



Darby Creek Trail Feasibility Study

Haverford Township
Delaware County, PA

Darby Creek Trail Feasibility Study

2018



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Chapter 1

Executive Summary

In 2013, Haverford Township constructed the first phase of the Darby Creek Trail, a paved off-street multi-modal trail along Darby Creek, that has long been envisioned a key segment of a local and regional trail network. The segment constructed was the 1-mile long “center” portion of a longer planned trail, connecting to the Merry Place public park. The intention is for the trail to extend both north and south from this center segment, to connect from Haverford Reserve at the northern end to the municipal border with Upper Darby at the southern end, a total of approximately 3.0 miles. The implementation of these planned new segments will be challenging. The center segment was constructed entirely on Township property, with no major physical obstacles along its route. In contrast, the right-of-way for the proposed north and south segments has not been established, and a continuous route across Township property is not currently available. Technical challenges must also be faced. The new trail segments must cross active roadways at multiple locations, as well as stream tributaries and possibly Darby Creek itself.

With these factors in mind, Haverford Township has prepared this Darby Creek Trail Feasibility Study to determine the most practical alignment for the new trail segments, along with expected costs, design guidelines, and steps necessary for implementation. The prospect of extending the trail represents a valuable opportunity to utilize existing Township land along Darby Creek, connect existing recreation resources with an off-road trail, and link to the planned regional trail system. The study is funded in part by a grant from the Pennsylvania Department of Conservation and Natural Resources (DCNR).



The existing center section of the Darby Creek Trail is a popular recreation resource in the Township. This feasibility study investigates the potential to extend this trail north and south in both directions.

Project Area

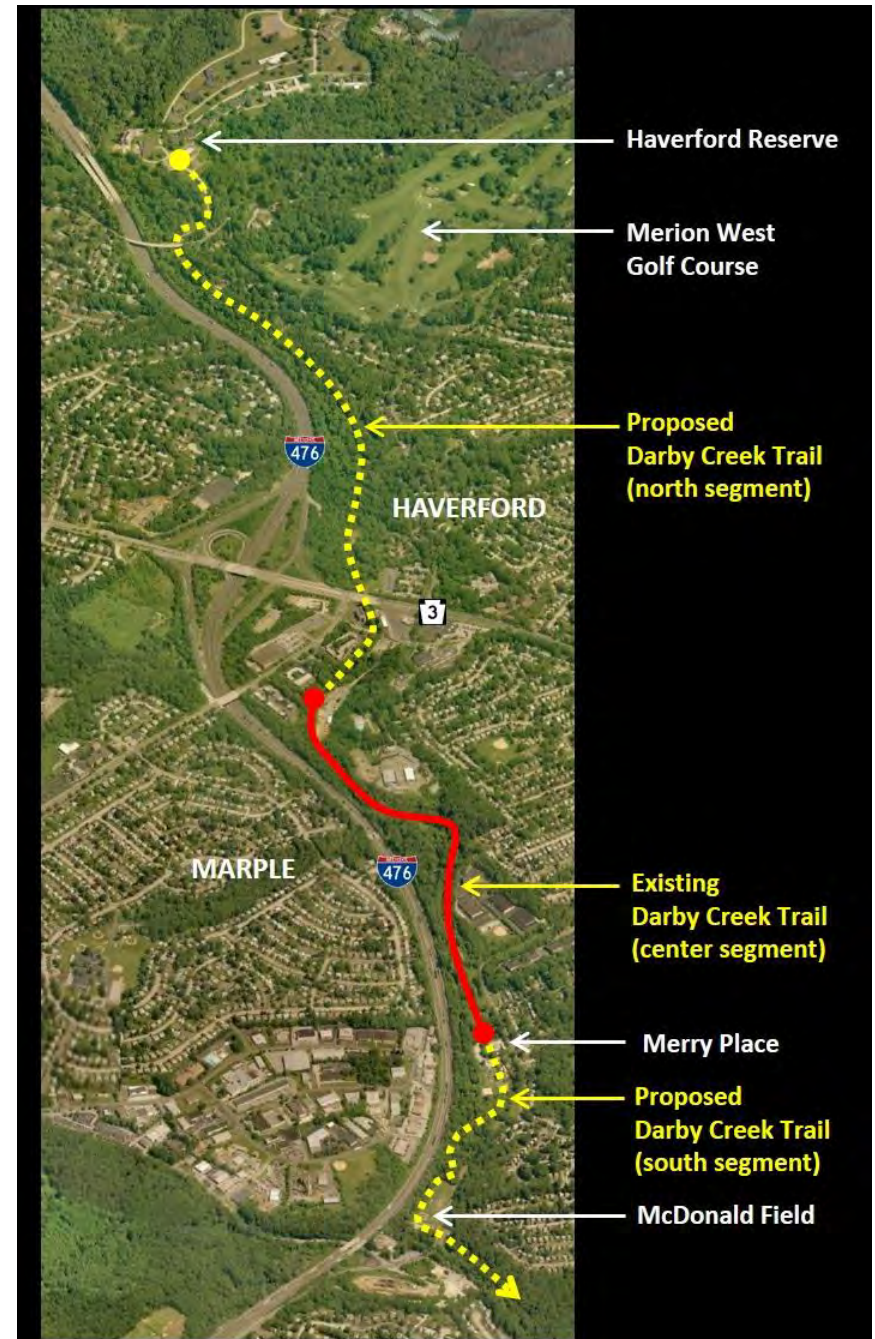
The project area for this Study is the Darby Creek corridor between the Haverford Reserve and the municipal boundary with Upper Darby Township. The goal is for the new trail to have a primarily off-road alignment, and to be located in close proximity to the creek, to take advantage of the natural scenery relatively unobstructed. The proposed route connects several existing public parks and open space areas, including McDonald Park, Merry Place, and the 169-acre Haverford Reserve, which can serve as an endpoint attraction. Also, the Township owns the undeveloped open space property alongside the creek north of West Chester Pike, which is a naturalistic setting.

Stakeholder Involvement

This Study was developed through extensive outreach and dialogue with a wide range of interested stakeholders, including local public officials, local institutions, adjacent property owners, and the general public. The study was conducted over a 14-month period from October 2016 through December 2017. Community outreach took place on several levels. A Study Committee was established to review and guide the progress of the study. Additionally, numerous other meetings took place with individual agencies, planning officials, local institutions, and property owners, to seek input and gauge response. Public meetings were held on two occasions, June 2017 and December 2017 to review the design alternatives and solicit feedback.

Trail Planning Context

The idea for a recreational trail along the Darby Creek has been around for decades. As early as 1988, the Haverford Township Comprehensive Plan recommended a “greenbelt system” along Darby Creek. Similarly, planning for trails at the regional level has always included the Darby Creek Trail as a high-priority regional trail spine. Delaware County has identified the Darby Creek Trail as one of 25 potential “Primary Trails” intended to serve as the main spokes in a future countywide network of trails. At the regional level, the Darby Creek Trail is identified on the official map of high-priority potential trails published by The Circuit Coalition trail planning organization. This important designation enhances the eligibility of the Darby Creek Trail for grant funding allocations. This study is therefore consistent with and an extension of these and other earlier planning efforts.



Recommended Trail Alignment

South Extension

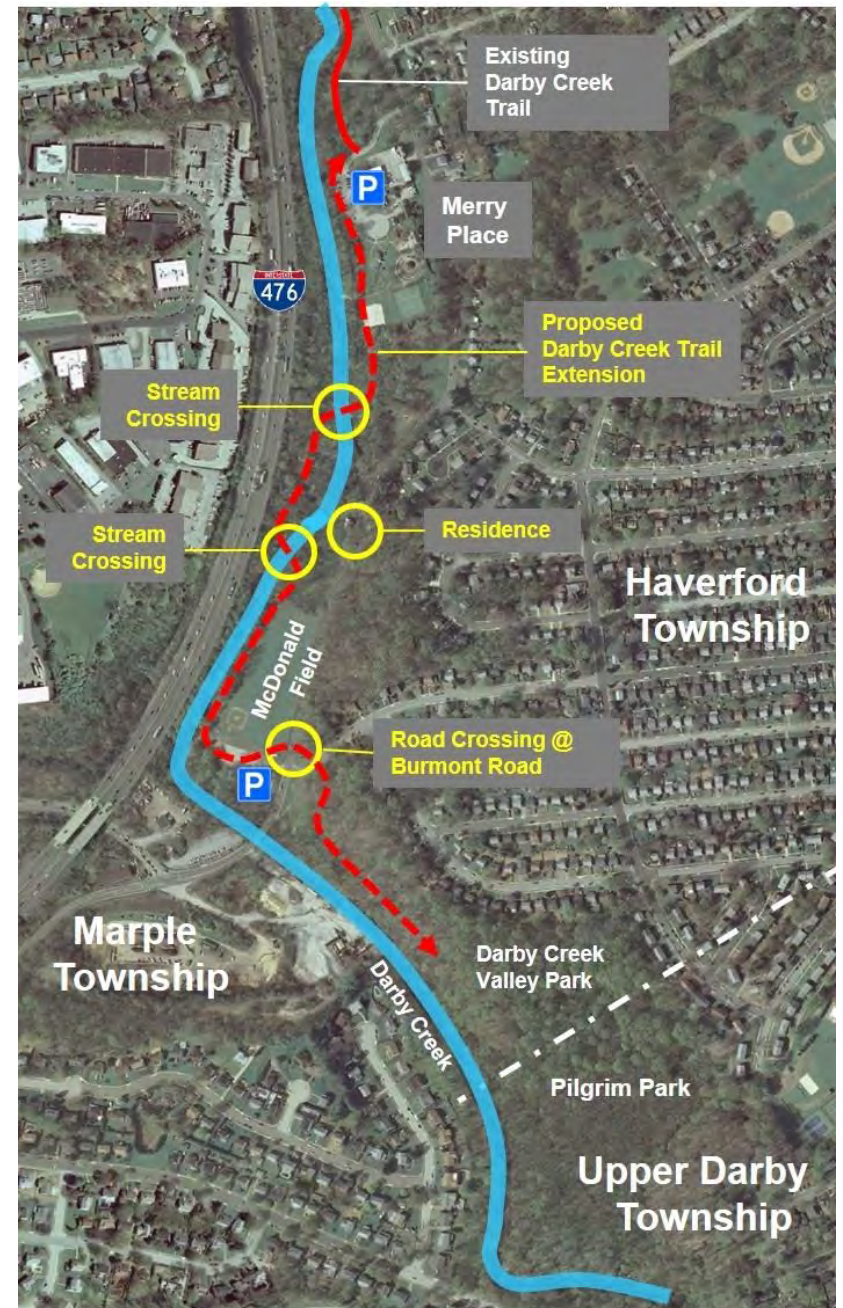
The southern end of the existing Darby Creek Trail terminates at the Merry Place Township Park. This serves as an ideal trail head, as it offers parking and other recreation amenities such as a children’s playground and new skatepark. The current trail can be extended through the west edge of the park along the creek, which is relatively flat and free from barriers.

Progressing further to the south, the creek bends sharply and runs fairly close to Burmont Road. At this narrow point there is a private residence that occupies the space between the trail and road. The Township has determined that it will not be possible to route the trail across this property. Therefore, the recommendation is to cross over the creek to avoid the residence. The area on the west side of the creek is Marple Township, and the land the trail would cross is owned by PennDOT. (An easement from PennDOT will be required.) The trail would travel only a few hundred yards, then cross over the creek again, back to the Haverford side and onto Township property.

Once back in Haverford, the trail can connect to the Jack McDonald Memorial Field. There is a parking lot at the south end of the field which could serve as a valuable trail head entrance point for the trail. Potentially, this lot could be improved to function as a welcoming entrance point for the trail. From this point south, the trail will follow the eastern edge of the creek and connect with a planned future trail segment through Upper Darby Township. To accomplish this the trail must cross Burmont Road. A new pedestrian crossing will be needed at the intersection of Burmont Road and Warrior Drive. While vehicular traffic would not be required to stop, the crossing can be clearly indicated through use of signs, pavement markings, and flashing warning lights. Marked crossings such as this can be designed in a fashion acceptable to PennDOT, and have proven at other trail locations to be workable solutions. As trails proliferate in the region, they are becoming more common and familiar to motorists.

North Extension

The northern extension of the Darby Creek Trail is planned to begin at the existing trail head near the bus parking facility, cross beneath West Chester Pike, and run along the creek to the Haverford Reserve park, for a total distance of approximately 1.5 miles. The route presents significant challenges. However, there are significant rewards as well, in connecting public trail to the extensive trail network and community recreation opportunities available at the reserve, and with the undeveloped linear open space owned by the Township along Darby Creek. The route also creates opportunities to connect to retail activity along West Chester Pike, and with additional recreation resources further south along the planned trail.



Proposed route for the South Extension of the Darby Creek Trail.

From the existing trail head, the proposed trail can run north along the west edge of the driveway. From here, the trail is expected to run through an existing parking lot owned by Child Guidance Resource Center (an easement will be required). From here, the aim is for the trail to utilize an existing underpass where Darby Creek crosses beneath West Chester pike (Route 3). There are two apparent options for the trail to reach the underpass: (a) along the edge of the creek behind the Car Wash, or (b) through the parking lot of Barnaby's restaurant. Neither option is ideal, and either would require an easement. The Barnaby's parking lot is a preferred option, which could be established by clearly visible pavement markings. While pedestrian and bicycles would occupy the same space as vehicles, this is a reality common to all parking lots.

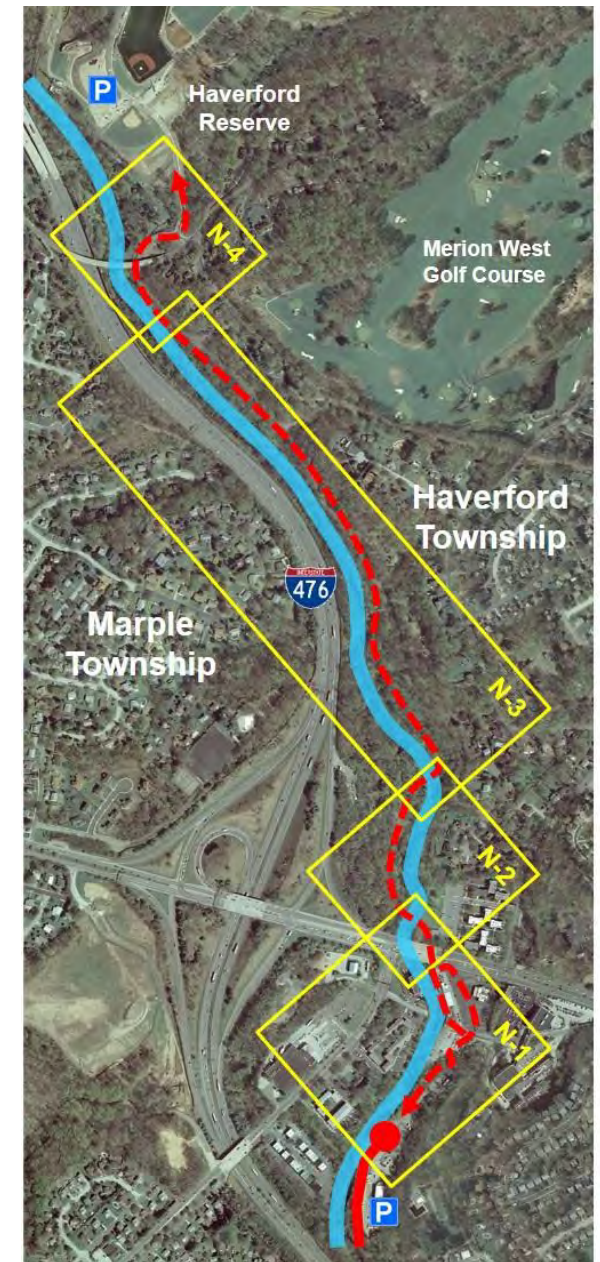
For the trail to cross beneath Route 3, several technical challenges must be addressed. A retaining wall will be necessary behind the car wash alongside embankment of the roadway above. And a ramp will be needed for the trail to make the descent from the parking lot to the underpass which is approximately 10 feet lower. Significant design engineering will be needed to devise a workable solution.

Once the trail reaches the underpass below the roadway, the route is considerably easier. The underpass opens up north of Route 3 onto a level lawn area behind the Waterview Apartments. (An easement will be needed from the property owner.) The trail can serve as a valuable amenity with easy access for apartment residents. Views and access to the creek can also be opened up, allowing trail users to appreciate the water up close.

North of the apartments, four private residential properties occupy the area between the creek and the adjacent streets. It is uncertain at this time if property easements will be granted by these owners for the trail. To circumvent these residences, the alternative is for the trail to cross the creek to the Marple Township side. As is the case for the southern trail extension, the property on the Marple side is owned by PennDOT. The trail could cross back onto the Haverford side of the creek once it passes beyond the residences.

From this point, stretching north for nearly a mile, the trail can be located on township property that lies between the creek and Darby Creek Road. Known as "Darby Creek Valley Park," this property is undeveloped, and is well-suited for use as passive park space. An easement for the Sewer Authority runs the length of the area, and a mown pathway is currently maintained. While no physical improvements have been made to the property, it is used informally by residents as a place for hiking, and to access creek for fishing and passive enjoyment.

The final segment of the proposed trail extension will connect the natural landscape along the creek with the recreation and community facilities located at Haverford Reserve. To make this connection, a short on-street trail segment is necessary along Darby Creek Road where it curves to meet Marple Road. To safely accommodate the trail, it is recommended that the outside shoulder be widened to allow for a dedicated 10 foot wide trail to and 4-foot buffer. This will require shifting the entire roadway approximately 6-feet toward the inside of the curve.



Proposed route for the North Extension of the Darby Creek Trail.

Implementation

Haverford Township is expected to be the lead entity responsible for design and construction. While the Trail may connect to neighboring municipalities and the broader region, within Haverford Township it will function as a local recreational resource. The Township has the institutional capacity and expertise to build capital improvements. For these reasons, the Township should expect to take ownership of those trail segments within its boundaries, and accept the consequential maintenance responsibility.

Within the municipal administrative structure, roles and responsibilities should be clearly defined and assigned so that specific actions can be carried out effectively. It is expected that the municipal personnel and appropriate boards and committees will all have roles in advancing the objectives of the Plan.

Right-of-Way Acquisition

The proposed trail extensions involve multiple individual segments to create linkages that are primarily off-road. While the majority of the trail length will be on public land in existing parks and open spaces, several others must cross private properties that are not within municipal control. To build these trail segments, it will be necessary to acquire rights-of-way (most likely in the form of easements) to allow access across a number of private properties. The Township is optimistic for receiving easements across four commercial and/or institutional properties along the creek to either side of West Chester Pike. In addition, there are several residential properties along what otherwise would be the ideal trail route. The alternative route to go around these properties would involve crossing Darby Creek at considerable expense. Dialogue between the Township and these property owners is ongoing.

Expected Construction Cost

For the alignment proposed in this study, the expected construction cost is roughly between \$5-6 million. However, as the design is at a conceptual level, this is an order-of-magnitude estimate. These costs are preliminary and are based on only a general understanding of specific site constraints and design solutions that will ultimately be necessary to construct the trail.

Source of Funding

Potential opportunities for capital funding to construct the Darby Creek Trail Extension include federal, state, and local grants. Each has specific requirements, and is subject to certain limitations. These grant programs are almost universally competitive, and are awarded based on the merits of individual proposed projects and on the quality of grant application submissions. It is the expectation that all or most of the expense of constructing the greenway will be provided through these grant programs, and that little of the cost will be borne by the local municipal budget.



Expected Benefits

The extension of the Darby Creek Trail is expected to have a positive impact on the community, by providing not only recreational and transportation opportunities, but also by influencing economic and community development. It is no wonder the construction of trails has become a high-priority activity in communities across the country. The positive impact of trails and greenways is nearly always a boost to a community's economic, environmental, and social health. The expected benefits of the Darby Creek Trail are similar to those found for trails in general locally and across the country.

- **Recreation Benefit:** The trail will create a new recreational opportunity for local residents and visitors, by providing a means for a longer-distance journey. The route of the expanded Darby Creek Trail will be approximately 3 miles long. Additional recreation options will be enhanced by allowing for further future linkages into Upper Darby and Marple Townships, as well as connecting to existing trails available at the Haverford Reserve.
- **Health Benefits:** The expanded availability of new recreational activities will result in a direct public health benefit to the community by providing safe, attractive and convenient opportunities to integrate exercise into one's lifestyle.
- **Transportation Benefits:** The trail can function as a viable transportation corridor. Ultimately, the Darby Creek Trail is intended to extend further in each direction, and from there to the extensive East Coast Greenway system, which connects to numerous trails throughout our region.
- **Environmental Benefits:** As tools for ecology and conservation, trails help preserve important natural landscapes, and provide needed links between fragmented animal and plant habitats. The Darby Creek Trail will improve public access to numerous natural areas along the creek.
- **Economic Benefits:** The economic effects of trails and greenways are proven to raise property values and increase the attractiveness of a community to new residents and businesses.
- **Social Benefits:** It is very common for trails to become sources of community identity and pride, and increase opportunities for social interaction.



Chapter 2

Project Background

In 2013, Haverford Township constructed the first phase of the Darby Creek Trail, a paved off-street multi-modal trail along Darby Creek, that has long been envisioned a key segment of a local and regional trail network. The segment constructed was the 1-mile long “center” portion of a longer planned trail, connecting to the Merry Place public park. The intention is for the trail to extend both north and south from this center segment, to connect from Haverford Reserve at the northern end to the municipal border with Upper Darby at the southern end, a total of approximately 3.0 miles. The implementation of these planned new segments will be challenging. The center segment was constructed entirely on Township property, with no major physical obstacles along its route. In contrast, the right-of-way for the proposed north and south segments has not been established, and a continuous route across Township property is not available. Technical challenges must also be faced. The new trail segments must cross active roadways at multiple locations, as well as stream tributaries and possibly Darby Creek itself.

Planning for a high-quality local greenway trail in Haverford is representative of a broader effort to promote sustainable transportation infrastructure in our region and beyond. The last two decades have seen a proliferation of multi-use recreation trails in the United States. Throughout the country, trails and greenway corridors have become increasingly seen as highly valued public amenities, providing opportunities for recreation, environmental education, transportation, and physical linkages between destinations.

With these factors in mind, Haverford Township has prepared this Darby Creek Trail Feasibility Study to determine the most practical alignment for the new trail segments, along with expected costs, design guidelines, and steps necessary for implementation. The study is funded in part by a grant from the Pennsylvania Department of Conservation and Natural Resources (DCNR).

This feasibility study should be considered a starting point in understanding the possibilities and challenges in expanding the trail. This study identifies realistic options, but does not represent final decisions. Further detailed investigation and analysis will be needed in order to refine these options and shape the final location and form of the proposed expanded trail segments.



The existing center section of the Darby Creek Trail is a popular recreation resource in the Township. This feasibility study investigates the potential to extend this trail north and south in both directions.

Project Area

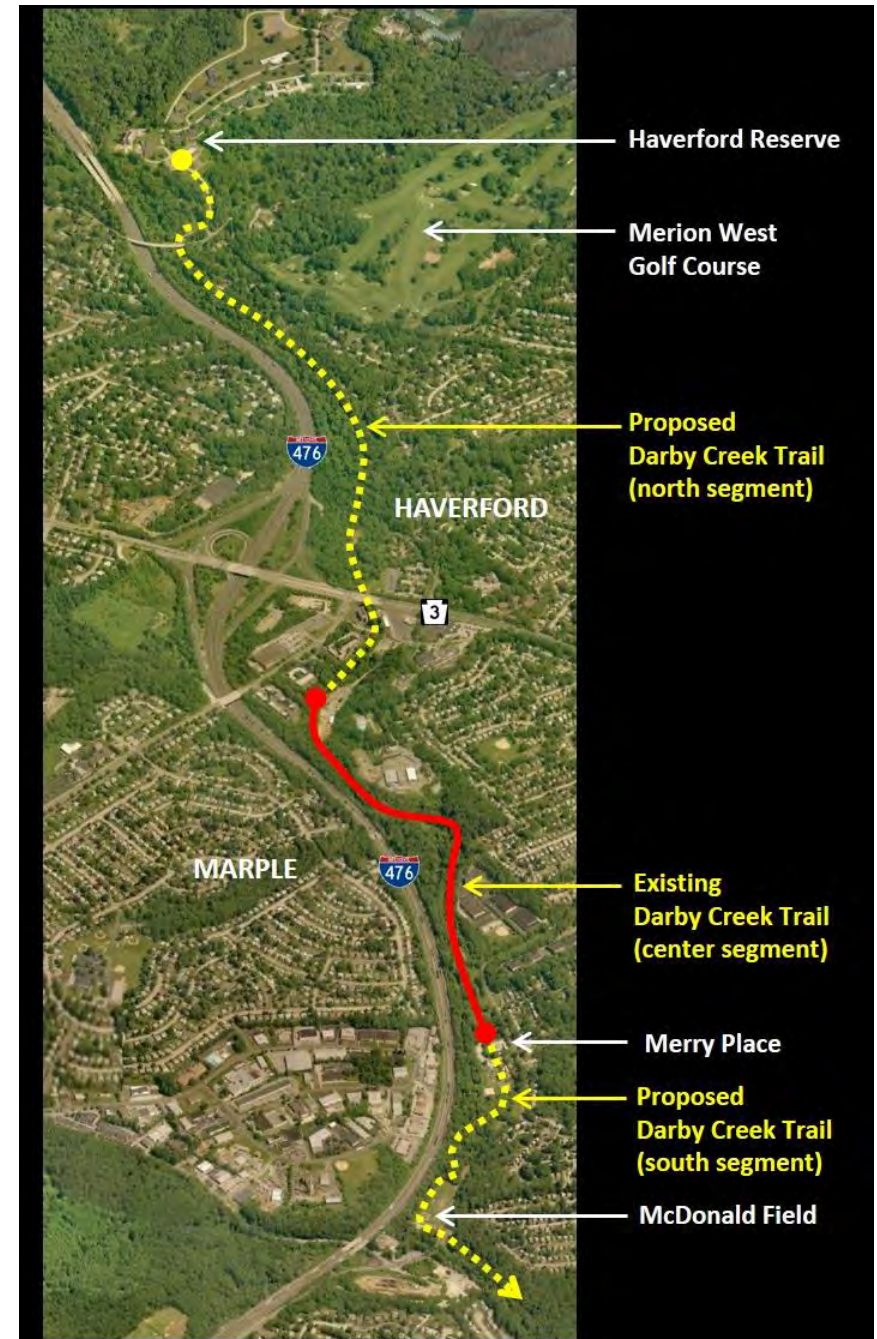
The project area for this Study is the general Darby Creek corridor between the Haverford Reserve and the municipal boundary with Upper Darby Township. The creek lies along the western edge of Haverford Township, and generally forms the boundary with Marple Township. The goal is for the new trail to have a primarily off-road alignment, and to be located in close proximity to the creek, to take advantage of the natural scenery relatively unobstructed.

The proposed route connects several existing public parks and open space areas, including McDonald Park, Merry Place, and the 169-acre Haverford Reserve, which can serve as an endpoint attraction. Also, the Township owns the undeveloped open space property alongside the creek north of West Chester Pike, known as Darby Creek Valley Park, which is a naturalistic setting.

The elevated roadway of Interstate 746 (the Blue Route) forms a dominant edge along the west side of Darby Creek. The heavily congested West Chester Pike (Route 3) bisects the project area, and is a formidable obstacle to pedestrian and bicycle traffic.



The existing center segment of the trail was completed in 2013.



Purpose and Goals of This Study

The essential goal of this study is to investigate the feasibility to extend an existing paved pedestrian/bicycle trail along the western edge of Haverford Township along the Darby Creek. This trail is seen as a valuable recreational amenity for local residents, and as part of the overall implementation strategy for the expansion of the trail and greenway network in Delaware County and throughout the region.

Specific objectives of the Study are as follows:

1. Identify alternative alignments for the greenway;
2. Identify property ownership along the proposed route and assess the steps necessary to establish public rights-of-way;
3. Identify technical constraints to construction;
4. Identify potential connections and adjacent resources;
5. Describe public benefits of the greenway,
6. Establish design standards for the greenway;
7. Recommend an implementation strategy;
8. Provide order-of-magnitude cost estimates for implementation.

With these goals in mind, this Study is organized in the following chapters:

- **Chapter 1: Executive Summary**
Summary of the project goals, recommendations, and expected outcomes.
- **Chapter 2: Project Background**
Overall project goals, background, and planning context.
- **Chapter 3: Existing Resources**
Description of the local community and its social and physical characteristics, as well as existing recreation and open space resources.
- **Chapter 4: Recommended Trail Alignment**
Description of the potential options for trail alignment, including property ownership, technical challenges, and potential design features.
- **Chapter 5: Design Guidelines**
General design standards for the trail, as well as potential benefits and concerns.
- **Chapter 6: Implementation**
Action plan outlining a realistic approach to implement the trail, including costs, phasing, and responsible parties.



Throughout the region and the country, recreation trails have proven to be a key ingredient of sustainable transportation infrastructure.

Stakeholder Involvement

This Study was developed through extensive outreach and dialogue with a wide range of interested stakeholders, including local public officials, local institutions, adjacent property owners, and the general public. The study was conducted over a 14-month period from October 2016 through December 2017. Community outreach took place on several levels. An ad hoc Study Committee, comprised of key representatives of the Township and other relevant stakeholders, was established to review and guide the progress of the study. Formal meetings of the committee took place on four occasions between fall of 2016 and winter 2017. Study Committee members are noted in the Acknowledgements section at the beginning of this document.

Additionally, numerous other meetings took place with individual agencies, planning officials, local institutions, and property owners who could potentially be impacted by the greenway alignment, to seek input and gauge response. Public meetings were held on two occasions, June 2017 and December 2017 to present the design alternatives and solicit feedback.

The reactions of stakeholders to the plans presented in this study were generally positive. Overall, there appears to be widespread support for the Study's underlying goals and principles, including general agreement on the value of promoting local trails and connected open spaces. This corroborates with the findings of feedback solicited at other times in recent years, which confirmed that open space and recreational trails are among the greatest community needs and should be among the highest priorities.

Commercial, institutional, and public-sector property owners expressed an appreciation for the goal of increasing connectivity to the local community and in promoting access to alternatives modes of transportation such as walking and biking.

Residential stakeholders have a slightly different perspective. Residents are generally supportive of the ideals of trail planning, but those residents most directly impacted by the potential trail expressed legitimate concerns. The predominant concern was the proximity of proposed trails to residential properties, and the potential impact of public use on personal privacy and public safety. In several cases, access easements from residential property owners would be needed to allow the optimal route for the trail. Since the prospect of obtaining consent for these easements from residential owners is uncertain at this time, alternative options for the trail route were identified, and are described later in this report.

Going forward, the engagement of direct stakeholders and general public feedback will be important to continue as the design options for each segment become more refined and move toward actual design and construction.



Residents attended a public meeting in June 2017 at which initial findings of the Trail Study were presented.

Planning Context

The idea for a recreational trail along the Darby Creek has been around for decades. As early as 1988, the Haverford Township Comprehensive Plan recommended a “greenbelt system” along Darby Creek.

Similarly, planning for trails at the regional level has always included the Darby Creek Trail as a high-priority regional trail spine. This study is therefore consistent with and an extension of these earlier planning efforts. Related plans and policy documents include the following:

Local Haverford Township Planning

The Comprehensive Plan of Haverford Township (1988)

<http://www.haverfordtownship.org/topic/index.php?topicid=47&structureid=5>

As early as 1988, the Haverford Township Comprehensive Plan recommended completion of a “greenbelt system” along Darby Creek. It noted the obstacles still present today in acquiring continuous public right-of-way along the creek, and recommended the acquisition of easements. The plan noted the potential to develop “a nature trail for hiking and/or jogging” along the Darby Creek corridor.

Haverford Township Climate Action Plan (2008)

http://www.haverfordtownship.org/egov/docs/1239295902_125946.pdf

In 2008 the Township adopted strategies to help reduce both government and community emissions, save money, and ensure that the Township develops in a sustainable and just manner. Among these strategies is the goal to encourage more bicycle and pedestrian activity.



The 1988 Comprehensive Plan for Haverford Township identified the development of trails as an important objective. (color added for clarity)

Regional Trail Planning

Darby Creek Watershed River Conservation Plan (2005)

http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/D_001474.pdf

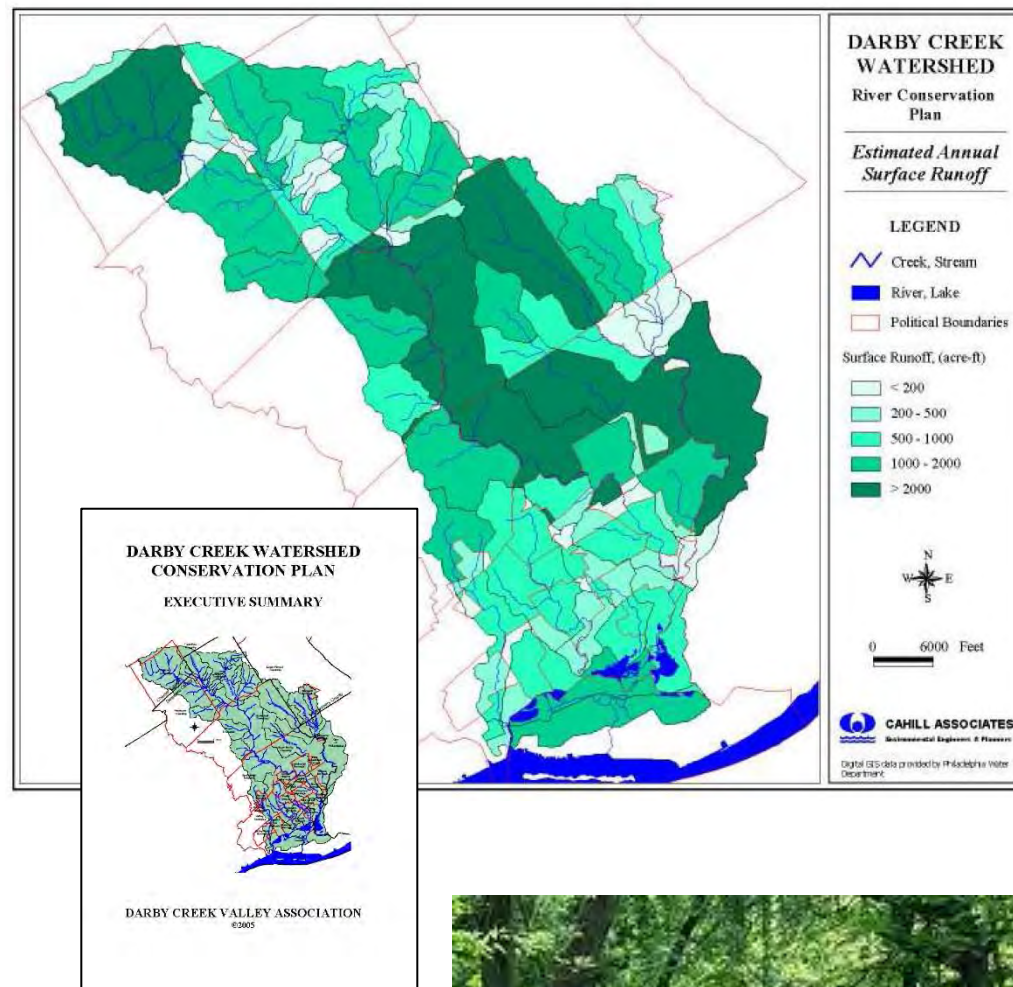
<http://www.dcva.org/River-Conservation-Plan>

In a 2005 report by The Darby Creek Valley Association, the importance of the preservation of the watershed is stated. Development and agricultural uses on the surrounding land have increased storm water runoff to Darby Creek, thus eroding the buffers along the creek. The natural characteristics of the area have not been sustained which has led to increased flooding in residential areas and a decrease in water quality due to large amounts of runoff. The report recommends establishing a Darby Creek Watershed Greenway which would ideally extend from the headwaters of Darby Creek and Cobbs Creek to the confluence of Darby Creek into the Delaware River. The recommendation of the report included converting the old Haverford State Hospital site to a park. This has since been done and is now Haverford Township Community Park (Haverford Reserve) which includes a network of walking trails. The report recommends that an ideal Darby Creek Watershed Greenway would mimic the Fairmount Park System in Philadelphia and would preferably include a series of trails connecting the larger parks. Open space preservation is not only beneficial for social and physical needs, but also ecologically important in restoring riparian buffers which would lead to less flooding of developed areas.

Darby Creek Stream Valley Park Master Plan (2009)

<http://www.co.delaware.pa.us/planning/pubs/DarbyCreekStreamValleyParkMasterPlan.pdf>

Prepared by the Delaware County Planning Department, the 2009 Darby Creek Stream Valley Park Master Plan is an update of an earlier 1987 Plan for a park along the Darby Creek corridor. The Plan focuses on an area downstream from Haverford, in areas including Upper Darby Township, Darby Borough, and Lansdowne. The master plan project area is from approximately Garrett Road in Upper Darby and follows Darby Creek to roughly where it crosses the SEPTA Norristown High Speed Line in Darby Borough. A roughly four-mile stretch of proposed trail, this would connect Upper Darby Township to more areas east including Yeadon Borough. This



Planning for the Darby Creek watershed has recommended that a trail be developed as part of an overall strategy for environmental conservation.

connection would create access to such trails as the East Coast Greenway, Cobbs Creek Trail, and the Valley Forge-Heinz Refuge Trail. At the northwest section of this proposed trail, park connections already exist. By connecting this proposed trail to Indian Rock Park, and further upstream to Pilgrim Park, connections to existing trails in both Pilgrim Park and Darby Creek Valley Park could be made.

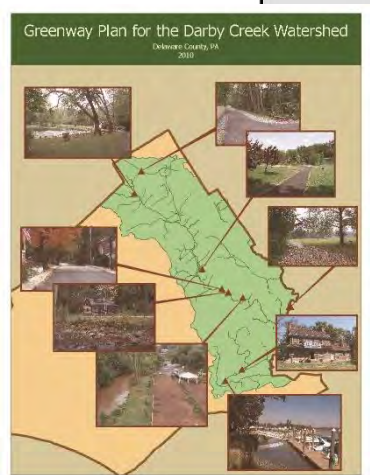
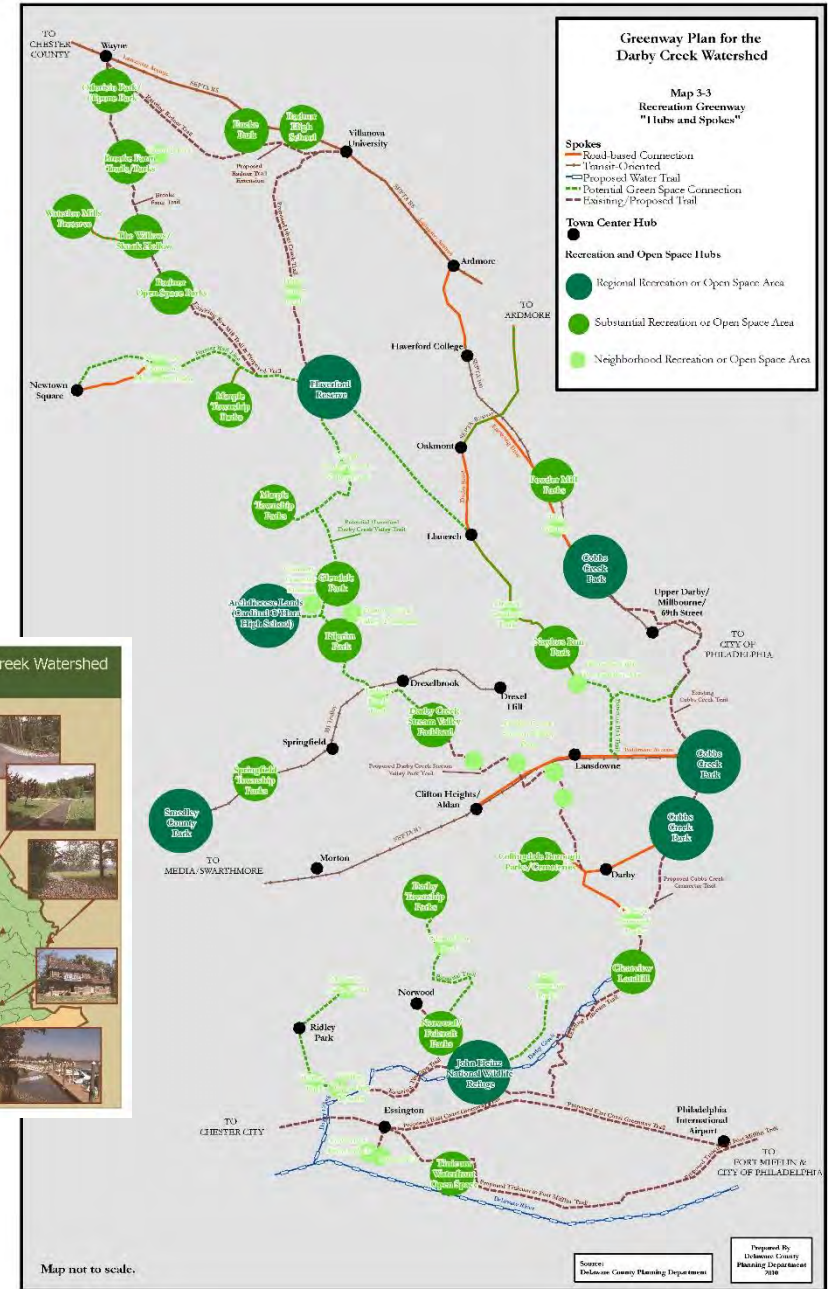


Greenway Plan for the Darby Creek Watershed (2010)

<http://www.co.delaware.pa.us/planning/pubs/GreenwayPlanForTheDarbyCreekWatershed.pdf>

In 2010, the Delaware County Planning Department prepared a comprehensive plan for a greenway within the Darby Creek Watershed. The plan seeks to conserve large areas of existing, unused land near Darby Creek and Cobbs Creek through native plant restoration and best management practices while preserving the rich history and culture of certain areas surrounding the creeks. The plan also seeks to connect these preserved areas via new greenway trails while incorporating existing utility rights-of-way and public transit routes.

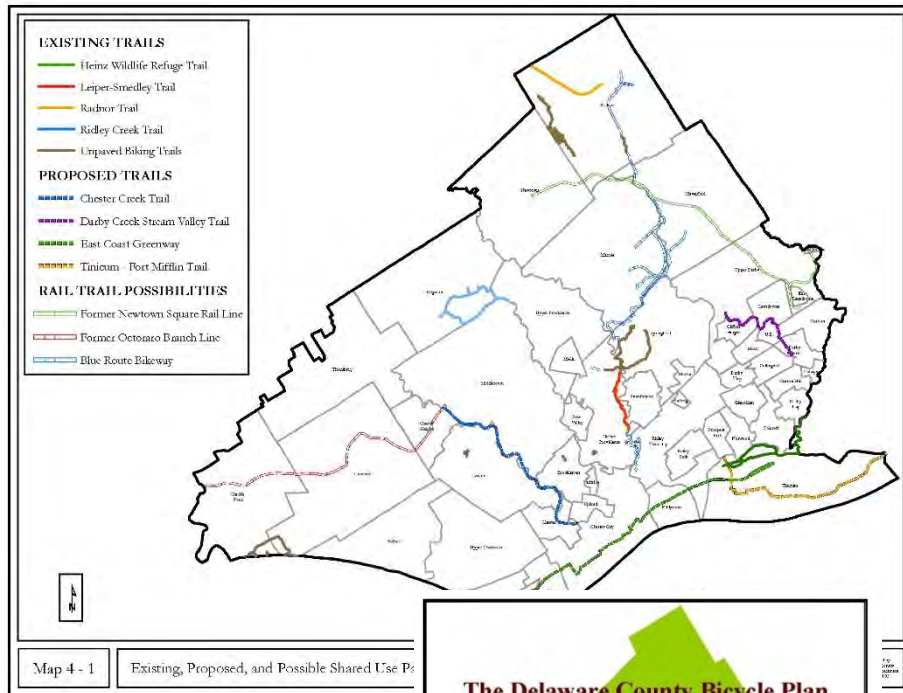
Through Haverford and Marple Townships the Greenway Plan proposes a corridor running north-south along Darby Creek. The completed Haverford Reserve is noted as a large hub which would be an important connection for the Greenway. The plan also suggests Glendale Avenue as a possible “road-based greenway trail” which would connect West Chester Pike to Burmont Road.



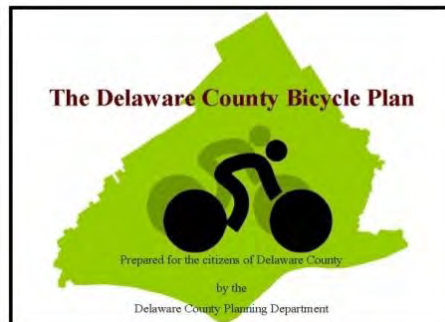
Delaware County Bicycle Plan (2009)

<http://www.co.delaware.pa.us/planning/pubs/bicycleplan.html>

The Delaware County Bicycle Plan was completed in 2009 by the Delaware County Planning Department in order to support and coordinate improvements to the safety and effectiveness of bicycle transportation in the County. While the Plan focuses heavily on on-street bike lanes, trails are recommended as potential opportunities to supplement on-road bicycle facilities. The Plan notes that the I-476 corridor is a potential opportunity for trail development, and that stream valleys in general are excellent opportunities for trails.



The Delaware County Bicycle Plan identified the potential "Blue Route Bikeway" as an important trail opportunity.



Delaware County Open Space, Recreation, and Greenway Plan (2015)
<http://www.co.delaware.pa.us/planning/pubs/delco2035/openspaceandrecreationplan.html>

In 2015, the Delaware County Planning Department prepared a county-wide Open Space, Recreation and Greenway Plan to address all facets of parks and recreation planning in the county including municipal, public and private land, and trails. Volume II of this plan represents the county's first true Greenway Plan. It identifies a county-wide primary trail network which connects recreational and cultural hubs via trails, as well as conservation greenways along stream corridors. In Haverford Township, the plan identifies the Darby Creek Trail as one of 25 "Primary Trails" intended to serve as the main spokes in the countywide network of trails. The county plan urges local municipalities to design and construct those primary trail segments that are within their boundaries.

The Circuit (2012)

<http://connectthecircuit.org/>

In 2012, a regional effort was formalized to coordinate trail building efforts and promote the concept of a regional trail network. A coalition was formed, which branded the Greater Philadelphia regional trails network “the Circuit.” When complete, the Circuit will be a regional network containing over 750 miles of bicycle and pedestrian trails. The Delaware County Planning Department is an agency partner of the Circuit Coalition, which also includes many non-profit and foundation partners. DVRPC’s Regional Trails Program, which was funded by the William Penn Foundation, used incorporation into and connection with the Circuit as a way to evaluate applications for trail funding in the region. Building the network and filling its gaps is the Coalition’s first priority. The Darby Creek Trail is identified on the official Circuit map as a potential segment of the regional trail network. This important designation enhances the eligibility of the Darby Creek Trail for grant funding allocations.

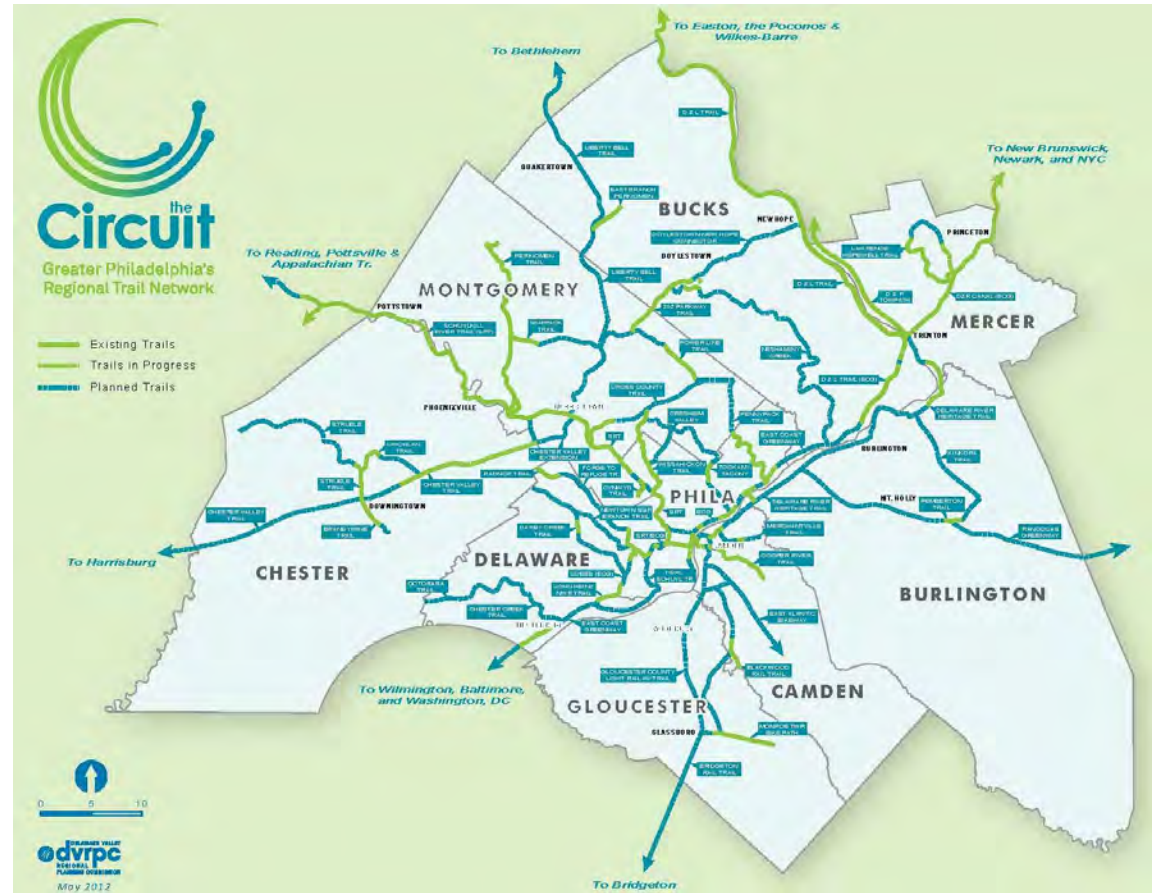
National Trail Planning

East Coast Greenway

<http://www.greenway.org/>

At the national level, ambitious efforts are underway to create a continuous bicycle trail along the entire east coast. The East Coast Greenway (ECG) is a planned 3,000-mile long recreational greenway linking Maine to Florida through some of the nation’s most densely urban spaces. Upon completion, the greenway will not only provide additional recreational opportunities for a large portion of the nation’s population; but will also have helped revitalize old abandoned waterfronts and urban residential areas.

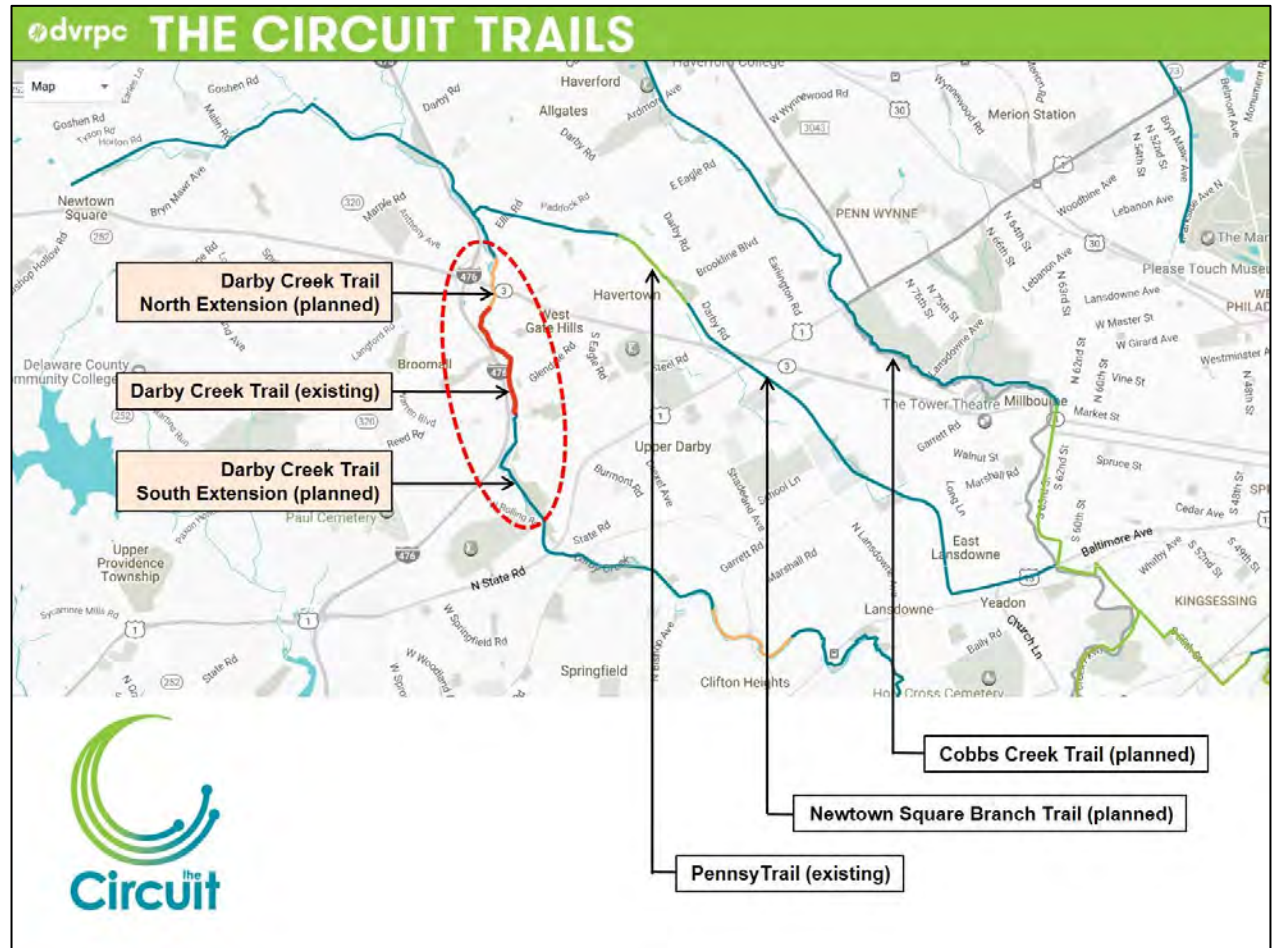
Despite its ambitious scope, more than 20% of this 3,000 mile long route has already been constructed, with new sections completed every year. In Pennsylvania, 31% of the 67-mile permanent route is currently constructed, and another 61% is in development.



The Circuit Coalition is an umbrella organization launched in 2012 to promote development of trails in the region.

In Delaware County, the proposed alignment of the East Coast Greenway would roughly follow the Delaware River waterfront through Ridley Township, Eddystone Borough, Chester City, and Marcus Hook. A trail along the Darby Creek could connect directly to the East Coast Greenway, as future phases extend the trail south through Upper Darby and toward the Delaware River.

Overall organization of Greenway planning is done by the East Coast Greenway Alliance, a non-profit organization with a central national staff along with volunteer committees in each state that spearhead and coordinate the trail-building effort. The Alliance does not own or directly manage any portion of the trail, but works primarily to ensure continuity and a consistent quality of route.



Above: The Darby Creek Trail is part of the planned regional trail network, as is intended to connect to the East Coast Greenway as that route travels along the Delaware River.

Left: Schuylkill River Trail in Philadelphia is a designated segment of the East Coast Greenway.

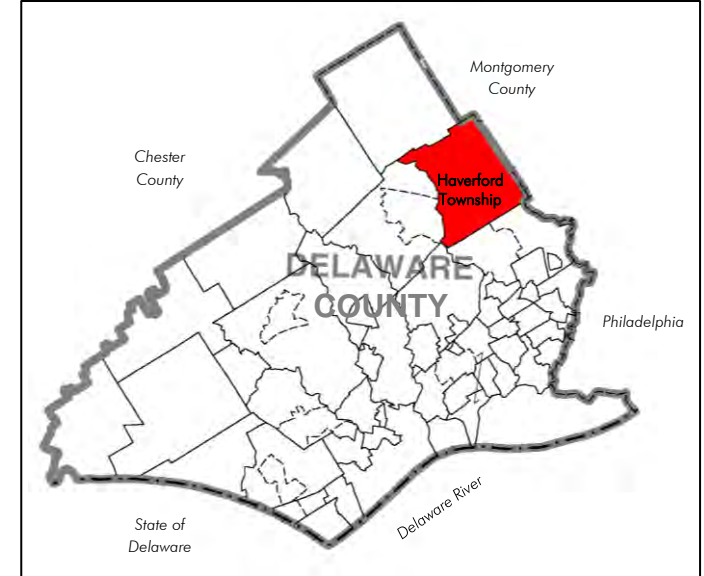
Chapter 3

Existing Township Resources

One important goal of this study is to develop a proposed trail design that will appeal to local residents and lead to a well-used recreational facility. The intent is for the trail to be compatible with nearby land uses and with the overall character of the landscape. Therefore it is important to understand the physical and social context of the local community.

Municipal Profile

Haverford Township is a densely developed suburb located just west of Philadelphia and at the eastern edge of Delaware County, Pennsylvania, and lies along what was known historically as the Main Line of Philadelphia. It contains portions of the unincorporated communities of Haverford, Ardmore, and Wynnewood, as well as the census-designated places of Bryn Mawr and Drexel Hill. The unincorporated community of Havertown lies wholly within Haverford Township. Marple Township lies immediately to the west, Upper Darby to the south, Radnor to the north, and Lower Merion (Montgomery County) to the east. Haverford is a first-class township as defined by the Pennsylvania Municipalities Planning Code.



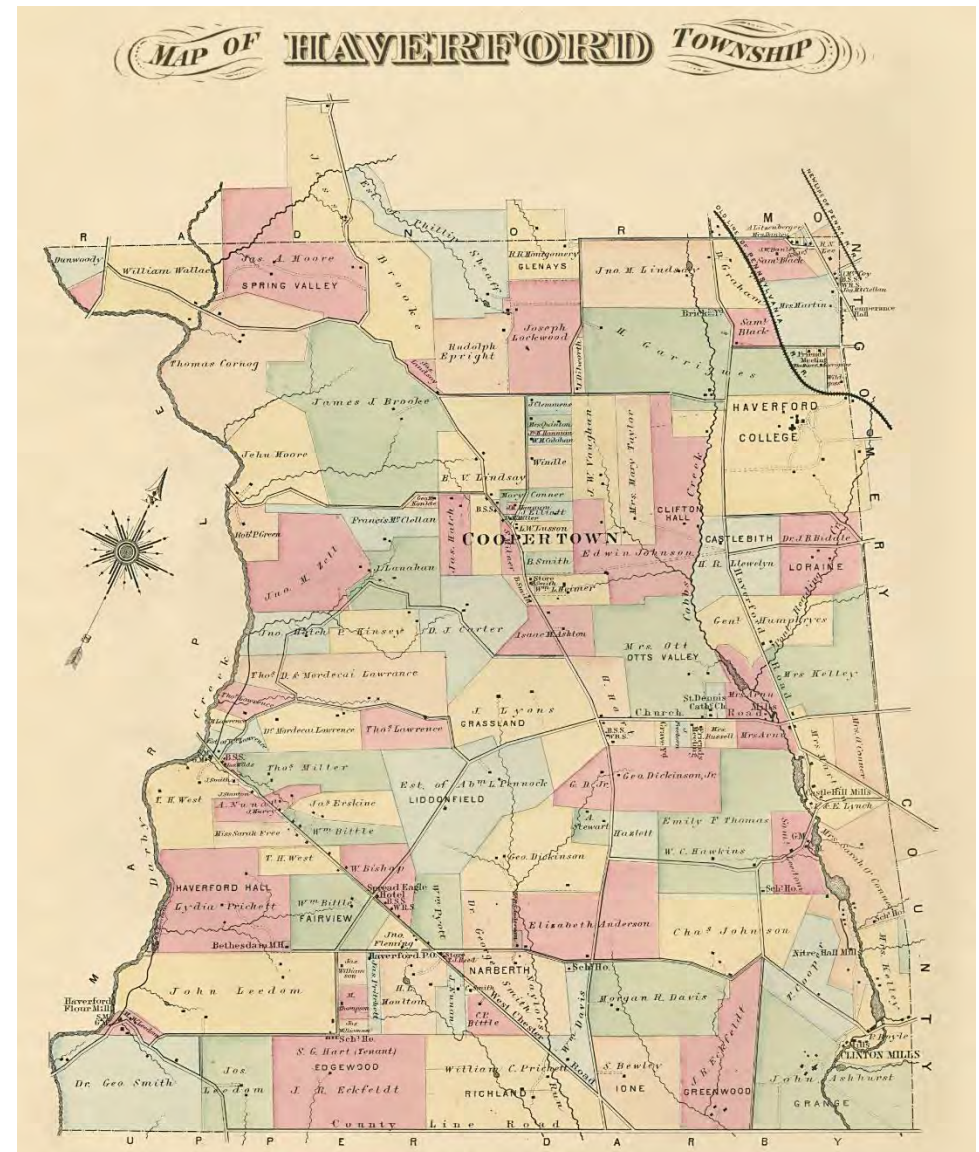
Settlement and History

Settled in 1682 by Welsh Quakers, Haverford was laid out as part of the Welsh Tract, a separate Welsh county negotiated upon with William Penn. The name Haverford is named after a place in Wales. Bordered by Darby Creek to the west and parts of Cobbs Creek to the east, Haverford was a rich agricultural area, having many mills along the creeks. Some of these mills operated into the 20th century. In 1833 the first railroad was constructed connecting Philadelphia to Paoli. Originally a commercial line, the railroad ran along Railroad Avenue in Haverford. In 1857 the rail line was purchased by Pennsylvania Railroad and converted to more of a commuter line. This line would be known as the Main Line, connecting Philadelphia to Harrisburg and Pittsburg. With this railroad line, as well as new trolley lines, Haverford saw its population nearly double between 1900 and 1925 as access to Philadelphia became easier allowing more people to commute to the city for work. As access to the city became easier, large swathes of farmland were purchased by wealthy families transforming Haverford into a more suburbanized area.



Above: Eagle Hotel, c.1907
(Source: Historical Archives of Delaware County)

Right: Map of Haverford Township, 1870
(Source: Historical Archives of Delaware County)



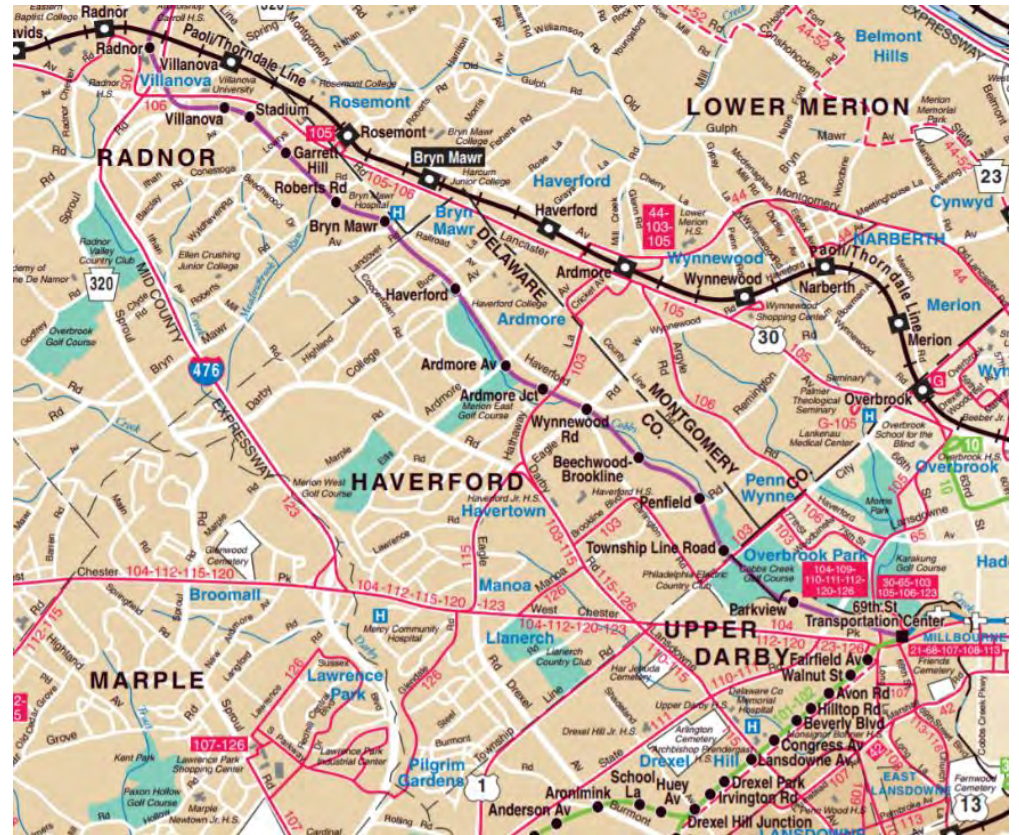
Demographics

According to the 2010 U.S. Census, Haverford has a population of 48,491. As a mark of a built-out and fully-developed community, the population has remained virtually unchanged over the past 20 years. In fact, trends toward smaller family size and increased dwelling size have caused the population to actually decrease, from a peak population of 56,873 in 1970. Some other notable facts concerning local demographics (based on 2010 census):

- Haverford is fairly affluent. Median household income is \$95, 896, compared to \$64,174 for Delaware County as a whole.
- Haverford is fairly educated. 55% of residents have a Bachelor’s degree or higher, compared to 35% for the County.
- The Township has a vibrant, family-oriented community. Of the 18,061 households in Haverford 33.3% are families with children under the age of 18.
- The Township is racially homogenous. 94% of residents are white, compared to 71% for the county.

Transportation Infrastructure

Given its historical development as a commuter suburb of Philadelphia, it is no surprise that the township is well-connected to the regional transportation network. Interstate 476 runs adjacent to Darby Creek just west of Haverford, in Marple Township. This major artery connects to Interstate 76 to the north and Interstate 95 to the south, near the Philadelphia International Airport. West Chester Pike (PA Route 3) runs west to east directly through Haverford, from West Chester to 69th Street Station in Upper Darby where it becomes Market Street. There are several public transportation options in Haverford. Historically, the Pennsylvania Railroad “Main Line”, the SEPTA Regional Rail line serving the Paoli/Thorndale line stops at Haverford Station on Haverford Station Road. Just west of the Regional Rail line is the Norristown High Speed line which has a station at Haverford Road and College Avenue. This line runs from 69th Street Station in Upper Darby and terminates at Norristown Transportation Center in Norristown. There are also a number of SEPTA bus routes through Haverford Township.

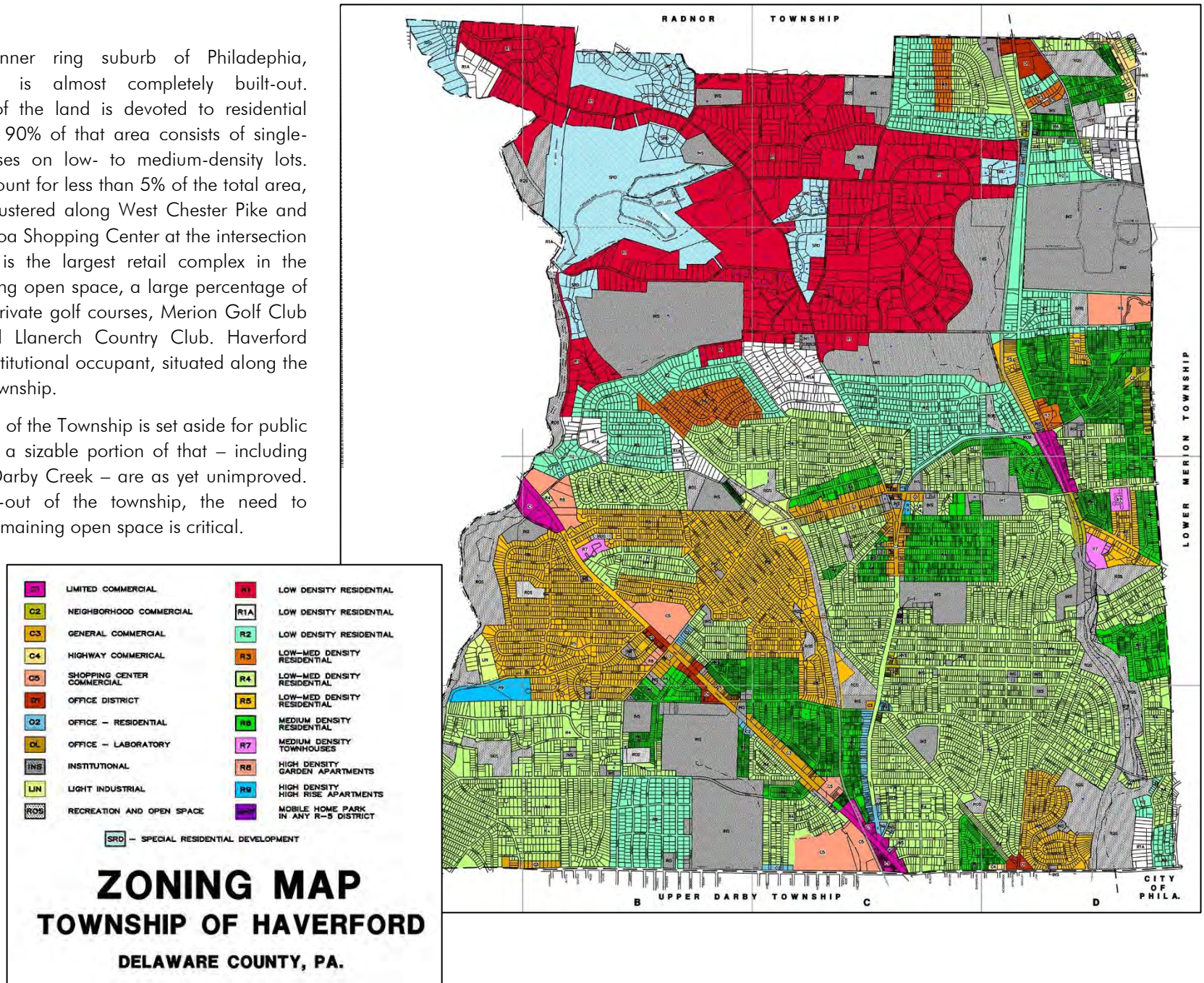


Top: SEPTA provides numerous mass transit options in Haverford, including regional rail, bus, and the Norristown High Speed Line (left).

Land Use

As an older, inner ring suburb of Philadelphia, Haverford Township is almost completely built-out. Approximately 63% of the land is devoted to residential uses, and more than 90% of that area consists of single-family detached houses on low- to medium-density lots. Commercial uses account for less than 5% of the total area, and are principally clustered along West Chester Pike and Eagle Road. The Manoa Shopping Center at the intersection of those two streets is the largest retail complex in the Township. Of remaining open space, a large percentage of land is occupied by private golf courses, Merion Golf Club (east and west), and Llanerch Country Club. Haverford College is a major institutional occupant, situated along the eastern edge of the township.

Approximately 5% of the Township is set aside for public recreational use, and a sizable portion of that – including the areas alongside Darby Creek – are as yet unimproved. Given the full build-out of the township, the need to conserve and utilize remaining open space is critical.



Township Parks and Open Space Resources

In Haverford Township, parks and open space resources include dozens of separate properties totaling more than 500 acres of land. These areas accommodate a broad range of activities, including a variety of sports and active recreation, playgrounds and informal recreation, and simple passive recreation such as walking and bike riding.

The Community Park at Haverford Reserve is Haverford Township's newest and largest open space recreation area, a 169-acre open space area that accommodates a wide range of recreational activities. Along with more than 5 miles of walking trails (described later), there are baseball/softball fields, multi-purpose fields, an extensive children's play area known as Freedom playground, a popular dog park, and the Community Recreation & Environmental Center (CREC), which offers indoor courts and a walking track, among other community amenities.

Most of the parks in Haverford are programmed for active recreation. Many of the larger locations incorporate multiple playing fields for baseball, softball, and soccer, with paved courts for basketball and tennis, and include other amenities such as playgrounds, picnic areas, and even restrooms. These parks are sometimes local attractions in themselves, and draw users from across the Township. They include Veterans Park, Elwell Field, Grange Field, Grasslyn Park, Paddock Farms Park, and Preston Park.

Smaller active parks, such as Genthert Field, Karakung Field, Highland Farms Park, and Polo Field include one or two playing fields along with other elements. Smaller still, examples of neighborhood parks include Bailey Park, Chatham Glen Park, Lawrence Road Park, Llanerch Park, and Richland Farms Park. These generally offer play equipment, picnic areas, and sometimes basketball courts, and are primarily geared toward use by nearby neighbors.

The Township offers a wide range of community programs and recreation activities throughout the year.

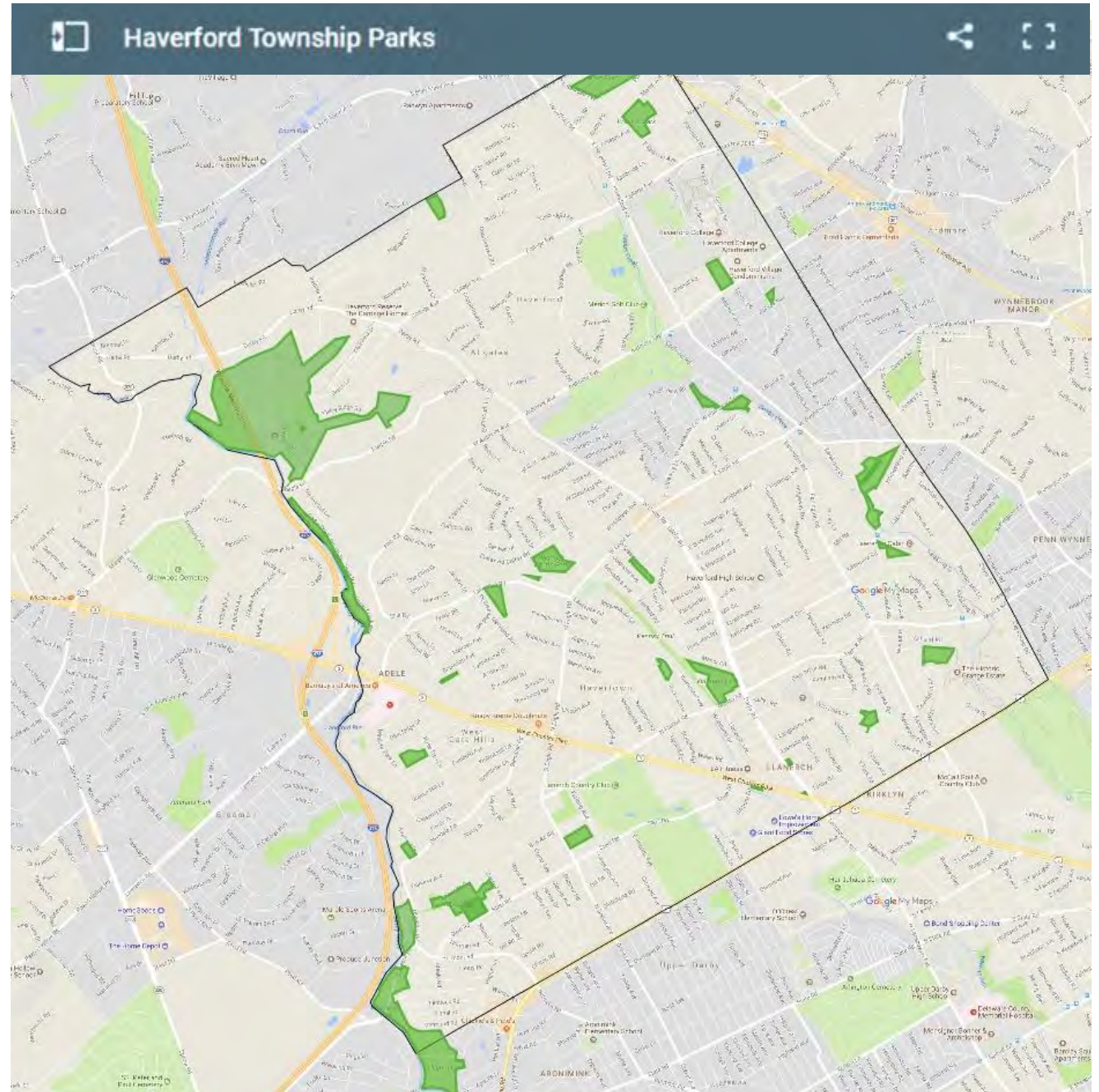
Other recreation opportunities within the Township include the Haverford Area YMCA, the Skatium indoor ice skating arena, various school grounds, and several private golf courses, including the world-class Merion Golf Club.



The Community Recreation & Environmental Center (above) and Freedom Playground (below) are two of the many recreation resources available at the Haverford Reserve.



Haverford Township maintains dozens of park properties that accommodate a wide range of recreation opportunities.



Existing Trail Resources

Haverford currently boasts over 15 miles of walking and jogging trails located in several areas throughout the Township. While some are paved, most of these existing trails are mulched walking paths that have been improved informally over time. Some, including segments of the proposed Darby Creek trail extensions, are entirely unimproved but nonetheless accessible to the public. The most popular Township trails are described below.

Trails at the Haverford Reserve

Besides its playing fields, playground and Dog Park, the Community Park at Haverford Reserve contains more than five miles of popular trails. They are comprised mostly of unimproved paths through woods and a meadow, many with varying levels of steepness. They are available for walking, jogging, off-road bicycling, and even cross-country skiing in winter when conditions permit. Part of one trail (Southbrook) is paved, level and fully accessible. They are largely walking and jogging trails, although the township Parks and Recreation Department permits off-road bicyclists to use them with due respect and consideration of others on the trail.

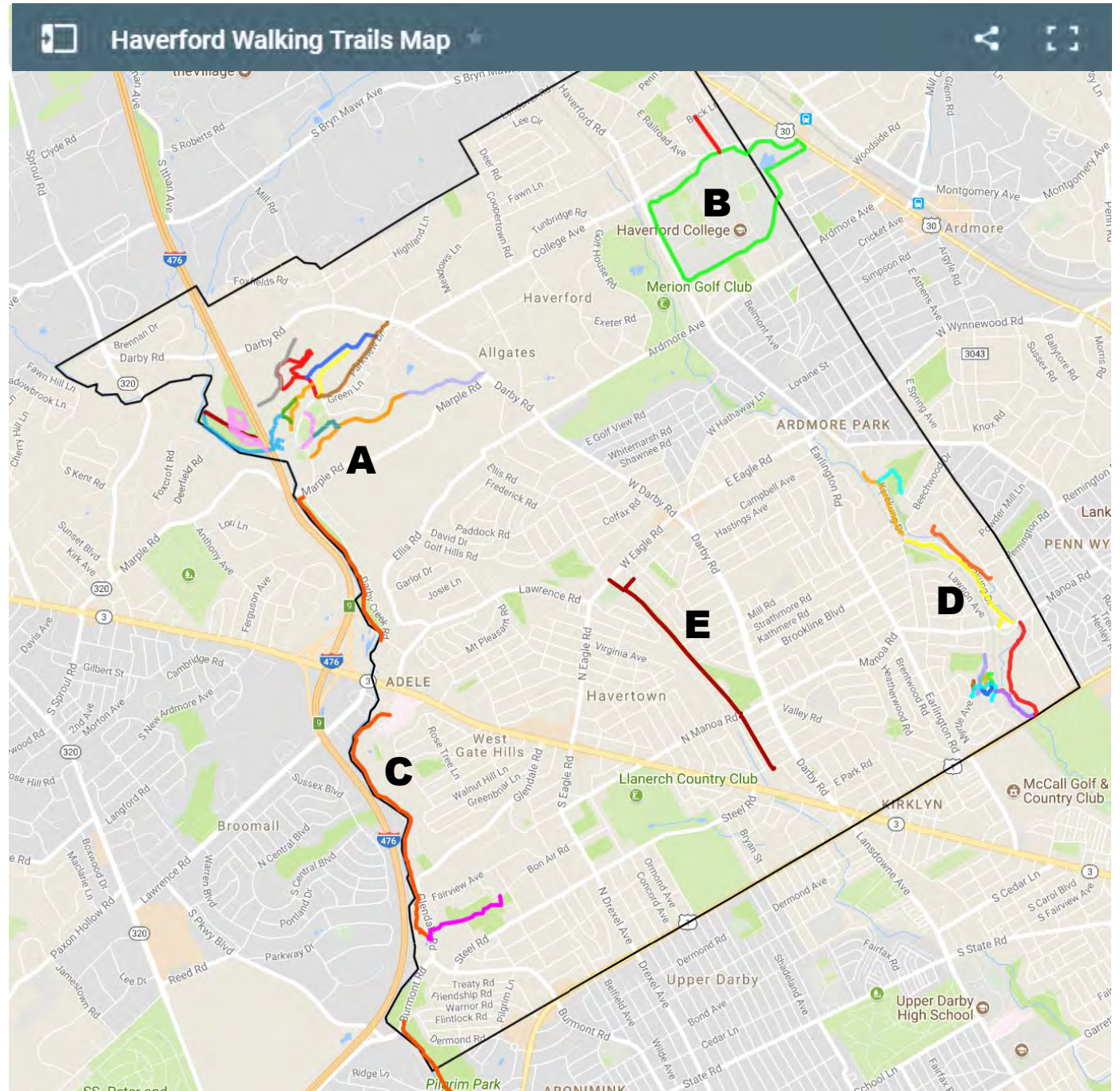


The Haverford Reserve has miles of existing walking paths.



Haverford Walking Trails

- A. Haverford Reserve Trails**
- B. Haverford College Trails**
- C. Darby Creek Trail**
- D. Powder Mill Valley Trails**
- E. Pennsy Trail**



Haverford Trails Walking Map
 Source: Friends of Haverford Trails

Powder Mill Valley Trails

There are a number of trails in the historic Powder Mill Valley along Cobbs Creek. The popular Karakung Trail and its northern extension provide a more scenic and safer off-road alternative to Karakung Drive for those on foot. Other trails (plus some road sections) on the east side of Cobbs Creek can be combined with these trails to form walking and running "loops" of various lengths. In addition, Karakung Drive itself is closed to motor vehicle traffic on Sundays from May through October for recreational use between the Beechwood Bridge and Manoa Road. South of Manoa Road, there are trails on both sides of the creek, including the Grange Estate.

The mulched Karakung Trail was begun in 2007 and is the most popular trail in the Powder Mill Valley. It starts near the Norristown High Speed Line overpass at Manoa Road, where a macadam path goes past the Powder Mill Valley historic monument. It then crosses Karakung Drive, running through the field until it recrosses and heads up into the trees. It eventually passes the historic Lawrence Cabin and Nitre Hall, once the home of the Powder Master who oversaw the operation of the gunpowder mill. At the Nitre Hall driveway, it re-enters the woods until ramping down to the roadside just short of the Beechwood-Brookline railway station.

The Karakung Trail Extension heads further north from the sidewalk by the station across Mill Road and generally alongside the west side of Karakung Drive. It crosses the creek on the road bridge, then heads into the Karakung Swim Club parking lot and follows alongside and below the guard rail until it ends at the top of the curves. The extension provides a safer route to reach the Karakung Swim Club and the Little League ballfield.

On the other side of Cobbs Creek, the Powder Mill Trail runs from the back edge of the Powder Mill Park playground along the creek bank. It leads to the end of the Johnson Road cul-de-sac and Lakeside Avenue. Farther north, the Gest Tract Trail begins at the end of Pelham Avenue and heads downhill from the back of the park to the corner of the upper parking area at the ballfields. The driveway provides access to the crosswalk to the swim club.

There are three trails south of Manoa Road. The Grange Trail combined with the Grange drive connects the southern and northern parts of Grove Place, offering access to the Grange Estate, with its historic buildings and grounds. There are additional small walking trails throughout the Grange woods. The other two trails are in a wooded area that is part of Philadelphia's Cobbs Creek Park, even though it is located in Haverford Township. From the bottom of the Grange drive, the dirt Carroll Park - West Trail heads downstream, ending below Township Line Road. From where Manoa Road passes over Cobbs Creek, the dirt and rock Carroll Park - East Trail also heads south, along the west bank of the creek, stopping short of Township Line Road.



Karakung Trail

Penny Trail

The Penny Trail turns an abandoned branch rail line of the former Pennsylvania Railroad into a useful and positive community asset, linking the Skatium and nearby neighborhoods to the Haverford Area YMCA and the pedestrian-friendly signalized crosswalk at Eagle Road.

The longer "Brookline" section of the Penny Trail leads from Manoa Road at the Boyle Energy access road below the Police Station and runs north to the rear of the Haverford Area YMCA parking lot. It also connects to the bottom of Veterans Field, the paved Princeton Road - Lincoln Avenue path, Harvard Road and Ralston Avenue.

The southern, shorter "Llanerch" section of the Penny Trail starts at the bend in Llanerch Avenue on one side and the back of the L.A. Fitness parking lot on the other side, and heads north to Manoa Road. A long-term goal is for a trail bridge across Manoa Road, to connect the isolated section of Llanerch between the trail and Darby Road, giving it improved walking, running and bicycling access to the township facilities, library, middle and high schools, and other attractions.



Above: Penny Trail

Darby Creek Trail

Constructed in 2013, the "Center Segment" of the Darby Creek Trail is a 10-foot wide, paved, level multi-use trail. It connects Merry Place in Glendale Park to the school bus yard off Old West Chester Pike and Hilltop Road, just south of the Barnaby's restaurant. It is a highly popular trail. Pedestrian counts taken in 2016 showed more than 6,000 users per month during the warm weather months, and an average of more than 200 users per day.

Extending this trail in each direction, north and south, is the subject of this study, and detailed description is outlined elsewhere herein. Along the alignment of each proposed extension, informal footpaths exist for much of the length. Some portions are mulched, and are used with some regularity. The bulk of the northern segment lies on Township property alongside the creek. There is a sewer easement through this area, which is kept cleared by the Radnor-Haverford-Marple Sewer Authority (RHM), and this mowed pathway serves as a de facto trail.



Below: Darby Creek Trail

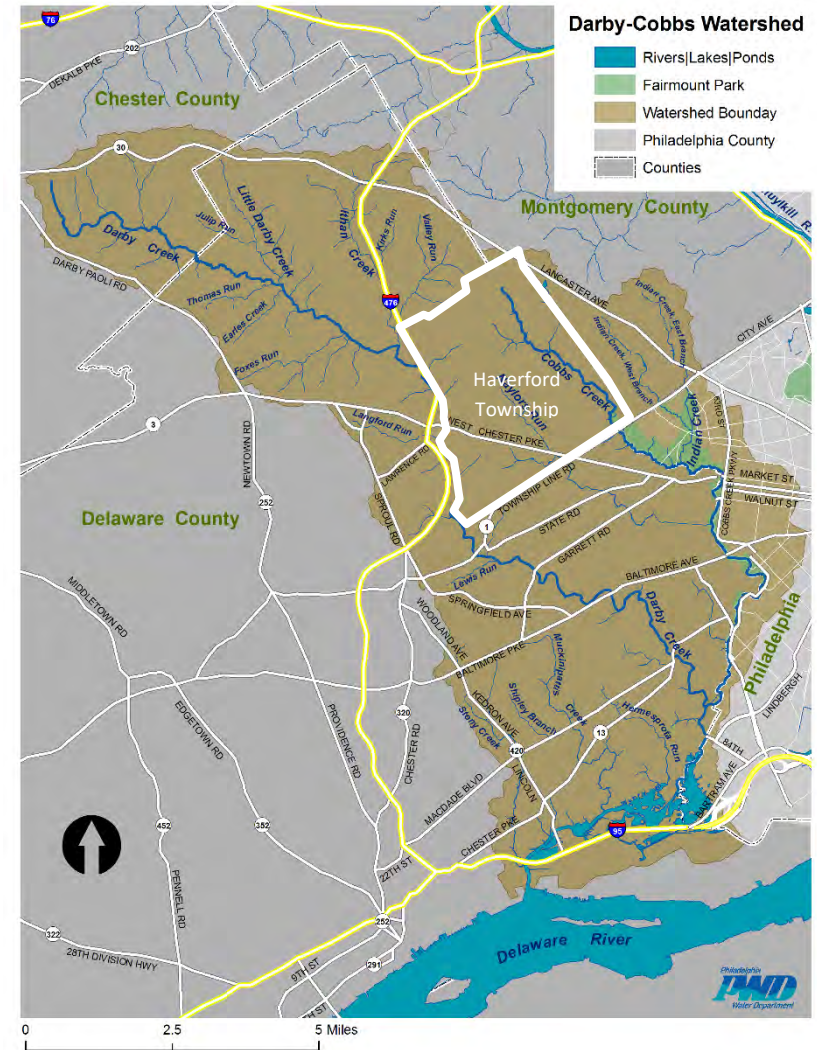
Natural Resources

Although the majority of land in Haverford Township has been developed, there are important natural features remaining which should be preserved for the enjoyment of present and future generations. Since the Township is almost totally developed, there is increasing pressure to develop remaining open space. Among the most valuable of Haverford's natural features are the stream valleys. These valleys are important not only for their beauty, recreational potential, and drainage functions, but also because the majority of the open land in the Township is located here. These are also the areas of steep slopes and notable tree cover.

Haverford Township is drained by three significant waterways, Darby and Cobbs Creeks, and Naylor's Run. Naylor's Run flows into Cobbs Creek which, in turn, flows into Darby Creek. Darby Creek, which is a tributary of the Delaware River, enters that waterway at the Tinicum Wildlife Refuge. These three waterways and their respective tributaries are part of the Darby-Cobbs Watershed, which has a total drainage area of 77.9 square miles, and includes portions of Delaware, Chester and Montgomery Counties, and the southern portion of the City of Philadelphia. Haverford Township is wholly within this drainage basin, which means almost all the water from rain events discharges to Darby Creek and Cobbs Creek before entering the Delaware River. The Darby-Cobbs Watershed has an impervious coverage of roughly 45%. This is the highest % coverage as compared to other watersheds surrounding Philadelphia, making preservation of natural areas that much more important. The area surrounding Darby Creek directly is especially important to preserve as riparian buffers to mitigate flood surges in large rain events. Flooding is a problem during heavy rain events, especially in the areas along Cobbs Creek.



As it flows through Haverford, most of the area immediately adjacent to Darby Creek is undeveloped land with native tree cover comprised of mostly deciduous tree species including; Sycamore, Oak, Beech, Maple, and Ash, as well as evergreen species such as Redcedar, Spruce, and Pine. During recent decades, this native woodland ecology has become threatened by disease and invasive plant species. Introduced diseases and pests include Dutch Elm Disease and Emerald Ash Borer. Most troublesome among invasive plant species is Japanese Knotweed, which spreads rampantly and is difficult to eradicate.



Haverford lies within the Darby-Cobbs Watershed, one of the most densely developed watersheds in the region.

Source: Philadelphia Water Department

Historic and Cultural Resources

There are numerous historical sites in the Township that reflect the early settlement period and history growth patterns of the area. Most notable among these are Lawrence Cabin (1710), Nitre Hall (1810) and the Federal School (1797). All of these sites and many other can be accessed via a walking route known as the Haverford Heritage Trail. This is not a dedicated off-road trail facility, but rather a walking route that can be followed to reach important cultural sites around the Township, as well as existing recreation and open space resources.

More than thirty sites are included on the route, as well as fifteen parks. Small marker signs bearing the Heritage Trail logo are placed along the route to help users stay on track.



The Lawrence Cabin, Nitre Hall, and Federal School (left to right, below), are three of the many historic sites that are connected by the Heritage trail walking route.



Chapter 4 Proposed Trail Alignment

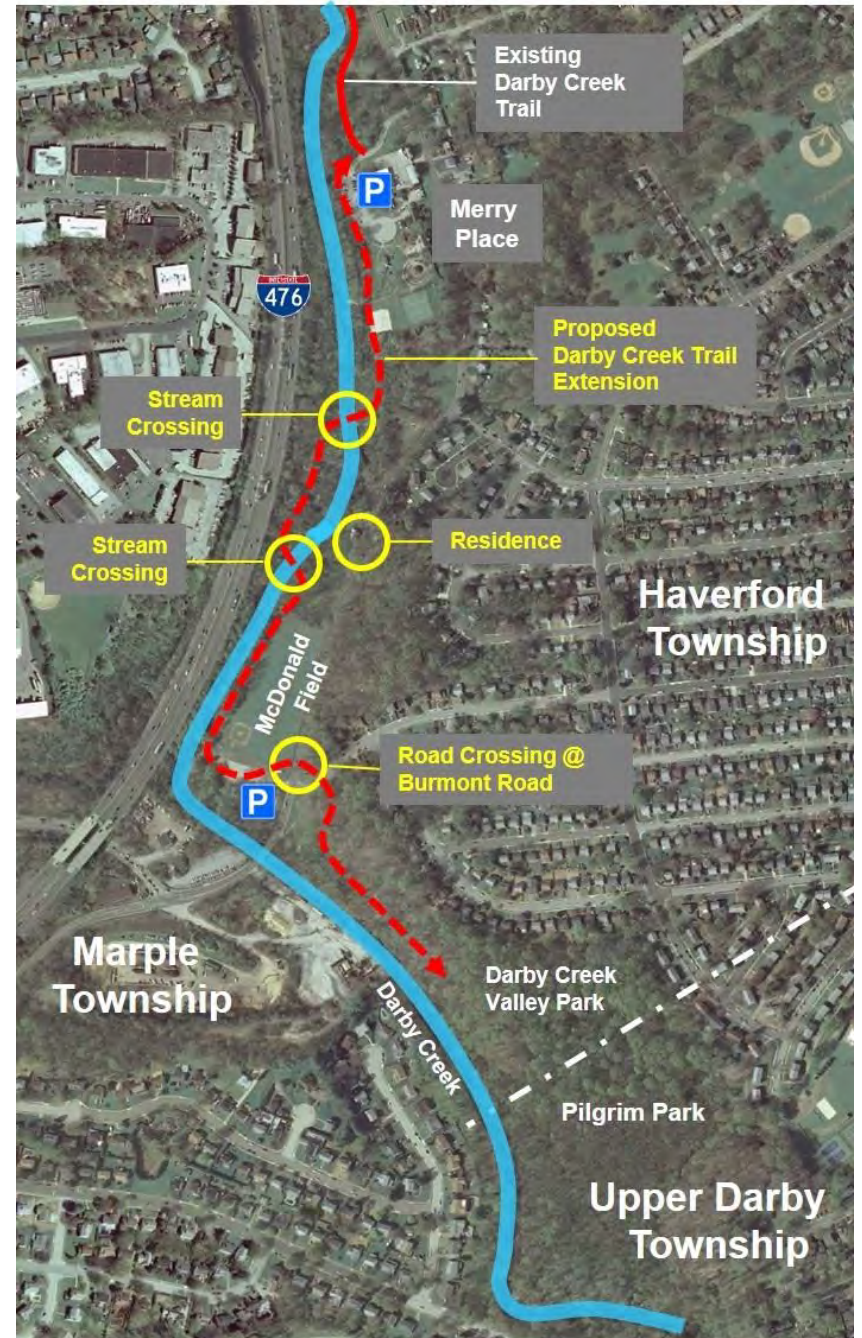
This study is focused on determining a preferred alignment, design characteristics, and overall project feasibility for extending the Darby Creek Trail both north and south from its current extent. The prospect of extending the trail represents a valuable opportunity to utilize existing Township land along Darby Creek, connect existing recreation resources with an off-road trail, and link to the planned regional trail system. This chapter presents preferred and alternative alignments, and notes potential bottlenecks and obstacles to be overcome to establish the trail.

Darby Creek Trail: South Segment

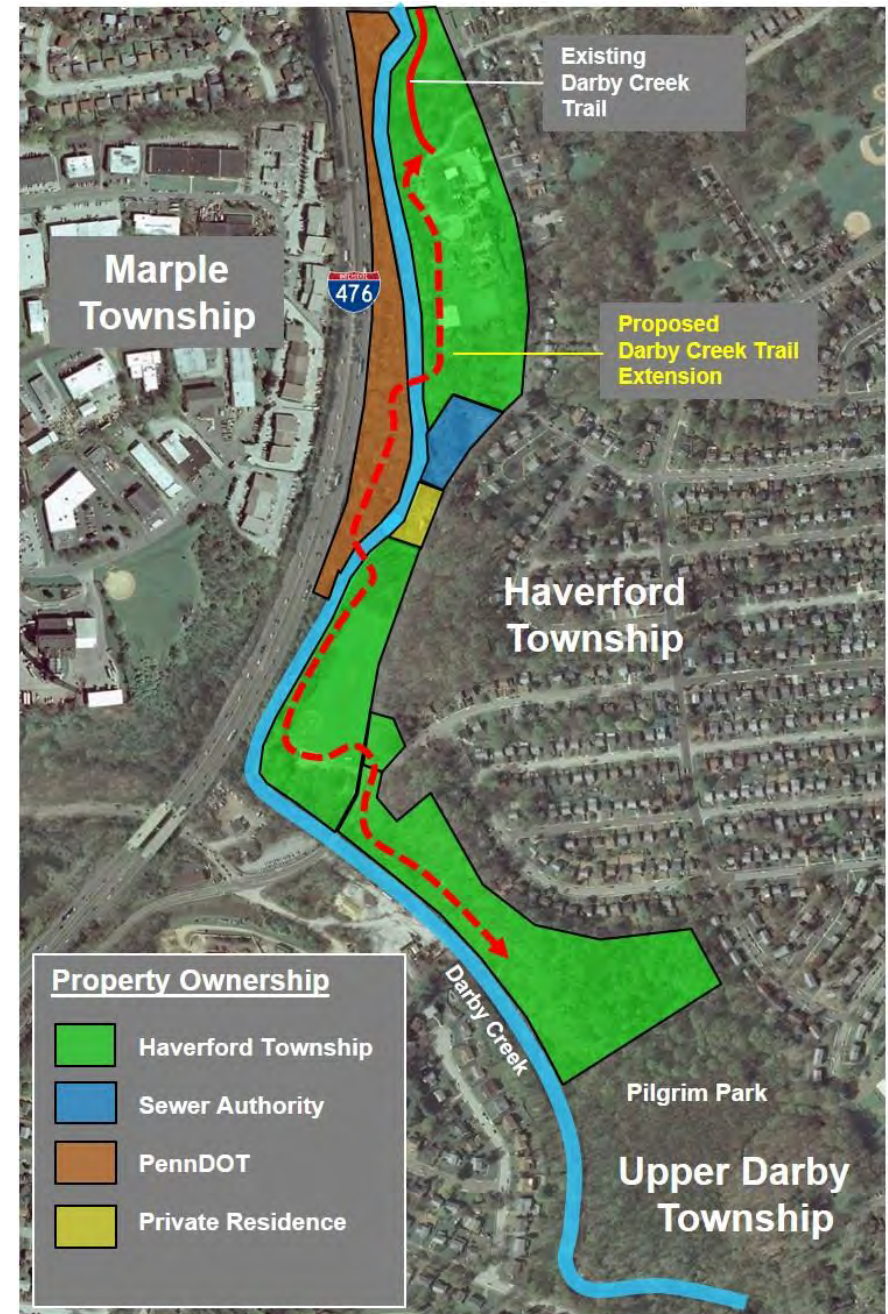
The southern end of the existing Darby Creek Trail terminates at the Merry Place Township Park. This serves as an ideal trail head, as it offers parking and other recreation amenities such as a children’s playground and planned new skatepark. The current trail can be extended through the west edge of the park along the Creek, which is relatively flat and free from barriers. This new trail segment can connect to an existing fishing pier at the edge of the creek, which presently is somewhat detached from the other features of the park.



The southern extension of the trail will cross through Merry Place, a popular Township Park.



Progressing further to the south, the creek bends sharply and runs fairly close to Burmont Road. At this narrow point there is a private residence that occupies the space between the trail and road. The Township has determined that it will not be possible to route the trail across this property. Therefore, the recommendation is to cross over the creek to avoid the residence. The area on the west side of the creek is Marple Township, and the land the trail would cross is owned by PennDOT, and part of the general property on which Interstate 476 (the Blue Route) is located. An easement from PennDOT will be required to locate the trail here. The trail would travel only a few hundred yards, then cross over the creek again, back to the Haverford side and onto Township property. Both crossings are envisioned to consist of pre-fabricated pedestrian bridges, with a span of approximately 80-100 feet.



Recommendations

Once back in Haverford, the trail can connect to the Jack McDonald Memorial Field, which holds two softball fields and large open lawn area used primarily for youth soccer. There is a parking lot at the south end of the Field which could serve as a valuable trail head entrance point for the trail. There are two options to route the trail through the park. One is for the trail to run along the edge of the park at Burmont Road. The drawback to this option is that the park edge is populated with a variety of utility poles and guy wires, which would need to be avoided or relocated. Also, the trail in this location would be a distance removed from the Creek and its appealing natural setting.

For these reasons, a better alignment appears to be behind the playing fields along the top of the bank near the creek. Fencing will be needed along portions of the trail to separate and protect users from active play on the fields. There appears to be room for the trail without the need for significant earthwork or field modifications. The current parking lot is congested when the fields are in use. Potentially, this lot could be improved to function as a welcoming entrance point for the trail.



The existing parking area at McDonald Field could be upgraded to expand parking and serve as a welcoming trailhead access point.



Utility poles clutter the edge of the field along the road (above). The trail may be better sited toward the back of the fields along the creek (below).

From this point south, Darby Creek crosses under Burmont Road and continues into Upper Darby Township. Similarly, the trail is expected to follow the eastern edge of the creek and connect with a planned future trail segment through Upper Darby Township. To accomplish this the trail must cross Burmont Road. A new pedestrian crossing will be needed at the intersection of Burmont and Warrior Drive. This is likely to take the form of an unsignalized crosswalk. While vehicular traffic would not be required to stop, the crossing can be clearly indicated through use of signs, pavement markings, and flashing warning lights. These warning lights can be triggered by pole-mounted push buttons activated by trail users. Marked crossings such as this can be designed in a fashion acceptable to PennDOT, and have proven at other trail locations to be workable solutions. As trails proliferate in the region, they are becoming more common and familiar to motorists.

After crossing to the east side of Burmont Road, the trail will continue along the east side of the creek, into Upper Darby Township.



A new road crossing at Burmont Road will allow the trail to continue into Upper Darby Township.

Darby Creek Trail: North Segment

The northern extension of the Darby Creek Trail is planned to begin at the existing trail head near the bus parking facility, cross West Chester Pike, and run along the creek to the Haverford Reserve park, a distance of approximately 1.5 miles. The route presents significant challenges. However, there are significant rewards as well, in connecting public trail to the extensive trail network and community recreation opportunities available at the reserve, and with the undeveloped linear open space owned by the Township along Darby Creek. The route also creates opportunities to connect to retail activity along West Chester Pike, and with additional recreation resources further south along the planned trail.

The North Extension can be divided into 4 district segments:

- o North-1: existing trail head at bus facility, north to crossing under West Chester Pike
- o North-2: behind Waterford Apartments, cross to Maple side of creek and back
- o North-3: linear trail along Darby Creek
- o North-4: northern connection from Darby Creek to Haverford Reserve

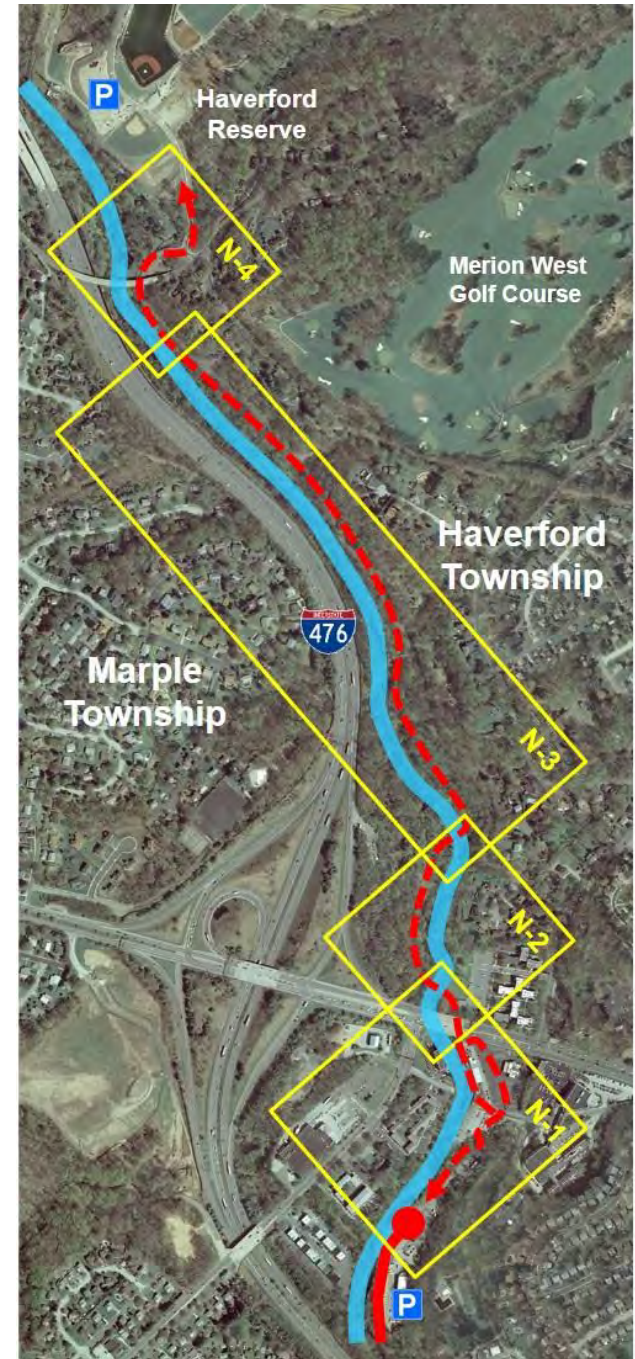
North Extension – Segment 1

From the existing trail head, the proposed trail can run north along the west edge of the driveway. From here, the trail can cross over a narrow stream tributary, requiring a new pedestrian bridge with a span of approximately 30 feet. This will land the trail into an existing parking lot owned by Child Guidance Resource Center, which is used as employee parking. An easement from the property owner will be required to permit the trail to cross through the parking lot. The trail can then cross Old West Chester Pike, which is a low-volume dead-end street with no through-traffic.

If crossing through the parking lot proves to be impractical, an alternative would be for the trail to continue alongside the driveway for about 300 feet up to Old West Chester Pike. An engineered solution would be necessary for this option as there is currently not a sufficient shoulder area to the driveway.



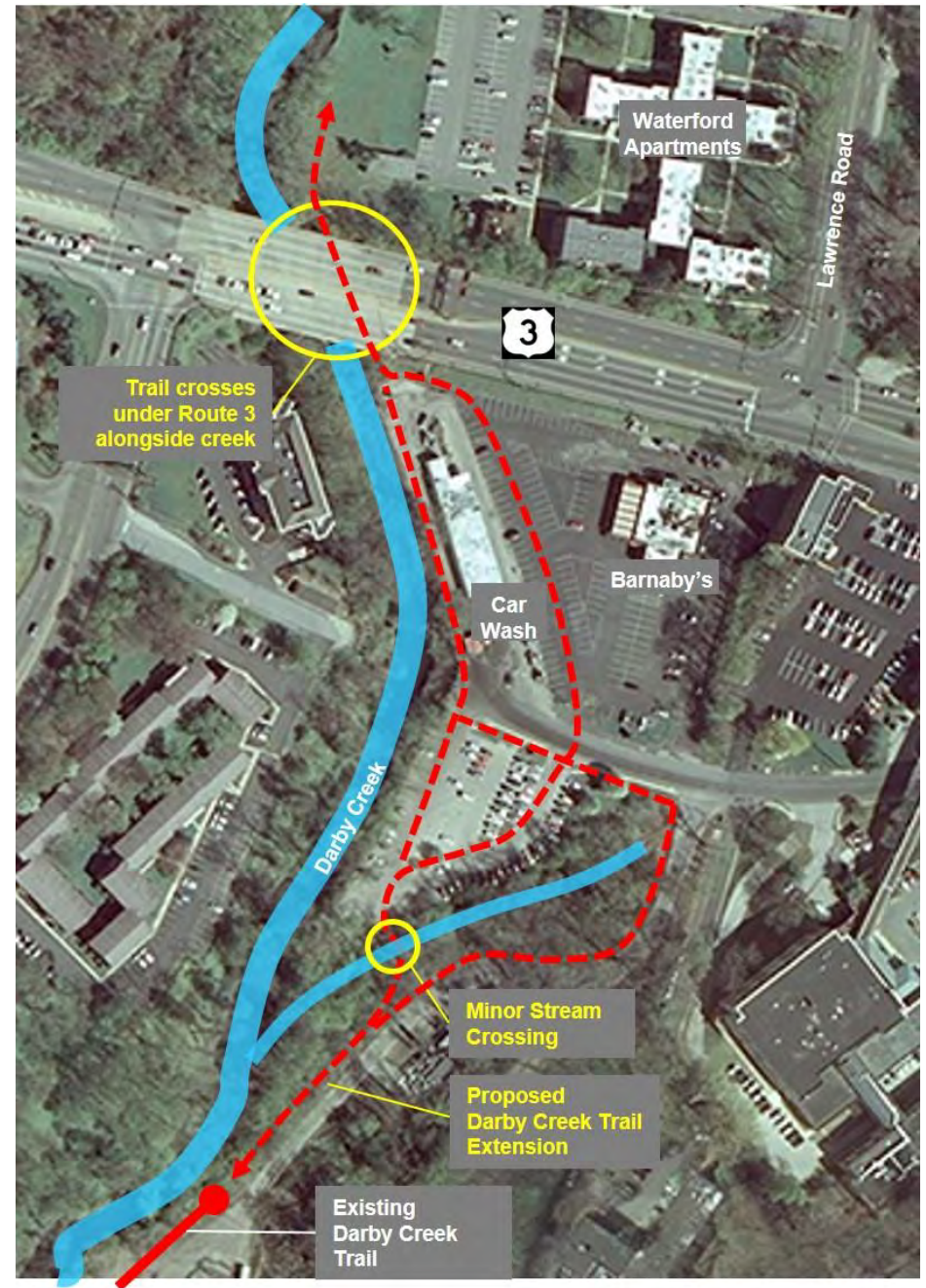
Above: Existing trail head where north extension will begin.



Right: The North extension can be divided into 4 distinct segments.



North Extension, Segment 1 – property ownership



North Extension, Segment 1 – alternative alignments.

Recommendations

From this point, the aim is for the trail to utilize an existing underpass where Darby Creek crosses beneath West Chester pike (Route 3). To reach the underpass, the trail may be able to run along the edge of the creek behind the Car Wash, or through the parking lot of Barnaby's restaurant. Neither option is ideal, and either one would require an easement and consent of the property owner. The location behind the car wash is a narrow space close to the edge of the building and immediately at the edge of the creek bank. This route would avoid vehicular traffic in the parking lot, but would place the trail in jeopardy of erosion of the creek bank. Alternatively, the Barnaby's parking lot is a more direct option, which could be established by pavement markings. While pedestrian and bicycles would occupy the same space as vehicles, this is a reality common to all parking lots. Such as shared space within a parking lot would need careful consideration and design, in order to provide the safest possible solution for all types of users.

The trail can then cross behind the car wash, and slide down beneath Route 3. Several technical challenges exist. A retaining wall would be necessary behind the car wash alongside embankment of the roadway above. And a ramp will be needed for the trail to make the descent from the parking lot to the underpass which is at a lower level, approximately 10 feet lower. An engineered structural solution will be needed, and it may not be possible to meet the ADA design standard of 5% gradient. Significant design engineering will be needed to devise a workable solution.



Above: The trail could be located along the creek behind the car wash.

Top Right: Behind the car wash, along the back of West Chester Pike.

Bottom Right: Underpass beneath West Chester Pike.

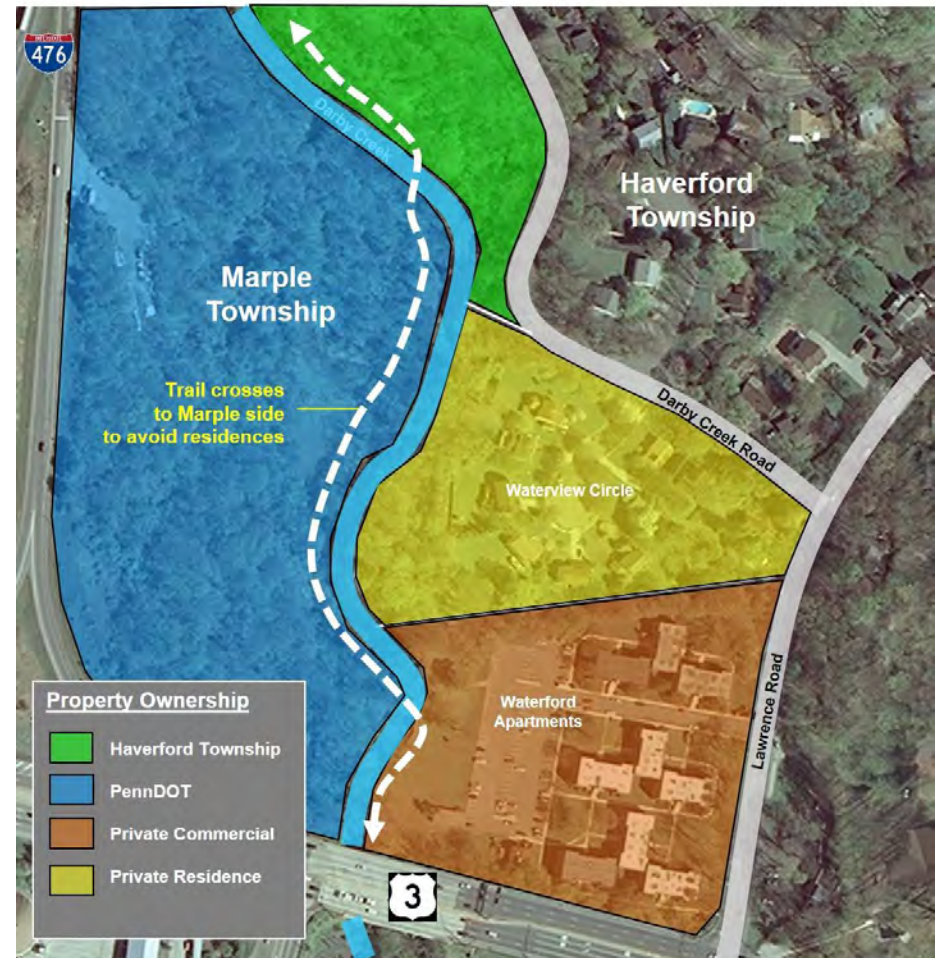


North Extension – Segment 2

Once the trail reaches the underpass below the roadway, the route is considerably easier. The underpass opens up north of Route 3 onto a level mown lawn behind the Waterview Apartments. No engineered structures are foreseen as needed to make the transition. An easement will be needed from the property owner for permission to locate the trail here, which can serve as a valuable amenity with easy access for apartment residents. Views and access to the creek can also be opened up, allowing trail users to appreciate the water up close.

North of the apartments, four private residential properties occupy the area between the creek and the adjacent roadways, Lawrence Road and Darby Creek Road. It is uncertain if property easements will be granted by these owners for the trail. To circumvent these residences, the option of an on-street segment appears to be infeasible as well as undesirable. Both adjacent streets have very narrow shoulders with steep embankments, and are fronted by private residences. The alternative is for the trail to cross the creek to the Marple Township side. As is the case for the southern trail extension, the property on the Marple side is owned by PennDOT, as part of the right-of-way for Interstate I-476. This is a landlocked parcel caught between the highway and creek, and would appear to have little to no functional use, other than the type of recreational use the trail would provide.

The trail could cross back onto the Haverford side of the creek once it passes beyond the residences. At this point, the land bordering the creek is owned by Haverford Township.



North Extension, Segment 2 –the Trail can cross the creek to avoid private residential properties.



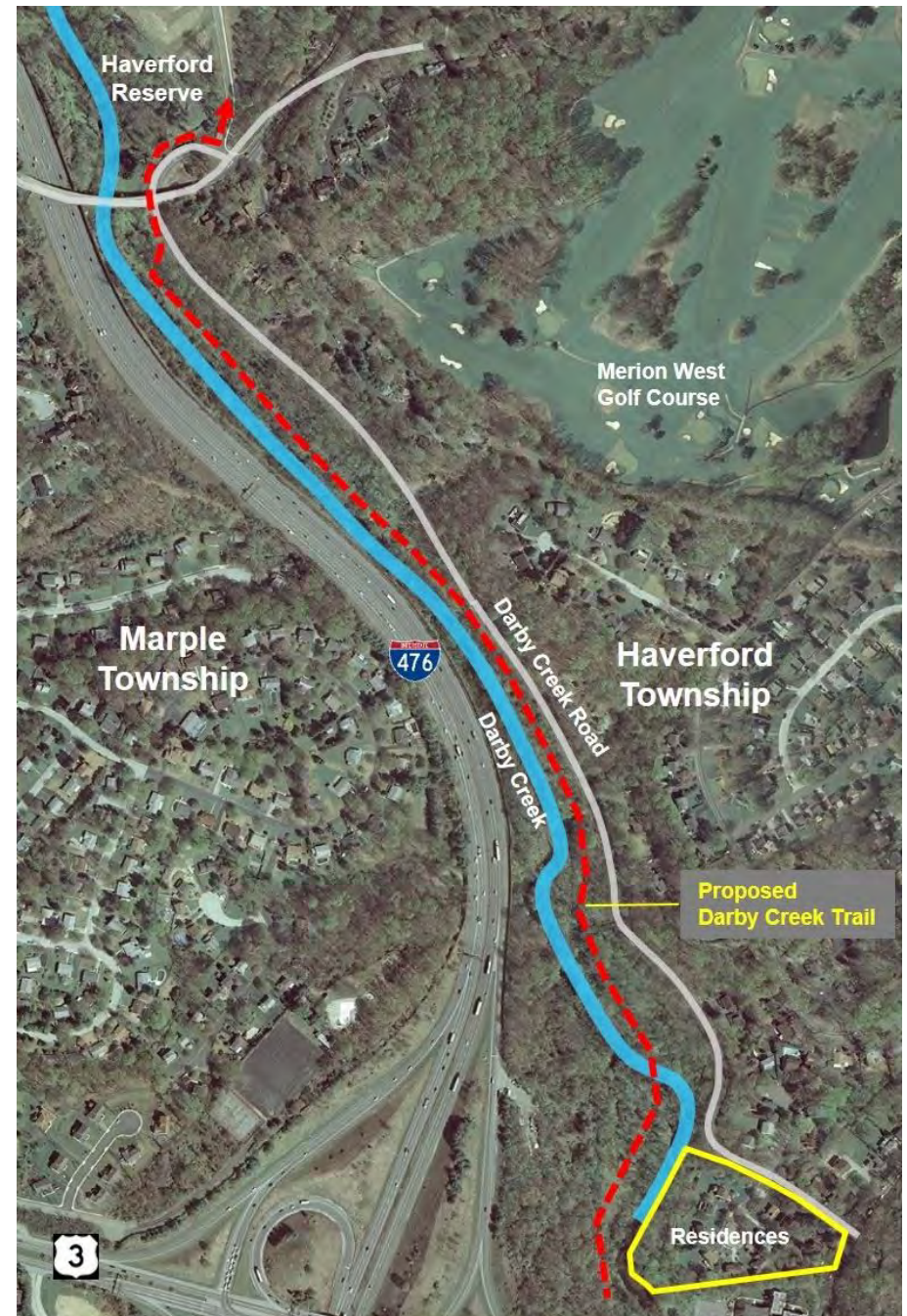
North Extension, Segment 2 –the Trail could cross the creek to avoid private residential properties.

North Extension – Segment 3

For nearly a mile, the trail can be located on township property that lies between the creek and Darby Creek Road. Known as “Darby Creek Valley Park,” this property is undeveloped, and is well-suited for use as passive park space. An easement for the Sewer Authority runs the length of the area, and a mown pathway is currently maintained for access by the Sewer Authority. While no physical improvements have been made to the property, it is used informally by residents as a place for hiking, and to access creek for fishing and passive enjoyment.

The route is relatively flat and free of obstructions, with the exception of several small stream tributaries and drainage swales which will need to be crossed. It will be possible to create trail spurs to the creek edge, to facilitate direct access to the water, and also to create broader park-like spaces to fulfill the potential of the property to become a true linear park.

The current landscape vegetation is a mix of native and exotic species. Once the trail is established, future phases of trail/park development may involve restoration and enhancement of the native ecology, to facilitate native species and maximize the habitat value for wildlife.





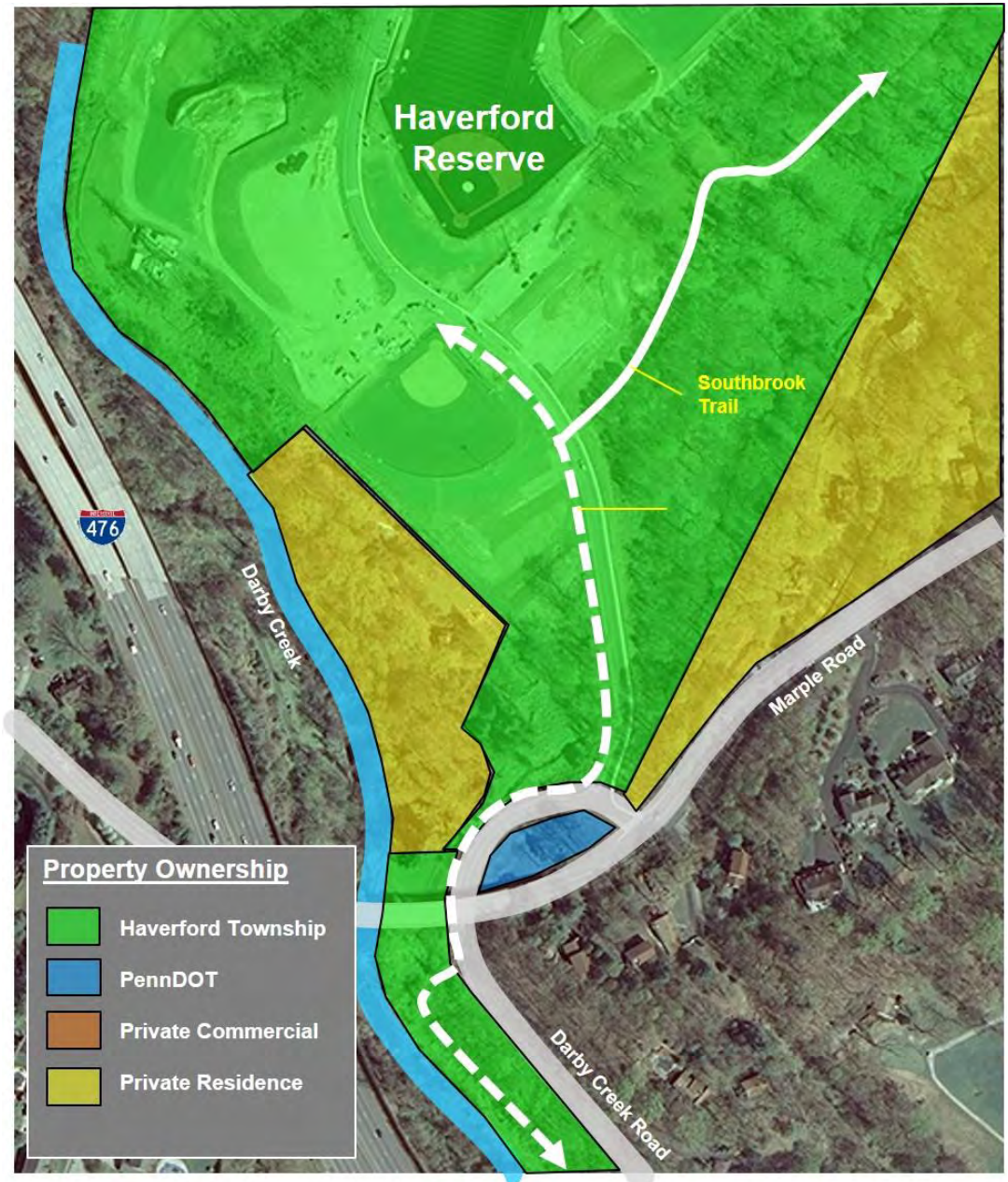
North Extension, Segment 3:
The existing mowed pathway
(above) can form the basic
alignment of a paved multi-use trail.

North Extension – Segment 4

The final segment of the proposed trail extension will connect the trail with the natural landscape along the creek with the recreation and community facilities located at Haverford Reserve. To make this connection, a short on-street trail segment appears to be necessary along Darby Creek Road where it curves to meet Marple Road. Here the roadway climbs steadily from the level of Darby Creek to a much higher level at Marple Road and the Reserve. The road is built on an engineered embankment which rises more than 30 feet above the adjacent grade. The existing road consists of two vehicular travel lanes with shoulders approximately 5-foot wide. This shoulder width is not sufficient to accommodate 2-way pedestrian/bicycle traffic, and also is insufficiently buffered from vehicular traffic coming around a sharp curve.

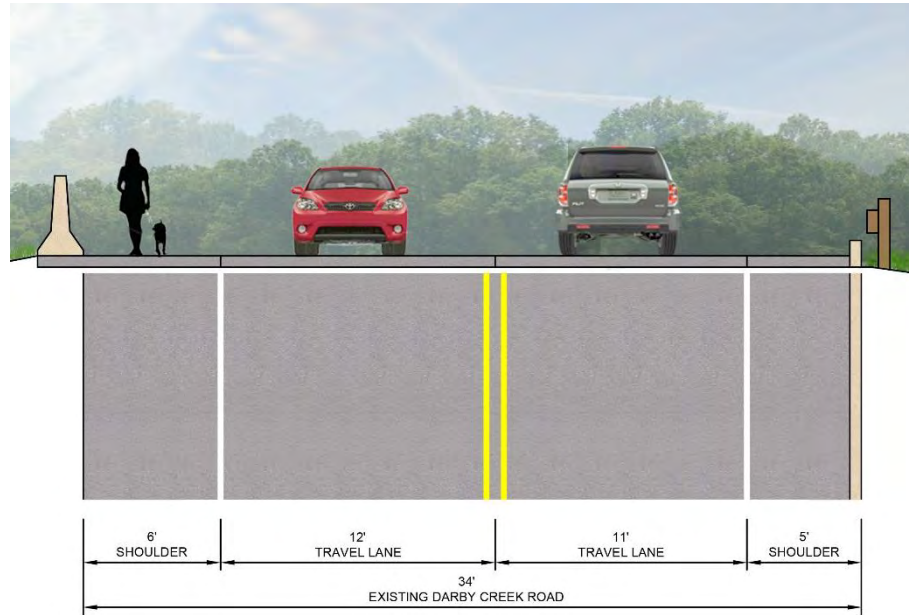
To safely accommodate the trail, it is recommended that the outside shoulder be widened to 14-feet, to allow for a dedicated 10 foot wide trail to and 4-foot buffer. This will require shifting the entire roadway by approximately 6-feet toward the inside of the curve. This will be a significant construction item to enlarge the road bed and reconstruct the existing road.

Due to poor sight lines around the roadway curve, it is not advisable for the trail to cross to the other side of Darby Creek Road.

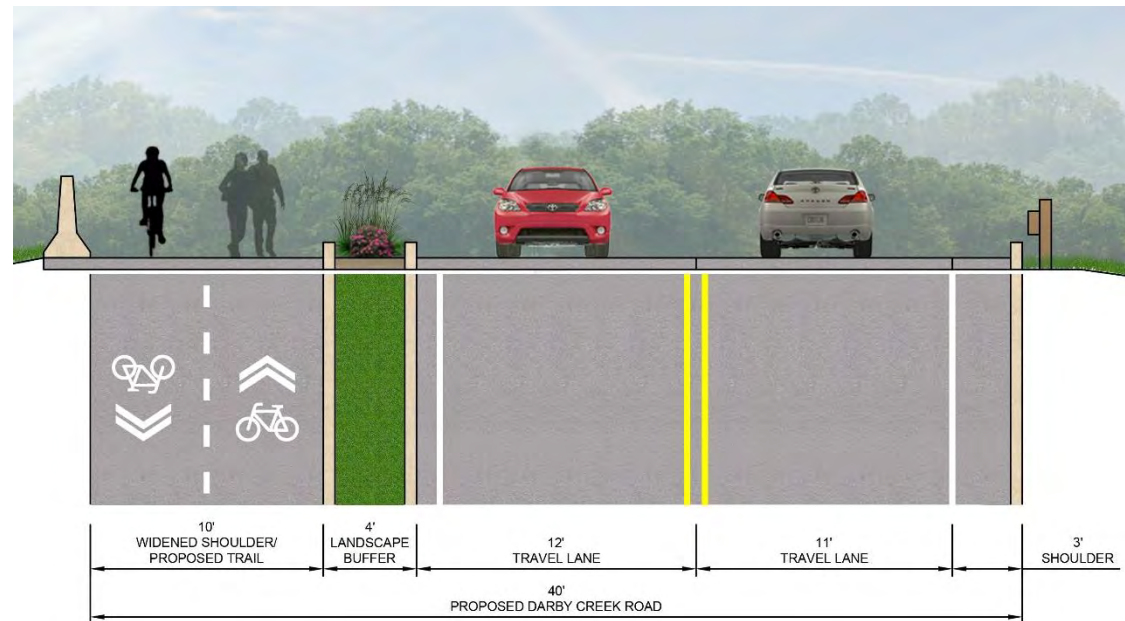




Existing Cross Section



Proposed Cross Section



Chapter 5

Trail Design Guidelines

The Darby Creek Trail is to be designed with all types of non-motorized users in mind. In general, it is intended to be universally accessible to users of all ages and fitness levels, including wheelchair and other types of disabled users. Joggers, cyclists, and walkers should all feel comfortable using the trail, whether one is in the mood for a calorie-burning bike ride, or just wants to walk the dog. The landscape setting for the Darby Creek Trail along its total 3-mile length is diverse. As a result, the ultimate trail configuration is expected to vary along the route, in response to the range of conditions that will be encountered.

The general design standard is for an asphalt, 10-foot wide, bi-directional shared use path. Where the trail can be accommodated outside the street right-of-way, this standard should be achievable along most of the proposed route. Along the majority of its length, the trail will be relatively free from constraints, and can follow a gentle curving alignment to take advantage of natural topography and views.

This design standard may not be possible or appropriate along the entire route. There may be certain “pinch points” where the right-of-way is particularly narrow, such as alongside the Car Wash, and where the trail must utilize the roadway shoulder at the north end near the Haverford Reserve.

For the entire length of the main proposed trail, a paved surface is recommended. In certain high-traffic zones, it may be advisable to construct an unpaved “soft” shoulder on either side of the paved trail, where those on foot can walk and not compete for space with bicycles.

For heavily-used areas, and especially where the trail will share space with vehicles, pavement markings can help manage congestion. Center striping and directional arrows help to separate users traveling in different directions, and sometimes are used to separate portions of the trail width designated for faster speeds (ie, bicycles) and slower speeds (ie, walking).



The trail should accommodate all types of users, and a wide variety of uses.

Aesthetic Value

When designing each segment of the trail, careful attention must be given to its “look and feel,” so that it is designed appropriately to its specific setting.

- In wooded areas, natural materials should be used wherever possible. Trees will be retained, and invasive plant species will be removed along the trail edge, so that the native ecosystem is able to flourish.
- In open areas, naturalistic meadows can be employed. This low-maintenance approach can utilize native perennials and wildflowers to create a beautiful, sustainable, and environmentally-friendly landscape.
- Where the trails are associated with other active or passive recreation areas, the trails will have a park-like appearance, with mown grass and shade trees that are familiar staples of park and picnic sites.
- Along stream banks and wetlands, the trail may narrow to disturb as little area as possible. Boardwalk sections and other devices may be employed to allow for uninterrupted flow of water. Stream bank edges will be restored by removing invasive plants and allowing proper access for the public to the water’s edge.



Each section of the trail should be designed to fit its specific setting.



Trail Access and Amenities

The **trail head access points** should have the highest level of design detail and amenity. These places are the “first impression” most users will have of the greenway, and should have a welcoming and well-maintained appearance. It appears that viable locations exist that can serve as trail heads for the expanded Darby Creek trail, offering parking and other amenities. These include Merry Place, Haverford Reserve, and McDonald Field. Additional locations to access the trail may be developed as need arises.

A high-quality **sign system** is a valuable feature for many reasons. “Welcome” signs announce the trail and identify the location of trail head access points. Directional (“wayfinding”) signs and maps reassure users that they know where they are and know the relative locations of nearby features and connecting streets and paths. Mile markers are a useful feature that allows users to mark their progress. Interpretive signs can enhance the user experience by illustrating the history, ecology, and meaning of the place. Overall, the visual character of the signs conveys the trail’s identity to the public, and can be a highly distinctive feature.



Trail heads should be welcoming and well-maintained.

A sign system can include identity signs, directional signs, interpretive signs, and maps.



Landscaping associated with the trail should be simple, for ease of maintenance. In park-like settings, trail edges are best kept as mown grass. In open areas, the first 6 feet of grass alongside the trail could be mown low and kept as a verge, while the grass beyond could be mown less frequently and left to grow higher, providing a meadow effect. In naturalized areas of the trail, native vegetation should be retained and cultivated as much as possible. These areas would include existing trees, meadows, and a natural or designed riparian edge with native wetland plants. These environments would provide habitat and shelter for wildlife as well as opportunity for trail users to connect with nature.

Regarding **trail safety and security**, proper access to the trail for police and emergency vehicles must be ensured to provide the ability for prompt response to emergencies on the trail. Specific security features such as emergency call boxes and remote cameras may also serve to a useful function while increasing the user perception of safety. A big part of user safety is teaching trail users to act responsibly and use the trail wisely. Communication of safe practices can be accomplished through signs, interpretive exhibits and hands-on user education. Most trails are not lighted, due to cost and practicality. Lighting also encourages higher levels of usage. Therefore, to discourage use of the trail during nighttime hours, remote trail sections should not be lit. Signs and barriers may also be used to display hours of operation and to physically limit access to the trail. These should be placed at the gateway entrances and at other possible trail entrance points. To ensure the safety of trail users, signs listing guidelines and prohibited uses should be prominently displayed.



Top left: Landscaping should be kept simple for ease of maintenance, but can still be very beautiful.

Top right: Trail maps can be produced in large format to post at trail heads, and in pamphlet form to hand out.

Left: Emergency call boxes are sometimes seen as useful features to promote security.

Bottom: Removable or collapsible bollards can restrict vehicles while still allowing access for emergency and maintenance vehicles.



On-Street Trail Segments

In places where an off-street property is not available, it will be necessary for some short trail segments to be located within the right-of-way of the street. This is the case at the northern end of the proposed trail, where the trail is expected to occupy the shoulder of Darby Creek Road as it approaches the Haverford Reserve.

Within the street right-of-way, trail and pathway design must be in accordance with standards developed by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA). These standards define required lane widths, striping and lane marking dimensions, sign and signalization recommendations, and other features. Allowable bicycle provisions can take several forms.

Shared Use Paths

Shared-use paths (also sometimes called “side paths”) are widened sidewalks which are intended for use by bicycles as well as pedestrians. Since they accommodate users moving at different speeds, these pathways should ideally be at least 10 feet wide under most conditions, with a minimum two-foot wide shoulder on both sides. Depending on the general speed and volume of adjacent vehicular traffic, and the closeness of the side path to the road, a buffer between the street and pathway may be advisable. Sometimes this buffer takes the form of a solid guard rail or fence, but often it is simply a landscaped buffer. In locations with high volumes of pedestrians, it may be appropriate to separate bicycle and pedestrian traffic.

Striped Bicycle Lanes

A bicycle lane is a pavement marking that designates a portion of a roadway for the preferential or exclusive use of bicycles. Bike lanes should be a minimum of 4’ wide, with 5’ width preferred. Bicycle lanes are usually located directly adjacent to vehicular travel lanes, so may not be ideal for children or novice bike riders. Where that type of user is expected, a separated facility such as a side path is desirable.

Shared Lanes

Shared lane markings, or “sharrows” are road markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows are suitable on low-volume, low-speed residential streets, where there may not be available width for dedicated bike lanes parking. While bicycles are always permitted to share vehicular roadways, sharrow markings reinforce that bicyclists are legitimate road users, and when used in combination with appropriate signage will alert drivers to the potential presence of bicycles.



Shared Use Path (“sidepath”)



Striped Bicycle Lane



Shared Lane Markings

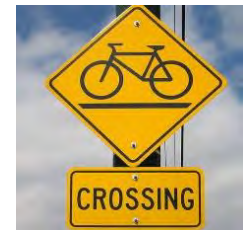


Shared Use Path (“sidepath”)

Road Crossings and Intersections

Where trail is planned to cross active streets, it is necessary to provide a safe, well-marked crossing for trail users, while restricting access by motor vehicles. At the same time, occasional access must be provided for emergency and maintenance vehicles. The way intersections between trails and roads are designed significantly impacts the users' comfort and safety. The principles that apply to general safety at crossings also apply to trail intersection design. There are a wide range of design features that may be utilized to provide pedestrian and bicyclist safety at intersections.

- **Traffic Control Features:** Additional signage and pavement markings to alert drivers to the trail crossing is a simple measure of traffic control on low-volume roads. On more developed roadways, traffic signals may be used to allow safe crossing similar to the familiar pedestrian "walk" signal. Such signals can be push-button activated so they are only triggered when necessary.
- **Intersection Treatments:** The opening of a trail at a roadway should be at least the same width as the trail itself, and a curb ramp should also be the full width of the trail, to provide a smooth and accessible transition between the trail and the roadway. On unpaved trails the design of a trail-road intersection should include paved aprons that extend a minimum of 20 feet from paved road surfaces.
- **Chicanes:** Trails sometimes employ "chicanes," or horizontal curvatures, to reduce trail users' approach speeds at intersections where sight distance is limited or where users should stop and yield. Sometimes these can be in the form of physical barriers that force cyclists to stop and dismount.
- **Restricting Motor Vehicle Traffic:** The preferred method to restrict motor vehicles entry is to split the trail access into two sections, by using low landscape features. Each section should be half the nominal path width; for example, split a 10 foot path into two 5 foot sections. Emergency vehicles can still enter if necessary by straddling the landscaping. Another method is to install a physical barrier such as a gate or bollard, which can be removed or collapsed as needed for access by authorized vehicles.
- **Crossing Islands:** For wide streets, raised medians provide a "refuge" for pedestrians and bicycles that may find it difficult to cross the entire width of the street at once. Crossing islands particularly benefit trail-roadway



Road crossings must be carefully designed to alert both trail users and motorists. Signs, pavement markings, push button signals, and other features may be utilized.

Buffers and Screening

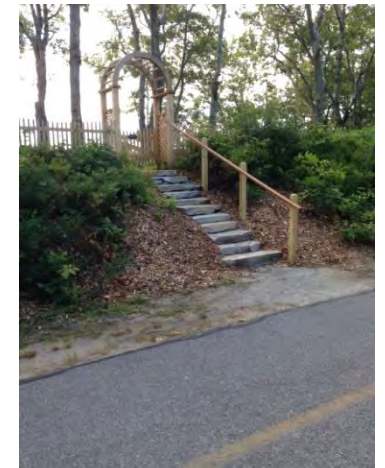
Where the trail is to be located near residential properties, concerns about privacy can be addressed through strategic screening. This can be done with a combination of solid or transparent fencing and landscaping, to block views and maintain an attractive environment for trail users. When introducing new trails in residential settings, concerns about security and privacy are common. However, the experience of trails projects is overwhelmingly that proximity to the trail proves to be a valued asset. At local trails such as the Radnor Trail and Cynwyd Trail, it can be seen that adjacent residents often install gates to allow direct access to the trail from their properties.

Barrier-Free Accessibility

In general, the trail should be designed to comply with current standards for universal accessibility. The Americans with Disabilities Act (ADA) prohibits discrimination on the basis of disability. It requires, among other things, that newly constructed and altered “places of public accommodation” be readily accessible to and usable by individuals with disabilities. However, most accessibility design standards are not readily applicable to the natural environment. The United States Forest Service (USFS) has developed Forest Service Trail Accessibility Guidelines (FSTAG) based on the guidelines on outdoor developed areas, which are helpful because they “provide guidance for maximizing accessibility of trails... while recognizing and protecting the unique characteristics of their natural setting.”

These guidelines encourage design for increased accessibility but recognize that accessibility isn’t possible everywhere because of the limitations imposed by natural terrain, existing vegetation, or other constraints. Where terrain allows accessible slopes, a range of surfacing choices create levels of accessibility that respond to the character and desired use of the trail. While full accessibility may not always be achievable, design should always provide access to the greatest extent possible. Departures from specific accessibility guidelines are allowed where compliance would:

1. Cause substantial harm to cultural, historic, religious, or significant natural features or characteristics;
2. Substantially alter the nature of the setting or the purpose;
3. Require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes;
4. Not be feasible due to terrain or the prevailing construction practices.



Buffers along adjacent properties can be effectively designed in a variety of ways, depending on circumstances. Neighboring residents almost always view the trail as a benefit.

Expected Benefits of the Darby Creek Trail Extension

The extension of the Darby Creek Trail is expected to have a positive impact on the community, by providing not only recreational and transportation opportunities, but also by influencing economic and community development. While the prospect of something new sometimes raises understandable concerns, trails generally provide a wide range of community benefits, sometimes in ways beyond what first meets the eye. It is no wonder the construction of trails has become a high-priority activity in communities across the country. The positive impact of trails and greenways is nearly always a boost to a community's economic, environmental, and social health.

The expected benefits of the Darby Creek Trail are similar to those found for trails in general locally and across the country.

- **Recreation Benefit:** The trail will create a new recreational opportunity for local residents and visitors, by providing a means for a longer-distance journey than is currently available. The route of the expanded Darby Creek Trail will be approximately 3 miles long. Additional recreation options will be enhanced by allowing for further future linkages into Upper Darby and Marple Townships, as well as connecting to existing trails available at the Haverford Reserve.
- **Health Benefits:** The expanded availability of new recreational activities will result in a direct public health benefit to the community by providing safe, attractive and convenient opportunities to integrate exercise into one's lifestyle. Several residential neighborhoods are directly adjacent to the proposed route, and stand to benefit greatly from easy access to the trail.
- **Transportation Benefits:** In addition to providing a safe place for people to enjoy recreational activities, the trail can function as a viable transportation corridor. Ultimately, the Darby Creek Trail is intended to extend further in each direction, and from there to the extensive East Coast Greenway system, which connects to numerous trails throughout our region, as well as nationwide.
- **Environmental Benefits:** Linear in nature, trails have conservation benefits of preserving green space. As tools for ecology and conservation, trails help preserve important natural landscapes, and provide needed links between fragmented animal and plant habitats. In addition, they can

allow humans to experience nature with minimal environmental impact. The Darby Creek Trail will improve public access to numerous natural areas along the creek.

- **Economic Benefits:** The economic effects of trails and greenways are proven to raise property values and increase the attractiveness of a community to new residents and businesses. Locally and across America, countless communities have experienced an economic benefit due in part to trails and greenways. The Darby Creek Trail will provide pedestrian and bicycle access to the busy commercial Route 3 (West Chester Pike) corridor.
- **Social Benefits:** It is very common for trails to become sources of community identity and pride, and increase opportunities for social interaction.



The expanded trail will provide many benefits, such as recreation, transportation, and environmental.

Chapter 6

Implementation

This study is focused on determining a preferred alignment and overall project feasibility of extending the existing Darby Creek Trail in both directions. In this section, steps to implementation of the potential greenway are described according to what actions are necessary, how they may best occur, who is best positioned to lead each effort, and which phasing order would be most pragmatic.

In general, the basic steps necessary to implement the recommendations include:

1. **Acquisition:** Most of the proposed alignment for the Darby Creek Trail extension is on public land, but not all. There are several key locations where the trail must cross private property. In these locations, it will be necessary to acquire easements or other rights to allow access.
2. **Fund Raising:** Total cost for constructing the trail will be several million dollars. The majority of these funds are expected to be raised from grants and other public sources, which must be competitively pursued.
3. **Design and Construction:** The design presented in this study is conceptual. Further planning as well as final design and engineering will be necessary to prepare complete design documents suitable for construction.
4. **Maintenance and Operation:** Once the trail is constructed, ongoing responsibilities will include maintenance, repairs, cleaning, security, and programming.



The Cynwyd Trail in Lower Merion, Pa, was funded almost entirely from grants. Construction (left), ribbon cutting (above), and finished trail (top).

Responsible Parties

Implementation of the Darby Creek Trail Extension will depend on the continued effective collaboration between Haverford Township and many public and private partners.

Haverford Township is expected to be the lead entity responsible for design and construction. While the Trail may connect to neighboring municipalities and the broader region, within Haverford Township it will function as a local recreational resource, and an amenity for township residents and visitors. The township has the institutional capacity and expertise to build capital improvements. For these reasons, the Township should expect to take ownership of those trail segments within its boundaries, and accept the consequential operations and maintenance responsibility.



Within the municipal administrative structure, roles and responsibilities should be clearly defined and assigned so that specific actions can be carried out effectively. It is expected that the municipal personnel and appropriate boards and committees will all have roles in advancing the objectives of the Plan.

Given the breadth of the recommendations and focused attention that will be required to implement the major trail sections, it may be advantageous to establish a Trails Committee comprised of municipal officials and key stakeholders, to be the lead point of contact for related matters. In addition, the Township will need to the support of professional consultants and community partners to assist in carrying out the recommendations of the Plan. As currently configured, many municipal and other parties will have a role in bringing trail plans to reality:

- **Board of Commissioners:** Set policy, approve expenditures, and endorse recommendations of the Recreation Committee
- **Recreation Committee:** Spearhead community outreach, ensure that trail initiatives are consistent with the overall goals for recreation in the Township, and make recommendations to the Board for budgetary expenditures.
- **Township Manager:** Oversee the hiring of professional consultants, oversee public works department in managing construction projects, oversee preparation of grant applications and other fundraising efforts.
- **Planning Commission:** Advise the Board to ensure that trails initiatives are consistent with overall land use objectives of the Township.

- **Department of Parks and Recreation:** Act as lead agency for capital improvements including design and construction of the trail and associated amenities, as well as recreation programs that may utilize the trail.
- **Department of Public Works:** Serve an important role in assisting with maintenance and repairs to trail surface and infrastructure.
- **Professional Consultants:** Prepare feasibility studies, design trail improvements, oversee construction permitting required by regulatory agencies, prepare construction documents.
- **Community Partners:** Provide rights-of-way, raise funds, assist with programming and maintenance.

Key Project Stakeholders

A number of other Project Stakeholders will have important roles to play to help achieve the success of the project. These include:

Delaware County: With its 2015 *Open Space, Recreation, and Greenways Plan*, Delaware County has taken a strong role in advocating for the expansion of the county-wide trail network. The Darby Creek Trail is identified as a primary trail proposed as part of the County network. Through its Planning Department, the County can play an important role in coordinating the many independent planning initiatives that may be in play at a given time, and identifying opportunities for synergy. Furthermore, the County plays an important role in determining funding allocations for regional trails programs.



Marple Township: While it is primarily located within Haverford Township, the Darby Creek Trail is proposed to cross over the creek into Marple Township in two locations. These crossings will provide outstanding opportunities for future trail connections within Marple Township. Marple intends to study potential opportunities to develop a local trail network within the township, and should be intrigued by the possibility of connecting into the broader regional trail system. Marple Township should be looked to as a potential partner for implementation of the Darby Creek Trail and other possible multi-municipal trail initiatives.



Right-of-Way Acquisition

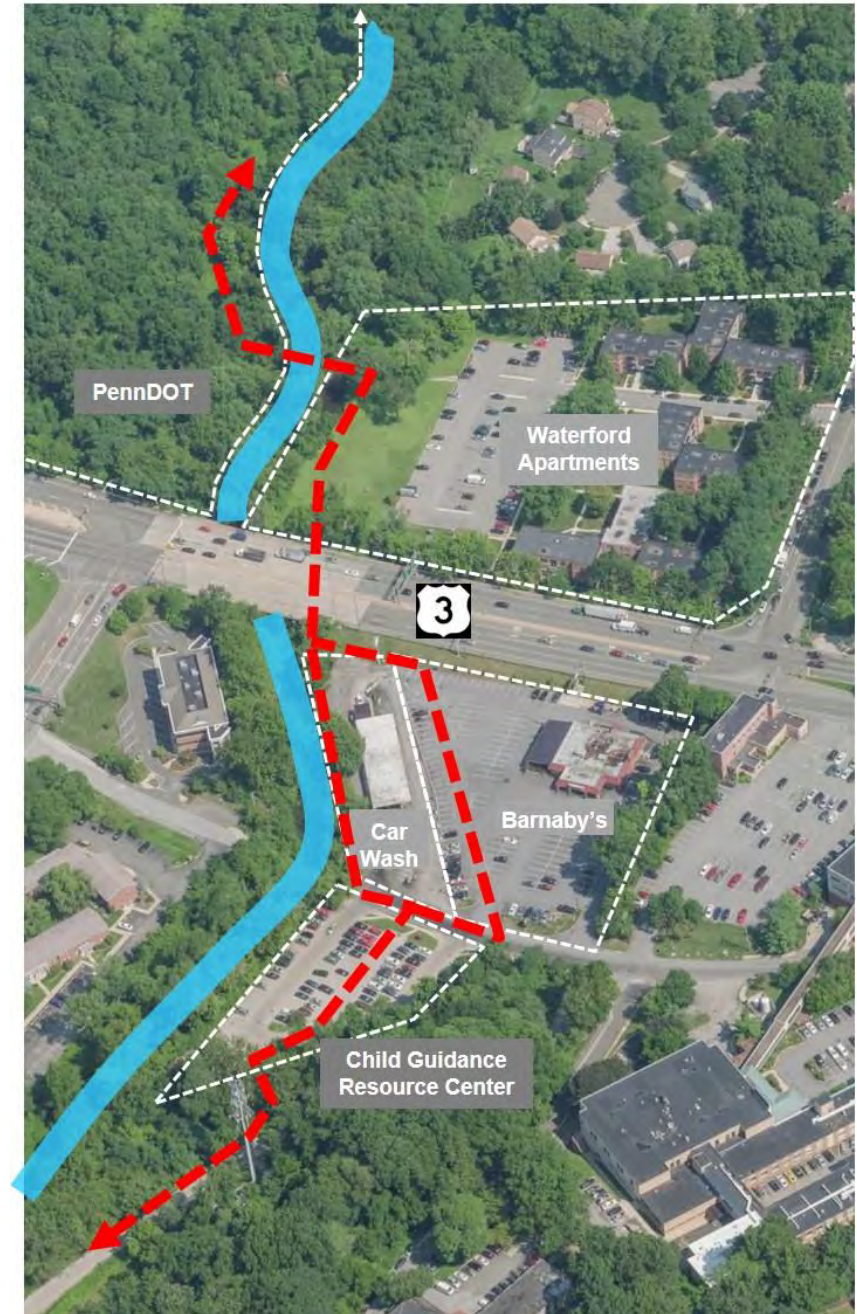
The proposed trail extensions involve multiple individual segments to create linkages that are primarily off-road. While the majority of the trail length will be on public land in existing parks and open spaces, several others must cross private properties that are not within municipal control. To build these trail segments, it will be necessary to acquire rights-of-way (most likely in the form of easements) to allow access across a number of individual properties. Key properties from whom easements may be required to build the recommended trail alignment include:

- PennDOT
- Parks Best Car Wash
- Waterview Apartments
- Child Guidance Resources Center

In addition, there are several residential properties along what otherwise would be the ideal trail route. The alternative route to go around these properties would involve crossing Darby Creek at considerable expense. The Township may wish to continue dialogue with residential owners with the goal of reaching a satisfactory agreement.

There are several common mechanisms for the acquisition of open space land and right-of-way for trails in general, such as fee simple purchase, easements, and donations. They can be used separately or in combination with other techniques listed below to facilitate acquisition. For the Darby Creek Trail, the most likely approach for acquiring necessary right-of-way is to execute easements. An easement is a mechanism by which a municipality or conservation organization can obtain a legal interest in private land for public use or conservation purposes.

The appropriate form of easement is a **pedestrian easement** or **right of public access easement** to allow public access for walking, hiking, bicycling, and other activities. The easement language typically establishes rules and restrictions, such as limiting when, where, and how the easement may be utilized. PA Act 68, *Recreational Use of Land and Water Act (RULWA)*, assures that the landowner is not held liable for any injuries, crimes, or death associated with public use of the land.



Permitting Required

PennDOT



A Highway Occupancy Permit (HOP) from PennDOT will be required for work proposed within the right-of-way of state highways. Most of the property along the proposed route is Haverford Township property, which will allow for a mostly off-road trail alignment. However, there are several occasions along the proposed trail route where the trail will intersect a state route. The HOP permitting process is the mechanism by which PennDOT reviews the proposed improvements. These instances believed to require HOP approval are as follows:

1. The trail will need to cross Burmont Rd. (S.R. 1006) at an uncontrolled intersection with Warrior Road. In addition to accommodating the trail itself, the crossing will allow residents in the neighborhood on the east side of Burmont to access safely the park on the west side of the street.
2. A crossing of Old West Chester Pike (S.R. 1033) will also be necessary. This is a very low-volume dead-end street.
3. The trail is planned to cross beneath West Chester Pike (S.R. 0003). There is ample room for the trail, and this appears to be an ideal way to cross safely from one side of Route 3 to the other.
4. At the north end of Darby Creek Road (S.R. 1010), the trail will need to be located for a short distance on the shoulder of the road as it curves around to meet Marple Road. Due to the very steep grade drop-off, there appears to be no alternative to this short on-street segment.



Pennsylvania Department of Environmental Protection (PaDEP)



In order to streamline the permitting process, it is recommended that a Pre-Application Meeting take place with Pennsylvania Department of Environmental Protection (PaDEP) personnel to discuss the project and associated impacts, as well as the required permitting level.

It is anticipated that a Chapter 105 General Permit for Water Obstructions and Encroachment will be necessary for crossings of Darby Creek. This permit is reviewed and issued by the Delaware County Conservation District (DCCD) on behalf of PaDEP. As part of the permit application, documentation must be prepared that details the proposed improvements and assesses the impact of the project on natural features such as hydrology, wetlands, wildlife habitat, soil erosion, and other factors.

Since Darby Creek is considered among the regulated waters of the United States, a Joint Permit from the U.S. Army Corps of Engineers (USACOE) for Pennsylvania Waterway Water Obstructions and Encroachment may also be required. Need for this permit is dependent on the specific nature of the project and the characteristics of the watershed. The Pre-Application meeting with PaDEP mentioned above would determine the need for this

Also necessary from PaDEP will be a National Pollutant Discharge Elimination System (NPDES) permit for earth disturbance, since the disturbed site area is expected to exceed the limit of one acre.



Sources of Funding

Potential opportunities for capital funding to construct the Darby Creek Trail Extension include federal, state, and local grants. Each has specific requirements, and is subject to certain limitations. These grant programs are almost universally competitive, and are awarded based on the merits of individual proposed projects and on the quality of grant application submissions. It is the expectation that all or most of the expense of constructing the greenway will be provided through these grant programs, and that little of the cost will be borne by the local municipal budget.

DCNR - PA Department of Conservation and Natural Resources

DCNR administers the federally-funded Recreation Trail Program and the state-funded Community Conservation Partnership Program (C2P2). The Recreation Trails Program is designed to develop and maintain recreational trails and trail related facilities for trail users. Project examples include development and rehabilitation of trailside and trailhead facilities and trail linkages and acquisition of easements or property for recreation trails. The Community Conservation Partnership Program is designed to provide grants for comprehensive recreation and park planning and greenway planning. Potential projects include development of public park and trail recreation facilities, acquiring land for park and conservation purposes, site development planning, and feasibility studies.

DVRPC - Delaware Valley Regional Planning Commission

DVRPC is the regional planning organization for the nine-county area surrounding Philadelphia in Pennsylvania and New Jersey. The agency plays a leading role in shaping planning policy for the region, with a key focus on promoting smart transportation. It administers a range of funding programs to facilitate planning and design of trails and greenways. These programs evolve annually. In recent years, programs oriented toward multi-modal transportation have included the Transportation and Community Development Initiative (TCDI), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Regional Trails Programs (RTP). It is expected that programs of a similar nature will be offered in future years.

DCED - Greenways, Trails and Recreation Program (GTRP)

The PA Department of Community and Economic Development (DCED) administers this program, which allocates funds to the Commonwealth Financing Authority (CFA) for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects.

DCED and PennDOT - Multimodal Transportation Fund (MTF)

The PA Department of Community and Economic Development (DCED) and PennDOT each administer this program, which provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to the residents of the commonwealth. Funds may be used for the development, rehabilitation and enhancement of transportation assets to existing communities, including lighting, sidewalk enhancement, pedestrian safety, bicycle circulation, connectivity of transportation assets and transit-oriented development. The two state agencies each have an independent funding allocation of the Multimodal Transportation Fund.

PennDOT - Transportation Alternatives Program (TAP)

The TAP program utilizes federal funds authorized through the Moving Ahead for Progress in the 21st Century (MAP-21) legislation. Funding is awarded by PennDOT as the authorized state agency, with program administration at the local region provided by DVRPC. Each County recommends to DVRPC its top priority projects requesting funding. TAP grants are intended for pedestrian and bicycle facilities, improved access to public transportation, safe routes to school, and trails projects that serve a transportation purpose, while promoting safety and mobility.

PennDOT – Transportation Improvement Program (TIP)

The “TIP” is the 12-year budget and forecast for the full range of transportation projects planned by PennDOT and funded through federal transportation money. It addresses all transportation modes, including highways and bridges, public transit, aviation, rail freight, as well as bicycle and pedestrian facilities. Projects become funded through the TIP by recommendation of the local county and DVRPC, and are evaluated in light of competing project needs across the state.

Redevelopment Assistance Capital Program (RACP)

RACP is a Commonwealth grant program administered by the Office of the Budget for the acquisition and construction of regional economic, cultural, civic, and historical improvement projects. The grant requires a 50% match, and eligible projects must have a total cost of at least \$1,000,000.

PECO – Green Region Open Space Grant Program

Green Region grants are available to municipalities to cover a wide variety of planning and expenses associated with developing and implementing open space programs and capital improvements for passive recreation such as trails and greenways. The program is administered in partnership with the Natural Lands Trust.

Trails and Greenways Grant Funding Summary

DCNR - PA Department of Conservation and Natural Resources

Community Conservation Partnership Program (C2P2)

Recreation Trails Program (RTP)

- *Timing:* annual - April 15
- *Amount:* up to \$250,000
- *Match:* 50% local
- *Activities:* Planning, design, construction
- <http://www.dcnr.state.pa.us/brc/grants/index.aspx>

DVRPC - Delaware Valley Regional Planning Commission

Transportation and Community Development Initiative (TCDI)

- *Timing:* 2019 anticipated
- *Amount:* up to \$100,000
- *Match:* 20% local
- *Activities:* Planning only
- <http://www.dvrpc.org/TCDI/>

Regional Trails Program (RTP)

- *Timing:* rolling
- *Amount:* up to \$200,000
- *Match:* varies
- *Activities:* Design and engineering
- <http://www.dvrpc.org/trails/RegionalTrailsProgram/>

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

- *Timing:* 2019 anticipated
- *Amount:* unlimited
- *Match:* 20% local
- *Activities:* Design and Construction
- <http://www.dvrpc.org/CMAQ/>

DCED – Department of Community and Economic Development

Greenways, Trails and Recreation Program (GTRP)

- *Timing:* annual, spring
- *Amount:* up to \$250,000
- *Match:* 15% local
- *Activities:* Planning, design, construction
- <http://community.newpa.com/programs/greenways-trails-and-recreation-program-gtrp/>

Multimodal Transportation Fund (MTF) - See PennDOT

PennDOT – Pennsylvania Department of Transportation

Multimodal Transportation Fund (MTF)

- *Timing:* annual - July 31
- *Amount:* up to \$3,000,000
- *Match:* 30% local
- *Activities:* Design (10% max.), construction
- <https://www.penndot.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx>

Transportation Alternatives Program (TAP)

- *Timing:* 2019 anticipated
- *Amount:* up to \$1,000,000
- *Match:* 20% local
- *Activities:* Construction only
- <https://www.dvrpc.org/tap/PA>

Transportation Improvement Program (TIP)

- *Timing:* rolling
- *Amount:* unlimited
- *Match:* 20% local
- *Activities:* Construction only
- http://www.dot.state.pa.us/TYP/Index_files/TIP.htm

PECO /Natural Lands Trust

Green Region Open Space Grant Program

- *Timing:* annual - October 31
- *Funding Amount:* up to \$10,000
- *Match:* 50% local
- *Activities:* Planning, design, construction
- <https://natlands.org/what-we-do/growing-greener-communities/peco-green-region/>

Governor's Budget Office

Redevelopment Assistance Capital Program (RACP)

- *Timing:* rolling
- *Amount:* unlimited
- *Match:* 50% local
- *Activities:* Construction only
- <https://www.budget.pa.gov/Programs/RACP/Pages/Main%20Page.aspx>

Anticipated Construction Cost

For the alignment proposed in this study, the expected construction cost is roughly between \$5-6 million. However, as the design is at a conceptual level, this is an order-of-magnitude estimate. These costs are preliminary and are based on only a general understanding of specific site constraints and design responses that will ultimately be necessary to fully realize the trail potential. (See detailed cost estimate in the Appendix.) Actual construction costs for each individual segment of the trail network will depend on a variety of factors, including:

Property Acquisition Costs: Estimated costs presented in this report are for construction only, and do not include costs for acquisition of property and/or easements. Given the community-oriented nature of the project, it is hoped that the necessary easements will be donated. However, this is subject to negotiation, and tangible costs may result.

Specialty Features: The conceptual design and corresponding cost estimate assumes a modest level of amenity typical for a local recreation trail. The cost of various materials and design details can vary greatly. The specific features and design amenities that will accompany the trail will be determined during the final design stage. These may include: trail head features such as benches, lighting, and parking; security features; landscaping; adjacent park spaces; size and aesthetic treatment for bridges and other structural features; educational and interpretive features such as signage or seating areas.



Darby Creek Trail Anticipated Construction Cost (Order-of-Magnitude)		
Segment	Location	Approx. Cost.
1 South	Merry Place to Upper Darby	\$ 2,010,000
2 North A	Merry Place to Route 3 Underpass	\$ 700,000
2 North B	Route 3 Underpass to Darby Creek Valley Park	\$ 1,070,000
2 North C	Darby Creek Valley Park	\$ 830,000
2 North D	Darby Creek Valley Park to Haverford Reserve	\$ 880,000
	Total	\$ 5,490,000

Five Year Action Plan

For many grant funding programs, grant awards are contingent upon right-of-way acquisition. In other words, funding will not be granted until right-of-way can be demonstrated. Therefore, acquisition of right-of-way is a critical first step to begin implementing new segments for the Darby Creek Trail.

Near-term actions should focus on tasks that can achieve results quickly and effectively. For instance, some segments of the proposed trail extensions are located entirely on public property, and do not require acquisition of new right-of-way. These segments can be constructed as an early phase. Tangible progress – such as actual new trail segments that the public can see and touch – will build momentum and public support, and demonstrate credibility with stakeholders and potential funding partners.

Other short-term actions should involve continued planning for the more ambitious segments of the trail, such as those involving stream crossings and a lengthy permitting process. Bigger, more complicated segments take time, since they involve many steps and many stakeholders. It is important to start the process as soon as can be managed, otherwise good will and cooperative spirit is easily eroded.

With an aggressive approach, it is conceivable that the entire proposed trail extension can be built or underway within the next five years. Major tasks and milestones are summarized below.

Year 1-2

- Seek funding to support the effort necessary to pursue right-of-way acquisition.
- Acquire rights-of-way (easements) over private properties. These include:
 - PennDOT (2 locations)
 - Parks Best Car Wash
 - Waterview Apartments
 - Child Guidance Resources Center
- Engage in dialogue with neighboring Marple Township to partner for trail segments proposed for the Marple side of Darby Creek.
- Seek funding for final design and construction for the proposed trail extensions, by making application to relevant grant funding agencies.

Years 2-3

- Secure funding to prepare final design documents and construction.
- Prepare final design for Section 1 of the new trail, from Haverford Reserve to Waterview Circle.
- Construct Section 1 of the new trail, from Haverford Reserve to Waterview Circle.
- Prepare final design for Section 2 of the new trail, from Waterview Circle to the northern end of the existing trail, including two (2) stream crossings and a crossing beneath West Chester Pike.

Years 4-5

- Secure funding to prepare final design documents and construction for remaining segments.
- Construct Section 2 of the new trail, from Waterview Circle to the northern end of the existing trail, including two (2) stream crossings and a crossing beneath West Chester Pike.
- Prepare final design for Section 3 of the new trail, from Merry Place to Upper Darby, including two (2) stream crossings and an at-grade crossing of Burmont Road.
- Construct Section 3 of the trail.

Maintenance and Operations

A common characteristic of greenways everywhere (and public spaces in general), is that maintenance and operations is almost always a challenge. While the investment of time and money required to build a greenway is often huge, the task of finding resources to maintain and operate a trail is sometimes equally daunting.

Locally and nationally, one common model is for actual ownership of trails and greenways to be in public hands, usually a county or municipality. Maintenance, however, is often performed by, or in cooperation with, local non-profit organizations and community volunteers. This is a win-win relationship. Most non-profit groups wish to avoid owning property due to liability concerns. Local governments, having the capacity to own property and accept the attendant legal issues, benefit from reduced maintenance costs and responsibilities.

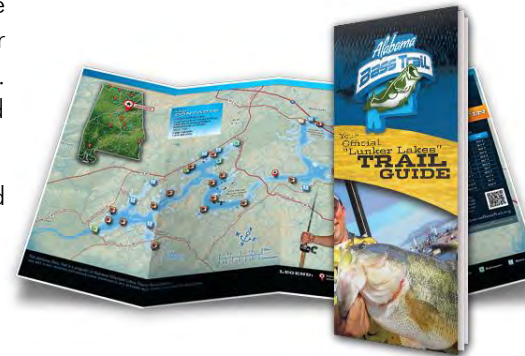
In Haverford, it is likely that specific responsibility for maintenance and operations of greenways may involve multiple private and public entities, and it is reasonable to expect that many stakeholders will contribute in some meaningful way to the effort necessary to carryout trail operations.

One scenario for trail operations is for the municipalities to take responsibility for aspects of the trail related to public safety. These elements would include maintenance of the pavement surface, pavement markings, drainage facilities, curbs and other physical buffers, traffic regulatory signs, and operations of traffic signal equipment. These items fall generally within typical municipal maintenance regimens, and should be within municipal capacity to carry out.

Private partners may be sought to assist the municipalities with the provision and maintenance of “supplemental” greenway elements, which might include:

- Cleaning and trash removal
- Identity and wayfinding signage and maps
- Landscape maintenance
- Public communications and safety
- Marketing and promotional events

The importance of private non-profit organizations to assist in trail development cannot be overemphasized. There is ample precedent in the region for public-private partnership for operations and maintenance of public open space. In many cases, basic services are provided by the municipality and supplemental services are provided by partners. These additional services can include volunteer labor, modest financial contributions, technical expertise, or other in-kind services.



Landscape maintenance, security, and promotions are some of the operational tasks that are necessary to assure long-term success of the trail.

Locally in Haverford Township, the **Friends of Haverford Trails** is a non-profit group that has been active in promoting trail development in the township and local region. The group can play a valuable role in publicizing information and generating public support for the trail.

Other local examples of private non-profit groups assisting with trail development include:

- In Lower Merion Township, the *Friends of the Cynwyd Trail* have provided a substantial amount of volunteer labor to beautify and maintain the Cynwyd Trail. Construction of the trail itself was by the municipality, while associated landscape maintenance and improvements has been by the Friends groups.
- The nearby Chester Creek Trail is supported by *The Friends of the Chester Creek Branch* non-profit organization (<http://www.chestercreektrail.org/>). This Friends group was heavily involved in conceiving the project and advocating for the trail in its early stages. Since the proposed trail alignment spans multiple municipalities, it was especially advantageous to have an organization distinct from the individual local governments. The Friends group secured the rights to the rail line and commissioned the early feasibility study. The group remains in a lead role now that the trail is under construction, and is expected to partner with local governments for maintenance and operations.
- The Chester Valley Trail, which roughly parallels Route 202 between Exton and King of Prussia, is supported by the *Friends of the Chester Valley Trail* (<http://chestervalleytrail.org/>). The group provides financial support for maintenance through membership donations, and serves as a hub for trail information. They provide news, events, volunteer support and advocacy for trail growth.
- *Friends of Radnor Trails* (FORT) (<https://www.facebook.com/pages/Friends-of-Radnor-Trails/160505950669234>), was founded to advocate for the conversion of a former rail line into the Radnor Trail. The organization continues to advocate for trail expansion, and organizes volunteers for maintenance and upkeep.



In Lower Merion, the *Friends of the Cynwyd Trail* programs events (above) to raise money to support maintenance, and provides volunteer labor to defray costs (left).

The *Friends of Haverford Trails* is a non-profit group that takes an active role in promoting local trails (below).



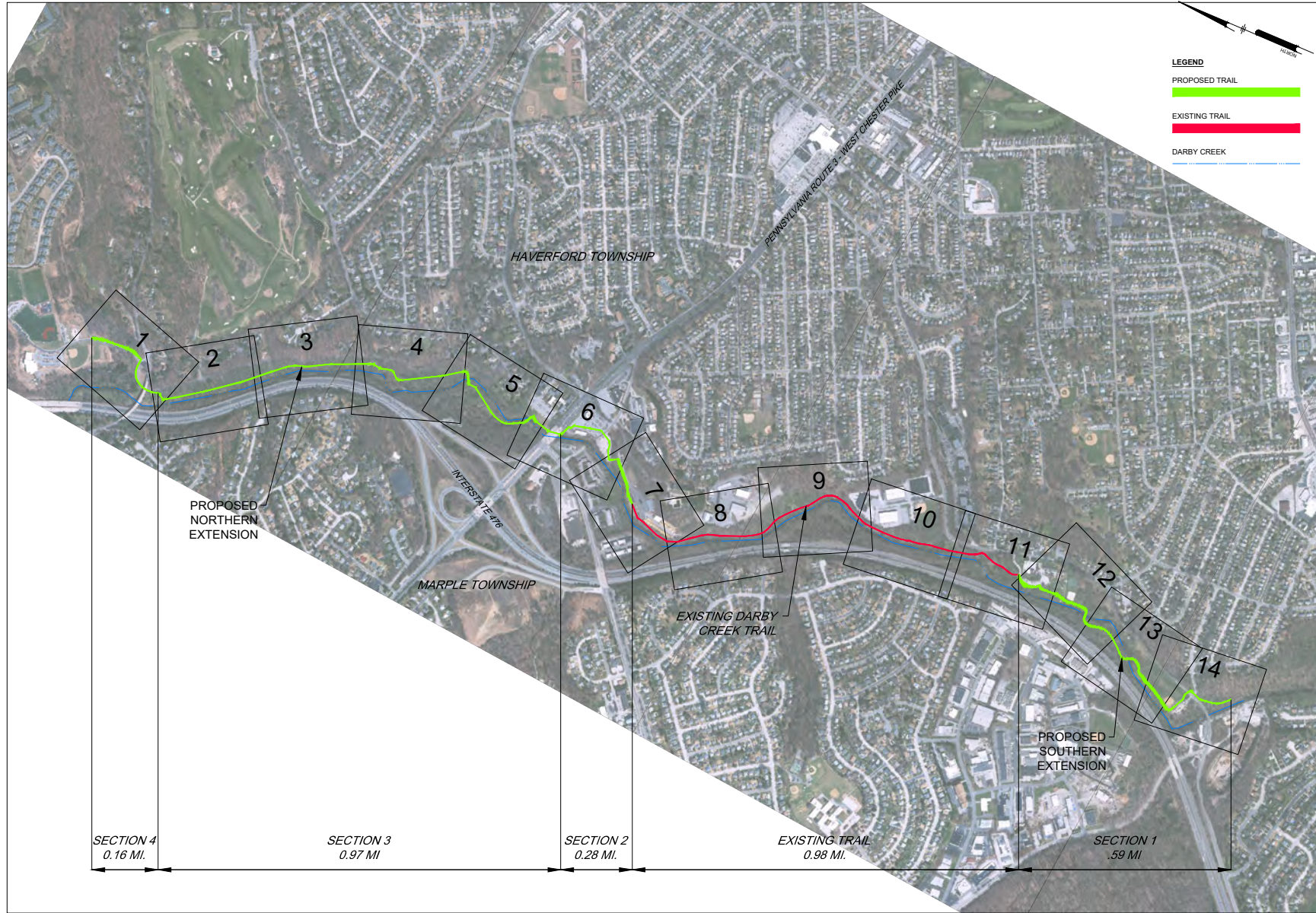
Appendices

Appendix A: Proposed Trail Plans

Appendix B: Cost Estimate

Appendix C: References

Appendix A: Proposed Trail Plans



LEGEND

PROPOSED TRAIL

EXISTING TRAIL

DARBY CREEK

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DARBY CREEK TRAIL

KEY

Haverford Township
Marple Township

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DATE: 2017-11-06

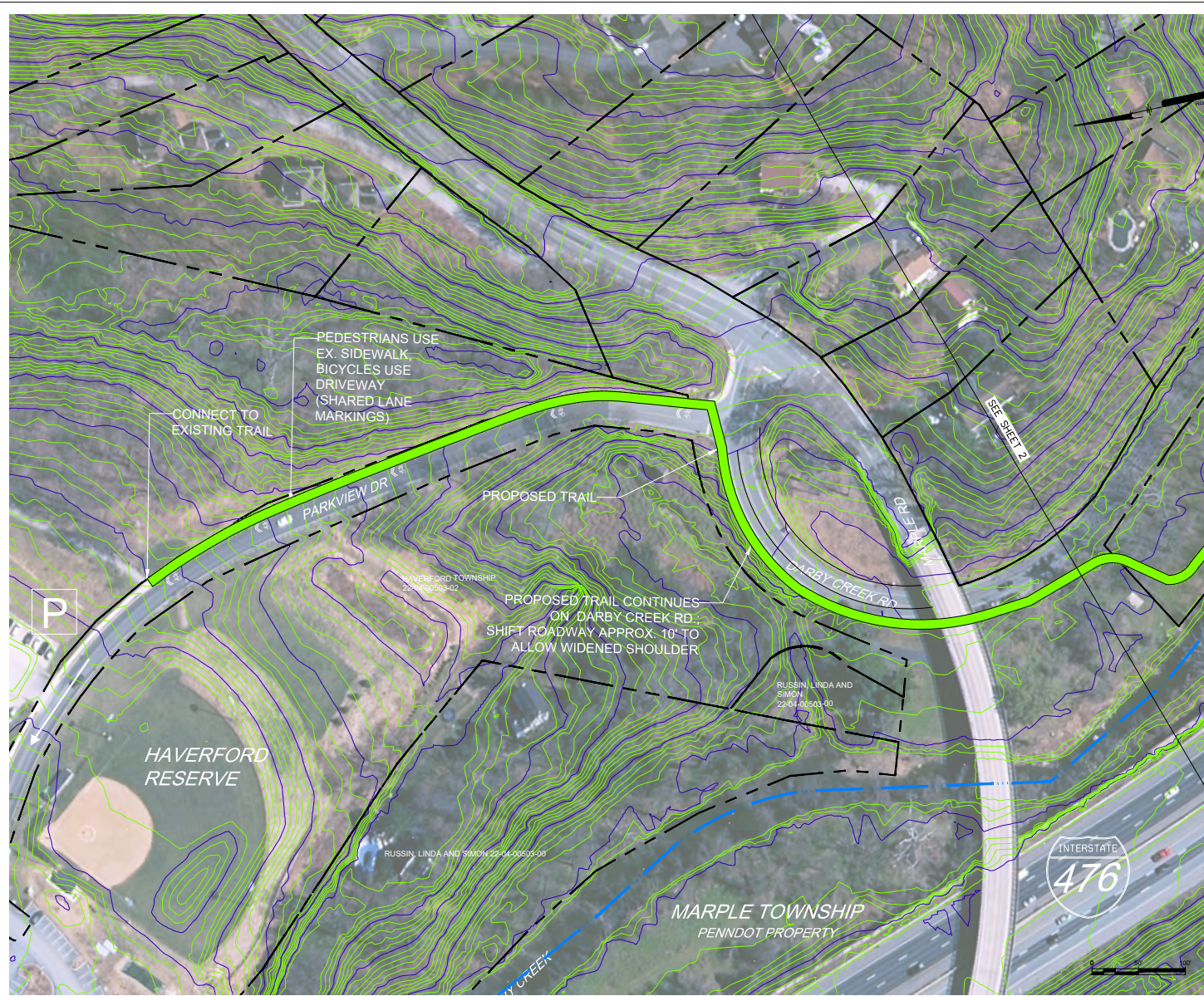
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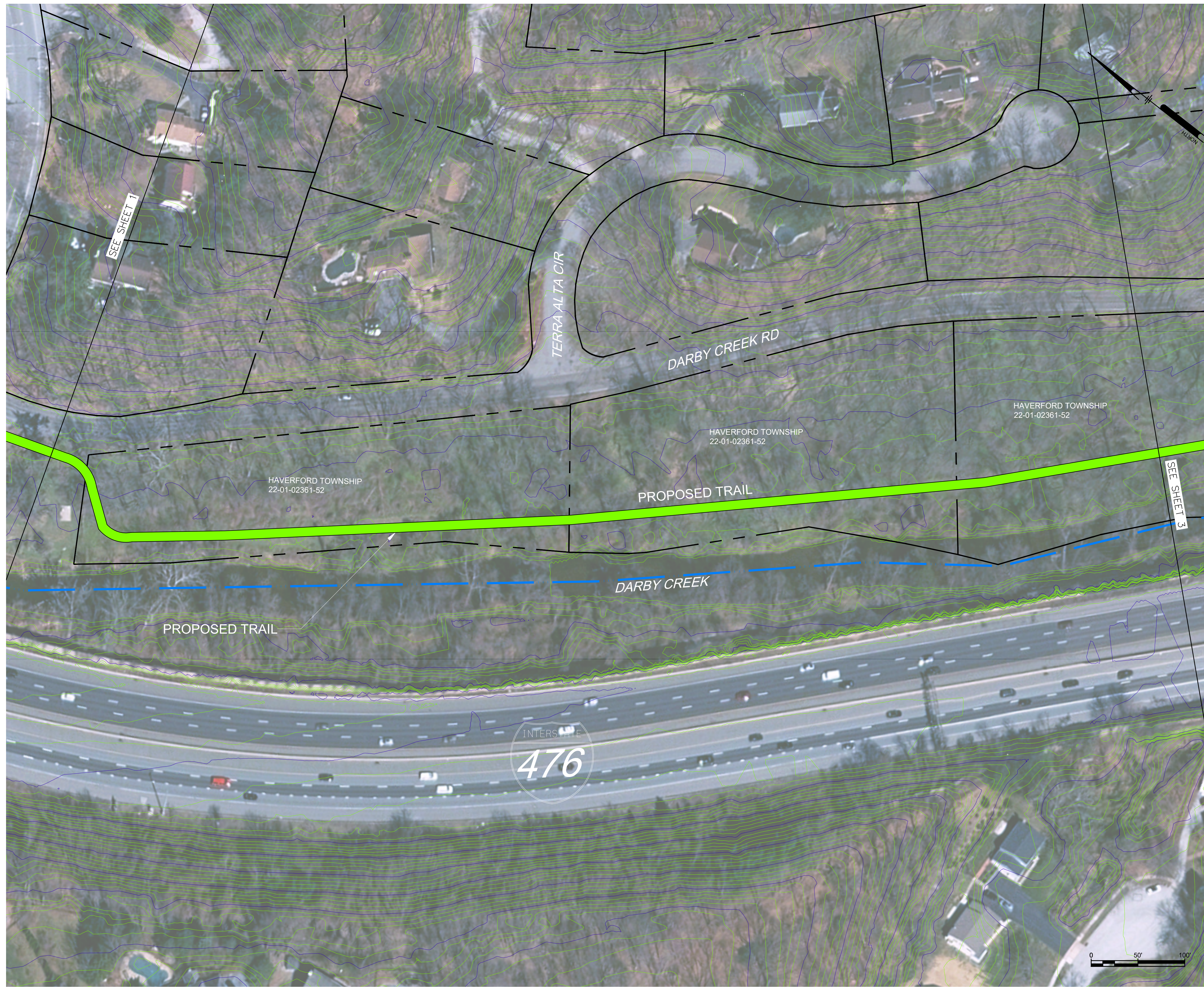
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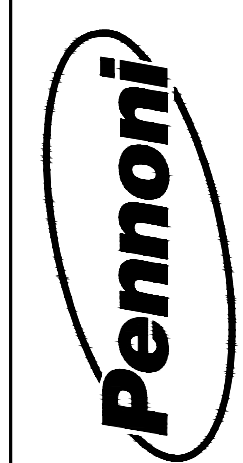
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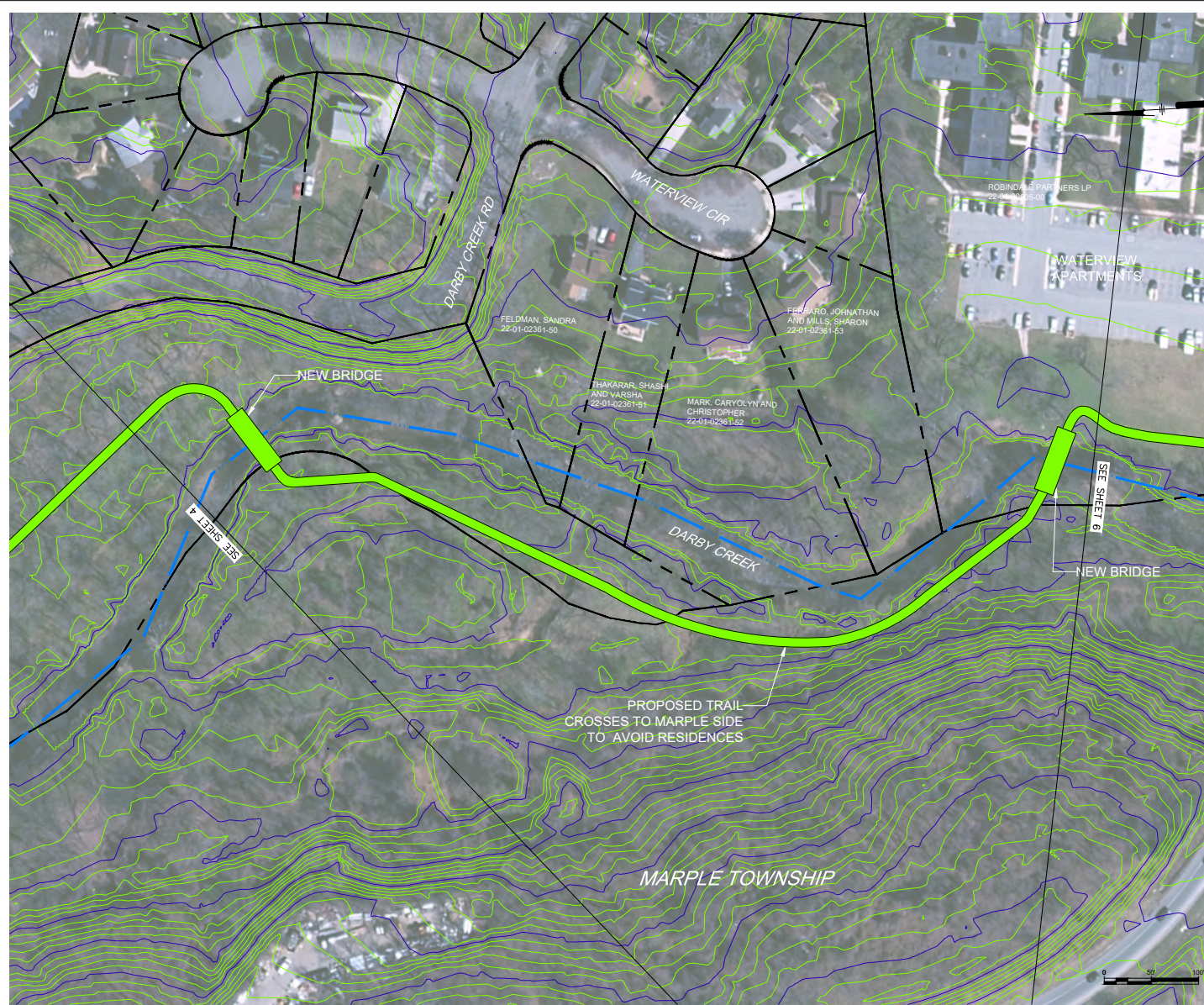
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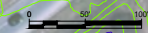
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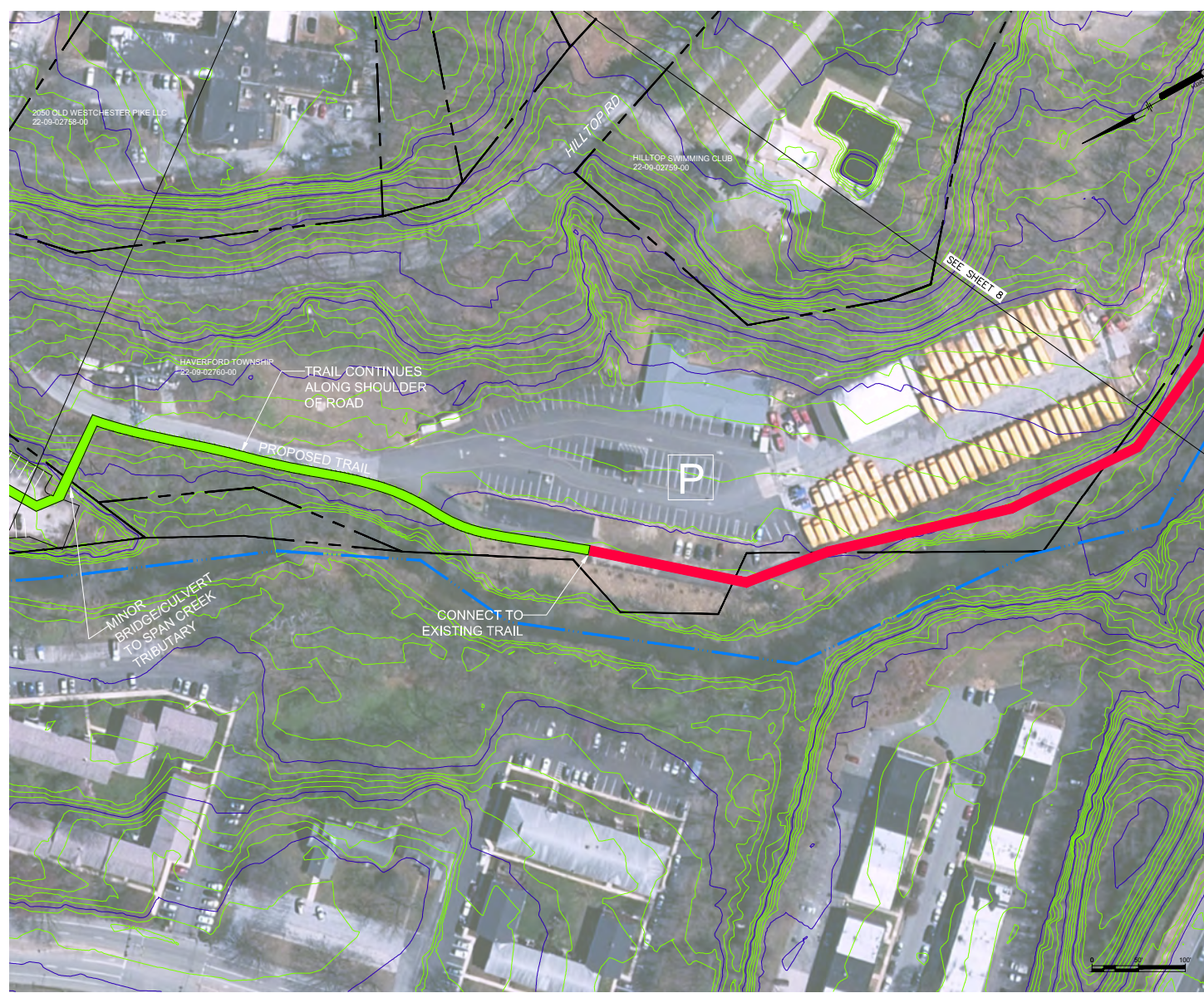
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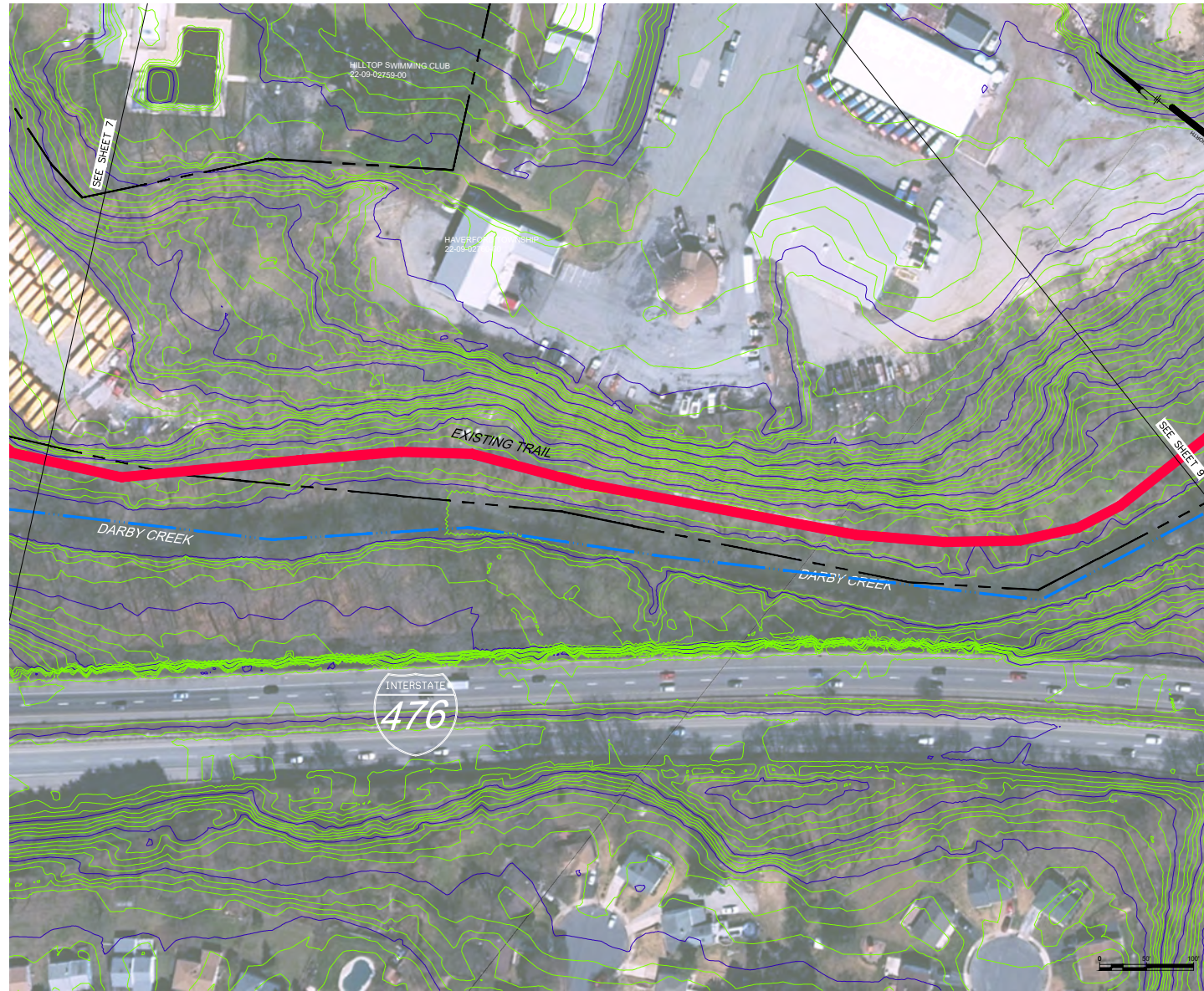
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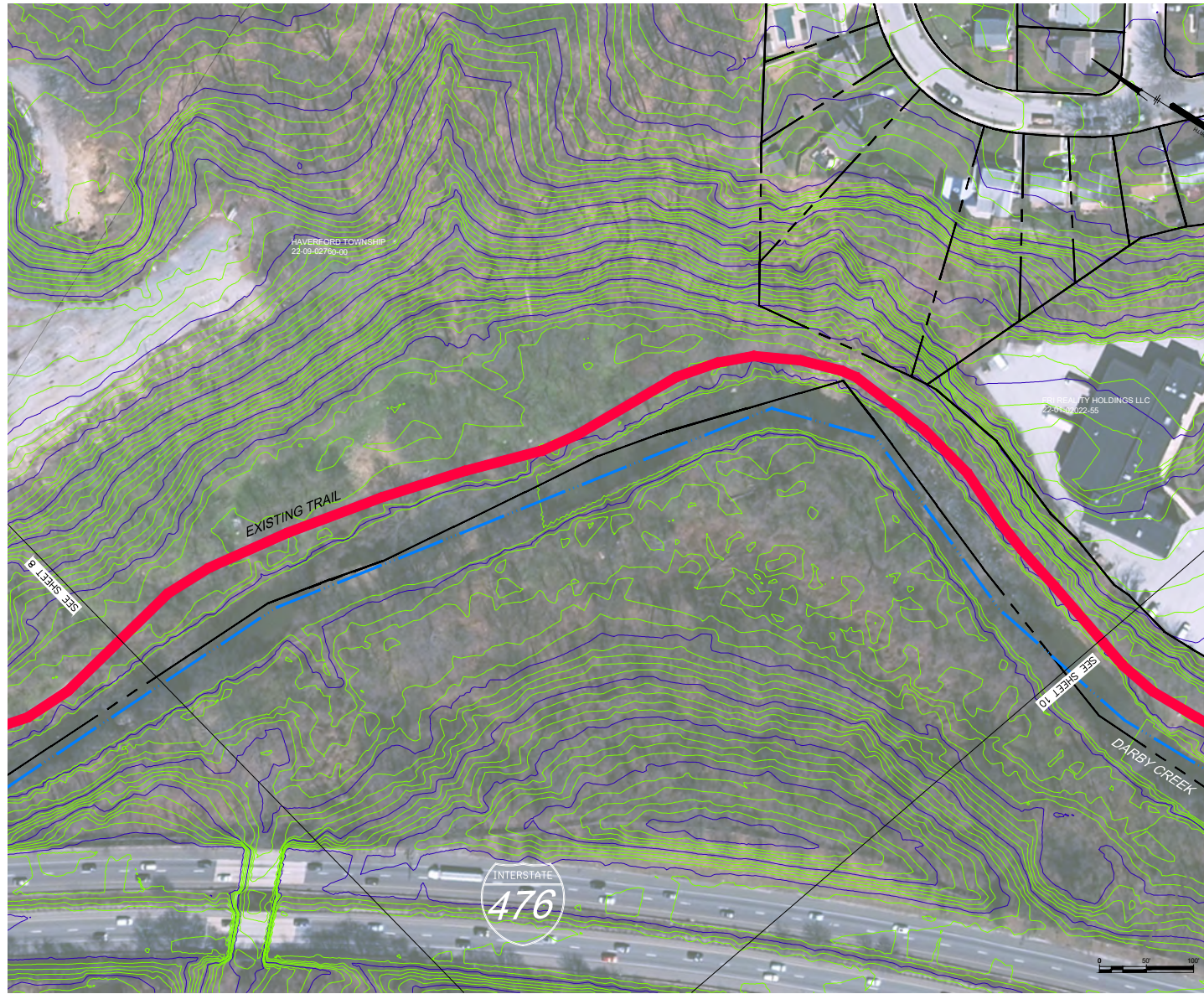
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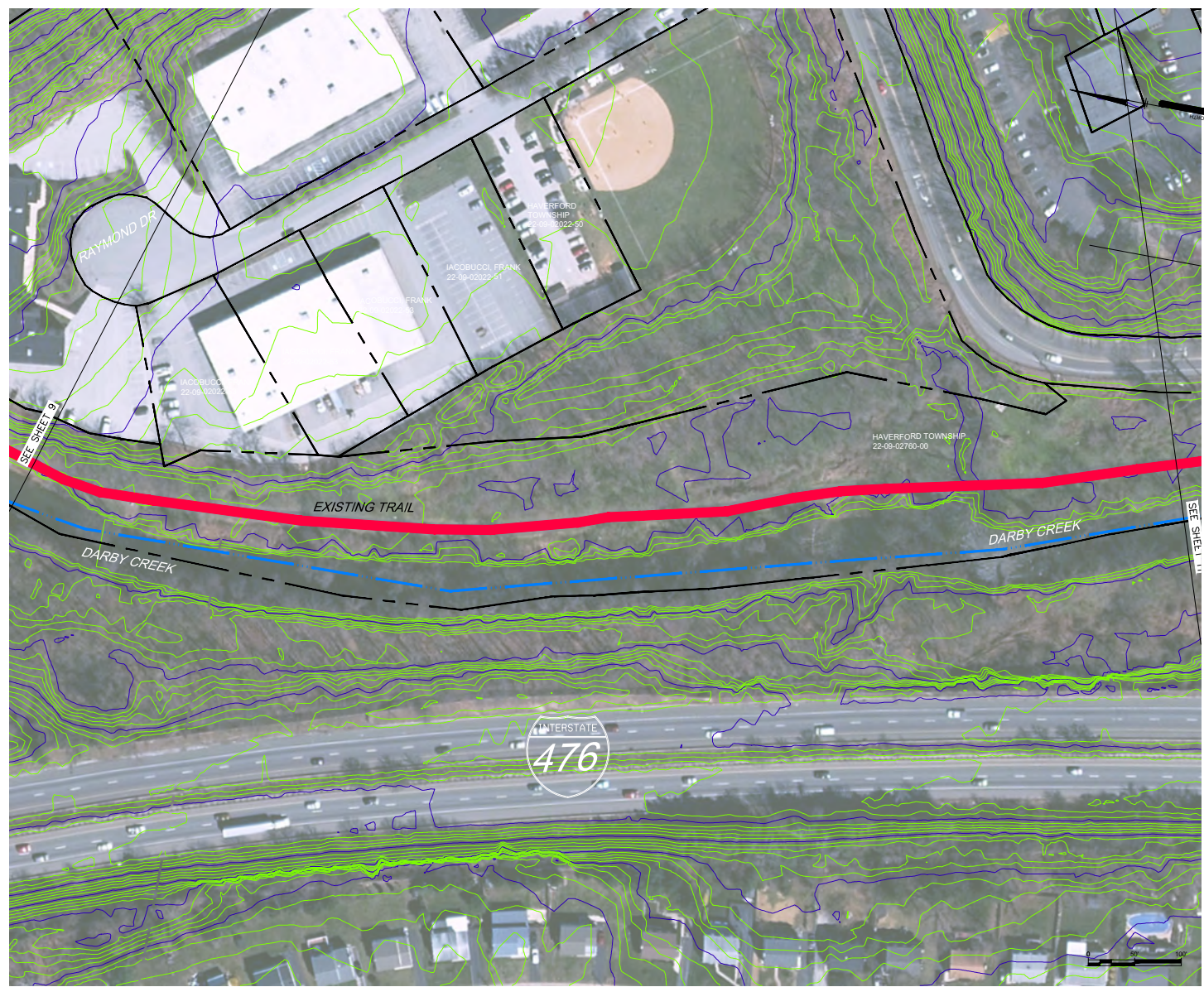
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- DARBY CREEK
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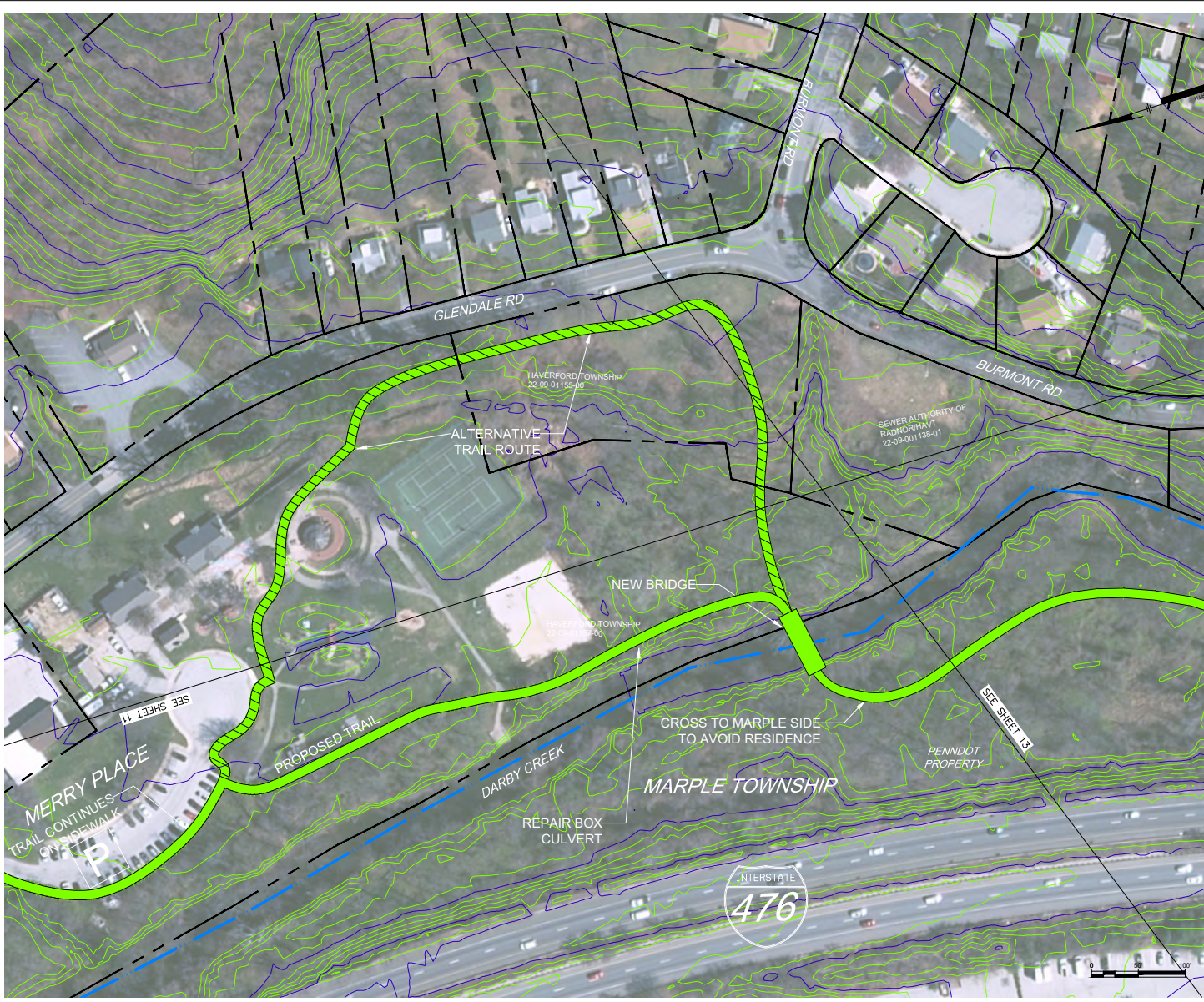
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LEGEND

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PROPOSED TRAIL PARKING

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PROPERTY LINE

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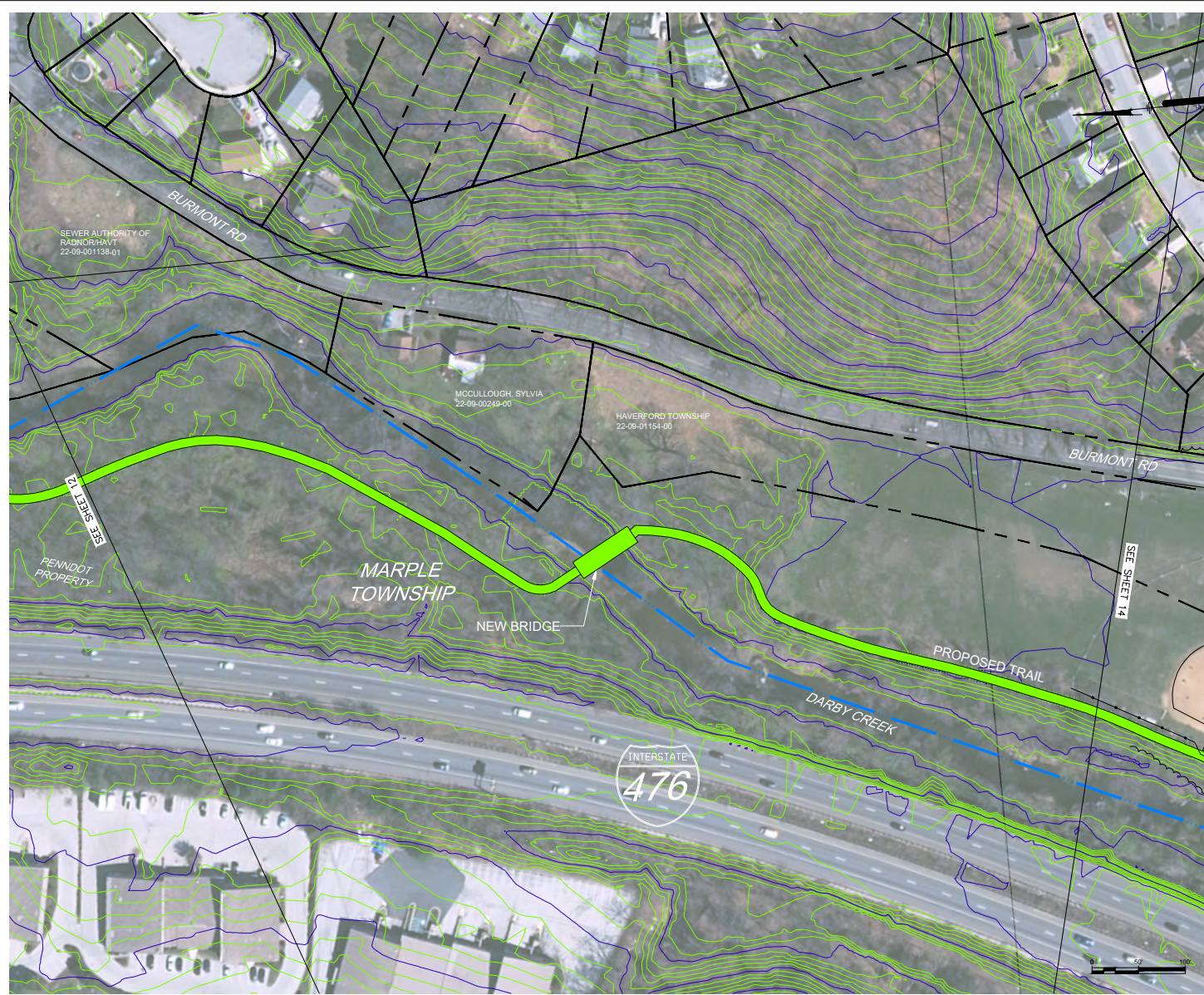
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- LEGEND**
- PROPOSED TRAIL ———
 - PROPOSED TRAIL PARKING P
 - EXISTING TRAIL ———
 - DARBY CREEK ———
 - PROPERTY LINE



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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
 DISCREPANCIES BE FORE PROCEEDINGS WITH WORK

DARBY CREEK TRAIL
 HAVERFORD TOWNSHIP
 DE LAWARE COUNTY, PENNSYLVANIA
TRAIL STUDY - 13
 HAVERFORD TOWNSHIP

NO.	DATE	NO.	BY	REVISIONS

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PROJECT: **HAVT305021**
 DATE: 2017-11-06
 DRAWING SCALE: AS NOTED
 DRAWN BY: SDS
 APPROVED BY: MJM

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 SHEET 13 OF 14

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Appendix B: Cost Estimate

DARBY CREEK TRAIL EXTENSION HAVERFORD TOWNSHIP, PA Opinion of Probable Construction Cost	SECTION 1 - South	SECTION 2 - North A	SECTION 3 - North B	SECTION 4 - North C	SECTION 4 - North D
	Merry Place to Upper Darby	Merry Place to Route 3 Underpass	Route 3 Underpass to Darby Creek Park	Darby Creek Park	Darby Creek Park to Haverford Reserve
Item	Cost	Cost	Cost	Cost	Cost
Paved Trail, 10' Wide - inclusive	\$ 264,000	\$ 52,000	\$ 96,000	\$ 312,000	\$ 9,200
Earthwork/Grading	\$ 8,000	\$ 16,000	\$ -	\$ 8,000	\$ 16,000
Clearing and Landscaping	\$ 10,000	\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000
Mill and Overlay Asphalt Paving					\$ 18,000
Roadway Paving					\$ 10,000
Widen Darby Creek Road					\$ 200,000
Pavement Markings	\$ -	\$ 17,200	\$ -	\$ -	\$ 6,600
Fencing and Railings	\$ 60,000	\$ 30,000	\$ 2,500	\$ 2,000	\$ 35,000
Concrete Curbs					\$ 30,000
Minor Stream crossing	\$ 50,000	\$ 50,000	\$ -	\$ 50,000	\$ -
Darby Creek Bridge	\$ 500,000	\$ -	\$ 500,000	\$ -	\$ -
Streambank Stabilization	\$ 50,000			\$ 25,000	
Retaining Walls	\$ -	\$ 45,000	\$ -	\$ -	\$ 30,000
Drainage and Stormwater	\$ 50,000	\$ 20,000	\$ 25,000	\$ 70,000	\$ 105,000
Light Pole Relocation	\$ -	\$ 6,000	\$ -	\$ -	\$ 18,000
Security Features	\$ 4,000	\$ 16,000	\$ 2,000	\$ 4,000	\$ -
Street Crossing -Township	\$ 15,000				\$ 7,500
Street Crossing -PennDOT	\$ 75,000				
Trail Head @ McDonald Field	\$ 120,000				
Fishing Pier @ Merry Place	\$ 10,000				
Underpass at Route 3		\$ 150,000			
Signage (specialty)	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 3,000
Mobilization	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000
<i>Subtotal</i>	\$ 1,239,000	\$ 430,200	\$ 655,500	\$ 511,000	\$ 513,300
Contingency 20%	\$ 247,800	\$ 86,040	\$ 131,100	\$ 102,200	\$ 102,660
General Conditions 10%	\$ 123,900	\$ 43,020	\$ 65,550	\$ 51,100	\$ 51,330
<i>Subtotal Construction</i>	\$ 1,610,700	\$ 559,260	\$ 852,150	\$ 664,300	\$ 667,290
Soft Costs (20%)	\$ 322,140	\$ 111,852	\$ 170,430	\$ 132,860	\$ 133,458
Construction Admin (5%)	\$ 80,535	\$ 27,963	\$ 42,608	\$ 33,215	\$ 80,535
Allowance for Easements: not included					
TOTAL PER SEGMENT	\$ 2,013,375	\$ 699,075	\$ 1,065,188	\$ 830,375	\$ 881,283
TOTAL ALL SEGMENTS	\$ 5,489,296				

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