

Warner Spur Multi-Use Trail Master Plan

Chester County
Tredyffrin Township



**WARNER
SPUR** TRAIL

Prepared by:



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ACKNOWLEDGEMENTS

Prepared for the



In partnership with
Tredyffrin Township

Chester County Board of Commissioners

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Executive Summary

The Warner Spur Multi-Use Trail Master Plan explores the feasibility of converting a nearly two-mile long former rail spur line in Tredyffrin Township, Chester County into a multi-use trail. Determining the feasibility of constructing a multi-use trail is an important step in trail development, and it potentially sets up future engineering and construction phases. Funding for this project was provided by the William Penn Foundation through the Delaware Valley Regional Planning Commission's Regionals Trails Program.



Limited north-south multimodal connections in this area make the Warner Spur Trail a valuable addition to the regional trail network. It facilitates dedicated, off-road trail crossings of US 202 and Swedesford Road, and provides a safe connection to the Chester Valley Trail for nearby residents and employees. When paired with the planned Devault Trail, the Warner Spur Trail will provide a direct connection between the Chester Valley Trail in Tredyffrin Township and the Schuylkill River Trail in Phoenixville Borough; creating a multimodal network that will serve the local community and region for many generations.

Existing Conditions

Being a former railroad line, the long disused Warner Spur corridor has unique aspects to consider before it could be developed into a multi-use trail. These traits are addressed in the Warner Spur Multi-Use Trail Master Plan, and would be further evaluated and mitigated during future design / construction phases.

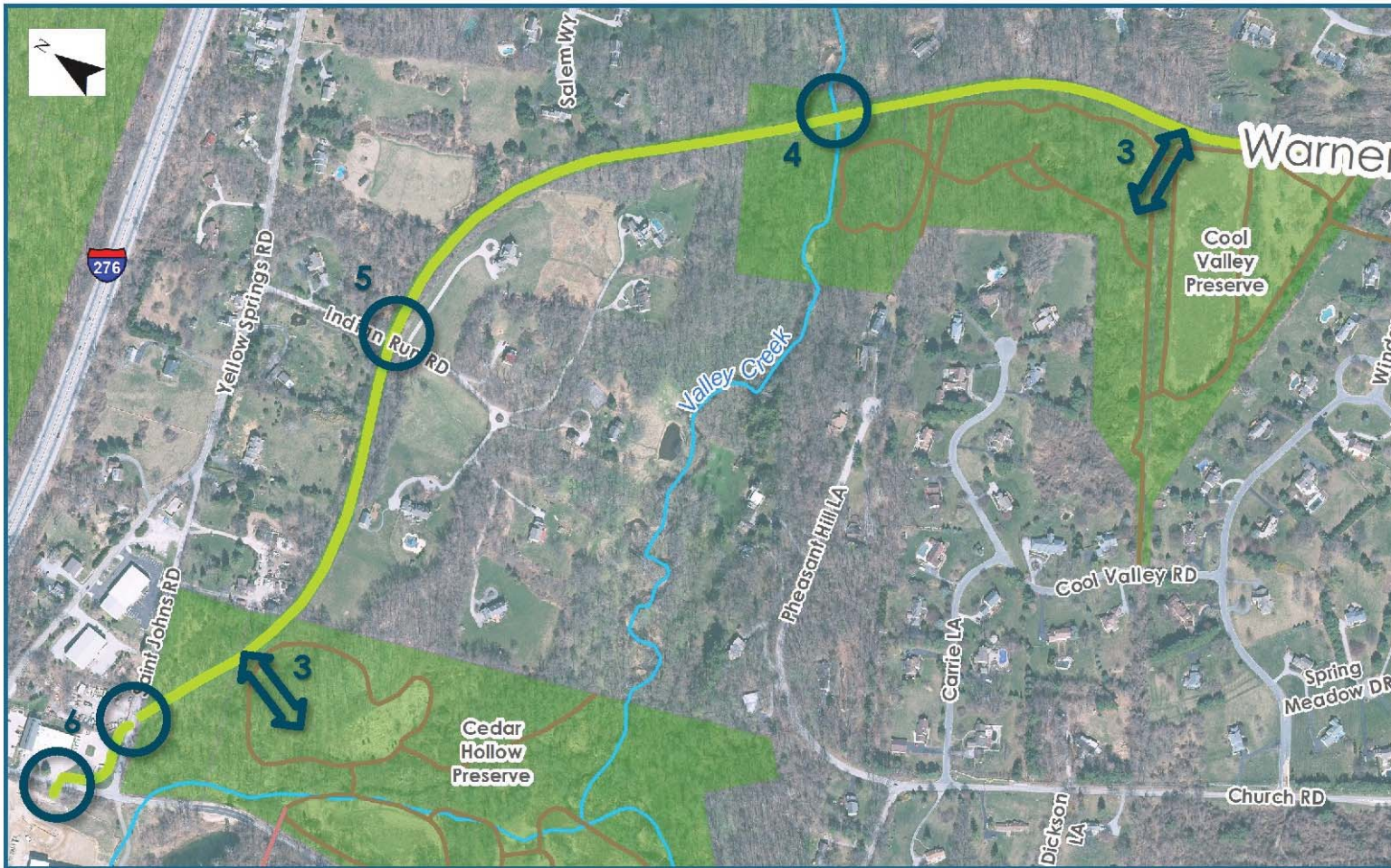
- Steep Slopes Adjacent to Railbed
- Railbed Width
- Fill Materials
- Heavy Vegetation
- Stormwater Management
- Wildlife
- Trail Access

Community Input

Comments about the potential development of the Warner Spur Trail were gathered from public meetings and a survey conducted in 2010 by the Great Valley Association. This input informed the recommendations in the Warner Spur Multi-Use Trail Master Plan and is discussed in detail therein.

- Trail Width & Surface Material
- Points of Access
- Alternative Routes & Connections
- Costs of Construction
- Property Values
- Stormwater Runoff
- Trail Management & Ongoing Maintenance
- Wildlife & Natural Environment
- Privacy, Security, & Liability

Executive Summary

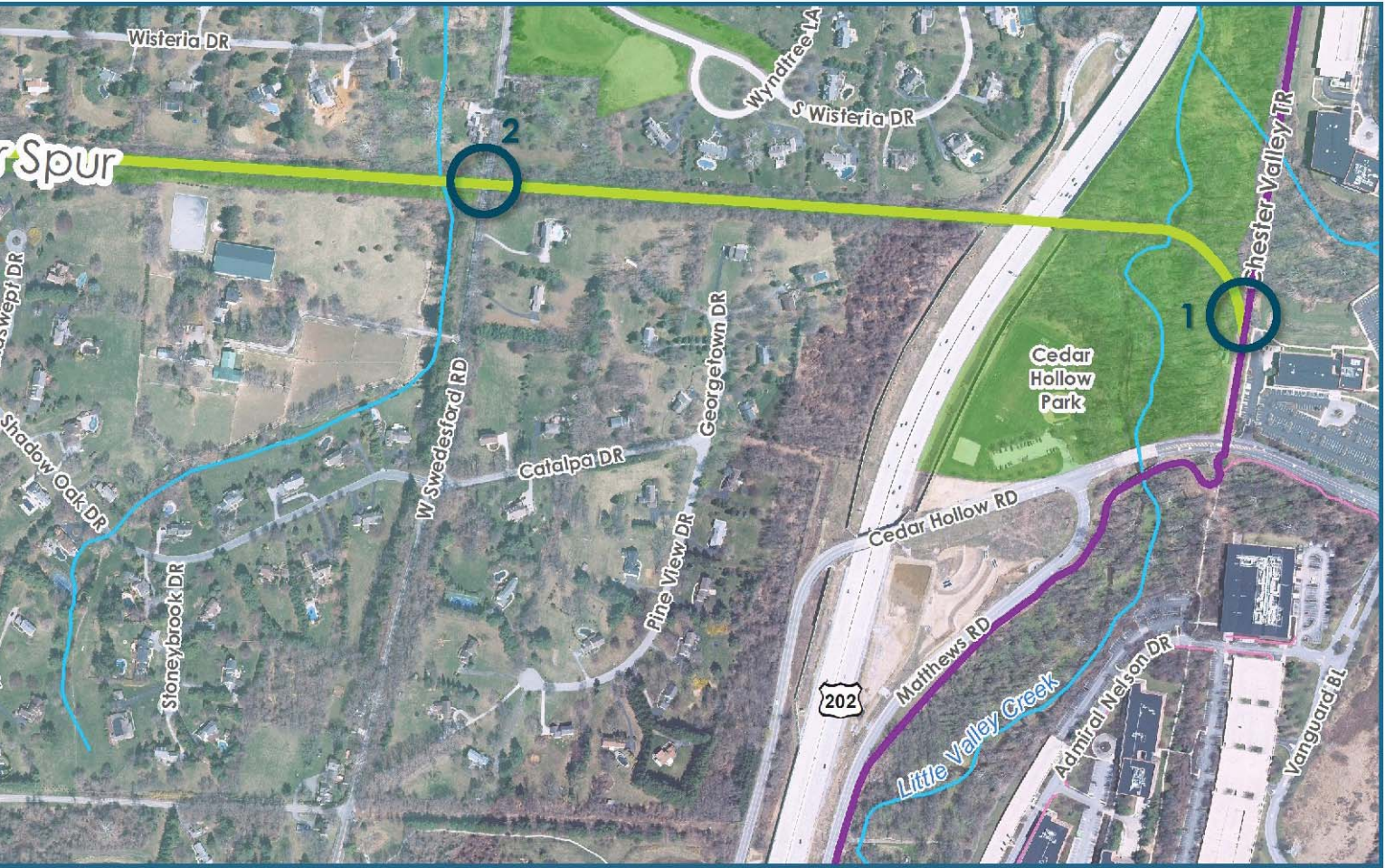


Recommended Improvements

Construction of the trail would require complex improvements to ensure the safety of trail users and limit impacts to adjacent properties. The Warner Spur Multi-Use Trail Master Plan assumes the typical trail design would be a ten-foot wide, paved surface with a two-foot wide grass shoulder. However, constraints along the corridor may require the width to be narrowed in certain locations.

Detailed engineering will be required to evaluate the recommended corridor improvements needed to construct the Warner Spur Trail. These improvements are identified on the map above and include the following:

1. Connection to the Chester Valley Trail and Cedar Hollow Park
2. New Bridge to Carry the Trail over Swedesford Road
3. Connections to Cool Valley Preserve and Cedar Hollow Preserve
4. Valley Creek Scenic Overlook
5. At-grade Crossing or Trail Bridge over Indian Run Road
6. At-grade Crossings of St. Johns Road and Church Road
7. Stormwater Management Improvements (various locations)
8. Fencing or Vegetative Screening (various locations)



Existing Conditions



Trail Rendering



Typical Design



10' Wide Paved Trail

Executive Summary



Trail Considerations & Next Steps

Before identifying design and construction funding sources, the critical next step is to determine the entities that will be responsible for ownership, development, and maintenance responsibilities of the Warner Spur Trail. Various maintenance considerations and management strategies are reviewed in the report. Like any other trail project, a concerted effort from multiple partners will be needed to advance the trail into design and construction.

The total cost to develop the Warner Spur Trail is estimated to be approximately \$7 million to \$8.5 million. However, the Warner Spur Multi-Use Trail Master Plan divides the trail into five distinct, implementable segments to consider advancing in a phased approach. The community and stakeholders identified a preference to develop the Warner Spur Trail starting in the south, where it would meet the Chester Valley Trail, and working toward the north. Additionally, improvements to Cedar Hollow Park are identified, which can be pursued by Tredyffrin Township separately from the Warner Spur Trail development.

Warner Spur Trail Segments	Estimated Cost
Chester Valley Trail to US 202	\$ 817,000
US 202 to Swedesford Road	\$ 954,000
Swedesford Road to Valley Creek	\$ 3,372,000
Valley Creek to Cedar Hollow Preserve <i>Includes Indian Run Road Crossing Options</i>	<i>At-grade Crossing</i> \$ 1,525,000
	<i>Trail Bridge</i> \$ 2,940,000
Cedar Hollow Preserve	\$ 402,000
Total with Indian Run Rd At-Grade Crossing	\$ 7,070,000
Total with Indian Run Rd Trail Bridge	\$ 8,485,000

Note: Estimated costs include design and construction in current (2019) dollar amounts. Cost estimates will need to be updated to reflect inflation based on the anticipated schedule for construction.



1 | Background



Introduction

The Warner Spur is a 1.95 mile former rail spur line in Tredyffrin Township, Chester County, that connects the Chester Valley Trail (to the south) and the Atwater Community (to the north). The concept of transforming the former Warner Spur rail line into a multi-use trail has been documented in several plans and discussed in community forums over the last 15 years. The Chester County Planning Commission, in partnership with Tredyffrin Township, initiated this master plan to evaluate the feasibility and identify the necessary physical improvements for development of the Warner Spur Multi-Use Trail. The master plan provides information regarding the potential costs and other considerations for future trail development. Chester County led the master planning effort with grant funding from the Delaware Valley Regional Planning Commission's Regional Trails Program.

History and Previous Plans

In 1853, the Chester Valley Railroad opened through the heart of eastern Chester County with railroad service between Downingtown and Bridgeport. It expanded opportunities to move limestone, lime, and other goods to areas in eastern Pennsylvania and beyond. Two years later, the Cedar Hollow Lime Company was formed and capitalized on the access to markets with construction of the Cedar Hollow Railroad; a railroad spur line that provided a connection between the Chester Valley Railroad and the company's large quarry located near Route 29 and Yellow Springs Road. In 1900, the Warner Company purchased the quarry and continued operations until 1994. Like the quarry it served, the railroad line also became known as the Warner Spur.



Historic photo of the Warner Spur Rail Line bridge over Valley Creek

1 | Background

Railroad operations on the Warner Spur ceased in the 1980s. Over the next twenty years, significant changes occurred at the northern and southern ends of the railroad right-of-way. At the southern end, the Chester Valley Railroad was abandoned and transformed into a regional multi-use trail, known as the Chester Valley Trail. At the northern end, the former Cedar Hollow quarry site was purchased by the Trammell Crow Company and a mixed-use development, known as Atwater, was built. In 2003, as part of the Atwater development project, the right-of-way for the Warner Spur was deeded to Tredyffrin Township for a future trail connection.

The concept of transforming the Warner Spur into a trail was initially discussed and evaluated as part of the Tredyffrin Township Comprehensive Plan update in 2009 and as part of the Patriots Path Plan in 2010. Both the Great Valley / Route 29 Multimodal Study (2014) and the Feasibility Study for the Devault Trail (2015) identify the Warner Spur as a future trail connection to the Chester Valley Trail. During these previous planning processes, residents were surveyed and provided input regarding the potential trail. This community input, as well as input received during the development of this document, serves as the foundation for this master plan. (See Chapter 2 for a summary of key community concerns.)

Study Area

The Warner Spur right-of-way is located in the eastern part of Tredyffrin Township in Chester County. At the southern terminus, the right-of-way connects to the Chester Valley Trail, just east of the Cedar Hollow Road crossing. The northern terminus is Church Road, just north of the intersection of Church Road and St Johns Road. The width of the right-of-way varies, but is generally 50' to 60' wide. As depicted on the study area map, the former railroad right-of-way includes five roadway and three water crossings.

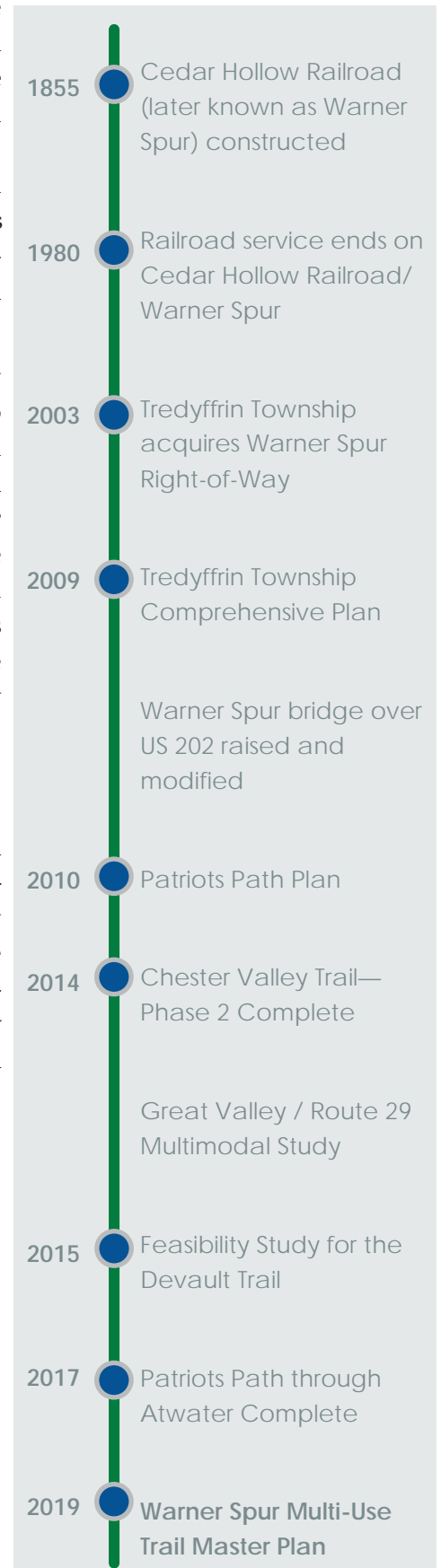
Key Crossings

The Warner Spur rail right-of-way crosses the following roadways:

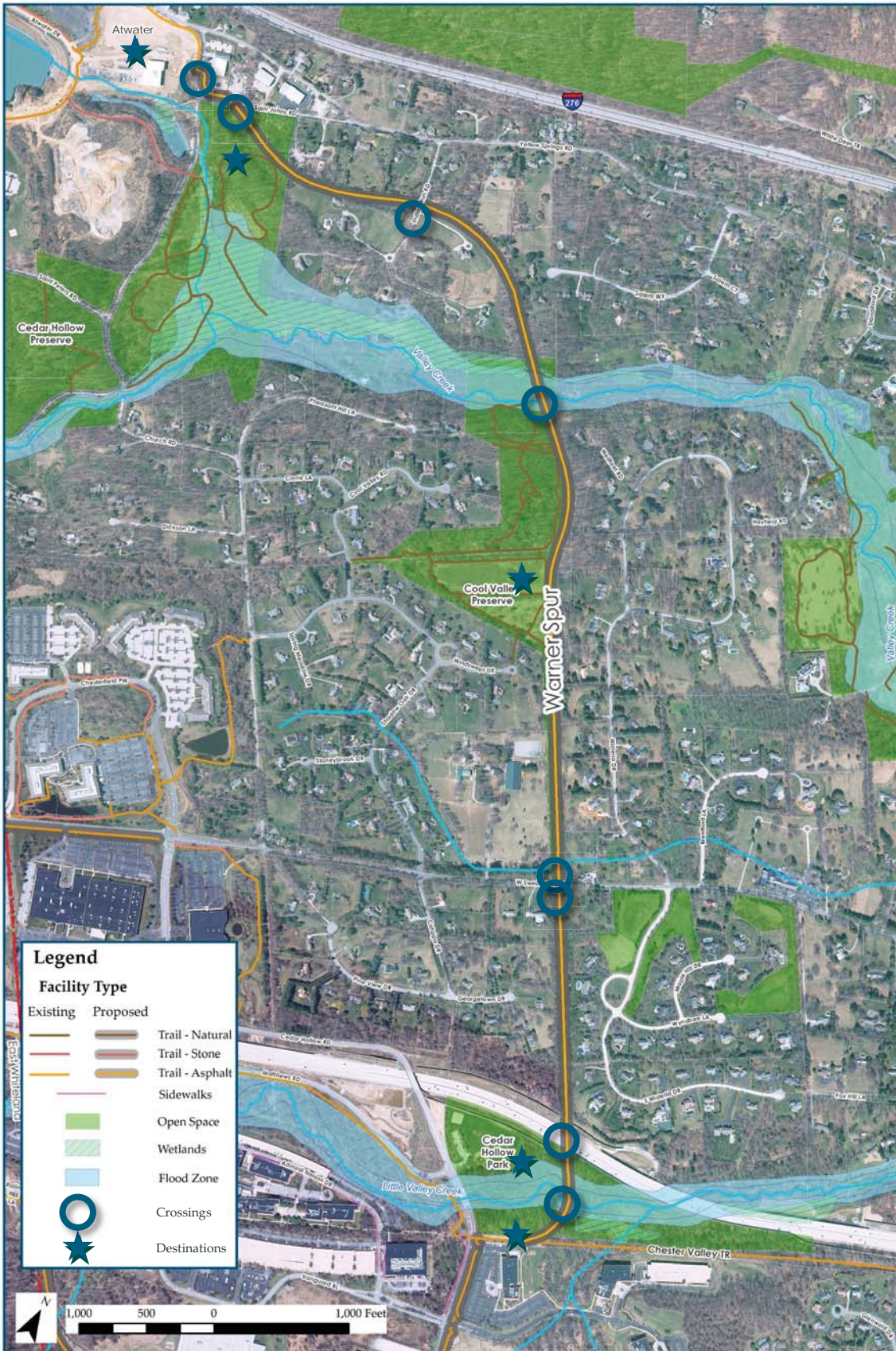
- Church Road: Tredyffrin Township owned roadway
- St Johns Road: Tredyffrin Township owned roadway
- Indian Run Road: Privately owned roadway
- Swedesford Road: PennDOT owned roadway
- US 202: Existing bridge over the PennDOT owned expressway

Additionally, the rail right-of-way crosses three creeks:

- Valley Creek
- Unnamed Tributary to Valley Creek
- Little Valley Creek



Study Area Map



1 | Background

Valley Creek is designated as an Exceptional Value (EV) watershed by the Pennsylvania Department of Environmental Protection. Additionally, Valley Creek and Little Valley Creek are both included on the list of Pennsylvania Class A Wild Trout Streams. As such, any earth disturbance or construction activities within the watershed must comply with special regulations.

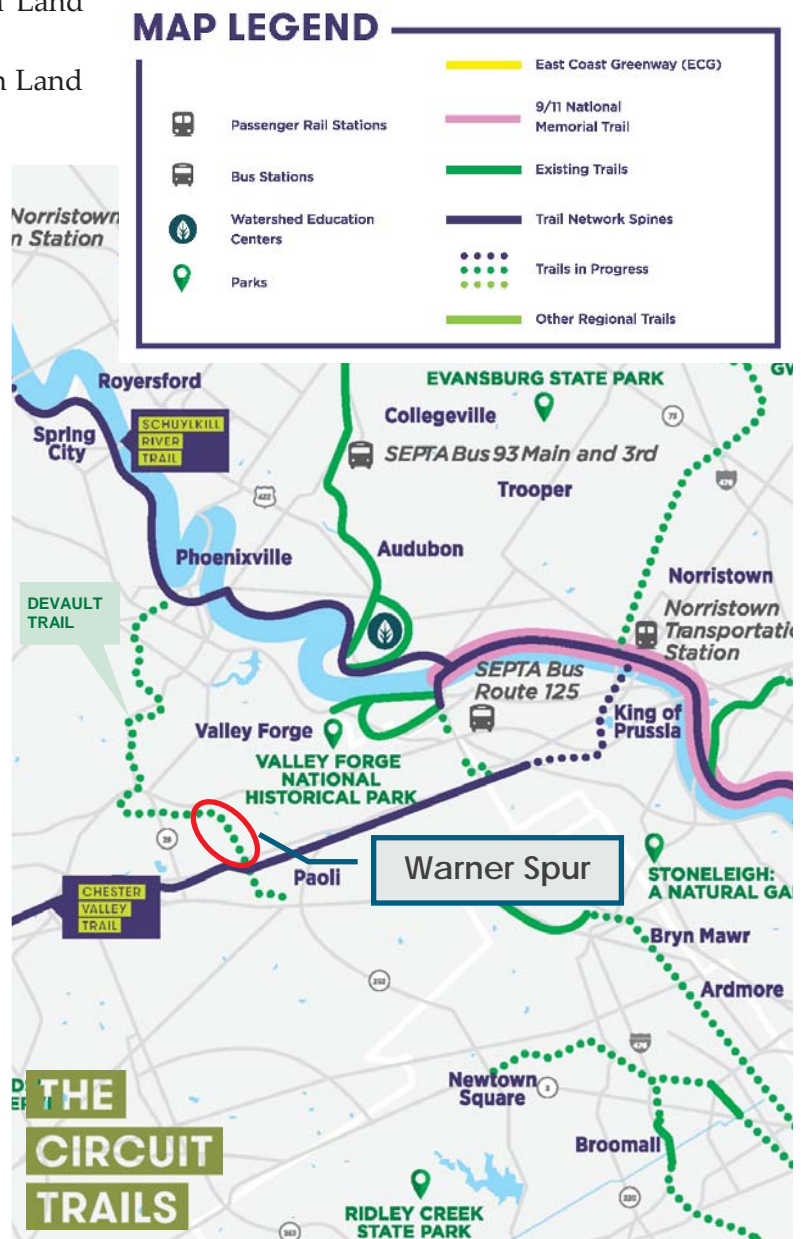
Key Connections

The Warner Spur right-of-way also connects several key destinations, including the following trails, parks, and open space preserves:

- Chester Valley Trail: Owned by Chester County
- Cedar Hollow Park: Owned by Tredyffrin Township
- Cool Valley Preserve: Owned by the Open Land Conservancy of Chester County
- Cedar Hollow Preserve: Owned by the Open Land Conservancy of Chester County
- Atwater Community and Trails
- Proposed Devault Trail

Regional Context and Connections

The Warner Spur is identified as a planned trail in the Greater Philadelphia regional trail network known as the Circuit. At the southern terminus, it connects to an existing 14.7 mile segment of the Chester Valley Trail linking Exton and King of Prussia. The Chester Valley Trail is a significant east-west spine in Chester County and the second most heavily used trail within the regional trail network. Both Chester County and Montgomery County are working on extending the Chester Valley Trail east to Norristown and west to Downingtown and beyond. The Warner Spur is also a component of a planned north-south trail connection between Phoenixville and Paoli. The Warner Spur and planned Devault Trail to the north would provide a link between the Schuylkill River Trail and Chester Valley Trail, two regionally significant spines in the Circuit. These links would then facilitate additional multimodal connections to the Great Valley Corporate Park and the Paoli Regional Rail Station.

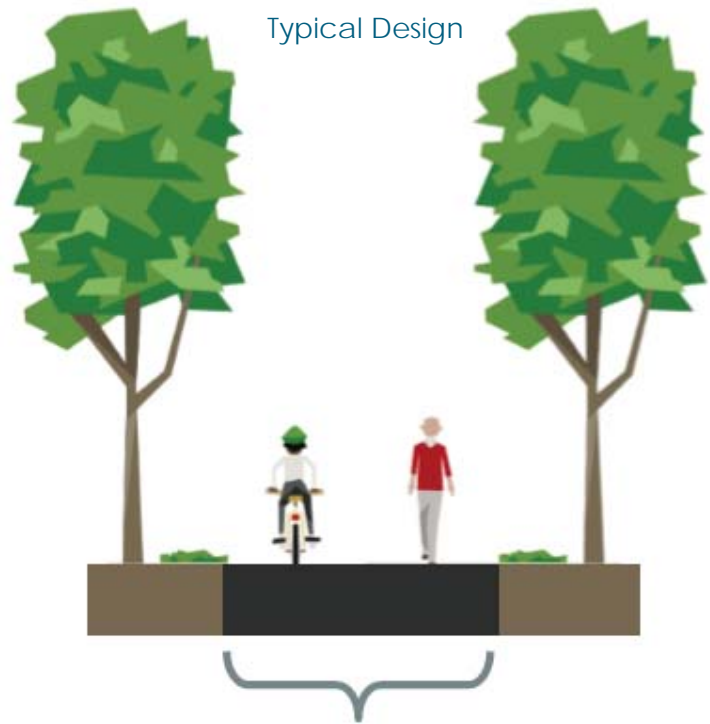


1 | Background

Multi-use Trail Concept

This master plan presents a feasibility evaluation for developing the Warner Spur as a multi-use trail. Multi-use trails are shared use, off-road facilities that accommodate multiple types of users, such as bicyclists and pedestrians. The surface material is often asphalt or crushed stone and they are designed to meet Americans with Disabilities Act (ADA) requirements. Based on the design criteria from the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, the recommended width for multi-use trails is 10-foot to 12-foot with 8-foot permissible in certain situations. Based on existing constraints, anticipated use, and the interest in providing regional trail connections, the master plan focuses on providing a 10-foot wide paved multi-use trail.

During the planning process, community members asked and expressed support for other trail surface materials and other trail widths. In particular, some community members expressed a preference for a walking trail with a width less than 8-feet and a natural or crushed stone surface material. (See Chapter 4 for more information regarding options for implementation.)

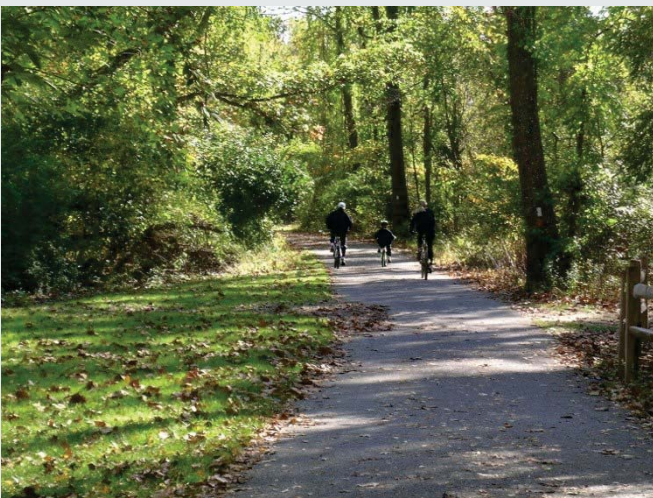


10' Wide Paved Trail

(Width may be reduced to 8' in certain situations)

Examples of other multi-use trails in Chester County

Struble Trail



East Branch Brandywine Trail



Photo Credits: Chester County Planning Commission

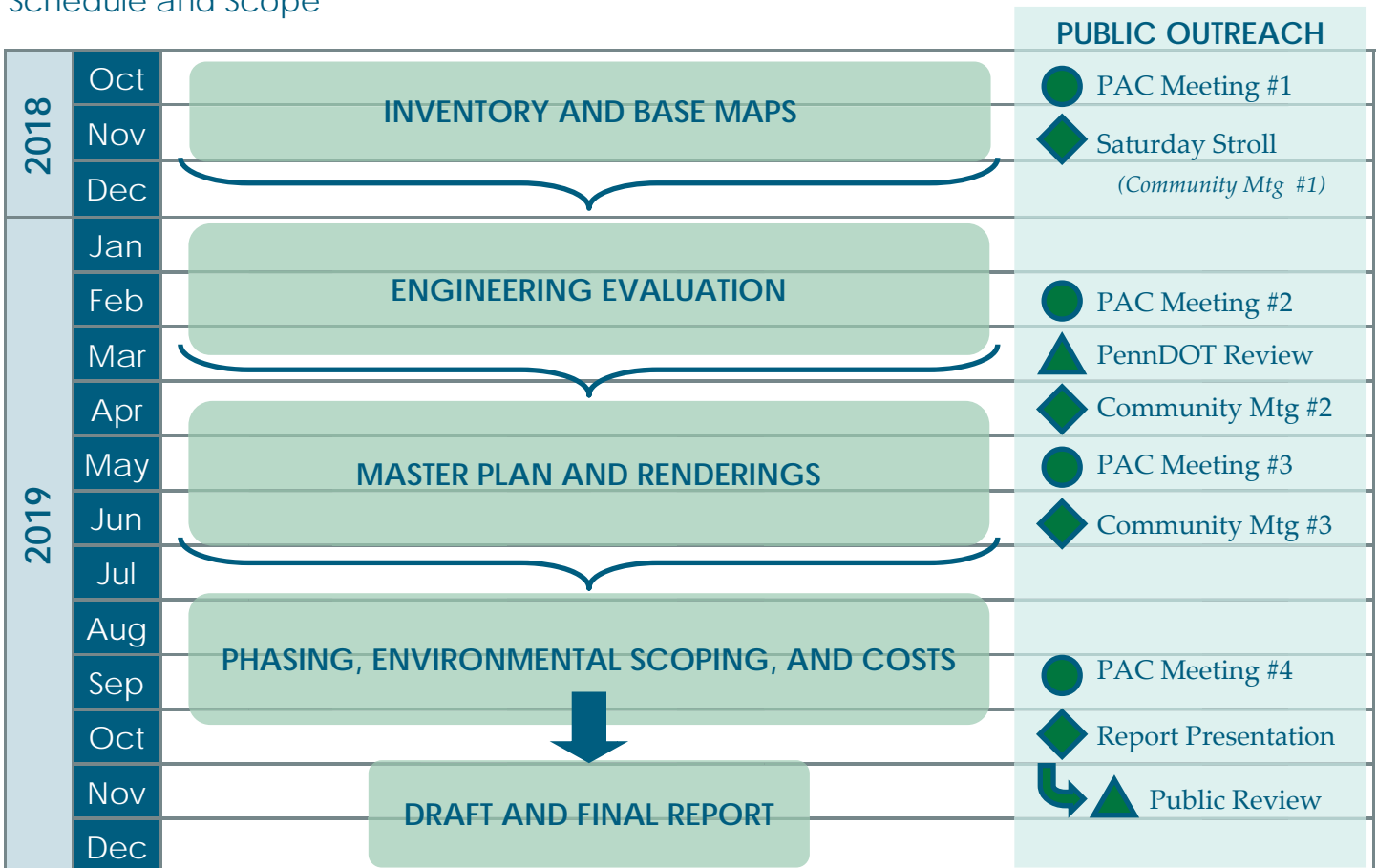
1 | Background

Planning Process

This master plan involved conceptual engineering and feasibility evaluations to identify the necessary physical improvements for development of the Warner Spur right-of-way for a multi-use trail. The scope of work included inventorying existing conditions, evaluating the feasibility of potential improvements, identifying preferred improvements and associated costs for the proposed trail, and outlining potential phasing and next steps. The plan also documents input received as part of the stakeholder and public engagement process.

The master plan provides information regarding potential costs and other implications for trail development for use in decision-making. Construction of any improvements is not imminent and will require additional engineering and is dependent upon available funding. There will also be future opportunities for public input, particularly regarding any decisions associated with implementation of the trail.

Schedule and Scope



1 | Background

Stakeholder and Public Involvement

Public input was a key component of the master plan development process.

Public Engagement—Previous Planning Efforts

Public input received during previous planning efforts was used as the foundation for identifying potential community concerns to be addressed as part of the master plan. This included a resident survey that was conducted by the Great Valley Association in 2010 in conjunction with development of the Patriots Path Plan, prepared by the Chester County Planning Commission. In addition, there were a number of meetings and other opportunities for stakeholders and members of the public to provide input throughout the project.

Plan Advisory Committee (PAC)

A Plan Advisory Committee (PAC) was formed to guide development of the master plan and met four times during the project. The PAC included representatives from Chester County, Tredyffrin Township, community associations, and other key stakeholders listed below. The PAC reviewed and provided input on draft conceptual improvement plans and other deliverables, and also provided guidance regarding stakeholder and community engagement.

Organizations Represented on the PAC

- Atwater HOA
- Chester County Department of Facilities and Parks
- Chester County Planning Commission
- East Whiteland Township
- Great Valley Association
- Indian Run Road Association
- Open Land Conservancy of Chester County
- St. Peter's Church
- Trammel Crow
- Tredyffrin Township
- Vanguard

4 Plan Advisory Committee Meetings

10/30/18

2/5/19

5/16/19

8/27/19

3 Community Meetings

11/10/18

4/3/19

6/11/19

3 Key Stakeholder Coordination Meetings

1/22/19

3/4/19

5/7/19

1 Technical Coordination Meetings

3/7/19

1 Project Website

1 Presentation on the Draft Report

10/7/19



Community Meetings

Three community meetings were held to give members of the public an opportunity to review draft recommendations and provide input to shape the master plan. All of the meetings were publicized on the project website (warnerspurtrail.com), along with various online and social media announcements by Chester County Planning Commission, Tredyffrin Township, TMAACC, and other community organizations. In addition, Tredyffrin Township mailed individual invitations to all of the property owners abutting the right-of-way for the proposed trail.

The first community meeting was a Saturday Morning Stroll, which included guided walks along the southern segment of the Warner Spur right-of-way with representatives from the project team, Chester County, and Tredyffrin Township. The Saturday Morning Stroll was held before any plans or recommendations were developed to provide an opportunity for the community to learn about the project and provide input on what issues or community concerns should be addressed during the planning process. Public input was documented on an overview map that is included in Appendix A. The second and third community meetings were open house format meetings held at the Tredyffrin Township building, allowing the public to review and provide comments on draft plans.

Stakeholder Coordination Meetings

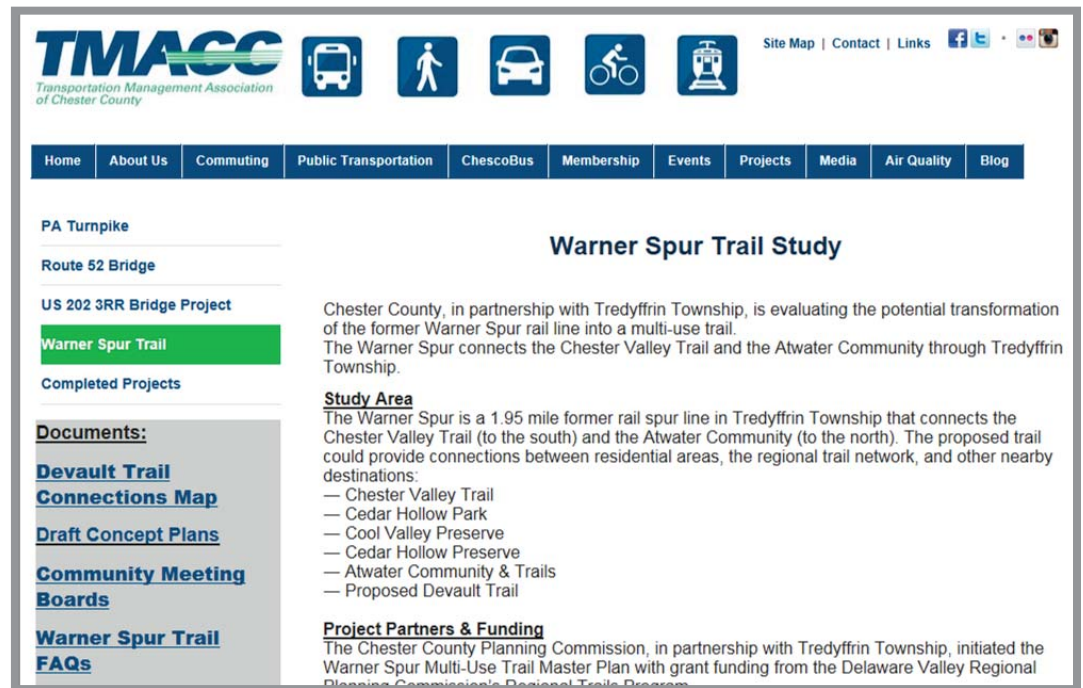
The project team held three coordination meetings with two key stakeholder groups with particular interest in the corridor due to their ownership of property along the proposed trail. Two meetings were held with representatives from the Indian Run Road Association and property owners adjacent to the proposed crossing of Indian Run Road. Since Indian Run Road is a privately owned road, the Association and property owners had distinct concerns regarding the proposed trail crossing of Indian Run Road. Additionally, a coordination meeting was held with representatives from the Board of Directors for the Open Land Conservancy of Chester County. The Open Land Conservancy owns two preserves along the proposed trail: Cool Valley Preserve and Cedar Hollow Preserve. In addition to the need for an easement for the proposed trail through the Cedar Hollow Preserve, there was also a need to coordinate on proposed design treatments and access points between the Warner Spur Trail and the preserve properties.

Technical Coordination Meeting

A technical coordination meeting was held with representatives from PennDOT District 6-0 and Tredyffrin Township. The purpose of the meeting was to discuss design details associated with the proposed trail, particularly relative to PennDOT assets including the crossing of US 202, and the crossing of Swedesford Road, as well as a future sidewalk connection along Cedar Hollow Road between Cedar Hollow Park and the Chester Valley Trail.

Project Website and Online Engagement

A project website (www.warnerspurtrail.com) and various social media platforms were used to inform and engage the public throughout the planning process. From the project website, members of the public could view draft plans, join the project email distribution list (with over 100 subscribers), and provide comments via email. The Chester County Planning Commission, Tredyffrin Township, and TMACC provided links to the project website and announcements regarding upcoming community meetings. Additionally, TMACC produced a project overview video, which was posted on social media channels. The project website was visited approximately 2,300 times by 1,800 unique users prior to the release of the draft report.



Public Presentation of the Draft Report

The Draft Report was posted on the project website on October 7, 2019 and comments were accepted until November 1, 2019. Additionally, the Draft Report was presented during the regularly scheduled Tredyffrin Township Board of Supervisors meeting on October 7, 2019. In total, nineteen written comments were received on the Draft Report (included in Appendix A). All nineteen of the written comments expressed general support for the Warner Spur Trail.



2 | Existing Conditions and Community Concerns



The Warner Spur corridor offers a unique opportunity to provide a north-south multimodal connection in an area with limited chances otherwise. This corridor has long been disused as a transportation connection. As such, engineering solutions will be required to ensure the corridor is safe and suitable for future trail use. However, it remains as an untapped resource and has the potential to be a multimodal asset within the region.

The following observations were made during a field visit to the Warner Spur corridor on Tuesday, November 20, 2018. Some of the issues were noted by residents during the Saturday Morning Stroll held on November 10, 2018 and confirmed during the field visit.

Cut and Fill Segments

Some segments of the rail bed were constructed on fill, while other segments were constructed within a cut. These areas are identified on the Existing Conditions maps on the following pages. In both situations, there are manmade steep slopes adjacent to the rail bed, which create unique issues currently. Engineering solutions will need to be identified to ensure the constructability of a trail. Drainage is particularly a problem in cut areas and results in ponding water on the rail bed, both during and after events. (Some areas of the rail bed are consistently wet with standing water.) Steep slopes on either side (in both cut and fill segments) can pose challenges for trail user safety and slope stabilization. Fencing, drainage, and other trail features may be required as part of the future design.



A segment of the Warner Spur on fill

Existing Features Map (1 of 3)



Existing Features Map (2 of 3)



Legend

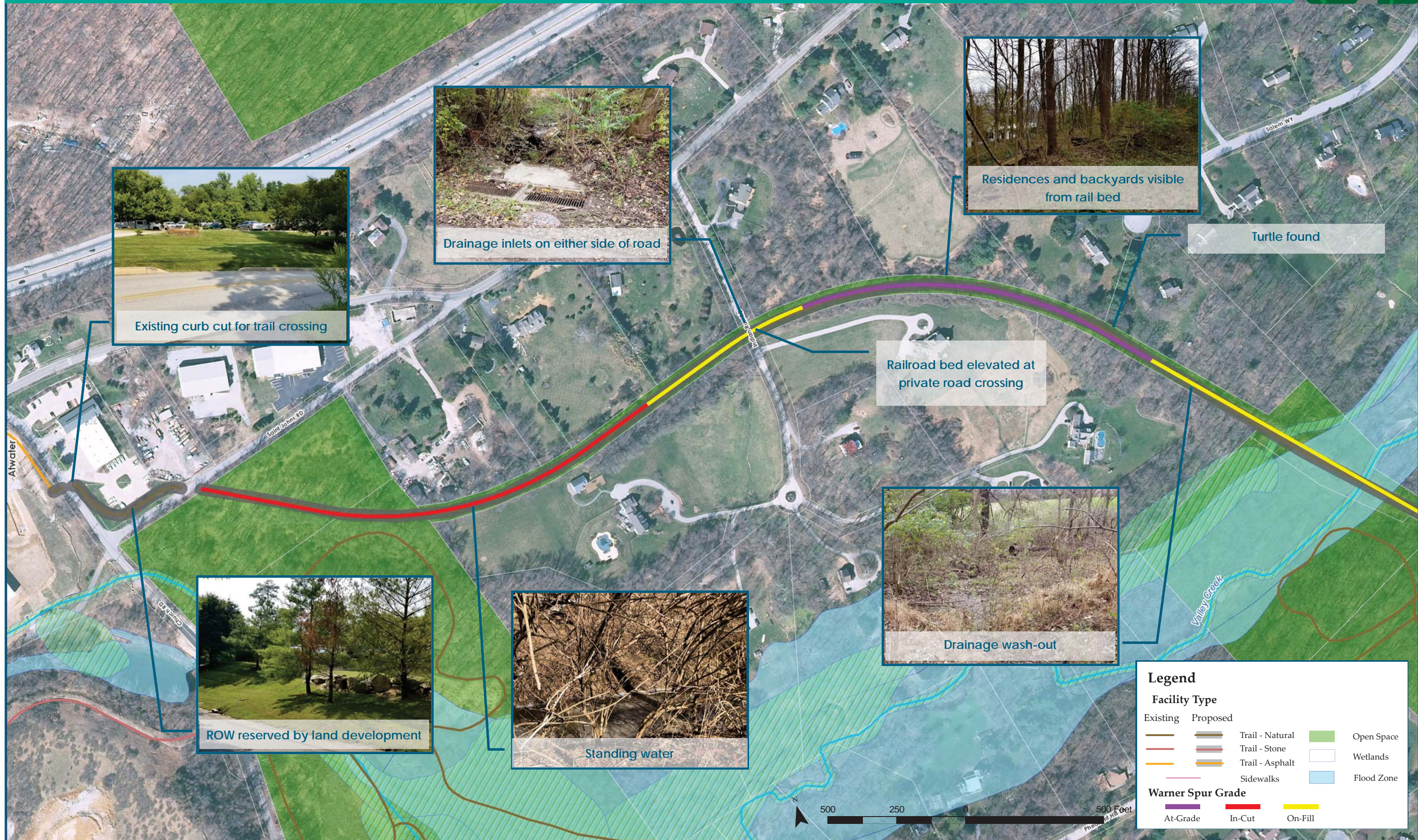
Facility Type

Existing	Proposed	
		Trail - Natural
		Trail - Stone
		Trail - Asphalt
		Sidewalks
		Open Space
		Wetlands
		Flood Zone

Warner Spur Grade

At-Grade	In-Cut	On-Fill

Existing Features Map (3 of 3)



Legend			
Facility Type			
Existing	Proposed		
		Trail - Natural	
		Trail - Stone	
		Trail - Asphalt	
		Sidewalks	
Warner Spur Grade			
At-Grade	In-Cut	On-Fill	

2 | Existing Conditions and Community Concerns

Rail Bed and Trail Width

In some areas, the observed overall usable width of the rail bed is approximately 12 feet. This was confirmed by the survey data provided by Tredyffrin Township. In both cut and fill areas, there is limited clearance on either side of the existing rail bed due to rock outcroppings, vegetation, and steep slopes. In these locations, the existing rail bed width would not be wide enough to construct a continuous 10-foot wide trail and provide sufficient area for graded shoulders, drainage, and clearance to fences/safety barriers or other lateral obstructions on either side. To accommodate these features would require significant earthwork, regrading, disturbance along the corridor, and widening the rail bed to approximately 16 feet. Therefore, narrowing the trail to a minimum width of eight (8) feet is recommended for these constrained areas. For all other areas, a 10-foot wide trail design standard is to be used.



A segment of the Warner Spur in a cut

Fill Materials

Black granular material and sporadic occurrences of slag materials were observed on the trail. The black granular material is similar in appearance to the arsenic impacted fill material that was observed and capped during construction of the nearby Chester Valley Trail. The materials found in that case had concentrations of arsenic that exceeded the PA Clean Fill limit. Future testing is recommended for the Warner Spur right-of-way to understand the limits and locations of the slag and granular material. If the material is impacted, remediation may be needed to prevent further leeching into the surrounding soils. Capping the corridor with an impervious surface would prevent contact with harmful materials for trail users and surrounding property owners.

Heavy Vegetation

The right-of-way is currently heavily vegetated. Based on observations, it appears that the vegetation may be helping to stabilize steep slopes and removal may compromise the stability of steep slopes along the corridor. Additionally, the vegetation provides a screen to surrounding residential properties. Removing vegetation may affect the “natural” character and beauty of the corridor. However, leaving the vegetation may increase the cost of ongoing maintenance and introduce safety concerns due to leaves, branches, or

2 | Existing Conditions and Community Concerns

other natural debris on the trail. Carefully selected vegetative material slope stabilization methods and screening will need to be determined during design.

Stormwater Management

Stormwater management issues were noted during the field visit and by residents. In addition to ponding water in areas where the rail bed is within a cut, evidence of washouts and erosion were also observed along steep slopes adjacent to the rail bed. Areas of ponding and flooding were identified by residents, particularly in the vicinity of the Swedesford Road crossing and Indian Run Road crossing. Also, the project area is within the Valley Creek watershed, and Valley Creek is designated as an exceptional value (EV) stream with special regulations for construction activities. The rail bed consists of compacted soil and stone, which likely allows for limited natural percolation of water into the ground. Stormwater management best management practices (BMP's) would be required to be included in the design of a trail to mitigate runoff. It was also noted in the PAC meetings that many of the existing drainage issues within the corridors are caused by deferred maintenance of the drainage facilities since the corridor ceased operations. In other words, when the train was running, there was likely no ponding of water in the corridor because drainage infrastructure was properly maintained.

Wildlife

A variety of wildlife were observed during the project team's field view and also noted by residents. The project team witnessed foxes, deer, a variety of birds, and a turtle. Converting the right-of-way to a trail and clearing vegetation may disturb the habitat for some species. This concern was also expressed by residents. Most wildlife disturbances would occur during construction activities. Generally, trails have a very low impact on the quality of wildlife habitat.

Trail Access

User and emergency access to the proposed trail may be limited, particularly for people that do not live directly adjacent to the right-of-way. The trail would be publicly accessible at the northern and southern termini, specifically the Cedar Hollow Park/Chester Valley Trail and Saint James Road/Church Road/Atwater Trails. Cedar Hollow Park has existing parking that could be used by trail users. Additionally, some access may be available through the Cool Valley

2 | Existing Conditions and Community Concerns

Preserve and Cedar Hollow Preserve, both owned by the Open Land Conservancy of Chester County. However, parking is limited at both preserves, bicycles are not permitted within the preserves, and existing paths within the preserves that could be used to access the Warner Spur are unpaved, and therefore, not accessible to all users. There is the potential to provide public and/or emergency access at the Swedesford Road crossing (see Appendix B), but there are no existing bicycle or pedestrian facilities at this location. Construction access may also be limited to Cedar Hollow Park/Chester Valley Trail, Swedesford Road, and Saint James Road. This may increase construction costs due to the confined nature of the right-of-way.

Community Concerns

Based on previous surveys conducted by the Great Valley Association in 2010 and input from the Saturday Morning Stroll in November 2018, residents expressed concerns related to the following key topics.

- Trail Width and Surface Materials: This Master Plan is focused on the feasibility and cost of providing an 8-10' wide asphalt trail for walking, jogging, and biking. Other trail widths or surface materials can be considered in the future.
- Points of Access: The primary public access points are at the northern end (Atwater Community) and southern end (Chester Valley Trail and Cedar Hollow Park) of the proposed trail.
- Alternative Routes & Connections: This Master Plan is focused on the feasibility of converting the former rail line into an off-road trail. Other routes connecting the Chester Valley Trail and Atwater Community may be feasible, but would likely involve on-road bicycle or pedestrian infrastructure.
- Costs of Construction: This master plan includes development of capital cost estimates for the proposed trail. If determined to be feasible, implementation will likely be phased and grants could be used for future design and construction.
- Property Values: Few real estate features are universally appealing or undesirable. Many people view trails as desirable amenities and as a result, property values often increase near trails.
- Stormwater Runoff: Stormwater management will be required, though the exact design, size and location of stormwater management elements will be determined during future design.
- Trail Management and Ongoing Maintenance: Tredyffrin

2 | Existing Conditions and Community Concerns

Township, Chester County, or a non-profit entity are all possible owners /operators of the potential trail. These responsibilities will be determined after the study is complete.

- Privacy, Safety, and Liability: The proposed trail is located predominately on property owned by Tredyffrin Township. Fencing and / or vegetative screenings can be used to maintain privacy for adjacent residents and discourage trail users from leaving the trail right-of-way.
- Wildlife and Natural Environment: There will be selective and limited vegetative clearing as part of the trail design and construction in order to minimize impacts to wildlife habitats and the exceptional value streams within the study area. Other measures to protect existing natural resources can be considered during future design.

Concerns from Indian Run Road Neighborhood

Indian Run Road is a private street that provides access to approximately nine single-family homes. In accordance with the Declaration of Private Road and Drainage Easement recorded in 1994 as part of the Andrews Subdivision, Indian Run Road is to be maintained by the surrounding property owners; these property owners are collectively known as the Indian Run Road Neighborhood Association. Based on historic maps, there has been a road in this general area since the early 1700s. At one point, the road connected Yellow Springs Road and Church Road, and it included a crossing of Valley Creek.



The Warner Spur intersection with Indian Run Road

In 1856, the Cedar Hollow Lime Company acquired land from the property owner at the time (Henry Detwiler and his wife) for the development of a railroad. The deed of property to the Cedar Hollow Lime Company references construction of a bridge for the railroad and provision of a lane (which became Indian Run Road) for a connection to Yellow Springs Road with the following statement:

“... reserving and securing unto the said Henry Detwiler his heirs and assigns forever the free and uninterrupted use of the lane passing from the buildings where he now resides to the Yellow Springs Road by a bridge constructed by said Company with a free and uninterrupted passage for cattle and stock of all kinds underneath the same.”

The Cedar Hollow Lime Company built the bridge for the railroad over Indian Run Road and that bridge remained in place until it was

removed in the late 1990s. Henry Detwiler's farm was sold and later subdivided and developed into the nine single-family homes that exist today. The Andrews Subdivision Plan recorded in 1994 notes several agreements, reservations, and restrictions from previous deeds, including the 1856 deed between the Cedar Hollow Lime Company and Henry Detwiler.

The land that was originally deeded to the Cedar Hollow Lime Company was purchased by Trammell Crow Northeast Metro Development, Inc. in 1999 for the development of Atwater. Having no need for the railroad spur elements of that property, they were sold to Tredyffrin Township in 2003 for Ten Dollars (\$10.00). The township's property includes the land where the railroad right-of-way crosses Indian Run Road. Additional research and coordination are critical next steps before proceeding with design of this segment of the trail over Indian Run Road as a proper legal interpretation of the existing easement language may impact the potential alternative designs at this location.

Many, but not all property owners along Indian Run Road expressed concerns regarding the proposed trail and crossing due to the nature and context of the private road. Below is a summary of key concerns regarding the proposed trail crossing voiced by some property owners along Indian Run Road, particularly those with property abutting the trail and the proposed crossing.

- Indian Run Road will be used by the public as an access point for the trail. Members of the public will try to park along Indian Run Road and use it as a trailhead.
- Trail users may travel off the trail onto Indian Run Road or the adjacent private properties.
- Trail users (particularly cyclists) will not stop at Indian Run Road and will not adhere to posted signs, creating safety concerns.
- Signage and pavement markings for the crossing (particularly an at-grade crossing) will negatively impact the context on Indian Run Road.
- The trail and crossing will provide easy access to adjacent properties and increase liability for property owners, as well as introducing safety concerns.
- The trail and crossing will exacerbate existing stormwater management issues in the area.

In addition, Indian Run property owners expressed concerns similar to those voiced by other community members related to trail

2 | Existing Conditions and Community Concerns

management and maintenance (i.e. trash clean up, winter maintenance, patrolling), privacy and safety, noise, potential negative impact on property values, potential negative impact on wildlife.



3 | Conceptual Improvement Plan



Conceptual Improvement Plan

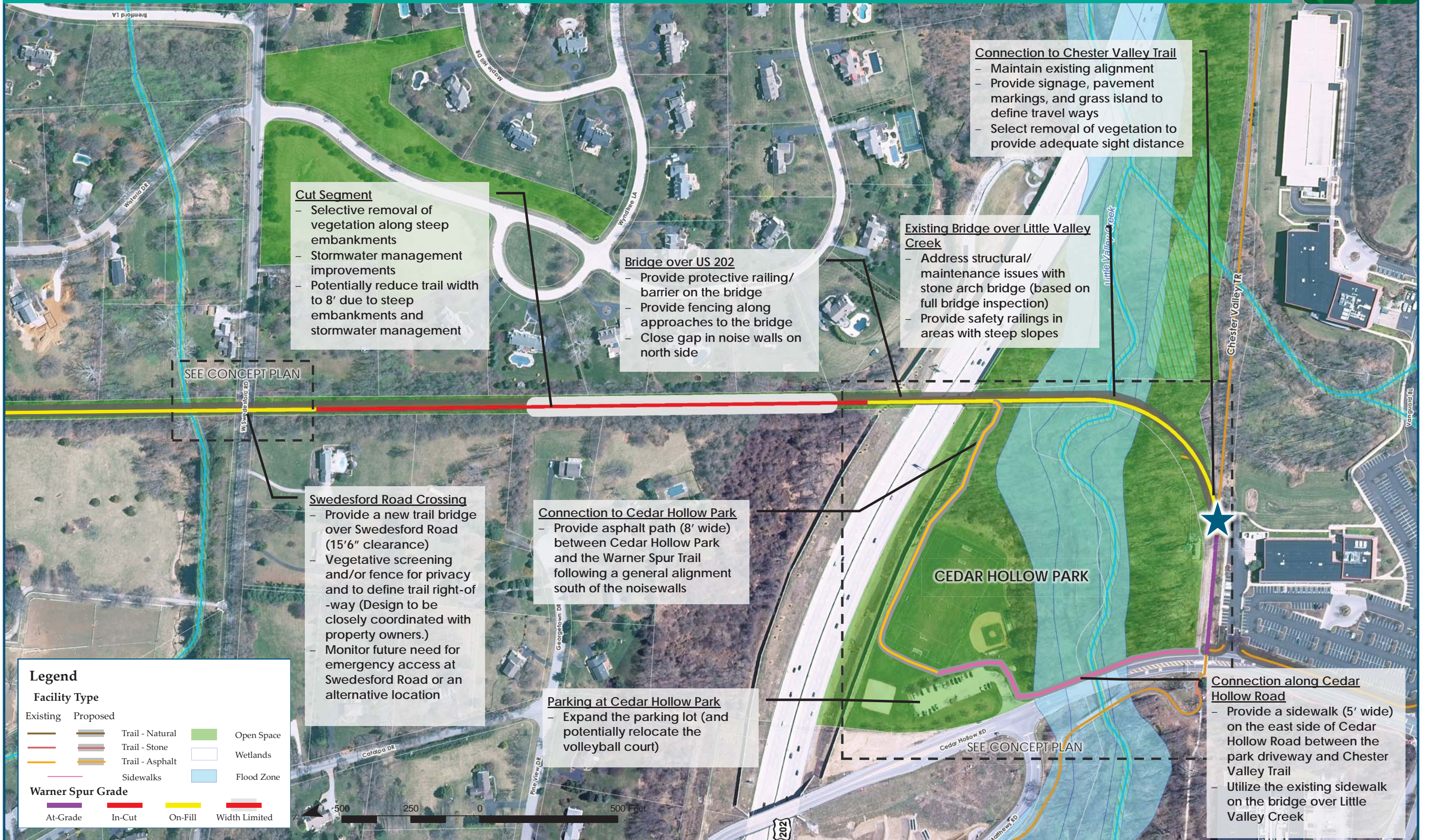
Constructing a trail on this former rail corridor will require complex improvements to ensure safety of trail users and limit impacts to adjacent properties. This chapter identifies the conceptual improvements that would be required to construct the Warner Spur Trail. The Conceptual Improvement Plan is presented on the maps on the following pages.

As discussed in Chapter 2, the former rail corridor passes through cut, fill, and at-grade sections. Each section presents unique challenges that require unique treatments to construct a proper multi-use trail. At-grade sections may require additional screening to adjacent properties beyond the vegetation that exists today. Stormwater management will need to be addressed in cut sections to solve the standing water issue that persists in multiple areas along the corridor. Tree and vegetation removal on the embankments may be needed to ensure safety of trail users. However, removing vegetation may require additional embankment stabilization. To ensure the desired trail width is maintained, regrading may be required for segments that are on fill. Barriers would be needed to protect trail users from the steep slopes on either side of the trail. Additionally, the bridges and culverts along the trail corridor will need to be inspected, and repairs may be necessary to ensure structural integrity. These improvements are illustrated graphically to the right.

Preliminary engineering and final design will be required to evaluate necessary construction activities and prepare construction documents. Additionally, various permits may be required depending on the existing conditions, proposed improvements, and jurisdiction of permitting agencies. The design and permitting processes may result in changes to the conceptual plans.



Proposed Improvements Map (1 of 3)



Cut Segment

- Selective removal of vegetation along steep embankments
- Stormwater management improvements
- Potentially reduce trail width to 8' due to steep embankments and stormwater management

Bridge over US 202

- Provide protective railing/barrier on the bridge
- Provide fencing along approaches to the bridge
- Close gap in noise walls on north side

Existing Bridge over Little Valley Creek

- Address structural/maintenance issues with stone arch bridge (based on full bridge inspection)
- Provide safety railings in areas with steep slopes

Connection to Chester Valley Trail

- Maintain existing alignment
- Provide signage, pavement markings, and grass island to define travel ways
- Select removal of vegetation to provide adequate sight distance

SEE CONCEPT PLAN

Swedesford Road Crossing

- Provide a new trail bridge over Swedesford Road (15'6" clearance)
- Vegetative screening and/or fence for privacy and to define trail right-of-way (Design to be closely coordinated with property owners.)
- Monitor future need for emergency access at Swedesford Road or an alternative location

Connection to Cedar Hollow Park

- Provide asphalt path (8' wide) between Cedar Hollow Park and the Warner Spur Trail following a general alignment south of the noisewalls

Parking at Cedar Hollow Park

- Expand the parking lot (and potentially relocate the volleyball court)

CEDAR HOLLOW PARK

SEE CONCEPT PLAN

Connection along Cedar Hollow Road

- Provide a sidewalk (5' wide) on the east side of Cedar Hollow Road between the park driveway and Chester Valley Trail
- Utilize the existing sidewalk on the bridge over Little Valley Creek

Legend

Facility Type

Existing	Proposed		
		Trail - Natural	Open Space
		Trail - Stone	Wetlands
		Trail - Asphalt	Flood Zone
		Sidewalks	

Warner Spur Grade

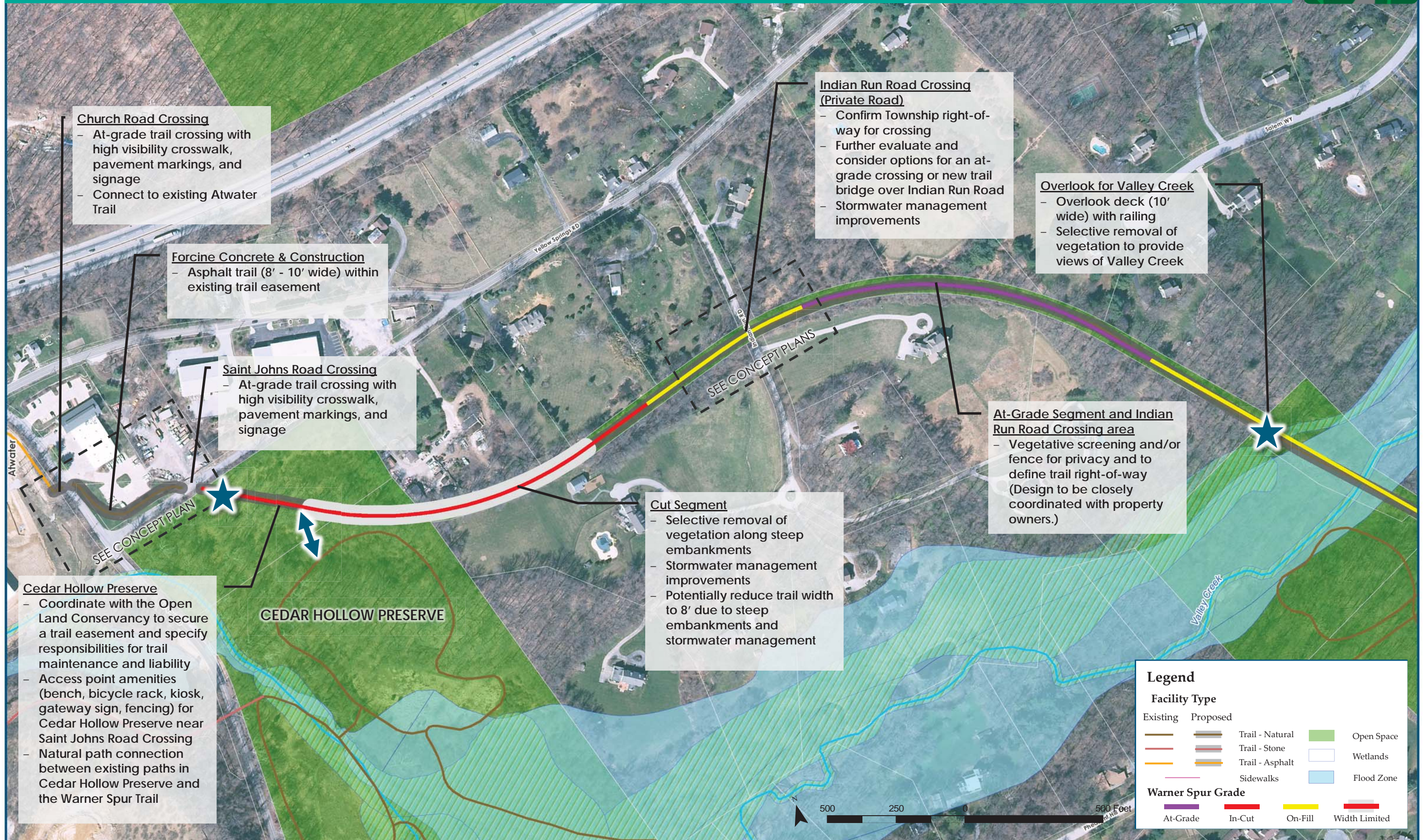
At-Grade	In-Cut	On-Fill	Width Limited



Proposed Improvements Map (2 of 3)



Proposed Improvements Map (3 of 3)



Renderings

To help visualize how the trail would fit with the existing environment along the corridor, renderings were developed for two locations. First, a typical trail section was rendered to show what the trail might look like with and without privacy fencing. The other rendering shows how the scenic overlook of Valley Creek may appear when installed. Renderings will be valuable to illustrate what the trail could potentially look like once construction is completed.



Scenic Overlook Rendering



Fence and Buffer Options

Based on the proposed improvements and community input, fences or other buffers may be needed for the safety of trail users and to provide privacy for adjacent property owners. Various fence styles or other screening options may be appropriate along the Warner Spur Trail depending upon the existing conditions, purpose of the fence or buffer, and proposed trail improvements. As shown on the following page, different types of fence styles or other design treatments were identified in the conceptual improvement plan and incorporated into cost estimates for the Warner Spur Trail. The need and specific location for fencing or landscaping treatments must be further evaluated during the design phase.

The two and three rail wooden fences are similar to fences used on the Chester Valley Trail and other Chester County trails. Privacy fence or landscaping treatments are an option that must be further evaluated and closely coordinated with property owners. In particular, privacy fencing may not be effective in areas with steep slopes adjacent to the trail. While fences can help to maintain privacy, they can also restrict or limit wildlife movement and access to the trail. Additionally, fences may require maintenance. The cable stay fence was identified specifically for the proposed overlook in order to maintain view sheds while protecting trail users from steep slopes.

Fence and Buffer Options	Key Features
<p>Two Rail</p> 	<ul style="list-style-type: none"> - Typical trail fence to be used in areas with steep slopes - Two split rails - Wood construction - Approximately 48" height
<p>Three Rail</p> 	<ul style="list-style-type: none"> - Typical trail fence to be used in areas with steep slopes - Three split rails - Wood construction - Approximately 48" height
<p>Privacy</p> 	<ul style="list-style-type: none"> - Areas where property owner privacy may be compromised - Fence <ul style="list-style-type: none"> • PVC construction • Approximately 6' height - Vegetative screening and landscaping may be used as an effective alternative - Design to be coordinated with adjacent property owners, including potential gates or access points
<p>Cable Stay</p> 	<ul style="list-style-type: none"> - Only for overlook platforms - Provides safety while allowing visibility of natural vistas - Wood supported wire cable stay railing - Approximately 48" height

Conceptual Design Exhibits for Key Connections and Crossings

Conceptual design exhibits were developed for specific segments of the Warner Spur Trail to depict key connections and key crossings. Other segments of the Trail were not conceptually evaluated to the same level of detail. The existing conditions depicted on the conceptual design exhibits are based on GIS data, aerial photography, limited field measurements, and topographic survey data from 2008 provided by Tredyffrin Township. Additional topographic survey and thorough field observation will need to be completed during the preliminary engineering of the project. Below are several notes and assumptions regarding the conceptual design exhibits presented in this chapter.

- Legal right-of-way lines and property lines are estimated based on GIS data and previous survey data. Legal right-of-way lines or property lines have not been independently verified through field survey or title/deed research.
- The exhibits depict required easement lines (temporary or permanent), which will likely be required for the construction of the project. The size and location of all easements will need to be verified during the preliminary engineering of the project.
- The exhibits do not depict specific areas required for post-construction stormwater management. The size and location of post-construction stormwater management facilities will need to be evaluated during the preliminary engineering of the project. The cost estimates for each segment include a planning-level cost for these facilities, but the size and type of facilities will vary depending on the applicable permitting requirements. These costs may also vary depending on how the various project segments are combined or phased.

Southern Terminus—Exhibit A

At its southern end, the Warner Spur Trail would meet the Chester Valley Trail. Tredyffrin Township owns approximately 28 acres of land between the Chester Valley Trail and US 202 where the Little Valley Creek runs after it crosses Cedar Hollow Road. Improved connections to connect the township's Cedar Hollow Park would transform the park into a trailhead destination. These connections would have value beyond the Warner Spur Trail by serving users of the Chester Valley Trail, as well. Future expansion of parking facilities at Cedar Hollow Park could be explored if parking demands increase.

Swedesford Road Crossing—Exhibit B

Swedesford Road is a major barrier for potential users along this corridor. In order to avoid conflicts between trail users and vehicles, a pedestrian bridge is recommended to carry the Warner Spur Trail over Swedesford Road. The original railroad bridge in this location (demolished in the mid-1980's) would not have met modern overhead clearance requirements. As such, the approaches on either side would not facilitate the bridge to be constructed with the required vertical clearance. Additional material would be needed to build up the approaches on either side of the pedestrian bridge. A prefabricated pedestrian bridge would provide some cost savings while still allowing for emergency and maintenance vehicle access.



Historic photo of the Warner Spur Rail Line as a train passes over Swedesford Road

Photo Credit: James Brazel

Indian Run Road Crossing—Exhibit C

Indian Run Road is a private drive that serves as the only access to nine private residences, which intersects Yellow Springs Road approximately 2,000 feet east of Church Road. Concept plans were developed for two different options to cross Indian Run Road; a trail bridge and an at-grade crossing. Additionally, stormwater drainage issues have been noted at this location. This could be addressed during the design of either of these options.

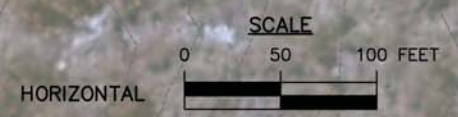
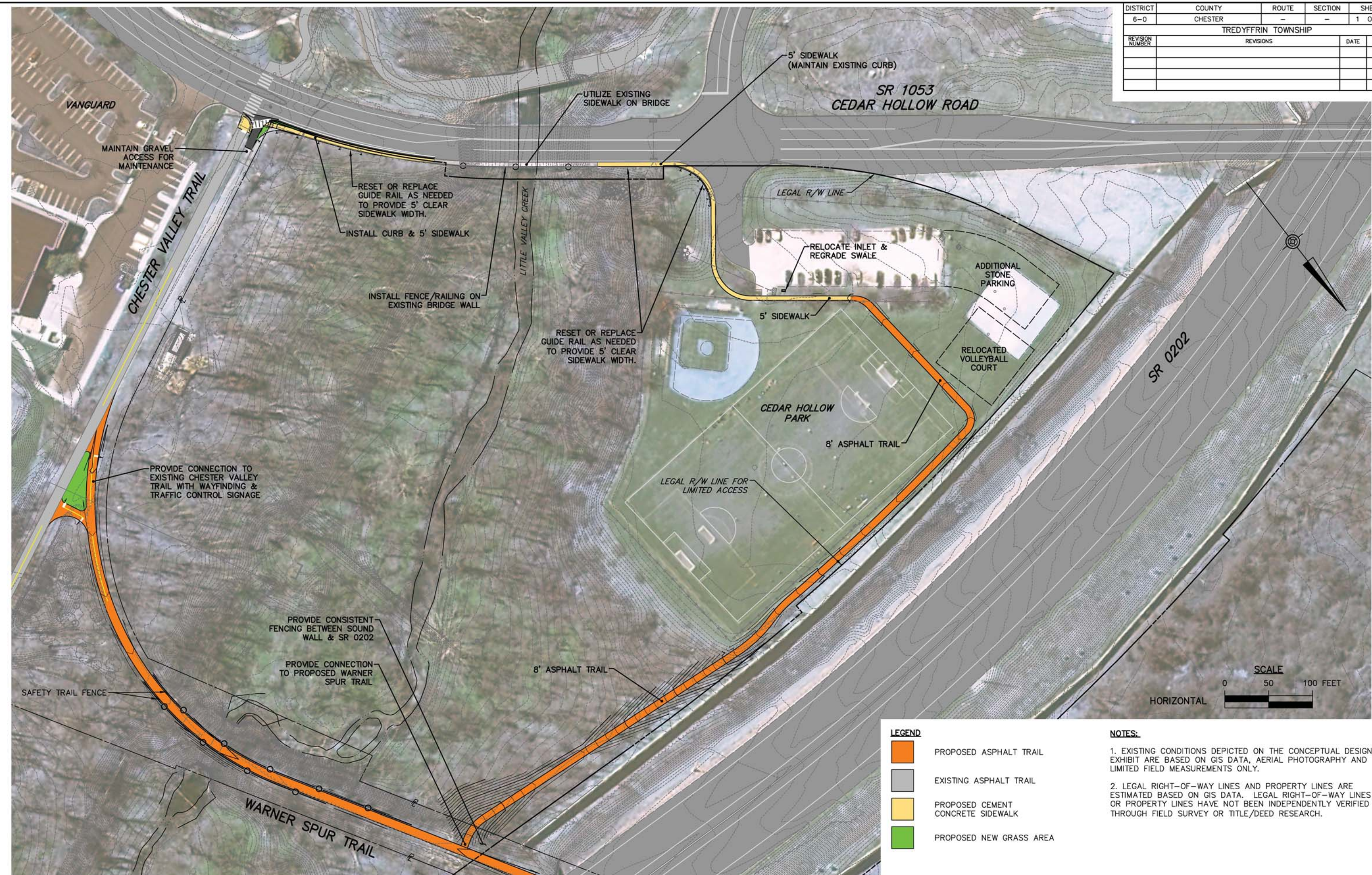
A pedestrian bridge over Indian Run Road would face similar issues to the bridge over Swedesford Road. Regrading of the trail as it approaches Indian Run Road would be required to obtain a desired overhead clearance on Indian Run Road, thereby necessitating the construction of retaining walls to stabilize the steep slopes on either side of the trail.

An at-grade crossing would require the approaches of the trail on either side to be graded down to road-level as it approaches Indian Run Road.

Northern Terminus—Exhibit D

After crossing St. Johns Road, the Warner Spur Trail would utilize an existing easement that routes the trail around the parking lot for Forcine Concrete Co. before ending at Church Road across from the trail in Atwater Corporate Park.

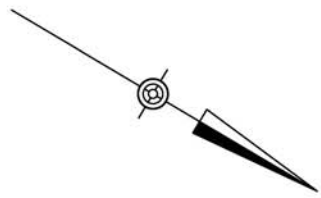
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6-0	CHESTER	-	-	1 OF 1
TREDYFFRIN TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	



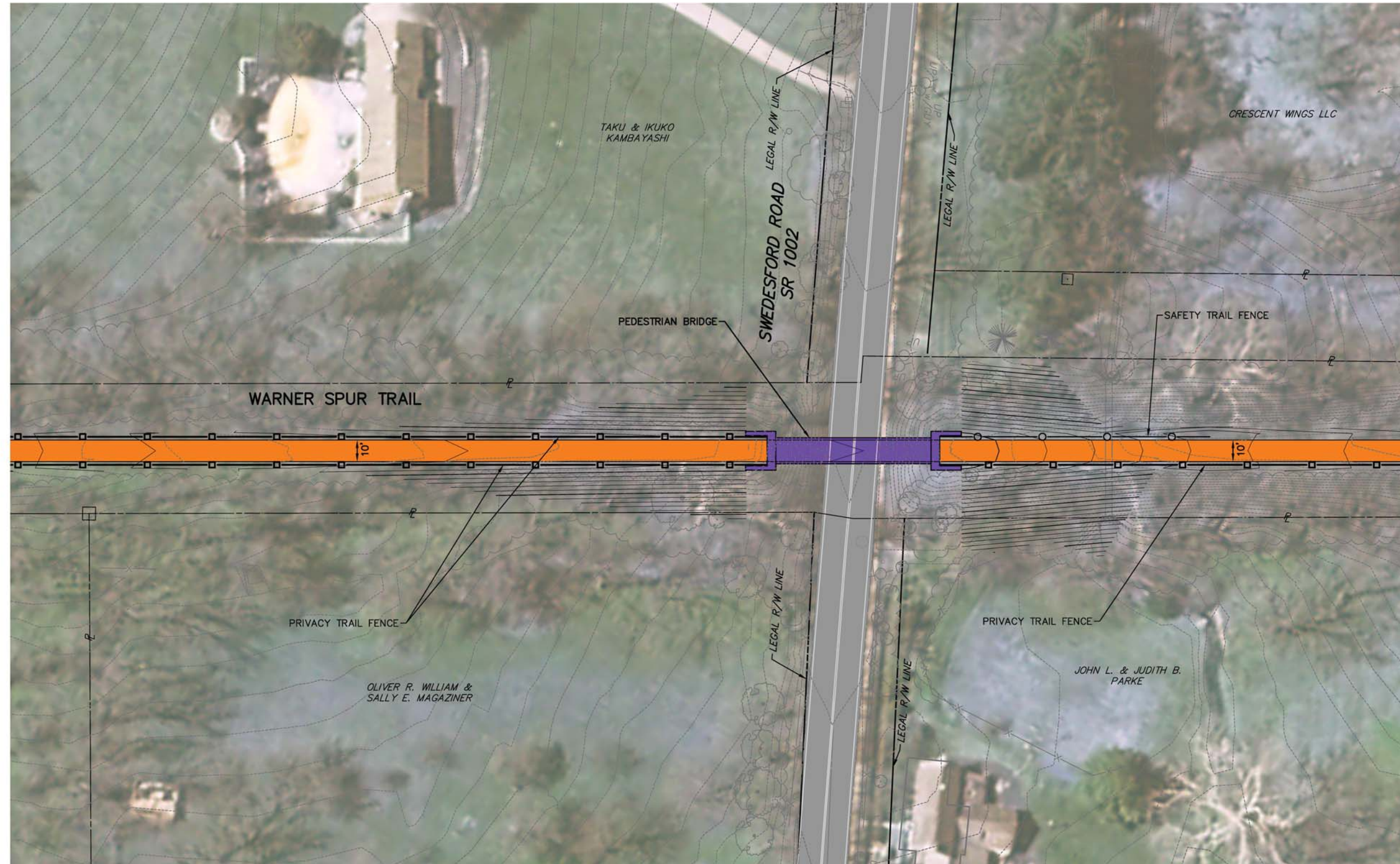
LEGEND

	PROPOSED ASPHALT TRAIL
	EXISTING ASPHALT TRAIL
	PROPOSED CEMENT CONCRETE SIDEWALK
	PROPOSED NEW GRASS AREA

- NOTES:**
- EXISTING CONDITIONS DEPICTED ON THE CONCEPTUAL DESIGN EXHIBIT ARE BASED ON GIS DATA, AERIAL PHOTOGRAPHY AND LIMITED FIELD MEASUREMENTS ONLY.
 - LEGAL RIGHT-OF-WAY LINES AND PROPERTY LINES ARE ESTIMATED BASED ON GIS DATA. LEGAL RIGHT-OF-WAY LINES OR PROPERTY LINES HAVE NOT BEEN INDEPENDENTLY VERIFIED THROUGH FIELD SURVEY OR TITLE/DEED RESEARCH.

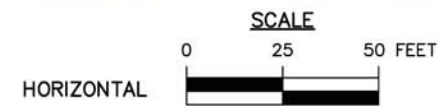


DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	CHESTER	-	-	1 OF 1
TREDYFFRIN TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	



LEGEND

	PROPOSED ASPHALT TRAIL
	EXISTING ASPHALT TRAIL
	PROPOSED PEDESTRIAN BRIDGE



835 SPRINGDALE DRIVE
 SUITE 200
 EXTON, PA 19341
 PH: (610) 594-9995
 FAX: (610) 594-9565

DESIGN BY: JCT
 DRAWN BY: JCT
 CHECKED BY: JJK

JOB NO: 818538
 DWG: EXH
 DATE:

EXHIBIT B
SWEDESFORD ROAD CROSSING

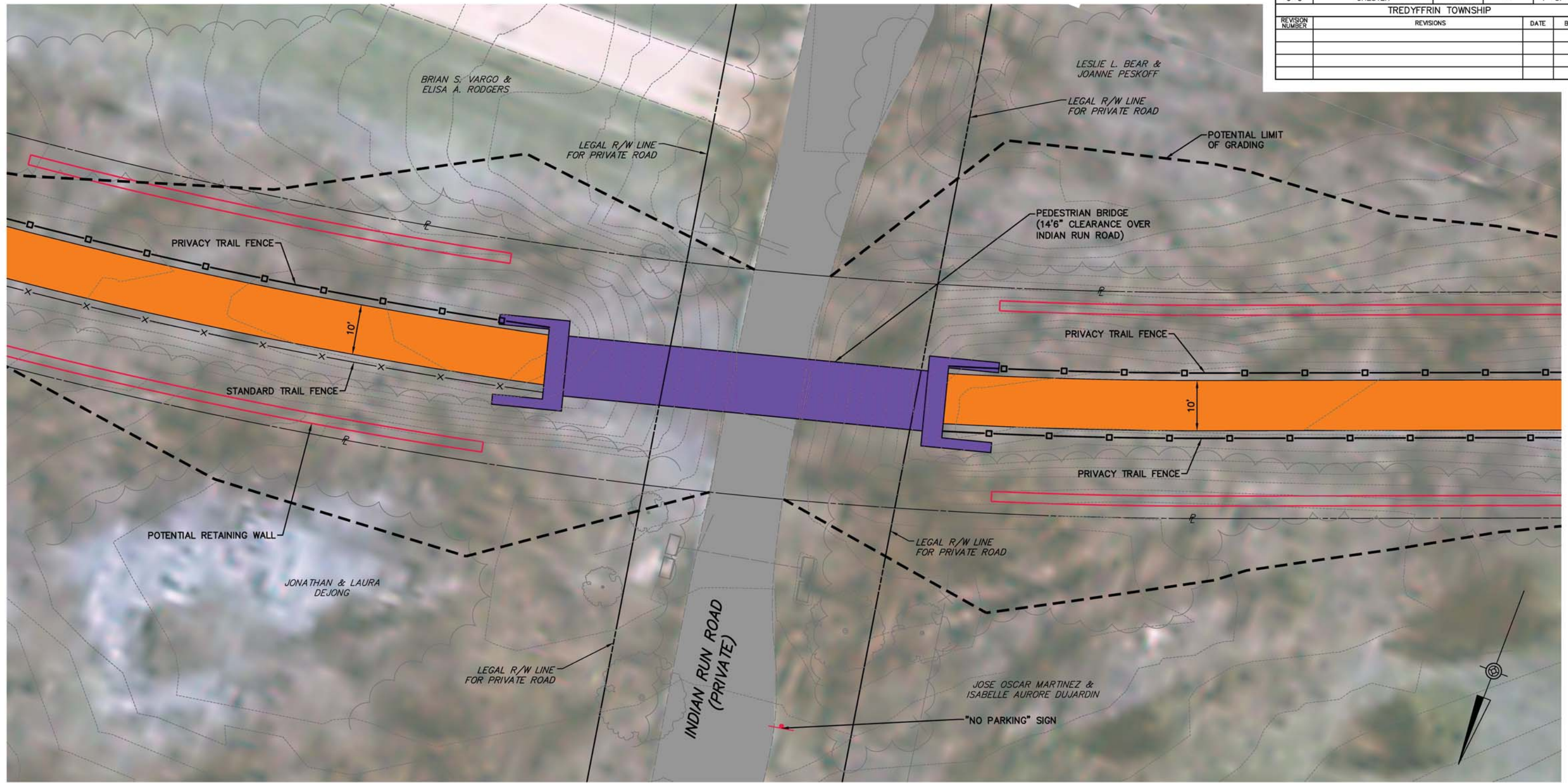
TREDYFFRIN TOWNSHIP

WARNER SPUR TRAIL

CHESTER COUNTY

CONCEPTUAL DESIGN EXHIBIT

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	CHESTER	-	-	1 OF 1
TREDYFFRIN TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

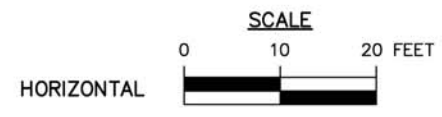


LEGEND

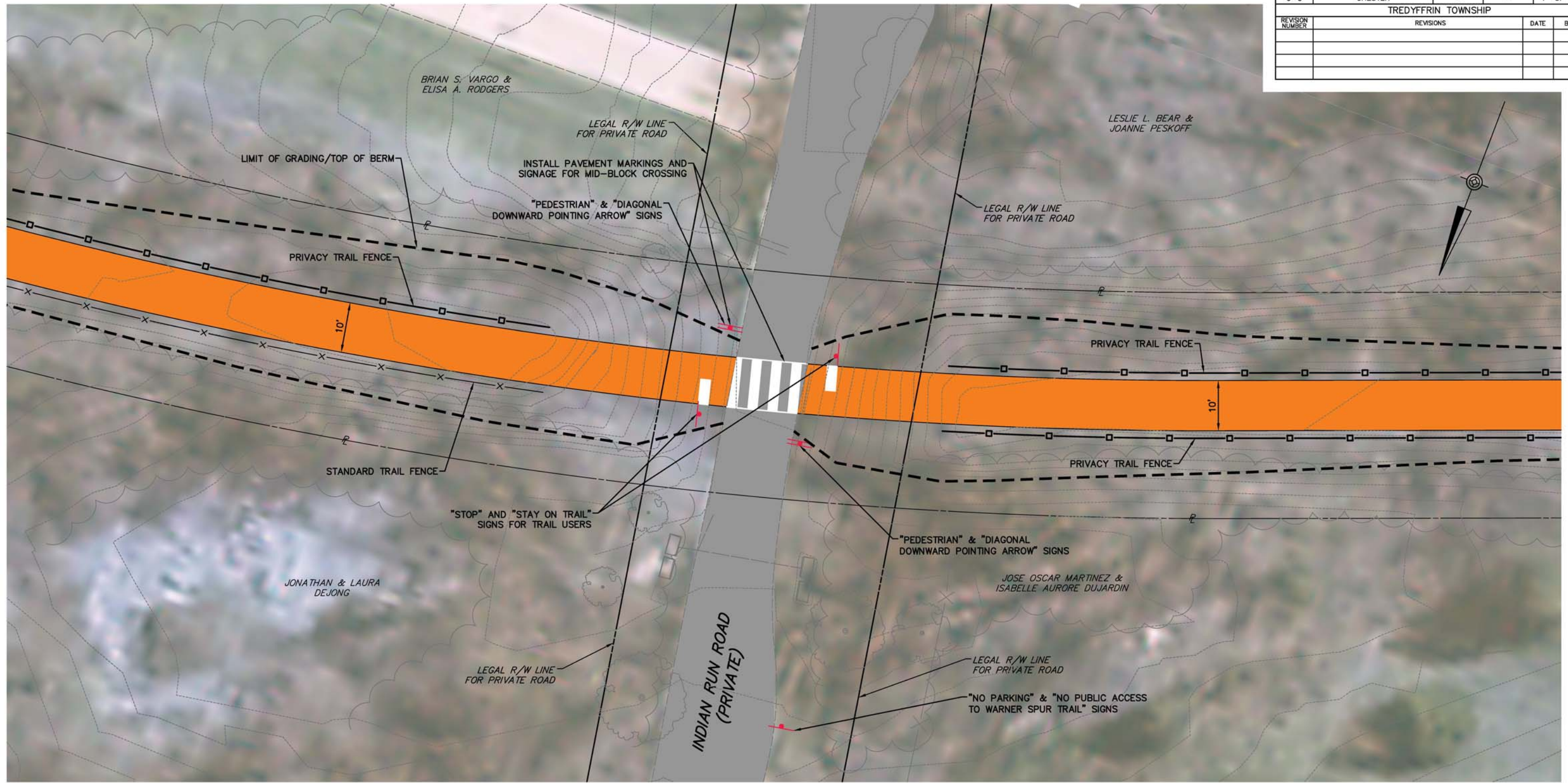
	PROPOSED ASPHALT TRAIL
	PROPOSED PEDESTRIAN BRIDGE


NOTES:

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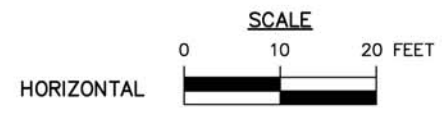


DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	CHESTER	-	-	1 OF 1
TREDYFFRIN TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	



LEGEND
 PROPOSED ASPHALT TRAIL

NOTES:
 1. EXISTING CONDITIONS DEPICTED ON THE CONCEPTUAL DESIGN EXHIBIT ARE BASED ON GIS DATA, AERIAL PHOTOGRAPHY AND LIMITED FIELD MEASUREMENTS ONLY.
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DESIGN BY: JCT
 DRAWN BY: JCT
 CHECKED BY: JJK

JOB NO: 818538
 DWG: EXH
 DATE:

**EXHIBIT C - ALT 2
 INDIAN RUN ROAD CROSSING
 AT GRADE ALTERNATIVE**

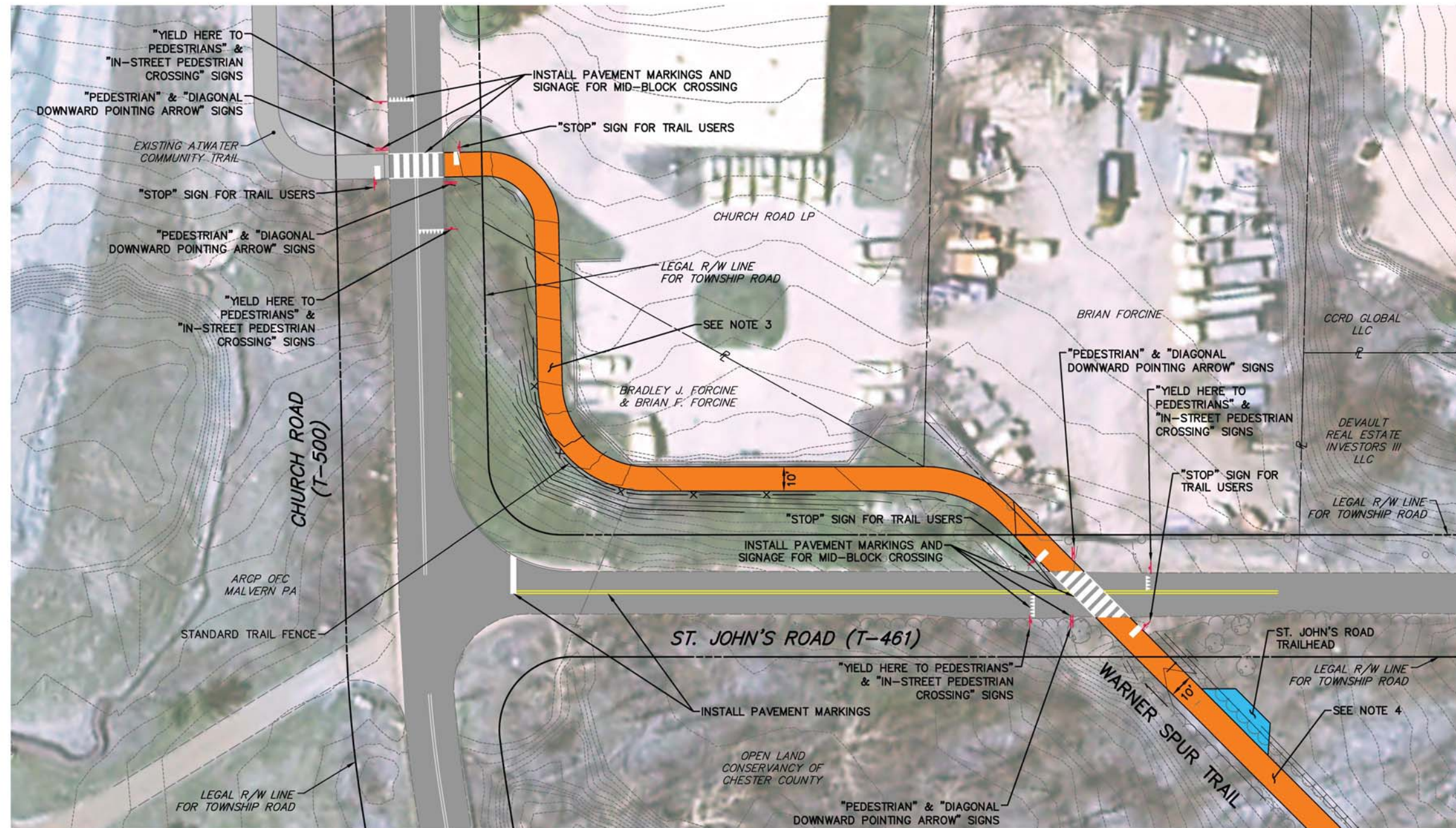
TREDYFFRIN TOWNSHIP

WARNER SPUR TRAIL

CHESTER COUNTY

CONCEPTUAL DESIGN EXHIBIT

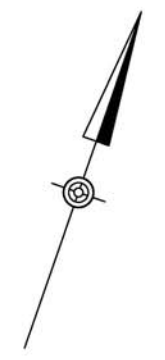
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	CHESTER	-	-	1 OF 1
TREDYFFRIN TOWNSHIP				
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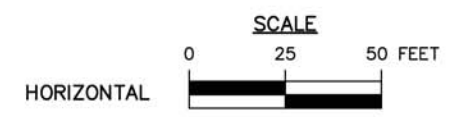
LEGEND

PROPOSED ASPHALT TRAIL

EXISTING ASPHALT TRAIL



- NOTES:**
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 - THE PROPOSED TRAIL SEGMENT ON THE FORCINE PROPERTY IS TO BE CONSTRUCTED WITHIN THE EXISTING EASEMENT. ADDITIONAL TEMPORARY CONSTRUCTION EASEMENTS MAY BE NECESSARY AND WILL BE IDENTIFIED DURING THE DESIGN PROCESS.
 - PERMANENT EASEMENTS AS WELL AS TEMPORARY CONSTRUCTION EASEMENTS ON THE OPEN LAND CONSERVANCY OF CHESTER COUNTY PROPERTY WILL BE REQUIRED. THE SIZE AND LOCATION OF THESE EASEMENTS WILL BE IDENTIFIED DURING THE DESIGN PROCESS.



Public and Emergency Access

Due to the nature of the former railroad right-of-way, there are a limited number of public access points for the proposed Warner Spur trail. The conceptual improvement plan includes two primary access points at the southern terminus via the Chester Valley Trail, just east of Cedar Hollow Road and the northern terminus via Church Road and/or Saint Johns Road. Both locations will support access to the Warner Spur Trail for members of the public, as well as for emergency access. In addition to these primary access points, pedestrians will be able to access the trail through the Cool Valley Preserve or Cedar Hollow Preserve. Both preserves are owned by the Open Land Conservancy of Chester County and are open to the public, subject to the posted guidelines. (Biking is not permitted within the preserves.)

Parking

For the southern terminus, Cedar Hollow Park offers the closest public parking for access to the Warner Spur Trail. Access between the park, parking lot, and the Warner Spur Trail could be provided via the proposed sidewalk on Cedar Hollow Road and proposed trail connection within the park. (See Southern Terminus Concept Plan.) At the northern terminus, parking for the Warner Spur Trail could be provided within the Atwater development, but would require permission from property owners. For example, there is an existing gravel surface parking lot on the south side of Yellow Springs Road, just west of Howells Road. The lot is owned by Trammell Crow and leased for use by restaurants on the north side of Yellow Springs Road. The lot has direct access to existing trails within the Atwater development, including a trail connection to the northern terminus of the Warner Spur Trail at Church Road. There may be an opportunity for a shared parking arrangement in the future, so the parking lot can also be used by trail users. In addition, there is an existing small gravel parking lot for the Cedar Hollow Preserve located on the east side of Church Road between Saint Johns Road and Saint Peters Road. Access (for pedestrians) between the parking lot and the Warner Spur Trail could be provided via the existing natural surface trails within the preserve and proposed trail connection. (See Northern Terminus Concept Plan.)

Future Public or Emergency Access

Locations for public or emergency access were evaluated as part of the master planning process.

- Swedesford Road: Swedesford Road is a state owned, two-lane roadway. The Warner Spur Trail crosses Swedesford Road approximately one-half mile east of Cedar Hollow Road. The

conceptual improvement plan includes a trail bridge over Swedesford Road. Options to provide either public or emergency access to the trail and bridge were evaluated. In terms of public access, the Swedesford Road corridor is not conducive to walking or biking today due to the narrow shoulders, lack of dedicated bicycle or pedestrian infrastructure, higher travel speeds (with a speed limit of 40 mph), and average traffic volumes of 5,000–10,000 vehicles per day. Without significant improvements along Swedesford Road, it is not an ideal location for public access to the Warner Spur Trail. Options for emergency access only were evaluated for both the north and south sides the roadway. Providing emergency access (for an ambulance) at Swedesford Road is challenging due to the existing grades, proposed bridge, limited available right-of-way, need to provide a turnaround, and potential crossing of an unnamed tributary to Valley Creek (north side). (See Appendix B for more information about the evaluation of providing emergency access Swedesford Road crossing.) Due to these constraints and potential impacts, public or emergency access is not included in the conceptual improvement plan at Swedesford Road.

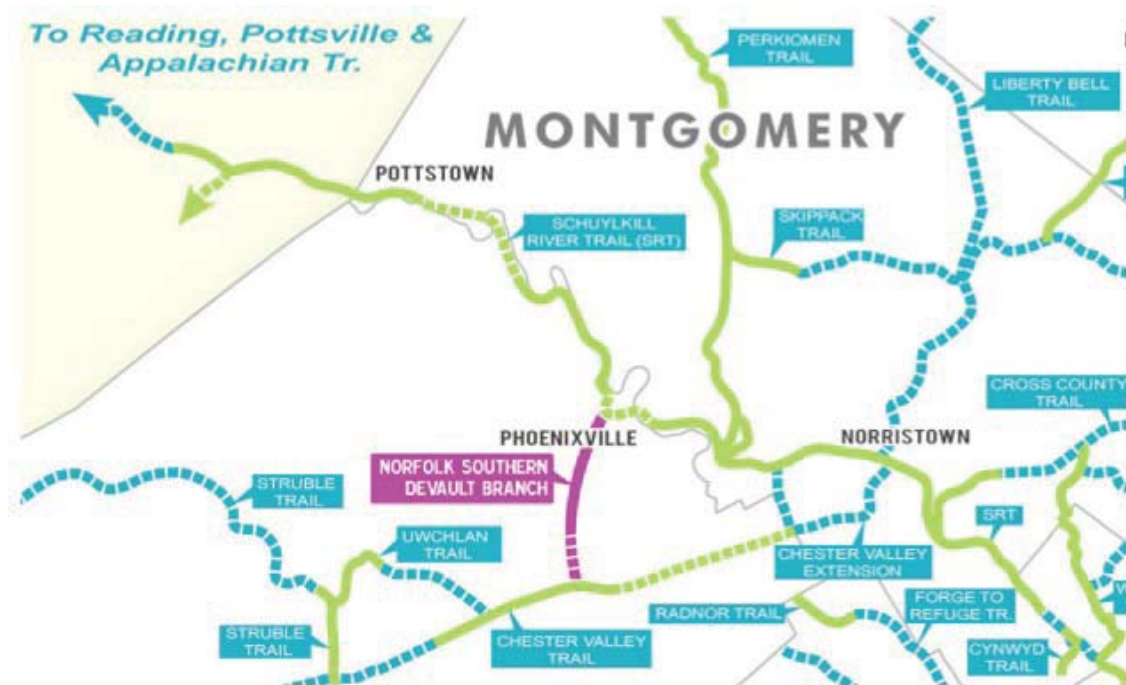
- Cool Valley Preserve: Public access to the Warner Spur Trail is provided at the Cool Valley Preserve, but access through the preserve is currently prohibited for motor vehicles and bicycles. Anticipating potential demand for bicycle, wheelchair, and stroller access by residents in the area, options for providing a gravel or paved trail connection were evaluated. There is a concern that bicyclists may try to utilize the existing natural trails to access the Warner Spur trail, potentially creating ruts and other negative impacts to preserve resources. A potential connection was identified between Windswept Drive and the Warner Spur Trail by utilizing an existing access easement and land owned by the Open Land Conservancy. The potential connection is one of the shortest distances between a public roadway and the Warner Spur right-of-way. Additionally, this connection follows the perimeter of the Cool Valley Preserve, so it would limit impacts on the existing meadows, fields, and other natural features. The need for this connection is not immediate and should be monitored and closely coordinated with the Open Land Conservancy. No parking would be provided as part of the connection, since it would be intended for use by bicyclists and other residents that could access the area by walking or biking. There may be a need to monitor any issues with on-street parking on Windswept Drive near the trail connection.

3 | Conceptual Improvement Plan

- Access Easements: Aside from the two preserves, most property abutting the Warner Spur right-of-way is privately owned and developed as single-family homes. An interested and willing property owner could grant an access easement, for public access, emergency access only, or for both public and emergency access. Ideal potential locations are for properties fronting Wisteria Drive (particularly north of Swedesford Road) and abutting the Warner Spur right-of-way. Without access easements (or informal agreements among neighbors), residents on Wisteria Drive will only be able to access the Warner Spur Trail at the other public access points. There are a number of potential design treatments for access easements, which could involve a natural surface and mowed path, gravel or paved trail, or grass block pavers that support motorized vehicles for emergency access. Additionally, access easements could be signed or unmarked. The need and potential opportunities to obtain an access easement from a willing property owner should be monitored.

Devault Trail Proposed Connections

This study also identifies potential connections to the proposed Devault Trail, an approximately six mile-long rail-trail that would extend from the Schuylkill River Trail in Phoenixville to the intersection of PA Route 29 and Charlestown Road in Charlestown Township along the inactive Devault rail corridor. The Devault-Warner Spur Trail would provide a multimodal commuting route between employment and residential centers in Phoenixville and Great Valley, and would also create an internal loop within the Circuit Trails network, appealing to recreational trail users. A gap of just over a mile separates the proposed southern terminus of the



Devault Trail regional connections (courtesy of Devault Trail Feasibility Study)

3 | Conceptual Improvement Plan

Devault Trail from the proposed northern terminus of the Warner Spur Trail. Because the Devault Trail would serve a mix of user groups – from commuters looking for the shortest distance between home and work and others using the trail for recreation – this study recommends both an off-road multi-use trail and an on-road cycling route to connect to the Warner Spur. These routes are shown on the Devault Trail Connections Map and described below.

Multi-Use Trail Connection

At approximately 1.7 miles in length, this multi-use alignment does not provide the shortest path between the proposed Devault Trail and Warner Spur, but would be accessible to a wide range of ages and abilities. Additionally, it utilizes 0.4 miles of existing trail.

Beginning at the northern terminus of the Warner Spur trail, the proposed trail will cross Church Road approximately 150 feet north of the intersection of St. Johns Road. This crossing is described in more detail on page 2-9 and depicted on the Northern Terminus & Connections exhibit on page 3-14. It will connect with an existing eight-foot wide paved path that winds through the Atwater development for 0.4 miles. The portion of this trail that runs parallel to Atwater Drive is just over six-foot wide. It is recommended that this be widened to a minimum of 8 feet once both the Devault and Warner Spur trails open, or when demand for the trail warrants its widening. Although the existing trail crosses to the south side of Atwater Drive, this study recommends continuing the trail on the north side of the road to the intersection of Route 29 for the following reasons:

- Limited sight distance on the south side of Atwater Drive when it crosses the PA Turnpike ramp;
- Ease of pedestrian access to The Commons At Great Valley and other nearby uses via the existing sidewalk; and
- Potential for the undeveloped parcel on the north side of Atwater Drive to incorporate the trail into future development plans.



Existing Path along Atwater Drive



Obstructions observed along Atwater Drive

There are few physical obstructions along the 0.5 mile proposed trail alignment along Atwater Drive, which involve newly planted trees, a pump station building, and most significantly, an existing stone monument sign that marks the entrance to the Atwater development from Route 29 (as shown in the photos on the previous page). This stone monument sign blocks the large stormwater basin with steep side slopes directly behind the sign. The trees could be relocated and the trail could navigate around the pump station, but the sign would need to be relocated – potentially to the south side of Atwater Drive. Additionally, a fence or other barrier would be required between the trail and the stormwater basin.

The existing signalized intersection at Atwater Drive and Route 29 does not currently permit pedestrians to cross. Crosswalks, as well as a pedestrian signal with crossing phase, would be needed, among other improvements to be coordinated with PennDOT. After crossing Route 29, trail users could access the businesses on the other side of the street using the existing sidewalk system or could continue on the trail by crossing to the south side of General Warren Boulevard. This wide road has an existing planted median, part of which could be converted to a pedestrian refuge island for safer crossing. Design and engineering of a multi-use trail along General Warren Boulevard should compare the feasibility of locating the trail on the north side versus the south side of the roadway; stormwater management basins, utility poles, trees and driveways are some of the obstructions located near the roadway on either side of the street.

The proposed multi-use trail would turn off of the road just before the Progressive Insurance building and would loop around the back of the office buildings on General Warren Boulevard to connect with the former Devault rail corridor that parallels Phoenixville Pike. The trail would cross under the PA Turnpike and would cross Route 29, requiring similar crossing treatments as the other crossing of Route 29. At this intersection it reaches the proposed southern terminus of the Devault Trail.

On-Road Cycling Connection

This 1.25 mile long on-road route would be used by experienced recreational cyclists and commuters looking for the most direct route between the Warner Spur and the Devault Trail. The proposed route follows Church Road north from the northern terminus of the Warner Spur to Yellow Springs Road, where it turns left, passing under the PA turnpike, and crosses PA Route 29 to continue onto Warner Lane. Just before the intersection of Phoenixville Pike, trail users would turn right onto the former Devault rail corridor and proposed multi-use trail to join the proposed Devault trail headed north.

3 | Conceptual Improvement Plan

The primary recommended improvements to the existing roadway include:

- Wayfinding signage;
- Painted shared road legends, or “sharrows”, marking the route; and
- Bicycle lanes, if current roadway width allows or if future widening would be possible.

Sharrow



Bicycle Lane



Photo Credit: City of Albuquerque

These improvements serve to both provide wayfinding for cyclists and to improve safety for cyclists and motorists by making cyclists’ presence more visible. Recommended signage and striping improvements would likely be performed by the owner of each roadway on which these improvements are recommended.

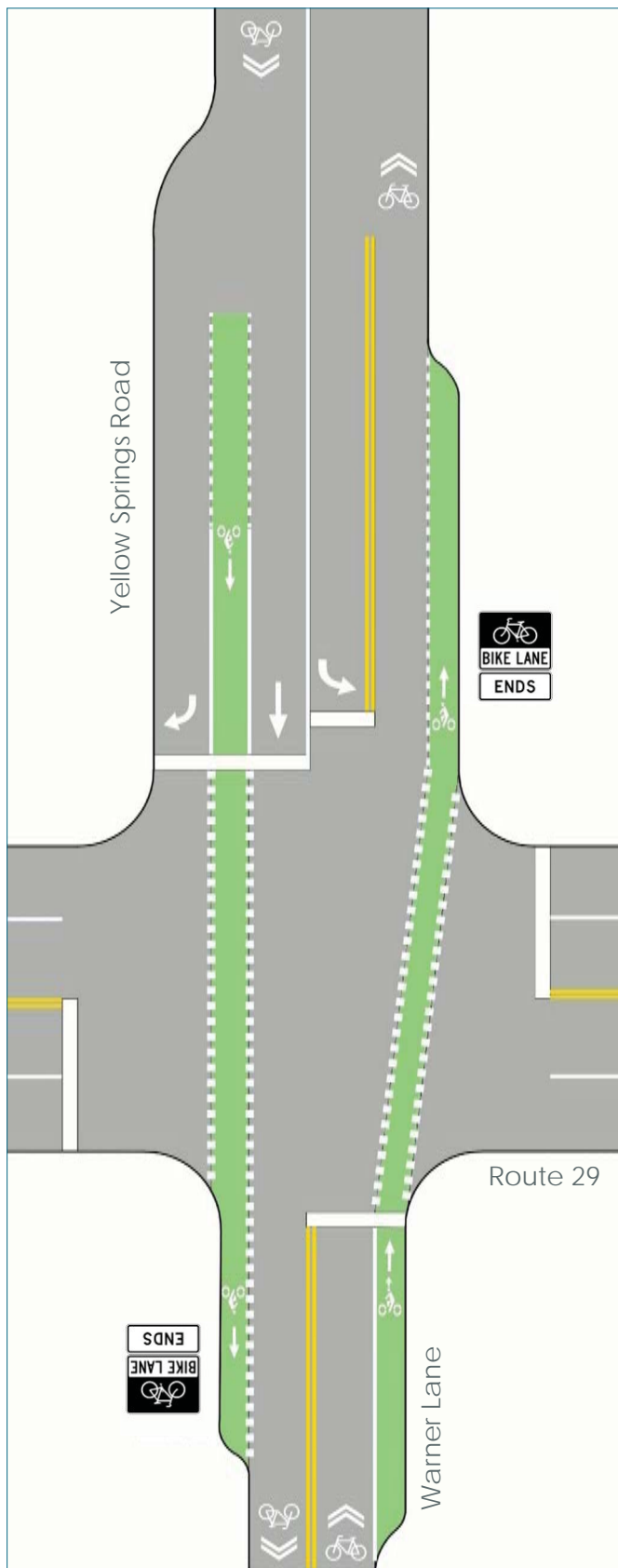
Recommended On-road Bicycle Improvements in the Study Area

Road segment	Owner	Proposed Improvements
Church Road	Tredyffrin Township	Wayfinding signage, sharrows
Yellow Springs Road	PennDOT	Wayfinding signage, sharrows
Morehall Road/ PA Route 29	PennDOT	Intersection improvements: bike lanes, intersection markings
Warner Road (PA Route 29 to James Otis Drive)	Charlestown Township	Wayfinding signage, sharrows, potential widened shoulders with bike lane
Warner Lane (James Otis Drive to Devault rail corridor)	Private owner	Wayfinding signage, sharrows, potential widened shoulders with bike lane

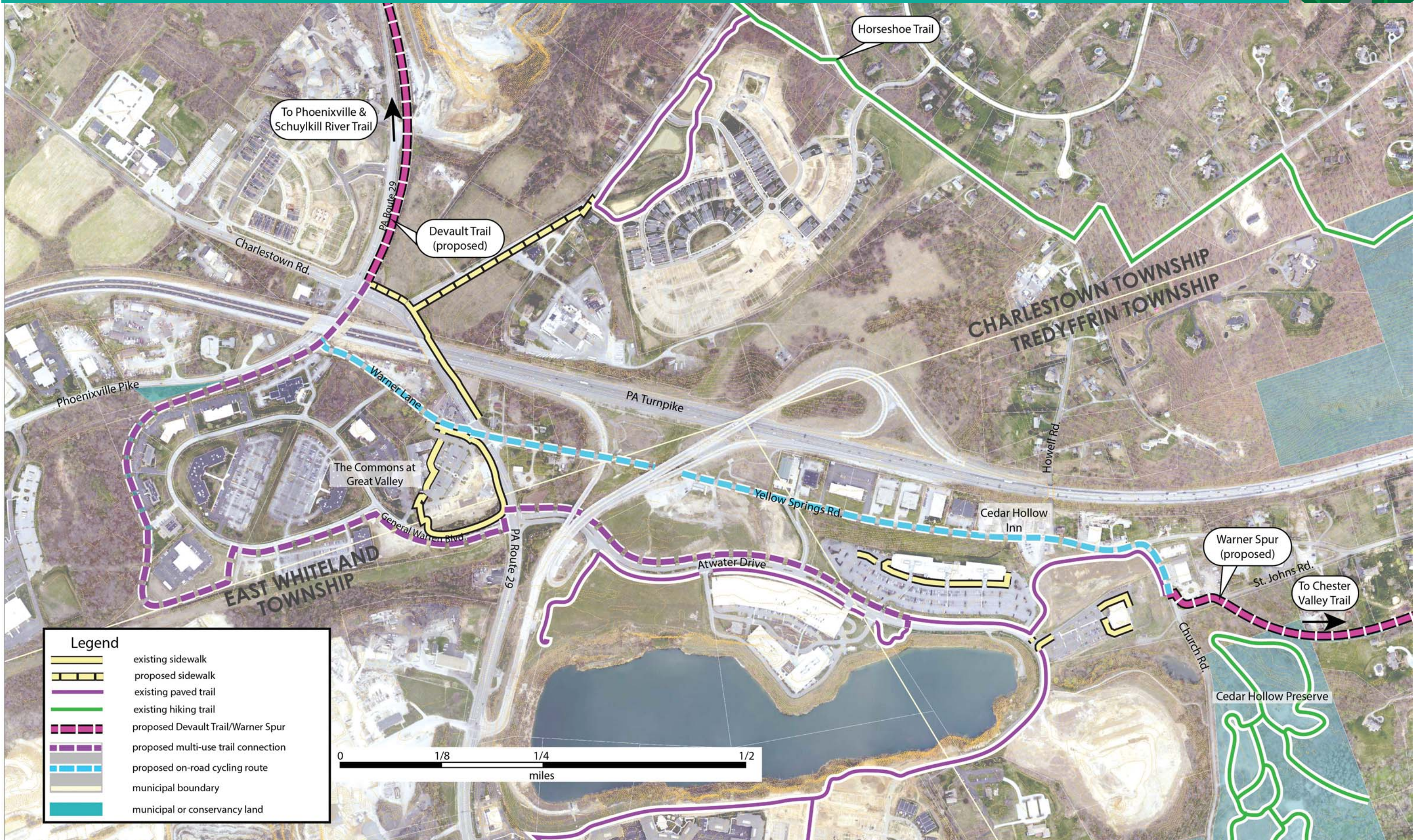
Painted sharrows and wayfinding signage could be installed on Yellow Springs Road as part of a future PennDOT resurfacing project. In this case, PennDOT would provide the initial improvements, and the townships through which this road passes (Tredyffrin, East Whiteland and Charlestown) would need to develop an agreement for maintaining the striping and signage. The posted speed limit of this portion of Yellow Springs Road is 40 mph; however, shared road treatments are typically indicated for roadways with posted speeds of 35 mph or less. During future engineering phases of this project the design team may wish to discuss with PennDOT the potential of lowering the speed limit to 35 mph for this section of roadway.

The design team would need to also coordinate with PennDOT on improvements for cyclists to the intersection of PA Route 29 and Yellow Springs Road. Cyclists crossing Route 29 would have to cross several lanes of traffic (totaling over 150 feet) to continue onto Warner Lane. To reduce conflict between cyclists and motorists and increase visibility of cyclists, striped intersection treatments such as bike lanes could be applied near the intersection on Yellow Springs and Warner Lane, as well as intersection markings carrying the bike lane across the intersection. The conceptual diagram on this page shows these intersection improvements and is for illustrative purposes only. Signage should be provided to alert cyclists and motorists that the bike lane ends. More information about these treatments can be found in AASHTO's [Guide for the Development of Bicycle Facilities](#) (2012). These treatments may not be necessary until the volume of cyclists travelling this route warrants additional safety measures – likely when the Warner Spur and Devault Trail are both complete. Sharrows and signage on Church Road and Warner Lane would be installed and maintained by each township through which these roads pass.

Conceptual Bicycle Treatments at the Yellow Springs Road / Warner Lane Intersection with Route 29

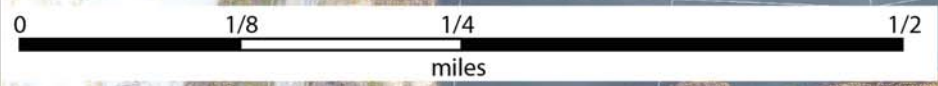


Devault Trail Connections Map



Legend

- existing sidewalk
- proposed sidewalk
- existing paved trail
- existing hiking trail
- proposed Devault Trail/Warner Spur
- proposed multi-use trail connection
- proposed on-road cycling route
- municipal boundary
- municipal or conservancy land





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Trail Segments and Cost Estimates

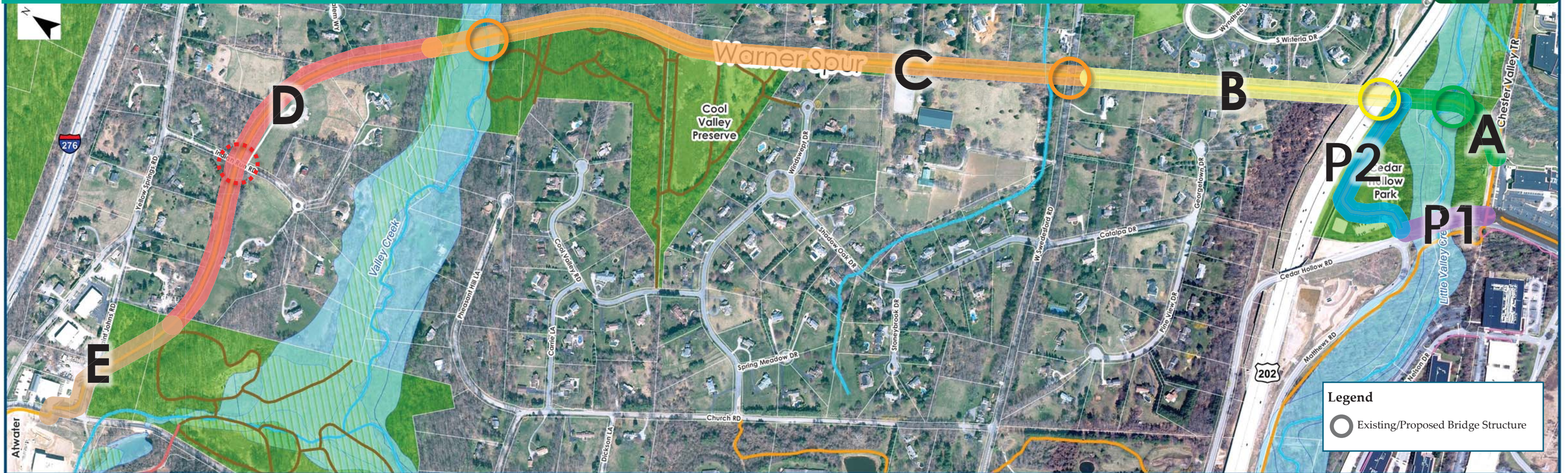
Designing and constructing the Warner Spur Trail will depend heavily on the availability of funding. Given the length and scope of improvements needed to construct the Warner Spur Trail, the total cost estimate for developing the Warner Spur Trail is between approximately \$7 million to \$8.5 million dollars. It may be appropriate and beneficial to phase implementation into shorter segments that provide distinct benefits to trail users. To this end, the Warner Spur Trail was divided into five distinct segments for planning purposes. Each segment has a logical start and end point and would provide access to distinct trail features.

- A—Chester Valley Trail to US 202
- B—US 202 to Swedesford Road
- C—Swedesford Road to Valley Creek Crossing
- D—Valley Creek to Cedar Hollow Preserve
- E—Cedar Hollow Preserve to Church Road

Cedar Hollow Park Trailhead Enhancements were considered separate from the Warner Spur Trail, and thus, are not included in the overall cost estimate above. The Cedar Hollow Road Sidewalk and Cedar Hollow Park Trail to Warner Spur provide utility beyond the Warner Spur Trail, and they are assumed to be implemented as a separate township park improvement program.

Cost estimates have been developed for each segment, which are depicted on the map on the following page (detailed estimates are provided in Appendix C).

Rough Order of Magnitude Cost Estimates



Warner Spur Trail Segments		Length (feet)	Description	Estimated Cost
A	Chester Valley Trail to US 202	875	Improvements to existing bridge over Little Valley Creek	\$ 817,000
B	US 202 to Swedesford Road	1,925	Improvements to bridge over US 202 and potential noisewall modifications	\$ 954,000
C	Swedesford Road to Valley Creek Crossing	3,975	New bridge over Swedesford Road; Connection to Cool Valley Preserve; Improvements to existing bridge over Valley Creek; and Overlook for Valley Creek	\$ 3,372,000
D	Valley Creek to Cedar Hollow Preserve	2,600	At-grade crossing of Indian Run Road	\$ 1,525,000
			New bridge over Indian Run Road	\$ 2,940,000
E	Cedar Hollow Preserve to Church Road	1,000	Crossings of Saint Johns and Church Roads	\$ 402,000
Total with Indian Run At-Grade		10,375		\$ 7,070,000
Total with Indian Run Bridge		10,375		\$ 8,485,000

Cedar Hollow Park Trailhead Enhancements		Estimated Cost
P1	Cedar Hollow Road Sidewalk— Sidewalk (370 ft. long) on east side of Cedar Hollow Road between Cedar Hollow Park and Chester Valley Trail	\$ 190,000
P2	Cedar Hollow Park Trail to Warner Spur— Trail (1,200 ft. long) from Cedar Hollow Park to Warner Spur	\$ 434,000
Total		\$ 624,000

Note: Estimated costs include design and construction in current (2019) dollar amounts. Cost estimates will need to be updated to reflect inflation based on the anticipated schedule for construction.

Cost Estimates Notes and Assumptions

The cost estimates are appropriate to use for planning and budgeting purposes only. Below are several notes and assumptions regarding the cost estimates presented in this chapter.

- Construction estimates are based on quantities derived from the trail conceptual plan and unit prices from recently bid local projects with PennDOT oversight.
- Refer to Appendix C—Engineer’s Conceptual Opinion of Cost, which contains details relating to cost calculations and assumptions for specific projects.
- Contingency and inspection percentages are based on PennDOT Pub. 352. Inflation is not included; costs provided are in 2019 dollars.
- The Engineer's Conceptual Opinion of Cost does not include relocating or resetting existing underground utilities within the limits of the project or the provision of any future utilities. Impacts to existing underground utilities will need to be determined during the preliminary engineering of the project through subsurface utility engineering.
- The Utility Relocations cost is a rough estimate based on relocating existing surface utilities (poles, hydrants, etc.) identified through aerial imagery and limited field views. **Underground utility relocations are not included in this estimate.** These costs are subject to change through the development of the project and based on the Utility owner's rights.
- Estimates of existing and required right-of-way were developed based on GIS data obtained from Chester County and the sponsor municipalities. Right-of-way estimates include rough approximations for temporary and permanent easements, but do not include the cost of legal fees associated with right-of-way acquisition process. Also, existing legal right-of-way lines or property lines have not been independently verified through field survey or deed research. Existing legal rights-of-way and existing property lines, as well as the size and location of any required rights-of-way (temporary or permanent) will need to be determined during the preliminary engineering of the project.
- The following costs are rough estimates for budgeting purposes only: Engineering and Permitting, Utility Relocations , and Right-of-Way. The costs associated with these items will need to be determined through the development of the project. In particular,

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engineering, permitting and inspection costs are dependent on requirements associated with specific funding sources.

- The Engineer's Conceptual Opinion of Cost does not include any environmental remediation (including but not limited to removal and replacement of contaminated soils) or environmental impact mitigation. Post-construction stormwater management is included in the estimate for each segment. However, these estimates are subject to change based on grouping or phasing of all improvements, and per the DEP's requirements.

Priorities / Phasing

The Plan Advisory Committee (PAC) and the public were asked to rank the five trail segments and Cedar Hollow Park Trailhead Enhancements in their priority order. The results of that ranking are shown in the table below.

Warner Spur Trail Segments		Average PAC Ranking	Average Public Ranking
A	Chester Valley Trail to US 202	1st	1st
B	US 202 to Swedesford Road	2nd	2nd
C	Swedesford Road to Valley Creek Crossing	4th	4th
D	Valley Creek to Cedar Hollow Preserve	6th	5th
E	Cedar Hollow Preserve to Church Road	5th	6th
P	Cedar Hollow Park Trailhead Enhancements	3rd	3rd

These rankings clearly illustrate the desire to start at the southern terminus and work northward and the importance of the Cedar Hollow Park Trailhead Enhancements. A phased implementation should take these priorities into consideration.

Stakeholders agreed that the Cedar Hollow Park Trailhead Enhancements could be pursued independent of the development of the Warner Spur Trail. Improvements to Cedar Hollow Park would benefit the community separately from the development of the Warner Spur Trail.

Phase 1—Chester Valley Trail to Cool Valley Preserve

Advancing segments A, B, and C as Phase 1 would provide increased access to the Cool Valley Preserve through a direct connection to the

Chester Valley Trail. The Cool Valley Preserve is a logical, interim terminus for the Warner Spur Trail until additional funding and support can be identified for segments D and E.

Phase 2—Cool Valley Preserve to Church Road

Building upon the success of Phase 1, advancing segments D and E would complete the Warner Spur Trail, providing a multimodal connections to the Cedar Hollow Preserve and the existing path network in the Atwater Corporate Park.

Management Strategies

A majority of the Warner Spur corridor is currently owned by Tredyffrin Township; therefore, access to the corridor and the potential future development is controlled by the township. As such, liability currently resides with the township, and the township would have to enter a formal agreement with any entity that would provide maintenance and operational services. A property transfer would be required if an entity other than Tredyffrin Township were to take ownership of the corridor. Additionally, some segments of the corridor are held by the Open Land Conservancy of Chester County. The same issues listed above for sections owned by Tredyffrin Township also apply to Open Land Conservancy property.

Construction funding sources and ownership impact trail maintenance and operations. Regardless of ownership, periodic safety patrols by police or park rangers may be desired regardless of the ownership arrangement. At a basic level, trail maintenance includes keeping the trail surface clear of litter and controlling vegetation. This includes emptying trash receptacles, picking up rubbish, mowing grass, and cutting overgrown trees and bushes. Safety and privacy fencing that is recommended along the Warner Spur will also require periodic maintenance. Additionally, certain funding sources would require the trail to be open in all seasons. This means snow and ice would need to be cleared in the winter.

In general, trails are a low-risk investment, but ownership of a trail does present some liability considerations. The liability risks are typically small compared to those of roads, playgrounds, or public pools. Trails owned by governmental entities are covered by the jurisdiction's self-insurance policy. Where a trail passes through private land, the property owners are protected by Pennsylvania Statute 32 P.S. § 5611 Rails To Trails Act, which limits landowners' liability for personal injury and property damage if they make their land available for public recreation.

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In all of the scenarios identified below, the entity that manages construction of the trail should not be assumed to be the entity to manage operations. Also, construction of the trail would not necessarily be managed by the entity that owns the corridor. Volunteer labor could be used in any of these scenarios to offset operational costs.

Municipal Management

In this scenario, Tredyffrin Township would assume all ownership and maintenance responsibilities. This may give the township more control over the design and use of the facility. The township currently owns the former railroad right-of-way, so property transfer would not be necessary. Township public works/parks department staff would be tasked with managing maintenance responsibilities. Additionally, the township would assume liability and the trail would likely be covered under the township's insurance policy as any other recreational facility or park in the township is.

Examples:

- East Branch Brandywine Trail – East Bradford Township
- Radnor Multipurpose Trail – Radnor Township
- Schuylkill River Trail – Phoenixville Borough

County Management

Chester County currently owns and operates nearly 22 miles of multi-use trails. County trails are typically regional trails that are part of The Circuit. Therefore, the type and use of county trails is likely higher than that anticipated, or desired, for the Warner Spur Trail. If the Warner Spur were to be developed as a county trail, it is likely that a trail design similar to other county trails would be desirable for ease of maintenance. In this scenario, the county would assume liability and the trail would be covered under the county's insurance policy.

Examples:

- Chester Valley Trail – Chester County/Montgomery County
- Struble Trail – Chester County
- Schuylkill River Trail – Chester County/Montgomery County
- Perkiomen Trail – Montgomery County

Non-profit Management

An existing or newly created private foundation, land trust, local citizens' organization, or other non-profit entity may take ownership

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and maintenance responsibilities for the Warner Spur Trail. This type of arrangement is typically only used in situations where the local or county government lacks the necessary resources to effectively operate a trail or when a trail (or trail network) is spread over multiple municipal or county jurisdictions. A non-profit or private organization may utilize members or volunteers for trail maintenance, and membership dues, donations, or grants may be utilized to cover liability and insurance.

Examples:

- Schuylkill River Trail—Schuylkill River Greenways (Berks and Schuylkill counties)
- Great Allegheny Passage, Five Star Trail, Coal and Coke Trail, Westmoreland Heritage Trail – Regional Trail Corporation (Western Pennsylvania)
- Montour Trail – Montour Trail Council (Allegheny and Washington counties)
- West Penn Trail – Conemaugh Valley Conservancy (Indiana and Westmoreland counties)
- Multiple facilities (over 70 trail miles) – Portland Trails (Portland, ME)

Municipal or Multi-Municipal Authority

An existing or newly established municipal or multi-municipal authority could take on ownership and operations of the Warner Spur Trail. Established authorities routinely manage other public assets such as utilities, public transportation, toll roads, etc. This arrangement has the benefit of insulating municipalities from controversial issues. Additionally, authorities have the ability to leverage fees, which could be used to offset operational and maintenance costs. Management and ownership of multiple trails in the region could be bundled under the umbrella of a larger authority.

Example:

- Hanover Trolley Trail, Heritage Rail Trail County Park – York County Rail Trail Authority

Hybrid Partnership

The strength of a partnership is that costs can be shared to lighten the burden to a municipality. Splitting the costs of maintenance and operation can stretch limited public resources. A public-private partnership may be used to offset operational costs of trail ownership. In this arrangement, volunteers may be used for basic maintenance needs

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such as litter cleanup and vegetation control. This would save either Tredyffrin Township or Chester County some maintenance costs. However, some quality control would be lost. Additionally, more significant repairs would require a skilled labor force. Liability and insurance would still be the responsibility of the governmental entity that retains ownership of the trail.

Example:

- Pickering Creek Trail – Charlestown Township / volunteers
- First Avenue Linear Park – Upper Merion Township / King of Prussia District

Maintenance and Operations Costs

The master plan identifies the feasibility of converting the former Warner Spur rail line in Tredyffrin Township into multi-use trail. The typical trail design assumed for the Warner Spur Trail in this study is 10-foot wide, paved surface with an approximately two-foot wide clear grass shoulder. In some areas the paved trail width would be required to be reduced to an eight-foot wide trail due to geometric constraints. This design must be considered when determining potential maintenance costs.

Another contributing factor to maintenance and operational costs is construction funding sources and ownership of the trail. Some grant funding sources for construction will require the trail to be operational at all times of the year. This means costs associated with clearing snow and ice must be accounted for. Costs associated with patrolling may vary widely from one agency to the next.

Along with typical regular maintenance, occasional repairs requiring a skilled labor force (repaving, fence mending, etc.) are inevitable. These items need to be accounted for in maintenance budgets. While larger items, like bridge repairs, may require separate capital programming.

In 2017, Chester County spent approximately \$16,000 per mile to maintain the Chester Valley Trail. However, the CVT is fairly complex to



Muddy River Bikepath during Winter (Boston, MA)

Photo Credit: Jessica Mink, Masspaths.net

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maintain due to the number of bridges, culverts, and signalized trail crossings. These costs also include plowing and salting in the winter and maintenance staff benefits and salary.

The Rails to Trails Conservancy (RTC) prepared a document titled Maintenance Practices and Costs of Rail-Trails. The study, completed in 2015, surveyed 200 trail managers from across the country to determine the average costs of maintenance activities. It identified various aspects that typically contribute to maintenance costs. These are included in the table below.

Maintenance Considerations

Item	Percentage of Budget
Surface clearing of trail (includes sweeping, snow/ice removal)	10.8%
Vegetation management & mowing	30.9%
Litter clean-up & trash/debris removal	14.2%
Clearing of drainage channels and culverts	5.4%
Surface maintenance of parking areas	2.7%
Maintenance of toilets at trailheads	13.0%
Maintenance of toilets along the trail	1.2%
Trailhead parking snow removal	1.1%
Repair/maintenance of signs	6.3%
Recovery from illegal acts of vandalism/dumping	5.3%
Other maintenance activities (includes signal maintenance, bridge inspections, fence mending, and patrolling)	9.1%

Source: Rails to Trails Conservancy

For the purpose of the Warner Spur Trail, some categories have been eliminated from the list. Taking into account all of the categories from RTC's study, they determined that the national average estimated cost for yearly maintenance of an asphalt surfaced trail to be approximately \$2,000 per mile. Accounting for the eliminated categories and multiplying by 1.95 (the approximate length of the trail), estimated yearly maintenance costs for Warner Spur Trail maintenance would be approximately \$3,200 pursuant to the RTC data.

While the Warner Spur Trail will have some significant structures to maintain (existing and new bridges and culverts), it is not nearly as complex as the Chester Valley Trail. However, the estimate derived from the RTC study is unreasonably low due to the economics of this region. A more reasonable annual maintenance budget for the Warner Spur Trail may be \$6,000 - \$8,000 per mile. This would be equal to approximately \$11,700 - \$15,600 per year for the full length of the trail.

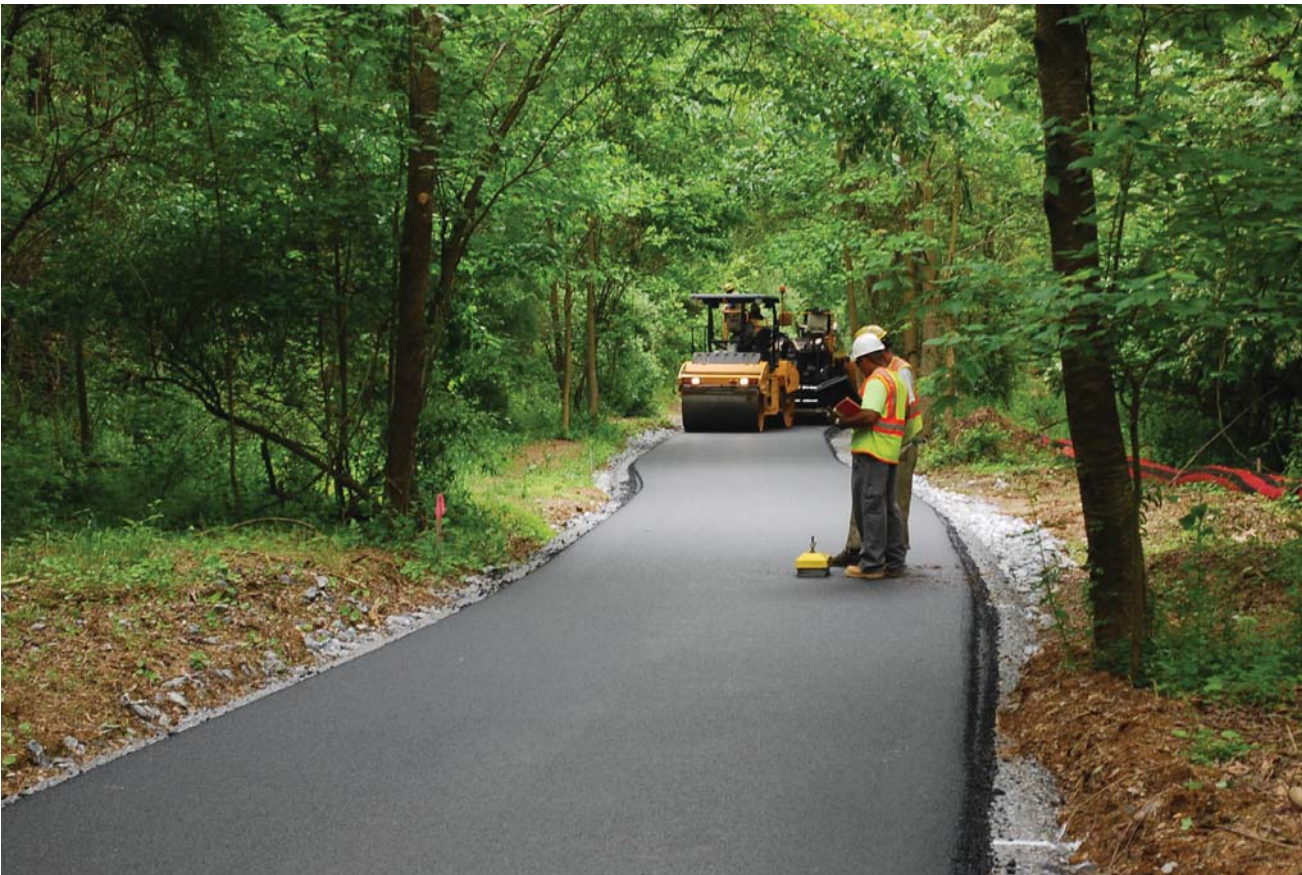
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Funding Opportunities

Identification of funding is a critical action to advance the Warner Spur Trail into design and construction. Numerous public funding sources are available for trail projects at the federal, state, regional, and county levels. These sources would be appropriate and applicable to implementing the Warner Spur. It will require a commitment of time and resources to advance the Warner Spur Trail. Funding will be needed for design and construction, and grant funding programs often require local matching funds.

The table on the following page lists competitive grant programs for which the Warner Spur would be eligible. Each program has unique eligibility, matching, and timeline requirements; all of which should be taken into account when seeking funding for the Warner Spur.

Funding for multiple segments of the Warner Spur Trail may be pursued and advanced simultaneously. Implementation of these projects will require the commitment and continued coordination between Tredyffrin Township, Chester County, volunteers, the community, and other project partners.



Construction of the East Branch Brandywine Trail

Photo Credit: Chester County Planning Commission

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Appropriate Grant Funding Programs for Multi-Use Trails

Program	Program Details
<p>Greenways, Trails and recreation Program (GTRP)</p> <ul style="list-style-type: none"> - Commonwealth Financing Authority (CFA) with DCED & DCNR 	<ul style="list-style-type: none"> - Annual competitive grant program for state funds (Act 13) - 15% match; \$250,000 maximum - 2 - 3 year timeframe to complete the grant funded activities
<p>Community Conservation Partnerships Program (C2P2)</p> <ul style="list-style-type: none"> - DCNR 	<ul style="list-style-type: none"> - Annual competitive grant program - Various federal and state funds - 50% match
<p>Chester County Open Space – Municipal Grants Program</p> <ul style="list-style-type: none"> - Chester County Open Space Preservation 	<ul style="list-style-type: none"> - Annual competitive grant program for County funds - 50% match; \$100,000 to \$250,000 maximum for development grants - 3 year timeframe to complete the grant funded activities
<p>PECO Green Region Program</p> <ul style="list-style-type: none"> - Natural Lands Trust 	<ul style="list-style-type: none"> - Annual competitive grant program for private funds - 50% match; \$10,000 maximum - 18 month timeframe to complete the grant funded activities
<p>Transportation Alternatives Set Aside</p> <ul style="list-style-type: none"> - PennDOT - Delaware Valley Regional Planning Commission (DVRPC) 	<ul style="list-style-type: none"> - Federal transportation funds - Match requires funding all pre-construction activities - \$50,000 minimum and \$1 million maximum - 2 year timeframe to complete design, right-of-way, and utility clearance
<p>Congestion Mitigation and Air Quality (CMAQ)</p> <ul style="list-style-type: none"> - Delaware Valley Regional Planning Commission (DVRPC) 	<ul style="list-style-type: none"> - Federal transportation funds - Match requires funding all pre-construction activities
<p>CFA/DCED – Multimodal Transportation Fund (MTF)</p> <ul style="list-style-type: none"> - Commonwealth Financing Authority (CFA) 	<ul style="list-style-type: none"> - Annual competitive grant program for state funds (Act 89) - 30% match; \$100,000 minimum; \$3 million maximum - 2 – 3 year timeframe to complete the grant funded activities
<p>PennDOT – Multimodal Transportation Fund (MTF)</p> <ul style="list-style-type: none"> - PennDOT 	<ul style="list-style-type: none"> - Annual competitive grant program for state funds (Act 89) - 30% match (based on grant award); \$100,000 minimum; \$3 million maximum - 3 year timeframe for grant funded activities

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Next Steps

Before identifying construction funding sources and applying for grant funding, the critical next step is to determine ownership and management responsibilities for the Warner Spur. It should be noted that Tredyffrin Township plays a vital role as the current owner of the corridor. However, management and operations may be better shared with another entity.

The graphic below illustrates the next steps to implement the Warner Spur Trail.

