



Marple Township Township Trails Master Plan

2020



Marple Township
227 Sproul Road
Broomall, PA 19008

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Marple Township Trails Master Plan

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Chapter 1

Background

In recent years, the progress made toward the development of the growing regional trail network has been remarkable. Across our region, as each new segment of the growing trail network is planned and constructed, the potential for a continuous high-quality trail network is becoming tantalizingly close.

The desire to plan for a comprehensive trail network in Marple Township is indicative of the broader effort to promote sustainable transportation infrastructure in the 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 places.

This *Marple Township Trails Master Plan* will serve as a vital tool for the Township to organize and prioritize its effort to develop a local trail network that serves the needs of residents, while at the same time capitalizing on the potential to connect into the broader regional trail network. If the recommendations of the Plan are fully realized, Township residents will be able to walk out their front door and walk or bicycle safely to parks, schools, and stores. And someday, these local trails may connect to a larger system that allows a cyclist to travel all the way to Philadelphia and virtually anywhere else in the region and beyond.

Nationally, there are more than 13,000 miles of public trails now in operation. Trails come in all shapes and sizes. Some, like the well-known Appalachian Trail and East Coast Greenway, are hundreds of miles long, spanning many states, and comprising many jurisdictions and a wide variety of physical characteristics. Many other trails are small in scope, simple local walking paths. Locally, there are many established trails in and around Delaware County. The multi-use trail in Ridley Creek State Park is an example that will be familiar to many Marple Township residents. Other popular trails nearby include the Chester Valley Trail, Schuylkill River Trail, and Radnor Trail. These examples are of wide, paved trails. But trails can also be rustic, sometimes not much more than a simple cleared footpath. This report presents recommendations for a range of trail types, designed for a variety of uses and users.



Existing recreation trails in Marple Township can be integrated into a Township-wide network of trails connecting a wide range of community and open space resources.

Plan Goals and Objectives

The overall intent and purpose of the study is to identify opportunities and a methodology for developing a Township-wide network of public trails and greenway corridors. In pursuit of this goal, the Plan will address the balance between recent and future growth with the desire to maintain open space for both passive and active recreation, while planning for future greenway opportunities. The Plan will create opportunities for residents to connect to local and regional parks, regional greenways, adjacent municipalities and other existing trails, as well as community facilities and natural and cultural resources. The expectation is that a Township-wide trail system will improve the overall quality of life in the community, increase property values, and enhance the attractiveness of Marple Township to new businesses and residents.

Successful plans are ones that can be built. While the Plan is based on sound principles, and with an understanding of the broader context of trail development in our region, the Plan must also be practical, and recognize the limitations of funding, maintenance capability, and consensus-building.

With these overall goals in mind, specific objectives of the Plan are as follows:

- Enhance recreational opportunities.
- Conserve natural and scenic resources.
- Provide off-road trail connections to local parks, community facilities, and other destinations.
- Connect local trails to the broader regional trail network.
- Identify strategic properties for future acquisition and easements.
- Identify obstacles to implementation.
- Coordinate local efforts with the broader regional trail planning efforts.
- Identify local stakeholders that can assist with developing the trail network.
- Build community support for the Plan.
- Identify potential funding opportunities for implementation.
- Identify approximate costs of design and construction.
- Understand the realistic time frame and sequence for implementation.

This Plan is organized and presented in the following chapters:

- **Chapter 1: Background** – *What is the Plan?*
Overall project goals, objectives, and context.
- **Chapter 2: Existing Resources** – *What do we have?*
Description of the Township and its social and physical characteristics, as well as existing parks, recreation, cultural, and natural resources
- **Chapter 3: Recommendations** – *What do we want?*
Opportunities for local trail network and associated open spaces.
- **Chapter 4: Design Guidelines** – *What will it look like?*
Design description of typical trail types, including a survey of comparable trails in the local area.
- **Chapter 5: Implementation Plan** – *How do we get it?*
Action plan to outline a realistic approach to implement the recommendations, including costs, timeline, and responsible parties



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

Community Outreach

This Plan 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 2-year period from 2018 through 2020. Community outreach took place on several levels. An ad hoc steering 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 five occasions: April and July 2018, December 2019, and May and October 2020. Additionally, numerous other meetings took place with individual agencies, planning officials, local institutions, and property owners which could potentially be impacted, to seek input and gauge response as the plans developed. Three public meetings were held to present the Plan recommendations and solicit feedback. These consisted of Marple Township Board of Commissioners meetings in February and November 2020, and the Philadelphia Western Suburbs Trail Summit in February 2020.

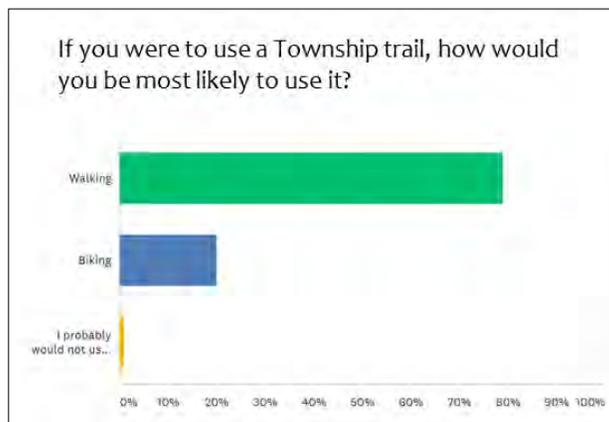
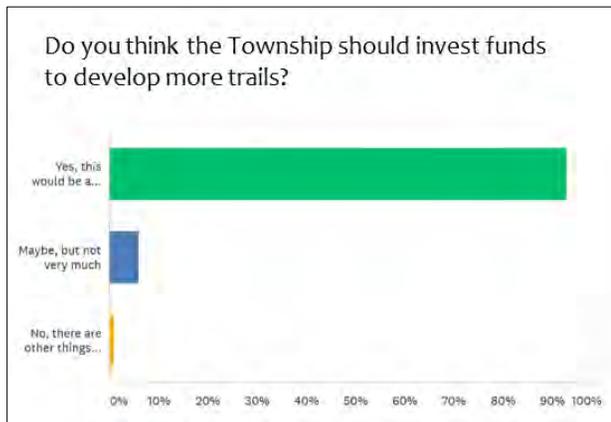
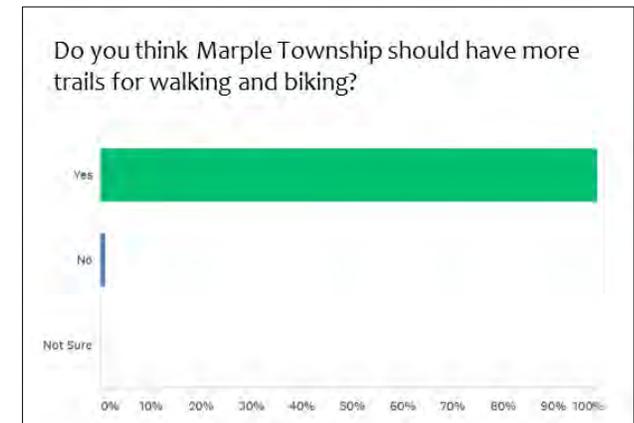
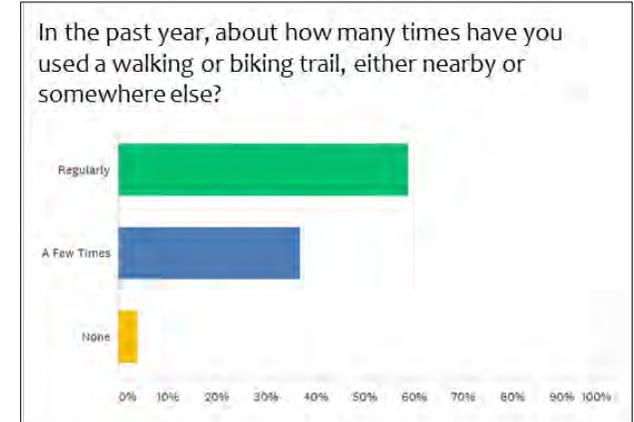
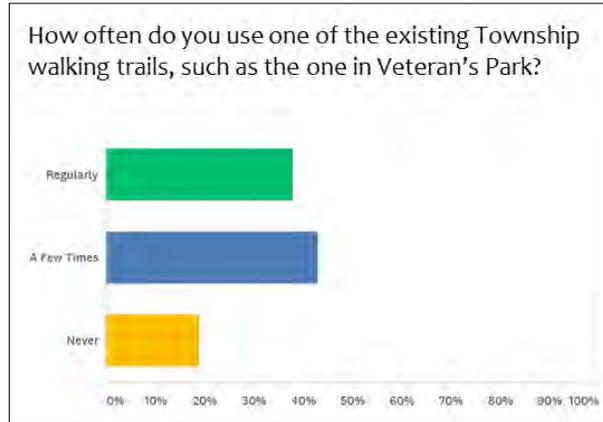
The reactions of stakeholders to the plans presented in this study were overwhelmingly positive. Overall, there was widespread consensus in support of the Plan and its underlying goals and principles. There was almost universal agreement expressed in the value of promoting a local network of trails and connected open spaces. The commercial, institutional, and residential stakeholders most directly impacted by the Plan were highly supportive, but not without legitimate concerns. The predominant concern that arose during development of the Plan was the proximity of proposed trails to residential properties, and the potential impact of public use on personal privacy and safety. The potential trail network presented in the Plan occupies right-of-way that lies mostly on public, quasi-public or institutional property. However, several segments are proposed closely adjacent to residential properties, and in some cases requiring easements for public access through established residential developments. These concerns were addressed as conscientiously as possible within the parameters of this study. Specific concerns may be the subject of more detailed analysis as individual trail segments are advanced toward design and implementation.



Community outreach included public presentations, stakeholder meetings, and steering committee coordination.

Opinion Survey

As part of the outreach effort, a public opinion survey was conducted over a two-month period in 2018. The survey was available online and was also advertised and distributed to residents in hard copy form. More than 100 responses were received. Residents were asked a variety of questions about their current and potential use of trails, and their opinions on whether the Township should prioritize trail development.



Benefits of Trails and Greenways

It is no wonder the construction of trails has become a high-priority in communities across the country. Trails provide a wide range of community benefits, sometimes in ways beyond what first meets the eye. The positive impact of trails and greenways boost a community's economic, environmental, and social health.

- *Recreation Benefit:* The miles of proposed new trails will create new recreational opportunities for Township residents and visitors, and will expand existing recreational opportunities by providing off-road linkages between parks and other public destinations.
- *Health Benefits:* The expanded availability of new recreational activities associated with trails 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. Communities that encourage physical activity by making use of the linear corridors can see a significant effect on public health and wellness.
- *Transportation Benefits:* In addition to providing a safe place for people to enjoy recreational activities, trails can function as viable transportation corridors. The ability to avoid congested streets and highways is a large factor in a community's "livability."
- *Environmental Benefits:* Linear in nature, trails and greenways have conservation benefits of preserving green space. As tools for ecology and conservation, greenways and trails help preserve important natural landscapes, provide needed links between fragmented habitats and offer tremendous opportunities for protecting plant and animal species. In addition, they can allow humans to experience nature with minimal environmental impact.
- *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. Across America, countless communities have experienced an economic revitalization due in whole or in part to trails and greenways.
- *Social Benefits:* Many community leaders have been surprised at how trails have become sources of community identity and pride. These effects are magnified when communities use trails and greenways to highlight and provide access to historic and cultural resources.



Trails can provide a wide range of benefits to a wide range of users, including recreation, transportation, and creating opportunities for economic development.

Planning Context

The idea for a Township greenways network has been around for decades. As early as 1988, the goal of establishing Township-wide trails was stated in formal Township planning documents. Similarly, planning for trails at the regional level has included Marple and surrounding municipalities in identifying opportunities for significant future trail development. The goals and concepts presented in this *Marple Township Greenways and Open Space Network Plan* are consistent with and an extension of these earlier planning efforts. Related Plans and policy documents include the following:

Local Marple Township Planning

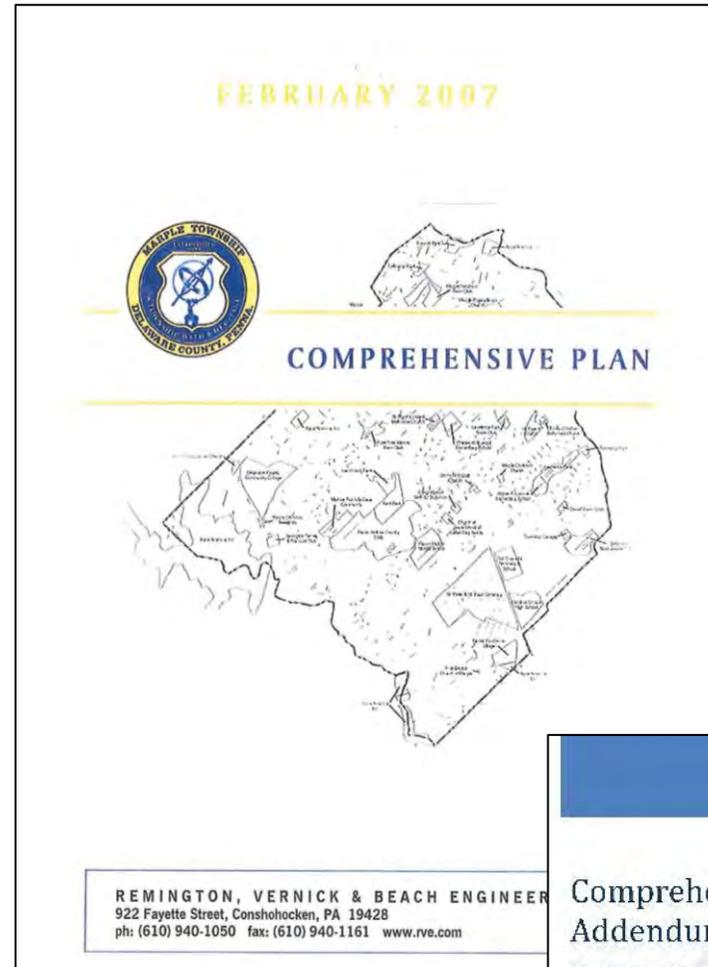
Marple Township Comprehensive Plan (2007)
And Plan Addendum (2015)

<http://www.marpletwp.com/Comprehensive-Plan.html>

The 2007 Comprehensive Plan noted frankly that “Marple is not a pedestrian-friendly town,” and made various recommendations to improve the balance between cars and pedestrians. The Plan highlights certain low-volume streets as suitable for bicycle routes, and recommends that the circulation plan be incorporated into the Marple Township park system and addressed by the Open Space and Recreation Plan. The Comprehensive Plan Addendum in 2015 focused in part on Open Space and Recreation.

One of the stated objectives in this Addendum is to “Plan for an on and off-road trail system that will connect users to community institutions, facilities and destinations, as well as the planned Delaware County Greenway and its connection to regional recreational assets and destinations.”

Specifically, the Addendum recommends that new development projects “should serve as opportunities to enhance the existing open space network... and provide pedestrian and natural resource links to adjoining neighborhoods and their recreational resources, including any planned regional trails.”



Previous Township planning identified the development of trails as an important objective.

Marple Township Zoning Ordinance

<http://townshipofMarple.com/the-code-of-the-township-of-Marple-4/>

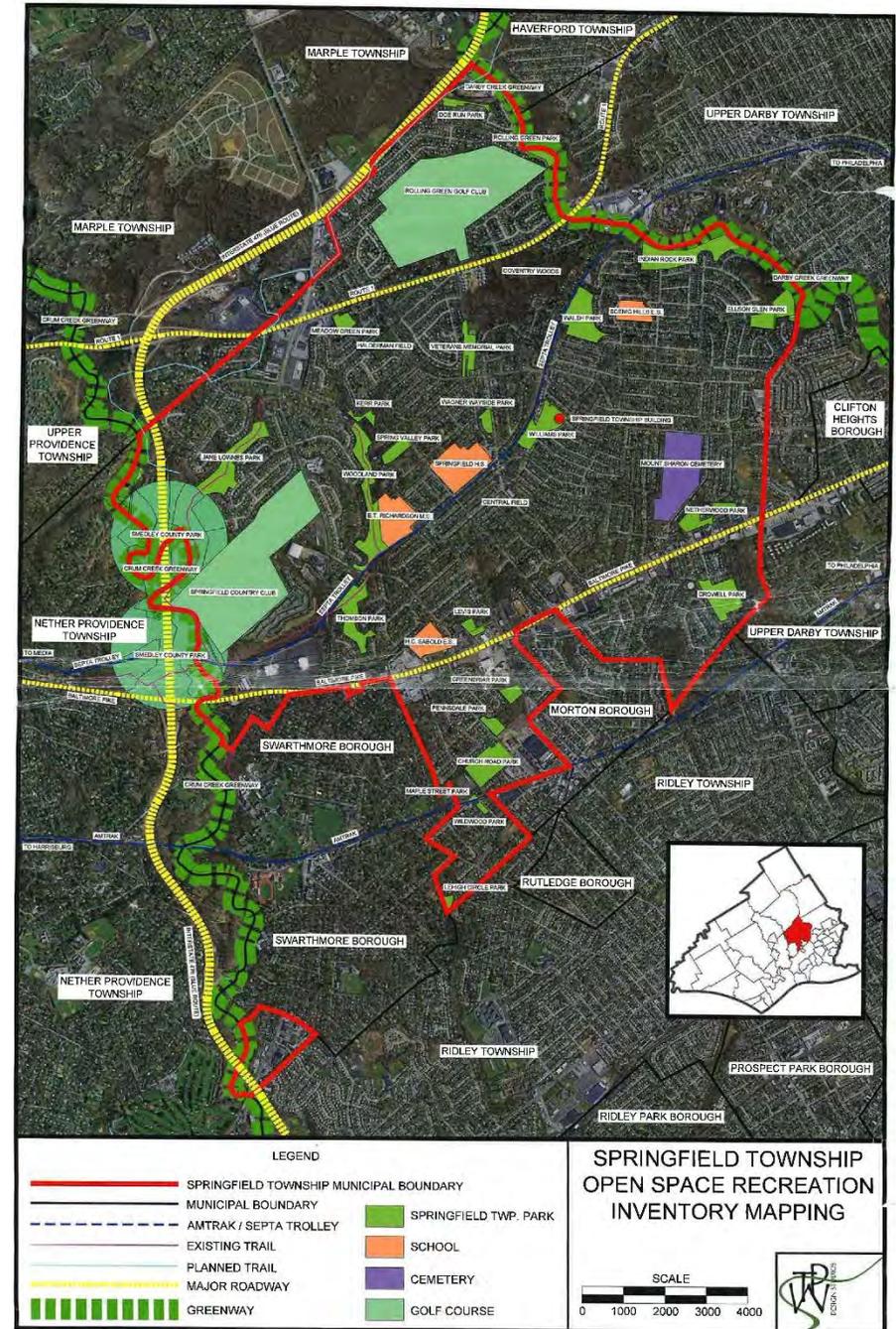
The Subdivision and Land Development Ordinance of the Township Code (160-52) provides that residential subdivisions must provide land set aside for recreation purposes and that provisions be made for trails and pathways, or pay a fee-in-lieu of land dedication. Open space provisions (Article XXXII) addresses open space requirements for various residentially zoned areas of the Township.

Other Local Trail Planning

Significant planning for trails has and continues to be done by all the neighboring Townships surrounding Marple. Cooperation and coordination between Townships is vital to the success of trail development, even at the local level. Trail opportunities rarely are confined to a single municipality. Far more often, the opportunity spans two or more Townships. Multi-municipal collaboration to plan and implement new trails is essential to build connections.

Springfield Township

In 2018, Springfield Township prepared a Parks, Recreation & Open Space Master Plan, which promotes trails as a key component of the Township open space system, and features recommendations for a Connector Concept that links parks, open space, neighborhoods, commercial areas, and schools. This has the potential to connect to Marple in two locations: (1) along the Darby Creek Trail where it is proposed to cross Eagle/Burmout Road, and (2) along Crum Creek, as an extension of the existing Smedley Park Trail.



Haverford Township

The planned Darby Creek Trail in Haverford runs essentially along the border between Haverford and Marple, and represents an excellent opportunity for Marple to connect to this important regional trail. In 2013, a one-mile long segment was constructed. In 2018, Haverford Township completed the Darby Creek Trail Feasibility Study, which recommended an alignment for extending the trail both north and south. Haverford is actively pursuing the means to implement future trail segments, and is working closely with Marple to facilitate potential connections.

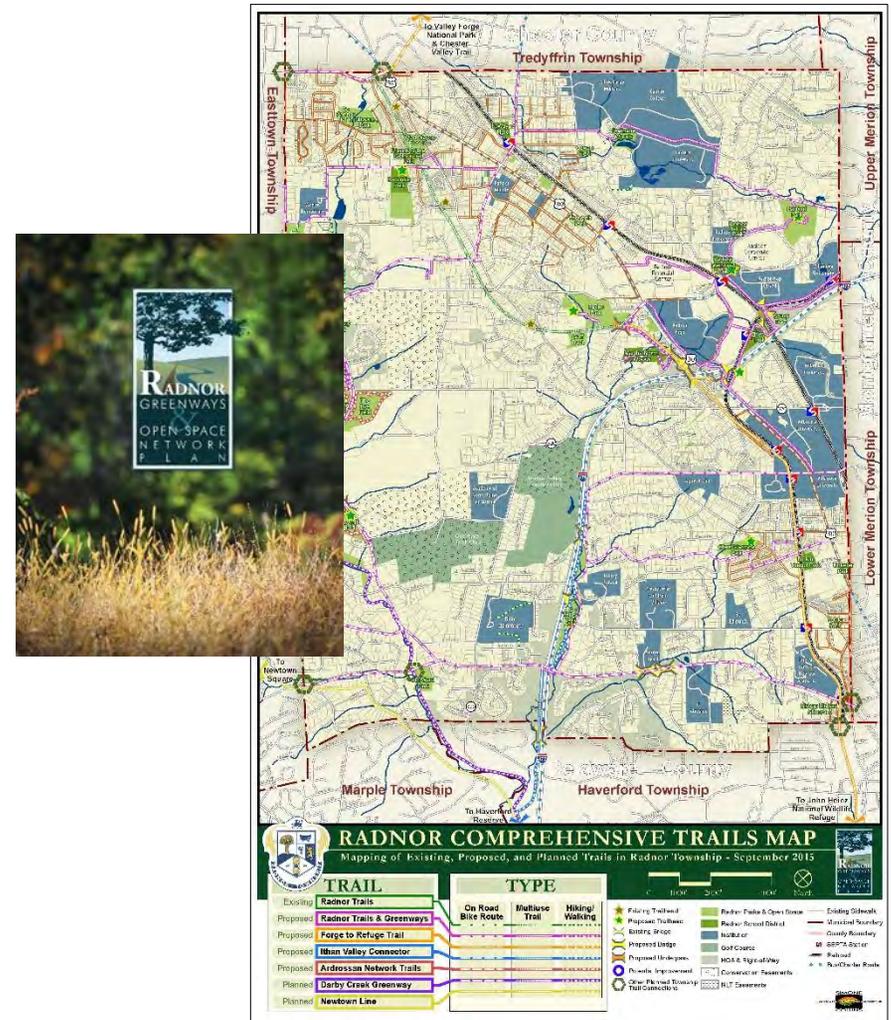


Newtown Township

Bordering Marple to the northwest, Newtown Township completed its *Greenway and Open Space Network Plan* in 2020. Newtown and Marple share a border along Media Line Road, on which is located Marple Newtown High School. The Newtown plan recognizes several existing streets as high-volume travel corridors connecting through Marple, namely West Chester Pike (Rt. 3), and Newtown Street Road (Rt. 252).

Radnor Township

Located directly to the north of Marple, Radnor Township completed its *Greenways and Open Space Network Plan* in 2015. The plan shows several opportunities for trail connections with Marple, principally through the existing trail hub at the Haverford Reserve in Haverford Township. From here, the planned Ithan Valley Greenway would run north roughly along Interstate 476, and the Darby Creek Greenway would continue northwest into Radnor.



Regional Trail Planning

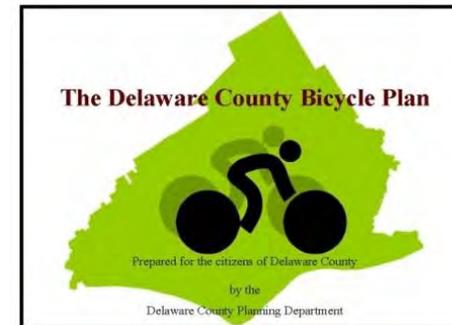
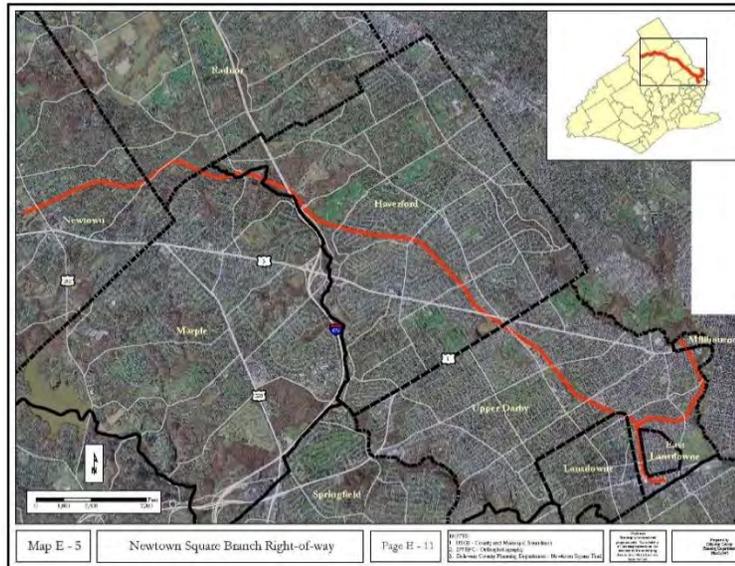
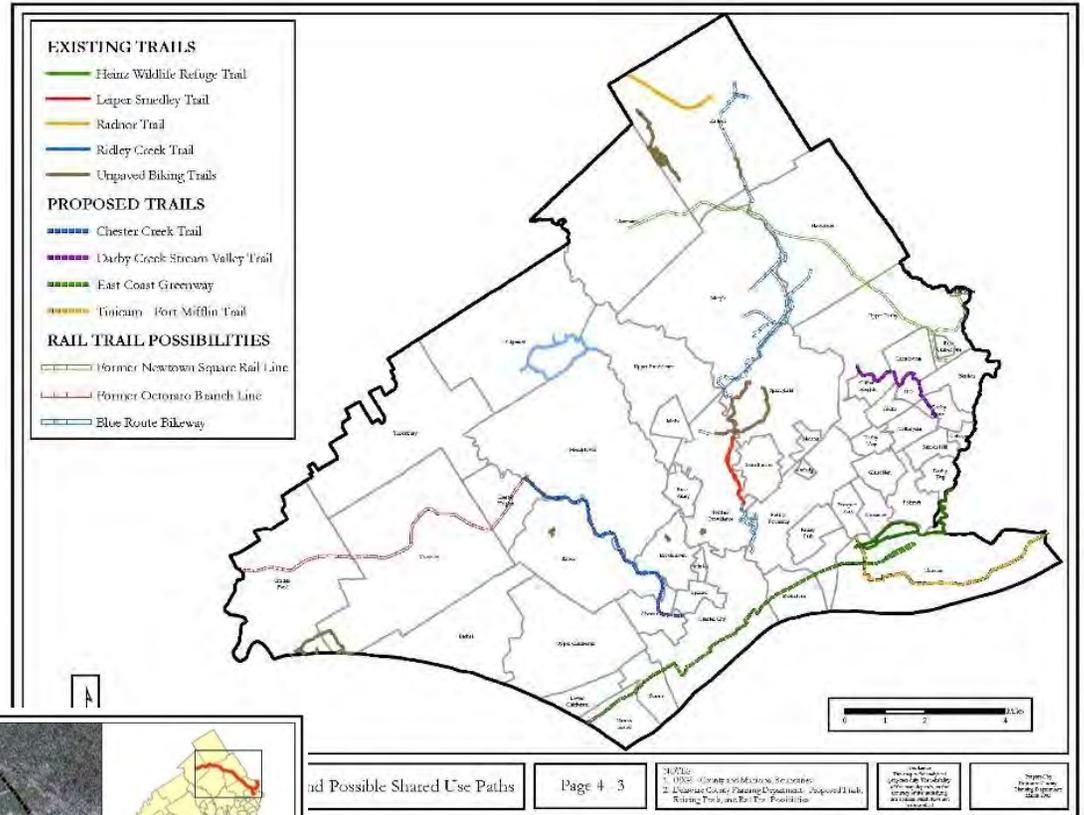
Delaware County Bicycle Plan (2005)

<http://www.co.delaware.pa.us/planning/transportation/bikeplan.html>

The Delaware County Bicycle Plan was completed in 2005 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. In Marple Township, the plan identifies the Newtown Square Branch right-of-way as “one of the only opportunities to provide a shared use path in the densely populated eastern portion of the County.”

However, the Plan concedes that implementation of a trail along this alignment will be difficult: “The demolition of virtually every bridge on this rail line and the presence of a number of encroachments into the right-of-way would make the construction of a trail along any major length of this line expensive. However, several shorter segments may be feasible and relatively inexpensive.

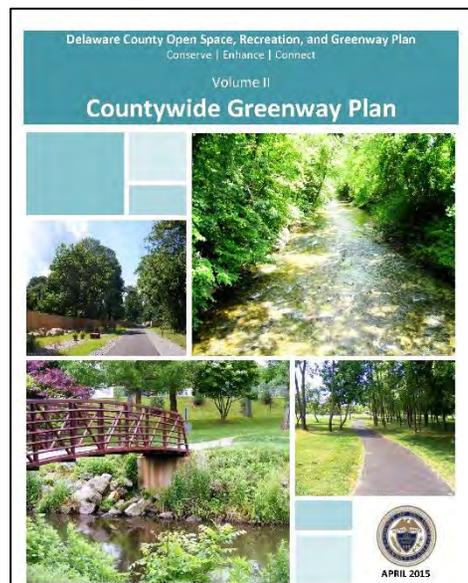
Also noted is the possibility for a “Blue Route Bikeway” along the Marple Township border with Springfield.



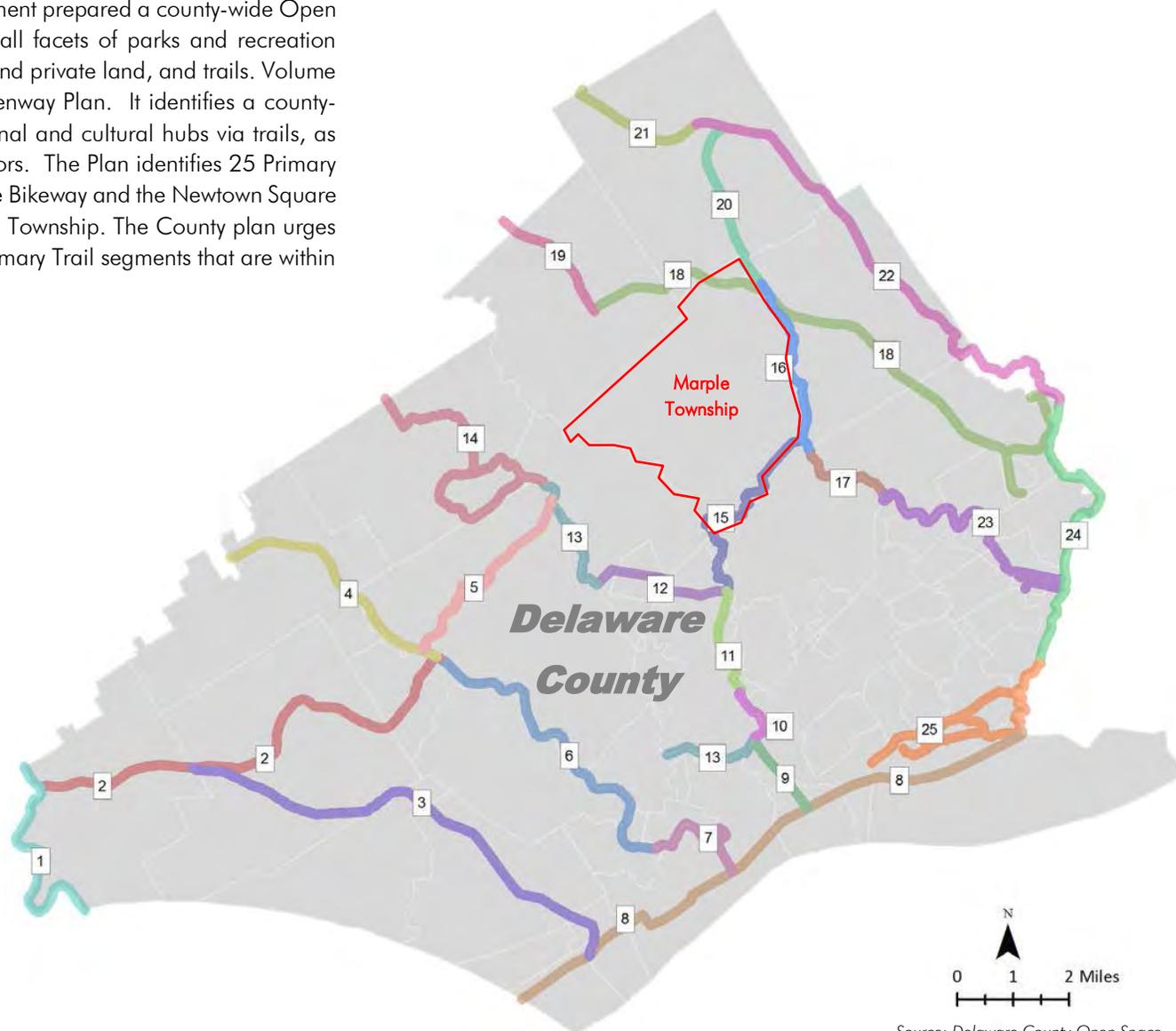
The Delaware County Bicycle Plan identified the Newtown Square Branch Right of Way as an important trail opportunity.

Delaware County Open Space, Recreation, and Greenway Plan (2015)
<http://www.co.delaware.pa.us/planning/environmental/openspaceplan.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. The Plan identifies 25 Primary Trails within the County, two of which - the Blue Route Bikeway and the Newtown Square Branch Rail Trail– are located in proximity to Marple Township. The County plan urges local municipalities to design and construct those Primary Trail segments that are within their boundaries.

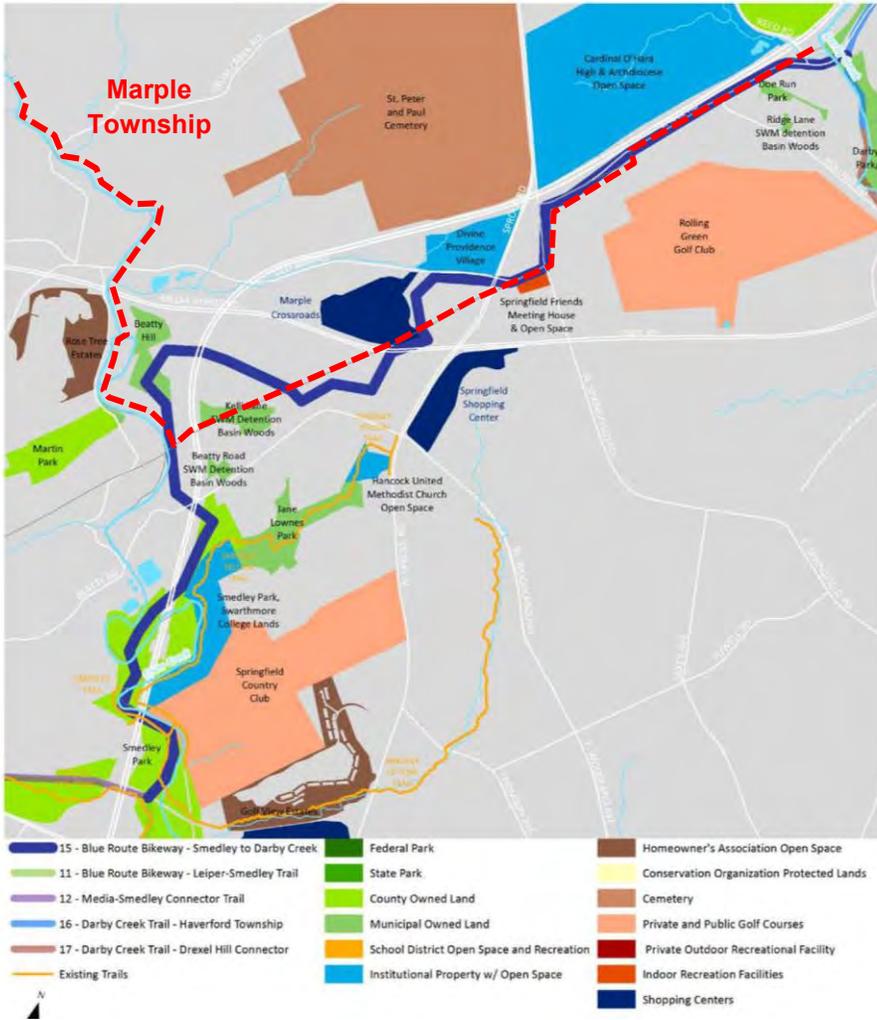


A 2015 plan by Delaware County identified two Marple Township locations as potential for primary trails.

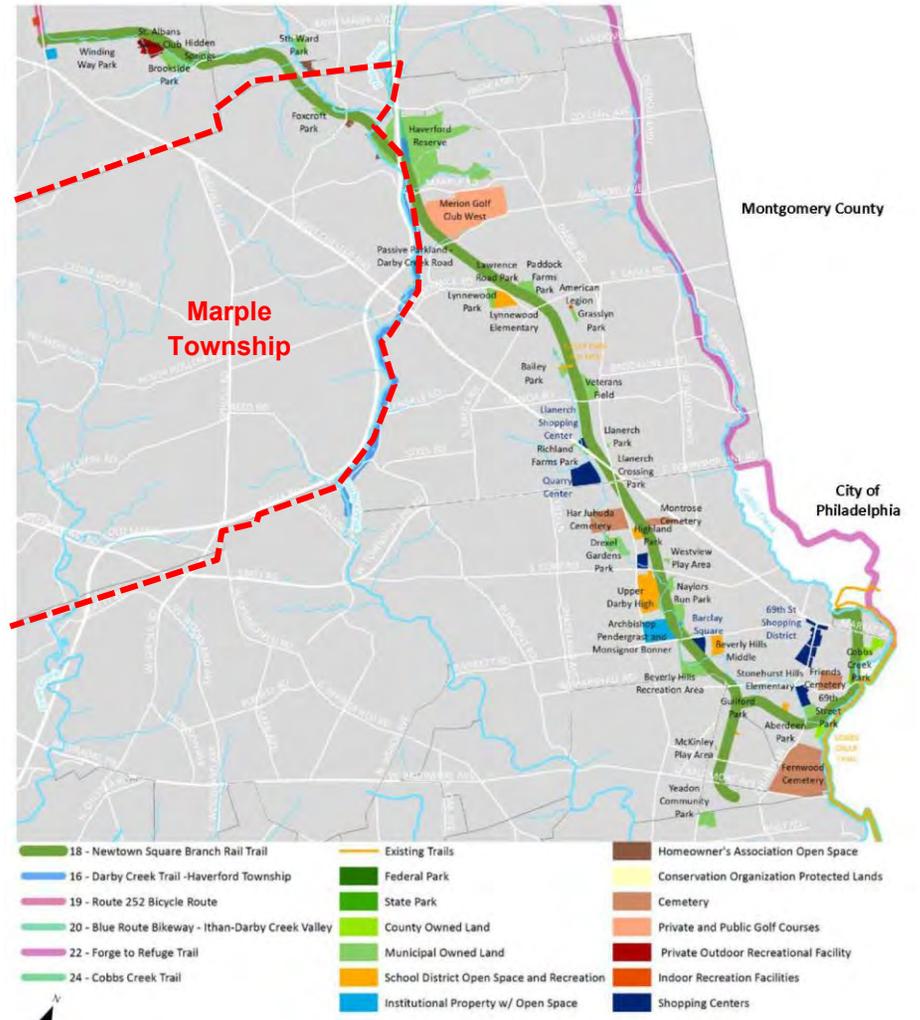


Source: Delaware County Open Space, Recreation and Greenway Plan

Map 3-16: Blue Route Bikeway – Smedley to Darby Creek



Map 3-19: Newtown Square Branch Rail Trail



The Delaware County Greenway Plan identified two Marple Township locations as potential for primary trails.

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 (a Circuit Coalition member), 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. In Marple Township, the Newtown Square Branch is identified on the official Circuit map as a potential segment of the regional trail network. This important designation enhances the eligibility of a trail along this alignment for grant funding allocations.



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

National Trail Planning

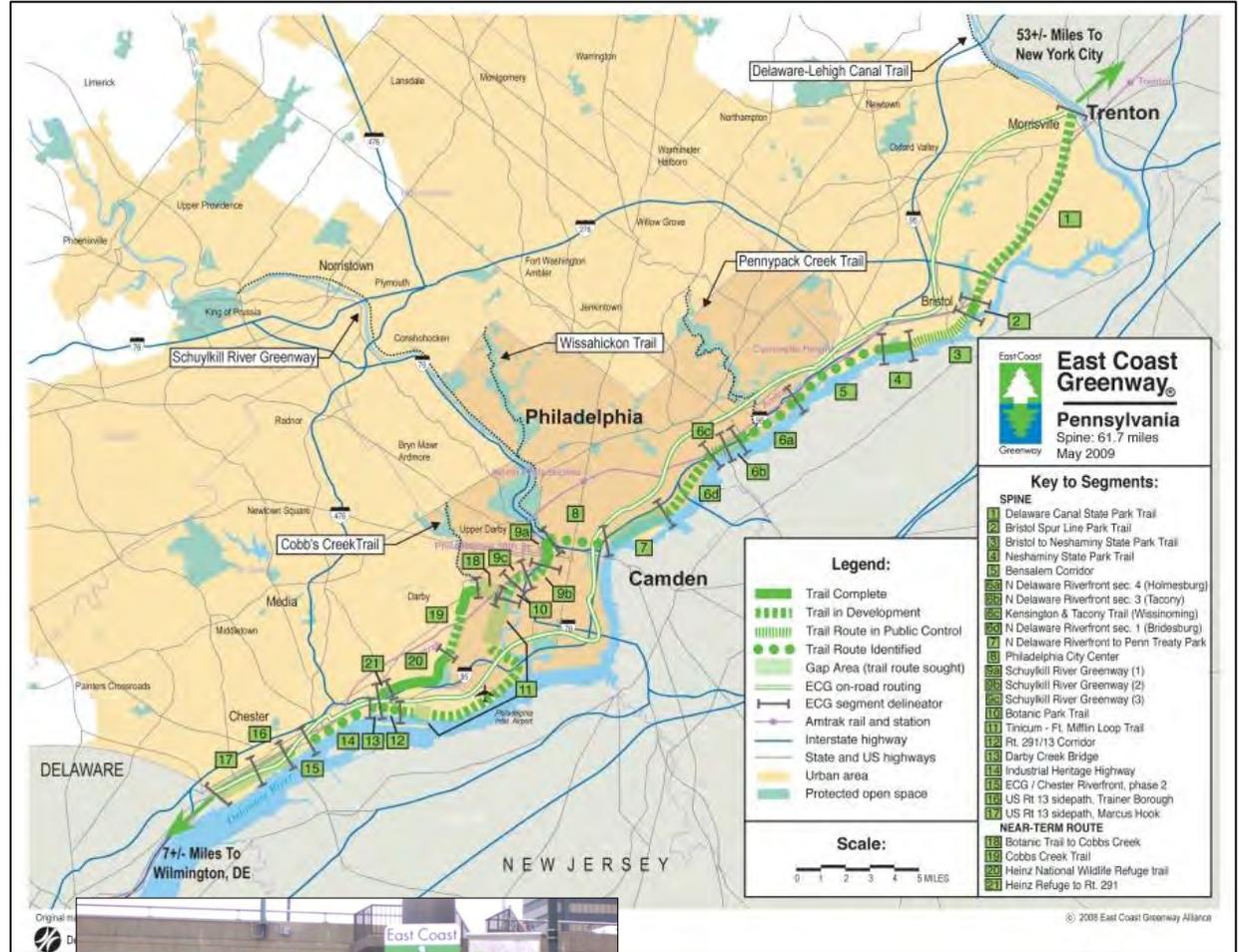
East Coast Greenway
<http://www.greenway.org/>

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.

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. The proposed Marple Township trail network has the potential to connect directly to the East Coast Greenway, by connecting to the Darby Creek Trail immediately to the east in Haverford Township. This trail is planned to extend south to meet the East Coast Greenway.

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 East Coast Greenway is planned to run through Delaware County on its way from Maine to Florida.

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

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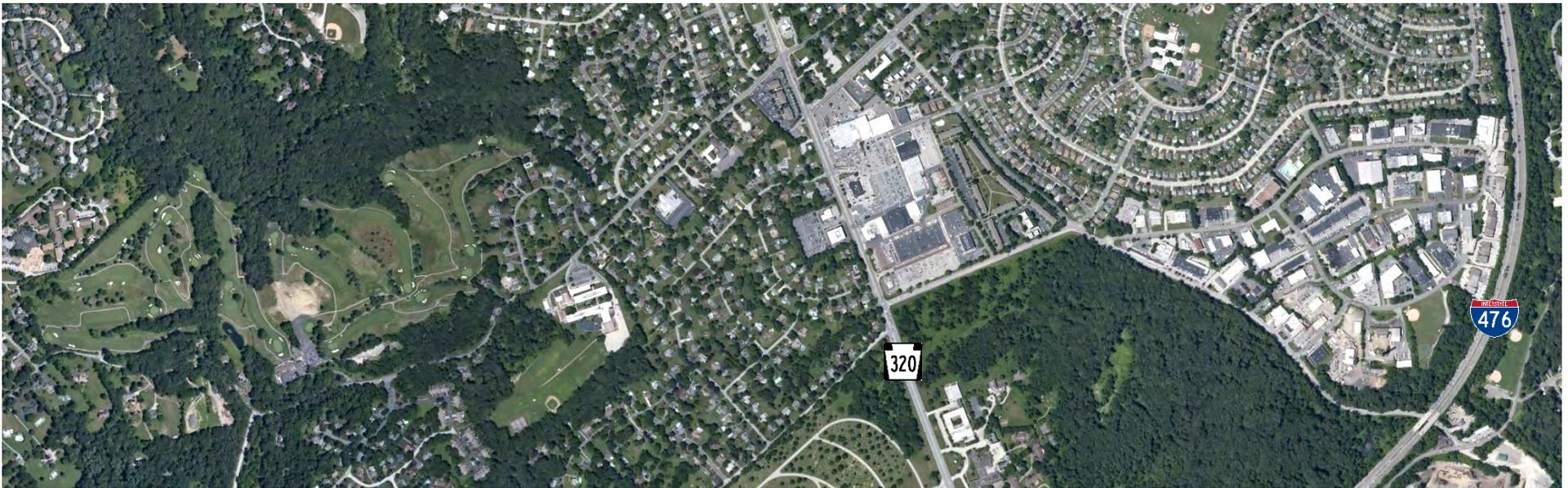
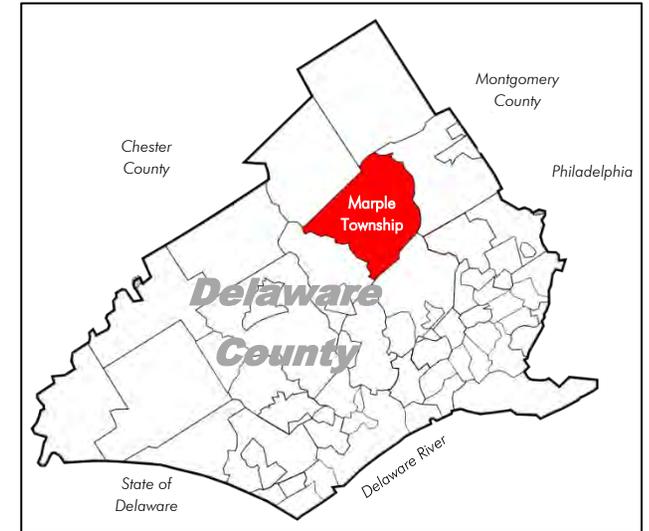
Chapter 2

Existing Resources

Township Profile

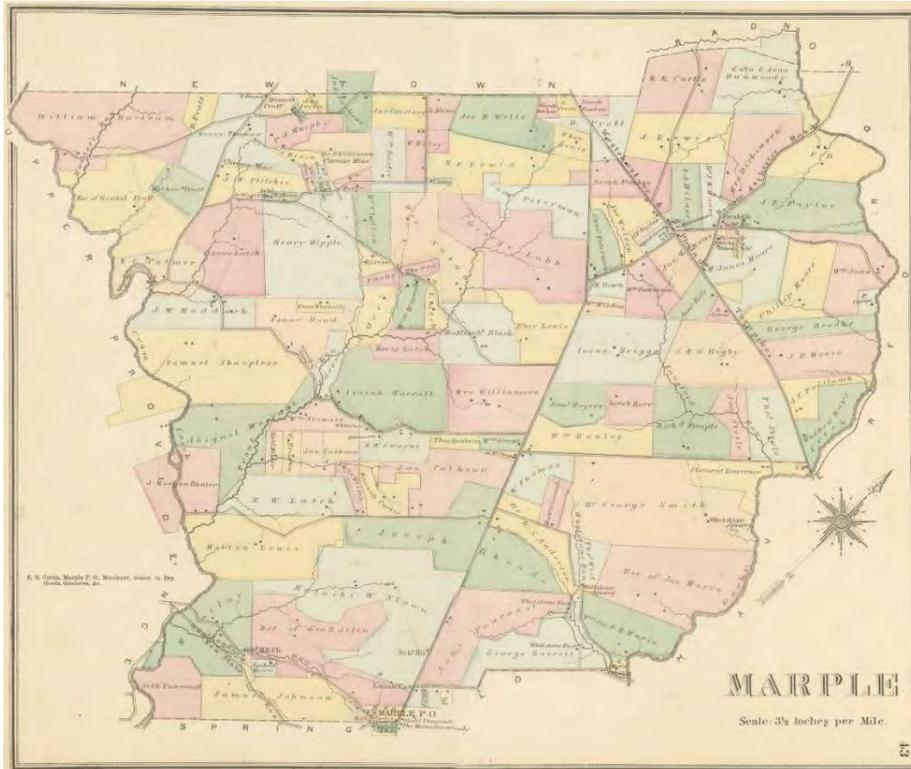
Marple Township is a mature suburban community that occupies 10.5 square miles in northern Delaware County. It is bounded by five Delaware County municipalities: Haverford, Springfield, Upper Providence, Newtown, and a small section of Radnor. Since experiencing a surge of development in the postwar years of the 1950s, and 60s, Marple has remained stable. Today the Township is an active and diverse community, with a bustling commercial corridor, leafy residential subdivisions, abundant parks, ample recreation opportunities, and outstanding public schools.

Marple Township is one of the oldest communities in the county, settled in 1684 and recognized as a Township that same year. There were 15 original owners who farmed plantations ranging in size from two to six hundred acres. Although the area was predominantly a farm region, it was also home to gristmills, tanning, cotton factories, sawmills, and quarries. A general store was located at the intersection of Sproul Road and West Chester Pike in the 1870s. This location was the primary crossroads at that time, and it remains so to this day.



After World War II, like many other suburban areas, Marple experienced substantial residential growth in the 1950s and 1960. By 1970, the Township had nearly reached its current level of growth, and the population in the Township in 1970 is virtually the same as it is today. According to the 2010 United States Census, the Township population is 23,428. The population is expected to remain stable over the coming decades. (Source: Delaware Valley Regional Planning Commission).

While the population is stable, the Township population has a youthful vibrancy, as families with children make up a large segment of the population. As of 2010, nearly a quarter of Township residents were children, 30% of the households had children under the age of 18, and median age of the population was 43 years old. A slight increase in population is expected with the 2020 census. Of the 8,623 households in the Township, 30% had children under the age of 18. Compared to Delaware County on the whole, Marple is relatively affluent.



1870 map of Marple Township
Source: Marple Historical Society

Demographic Data

Marple Township



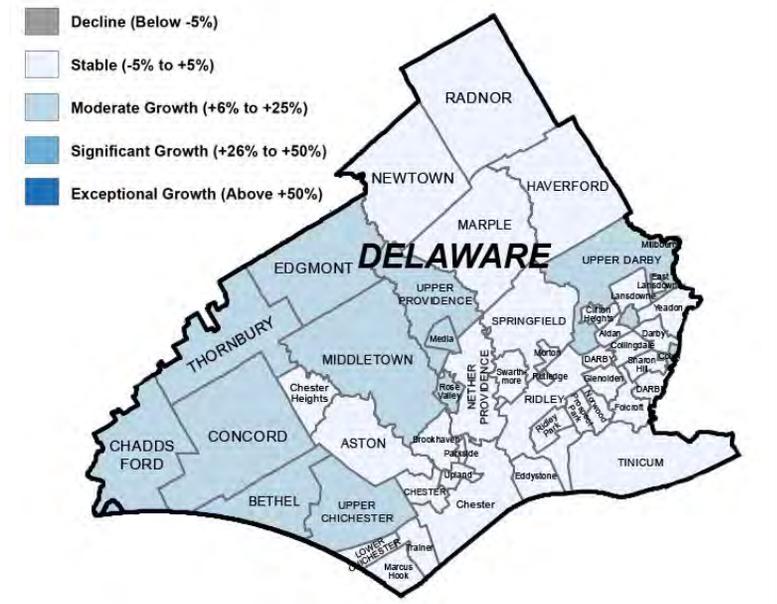
Delaware County



Source: <https://www.delcopa.gov/planning/demographicdata.html>
2018 American Community Survey, U.S. Census Bureau

Municipal Population Forecast, 2045

(Source: Delaware Valley Regional Planning Commission)



Land Use

Marple Township is characterized by a mix of residential, commercial, and institutional uses. Land use patterns reflect the growth of the Township around major roadways. West Chester Pike (route 3) and Sproul Road (route 320) bisect the Township and are the principal retail/commercial corridors. Since the advent of Interstate 476 three decades ago, commercial development has not surprisingly gravitated toward the two interchanges (route 3, and route 1), with a gradual increase in the number of “big box” retailers.

Most of the township is characterized by well-established residential neighborhoods. Within proximity to the primary corridors, planned single-family residential subdivisions such as Lawrence Park are typical of the postwar boom that occurred across America. In the western third of the Township, lower density subdivisions filled in most remaining areas, some as Homeowner Associations with protected open space.

In addition to Township parks and designated recreation facilities, Marple benefits from an ample assortment of institutional and other open space areas. These include school grounds, cemeteries, nature preserves, the Paxon Hollow golf course, and private HOA open space. Schools are spread throughout the Township, with the largest grounds belonging to Delaware County Community College located at the western edge.

Most of the Township is built out, with the exception of two notably large undeveloped areas. Both are in proximity to I-476 interchanges. Located on Sproul Road near the Route 1 interchange, the former Don Guanella property is expected to be developed for mixed use residential and retail. At the Route 3 interchange, the Langford Run development is also in the development process for mixed retail and commercial.



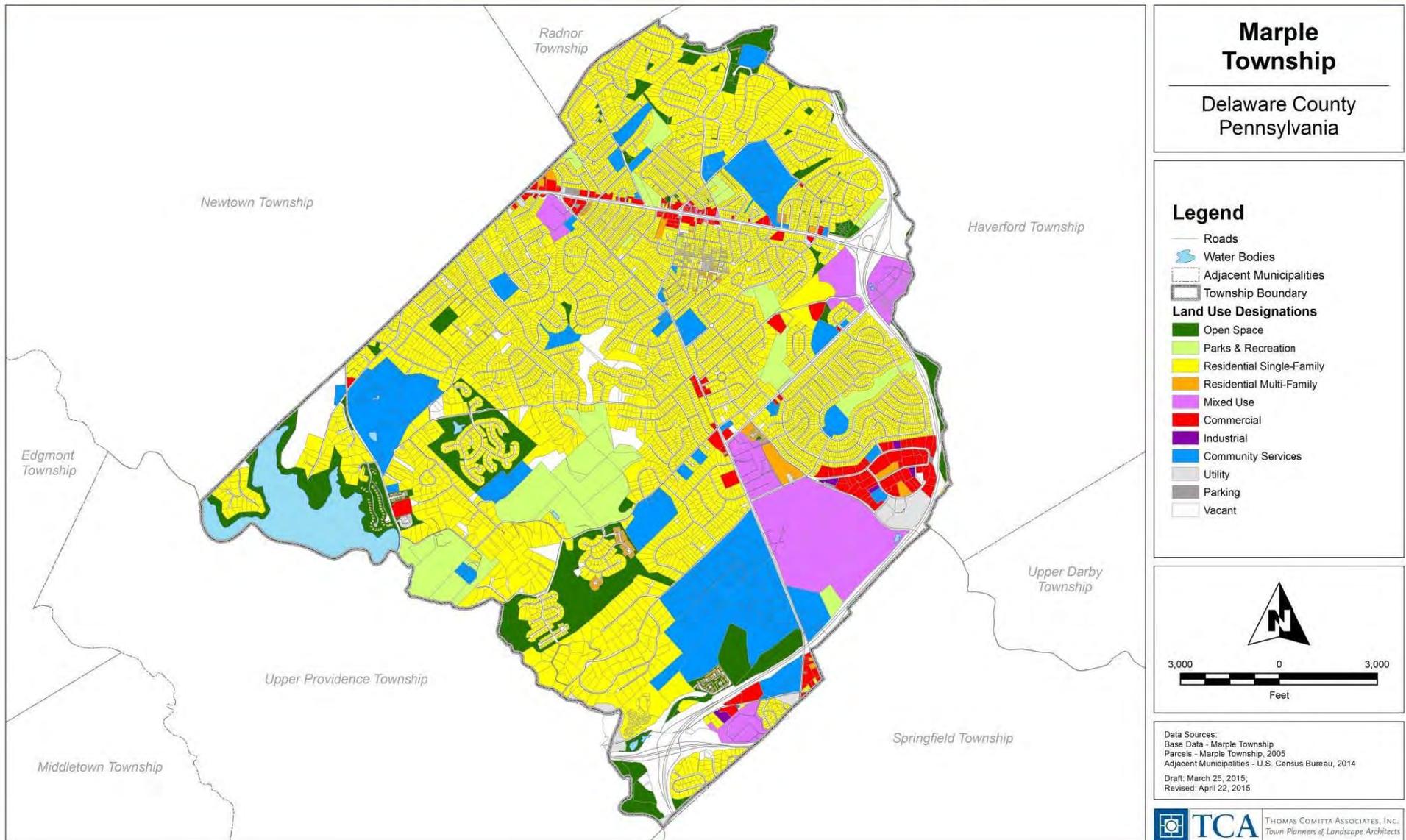
Marple Township has a diversity of land use, including commercial corridors, residential neighborhoods, and open space.

TOP: West Chester Pike commercial.

MIDDLE: Lawrence Park neighborhood.

BOTTOM: St. Peter and Paul Cemetery, and adjacent natural areas.

PROPOSED FUTURE LAND USE MAP



Existing Parks and Open Space

Today the parks and open space resources in the Township include dozens of separate properties totaling more than 1,600 acres of land. The existing parks and open space resources 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.

Existing Marple Township Trails

There are existing trails within Marple Township in four locations. All of these are self-contained, and not connected to a broader trail system.

Hildacy Farms provides more than 3 miles of unpaved hiking trails within its 55-acre property.

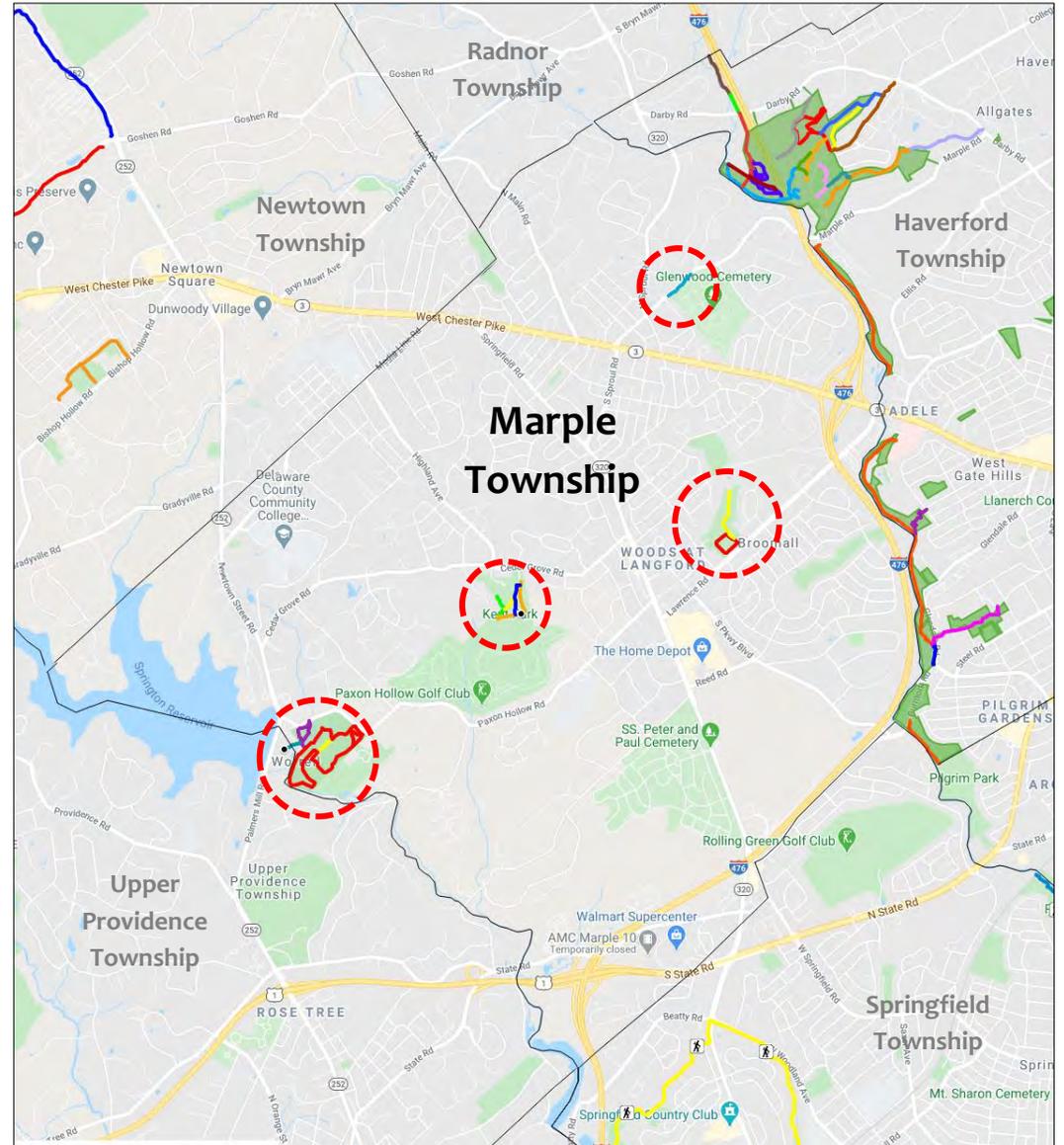
Kent Park provides paved and unpaved trails within its wooded 16-acre setting. Stepping stones allow one to cross a small stream, and dirt pathways lead through the woods and up a steep hill to neighboring ball fields.

Veterans Park provides a paved 0.3 mile walking path that is very popular. Informal pathways lead into the woods behind the park.

At **Glenwood Cemetery**, a short path runs along the north edge of the property alongside Marple Road.



Walking trail at Veterans Memorial Park.



Map courtesy of the Friends of Haverford Trails (<https://www.havtrail.com/>)

Township Parks and Open Space

Marple Township currently owns and operates 12 parks, totaling 183.5 acres (See Table 1). Additionally, the Hildacy Farm Preserve adds another 65 acres of permanently preserved land that is open to the public.

Green Bank Farm is a former historic farm property adjacent to the Hildacy Farm Preserve. There are walking trails that connect to those on the Preserve, forming the most extensive existing local trail network in the Township.

Veterans Memorial Park is a very popular local park, with a paved walking trail, children's playground, gazebo, bocce court, picnic area, comfort station, parking lot, sledding hill, and wooded area. A master plan for the park was recently prepared, and further improvements are planned, including improved connections to the neighborhood and expanded walking trail.

New Ardmore Ave Park is a local neighborhood park that features a children's playground, picnic area, basketball court, open lawn area, and wooded area with a creek.

Kent Park is primarily a passive park with paved walking trail and wooded stream, and also features a tot lot, picnic area, gazebo, and tennis courts. It is adjacent to Thomas Fields.

Thomas Ball Fields provides three baseball fields, snack bar, restrooms, and parking lot. There is one T-ball field, 1 little league field, and one full-size baseball field. The fields are home to Marple Township Little League and Broomall-Newtown Babe Ruth Baseball League.

Lawrence Park (S. Marple Little League) is adjacent to Loomis Elementary School, and has baseball fields, basketball court, tennis courts, and a large undeveloped wooded area. It hosts games for the South Marple Little League.

Broomall Fields features two little league baseball fields and is home to the Marple Township Little League.

Old Marple School Park is a neighborhood park with a tot lot, picnic area, and sledding hill.

Highland Ave. Park is an active park adjacent to Worrall Elementary School, and features basketball court, roller hockey rink, and tennis court.

Marple Gardens Park is a small neighborhood park with tot lot, picnic area, basketball courts, and baseball/softball field.

Malin Road Tot Lot is a small mini-park with tot lot, picnic area, and open lawn area.

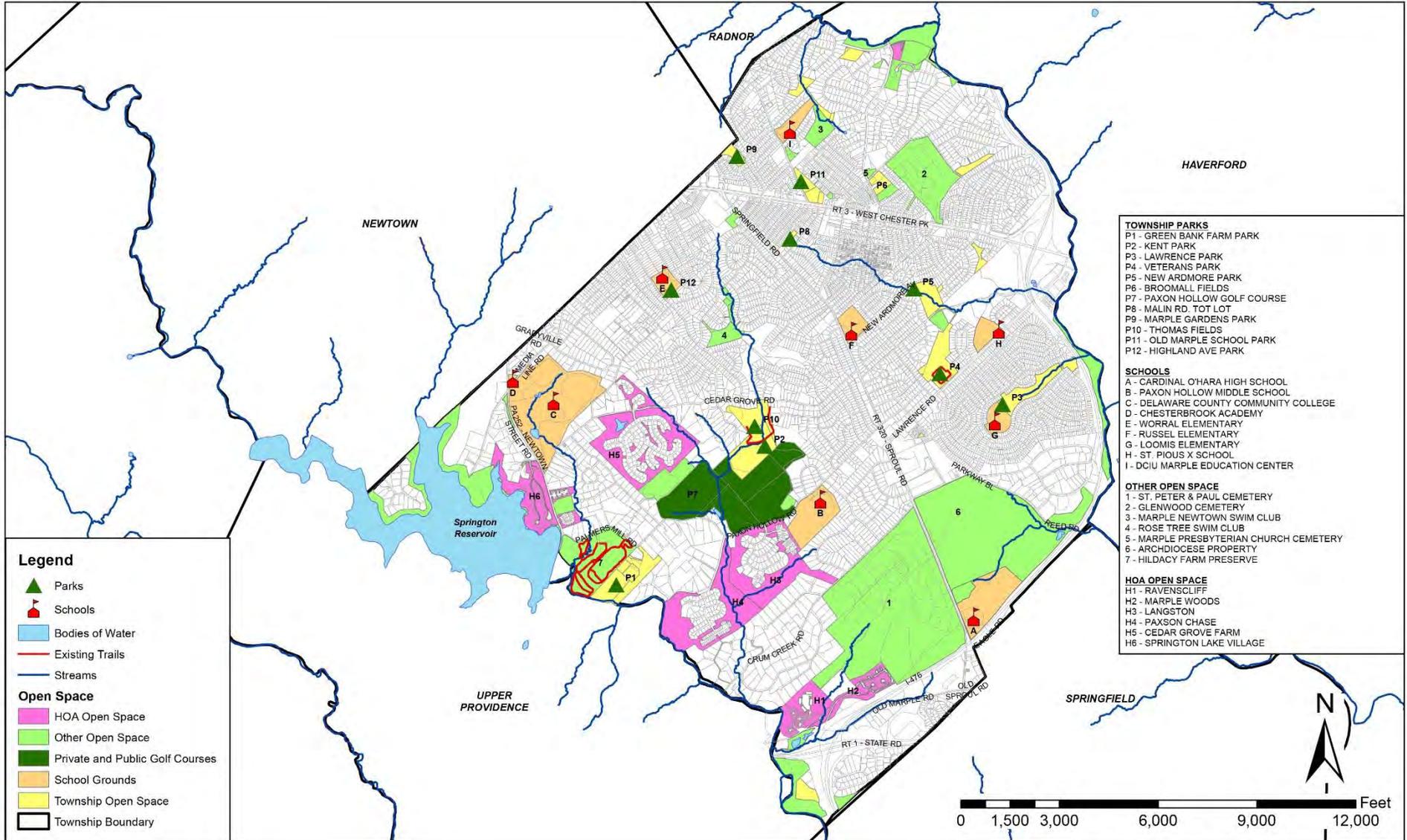


TOP: Veteran's Memorial Park

MIDDLE: Kent Park

BOTTOM: Old Marple School Park

MARPLE OPEN SPACE, PARKS, AND RECREATION MAP



Other Open Space Resources

Paxon Hollow Golf Club is an 18-hole golf course that is fully open to the public and owned and operated by Marple Township. Fees apply.

Schools

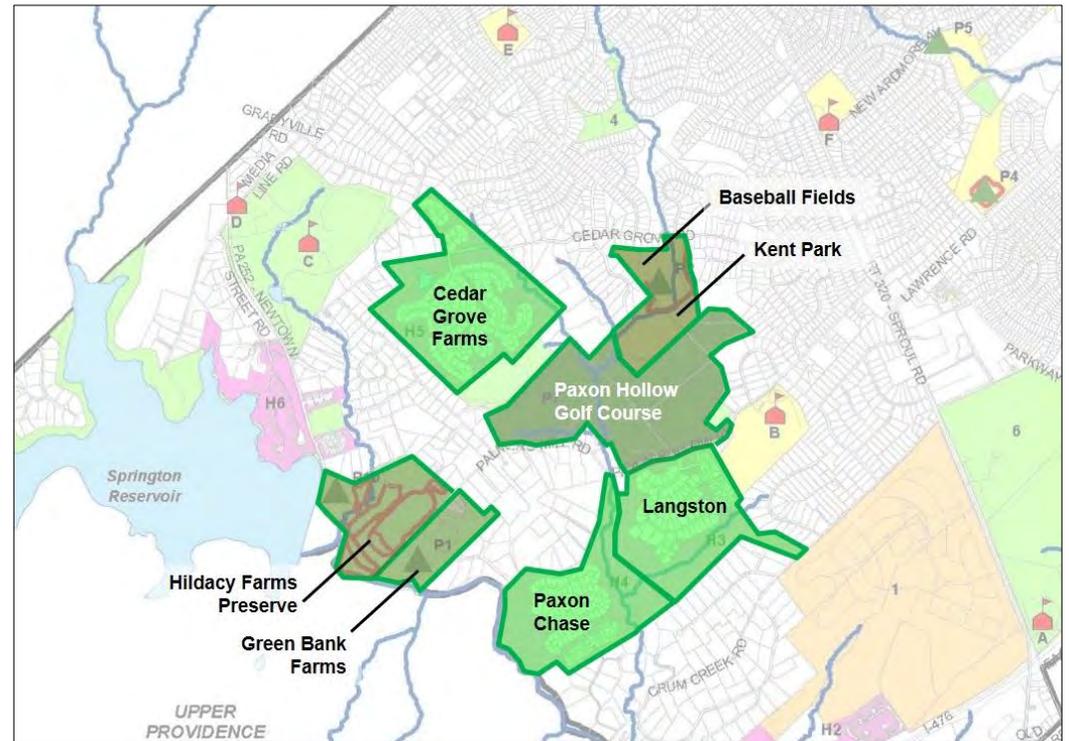
Marple Newtown School District operates four schools in Marple Township, which have multiple playing fields and playgrounds. These are available for use by the public and local athletic organizations, subject to schedule coordination and other limitations. Marple Township, the school district, and local youth athletic associations have cooperated effectively to share resources for public benefit. In addition, several private schools provide additional open space resources that are accessible by the community under certain terms.

Homeowners Association Property

Homeowners Associations (HOA) provide a significant portion of open space in the western part of the Township. This is made up from land dedicated to open space as part of residential subdivisions. Currently there is almost 300 acres of dedicated open space located within more than six different HOAs. While the dedicated open space on these properties does not necessarily provide for public access, it does provide a potential future opportunity for public use for recreational use such as walking trails, provided appropriate access easements can be negotiated. These areas also represent some of the most valuable natural resources in the Township, consisting of floodplains, steep slopes, wetlands, and stream corridors. These natural areas are critical environmental features and are important to the overall composition of Township open space.

Cemeteries

Sometimes overlooked, cemeteries are a meaningful open space resource within communities. Marple has two major cemeteries which represent a significant amount of open space protected from development. Sts. Peter and Paul Cemetery occupies a key location on Sproul Road near a Rt 476 interchange, and opposite the largest remaining undeveloped property in the township. Glenwood Cemetery is smaller, but well-situated as a welcome open space in a dense residential neighborhood.



Top: HOA open space provides the possibility for open space connections.

Bottom: Sts. Peter and Paul Cemetery

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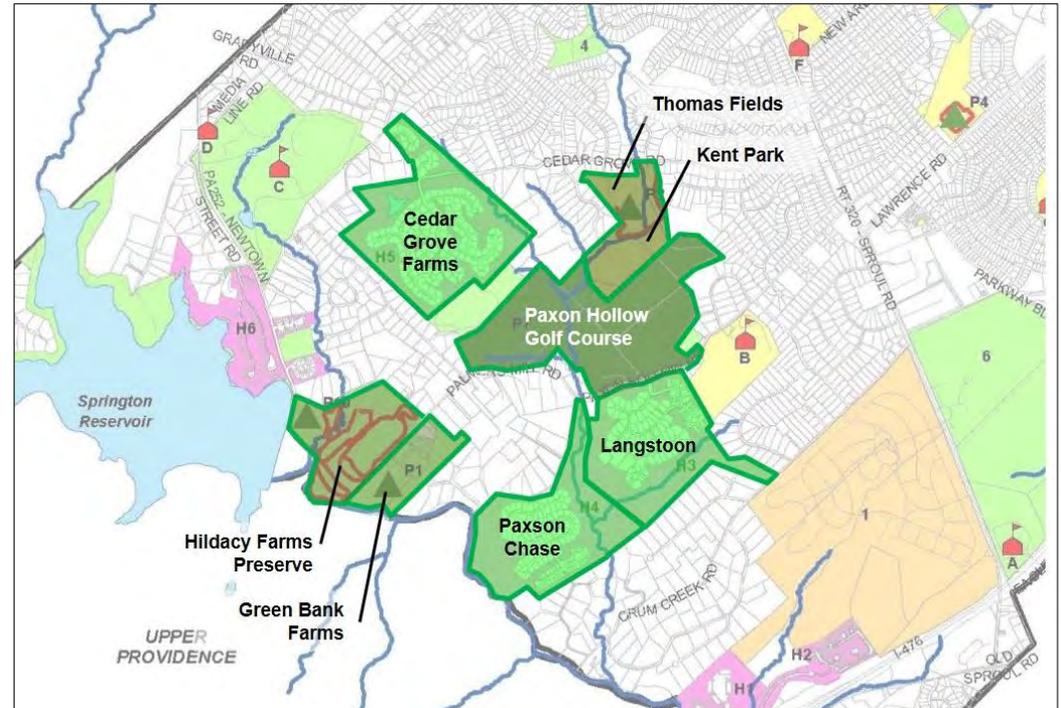
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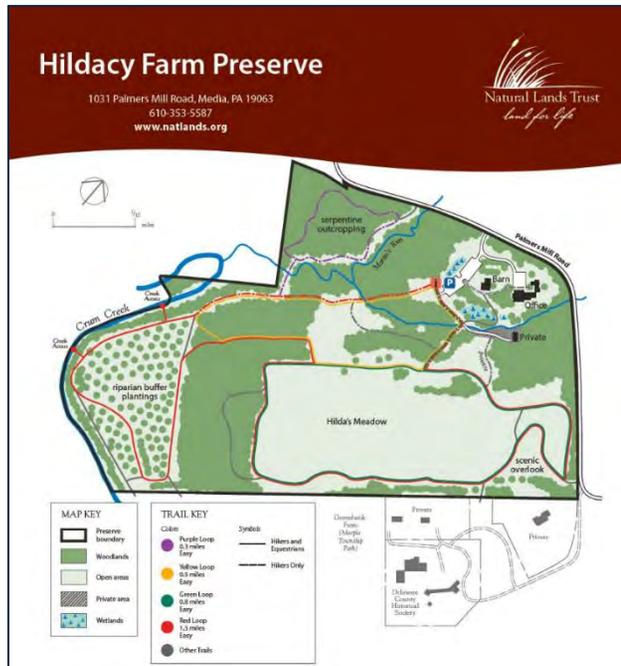
Bottom: Sts. Peter and Paul Cemetery

Hildacy Farm

The Hildacy Farm Preserve is a private non-profit site operated by the Natural Lands Trust. The Preserve hosts a variety of educational and environmental programs for all ages, and the property is open to the public with extensive walking trails.



Hildacy Farm Preserve (courtesy Natural Lands Trust)



Marple Township Total Open Space			
PROPERTY	ACRES	PROPERTY	ACRES
Marple Township Parks		School Grounds	
PAXON HOLLOW GOLF COURSE	151.6	CARDINAL O-HARA HIGH SCHOOL	103.4
GREEN BANK FARM PARK	34.6	DELAWARE COUNTY COM. COLL.	122.1
VETERAN'S MEMORIAL PARK	25.0	PAXON HOLLOW MIDDLE SCHOOL	37.4
LAWRENCE PARK	22.2	RUSSELL ELEMENTARY	13.5
THOMAS FIELDS	17.9	DCIU MARPLE EDUCATION CENTER	12.4
KENT PARK	15.9	LOOMIS ELEMENTARY	12.3
NEW ARDMORE PARK	15.1	ST. PIOUS X SCHOOL	11.8
OLD MARPLE SCHOOL PARK	9.6	WORRALL ELEMENTARY	5.0
BROOMALL FIELDS	9.3	CHESTERBROOK ACADEMY	1.8
HIGHLAND AVE PARK	5.3	Total School Grounds	319.7
MARPLE GARDENS PARK	4.9		
MALIN ROAD TOT LOT	1.5		
Total Township	312.9	Other Open Space	
HOA Open Space		STS. PETER & PAUL CEMETERY	321.0
PAXON CHASE	67.2	DON GUANELA PROPERTY	221.8
CEDAR GROVE FARM	60.2	GLENWOOD CEMETERY	66.4
LANGSTOON	55.5	HILDACY FARM PRESERVE	65.6
SPRINGTOWN LAKE VILLAGE	47.3	MARPLE NEWTOWN SWIM CLUB	12.4
RAVENSCLIFF	29.5	ROSE TREE SWIM CLUB	10.5
MARPLE WOODS	21.8	MARPLE PRESB. CHURCH CEMETERY	1.4
Total HOA	281.5	Total Other	699.1
Total Open Space: 1,613 acres			

Historic/Cultural Resources

Despite its rapid growth in the post-war era, Marple has many surviving historical buildings and sites throughout the Township, including significant buildings from the 17th, 18th, and 19th centuries, and a Leni Lenape Native American archeological site.

There is one local property listed on the National Register of Historic Places, and an inventory performed by the Delaware County Planning Department in 1995 more than 60 properties have been determined to be eligible or have notable historical value. Several historic properties are along existing or proposed trails. The possibility of linking these properties as part of a trail network is a valuable opportunity to promote the area's cultural heritage. Notable historic properties include the following:

The Thomas Massey House was originally built in 1696 and expanded in 1730. It is one of the oldest English Quaker buildings in Pennsylvania. In the 1960s, a descendent of Thomas Massey bought the house and its one-acre property and donated it to the Township. The Massey house is now fully restored and is operated as a historic house museum by the Marple Historical Society.

Hildacy Preserve is virtually all that remains of a 300-acre land grant from William Penn to a local tanner and his family. Once prized for its mature oak trees, the land was slowly cleared for timber and agriculture. The original stone farmhouse dates to 1806, with wings built in 1850 and 1943. The farmhouse and a 2001 addition serve as the regional headquarters of the Natural Lands Trust.

Lewis Tannery: This was operated as a tannery 1839-1865 by abolitionist James Lewis and was used in the underground railroad.

Green Bank Farm (1760), Palmers Mill Road.

Marple Presbyterian Church (1834), North Sproul Road

Culbertson House (1750), West Chester Pike

Brookthorpe House (1821), West Chester Pike



Thomas Massey House (1696)



Brookthorpe House (1821)



Marple Presbyterian Church (1834)



Culbertson House (1750)



Hildacy Farm (1806)



Lewis Tannery (1839)

Natural Resources

Though the Township is heavily developed, there is nevertheless a significant presence of natural resources, including wooded areas, wetlands, floodplain areas, and natural flora and fauna habitat. Much of the currently undeveloped land is associated with steep slopes and low lying areas alongside stream corridors. Some of these areas are incorporated into existing township parks, such as Lawrence Park and Veterans Park. But the majority of sensitive natural areas are held privately, and are not currently accessible by the public. This includes undeveloped areas of Saints Peter and Paul Cemetery, Cardinal O'Hara High School, Delaware County Community College, and dedicated open space associated with various Homeowner's Associations. One significant undeveloped open space is the former Don Guanella property on Sproul Road.

Marple Township is split almost evenly between two major watersheds: Darby Creek to the east and Crum Creek to the west. Several smaller stream tributaries feed into these two larger streams. Langford Run and Whetstone Run lead to Darby Creek; Trout Run, Martin's Run, and Hotland Run feed into Crum Creek. Stream corridors and floodplain areas within the Township are protected as part of the Subdivision and Land Development Ordinance. The majority of the length of these streams are within the 100-year floodplain as mapped by the Federal Emergency Management Agency (FEMA).

Natural areas such as stream corridors are often ideal locations for trails. This could be a strong positive feature of the trail network, providing the potential for educational and interpretive engagement of the public. However, such interventions must be handled sensitively to ensure the integrity of the natural resource. Protection and conservation of these sensitive areas should remain a priority of the trail plan.

Also associated with the stream corridors are other sensitive environmental features such as woodlands and steep slopes. Not coincidentally, these areas have escaped development because of the challenges these conditions pose to construction. Because the Township's native woodlands were cleared first for agriculture and later for development, most of what remains are in the wet areas or on the steep slopes alongside streams. The preservation of these remaining woodlands is essential for maintaining habitat, protecting water resources, and providing future recreational opportunities.



Stream corridors can often make good opportunities for trails.

Top: Crum Creek

Bottom: Trout Run

Chapter 3

Trail Network Recommendations

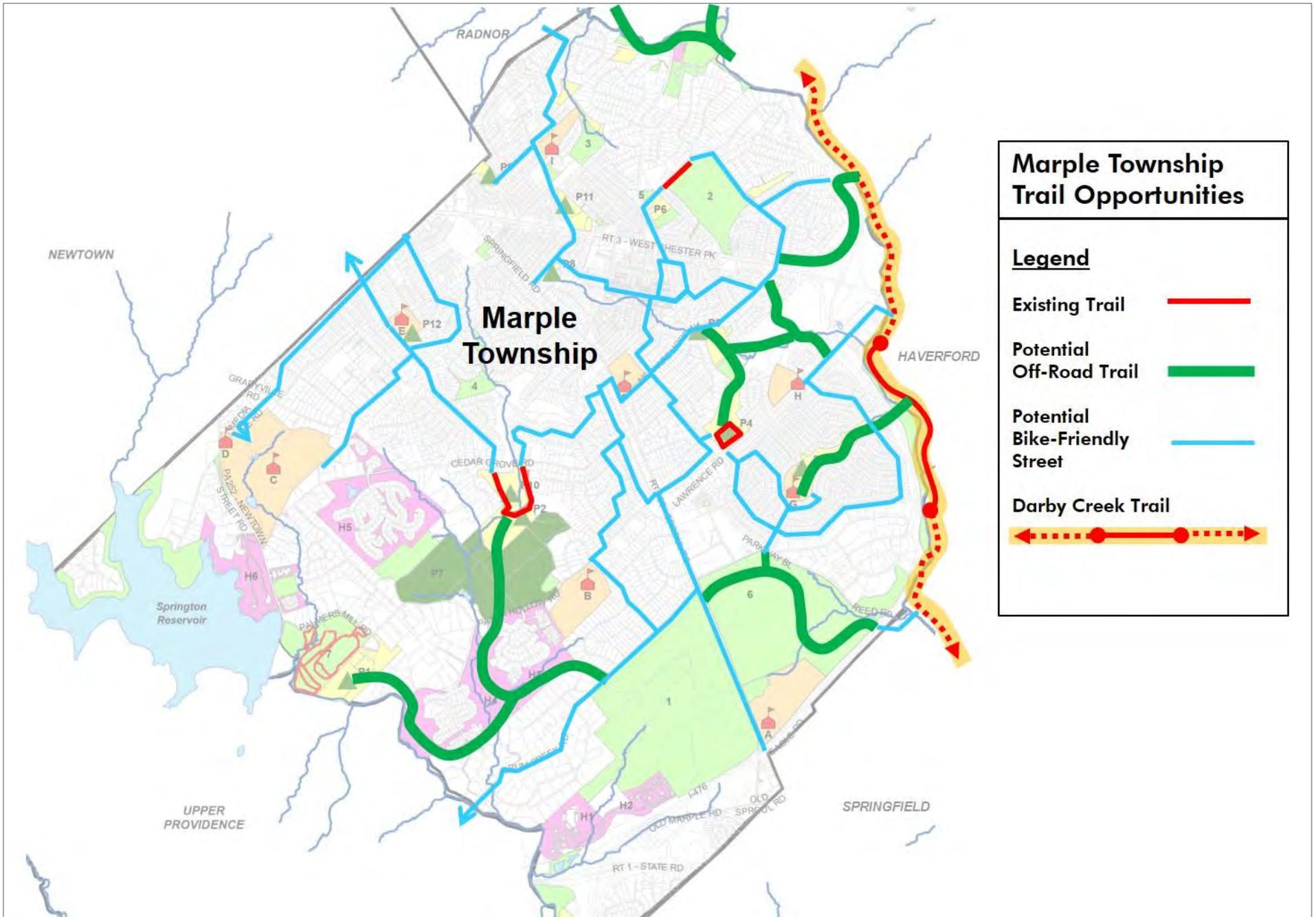
The goal of this *Marple Township Trails Master Plan* is to develop recommendations for a network of trails that will connect open space resources and provide new opportunities for recreation and transportation in the Township. Existing resources are abundant. Marple boasts a diverse mix of parks, playing fields, and natural areas, as well as retail, cultural, and historic destinations. The potential exists to connect together many meaningful destinations with a combination of on- and off-street trails. In order to appeal to many different kinds of potential users, these recommendations include a variety of individual trail segments and types, which link together in an integrated network. Specific recommendations are described in detail on the following pages. Essentially, these recommendations are intended to fulfill a small number of key ideas:

- Expand existing trails.
- Connect open space areas and recreation facilities with off-road trails.
- Link recreation areas with residential, commercial, and cultural destinations.
- Reserve existing Township open space parcels for future recreation areas and to conserve natural resources.
- Fine-tune Township land use policy and ordinances to facilitate the development of trails and protect potential trail rights-of-way.

The Trails Master Plan shows the individual trail types and segments that make up the proposed network. These include major and minor trails, paved and unpaved trails, off-street and on-street trails, and primary trail head access points.

Unlike some other Townships, Marple lacks the linear corridors such as former rail lines and utility rights-of-way, which in many places are ready-made for conversion to recreation trails. Without such opportunities, it may not be possible to establish lengthy off-road routes in some parts of the Township. For this reason, it will be necessary to utilize on-street segments to connect open spaces and off-road trails, to achieve an integrated pedestrian-bicycle network. Especially in the eastern and northern portions of the Township, Marple is blessed with traditional residential neighborhoods with sidewalks and low-volume local streets. These lend themselves well to pedestrian and bicycle travel. In order to make Township-wide connections and fill gaps in the off-street network, certain streets can be designated as “bicycle friendly,” through use of signs and shared lane markings (see Chapter 4), as a way to establish a continuous network of bicycle-safe routes throughout the Township.





Trail Network Planning Criteria

These recommendations are based on an analysis of existing resources and opportunities, as described in Chapter 2. The location and character of the various individual trail segments that comprise the Trails Network was determined based on objective design criteria that took into consideration a range of important factors.

- **Quality of Experience:** The overall experience of using trail, including ease of access, visual quality of the surroundings, safety (real and perceived), compatibility with surrounding land uses, suitability of the trail facility for a range of user types and abilities. Off-road alignments buffered from on-street traffic offer a higher quality experience.
- **Availability of Right-of-Way:** In order to build a public facility like a trail, rights to public access need to be granted. This is most feasible on property that is already in public ownership. In some places, it is necessary to secure property rights from adjoining property owners. Some owners are more amenable to allowing a public trail on their property than others. The likelihood of acquiring necessary rights is a significant determinant of the proposed alignment.
- **Quality of Connections:** A major feature of a successful greenways network is one that connects neighborhoods and community facilities to maximize the network of recreation resources. Higher consideration is given to routes that connect many existing destinations, and serve as a feasible way to circulate between them.
- **Relative Implementation Cost:** Relative cost to implement, including cost for land acquisition and construction. Factors that will add to cost include: overall length of the trail segment; necessary acquisition of land and/or easements; need for structural improvements such as bridges and walls; need to relocate existing facilities, and other factors.
- **Physical Obstructions:** In certain places along the network, existing physical obstructions would add to the cost of the trail, or degrade the overall user experience. These may include steep slopes, stream crossings, wetlands, or incompatible adjacent land use. It is desirable to avoid these obstructions if possible.
- **Roadways and Traffic Impacts:** Adverse impact on existing vehicle traffic patterns is an important consideration, where trails are expected to cross many streets at-grade.
- **Economic Impacts:** The potential to serve as a catalyst for private economic growth and development, and produce positive and tangible economic value for the Township and region.
- **Community Support:** The support of neighboring residents and the overall community is vital. Trail segments that meet opposition are less likely to succeed.
- **Environmental Impacts:** Potential for incorporating environmentally-sustainable design elements, such as sustainable storm water management practices, facilitation of multi-modal transportation, restoration of native habitat, use of native species, etc.
- **Consistency with Local Plans:** Degree to which the alignment is compatible with other trail/bikeway plans and policies, and with other urban land use and planning objectives of the Township and affected property owners.
- **Operations and Maintenance Considerations:** Relative cost and difficulty of maintaining the trails. Includes identification of potential public- and private-sector partnerships that may help to perform and subsidize maintenance and operations such as cleaning, security, repairs, promotions, etc.



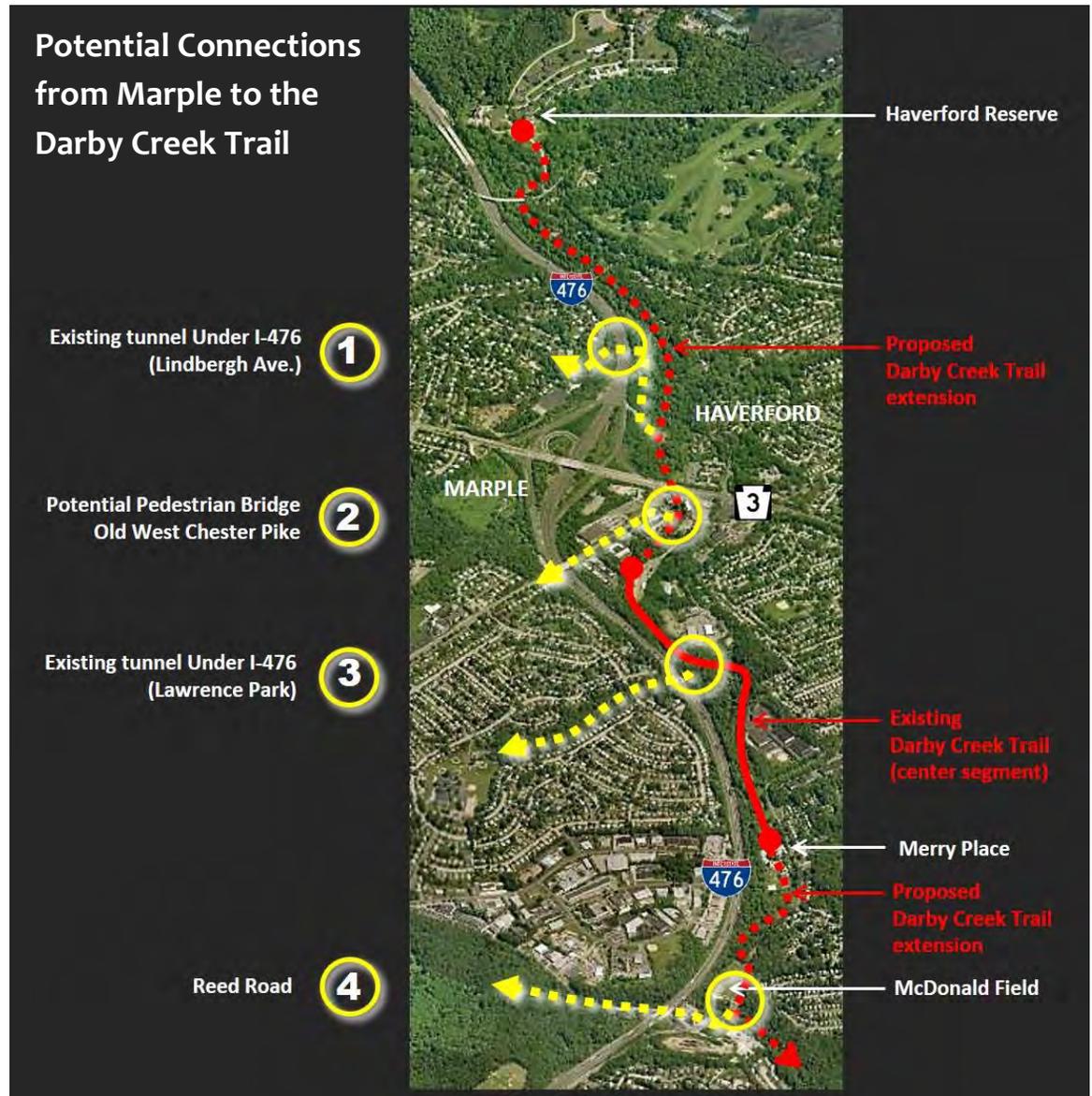
Darby Creek Trail Connections

The Darby Creek Trail in Haverford represents the best opportunity for Marple to connect to the regional trail network. The Darby Creek Trail is the nearest spine of the planned regional Circuit Coalition Trail network, and 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. (See Chapter 2.)

In 2013, Haverford Township constructed the first phase of the Darby Creek Trail, a paved one-mile section alongside Darby Creek, just off the eastern edge of I-476. Haverford is actively pursuing plans to extend the trail both north and south. To the north, it will reach the Haverford Reserve and connected with the existing trail network in place there. To the south, it will follow the Creek into Upper Darby, then further south to ultimately connect with the East Coast Greenway along the Delaware River.

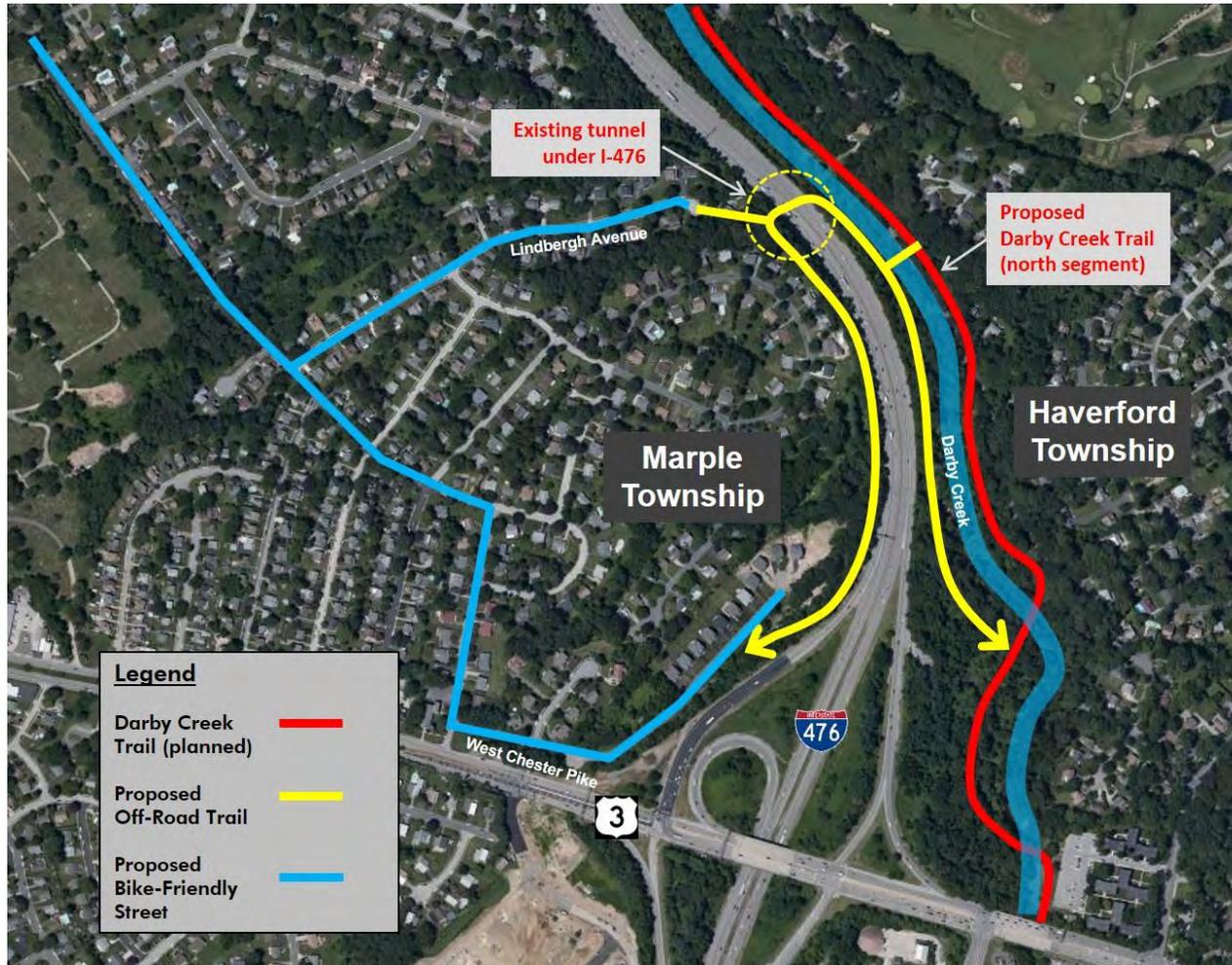
None of the planned Darby Creek Trail alignment is within Marple Township, and both I-476 and Darby Creek itself pose obstacles to making trail connections. However, the planned alignment skirts close to the eastern township border with Haverford, and can be connected to from Marple at several key locations. Working south to north, these connections points are:

1. Lindbergh Ave. tunnel
2. Old West Chester Pike crossing
3. Lawrence Park tunnel
4. Reed Road underpass



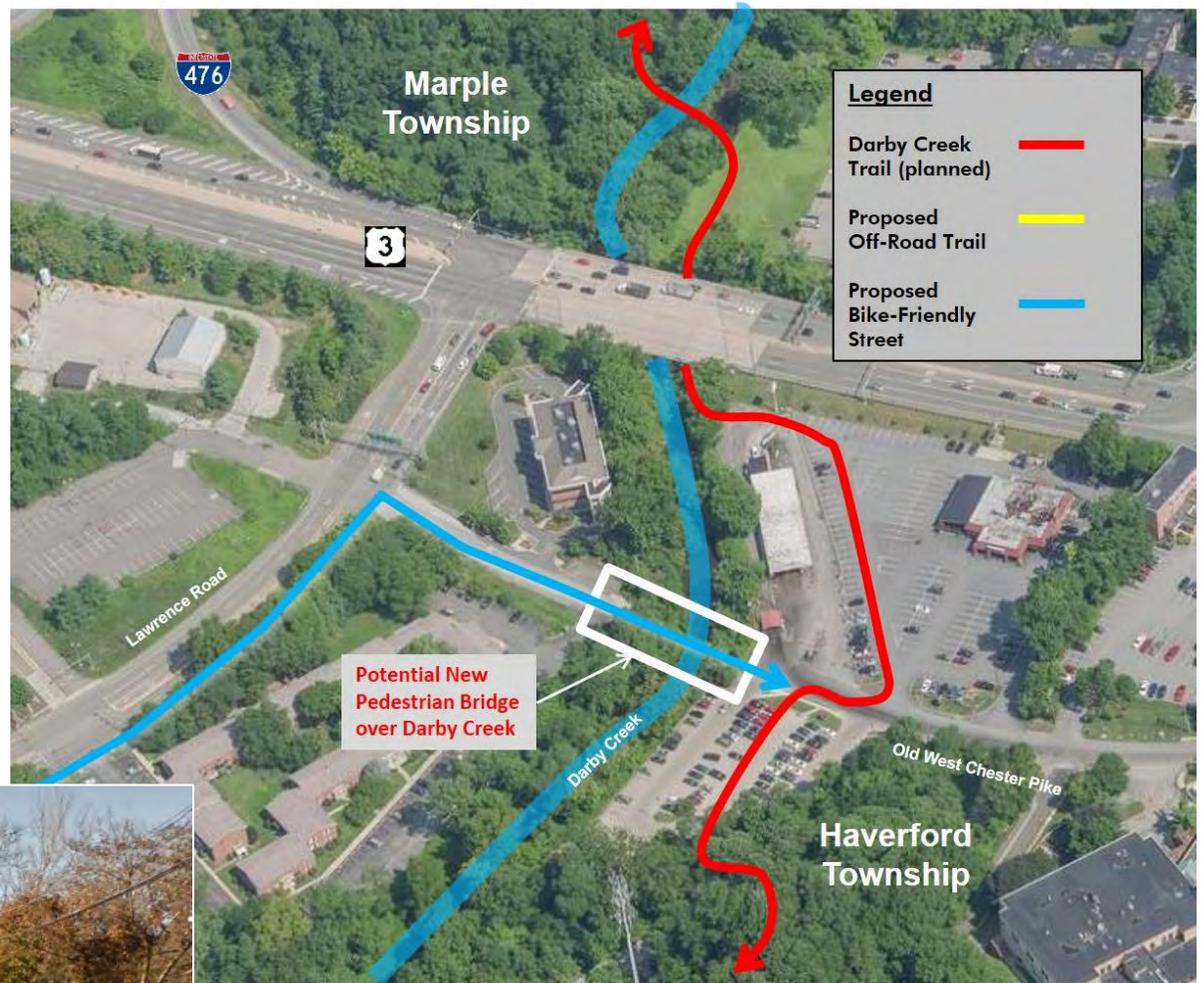
Lindbergh Avenue Tunnel

Just north of West Chester Pike, a service tunnel exists just beyond the terminus of Lindbergh Ave. It can be accessed through a narrow public right-of-way at the end of Lindbergh Ave., or further south from the Fox Hollow development (former Gamma Swim Club property). Once crossed to the east side of I-476, the narrow land between the highway and creek leads south to a potential location of bridge crossing into Haverford.



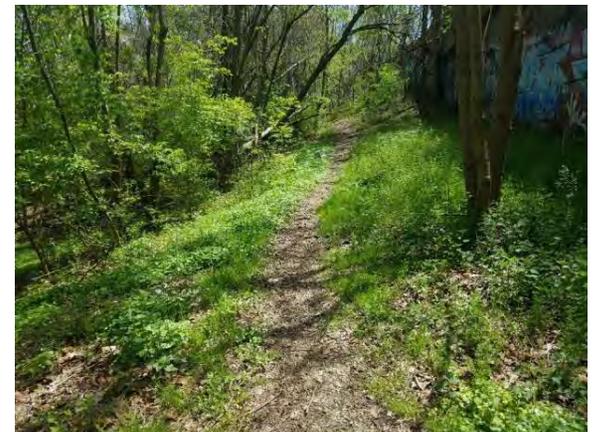
Old West Chester Pike Pedestrian Bridge

Just south of West Chester Pike, Old West Chester Pike currently dead ends at Darby Creek. A bridge over the Creek washed out decades ago and was never replaced. A new pedestrian-bicycle bridge in this location can serve as a direct connection to the Darby Creek Trail, and also connect retail in Haverford on West Chester Pike with newer retail and neighborhoods on Lawrence Road and vicinity in Marple. To reach this new bridge from the Marple side, ped/bike improvements to Lawrence Road will be needed (see Appendix).



Lawrence Park Tunnel

Behind Loomis Elementary School, the Township’s Lawrence Park leads directly to an existing unused service tunnel beneath I-476. An at-grade crossing of Sussex Boulevard will be required. This tunnel is an excellent opportunity for a trail connection. Unlike the tunnel north of West Chester Pike, this one also accommodates a drainage channel, so the space available for a trail is reduced, but still sufficient. It leads to a narrow strip of dry wooded land between I-476 and Darby Creek, which is within Marple Township and owned by PennDOT as part of the I-476 right-of-way. From this point, a paved trail can lead to one of the possible locations for a bridge over the Creek.



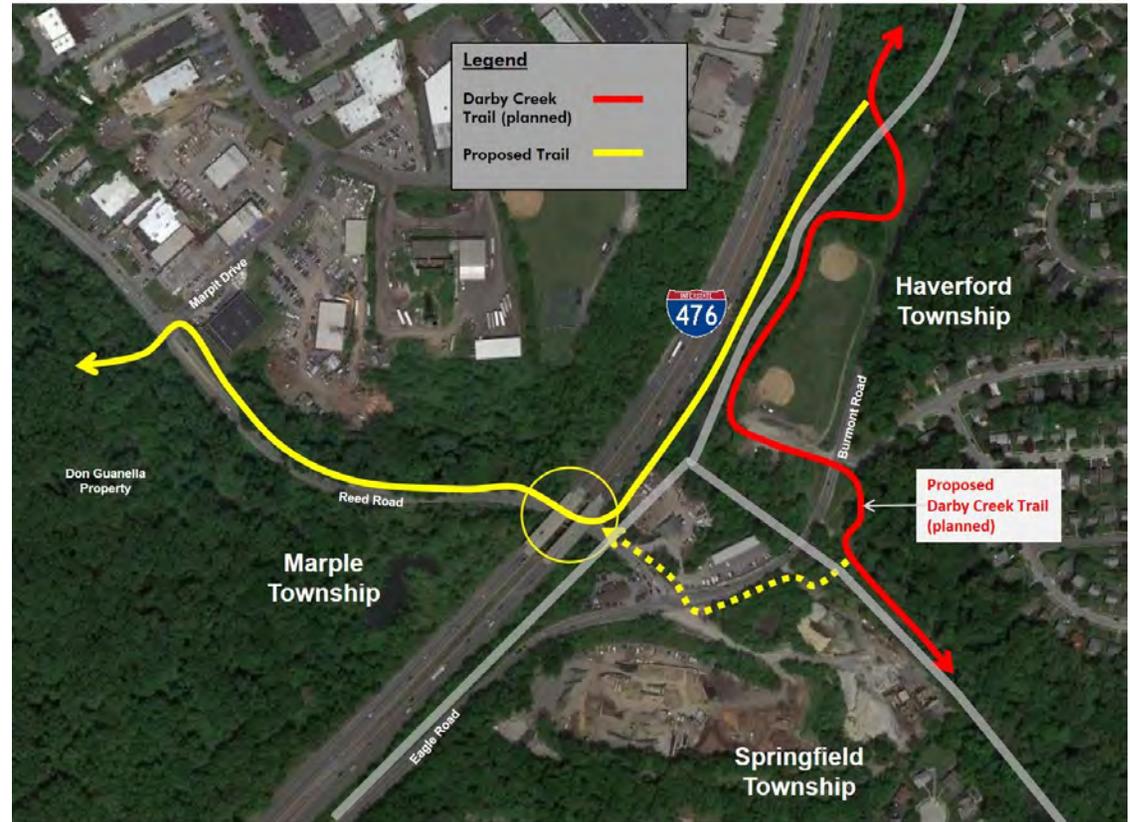
Reed Road Underpass

Reed Road offers one of the few vehicular street crossings of I-476 from Marple, and offers perhaps the greatest potential. On the eastern side of I-476, the underpass is very close to Darby Creek and the planned Darby Creek Trail alignment. On the western side, the underpass is directly opposite one corner of the Don Guanella property, the most significant remaining undeveloped open space parcels in the Township. The prospect of making this connection is of critical importance. Favorably, the underpass is generously wide, allowing room for ped-bike accommodations. The challenge is the intersection between Reed Road and Eagle/Burmout Road. This is a very busy intersection, with generally poor sight lines, and lacking usable shoulder space. Understanding the design constraints, options for this connection include:

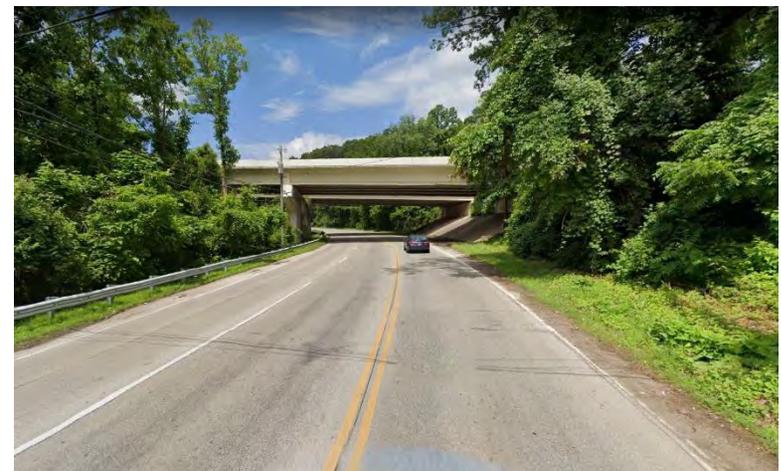
- Option 1: Hug the back of I-476. Will require multiple easements over private property, and a ramp switchback down a steep slope leading to Reed Road.
- Option 2: Cross Darby Creek on the far side of Eagle/Burmout Road, and cross at the Eagle/Reed intersection.

Option 1 proposed a trail to occupy the narrow space between I-476 and Darby Creek. A bridge over the creek is planned as part of the Darby Creek Trail extension, and that would serve as the connection point. The steep slope at Reed Road is an obstacle that would require a switchback ramp. Space required for this is expected to encroach on the adjacent property owner, therefore an easement would be required. One advantage of this scheme is that it is entirely within Marple Township.

Option 2 establishes an enhanced crossing at the Reed/Eagle intersection, and connects with the planned Darby Creek Trail on the east side of the creek. This will require a new ped/bike bridge over the creek, as well as an easement over private property. The intersection itself is located in Springfield Township, therefore concurrence and collaboration with Springfield would be required.



Reed Road offers an underpass under I-476 that is one of the few opportunities to cross the highway with pedestrian/bicycle traffic.



Lawrence Park Neighborhood

The Lawrence Park vicinity is a dense residential neighborhood of single-family homes, surrounding an elementary school and township park containing ball fields that are home to South Marple Little League. The park is in some ways an untapped resource. While the ball fields are well-used, the wooded ravine behind is undeveloped. Informal dirt walking trails can be found. This open space connects directly to one of the available crossings beneath I-476. As discussed above, this will allow connection to the Darby Creek trail in Haverford. In this way, the neighborhood can be connected via off-road trails to the regional trail network.

Surrounding the school and park is a concentric ring of low-volume streets, which have existing sidewalks and which can serve well to share use with bicycles. Certain streets can be marked with prioritized as bicycle-friendly, through use of signs and shared lane markings.

To the north, an improved connection can be made across Lawrence Road into the popular Veterans Park.

To the south, the neighborhood can connect to the future public open space of the Don Guanella property.



Don Guanella Property

This 213-acre property, owned by the Catholic Archdiocese, is one of the only significant remaining undeveloped properties in the Township, and it has important potential for public open space. Now in private hands, development proposals for the property are currently under review. By terms of Township ordinances, the developer is obligated to dedicate a portion of the property for public open space, and to provide suitable public access.

The property occupies a key geographic location, spanning the gap between the planned Darby Creek Trail to the east, and Sproul Road and Sts. Peter and Paul Cemetery to the west. The congested 4-lane Sproul Road presents a barrier to cross-town pedestrian and bicycle circulation. The intersection of Sproul Road and Reed Road, at the corner of the Don Guanella, presents a sensible opportunity to establish a safe and formalized crossing to accommodate pedestrians and bicycles.

The wooded property has been beloved by local residents for decades. An informal network of worn walking paths has emerged over time, and has even been mapped by a local group. The potential development has stirred strong public emotions. The current development proposal sets aside approximately 50 acres for public open space.

The Don Guanella property is the most significant remaining undeveloped open space in the Township.



Media Line Road

Media Line Road (S.R. 1030) forms the boundary between Marple and Newtown Townships, and is a key roadway that connects important community facilities and other key linkages in the local transportation network. One significant destination on Media Line Road is Marple Newtown High School (MNHS). While it is located on the opposite side of the street, in Newtown Township, MNHS is an important public facility for Marple residents, not only for students but also the community in general due to the wide range of community and school events.

It is clearly important to safe pedestrian and bicycle access to the High School. Potential improvements include:

- Prioritize Highland Avenue as a bicycle-safe route, with signage and shared-lane markings. This street leads to an existing crosswalk at the school entrance, and also links to Worrall Elementary School and Highland Park only a short distance away. It is also connected to a wide network of low-traffic local streets serving residential neighborhoods.
- Enhance the crosswalk at the High School entrance. This crosswalk is currently marked and signed. Electronic signals, push-button activation, and specialty crosswalk materials such also be considered, to maximize the visibility and safety of this crossing.
- Establish marked bike lanes. Media Line Road has wide shoulders sufficient for off-street vehicle parking. The majority of the land use on the street is single-family homes with private driveways. Devoting this space to bicycle lanes would provide improved safety for students arriving to school by bicycle, and would also allow for connection to Delaware County Community College, located one mile away.
- Fill in sidewalk gaps along Media Line Road. Sidewalks leading to the school are inconsistent, and there are frequent gaps. There should be a continuous sidewalk on both sides of the street.

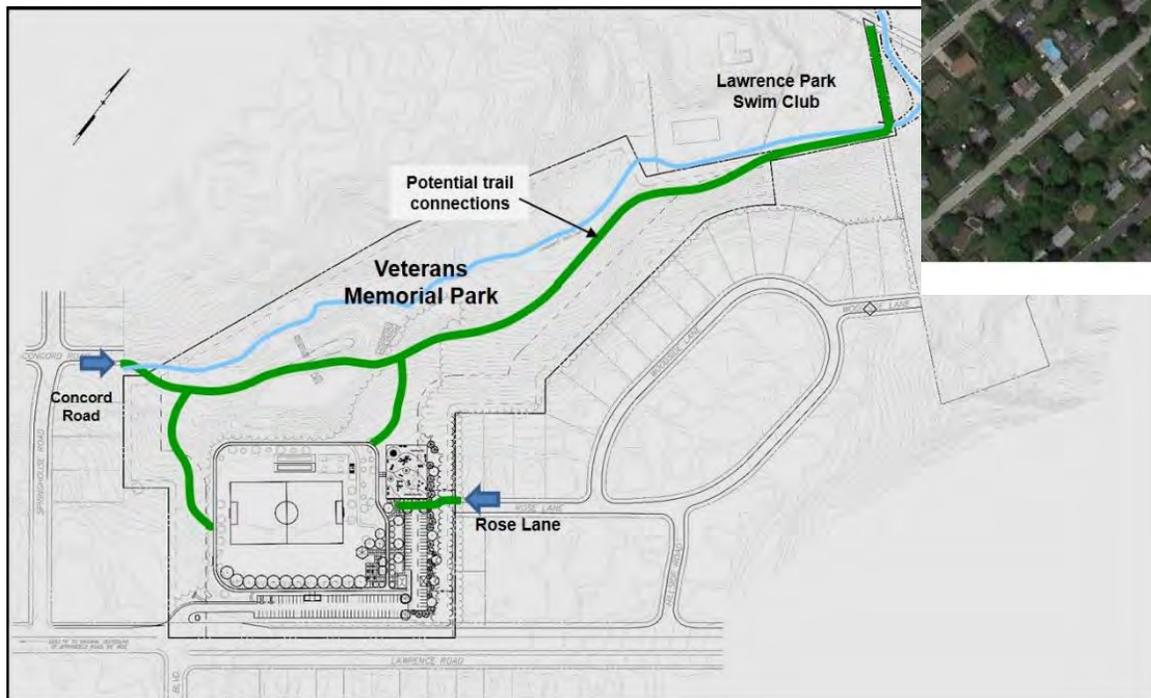
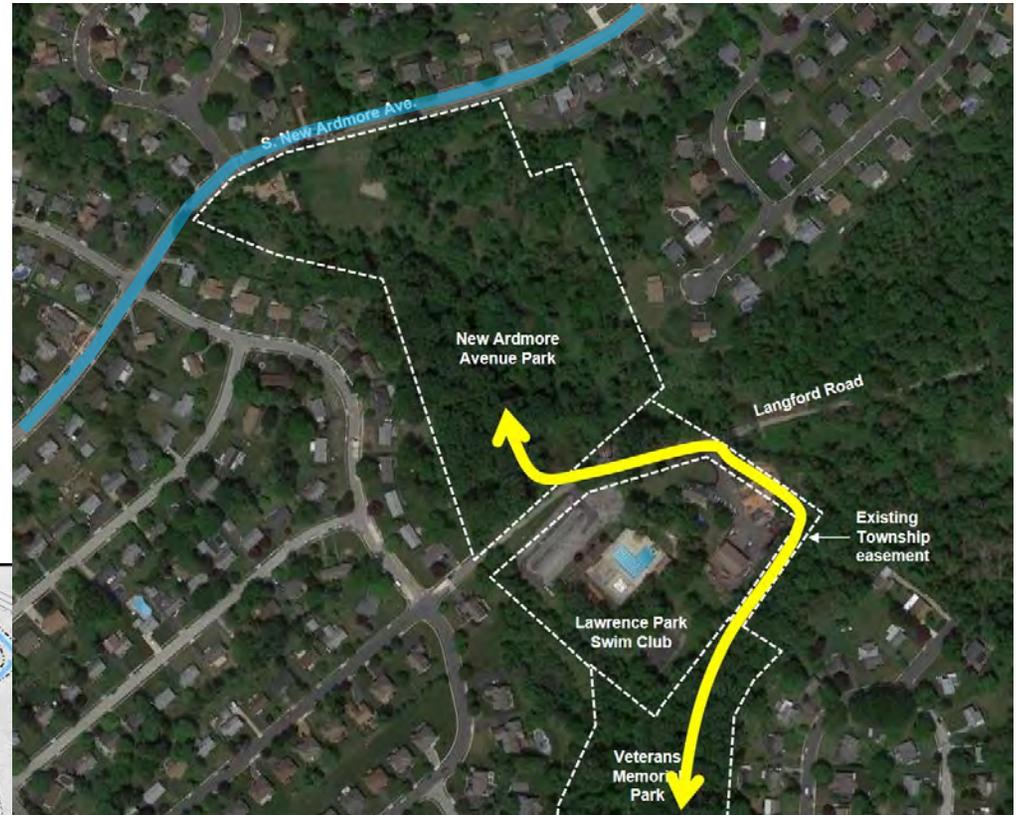


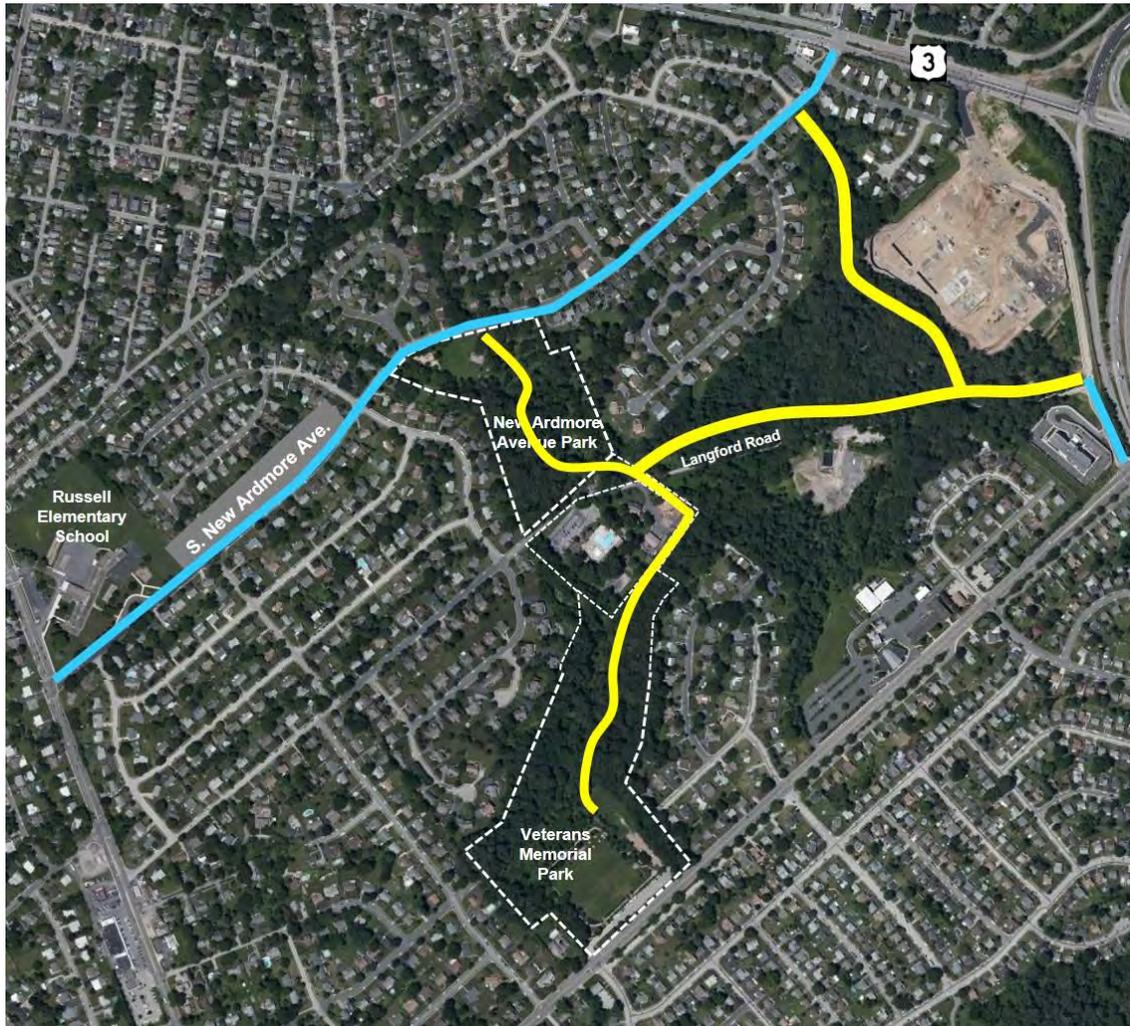
Highland Avenue and Media Line Road can be enhanced to improve safety for pedestrians and bicyclists.

Veterans Memorial Park and New Ardmore Avenue Park

These two parks are close in proximity and can be connected by an off-road trail through undeveloped open space. The recent Master Plan for Veterans Memorial Park calls for improved connections to neighboring streets, as well as an expanded walking trail through the Park's rear woods. From that point, a public easement around the back of the Lawrence Park Swim Club leads to the rear of New Ardmore Avenue Park. A road crossing at Langford Road would be required, and one or more small stream crossings would be required in Veterans Memorial Park.

An existing easement can be used to create an off-road trail through wooded areas to connect two nearby public parks.





New Ardmore Avenue is a low-stress street that can be enhanced as a bike-friendly route.

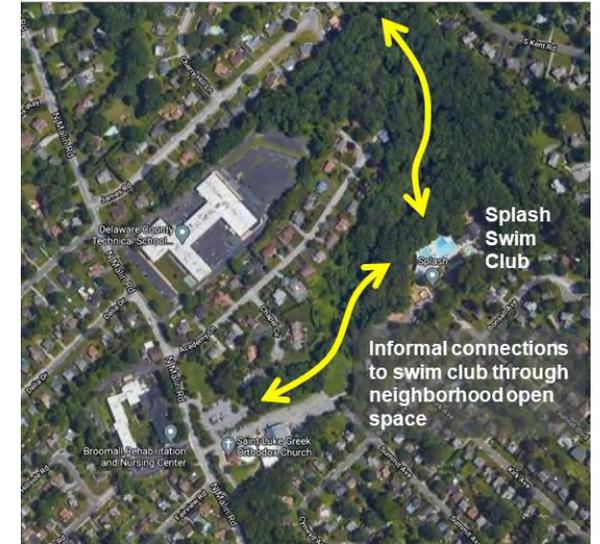
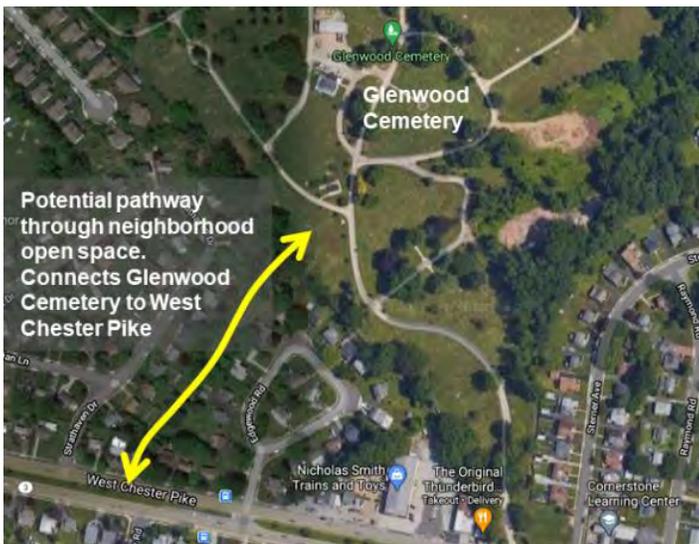
New Ardmore Avenue

An excellent candidate for on-street improvements to facilitate bike-friendly mobility is S. New Ardmore Avenue. This street has the benefit of being relatively slow-moving and low volume vehicle traffic, and also connecting to public places. Two roundabouts – at the intersections of Clover Dr. and Cambridge Rd. – serve as effective traffic-calming devices to slow vehicles, and improve safety for bicycles. The street connects to Russell Elementary School, the Sproul Road commercial district, and New Ardmore Park.

Noted earlier, there is a potential for off-street trails to be developed connecting New Ardmore Park, Veterans Park, and the Langford Road corridor. A bike-friendly corridor along New Ardmore Avenue could be an effective way to connect the large surrounding residential neighborhood to this potential off-street bike network.

Informal Connections

At various locations around the Township, there are opportunities for short trail segments that can facilitate off-street pedestrian and bicycle connections. Many of these already exist as informal walking paths, representing convenient and desirable routes of travel for those on foot. Even if these remain nothing more than mulched pathways, their existence should be acknowledged and maintained to maximize off-street mobility as part of the overall system of pedestrian and bicycle connections. Some examples are shown on the following page.



Opportunities for informal small-scale footpaths can provide useful off-road connections.

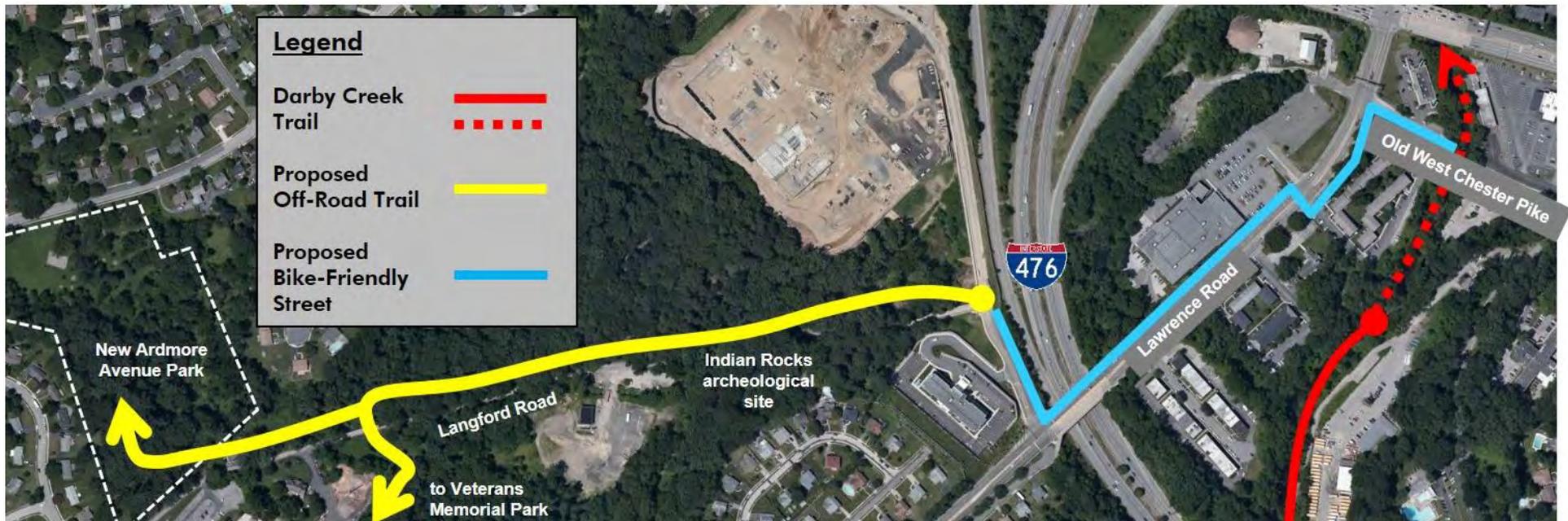
Langford Road and Lawrence Road

Undeveloped sections along Langford Road offer an opportunity to establish an off-road trail to connect between New Ardmore Avenue Park and Lawrence Road. It is important that necessary easements along Langford be acquired before future development occurs, or that proper requirements be placed on potential future developers to build or allow for a public off-road trail in this location. Langford Road is also adjacent to a native American archeological site known colloquially as Indian Rocks. Future planning should acknowledge and potentially incorporate this feature.

Lawrence Road can serve as an important connection between the potential off-road trails connecting Langford Road, New Ardmore Avenue Park, and Veterans Memorial Park, and the potential Darby Creek Trail connection at Old West Chester Pike. While Lawrence Road is a busy 4-lane arterial, it offers wide shoulders that can be adapted for pedestrian/bicycle use. A more detailed analysis of the design alternatives can be found in Appendix A.



Though it is a busy street, Lawrence Road has wide shoulders that can allow for bike lanes to connect from Langford Road to Old West Chester Pike.

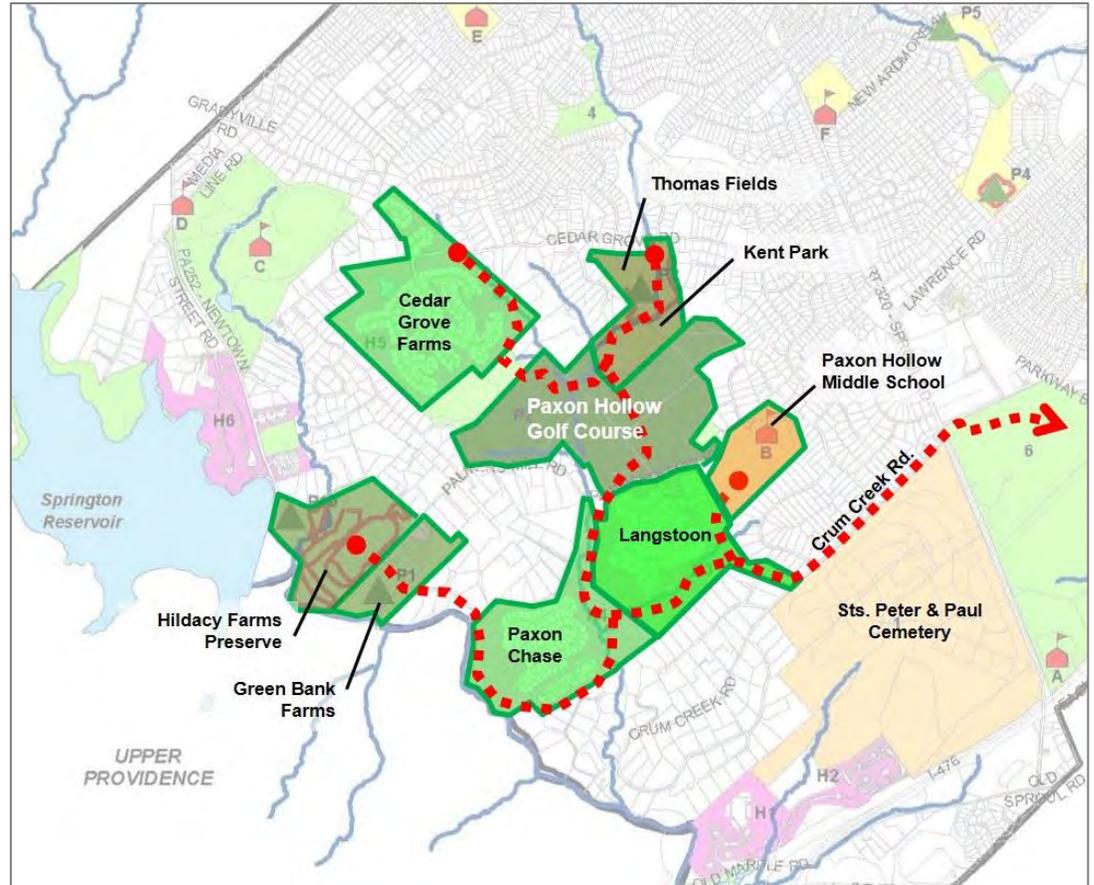


Southwest Portion of Township

The nature of residential development in the southwest part of Marple is distinctly different than the rest of the Township, due largely to topography and physical characteristics. This section is has considerably more hills than most other areas of the Township, with a number of stream valleys flanked by fairly steep slopes. As a result, development took the form of self-contained residential subdivisions with cul-de-sac street networks, rather than the traditional network of interconnected streets apparent elsewhere. The limited number of through-streets tend to be narrow, steep, winding, and lacking in sidewalks and effective space for bicycle lanes. Due to these and other factors, an on-street pedestrian/bicycle network appears to be generally infeasible.

However, for the same reasons, there is an opportunity for an off-road network, relying on existing public and private open space. Homeowners Associations (HOA) provide a significant portion of open space in this part of the Township. This open space provides the opportunity for public use for recreational use such as walking trails. These open space areas are scenic, as they generally follow stream corridors, but also pose technical challenges to trail construction.

It is possible to envision an integrated trail system connecting through public and private open space to span a wide area within this part of the Township. The Paxon Chase and Langstoon both provide adjacent open space areas. To the north, a trail connection can conceivably be connected to Paxon Hollow Golf Course, and further to link with existing and improved trails between Kent Park and Thomas Fields. To the west, the trail can link to Green Bank Farm and Hildacy Preserve, with a short on-street segment at Bridlebrook Lane. These potential connections are promising, but technically challenging. In addition to stream crossings and steep slopes in some areas, there are key street crossings that must studied thoroughly.



Crum Creek Road is an important link between trail segments on the east and west of Sprout Rd. (see next page).

Potential individual segments of the trail network in this part of the Township may include:

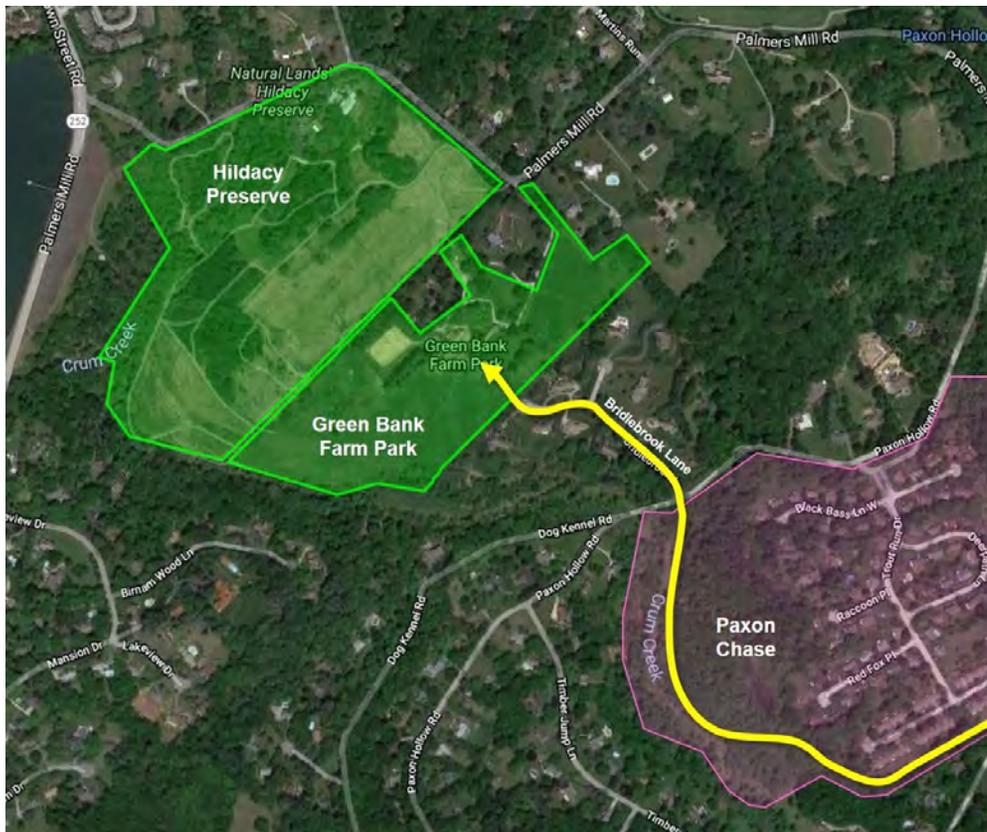
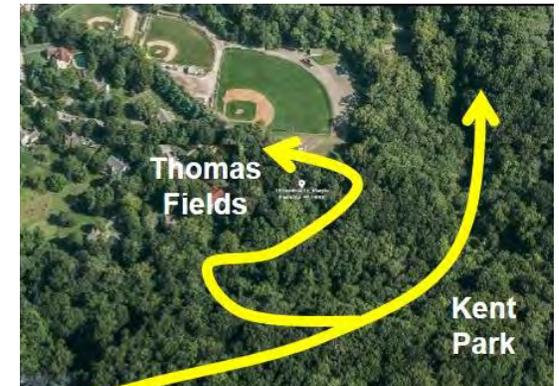
- A. **Sts. Peter and Paul Cemetery:** The cemetery occupies a key location bridging densely-developed Sproul Road and the open space in the western part of the Township. Similar to Glenwood Cemetery, a trail could be established along the northern edge of the property, enabling an off-road connection down to the Langstoon open space. As an alternative, Crum Creek Road is a low-volume street that could be upgraded with sidewalks and shared-lane markings, as a bike-and-pedestrian-friendly route.
- B. **HOA open space:** Langstoon occupies a key location that spans the gaps between several public facilities and open spaces: Kent Park, Thomas Field, and Paxon Hollow Middle School. A public trail through Langstoon open space can provide an off-road option to walk or bike to these destinations, in an area where on-street routes would be difficult to create. Paxon Chase provides the opportunity to connect west, to Green Bank Farm and Hildacy Preserve. The route would follow Crum Creek, cross Paxon Hollow Road, and require a short on-street segment along low-volume Bridlebrook Lane.



Dedicated open space associated with the Stream corridors of Langstoon (left) and Paxon Chase (right) offer opportunities for off-road trail connections.



- C. **Paxon Hollow Golf Course:** There is one potential route through the golf course that does not interrupt play on any holes. This follows the stream (Trout Run) alongside the driving range, and leads into Kent Park. This will require a street crossing at Paxon Hollow Road, as well as adequate barriers and protection in some places where the trail is in proximity to course activity.
- D. **Kent Park/Thomas Fields:** These adjoining Township Parks have existing trails. There is a paved portion in Kent Park, and informal dirt paths connecting to Thomas Fields. These informal trails are narrow and steep in some places. New and improved trail segments here can greatly enhance the useful connections to Kent Park and planned trail network.
- E. **Connection to Green Bank Farm/Hildacy Preserve:** Following Crum Creek through Paxon Chase, a short on-street trail segment down Bridlebrook Lane enables a connection to the Township's Green bank Farm, and from there to the Hildacy Preserve and the existing trail network offered there.

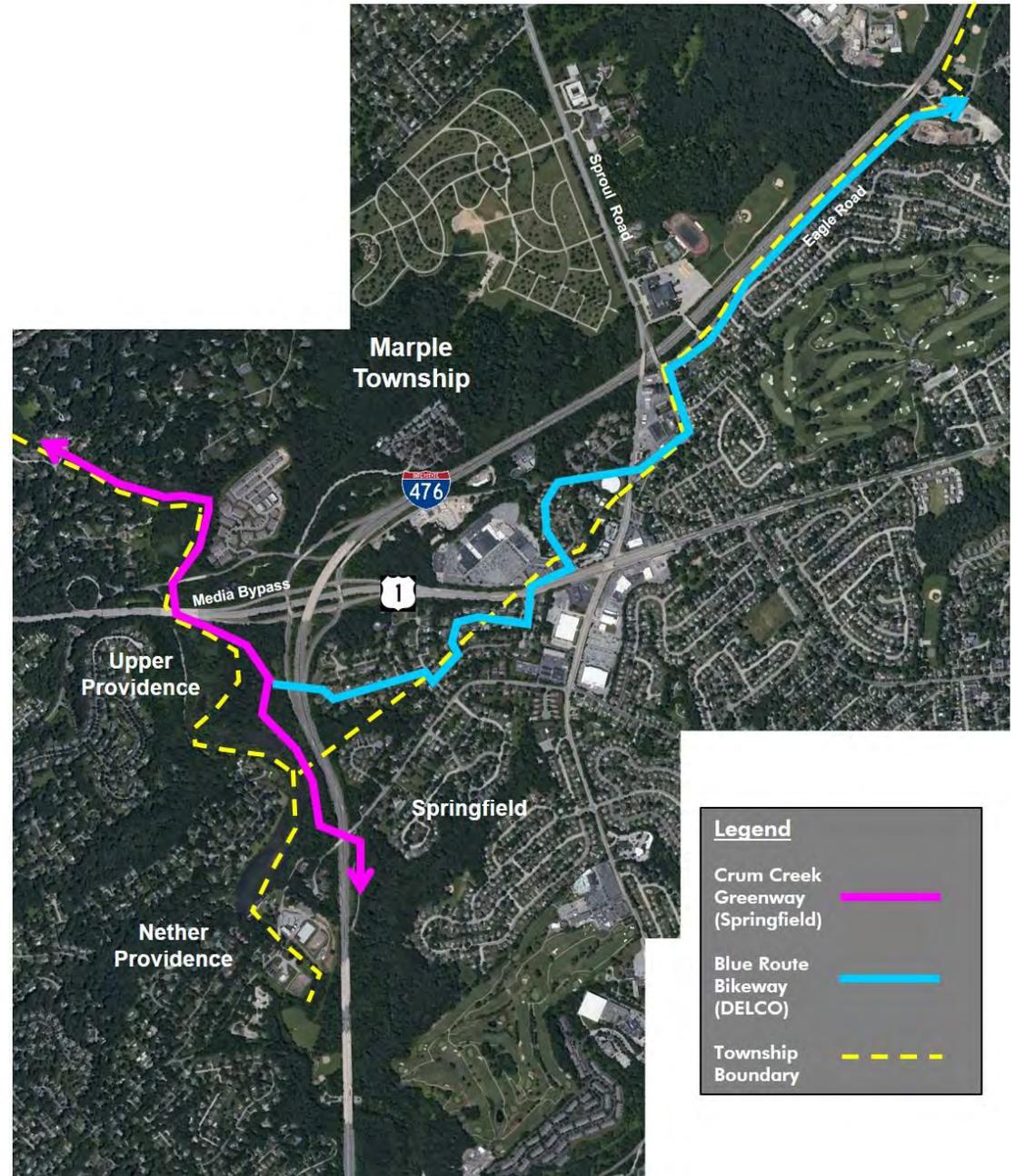


Springfield Connections

Connections between Marple and Springfield will be difficult. Interstate 476 and U.S. Route 1 are two highly congested highways that form substantial barriers to pedestrian and bicycle circulation, as do the dense development alongside both roads.

The Springfield Township *Parks, Recreation and Open Space Master Plan* makes reference to a potential trail connection along Crum Creek. This stream corridor spans the Townships and would represent the only available off-road trail route. However, the significant technical challenges appear to make construction of this route very difficult to achieve in the short term. Crum Creek Road represents an underpass beneath U.S. Route 1, however this road is narrow, winding, and without shoulders. This road is not a good candidate for shared lane markings, and widening the road to allow dedicated space for pedestrian and bicycles would be a significant and costly undertaking. Construction of an off-road trail alongside the stream would require significant construction within the floodway of the stream, with associated cost and permitting requirements.

The Countywide greenway plan prepared by Delaware County in 2015 identifies the Blue Route Bikeway as a potential connector trail linking Marple Township to Smedley Park in Springfield to the south and to the Darby Creek Trail in Upper Darby. This corridor is one of the limited east-west trail opportunities in the County's primary trail network, and is intended to connect the Crum Creek and Darby Creek stream valleys. This is primarily an on-street route that utilizes Eagle Road, Springfield Road, Old Sproul Road, Old Marple Road, and other local streets. Most of the legs of this proposed route are on busy streets that would be difficult to make pedestrian- and bicycle-friendly. The route also requires at-grade crossings at highly congested intersections at Sproul Road and the Media Bypass, as well as a crossing of I-476. Because of the high degree of technical challenges involved with, Marple Township does not consider this to be feasible at this time.



Radnor Connections

At the very northern corner of Marple, Haverford, Radnor, and Marple Townships converge at a key location for extending the regional trails network. The Haverford Reserve is a highly popular community center offering a variety of indoor and outdoor recreation, including an existing trail network that winds through wooded areas and crosses beneath the adjacent I-476. The Darby Creek Trail in Haverford is planned to extend along Darby Creek and connect to the Reserve. From here, two regional trails are envisioned to connect to the north, skirting through the very edge of Marple Township.

The *Radnor Township Greenways and Open Space Networks Plan (2014)* references the planned Ithan Valley Trail, which would connect into the Haverford Reserve trails and run north roughly along the edge of I-476 before reaching Ithan Valley Park and other areas beyond. Planning and development for this trail is ongoing. The planned alignment for this trail does not run through Marple, but represents an excellent opportunity for Marple to connect into this planned leg of the regional trails network.



Both the Radnor plan and the Delaware County Greenways Plan (2015) reference another planned trail connecting at the Reserve. Referred to in the Radnor plan as the *Darby Creek Greenway* and in the county plan as the *Newtown Branch Rail-Trail*, this trail essentially follows Darby Creek west and north, through a corner of Marple and into Radnor. In the short Marple segment, the trail would follow the pathway of the former Newtown Square Branch of the Pennsylvania Railroad. The rail bed is still evident today, and is located in a private property named Willowstreams, which is an ecologically significant 37-acre property with high quality native wetlands, meadow and woodlands. This property has been placed under a conservation easement, and the owners are supportive of the concept of utilizing the rail bed for a public trail.

The former rail bed crossing the Willowstreams property can be utilized for an extension of the Darby Creek Trail.



Land Use Policy Recommendations

There are a number of actions that the Township can take regarding Land Use Policy that help to facilitate implementation of the planned trails network.

Municipal Comprehensive Plan

The recommendations of this Trails Master Plan should be incorporated in to the Marple Township Comprehensive Plan. The Comprehensive Plan represents the overriding planning document that formally defines the community vision and articulate in detail the long term community goals and objectives. The Comprehensive Plan serves as the basis for implementation of a wide range of municipal land use policies such as Zoning, and Land Development Ordinances. It also is a basis to justify major capital improvements such as for utility and transportation infrastructure. The Trails Master Plan relates most closely to the *Recreation* and *Transportation* elements of the Comprehensive Plan, and those sections at minimum should be updated to reflect the recommendations of the Greenways Plan.

Official Map

To protect its interest in acquiring the rights-of-way necessary to establish the greenways network, the Township can depict the proposed improvements on an Official Township Map. An “official map” is a combined map and ordinance designed to implement the goals set forth in the comprehensive plan. The official map shows the locations of planned future public lands and facilities such as transportation, recreational parks and trails, and open space. The official map expresses a municipality’s interest in acquiring these lands for public purposes sometime in the future. The authority to create an official map is granted in Article IV of the Pennsylvania Municipalities Planning Code (MPC).

Listing a parcel or portion of a property on an official map notifies developers and property owners that the area mapped is of interest to a municipality for public purposes sometime in the future. According to the MPC, designation of a property on the official map does not constitute a taking in and of itself. It simply gives a municipality an opportunity to negotiate acquisition of property, or rights thereto, where a public use would be beneficial before development or redevelopment occurs. Once a property owner or developer notifies a municipality of their intention to build, subdivide or perform other work on land that is located on an official map, the municipality has one year to either purchase the land, come to a mutual agreement with the developer, condemn the land through eminent domain, or decide not to pursue the acquisition of the land.

Adoption of the Official Map and corresponding Ordinance are subject to public review and must follow an established process as required by the MPC.

Zoning and Subdivision Ordinance

Provisions of the Township Zoning Code, and particularly the Subdivision and Land Development Ordinance (SLDO), should be reviewed and strengthened where possible to facilitate greenway construction. Where the proposed trail rights-of-way are established, developers may be required to provide easements for public access, or construct portions of the trail that cross their properties. Trail design guidelines may be incorporated by reference into the SLDO, so there can be a clear understanding by all parties on the expectations of the Township.

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Chapter 4

Design Guidelines

The previous chapter described an overall master plan for trail locations and how they will connect into an integrated greenways network. This chapter outlines the different types of trails and associated features, and describes what they will look like and how they will function.

The trail network is designed with all types of non-motorized users in mind. In general, they are 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 trails in Marple Township, as there will be trails designed for users traveling at different speeds. Whether you are in the mood for a calorie-burning bike ride, or just want to walk the dog, there will be options available for everyone.

Sustainable Design

To be successful in the long term, a trail network must be designed to be physically, ecologically, and economically sustainable. This implies:

- *Physical Sustainability* – Trails should be designed with durable materials and proper form to hold up over years of use and under forces of humans and nature. Maintenance and repairs will always be necessary, but should not be overwhelming.
- *Ecological Sustainability* – Trails should be designed and located to minimize ecological impacts, and protect sensitive natural and cultural resources.
- *Economic Sustainability* – For trails in Marple to be sustainable, the Township must have the financial capacity to support long-term maintenance and operations. Developing and committing to a long-term maintenance strategy is a critical aspect of the trail program.



Trails and greenways in Marple should accommodate all types of users, and a wide variety of uses.

Aesthetic Value

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

- In wooded areas, the natural sylvan surroundings should be preserved and enhanced, with indigenous materials used wherever possible. Trees will be retained, and invasive plant species should be removed, so that the native ecosystem can be allowed 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, trails 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, to remove invasive plants and allow proper access for the public to the water’s edge.



Trails will be designed to fit in with their specific setting.



Paved Trails

The Greenways Plan proposes a combination of paved and unpaved trails, to allow for different types of uses and different types of sites. For the main trail spines, and many of the secondary trails, the expected amount of usage dictates that a paved surface should be used. Major trails should be at least 10-foot wide, to accommodate heavy use. Depending on the level and type of use expected, it may be advisable to construct an unpaved “soft” shoulder 3-5 feet wide on either side of the paved trail, where those on foot can walk and not compete for space with bicycles.

Paved surfaces on main trails are recommended to be asphalt. Asphalt is a very long-lasting and durable material well-suited for this application. It can be placed on slopes and curves and remains stable where native soils or compacted aggregate trails can erode. An asphalt surface eliminates the concerns over dust which can be associated with aggregate trails. It is a very smooth surface that is good for all types of wheeled vehicle such as bicycle, skateboards, and roller blades, not to mention the occasional maintenance or emergency vehicle. In urbanized settings where storm water drainage is a concern, special “porous” asphalt may be used.

For lighter-duty trails where walking is the predominant use, a surface of compacted aggregate is an environmentally-friendly alternative. Compacted aggregate is typically less expensive to install than asphalt, and it provides the users with a more forgiving tread due to its resiliency under foot. One drawback of an aggregate surface is that it is susceptible to erosion in heavy rains, even though the particles are held together with a liquid binding agent.

For heavily-used trails, 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).



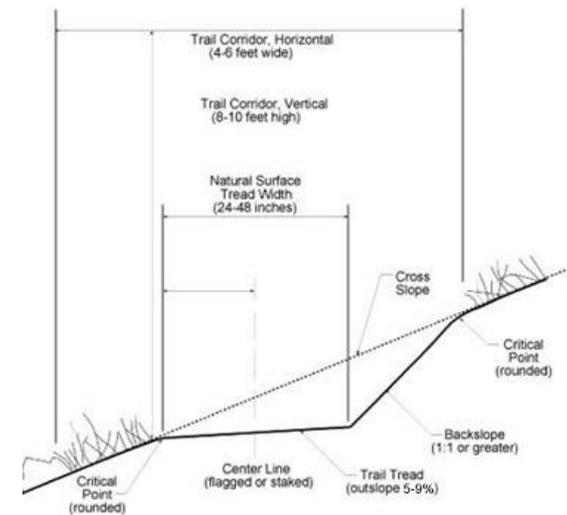
Natural Surface Trails

For trails located in a natural setting, or intended for use mostly by people on foot, an unpaved or “soft” trail surface is appropriate. An unpaved surface can be constructed at far lower cost than a paved trail. They can be constructed more quickly, with available resources of manpower and equipment. Soft surface trails can be located along slopes, among trees, and in other places where the operation of paving machinery would be difficult. Also, since they can be difficult for bicycles and other wheeled users to manage, soft surface trails preserve a quiet experience for those on foot.

The drawback of soft surface trails is that they are more susceptible to erosion than paved trails. While it is virtually impossible to completely prevent trail erosion on a natural surface trail without employing artificial materials, appropriate trail design and shaping can prevent most erosion even in extreme conditions. The simplest and most durable trail surface is mown grass. In park settings or other open areas where grass can grow, a mown trail resists erosion and is easy to maintain with regular mowing. In wooded areas or on steeper slopes where grass may not be practical, both gravel and crushed stone make excellent all-weather trail tread. But as they are prone to erosion, these materials work best where water drains off the tread quickly enough that amounts don’t become erosive.

All trails – especially soft-surface ones – should be constructed at a gentle gradient. On steeper slopes, water travels faster and is more erosive. Using a technique called *rolling grade*, trails should be aligned with frequent crests and dips that prevent water from running along the trail for too long. One accepted guideline is the “half rule,” that dictates the trail gradient should not be greater than half the side slope. For example, if a trail is located on a hill with a 6-percent sideslope, the trail grade should be no more than 3 percent.

In wooded areas, where trail construction exposes bare dirt, it should be covered with an organic layer such as leaves, woodchips, and even compost, to help prevent soil erosion. After the first year, fallen leaves will probably be sufficient replacement. As dirt treads compact, they will become harder, absorb less water, and won’t erode as easily, and the organic layer becomes less necessary.



Natural surface trails can be built for low cost, but must be carefully constructed to resist erosion.

Trail Amenities

The **trail head access points** will have the highest level of design detail and amenity. These places are the “first impression” most users will have of the trail, and should have a welcoming and well-maintained appearance. Trail heads may include such amenities and features as parking, restrooms, tables and benches, trash receptacles, bike racks, lighting, welcome signage, maps and directional signs, information kiosk, drinking fountains, and vending machines. Ease of maintenance and resistance to damage should be high priorities in the design of the trail, and materials should be selected that are as durable and vandal-resistant as possible.

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. For a long linear trail that aspires to connect onward in both directions to other trailways, 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 trails should be simple, for ease of maintenance. In park settings, trail edges are best kept as mown grass. In open areas, the first 6 feet of grass alongside the trail could be mowed 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 some places where an off-street property is not available, it will be necessary for some trail segments to be located within the right-of-way of the street. Depending on the available width and general traffic volume and use of the roadway, provisions for bicycles and pedestrians can take several forms.

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.

Shared Use Paths

Shared-use paths (also sometimes called “side paths”) are widened sidewalks that are intended for use by bicycles as well as pedestrians. Since these must accommodate users moving at different speeds, these pathways should be 10-12 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 trails 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. Since conflicts may arise at these junctions, it is important to design intersections carefully, in order to maintain orderly movement of traffic. The principles that apply to general safety at crossings also apply to trail intersection design. There are a wide range of design features that improve pedestrian and bicyclist safety at intersections.

- *Traffic Control Features:* Additional signage and pavement markings to alert drivers to the trail crossing 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 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 intersections with high speeds, multiple lanes, or excessive roadway width.



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

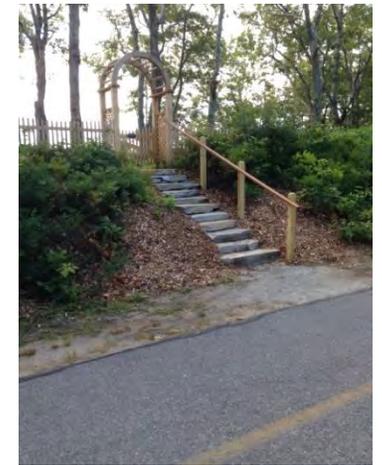
Where trails are to be located adjacent to residential properties, concerns about privacy can be addressed through strategic screening. This can be done with a combination of solid or transparent fencing and landscaping, to block views and maintain an attractive environment for trail users. When introducing 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, trails 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.

Local Examples

There are numerous local trails that serve as good examples of what can be done in Marple Township.

Cynwyd Heritage Trail

The Cynwyd Heritage Trail is a 2-mile urban linear park that begins at the Cynwyd SEPTA Rail Station and winds through residential areas, between two large cemeteries, along the Schuylkill River, and eventually crossing over into the Manayunk section of Philadelphia. The trail has both a paved pathway and a separate pathway with softer, compacted aggregate surface. The two pathways run together for part of the route, and along other parts the aggregate pathway branches off and meanders along creeks, through grassy meadow areas and behind man-made landscape features.

The Cynwyd Heritage Trail is part of a Township goal to expand and connect open space, as well as to connect communities to one another and to their industrial and cultural heritage. The development of the trail itself bolsters civic participation and community-building, and serves as a wise investment for the economic, social, and environmental sustainability of the area for generations to come.

Radnor Trail

This trail was constructed in 2005 on the former right-of-way of the Philadelphia & Western Railroad. The electrified rail line was abandoned in the mid-1950's and the right-of-way was acquired by PennDOT for future highway development. Some of the line became part of I-476, but the rest remained dormant for many years. Efforts to build a trail extended over several decades of intense controversy, with key support from the Friends of the Radnor Trail. PennDOT finally built the Trail in 2005 in cooperation with Radnor Township. This 2.4-mile paved trail provides a quiet, scenic escape, from Encke Park at Radnor-Chester Road to the shopping center at Sugartown Road and Route 30. The trail travels mostly through residential areas, and provides a popular off-road route to retail centers and schools. It was named Best Running/Walking Spot: Upper Main Line, 2014 by Philadelphia Magazine.



Plans to expand the trail are currently being developed. The Radnor Trail is planned to be part of the Forge to Refuge Trail, linking many trails in The Circuit, Philadelphia's regional trail network, including the Schuylkill River Trail and the Chester Valley Trail.

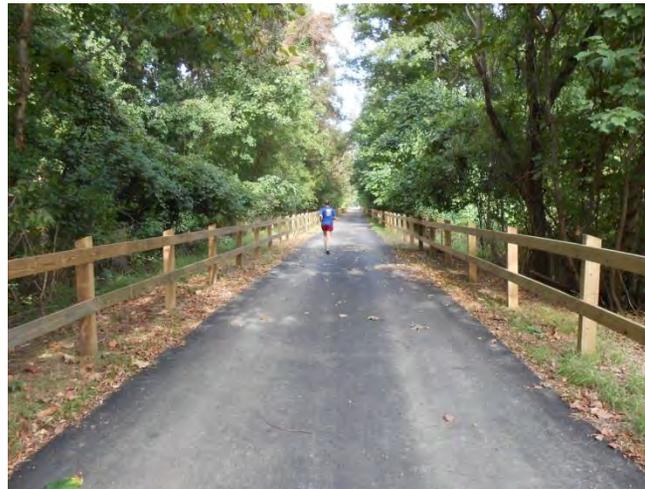
Chester Valley Trail

The Chester Valley Rail Trail is a 13-mile trail through Chester and Montgomery Counties, roughly paralleling Route 202 between King Prussia and Exton. When it is completed the Chester Valley Trail will be the "backbone" through some of Chester County's busiest communities. Phase I of the CVT was completed in 2010 and Phase II was officially opened in May 2014. The Phase I portion from Exton Park east to Route 29 is approximately 4.0 miles and the Phase II segment from Route 29 east to Warner Road in King of Prussia is 7.6 miles.

An additional mile is open in Exton, but is disconnected from the rest of the trail. This short section, on the trail's western end, runs between Iron Lake Drive and a point behind commercial properties on Commerce Drive. It will be connected to the main stretch of trail at N. Ship Road during Phase III of the trail's development. When fully complete, the trail will continue farther east and west from Norristown to Downingtown—connecting to a number of other regional trails in both cities—via a former railroad corridor.

Open space plans in Downingtown Borough, Tredyffrin, East and West Whiteland and Upper Merion Townships have suggested creating links to the Chester Valley Trail. Presently, there are nine municipal parks adjacent to the proposed trail right-of-way.

The County has estimated that more than 350,000 people use the trail every year, either as a way to commute by bicycle to work along the various corporate campuses in the Great Valley area, or — in the case of local residents — an easy recreational opportunity. Several housing developments have already established connections to the trail, which make it easy for homeowners to walk out their front door and onto the paved 10-mile long trail.



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Chapter 5

Implementation

The previous chapters outline the *What?* - a broad range of recommendations for individual trail segments and types, which link together to collectively form an integrated trail network within the Township and beyond.

This chapter concerns the *How?* - the steps necessary to implement the trail network and bring these ideas to reality. Implementation will be described in terms of the probable costs, challenges, sources of funding, and optimal sequence of construction. It also outlines specific actions that are necessary, how they may best occur, and how different entities can collaborate to achieve the most effective results.

Simply put, there is no standard “blueprint” for how to create a trail system. But there are themes common to almost all trail networks. Most arise out of local grass roots efforts, starting small and evolving slowly. “Slowly” is maybe the most universal common denominator. Requiring some form of property acquisition or easements for right-of-way, as well as significant capital investment for construction, the process of building trails almost always takes a blessed convergence of political, legal, and economic resources that rarely falls into place overnight.

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

1. **Acquisition:** Since an off-road alignment is preferred, it will be necessary to acquire easements or other rights to allow access across a significant number of individual properties.
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 private sources, which must be competitively pursued.
3. **Design and Construction:** The design presented in this Plan 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 successfully completed in 2011. Construction (left), ribbon cutting (above), and finished trail (top).

Project Stewardship

Implementation of the Greenways Network will depend on the continued effective collaboration of Marple Township, Delaware County, neighboring townships such as Haverford, Springfield, Radnor, and Newtown, and other public and private partners. To date, the Township and stakeholders have developed a productive working relationship that has laid the groundwork for further progress.

Marple Township is expected to be the lead entity responsible for design and construction of the various greenway segments. While the trail network is intended to connect to neighboring municipalities and the broader region, they are essentially a Township resource, and an amenity for Township residents and visitors. The trails have significant implications for Township-wide concerns such as traffic and transportation, economic development, and public recreation. Also, the Township has the institutional capacity to and expertise to build capital improvements. For these reasons, the Township should expect to take ownership of the trails and accept the consequential liability and maintenance responsibility.



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. Two of the primary trails proposed as part of the County network are located in proximity to Marple Township. 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.



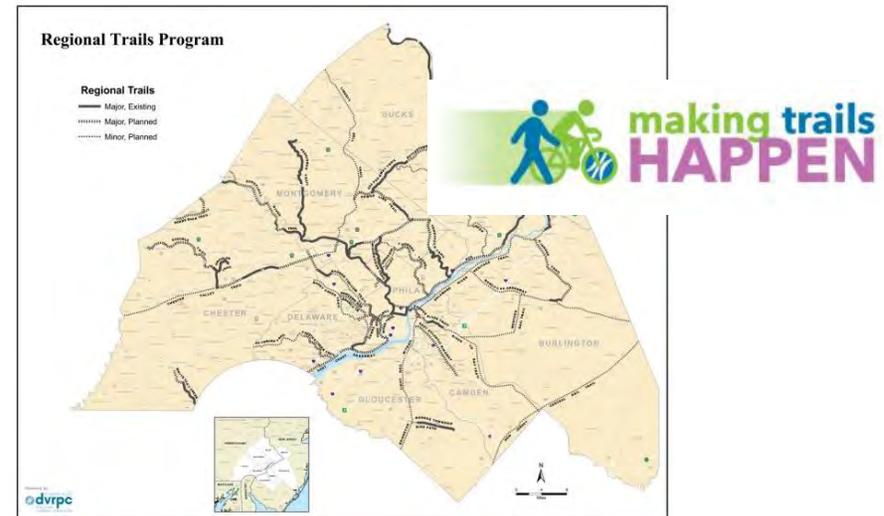
A number of other agencies will need to play effective roles to facilitate implementation. These include:

PennDOT: Several streets that are proposed for trail locations or crossings are state routes, most notably Lawrence Road, and various potential improvements within proximity to Interstate 476, including the underpass crossings. Any construction or modifications within the right-of-way – even a simple road crossing- must be approved by PennDOT through the agency’s Highway Occupancy Permit process. Where a trail occupies space within the public right-of-way of the street, such as on the shoulder, all aspects of the design must meet PennDOT standards. PennDOT has proven to be a sympathetic partner for trail planning projects in the region, as these are



consistent with agency priorities in promoting multi-modal transportation. Also, PennDOT may be able to help facilitate construction of trails where they coincide with planned roadway improvements.

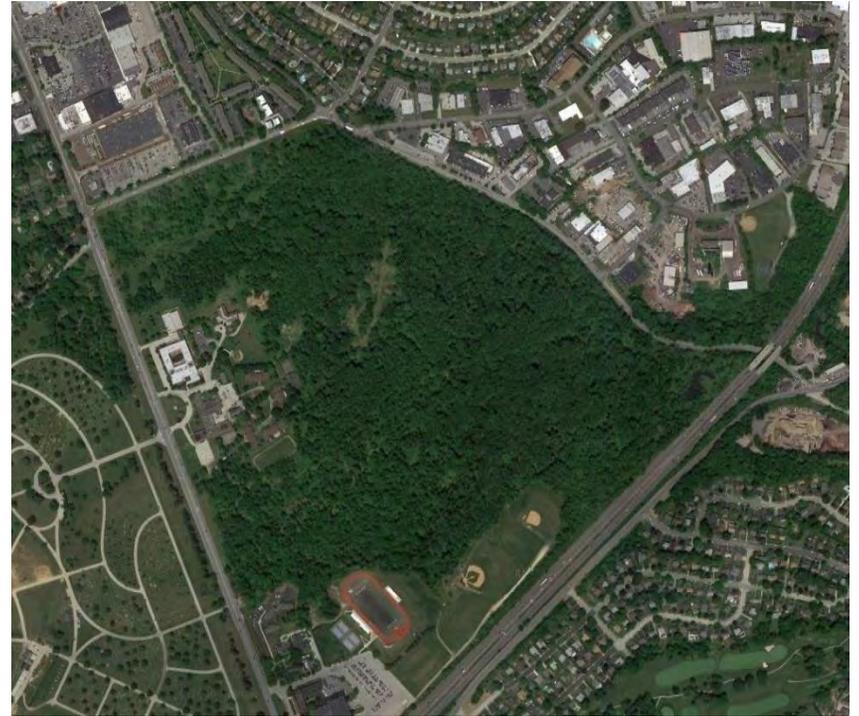
The Delaware Valley Regional Planning Commission: DVRPC is the regional planning organization for the nine-county area surrounding Philadelphia in Pennsylvania and New Jersey. The agency plays a leading role in shaping planning policy for the region, with a key focus on promoting smart transportation. It administers a number of grant programs to fund planning and design for transportation and community development projects, as well and plays a strong role in directing federal transportation funds to worthy trail and greenway projects.



ROW Acquisition

The proposed trail network involves many individual segments to create linkages that are partly on-road and partly off-road. While many segments will be on public land in existing open spaces, many others must cross quasi-public, or private properties that are not within Township 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 significant number of individual properties. Each specific segment will need to be studied in greater detail to identify every direct and adjacent potential owner. These property owners will be significant stakeholders in the trail Plan. Key property owners include the following:

- Don Guanella Property:** The Don Guanella property occupies a key location at the center of the Township, and affords opportunities to make cross-Township connections. Township regulations require any development of this property to incorporate public access for trails, along with the conservation of natural resources. Close collaboration between the Township and developer is needed to assure that the Township's interest in public trail access is well-represented in the final development scheme.
- PennDOT:** Several proposed trail segments are proposed to cross beneath Interstate-476, or travel closely alongside it. For these segments, an easement or similar type of agreement from PennDOT will be required. PennDOT is accustomed to these types of agreements and there is ample precedence in our region for trails within PennDOT rights-of-way.
- Marple Newtown School District:** Several trail segments are proposed linking existing schools to each other and to nearby parks and recreation facilities. These segments have great potential to better integrate the schools into community life, and to provide safe off-street routes for students and school visitors to travel between schools on bicycles or as pedestrians.
- HOA properties:** Several proposed trail segments are proposed to utilize open space areas associated with Homeowners Associations, including Langston and Paxon Chase. Residential neighbors will have understandable concerns about privacy and security, and these concerns will need to be addressed in design and planning to build support needed to grant access.
- Individual Homeowners:** No proposed trail is intended to occupy any portion of property belonging to individual homeowners. However, in certain areas potential trail alignments may be adjacent to individual properties. Every effort will be made to satisfy the concern of residents and respect privacy, and the expectation is that ultimately the trails will be seen as an asset and amenity.



The Don Guanella property offers excellent potential for development of Township-wide trail connections.

Methods of Right-of-Way Acquisition

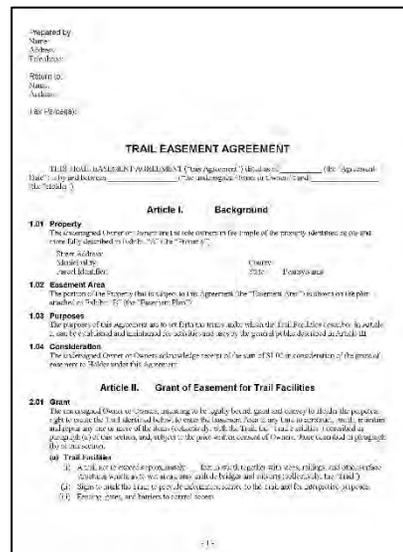
There are several common mechanisms for the acquisition of open space land and right-of-way for trails, such as fee simple purchase, easements, and donations. They can be used separately or in combination with other techniques listed below to facilitate acquisition.

Easements/Deed Restrictions

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.

Conservation easements place restrictions or an outright prohibition on development at a lower cost than fee simple acquisition. Under a conservation easement, land remains in current ownership, but the property owner voluntarily agrees to donate or sell one or more rights attached to the land. In the case of a conservation or access easement, it would be the right to develop the land. Furthermore, a conservation easement may also provide the property owner with federal income tax and estate tax benefits. Conservation easements are frequently used for environmental preservation without providing for public use of the land. The easement can be held by a municipality, county, or a private conservancy, such as Natural Lands Trust or Brandywine Conservancy, both of which are headquartered in Delaware County.

A conservation easement can also be combined with 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.



A **joint-use easement** allows multiple uses under one easement. Electric transmission lines, sanitary sewer lines, and petroleum or gas pipelines have utility easements for their uses. There are opportunities to use these corridors for trail connection, as they contain a cleared pathway. A joint-use easement allows multiple uses under one easement.

Fee Simple Acquisition

The most effective means of preserving land is through fee simple purchase. Fee simple ownership gives the owner complete control of the land, including all public access and conservation practice decisions. However, fee simple acquisition, particularly purchases at market value, can also be the most expensive. Therefore, many entities interested in land preservation, particularly public agencies or land conservancies with limited budgets, will usually explore more creative options to acquire open space.

Purchase and Leaseback or Resale

An entity interested in preservation, such as a local government or a conservancy, can purchase land in fee simple, place restrictions on the deed prohibiting certain uses (e.g., residential development), and resell or lease the land to an interested party. The original buyer gains the potential for future use at the current price and may recover some or all, of the purchase price through leasing. The land is maintained in open space and may be developed as a park if and when future demand warrants. Resale of some or all of the land with deed restrictions may maintain open space levels, relieve the municipality of maintenance obligations, and return the land to the tax rolls.

Donation

Land or an easement on the land is frequently donated by a private owner, organization, or corporation. Local governments should encourage the donation of land or easements by pointing out benefits of such actions, including possible federal income and estate tax benefits and public relations value. In addition to land, corporations and other private parties also frequently provide cash donations for worthy causes, including land preservation.

Implementation Challenges

In addition to the challenge of acquiring the necessary right-of-ways for the proposed trails, there are political and technical challenges that must be addressed effectively to bring the trails to fruition.

Political Issues

Trails are community-based projects, and every project needs broad community support to be a success. Outreach is one of the most important ongoing activities for any rail-trail project. Without support from community members, politicians and key businesses, even the best trail proposals can fail. It is to be expected that trails implementation may encounter some degree of skepticism and even opposition, most commonly from property owners living alongside or near the planned trails. Some common neighbor misconceptions can include confusion related to property rights issues, concerns that property values will drop and liability will increase, and fears of increased crime such as littering, trespassing, burglary and vandalism. If informed of the benefits of a trail early in the process, adjacent residents almost invariably become enthusiastic trail users and supporters within a few years of a trail's creation.

Technical Issues

Along the proposed trail segments there are a variety of physical obstacles that will place constraints on the final trail designs. Some of these will limit the space available for the trail. Others, while surmountable, will require engineered solutions that will increase construction cost.

Road Crossings: The proposed trail network is almost entirely at grade, meaning that trails and bicycle lanes will need to cross numerous existing streets. These include high-volume streets such as Sproul Road and Lawrence Road. Design provisions will be made to facilitate safe crossing for trail users and sufficient warning for vehicles.

On-Street Trail Segments: There are many segments that will require on-street bicycle lanes or shared lane markings. These must be carefully designed to ensure safety of bicyclists, pedestrians, and vehicles.

Stream Crossings and Wetlands: In numerous locations, it will be necessary to cross streams and drainage swales, which will require construction of culverts or bridges, and associated environmental permitting. Similarly, some off-road areas may encounter designated wetlands. Though final trail layouts should be selected that minimize impacts to wetlands, there may be sections of trails where wetlands are unavoidable. Impacts to wetlands resulting from trail construction will require permitting from the Pennsylvania Department of Environmental Protection (DEP). Any loss of wetland acreage will be mitigated by expanding the footprint of the existing wetlands by grading and planting at the wetland-upland boundary.

Steep Slopes: Where steep slopes are encountered for paved trails, minor retaining walls and other structural solutions are sometimes necessary. For unpaved trails, design precautions must be taken to inhibit erosion.



Technical challenges include street crossings and stream crossings.

Sources of Funding

Potential opportunities for capital funding to construct the Greenways Network 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.

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 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) 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 - Multimodal Transportation Fund (MTF)

The PA Department of Community and Economic Development (DCED) administers 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.

PennDOT - Multimodal Transportation Fund (MTF)

Independent of the DCED program noted above, PennDOT administers an independent funding allocation of the Multimodal Transportation Fund. The program purpose and intent are the same: to encourage economic development and ensure that a safe and reliable system of transportation is available. Funds may be used for a variety of community enhancement projects, including pedestrian and bicycle improvements.

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 local 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. 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:* bi-annual, January 2021 anticipated
- *Amount:* up to \$100,000
- *Match:* 20% local
- *Activities:* Planning only
- <http://www.dvrpc.org/TCDI/>

Regional Trails Program (RTP)

- *Timing:* bi-annual, fall 2020 anticipated
- *Amount:* up to \$200,000
- *Match:* varies
- *Activities:* Design and engineering
- <http://www.dvrpc.org/RegionalTrailsProgram/>

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)

- *Timing:* annual, July 31
- *Amount:* up to \$3,000,000
- *Match:* 30% local
- *Activities:* Design (10% max.), construction
- *Info:* <https://dced.pa.gov/programs/multimodal-transportation-fund>

PennDOT – Pennsylvania Department of Transportation

Multimodal Transportation Fund (MTF)

- *Timing:* annual - July 31 deadline
- *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:* annual – April
- *Amount:* up to \$1,000,000
- *Match:* 20% local
- *Activities:* Construction only
- <http://www.dvrpc.org/tap/PA.htm>

Transportation Improvement Program (TIP)

- *Timing:* rolling
- *Amount:* unlimited
- *Match:* 20% local
- *Activities:* Construction only
- <https://www.dvrpc.org/TIP/>

PECO /Natural Lands Trust

Green Region Open Space Grant Program

- *Timing:* annual – typically March 15
- *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>

Other Sources of Funding

While grant funding is one primary source of funds for trails in our region, there are other financing tools available to local municipalities. The most successful strategies will involve pursuing multiple sources in combination. In this way, locally-generated funds can be used to “match” funds (ie, grants) from outside agencies.

Local Taxes: The most direct way to generate funds is through local taxation, through means such as property taxes, earned income taxes, and real estate transfer taxes. Tax allocations for recreation and open space must compete with the full range of other municipal needs, and new taxes are subject to political and voter consent. In some localities, a portion of an increase in the sales tax will be set aside for recreational trail or other conservation funding. Rarely, new taxes will be levied to exclusively support active transportation projects.

Municipal Bonds: Significant expenditures such as the construction of recreation facilities or purchase of land often cannot be funded out of general municipal operating revenue. For this reason, municipalities sometimes issue long-term debt to finance major capital projects. Bonds have been used to great effect in Pennsylvania, and are a proven and effective way to finance open space and greenways projects. A variety of different types of bond options are available to municipalities. Most commonly, local governments issue *General Obligation Bonds*. These are bonds that are secured by the full trust and credit of the municipality, and backed by the taxable value of its property. In this case, the local government pledges the use of any sources of its revenue (like raising taxes, for instance) to generate sufficient revenues to make the debt service payments. *Revenue Bonds* are a type of bond that can be used to fund projects that requires a large up-front cost, but can be paid for over time with municipal revenue generated in subsequent years. The issuing government entity pledges to generate sufficient revenue annually to cover the new project’s operating costs, plus meet the annual debt service requirements.

Nationally, The Trust for Public Land maintains *LandVote*, a database of local bond referenda and special tax increases dedicated to public open space, including trail and greenway development. According to this database, since 1995 Pennsylvania voters have approved more than \$1.2 billion in local bonds and taxes for open space protection, acquisition, and development.

Corporate Sponsorship: There is a growing recognition by corporations and other in the private sector that there is a positive value in being associated with parks and recreation initiatives. Additionally, there has been a growing boldness on

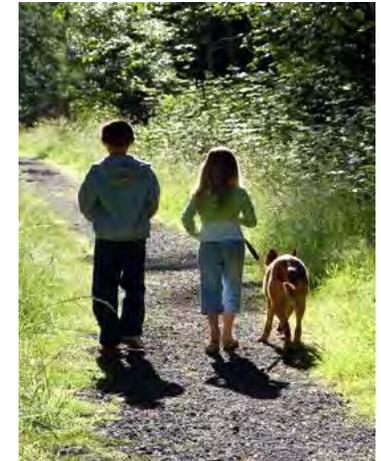
the part of local governments to ask for private sector financial support. This has led to a wide array of sponsored programs, including events such as fitness runs and concerts, advertising promotions that use park facilities as a backdrop, and widespread presence of corporate logos and brand names in public venues.

User Fees: It has become commonplace for maintenance and operational costs for recreation facilities to be subsidized with user fees. In many places these fees have become an essential source of revenue. These fees can be captured in a variety of ways, often through paid participation in recreation programs.

Donations: Not to be discounted is the potential for “voluntary fees.” Voluntary donations from users are a big part of the revenue budget for many familiar cultural institutions. The same philosophy can be applied to recreational amenities. Many individuals are happy to make contributions to park agencies and programs solely to improve the community in which they live.

Land Development Fees and Mandatory Dedication: In Marple Township, the Subdivision and Land Development Ordinance requires that developers dedicate a portion of their property for recreation purposes, or pay a fee-in-lieu of that dedication of land. This ordinance requirement has resulted in the various protected open space areas associated with residential subdivisions. While the open space land is protected from future development, in most cases it remains owned by the respective Homeowners Association (HOA). The current ordinance requires that residential developments set aside 1,600 square feet of land for each dwelling unit. Non-residential developments are required to set aside 5% of the total land area.

Fees-in-lieu requirements are updated periodically by the Board of Commissioners, and vary by building type. In future years, these recreation fees may be allocated toward design and construction for trail and greenway projects. The Board of Commissioners should carefully review future projects to determine if Township ownership of dedicated open space would be more beneficial to the public than a fee or HOA-controlled open space.



Anticipated Construction Cost

To implement all the recommendations in this Plan, the estimated cost for planning, design and construction is in excess of \$12 million. This is an order-of-magnitude estimate. These estimates are preliminary and are based on only a general understanding of specific site constraints and design features that will ultimately be necessary to fully realize the trail potential.

Actual construction costs for each individual segment of the trail network will depend on a variety of factors, including:

Coordination with Adjacent Development: The cost of constructing greenways may vary for some segments based on the contribution of adjacent developers. While cost sharing is expected, the final determination of total costs and funding responsibility is subject to the formal land development approval process which must take place.

Physical Constraints: Technical constraints include road crossings, bridges needed for stream crossings, the presence of wetlands, steep slopes in certain places, and inadequate drainage. Where multiple options exist for trail alignment, the need to address these obstacles, and associated costs, may vary.

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 cooperative spirit of existing partnerships, along with the civic nature of the project, it is hoped that portions of the necessary acquisition 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 or regional 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 later design stages. These may include: trail head features such as benches, lighting, restrooms, and parking; security features; landscaping; size and aesthetic treatment for bridges and other structural features; educational and interpretive features such as signage or seating areas.



Marple Township Trails Master Plan Order-of-Magnitude Cost Estimate	
Trail Project	Estimated Cost
Darby Creek Trail Connections	
Lindbergh Ave. Connection	\$1,320,000
Old West Chester Rd. Connection	\$680,000
Lawrence Park Connection	\$1,290,000
Reed Road Connection	\$825,000
<i>Darby Creek Trail Connections</i>	<i>\$4,115,000</i>
Off-Road Trails	
Veterans Park/New Ardmore Park	\$1,290,000
HOA Connection to Hildacy Farm	\$3,130,000
Paxon Hollow Golf Course Connection	\$1,525,000
Kent Park/Thomas Field	\$695,000
Radnor Connection	\$950,000
<i>Off-Road Trails</i>	<i>\$7,590,000</i>
On-Street Trail Connections	
Lawrence Park Neighborhood	\$185,000
Media Line Road	\$475,000
S. New Armore Avenue	\$250,000
Don Guanela/Crum Creek Road	\$160,000
<i>On-Street Trails</i>	<i>\$1,070,000</i>
TOTAL	\$12,775,000

Project Phasing

The proposed Trails Master Plan includes numerous individual trails and trail segments. There is no expectation that the entire network be constructed simultaneously as a single project. For practical purposes, it will be necessary to build the trails network one segment at a time, as funds and opportunity become available. Some segments can be implemented quickly, utilizing existing Township resources, and built with low-impact construction techniques. Other segments will require more complicated engineering and permitting, and costly construction. It is prudent to define and prioritize individual segments of the trail, and to establish a logical sequence of implementation, so that resources can be allocated accordingly.

To determine the most sensible sequence for construction, a number of factors can be used as criteria:

- **Availability of Right-of-way:** Significant portions of the network lie in private property, and will require property easements and/or acquisition. Segments located on public property – such as Township parks and open space – may be constructed first. For other segments, easily-acquired rights-of-way have the greatest chance for near-term implementation. More difficult acquisitions may take longer.
- **Construction Cost:** Some proposed trail segments present technical design challenges that will add to the cost of construction. Challenges may include the necessity for stream crossings, roadway modifications, potential wetlands mitigation, and utility relocation. Trail segments that have a higher relative cost may require more time to identify funding and/or funding partners, as compared to less costly segments.
- **Implementation Partners:** The Township should capitalize on opportunities to partner with stakeholders that can provide funding, land, or economy of scale in packaging trail work with other improvements. Funding partnerships should be nurtured, as those trail segments have a high chance of success.
- **Public Benefit:** Certain segments may offer the highest immediate benefit to the public. It makes sense that these segments be developed first if possible, to establish the trail network as a valued public amenity, build support for construction of future segments, and provide justification to attract further funding.

Responsible Parties

It is likely that Marple Township will need to be the responsible lead entity for the implementation of the Plan recommendations. While the formation of effective partnerships will be critical to the success of the Plan, partnering agencies are best suited to assist rather than lead.

Within the Township 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 Township Manager, Board of Commissioners, Open Space Committee, Planning Commission, and Parks and Recreation Board 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 segments, it may be advantageous to establish a Greenways Committee comprised of Township 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.

- **Board of Commissioners:** Set policy, approve expenditures, and endorse recommendations of the Open Space Committee
- **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.
- **Parks Committee:** Advise the Board to ensure that Greenways Plan initiatives are consistent with the overall goals for open space conservation in the Township.
- **Planning Commission:** Advise the Board to ensure that Greenways Plan initiatives are consistent with overall land use objectives of the Township.
- **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 maintenance.

Five Year Action Plan

Near-term actions should focus on tasks and projects that can achieve results quickly and effectively. Tangible results – 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 long-term components of the trail network. Bigger, more complicated projects 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 a significant portion of the recommended network can be built or underway within the next five years. Major tasks and milestones are summarized below.

Year 1-2

- Work with potential developer of Don Guanella property to establish public trail access to be provided by developer as part of site development.
- Work with Haverford Township to clarify status of Darby Creek trail expansion to be undertaken by Haverford, including details of potential Marple connection points.
- Engage in further dialogue with Homeowners Associations west of Sproul Road to clarify the potential for off-road public trails through public open space controlled by the HOAs.
- Seek grant funding for engineering design of the connection between the Don Guanella property and the Darby Creek Trail in Haverford, to include on-street sections along Reed Road and crossing of Burmont Road.
- Engage in further coordination with PennDOT regarding acquisition of easements or other form of permission to make future trail connections across PennDOT property associated with I-476.
- Seek grant funding to plan and install on-street pavement markings and signage to establish shared lanes to facilitate safe bicycle travel on key low-volume streets such as New Ardmore Avenue.
- Secure easements from private property owners for public trail access along the former rail line through the Willowstreams property, to connect with existing public trails associated with the Haverford Reserve.

Years 2-3

- Seek grant funding to prepare design plans for improved paved trail connections within and between Kent Park and Thomas Fields.
- Engage in further coordination with Newtown Township to clarify roles and responsibilities for implementing pedestrian and bicycle improvements along Media Line Road, particularly connections points to Marple-Newtown High School.
- Seek grant funding to prepare design plans for a public trail on the Willowstreams property adjacent to the Haverford Reserve.
- Seek grant funding for detailed feasibility study and preliminary design for three (3) potential connections to the Darby Creek Trail: Lindberg Avenue tunnel, Lawrence Park tunnel, and Old West Chester Pike.
- Install on-street pavement markings and signage to establish shared lanes to facilitate safe bicycle travel on key low-volume streets.
- Prepare final design plans and seek grant funding for construction of the connection between the Don Guanella property and the Darby Creek Trail.
- Prepare final design plans, seek grant funding for construction of improved paved trail connections within and between Kent Park and Thomas Fields.
- Seek funding and prepare design plans for pedestrian and bicycle improvements along Media Line Road.

Years 4-5

- Construct improved paved trail connections within and between Kent Park and Thomas Fields.
- Construct pedestrian and bicycle improvements along Media Line Road leading to Marple-Newtown High School.
- Construct the connection between the Don Guanella property and the Darby Creek Trail in Haverford, to include on-street sections along Reed Road and at-grade crossing of Burmont Road.
- Seek funding to design and construct a public trail access along the former rail line through the Willowstreams property, to connect with existing public trails associated with the Haverford Reserve.
- Seek funding for design of at least one additional connection to the Darby Creek Trail.

Marple Township Trails Master Plan Implementation Matrix			Planning and Coordination	Concept/Preliminary Design	Final Design/Construction					
Trail Segments	Next Step	Potential Funding Source	Timeline							
			year 1	year 2	year 3	year 4	year 5			
DARBY CREEK TRAIL CONNECTIONS										
Reed Road Connection	Planning and coordination	Township resources								
	Preliminary Design	PennDOT MTF Grant								
	Final Design/Construction	PennDOT MTF Grant								
Other Darby Creek Trail Connections	Planning and coordination	Township resources								
- Old West Chester Pike Connection	Concept Design	TCDI Grant (DVRPC)								
- Lawrence Park Connection	Final Design/Construction	DCED Greenway/DVRPC RTP grant								
- Lindberg Avenue Connection										
OFF-ROAD TRAILS										
Don Guanela Trail	Planning and coordination	Township resources								
	Final Design/Construction	by developer								
Kent Park/Thomas Field	Planning and coordination	DCNR Grant								
	Final Design/Construction	DCNR Grant								
Willowstreams Trail	Planning and coordination	Township resources								
	Preliminary Design	DCED Greenways Grant								
	Final Design/Construction	50% DCNR/50% Regional Trails Grants								
Veterans Park/New Ardmore Park	Concept/Preliminary Design	DCNR Grant								
	Final Design/Construction	tbd								
Paxon Hollow Golf Course	Concept/Preliminary Design	DCNR Grant								
	Final Design/Construction	tbd								
HOA Connection to Hildacy Farm	Planning and coordination	Township resources								
	Preliminary Design	DCNR Grant								
ON-STREET TRAIL CONNECTIONS										
Lawrence Park Neighborhood	Preliminary Design	PECO Green Region Grant								
	Final Design/Construction	PennDOT MTF Grant								
Media Line Road	Planning and coordination	Township resources								
	Preliminary Design	PennDOT MTF Grant								
	Final Design/Construction	PennDOT MTF Grant								
S. New Ardmore Avenue	Preliminary Design	PECO Green Region Grant								
	Final Design/Construction	PennDOT MTF Grant								
Sproul Road/Crum Creek Road	Planning and coordination									
	Preliminary Design									
	Final Design/Construction									

Maintenance and Operations

A common characteristic of greenways everywhere (and public spaces in general), is that maintenance and operations is almost always a struggle. 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.

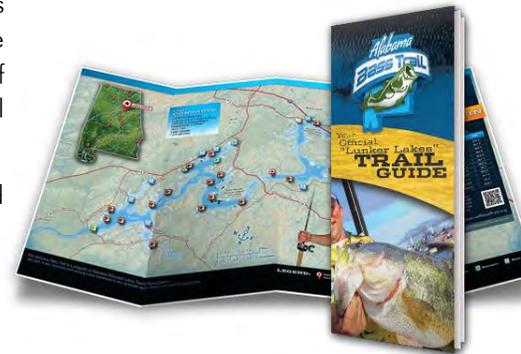
In Marple, it is likely that specific responsibility for maintenance and operations of greenways may involve multiple private and public entities, and it is reasonable to expect that many stakeholders will contribute in some meaningful way to the effort necessary to carryout trail operations.

One scenario for trail operations is for the Township to take responsibility for aspects of the trail related to public safety, for reason of liability. 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 the Township’s capacity to carry out.

Private partners may be sought to assist the Township 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

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. Just a few local examples are:



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

- 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.



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).

- *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.



**Join the Friends
of the
Chester Valley Trail**

Please join the Friends of the Chester Valley Trail, dedicated to enhancing your trail experience by:

- Developing programs like Bike to Work Week and family bike weekends, with free bike service and inspection stations
- Establishing "Trail Ambassadors" to assist trail users and park rangers
- Working closely with local biking and hiking clubs
- Performing volunteer trail maintenance and landscaping
- Working with local history groups to provide interpretative signage along the trail

Find us on Facebook: www.chestervalleytrail.org
friendsfvtr@gmail.com

2015 FCVT Membership Form

Name: _____
Address: _____
City, ST, Zip: _____
Email: _____

Annual Membership: Individual: \$15 Family: \$25 Sponsor: \$100

I am interested in helping with the following (circle one or more):
 Program Development Membership/Communication Fundraising

Please mail to Friends of the Chester Valley Trail, PO Box 255, Exton, PA 19341

The Chester Creek Trail is supported by a non-profit group that takes an active role in trail planning and construction (below).



Appendices

Appendix A: Roadway Analysis

Appendix B: Cost Estimate

Appendix C: References

Appendix A: Roadway Analysis

Roadway Analysis

The Darby Creek Trail is planned regional trail envisioned to run along Darby Creek, which for Marple Township functions as a municipality border between neighboring Haverford Township to the east. The trail will generally be located on the eastern banks Darby Creek in Haverford and will provide a critical link to the regional trail network throughout Delaware County. Access to Darby Creek Trail from Marple Township is constrained by I-476 and Darby Creek to the west and south. Reed Road and Lawrence Road have been evaluated due to existing wide shoulders that provide opportunities for a bike facility to cross I-476 with minimal impacts to the existing roadway configuration. The AASHTO “Guide for the Development of Bicycle Facilities, 4th Edition” was utilized in preparing the recommendations for the bicycle facilities along these routes. The design standards applied in the analysis are summarized in the adjacent table.

Reed Road

Marple Township can potentially access the Darby Creek Trail by utilizing Reed Road. Darby Creek Trail is planned to run between the creek and Jack McDonald Memorial Field in Haverford Township where it will cross Burmont Road and continue south along the creek. Note that Burmont Road transitions to Eagle Road at Darby Creek and are within PennDOT Right-of-Way, state route 1006. It should be noted that future designs in this area will require cooperation between Marple Township and the neighboring municipalities of Springfield Township and Haverford Township.

Reed Road is a township road that typically has two 12’ eastbound travel lanes and one 12’ westbound travel lane with paved shoulders ranging from two to five feet (2’-5’). Reed Road crosses under I-476 near the intersection of Eagle Road/Burmout Road (SR 1006) located in Springfield Township. The westbound shoulder at the interstate overpass widens to approximately 15 to 16 feet wide. The roadway narrows at a bridge crossing Whetstone Run. At this point, turn lanes begin at the intersection with Eagle Road (SR 1006).

This intersection has complicated geometry due to its location on a skew and has high vehicular volumes. Reed Road terminates at Eagle Road, however there is a large driveway to the south of the intersection that serves as a mulch facility and a former asphalt plant that will be utilized for school bus parking in the future. The commercial properties to the north of Eagle Road appear to be related to construction contracting.

	Typical	Minimum	Maximum
Side Path / Shared use Trail Width ⁽¹⁾	10’-14’	8’	--
Shoulder Width ⁽²⁾	3’-5’	2’	--
Shoulder Slope ⁽³⁾	6:1	--	6:1
Path Grade ⁽⁴⁾	3%	0.5%	5%
Clearance from Lateral Obstructions ⁽⁵⁾	2’	1’	--

- (1) 11’-14’ path recommended when pedestrians are present to allow for passing maneuvers. 8’ path may be used for short distances due to a physical constraint.
- (2) For side paths along roadways, a physical barrier (fence, railing, wall, etc.) is required when separation between adjacent roadways when the edge of pavement is <5’. This does not include paved shoulders. Along high-speed roads, a greater buffer width and/or crash worthy barriers are recommended.
- (3) A physical barrier (fence, railing, wall, etc.) is required for drop-offs within 5’ of path.

Eagle Road (SR 1006) is classified as a minor arterial. The travel and turn lanes at the intersection with Reed Road are 11 feet wide with a painted median of varying width. The existing shoulders of Eagle Road vary from two to ten feet (2'-10'). The SR 1006 bridge over Darby Creek has two 12 foot travel lanes and a narrow sidewalk with minimal shoulder width. Proposed designs within state routes will require coordination and permitting with PennDOT for their approval.

Recommended Alternatives

One of the critical links to access Darby Creek Trail from Reed Road is at I-476. The existing westbound shoulder appears to have enough width to accommodate a ten-foot (10') side path with a five-foot (5') buffer between the adjacent roadway. This buffer can be a concrete curb or landscaping. A barrier, such as a wooden fence or guardrail, is required if the buffer width is less than five-foot (5'), however a two-foot (2') minimum is required. In limited circumstances, a one-foot (1') clear zone is permitted along smooth features such as a fence or barricade. If speeding vehicles are a concern, a barrier should be considered in conjunction with a wider roadway buffer to increase the comfort of the side path user. There is also an opportunity to narrow travel lanes to 11 feet to calm speeding traffic along this corridor and provide a wider buffer.

The conditions south of I-476 present more constraints. Alternative 1, shown in blue on Exhibit 1, depicts a shared used trail that parallels the I-476 corridor and crosses Darby Creek near the baseball fields. Alternative 2, shown in orange on Exhibit 1, depicts a side path in a bikeway easement to the south of Eagle Road that turns into a shared use path along the Darby Creek in the area that will be used for school bus parking. A trail bridge would then cross the creek and connect to Darby Creek Trail at a narrow point in the stream to reduce structure costs.

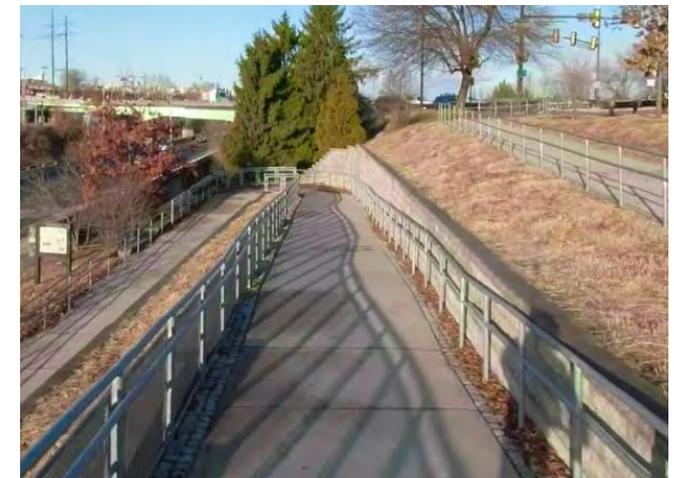
The existing Eagle Road/Burmont Road (SR 1006) bridge over Darby Creek was considered as a possible connection to the trail but this option was eliminated due to the existing narrow structure width. If the bridge will be replaced in the near future a side path could be integrated into a new bridge structure for a more direct connection to the trail. However, it is assumed that a connection to the trail will be needed prior to this bridge being replaced thus requiring a separate trail bridge along Darby Creek.

Alternate 1 – Shared-Use Trail along I-476

Due to the skew and heavy turning movements at the intersection of Reed and Eagle Road, a shared-use trail was considered to remove intersection conflicts for users trying to access Darby Creek Trail. It appears that a trail can fit along the east side of I-476 between the noise barrier and Darby Creek. A twelve foot (12') wide trail with five foot (5') graded shoulders is recommend where space allows when pedestrians and bikes are using the same path. This allows for passing maneuvers when cyclist encounters pedestrians on the trail. Steep slopes are present along this recommended route which have potential to complicate what can be achieved within allowable grades and may require additional retaining walls. A switchback ramp will be needed to connect a shared-use trail to a Reed Road side path due to the grade separation. Additionally, steep slopes are present along I-476 which may require retaining walls to accommodate a trail. These structures can be costly to design



Reed Road north of Eagle Road looking toward I-476



Switchback ramp connecting Schuylkill River Trail to Philadelphia Museum of Art.

and construct. However, there is an added benefit that this connection would provide a direct connection to baseball fields by crossing Darby Creek at McDonald Field.

This alignment will require a bikeway easement and coordination with PennDOT as to whether a trail can be placed along I-476. An exception will likely be needed, as the trail would most likely encroach on the limited access right-of-way. This trail alignment would also need to encroach on a private commercial property; therefore, appropriate easements would be required. While this alternative provides more benefits for trail users, easement acquisitions and structural costs may deem this alignment infeasible.

Alternate 2 – Side Path along Eagle Road (SR 1006)

Due to potential complications with steep slopes and easement acquisitions, Eagle Road was evaluated as a possible connection to Darby Creek Trail. It should be noted that any improvements along this alternate occur within Springfield Township which would require additional coordination for their approval of this alignment. Options for what can be done within existing roadway rights-of-way are limited by the bridges at Whetstone Run (Reed Road) and Darby Creek (Eagle Road). A side path along Reed Road can be reduced to an eight-foot (8') width for a short segment with physical constraints such as the bridge crossing Whetstone Run. A two-foot (2') buffer with a protective barrier will be required between the roadway and side path. A 1' shoulder is also needed along smooth features such as walls and barricades. The travel and turn lanes may need to be reduced to 11 feet to accommodate proper widths at this constrained location.

The property on the southeast side of Eagle Road was formerly an asphalt plant and will be converted to a space for school bus parking. It may be more feasible to obtain a bikeway easement on this property if it is owned by the school district due to safety benefits for students. A twelve-foot (12') wide path with five-foot (5') graded shoulders is recommended to provide for adequate passing maneuvers where bicyclists and pedestrians share space. This path can be treated as a side path by providing a more consistent shoulder width along Eagle Road. However, it can be designed as a shared-use trail without impacting the shoulder of Eagle Road. A barrier will be required if a five-foot (5') buffer is not maintained between the edge of paving and the trail.

While a path here may be more feasible, there are safety concerns for bikes and pedestrians crossing Eagle Road at the intersection with Reed Road due to the skew, heavy turning movements, capacity issues during peak hours, and elevated speeds of vehicular traffic. Currently the intersection is signed to prohibit pedestrian crossings here. A refuge island is recommended to accommodate the skew and shorten the bike and pedestrian crossings which provides a safer crossing for this busy intersection. However, since Eagle Road is a state route, a refuge island may not be permitted by PennDOT. A more conventional crosswalk may be installed, however the crossing width required presents potential safety concerns if a refuge island cannot be provided. Additionally, traffic signal poles at the corners could conflict with a proposed path and can be costly to relocate and will likely need to remain. A traffic assessment is required to evaluate the capacity impacts of protected signal phasing for the pedestrian and bike crossing. Due to these safety concerns and location within Springfield Township, this alignment may be less feasible than the alternate along I-476 and is not recommended.



Eagle Road at Reed Road looking toward Darby Creek Bridge.

Lawrence Road (SR 1020)

Marple Township can potentially access Darby Creek Trail by utilizing Langford Road and Lawrence Road (SR 1020). Darby Creek Trail is planned in Haverford Township along the eastern bank of Darby Creek. At one time, Old West Chester Pike had a bridge crossing over Darby Creek prior to West Chester Pike's construction. A new bridge in this location could be constructed as a pedestrian and bike only bridge. Proposed designs along Lawrence Road (SR 1020) will require coordination and permitting with PennDOT. Analysis of Langford and Lawrence Roads is included in Exhibit 2.

Langford Road is a township road with wide, varying width travel lanes. Langford Road terminates into Lawrence Road with twelve-foot (12') left and right turn lanes. Langford Road runs north-south north of Lawrence Road, where it turns and runs east-west roughly paralleling Langford Run. The east-west portion of Lanford Road is a scenic road with undeveloped adjacent properties and is generally a bike-friendly street in its existing condition. The north-south portion is extended into Veterans Boulevard, which connects to a recently constructed shopping center. This segment varies in width with continuous sidewalks along the west side and a sidewalk on the east side that terminates into a grass area south of the scenic portion of Langford Road. This has added a connection between from West Chester Pike (SR 0003) to Lawrence Road (SR 1020) which are both principal arterial highways. Traffic will use this connection to avoid the I-476 interchange and busy intersection at Lawrence Road and West Chester Pike. Vehicles travel at high speeds due to the wide travel lanes and connection between two principal arterials.

Lawrence Road (SR 1020) is a principal arterial state route with four twelve-foot (12') wide travel lanes, center median, turn lanes, and wide shoulders. The westbound shoulder is wider and a more consistent width of twelve feet. However, it appears that it may narrow to eight to ten feet in some areas. The eastbound shoulder width is more variable and narrows to four feet in some areas. There are high volumes of vehicular traffic that travel at high speeds. There are existing traffic signals at Langford Road and at the Crozer-Keystone Healthcare Facility.

Recommended Protected Side Path

In order to connect Marple Township to Darby Creek Trail from Langford Road, users will need to travel along the busy corridor of Lawrence Road to Old West Chester Pike. The historic bridge approach along Old West Chester Pike can be resurrected with a new pedestrian-bicycle only trail bridge over Darby Creek. This segment of road can be signed and/or marked with sharrows to help guide users to Darby Creek from Lawrence Road.

A ten-foot (10') wide protected side path is recommended along Langford Road and Lawrence Road with a two to three-foot (2'-3') buffer between the bike path and the travel lanes. Additionally, the adjacent grass area along the curb can be improved to extend the sidewalk or widen the trail and buffer in order to accommodate pedestrians using the same path as cyclist. Due to high speeds and volumes along Langford Road and Lawrence Road, the use of green paint is recommended to highlight that the intended use of this area is for bikes only.



*Lawrence Road at Lanford Road
looking toward I-476*

Ideally a crash worthy barrier would further protect bikers and increase comfort for users of this side path along a busy corridor, however, due to Lawrence being a state route, the use of something like a concrete barrier may be prohibitive as it restricts emergency pull-off operations. At a minimum, flexible delineator posts should be installed to clearly delineate that vehicles may not use this space. Stormwater inlet modifications should be considered during designs to ensure that they are fitted with a bicycle safe grate.

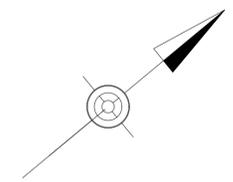
The westbound shoulder of Lawrence Road appears wide enough to accommodate a ten-foot (10') wide trail with a two-foot buffer. An eight-foot (8') wide path is not preferred but may be needed if shoulder widening cannot be accomplished. Due to the lack of a sidewalk network along this corridor, a shoulder widening should be considered to allow for a twelve-foot (12') wide path that allows for adequate space for a cyclist to pass a pedestrian. Shoulder widening options should consider existing drainage conditions which could require inlet relocations. The side path is recommended to cross Lawrence Road at the existing traffic light at the Crozer-Keystone Healthcare Facility. The eastbound shoulder of Lawrence Road between this signal and Old West Chester Pike reduces to four to five feet (4'-5') and will require a shoulder widening to accommodate a side path. Alternatively, the Lawrence Park Apartments could be approached to utilize their private driveway to connect to Old West Chester Pike in lieu of designing a side path in the eastbound shoulder.

The travel lanes in Langford Road can be reduced to eleven-feet (11') to allow for a ten-foot (10') side path with a two to three-foot (2'-3') buffer. The reduced travel lanes will help calm traffic along this cut-through corridor. A stop sign or speed humps can be considered where Langford Road Turns into the scenic portion to slow traffic where cyclist will cross Langford to access the side path. Further evaluations are needed to determine if it is warranted. Restriping the segment of Veterans Boulevard between West Chester Pike and Langford Road should be considered to narrow the travel lanes to calm traffic. There is potential to continue the side path through Veterans Boulevard to provide a bicycle connection to the shopping center as well.



Lawrence Road at Keystone-Crozier traffic light looking toward West Chester Pike.

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REFUGE ISLAND
 TRAFFIC SIGNAL ANALYSIS REQUIRED
 FOR ADDED PEDESTRIAN PHASE

10' SIDE PATH
 5' TYP (2' MIN) GRASS SHOULDERS
 5' ROADWAY BUFFER

10' SIDE PATH
 5' TYP (2' MIN) CONCRETE SHOULDERS
 5' ROADWAY BUFFER

RETAINING WALLS AT
 STEEP SLOPES

12' SHARED USE TRAIL
 2' MIN (5' TYP.)
 GRASS SHOULDERS

10' WIDE RAMP
 ACCESS TO TRAIL
 2' MIN SHOULDERS

TRAIL BRIDGE
 OVER DARBY CREEK

8' SIDE PATH
 1' MIN SHOULDERS ALONG WALL
 2' BARRIER ALONG ROADWAY
 REDUCE TRAVEL LANE WIDTH

PENNDOT COORDINATION
 REQUIRED TO INTEGRATE
 SIDE PATH INTO A FUTURE
 BRIDGE REPLACEMENT

12' SIDE PATH
 5' TYP (2' MIN) GRASS SHOULDER
 5' ROADWAY BUFFER
 10' ROADWAY SHOULDER

12' SHARED USE TRAIL
 5' TYP (2' MIN) GRASS SHOULDERS

LEGEND

- REED ROAD SIDE PATH FROM MARPLE TOWNSHIP
- ALTERNATE 1: TRAIL ALONG I-476 TO DARBY CREEK TRAIL
- ALTERNATE 2: BURMONT ROAD SIDE PATH TO DARBY CREEK TRAIL (NOT RECOMMENDED)
- ASPHALT PAVING
- CONCRETE SHOULDER
- GRASS SHOULDER

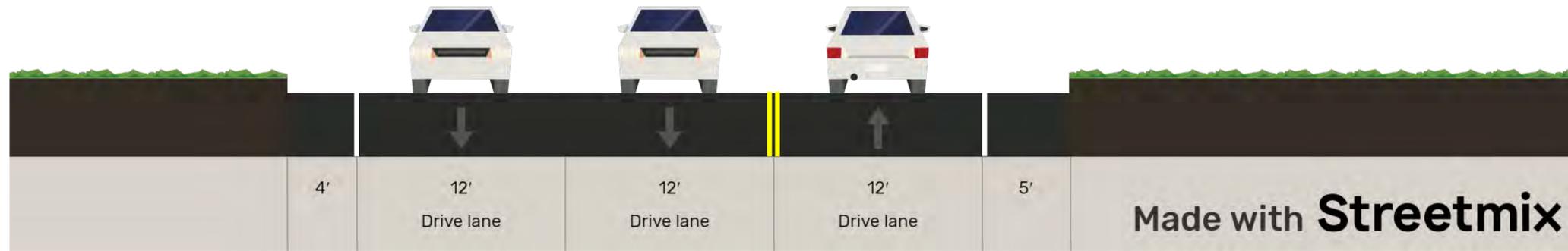


DARBY CREEK TRAIL ACCESS
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 REED ROAD
 AT EAGLE ROAD / BURMONT ROAD

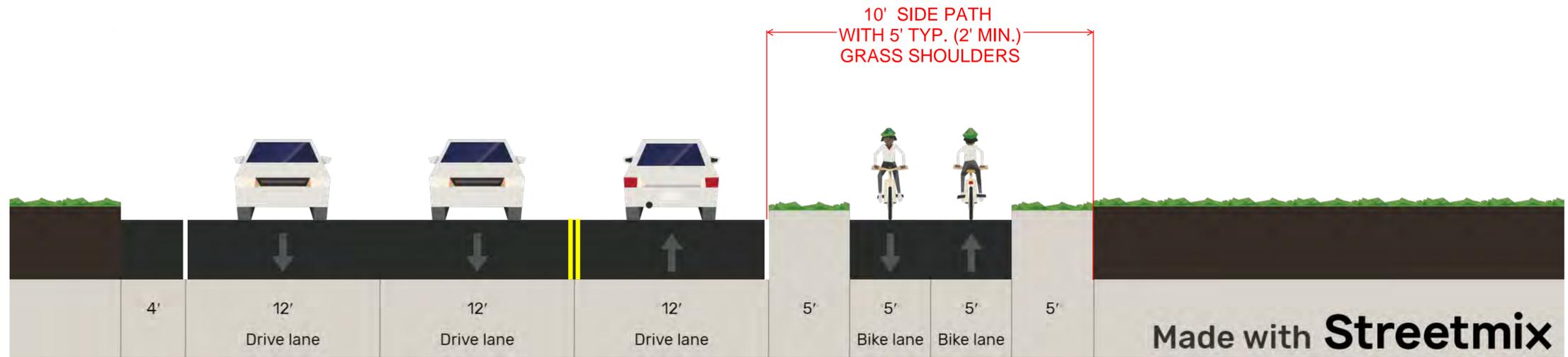
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TRAIL BRIDGE
 OVER DARBY CREEK

SECTION A-A
SIDE PATH
REED ROAD, WEST OF I-476



EXISTING



RECOMMENDED

DARBY CREEK TRAIL ACCESS
EXHIBIT 1
REED ROAD
AT EAGLE ROAD / BURMONT ROAD

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SECTION B-B
SIDE PATH
REED ROAD UNDER I-476



EXISTING

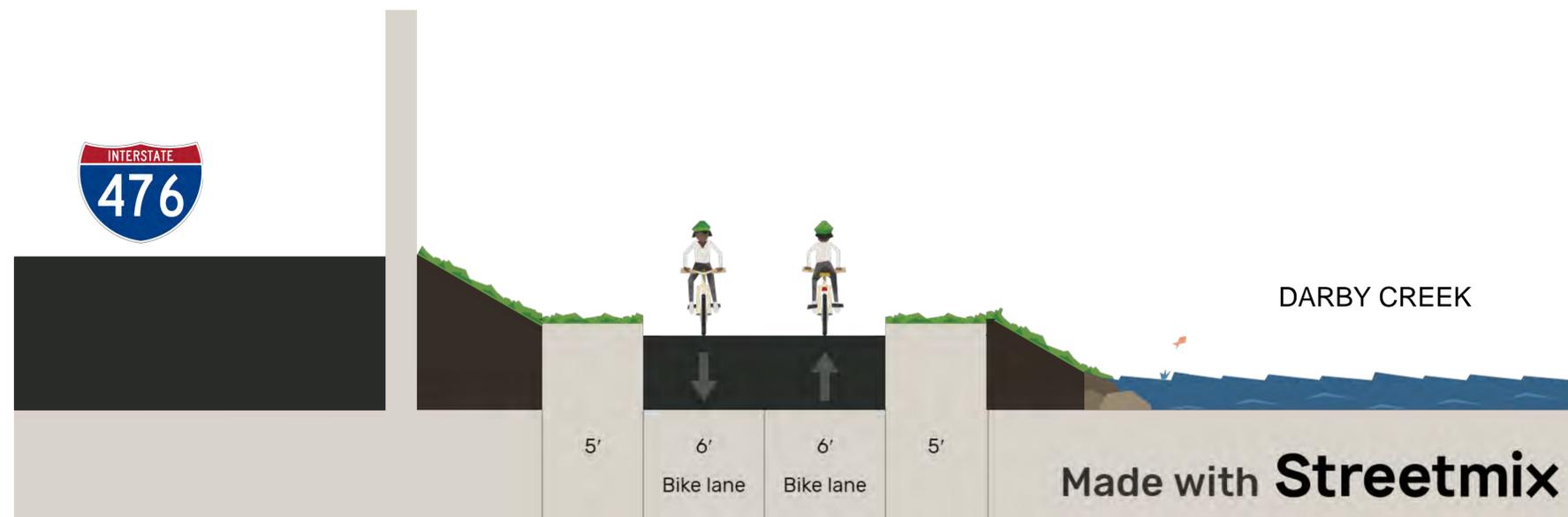


RECOMMENDED

DARBY CREEK TRAIL ACCESS
EXHIBIT 1
REED ROAD
AT EAGLE ROAD / BURMONT ROAD

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ALTERNATE 1
SECTION C-C
SHARED-USE TRAIL
ALONG I-476 / DARBY CREEK



RECOMMENDED

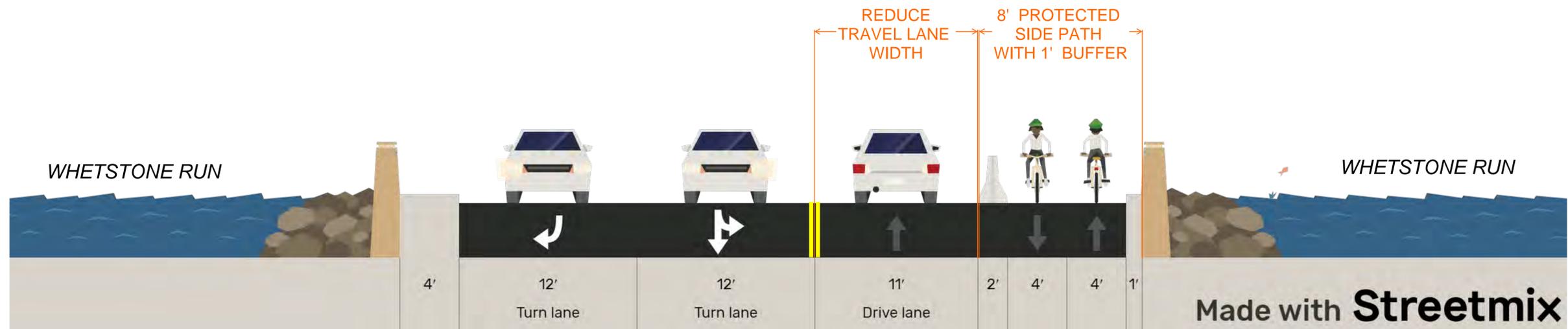
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EXHIBIT 1
REED ROAD
AT EAGLE ROAD / BURMONT ROAD

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ALTERNATE 2
SECTION D-D
PROTECTED SIDE PATH
REED ROAD, CROSSING WHETSTONE RUN



EXISTING

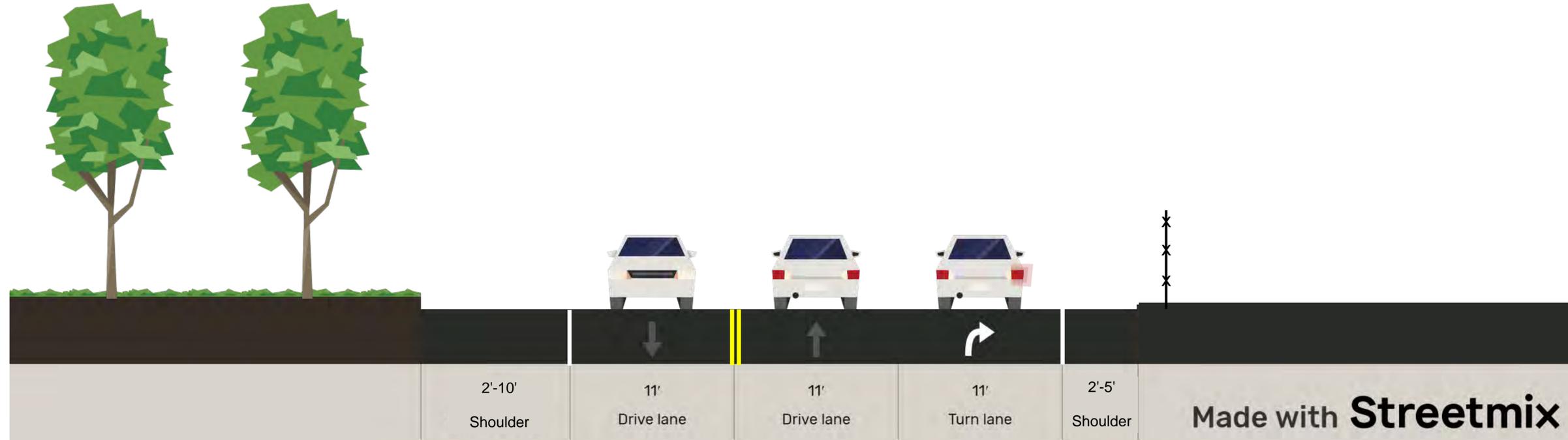


RECOMMENDED

DARBY CREEK TRAIL ACCESS
EXHIBIT 1
REED ROAD
AT EAGLE ROAD / BURMONT ROAD

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ALTERNATE 2
SECTION E-E
SIDEPATH
BURTON ROAD (SR 1006)



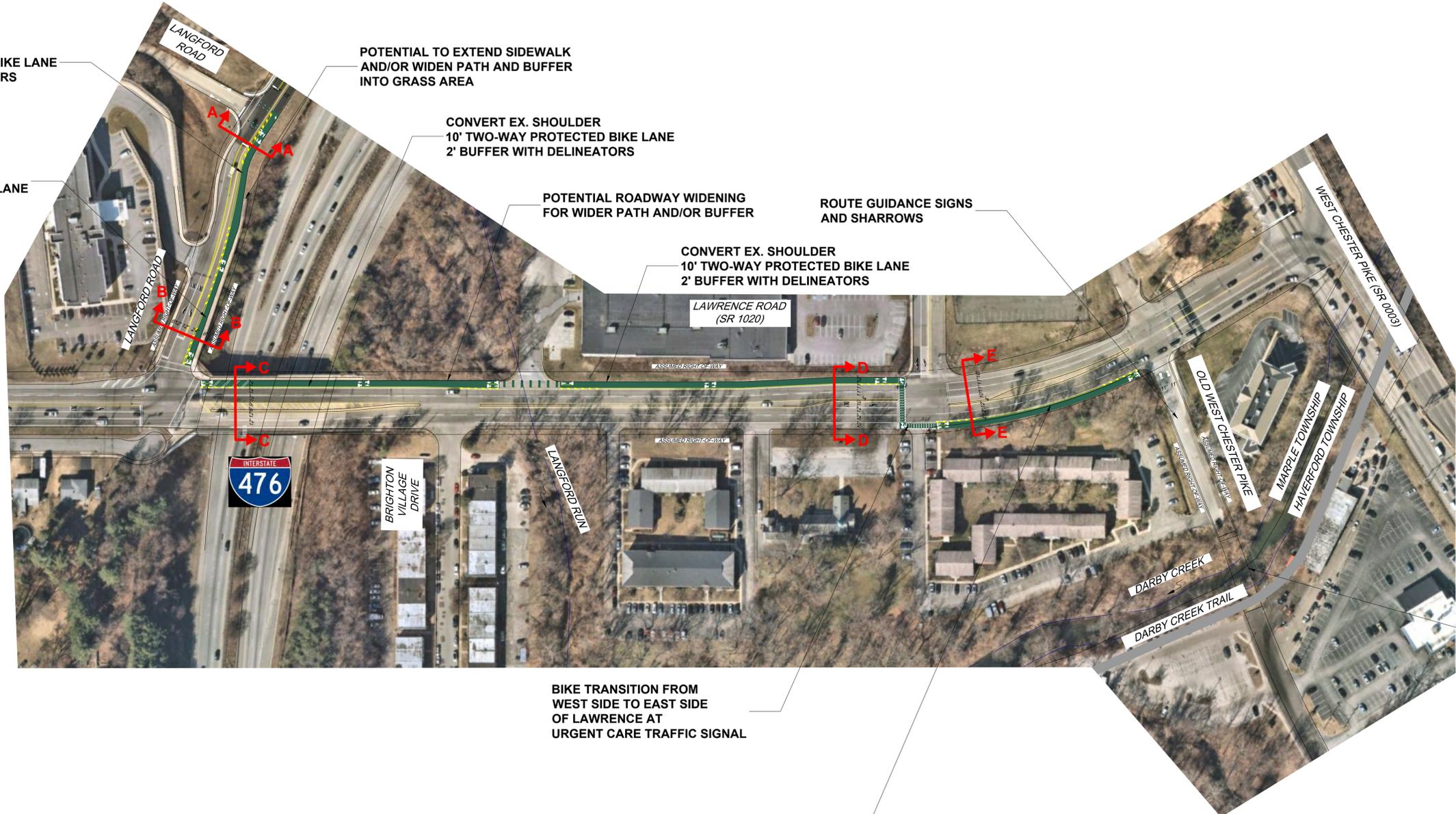
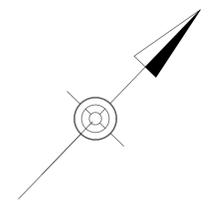
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RECOMMENDED

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DARBY CREEK TRAIL ACCESS
EXHIBIT 1
REED ROAD
AT EAGLE ROAD / BURMONT ROAD



11' NB SB LANES
10' TWO-WAY PROTECTED BIKE LANE
3' BUFFER WITH DELINEATORS

POTENTIAL TO EXTEND SIDEWALK
AND/OR WIDEN PATH AND BUFFER
INTO GRASS AREA

CONVERT EX. SHOULDER
10' TWO-WAY PROTECTED BIKE LANE
2' BUFFER WITH DELINEATORS

POTENTIAL ROADWAY WIDENING
FOR WIDER PATH AND/OR BUFFER

ROUTE GUIDANCE SIGNS
AND SHARROWS

CONVERT EX. SHOULDER
10' TWO-WAY PROTECTED BIKE LANE
2' BUFFER WITH DELINEATORS

LAWRENCE ROAD
(SR 1020)

11' NB LANE
12' LT/RT LANES
10' TWO-WAY PROTECTED BIKE LANE
3' BUFFER WITH DELINEATORS

BIKE TRANSITION FROM
WEST SIDE TO EAST SIDE
OF LAWRENCE AT
URGENT CARE TRAFFIC SIGNAL

WIDEN SHOULDER
10' TWO-WAY PROTECTED BIKE LANE
2' BUFFER WITH DELINEATORS

TRAIL BRIDGE
OVER DARBY CREEK



DARBY CREEK TRAIL ACCESS
EXHIBIT 2
LAWRENCE ROAD
SUSSEX BLVD. TO WEST CHESTER PIKE

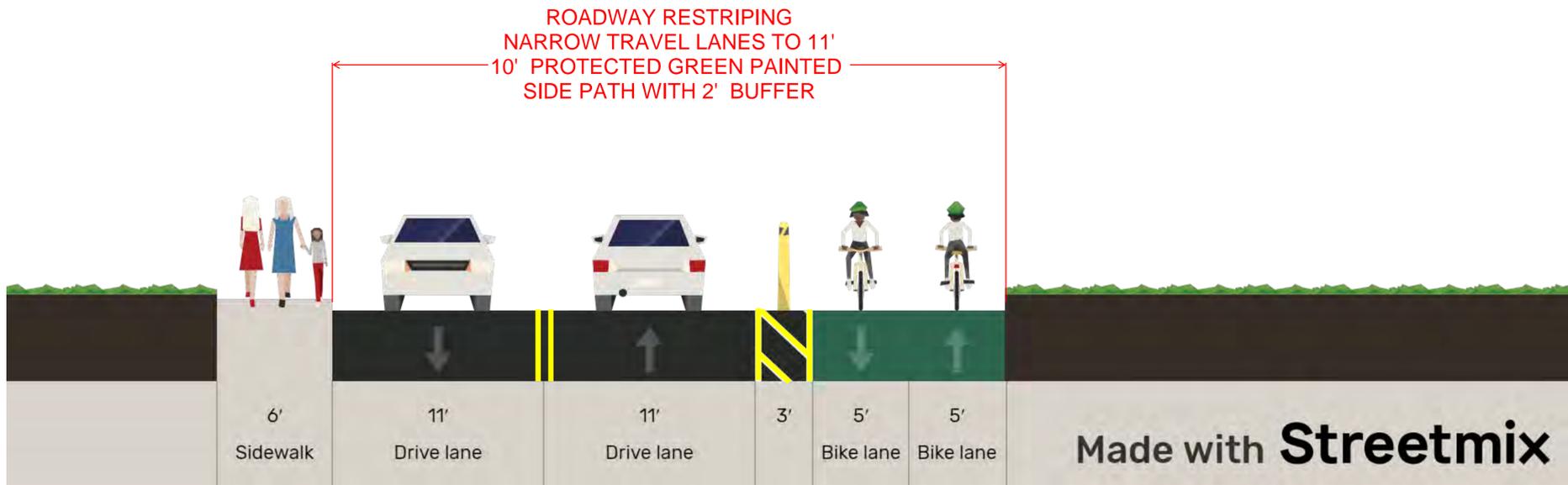
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SECTION A-A
 PROTECTED GREEN PAINTED SIDE PATH
 LANGFORD ROAD AT VETERENS BLVD.



EXISTING

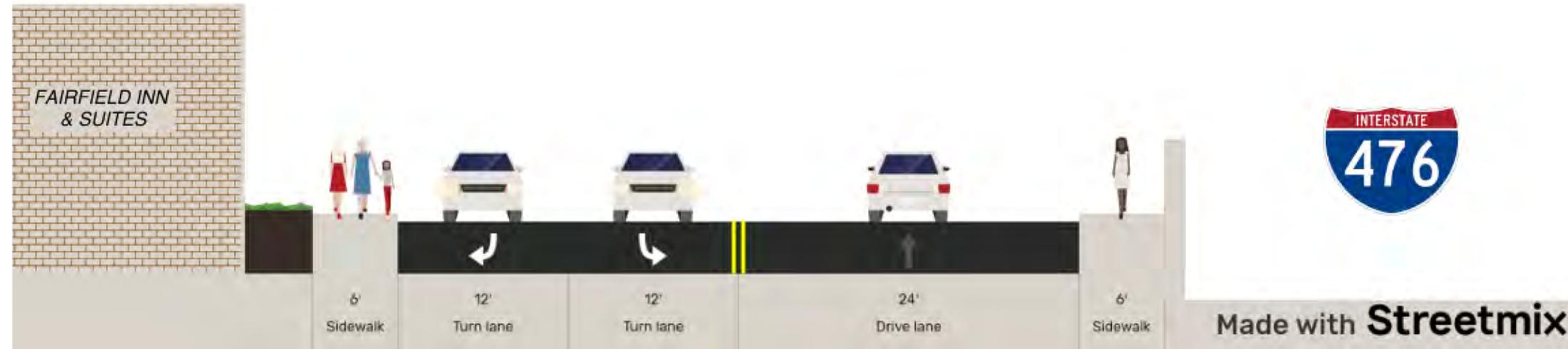


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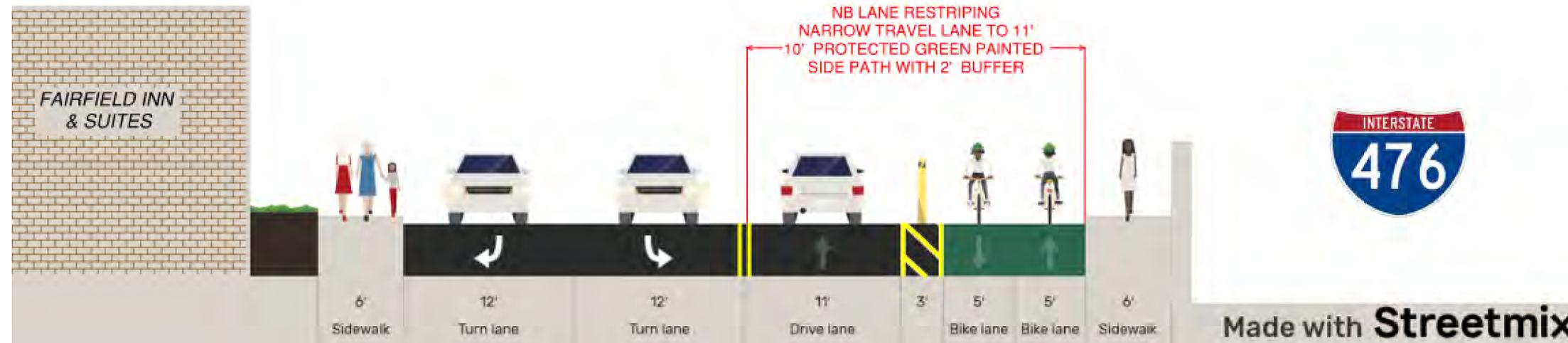
DARBY CREEK TRAIL ACCESS
 EXHIBIT 2
 LAWRENCE ROAD
 SUSSEX BLVD. TO WEST CHESTER PIKE

PENNONI ASSOCIATES, INC.
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 PEN TABLET PENNONI, INC. 5/18
 PLOT DRIVER: MTD - PDF - PC3
 DATE PLOTTED: 4/27/2020 11:41 AM
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SECTION B-B
 PROTECTED GREEN PAINTED SIDE PATH
 LANGFORD ROAD AT LAWRENCE ROAD (SR 1020)



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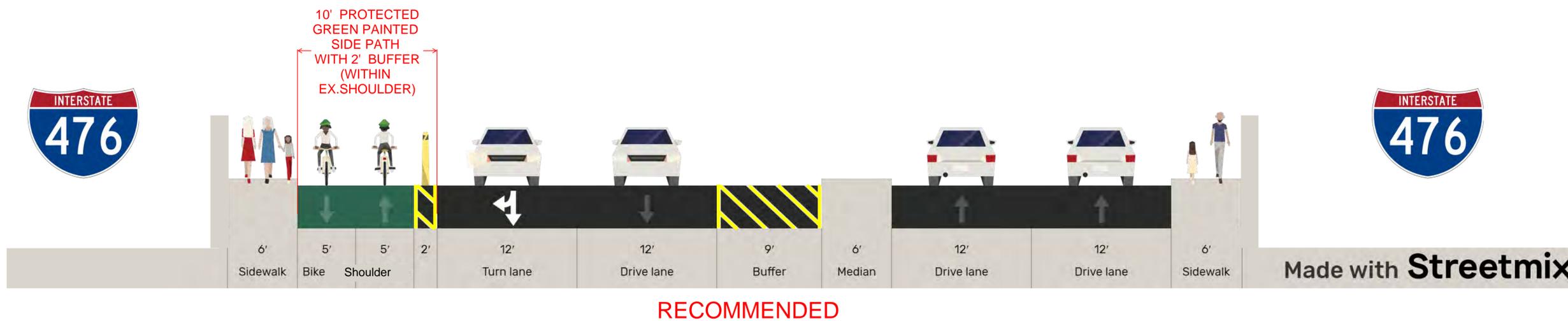
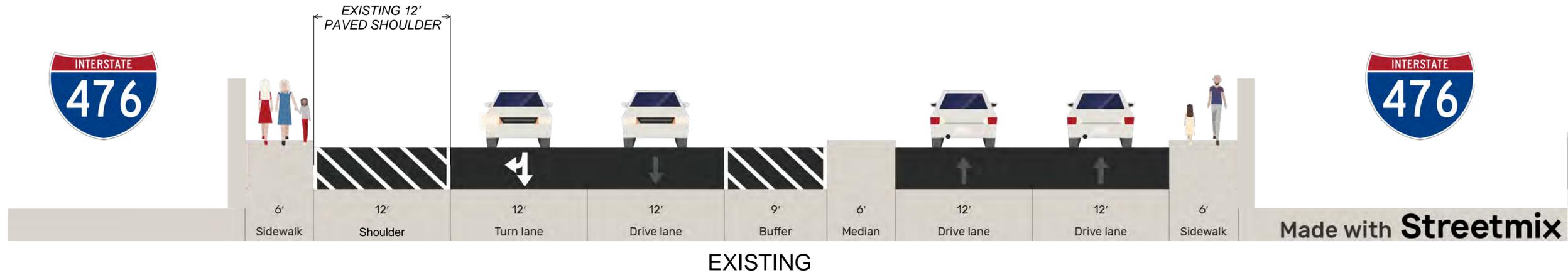


RECOMMENDED

DARBY CREEK TRAIL ACCESS
 EXHIBIT 2
 LAWRENCE ROAD
 SUSSEX BLVD. TO WEST CHESTER PIKE

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 PEN_TABLET PENNONI_NCS_51B
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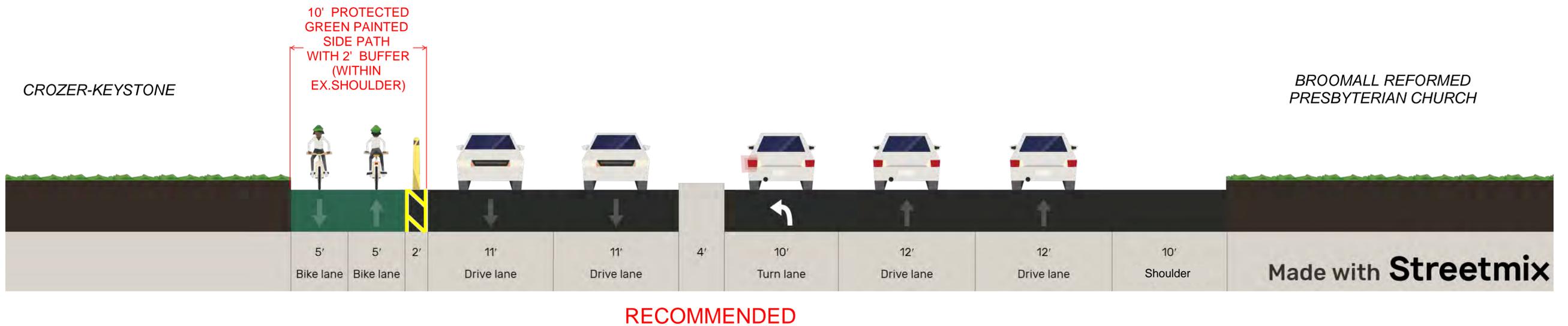
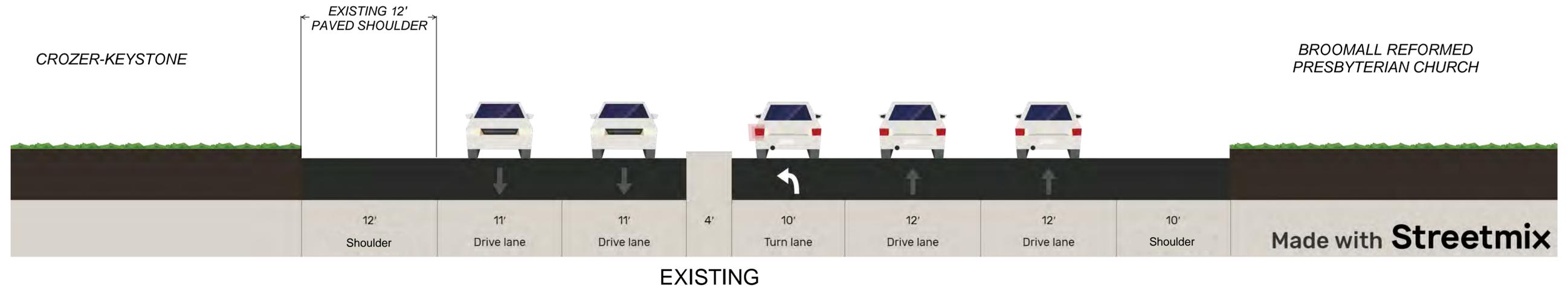
SECTION C-C
 PROTECTED GREEN PAINTED SIDE PATH
 WESTBOUND SHOULDER OF LAWRENCE ROAD (SR 1020)
 OVER I-476



DARBY CREEK TRAIL ACCESS
 EXHIBIT 2
 LAWRENCE ROAD
 SUSSEX BLVD. TO WEST CHESTER PIKE

PENNONT ASSOCIATES, INC.
 USER: NAMEMARY.PAT_TUMELTY
 PENNONT PENNONT, NCS, 51B
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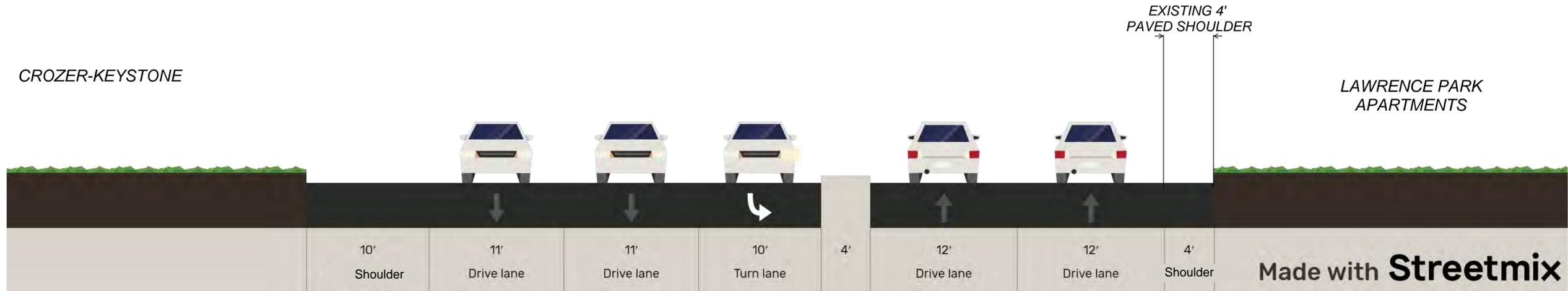
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 PROTECTED GREEN PAINTED SIDE PATH
 WESTBOUND SHOULDER OF LAWRENCE ROAD (SR 1020)



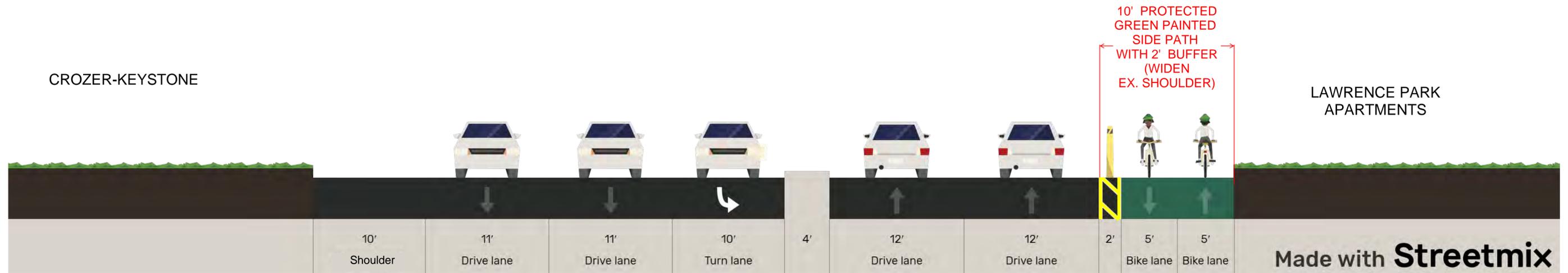
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DARBY CREEK TRAIL ACCESS
 EXHIBIT 2
 LAWRENCE ROAD
 SUSSEX BLVD. TO WEST CHESTER PIKE

SECTION E-E
 PROTECTED GREEN PAINTED SIDE PATH
 EASTBOUND SHOULDER OF LAWRENCE ROAD (SR 1020)



EXISTING



RECOMMENDED

DARBY CREEK TRAIL ACCESS
 EXHIBIT 2
 LAWRENCE ROAD
 SUSSEX BLVD. TO WEST CHESTER PIKE

PENNONT ASSOCIATES, INC.
 USER NAME: MARY PAT TUMELTY
 PENNONT, INC. 5/18
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Appendix B: Cost Estimate

TRAILS MASTER PLAN MARLE TOWNSHIP, PA Opinion of Probable Construction Cost	DARBY CREEK 1	DARBY CREEK 2	DARBY CREEK 3	DARBY CREEK 4	Lawrence Park Area	Veterans Park and New Ardmore Park
	Lindbergh Ave connection	Old West Chester Pike Lawrence Road	Lawrence Park connection	Reed Road underpass (option 2)	shared lane markings	connections
Item	Cost	Cost	Cost	Cost	Cost	Cost
Paved Trail, 10' Wide - inclusive	\$ 320,000	\$ 60,000	\$ 260,000	\$ 60,000	\$ -	\$ 360,000
Earthwork/Grading	\$ 40,000	\$ 10,000	\$ 70,000	\$ 40,000	\$ -	\$ 40,000
Landscaping (additional)	\$ 50,000	\$ 20,000	\$ 30,000	\$ 20,000	\$ -	\$ 30,000
Clearing (additional)	\$ 30,000	\$ 5,000	\$ 30,000	\$ 10,000	\$ -	\$ 50,000
At-Grade Street Crossing	\$ -	\$ 45,000	\$ 15,000	\$ 60,000	\$ 45,000	\$ 30,000
Enhanced Traffic Signalization	\$ -	\$ 30,000	\$ -	\$ 30,000	\$ 15,000	\$ 15,000
Pavement Markings (allowance)	\$ -	\$ 45,000	\$ 250	\$ 45,000	\$ 25,000	\$ 1,250
Concrete Sidewalks -5' width	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post/rail fence	\$ 12,500	\$ 2,000	\$ 2,500	\$ 10,000	\$ -	\$ 7,500
Solid Wood Fence - 6'	\$ 24,000	\$ -	\$ -	\$ -	\$ -	\$ 24,000
Signage (specialty)	\$ 2,000	\$ 4,000	\$ 2,000	\$ 4,000	\$ 8,000	\$ 4,000
Minor Stream crossing	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ 50,000
Streambank Stabilization	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ -	\$ 25,000
Bridge/Boardwalk Structure	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ -	\$ -
Retaining Wall	\$ 18,000	\$ -	\$ 18,000	\$ 30,000	\$ -	\$ 30,000
Stormwater Management	\$ 100,000	\$ 25,000	\$ 100,000	\$ 25,000	\$ -	\$ 75,000
Trail Head Amenities	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ -	\$ 6,000
Security Features	\$ 4,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ -	\$ 6,000
Mobilization	\$ 80,000	\$ 40,000	\$ 80,000	\$ 40,000	\$ 20,000	\$ 40,000
<i>Subtotal</i>	\$ 811,500	\$ 419,000	\$ 790,750	\$ 507,000	\$ 113,000	\$ 793,750
<i>Contingency 20%</i>	\$ 162,300	\$ 83,800	\$ 158,150	\$ 101,400	\$ 22,600	\$ 158,750
<i>General Conditions 10%</i>	\$ 81,150	\$ 41,900	\$ 79,075	\$ 50,700	\$ 11,300	\$ 79,375
<i>Subtotal Construction</i>	\$ 1,054,950	\$ 544,700	\$ 1,027,975	\$ 659,100	\$ 146,900	\$ 1,031,875
Soft Costs (20%)	\$ 210,990	\$ 108,940	\$ 205,595	\$ 131,820	\$ 29,380	\$ 206,375
Construction Admin (5%)	\$ 52,748	\$ 27,235	\$ 51,399	\$ 32,955	\$ 7,345	\$ 51,594
TOTAL PER SEGMENT	\$ 1,318,688	\$ 680,875	\$ 1,284,969	\$ 823,875	\$ 183,625	\$ 1,289,844
TOTAL ALL SEGMENTS	\$ 12,525,906					

TRAILS MASTER PLAN MARLE TOWNSHIP, PA Opinion of Probable Construction Cost	Media Line Road	New Ardmore Avenue	Don Guanela and Crum Creek Road connections	HOA Connection to Hildacy Farm	Paxson Hollow Golf Course	Kent Park/ Thomas Field	Radnor Connections
Item	Cost	Cost	Cost	Cost	Cost	Cost	Cost
Paved Trail, 10' Wide - inclusive	\$ -	\$ -	\$ -	\$ 700,000	\$ 500,000	\$ 160,000	\$ 220,000
Earthwork/Grading	\$ -	\$ -	\$ 10,000	\$ 200,000	\$ 100,000	\$ 40,000	\$ 40,000
Landscaping (additional)	\$ -	\$ -	\$ 10,000	\$ 100,000	\$ 60,000	\$ 20,000	\$ 20,000
Clearing (additional)	\$ -	\$ -	\$ 5,000	\$ 50,000	\$ 20,000	\$ 10,000	\$ 20,000
At-Grade Street Crossing	\$ 30,000	\$ -	\$ 30,000	\$ 15,000	\$ 15,000	\$ -	\$ -
Enhanced Traffic Signalization	\$ 15,000	\$ -	\$ 15,000	\$ -	\$ 7,500	\$ -	\$ -
Pavement Markings (allowance)	\$ 75,000	\$ 130,000	\$ 25,000	\$ 2,500	\$ 750	\$ -	\$ -
Concrete Sidewalks -5' width	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post/rail fence	\$ -	\$ -	\$ -	\$ 37,500	\$ 30,000	\$ 12,500	\$ 2,500
Solid Wood Fence - 6'	\$ -	\$ -	\$ -	\$ 120,000	\$ -	\$ -	\$ -
Signage (specialty)	\$ 4,000	\$ 4,000	\$ 2,000	\$ 4,000	\$ 4,000	\$ 2,000	\$ 2,000
Minor Stream crossing	\$ -	\$ -	\$ -	\$ 100,000	\$ 50,000	\$ -	\$ -
Streambank Stabilization	\$ -	\$ -	\$ -	\$ 50,000	\$ 25,000	\$ -	\$ -
Bridge/Boardwalk Structure	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Retaining Wall	\$ -	\$ -	\$ -	\$ 300,000	\$ 30,000	\$ 60,000	\$ 60,000
Stormwater Management	\$ -	\$ -	\$ -	\$ 150,000	\$ 50,000	\$ 75,000	\$ 75,000
Trail Head Amenities	\$ -	\$ -	\$ -	\$ 12,000	\$ 6,000	\$ 6,000	\$ 6,000
Security Features	\$ -	\$ -	\$ -	\$ 4,000	\$ 2,000	\$ 2,000	\$ 2,000
Mobilization	\$ 20,000	\$ 20,000	\$ 2,000	\$ 80,000	\$ 40,000	\$ 40,000	\$ 40,000
<i>Subtotal</i>	\$ 294,000	\$ 154,000	\$ 99,000	\$ 1,925,000	\$ 940,250	\$ 427,500	\$ 587,500
<i>Contingency 20%</i>	\$ 58,800	\$ 30,800	\$ 19,800	\$ 385,000	\$ 188,050	\$ 85,500	\$ 117,500
<i>General Conditions 10%</i>	\$ 29,400	\$ 15,400	\$ 9,900	\$ 192,500	\$ 94,025	\$ 42,750	\$ 58,750
<i>Subtotal Construction</i>	\$ 382,200	\$ 200,200	\$ 128,700	\$ 2,502,500	\$ 1,222,325	\$ 555,750	\$ 763,750
Soft Costs (20%)	\$ 76,440	\$ 40,040	\$ 25,740	\$ 500,500	\$ 244,465	\$ 111,150	\$ 152,750
Construction Admin (5%)	\$ 19,110	\$ 10,010	\$ 6,435	\$ 125,125	\$ 61,116	\$ 27,788	\$ 38,188
TOTAL PER SEGMENT	\$ 477,750	\$ 250,250	\$ 160,875	\$ 3,128,125	\$ 1,527,906	\$ 694,688	\$ 954,688

TOTAL ALL SEGMENTS

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