL



15. LAWN STRIP BETWEEN TEVA & HARTMAN CORPORATE CENTER



16. HARTMAN CORPORATE CENTER ENTRANCE DRIVE



17. HORSHAM AT POWER LINE LOOKING EAST



18. EXISTING WALK ALONG HARTMAN ROAD



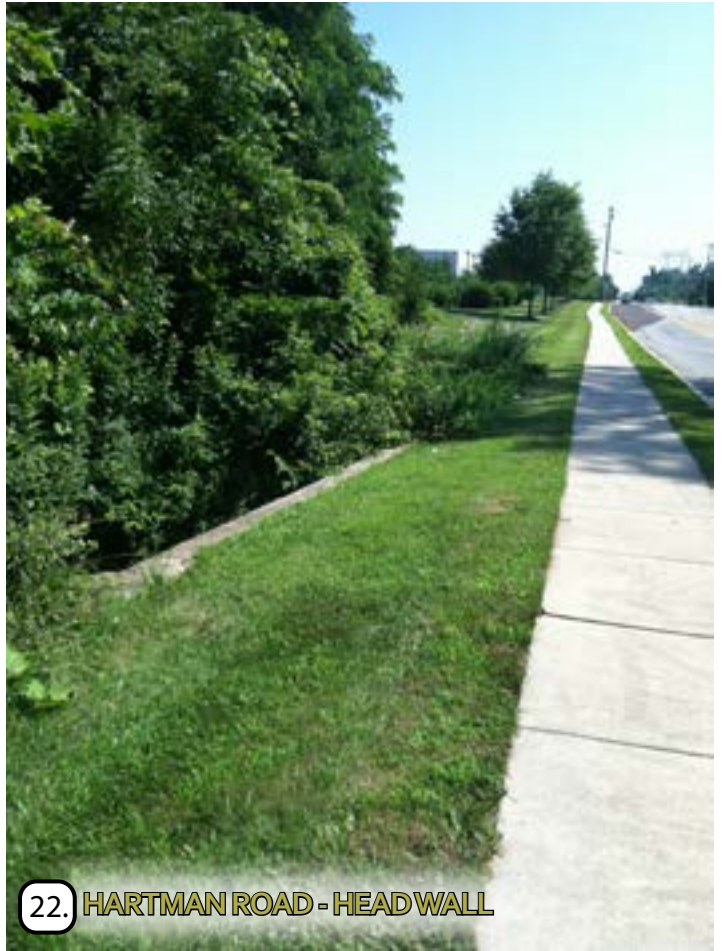
19. HARTMAN ROAD & DOMORAH DRIVE



20. HARTMAN ROAD - SOUTH OF DOMORAH DR.



21. HARTMAN ROAD - ADJACENT WET AREA



22. HARTMAN ROAD - HEADWALL



23. HARTMAN ROAD - UTILITY POLE & SLOPE



24. LINK TO FUTURE POWER LINE TRAIL



25. STUMP ROAD AND COMMERCE DRIVE



26. MISSING SIDEWALK CONNECTION TO COMMERCE DRIVE



27. CROSSING TO VILLAGE SHOPPING CENTER



28. COMMERCE DRIVE



29. DOMORAH DRIVE - EXISTING GRATE



30. COMMERCE DRIVE AND DOMORAH DRIVE



31. PECO CORRIDOR



32. PECO CORRIDOR AND PUBLICWORKS





33. EXISTING WALK ALONG HORSHAM ROAD AT TEVA

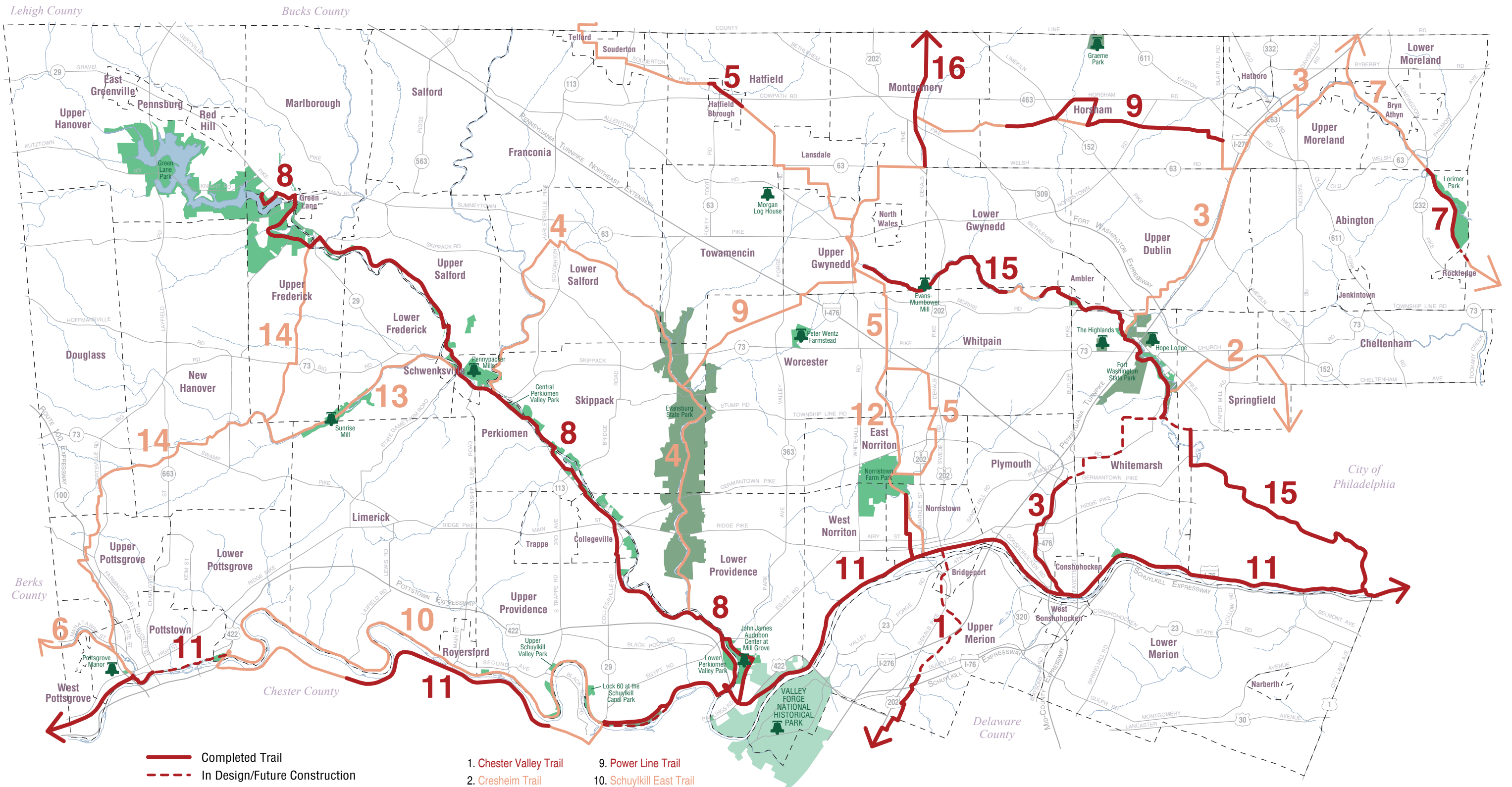


34. EXISTING WALK ADJACENT TO WETLANDS



35. EXISTING WALK ALONG HARTMAN ROAD AT TEVA

# MONTGOMERY COUNTY Primary Trail Network



- Completed Trail
- - - In Design/Future Construction
- Proposed Trail
- ★ Freight Station
- County-Owned Land
- State-Owned Land
- Valley Forge National Historical Park
- 📍 Historic Sites

- |                         |                                    |
|-------------------------|------------------------------------|
| 1. Chester Valley Trail | 9. Power Line Trail                |
| 2. Cresheim Trail       | 10. Schuylkill East Trail          |
| 3. Cross County Trail   | 11. Schuylkill River Trail         |
| 4. Evansburg Trail      | 12. Stony Creek Trail              |
| 5. Liberty Bell Trail   | 13. Sunrise Trail                  |
| 6. Manatawny Trail      | 14. West County Trail              |
| 7. Pennypack Trail      | 15. Wissahickon Green Ribbon Trail |
| 8. Perkiomen Trail      | 16. 202 Trail                      |

**MCPC** Montgomery County Planning Commission  
 Montgomery County Courthouse - Planning Commission  
 PO Box 311 • Norristown PA 19004-0311  
 (p) 610 278-3722 (f) 610 278-3941  
 www.montcopa.org/plancom

*Click on any red trail number/name or green park/historic site name for a link to individual websites.*

*See individual trail brochures for trailhead access to parking, public transit, restrooms, water, and other information.*



Scale  
1:65,000

0 0.5 1 2 Miles  
0 0.5 1 2 Kilometers

# Bicycle PA Route S PAGE 31

