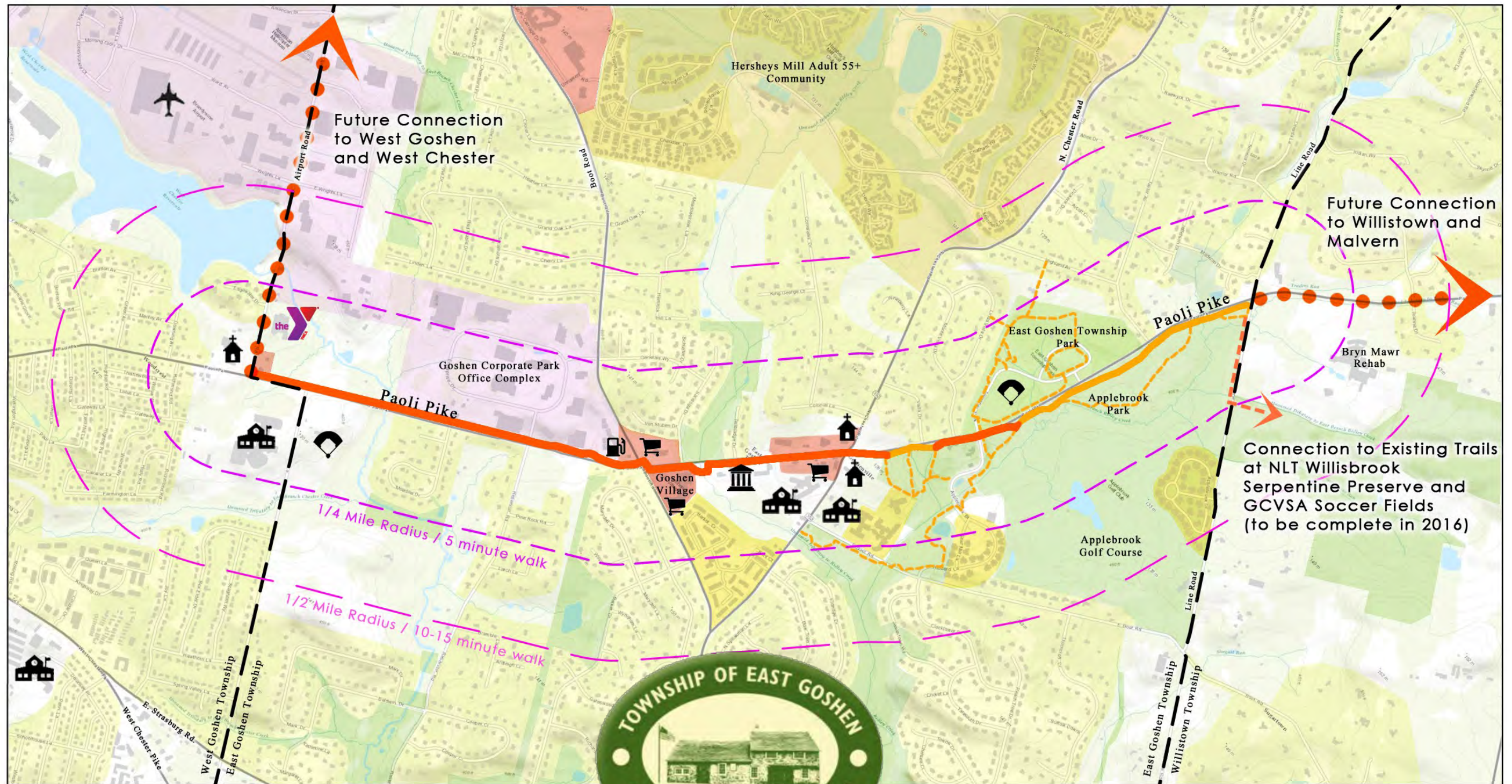


# PAOLI PIKE TRAIL

## FEASIBILITY STUDY AND MASTER PLAN





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## Funding

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# PAOLI PIKE TRAIL

## FEASIBILITY STUDY AND MASTER PLAN

### Background

Paoli Pike between Airport Road and Line Road in East Goshen Township, Chester County, is a desirable corridor to walk and bike because it links a number of key destinations, including schools, offices, community facilities, retail shops, parks, and residential areas. Additionally, it has the potential to provide connections beyond East Goshen Township to neighboring municipalities and the regional trail network.

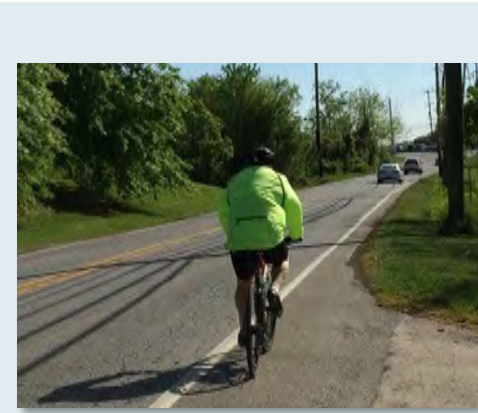
The need and vision for providing a multi-use trail along Paoli Pike was established in key Township and County plans, including the *Central Chester County Bicycle and Pedestrian Plan* (2013), Township's Parks, Recreation, and Open Space Plan (2015), and the Township's Comprehensive Plan (2015). This Feasibility Study and Master Plan builds on previous plans and provides feasible conceptual design for the multi-use trail and a blueprint for implementing the trail.

### Purpose and Goal

The Paoli Pike Trail will provide a safe, convenient, and continuous connection for people of all ages and abilities to walk and bike between key destinations along Paoli Pike in East Goshen Township. The Paoli Pike Trail will support a connected, healthy, vibrant, and sustainable community.

### Project Needs and Concerns

- The lack of continuous, connected, and dedicated bicycle and pedestrian facilities limits access and mobility for both non-motorized transportation and recreation on Paoli Pike.
- High vehicular speeds, volumes, and congested conditions during peak periods create an unsafe and uncomfortable environment for walking and biking.
- Schools, parks, shops, restaurants, employment centers, other community facilities, and residential areas are not connected with bicycle or pedestrian facilities.
- The Paoli Pike corridor lacks a sense of place and unique identity, particularly in the Town Center area between Boot Road and North Chester Road (SR 0352).



### Stakeholder and Public Involvement

This Feasibility Study and Master Plan was developed with input from stakeholders, project partners, and the public. The planning process included three Trail Committee meetings, three public meetings, and one technical coordination meeting with representatives from PennDOT District 6-0 and the Chester County Planning Commission. Additionally, East Goshen Township conducted specific outreach to engage property and business owners with frontage on Paoli Pike, including hosting a property and business owners meeting and corresponding with stakeholders regarding key milestones in the project. Draft materials were posted on the Township's website throughout the process for public review and comment.

### Preferred Alignment

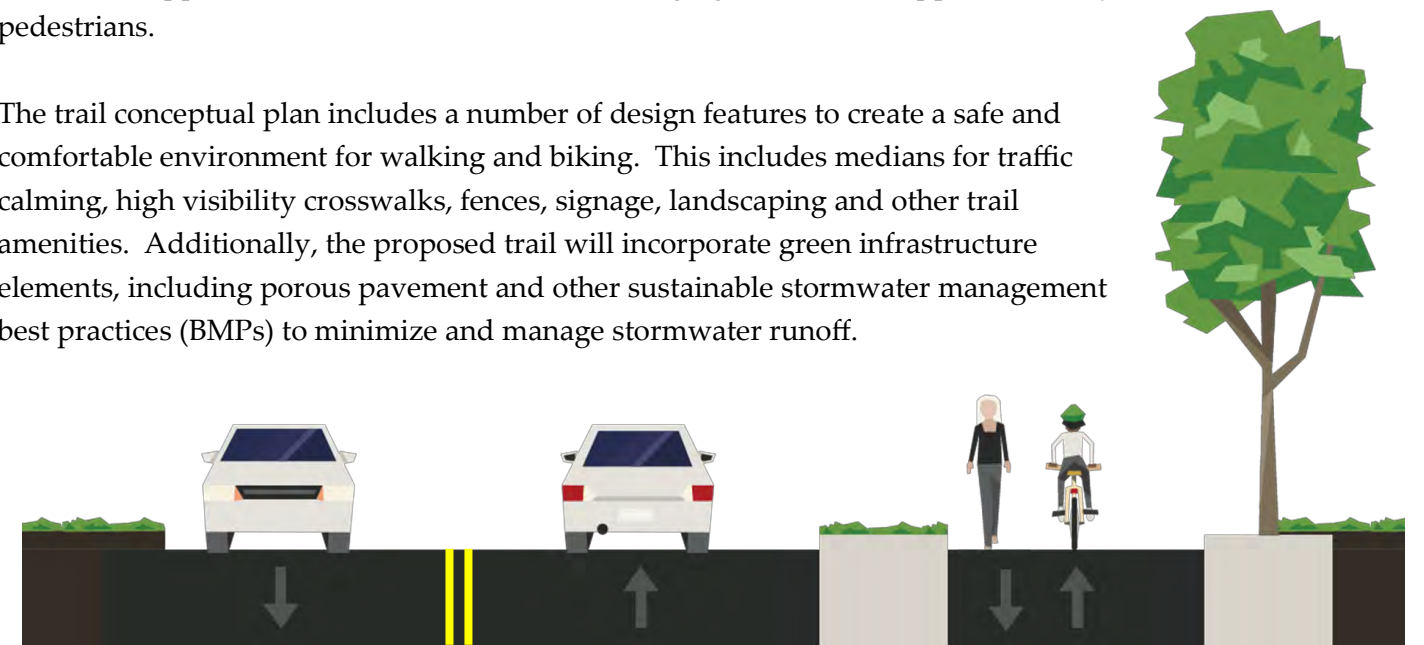
Alternative alignments of the Paoli Pike Trail were evaluated based on several factors, including connectivity, safety, feasibility, constructability, environmental and cultural resources, required roadway crossing locations, and right-of-way. Based on a review of previous plans, field investigation, and stakeholder and public input, the following alignment was selected as the preferred alignment of the trail:

- North side of Paoli Pike between Airport Road and Boot Road
- South side of Paoli Pike between Boot Road and Line Road
- Utilization segments of existing trails in Applebrook Park

### Multi-Use Trail Concept

The Paoli Pike Trail provides an 8-foot to 10-foot wide asphalt multi-use trail adjacent to Paoli Pike with an adequate buffer area or safety rail between the roadway and trail. The trail design is based on applicable PennDOT and AASHTO design guidelines to support both bicyclists and pedestrians.

The trail conceptual plan includes a number of design features to create a safe and comfortable environment for walking and biking. This includes medians for traffic calming, high visibility crosswalks, fences, signage, landscaping and other trail amenities. Additionally, the proposed trail will incorporate green infrastructure elements, including porous pavement and other sustainable stormwater management best practices (BMPs) to minimize and manage stormwater runoff.

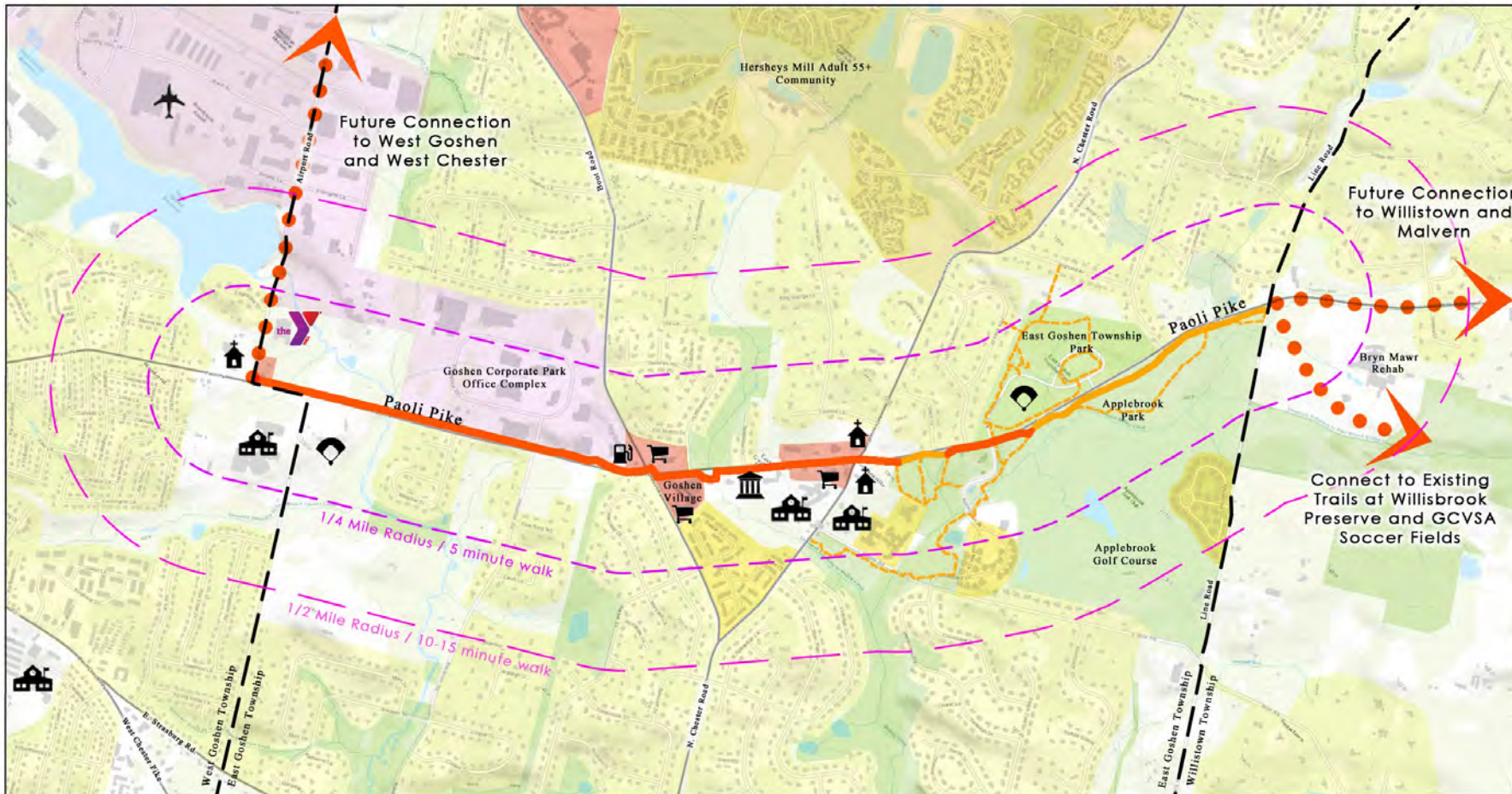


Showing trail alignment on the south side and buffer area between the roadway and trail
















## Trail Conceptual Plan

The conceptual design for the Paoli Pike Trail shows how a multi-use trail can help to transform the 2.7 mile section of Paoli Pike between Airport Road and Line Road. The 8-foot to 10-foot wide continuous multi-use trail will link numerous destinations along the corridor and has the potential to provide future connections to neighboring municipalities and the regional trail network. For the trail conceptual plan, the corridor was divided into seven capital improvements segments and the plan identified the opportunity to utilize existing trails in Applebrook Park. The trail conceptual plan presents the trail alignment and highlights key trail features, such as new elevated trail boardwalk bridges, gateway treatments and medians for traffic calming, signage for both motorists and trail users, and other trail amenities.



### PAOLI PIKE TRAIL CORRIDOR



- |  |  |  |
|--|--|--|
|  Paoli Pike Trail                     |  Existing Trail                         |  Retail / Restaurant  |
|  1/4 Mile / approximate 5 minute walk |  1/2 Mile / approximate 10-15 minute walk |  Municipal            |
|  Residential Area                     |  Office Area                              |  Church               |
|  Commercial Area                      |  Open Space / Recreational Area           |  Gas Station          |
|  |  |  Ball Fields / Courts |

## Implementation Plan, Priorities, and Cost Estimates

The Paoli Pike Trail will likely be implemented in a phases over time, depending on the availability of funding and other factors. The trail conceptual plan is presented in seven segments, which can advance the design and construction as separate projects or be combined for implementation. Additionally, improvements to existing trails in Applebrook Park utilized for the Paoli Pike Trail can be implemented based on trail usage and maintenance needs. The connection between Reservoir Road and Applebrook Park (Segments C through G) was identified by the Township as the initial priority for implementation to link the Town Center with the Township's existing parks and recreational resources.

An engineer's conceptual opinion of cost was developed for each of the seven segments of the Paoli Pike Trail. The costs provided are based on the trail conceptual plan and include estimates for engineering and permitting, utility relocation, right-of-way acquisition, construction, and construction inspection in today's (2015) dollars.

Segment	TOTAL
A Airport Road to Ellis Lane	\$620,000
B Ellis Lane to Reservoir Road	\$2,375,000
C Reservoir Road to Boot Road	\$1,423,000
D Boot Road to Goshen Village	\$397,000
E Goshen Village to North Chester Road (SR 0352)	\$2,213,000
F North Chester Road (SR 0352) to Existing Applebrook Trail	\$258,000
G Connection between Existing Applebrook Trails	\$373,000
Utilization of Existing Applebrook Trails to Line Road	

Initial Priority Segments for Implementation

**Total Estimated Cost for Paoli Pike Trail: \$7.6 million**

### Next Steps

Listed below are potential next steps for East Goshen Township and other project partners to implement the vision and conceptual design of the Paoli Pike Trail:

- **Actively pursue funding opportunities → Top Priority**
- Advance design and preliminary engineering
- Work with neighboring municipalities to develop future regional connections
- Coordinate with PennDOT
- Engage property owners, business owners, key stakeholders, and the public
- Retain the Township's Trail Committee for continued oversight and guidance
- Plan for future trail operations and maintenance
- Develop a trail identity and wayfinding/signage program
- Update Township ordinances to incorporate the Paoli Pike Trail





# I. BACKGROUND

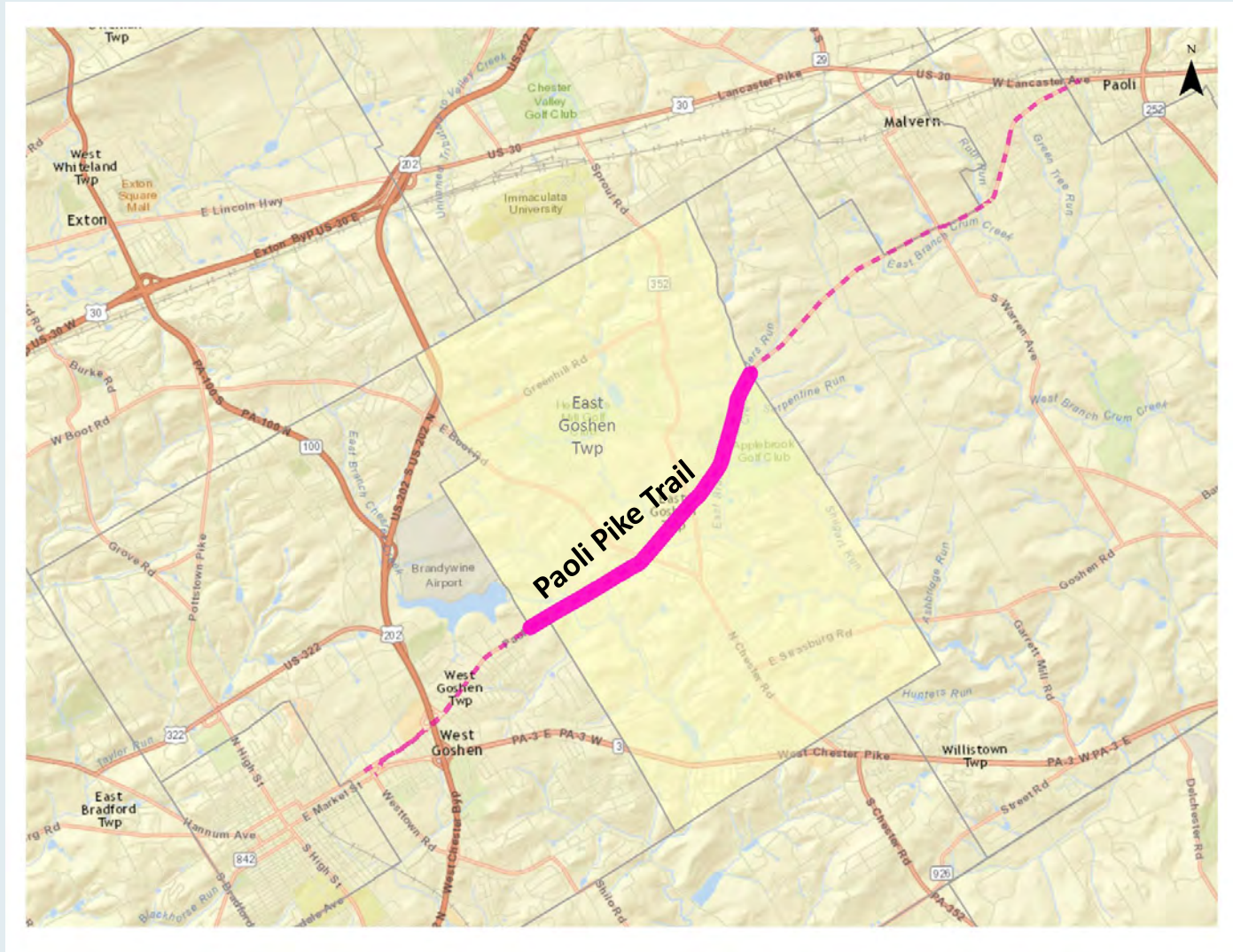
## Introduction

Paoli Pike is a two-lane, state-owned, east-west oriented community arterial roadway that links West Chester and Paoli and passes through the heart of East Goshen Township. The 2.7 mile segment between Airport Road and Line Road has an average daily traffic of 14,000 vehicles per day. The Paoli Pike corridor contains a mix of land uses, including schools, offices, community facilities, retail shops, parks, and residential areas. This makes it a desirable corridor for walking and biking between key destinations. Additionally, there is the potential to provide future bicycle and pedestrian connections beyond East Goshen Township to neighboring municipalities and the regional trail network.

The idea for improved bicycle and pedestrian facilities along Paoli Pike is not new. In the 1990s, funding was awarded to implement a bicycle lane on Paoli Pike in East Goshen and West Goshen Townships. However, the project never came to fruition due to existing condition constraints and limited funding. In 2013, the idea of a multi-use trail along Paoli Pike was identified as a priority project in the *Central Chester County Bicycle and Pedestrian Plan*. Additionally, the need and support for the concept of a multi-use trail along Paoli Pike was reinforced during the Township's recent updates to the Comprehensive Plan and Parks, Recreation, and Open Space Plan. In 2014, East Goshen Township applied for and was awarded a Greenways, Trails, and Recreation Program grant from the Commonwealth of Pennsylvania, Commonwealth Financing Authority, to develop this Feasibility Study and Master Plan for a multi-use trail along Paoli Pike between Airport Road and Line Road.

## Project Area

Paoli Pike between Airport Road and Line Road—2.7 miles in length





## Project Purpose, Goal, and Objectives

**Purpose:** Provide a safe, convenient, and continuous connection for people of all ages and abilities to walk and bike between key destinations along Paoli Pike in East Goshen Township.

**Goal:** Support a connected, healthy, vibrant, and sustainable community.

**CONNECTED** **HEALTHY** **VIBRANT** **SUSTAINABLE**

**COMMUNITY**

**Objectives:**

- ❑ Create a safe and well connected transportation network that offers people multiple options for travel.
- ❑ Promote nonmotorized travel to reduce congestion and improve air quality.
- ❑ Support walking and biking for transportation and recreation, including trips to school, work, shops, and parks.
- ❑ Expand access to recreational resources, including the Township’s park facilities.
- ❑ Link existing businesses and support future commercial opportunities, particularly in the Township’s Town Center.
- ❑ Minimize negative impacts on sensitive environmental and cultural resources.

## Consistency with East Goshen Township Plans

In 2015, East Goshen Township adopted updates to the Township’s Comprehensive Plan and Parks, Recreation, and Open Space Plan. Both documents strongly support and provide the planning framework and the vision for a trail along Paoli Pike.

### Comprehensive Plan—2015

The Comprehensive Plan Task Force identified the Paoli Pike Corridor as one of the main areas in the Township in need of improvement with bicycle and pedestrian access as a critical need. The existing facilities for bicyclists and pedestrians are very limited, inconsistent, and discontinuous. The plan calls for transforming Paoli Pike into a “walkable, connected artery” and presents a vision for the future “Paoli Pike Promenade.” Implementation of this vision and a continuous trail along Paoli Pike is identified as a top priority action item in the Comprehensive Plan.



*Proposed Paoli Pike Promenade Concept prepared by Thomas Comitta Associates, Inc.*

The Paoli Pike Trail project is consistent with the following Comprehensive Plan Goals and Objectives.

- Enhance the Town Center
  - Promote walkability and opportunities for pedestrian gathering areas along the Paoli Pike Promenade
- Enhance Recreational Opportunities
  - Enhance linkages to the Park through the Paoli Pike Trail
- Improve Transportation & Circulation
  - Expand pedestrian circulation along Paoli Pike

### Parks, Recreation, and Open Space Plan—2015

Trails were identified as the most important recreation facility in the Township during the public involvement process for the Parks, Recreation, and Open Space Plan update. Given the interest in the Paoli Pike corridor, a special multi-purpose path assessment report was prepared as part of the Parks, Recreation, and Open Space Plan. The assessment analyzed existing conditions and potential opportunities for the trail.

The Paoli Pike Trail is consistent with Recommendation 1.7—Provide for community connections by planning and establishing safe places to walk and bicycle. Additionally, developing a master plan and construction documents for the Paoli Pike Trail is identified as a high priority action item in the plan.

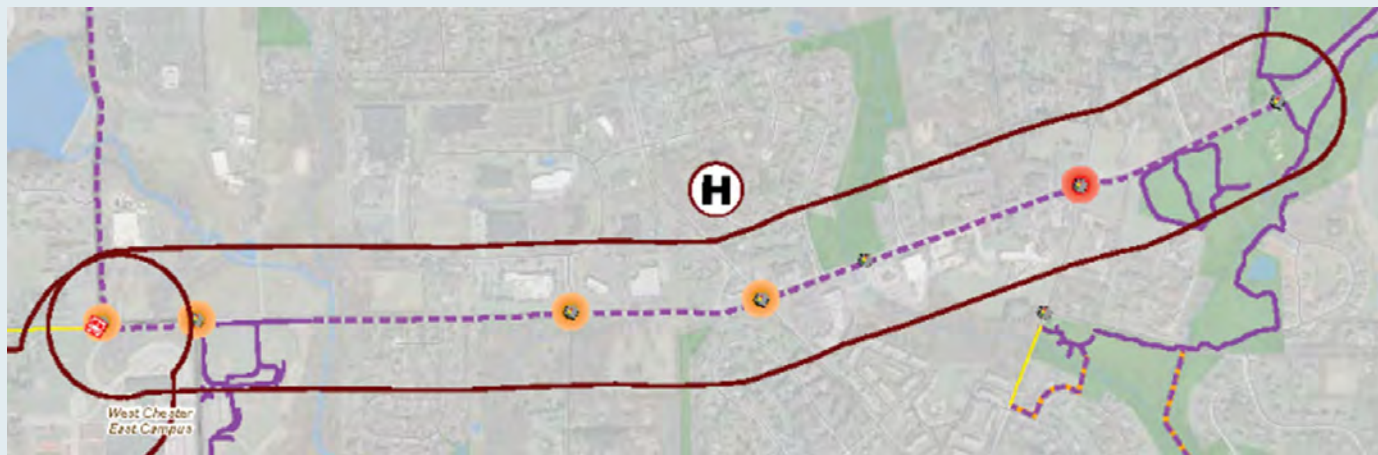
## Consistency with County, Regional, and Statewide Plans

In addition to the Township's plans, there are several Chester County, regional, and statewide plans that further support the specific Paoli Pike Trail and the project goals from a broader policy perspective. The consistency with relevant county, regional, and statewide plans is highlighted below.

### Central Chester County Bicycle and Pedestrian Plan—2013

The *Central Chester County Bicycle and Pedestrian Plan* was developed by the Chester County Planning Commission for seven municipalities in the heart of Chester County, including East Goshen. It presents a detailed plan for developing a connected network of bicycle and pedestrian facilities in the study area and identifies priority projects for implementation.

The Paoli Pike Trail in East Goshen Township is identified as Priority Project H to connect the East Goshen Township Park and Applebrook Park with neighboring municipalities and other destinations. The plan also depicts potential future connections to the west using a combination of sidewalks, on-road bicycle facilities, and multi-use trails from the Paoli Pike corridor in East Goshen Township to West Goshen Township, West Chester Borough, and destinations beyond.



### Landscapes2, Chester County's Comprehensive Policy Plan—2009

East Goshen Township is identified as a Suburban Growth Area in *Landscapes2*, Chester County's comprehensive policy plan. The Paoli Pike Trail is consistent with the vision for the suburban landscape, including providing pedestrian facilities to connect neighborhoods and support walking and biking to key destinations. Additionally, the Paoli Pike Trail supports the *Landscapes2* goals and policies related to transportation, open space and greenways, and economic development.

### Transportation Improvements Inventory (TII) — 2015

The Transportation Improvements Inventory (TII), developed by the Chester County Planning Commission, is a comprehensive list of transportation needs in Chester County. The Paoli Pike

Trail between Airport Road and Line Road is ranked 15 out of 64 projects in the bicycle/pedestrian category.

### Connections 2040, Greater Philadelphia Region's Long Range Transportation Plan — 2013, Amended 2014

East Goshen Township is identified as a Growing Suburb in *Connections 2040*, the Delaware Valley Regional Planning Commission's (DVRPC) Long Range Plan. Additionally, the Paoli Pike Corridor provides a key link between the Town Centers of West Chester and Paoli. Providing a trail along the Paoli Pike Corridor in East Goshen Township is consistent with Long Range Plan goals and strategies related to developing complete streets to accommodate all modes and users, increasing safety for nonmotorized users of the transportation system, and reducing congestion and providing more options for commuters by improving bicycle and pedestrian facilities.

### Congestion Management Process (CMP) — 2012

DVRPC maintains the region's federally required Congestion Management Process (CMP) by identifying congested corridors and recommending a range of strategies to minimize congestion and enhance mobility of people and goods. In the CMP, Paoli Pike is part of Congested Corridor 8 - US 202, US 322 and specifically sub-corridor 8B—US 202 Section 200 and West Chester Area. Very appropriate strategies for this corridor include "Planning and Design for Nonmotorized Transportation."

### DRAFT Pennsylvania Long Range Transportation Plan - 2015

The Paoli Pike Trail is consistent with the Draft Pennsylvania Long Range Transportation Plan objective of supporting pedestrian and bicycle facility development and could help to reduce the number of roadway related bicycle and pedestrian crashes.

### PennDOT Bicycle and Pedestrian Plan — 2007

The state's Bicycle and Pedestrian Plan presents a vision that Pennsylvania is a place where residents and visitors can choose to walk or bike. The Paoli Pike Trail will provide a facility where people can walk and bike with confidence, safety, and security, which is consistent with the plan's vision.

### Pennsylvania's Statewide Comprehensive Outdoor Recreation Plan (SCORP)—2014

The five priority areas in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) include health and wellness, local parks and recreation, tourism and economic development, resource management and stewardship, and funding and financial stability. The Paoli Pike Trail is consistent with key recommendations and actions in the plan, including promoting healthful transportation alternatives in local communities and connecting citizens to close-to-home recreation opportunities.







## Project Process and Schedule

The *Central Chester County Bicycle and Pedestrian Plan*, Township's *Comprehensive Plan*, and Township's *Park, Recreation, and Open Space Plan* established the vision for a multi-use trail along Paoli Pike and served as the planning foundation for this Feasibility Study and Master Plan.

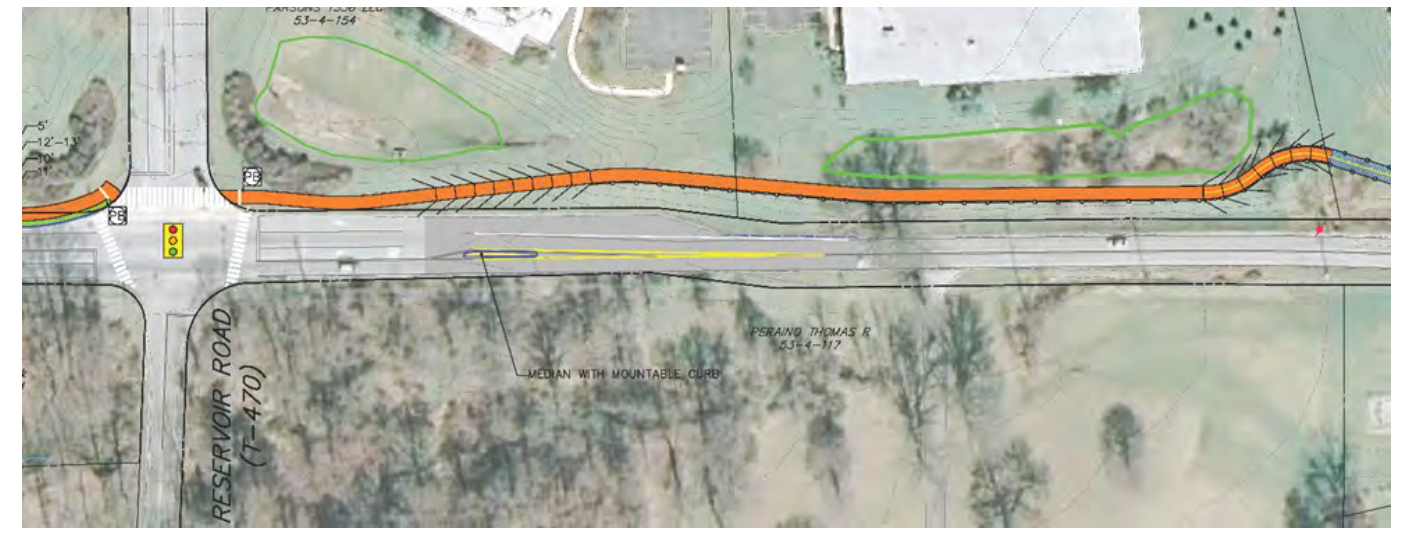
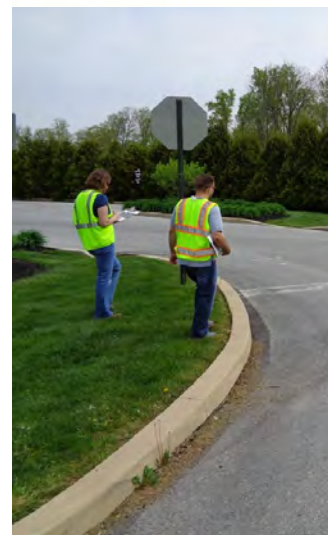
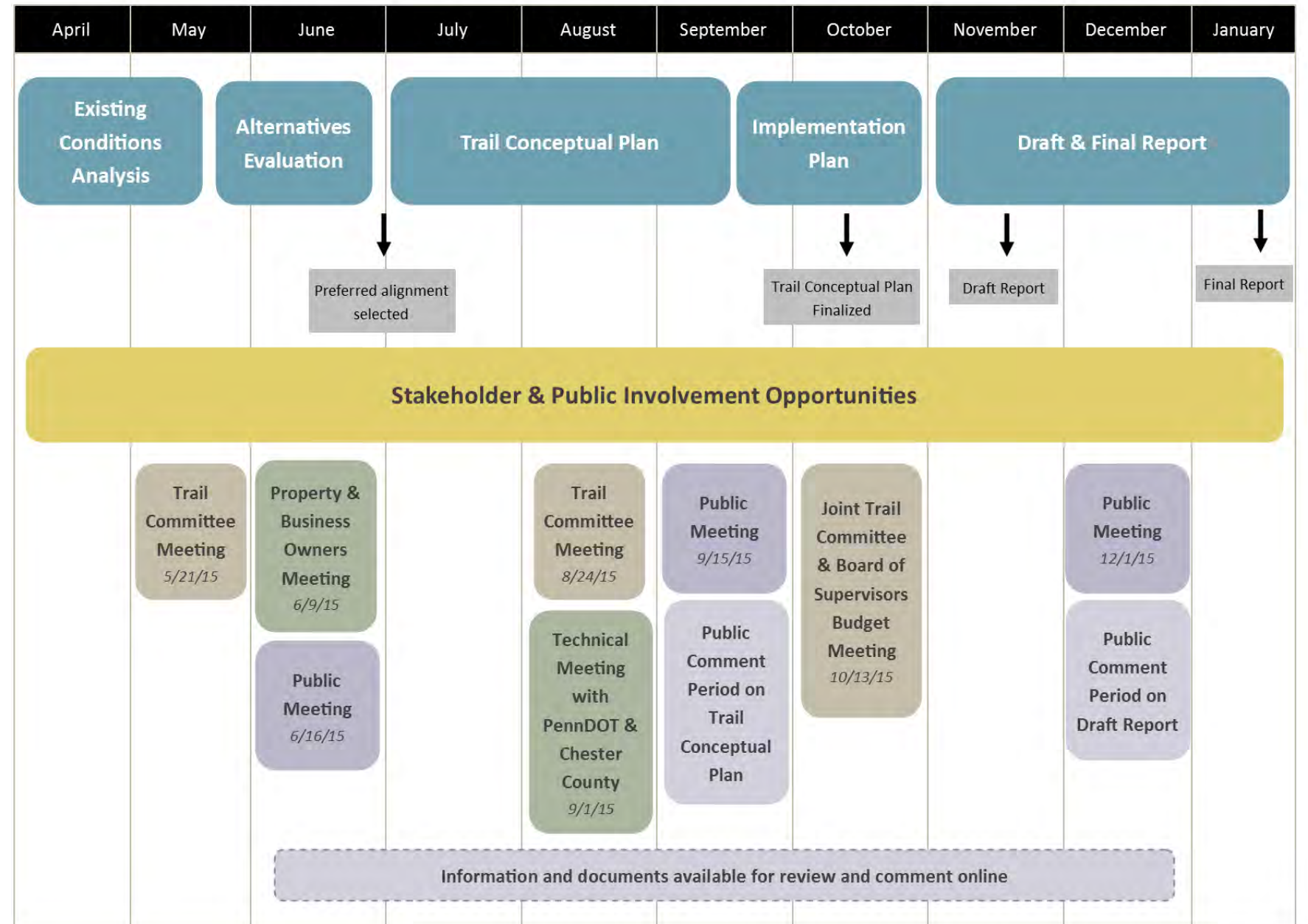
The purpose of this Feasibility Study and Master Plan is to translate the vision into an implementable plan with feasible design solutions. This plan can be used for a variety of purposes, including:

- Township planning and budgeting
- Identification and pursuit of funding opportunities for detailed engineering and construction
- Coordination with land owners, business owners, developers, and other stakeholders regarding the design aspects and right-of-way requirements for the trail
- Coordination with PennDOT, Chester County, and other project partners to implement improvements through capital projects or routine maintenance
- Coordination with neighboring municipalities on future trail extensions and connections

The project scope included the following key tasks:

- Analyze existing conditions
- Evaluate alternative trail alignments
- Develop a trail conceptual plan
- Develop an implementation plan and funding strategy
- Engage stakeholders and the public throughout the ten-month planning process

This Feasibility Study and Master Plan provides East Goshen Township and other project partners with a feasible conceptual design for a multi-use trail along Paoli Pike and a blueprint for implementing the trail in a phased approach over time.





## Stakeholder and Public Involvement

The planning process for this Feasibility Study and Master Plan included numerous opportunities for input from stakeholders and the public. Key meetings and outreach efforts are summarized below. Additionally, meeting agendas, minutes, presentations, and other materials are included in Appendix A.

### Trail Committee

Development of this Feasibility Study and Master Plan was guided by the Township's Trail Committee. Appointed by the Board of Supervisors, the Trail Committee included representatives from several Township committees and commissions. The Trail Committee met three times during the planning process to provide input on the alignment evaluation, draft trail conceptual plan, and draft implementation plan. The meetings were held on May 21, August 24, and October 13, 2015. All of the meetings were advertised as public meetings and members of the community were welcomed to participate.

### Property and Business Owner Coordination

The Township conducted specific outreach to engage property and business owners with frontage on Paoli Pike in the planning process. A Property and Business Owners Coordination meeting, held on June 9, 2015, was an opportunity for key stakeholders to provide input on the trail alignment. The Township sent a letter invitation to the meeting to property and business owners along the corridor that could potentially be directly impacted by the trail. The Township also sent property and business owners a letter invitation to the September 15, 2015 public meeting to inform them of the public comment period for the draft trail conceptual plan. Finally, Township staff, the Township solicitor, and members of the consultant team coordinated directly with property owners to address specific questions and concerns related to the trail alignment, conceptual design, and potential property impacts.

### Technical Coordination

One technical coordination meeting was held on September 1, 2015 with representatives from PennDOT District 6-0 and the Chester County Planning Commission. Since Paoli Pike is a state-owned roadway, the purpose of the meeting was to receive input on the draft trail conceptual plan. Key items discussed at the meeting included appropriate trail and roadway design criteria, key trail crossings and connections at signalized intersections, and gateway/median treatments between Reservoir Road and Chester Road.

Additionally, the project was presented at a Patriots Path Task Force Meeting on September 15, 2015. The Patriots Path Task Force is comprised of representatives from East Whiteland Township, Malvern Borough, Tredyffrin Township, and Willistown Township, and other stakeholders coordinating to plan and implement trail connections between Valley Forge National Park, Paoli Battlefield, and other important historical and recreational destinations. The Task Force was interested in future opportunities to connect the Patriots Path and related trails/greenways with the Paoli Pike Trail.

### Public Input

Three public meetings were held on June 16, September 15, and December 1, 2015. Each public meeting was held in conjunction with a regularly scheduled Board of Supervisors' meeting. The format for each meeting included an open house, which provided an opportunity for members of the community to review and provide comments on draft plans with Township staff and the consultant team. Additionally, the public meetings included a presentation during the Board of Supervisors' meetings, followed by a public question and answer period.

All materials presented at the Trail Committee and public meetings were posted on the Township's website for public review. In particular, the draft trail conceptual plan was posted online and public comments were accepted during a two-week period (September 15–30, 2015). Similarly, the draft report was posted online and public comments were received during 30-day review period (November 16, 2015–December 15, 2015).





## Public Comments on the Draft Report

The Township received thirteen written comments on the Draft Report from nine individuals. In addition, verbal public comments were received from three individuals at the public meeting held on December 1, 2015. Public comments were received both expressing support for the Paoli Pike, as well as opposition or concerns about the project. Summarized below are three key issues or concerns that were raised by several individuals.

### *Need for Connecting Trails*

The need for trails that connect the Paoli Pike Trail with nearby residential developments, employment centers, parks, schools, and other destinations was identified by respondents both in support and opposition to the trail. This was a key topic discussed at the public meeting and several property owners expressed interest in a direct connection between the trail and their respective office building or retail establishments.

The Paoli Pike Trail was identified as a priority in several previous plans and was the primary focus on this Feasibility Study and Master Plan. It is envisioned to become an east-west spine of a more complete trail network in the Township. In response to the comments received, key next steps for building a connected trail network and a map of potential trail connection corridors are included in Chapter V. Future planning for trail connection corridors should include short direct connections to adjacent commercial properties along Paoli Pike, as well as longer routes to connect existing residential neighborhoods and major destinations to the trail. There are various alignments and types of facilities that should be considered for these connections, including sidewalks, trails of various widths and surface types, and on-road facilities or pavement markings. Further planning and identification of funding for implementation is necessary and can be done in coordination with advancing design and construction of the Paoli Pike Trail spine.

### *Cost of the Trail*

Several questions and concerns were raised regarding the overall cost of the trail, including requests for comparison of the cost with other similar trails. Cost estimates and a funding strategy for the Paoli Pike Trail are presented in Chapter V. It is difficult to find similar multi-use trail projects for a direct comparison because each project has unique aspects and features that vary the costs significantly. For example, some projects include associated roadway improvements, bridges, or other structures that can be more costly to construct. Additionally, some trails utilize a former railroad right-of-way, which can also influence construction costs.

The construction costs for several multi-use trail projects constructed in the last seven years in the Delaware Valley Region are presented on the following table. These costs only reflect the original amount of the construction contract and do not include change orders. With the exception of Chester Valley Trail Phase 3, all of the projects involved PennDOT oversight and bidding. The cost per mile range widely from \$0.61 million to \$5.33 million, with an average cost per mile of \$1.91 million (not accounting for inflation). The Perkiomen/Green Lane Trail project had the highest cost per mile because it included over \$1.5 million in costs for structures and walls.

Trail Name	Year Contract Awarded	Construction Cost (millions)	Length (miles)	Cost / Mile (millions)
Chester Valley Trail Phase 1	2009	\$3.26	2.0	\$1.61
Chester Valley Trail Phase 2	2011	\$8.31	6.8	\$1.22
Chester Valley Trail Phase 3	2013	\$1.15	1.2	\$0.93
Perkiomen/Green Lane Trail	2008	\$2.71	0.5	\$5.33
Schuylkill River Park Trail Phase IIIB North	2009	\$0.77	0.4	\$1.76
East Branch Brandywine Trail	2009	\$0.99	1.6	\$0.61



Similarly, there is a wide range of construction costs per mile for the seven segments of the Paoli Pike Trail presented in Chapters IV and V. The cost per mile ranges for \$1.14 million to \$4.41 million (in 2015 dollars). Segment F has the highest cost per mile because it includes construction of a curb and milling and resurfacing Paoli Pike between Saratoga Drive and North Chester Road (SR 0352).

Although a direct comparison is not accurate, the range of costs for construction of the Paoli Pike Trail is within the range of costs for other multi-use trail projects in the region. The costs for the Paoli Pike Trail will continue to be refined as each segment advances to design and construction.

	Segment	Construction Cost (millions)	Length (miles)	Cost / Mile (millions)
A	Airport Road to Ellis Lane	\$0.37	0.15	\$2.43
B	Ellis Lane to Reservoir Road	\$1.49	0.60	\$2.48
C	Reservoir Road to Boot Road	\$0.86	0.30	\$2.85
D	Boot Road to Goshen Village	\$0.22	0.19	\$1.14
E	Goshen Village to North Chester Road (SR 0352)	\$1.50	0.34	\$4.41
F	North Chester Road (SR 0352) to Existing Applebrook Trail	\$0.17	0.10	\$1.69
G	Connection between Existing Applebrook Trails	\$0.25	0.21	\$1.20

#### *Benefits of the Trail*

Several comments were received about specific benefits of the trail, including trail connections and the actual number of people that will use the trail. The previous planning documents, including the *Central Chester County Bicycle and Pedestrian Plan*, as well as the Township’s Comprehensive Plan and Parks, Recreation, and Open Space Plan, summarize many of the needs and benefits of the Paoli Pike Trail. Additionally, key destinations along the Paoli Pike corridor that will be served by the trail are highlighted throughout this report, including Chapters I, II, and IV. In particular, Chapter IV presents specific “Key Connections” and “Potential Future Connections” each segment of the trail.

Chapter II includes a section on Trail Use and Users, which provides estimates of people that live, work, or go to school within a reasonable walking or biking distance of the trail. These estimates are based on readily available data and a more detailed quantitative analysis or model of potential users was not part of this project. Even with a more robust model, it is difficult to predict use of a new facility that will be developed over time. The Paoli Pike Trail was identified as the highest priority facility or amenity not currently provided to Township residents in a survey conducted for the recent update of the Parks, Recreation, and Open Space Plan. This response highlights the strong interest in further development of the trail from Township residents and potential trail users.





## II. EXISTING CONDITIONS

### Paoli Pike Today

Paoli Pike (SR 2014) is a state owned roadway identified as a Minor Arterial on PennDOT’s Federal Functional Classification and carries average daily traffic of 14,000 vehicles between Airport Road (T-317) and Line Road (T-670). The predominant cross section includes two 11-foot travel lanes in each direction with varying width shoulders (1-foot to 2-foot). Between Boot Road (SR 2020) and North Chester Road (SR 0352), the cross section includes a 14-foot center left turn lane and wider shoulders (3-feet to 10-feet). The posted speed limit is 35 MPH.

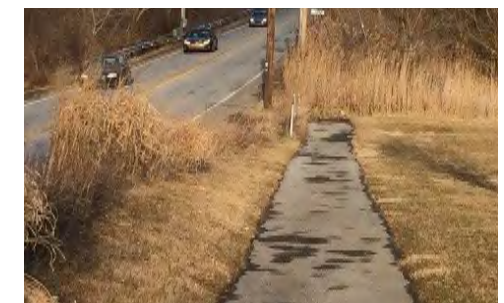
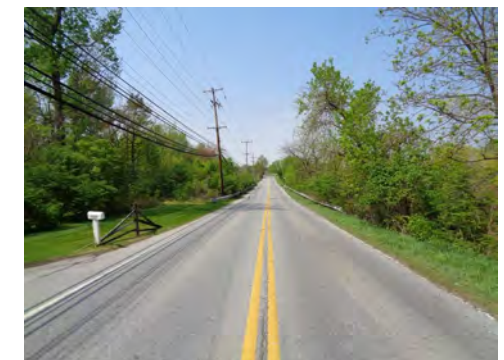
Overall, there are minimal bicycle and pedestrian facilities along the corridor. There is a discontinuous 6-foot wide asphalt pedestrian path on the south side of Paoli Pike between Ellis Lane (T-425) and the East Branch of Chester Creek, along the frontage of the West Chester Area School District’s Price Fields. Additionally, there are 9-foot wide asphalt trails within the Applebrook and East Goshen Township Parks, with some segments that are generally parallel to Paoli Pike, but setback from the roadway corridor. Crosswalks and pedestrian crossings are provided at several key intersections, including Reservoir Road (T-470), Boot Road (SR 2020), North Chester Road (SR 0352), East and West Township Park Entrances, and Line Road (T-670).

### Paoli Pike (SR 2014)

<b>Limits</b>	Airport Road (T-317) to Line Road (T-670)
<b>Length</b>	2.7 miles
<b>Classification / Road Typology</b>	Minor / Community Arterial
<b>ADT</b>	14,000
<b>Posted Speed Limit</b>	35 MPH

### Project Needs and Concerns

- ❑ The lack of continuous, connected, and dedicated bicycle and pedestrian facilities limits access and mobility for both non-motorized transportation and recreation.
- ❑ High vehicular speeds, volumes, and congested conditions during peak periods create an unsafe and uncomfortable environment for walking and biking.
- ❑ Schools, parks, shops, restaurants, employment centers, other community facilities, and residential areas are not connected with bicycle or pedestrian facilities. Driving is often the only option for safe and convenient travel along the corridor
- ❑ The Paoli Pike corridor lacks a sense of place and unique identity, particularly in the Town Center area between Boot Road and North Chester Road (SR 0352).





## Land Use Context

The Paoli Pike corridor through East Goshen Township can be divided into three distinctive segments based on the land use context. Each segment has unique features that were factors during planning, alternatives evaluation, and conceptual trail design. Overall, there is a cluster of destinations for walking and biking trips. This includes the J.R. Fugett Middle School & East High School Campus and Price Fields, Goshen Corporate Park, Goshen Village Shopping Center and other retail establishments in the Town Center between Boot Road and North Chester Road (SR 0352), East Goshen Elementary School, and Applebrook and East Goshen Township Parks. This concentration and mix of uses makes Paoli Pike a desirable corridor for walking and biking. Additionally, the Paoli Pike corridor offers the unique potential for future connections to regional destinations, particularly given the link it provides between West Chester (to the west) and Malvern and Paoli (to the east).



### WOODLANDS, WETLANDS, & MIXED USE

*Airport Road — Boot Road*

In this segment, Paoli Pike has narrow shoulders and some steep and wooded embankments adjacent to the road. An existing asphalt trail for the Price Fields on the south side of Paoli Pike ends abruptly, prior to the crossing of the East Branch of Chester Creek. This segment is well developed and key land uses include the West Chester School District Campus, Out of Reach Equestrian Farm, Goshen Corporate Park, and an established residential neighborhood on the south side of Paoli Pike. Key considerations for implementing the trail in this segment include the steep grades adjacent to the road, utility lines, crossing of the East Branch of Chester Creek, and minimizing impacts to wetlands and other environmental features.



### TOWN CENTER

*Boot Road — Chester Road*

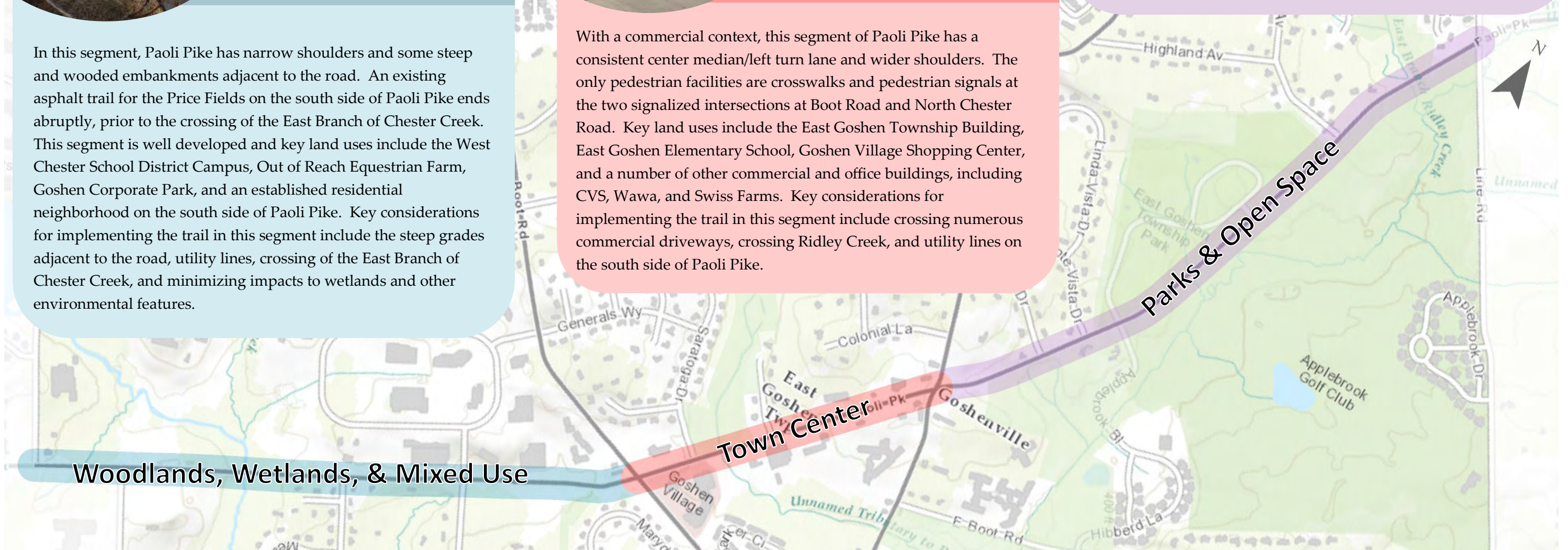
With a commercial context, this segment of Paoli Pike has a consistent center median/left turn lane and wider shoulders. The only pedestrian facilities are crosswalks and pedestrian signals at the two signalized intersections at Boot Road and North Chester Road. Key land uses include the East Goshen Township Building, East Goshen Elementary School, Goshen Village Shopping Center, and a number of other commercial and office buildings, including CVS, Wawa, and Swiss Farms. Key considerations for implementing the trail in this segment include crossing numerous commercial driveways, crossing Ridley Creek, and utility lines on the south side of Paoli Pike.



### PARKS & OPEN SPACE

*North Chester Road — Line Road*

Parkland and open space are the predominate land uses within this segment, including the East Goshen Township Park and Applebrook Park. There are well-established trail networks within both parks on the north side and south side of Paoli Pike, as well as two marked crosswalks at the park entrances. One trail within the Applebrook Park generally parallels Paoli Pike and provides a connection between the western park entrance and Line Road, including two trail bridges to cross branches of Ridley Creek. High travel speeds are of particular concern within this segment, especially given the high pedestrian and bicycle activity. Traffic calming measures may be appropriate.



### Woodlands, Wetlands, & Mixed Use

### Town Center

### Parks & Open Space



## Unique Features

There are several unique features along Paoli Pike in East Goshen Township that impact the trail feasibility and the conceptual plan. The unique features include eight key intersections and crossings, six potential stream or waterway crossings, seven properties identified as Class I or II historic resources, and a significant parallel overhead utility line.



## HISTORIC RESOURCES

There are seven properties identified as Class I or Class II Historic Resources along Paoli Pike. The Village of Goshenville, near the intersection of North Chester Road (SR 0352), is a Historic District listed on the National Register of Historic Places. Through context sensitive design and interpretative signage, the trail can provide an opportunity for travelers to experience these historic places.



## OVERHEAD UTILITY LINES & POLES

There is a significant overhead utility line that runs along the Paoli Pike corridor. As depicted in the map below, it is generally on the south side of the roadway, but does cross over to the north side near the eastern and western ends of the project area. The closely spaced utility poles are located adjacent to the roadway, in an area that is a desirable location for the trail. The location of the utility poles was a factor in evaluating the trail alignment. Based on a PA One Call, there are also sub-surface utilities in the area, including significant pipelines. Additional utility coordination will be necessary as detailed trail designs are developed.



## INTERSECTIONS & CROSSINGS

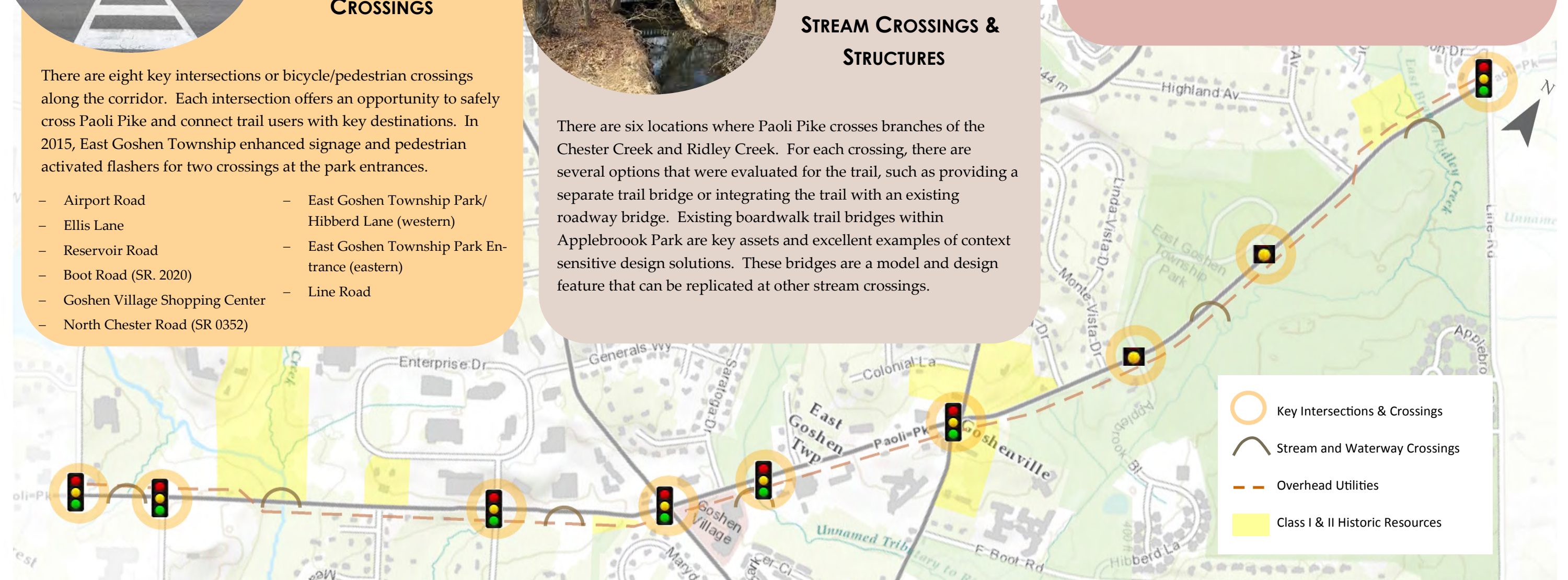
There are eight key intersections or bicycle/pedestrian crossings along the corridor. Each intersection offers an opportunity to safely cross Paoli Pike and connect trail users with key destinations. In 2015, East Goshen Township enhanced signage and pedestrian activated flashers for two crossings at the park entrances.

- Airport Road
- Ellis Lane
- Reservoir Road
- Boot Road (SR. 2020)
- Goshen Village Shopping Center
- North Chester Road (SR 0352)
- East Goshen Township Park/ Hibberd Lane (western)
- East Goshen Township Park Entrance (eastern)
- Line Road



## STREAM CROSSINGS & STRUCTURES

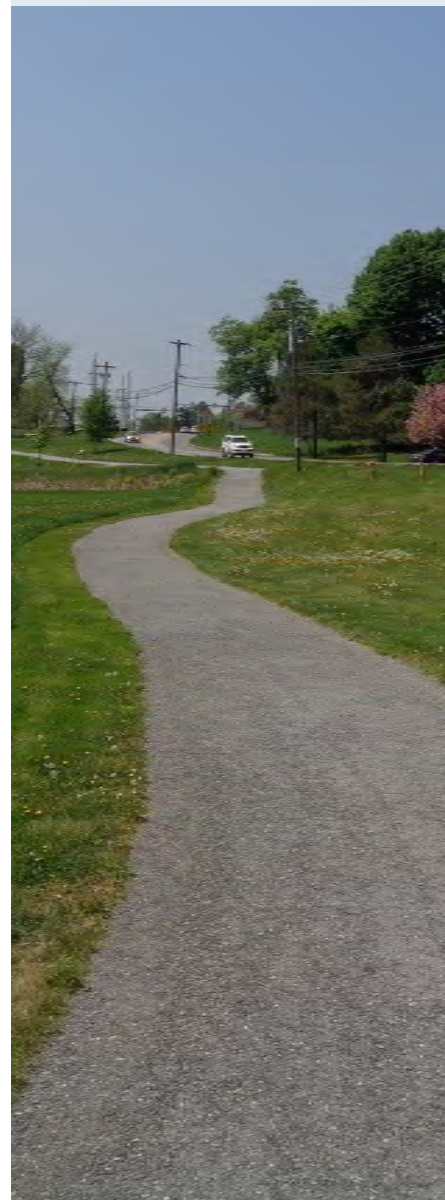
There are six locations where Paoli Pike crosses branches of the Chester Creek and Ridley Creek. For each crossing, there are several options that were evaluated for the trail, such as providing a separate trail bridge or integrating the trail with an existing roadway bridge. Existing boardwalk trail bridges within Applebrook Park are key assets and excellent examples of context sensitive design solutions. These bridges are a model and design feature that can be replicated at other stream crossings.





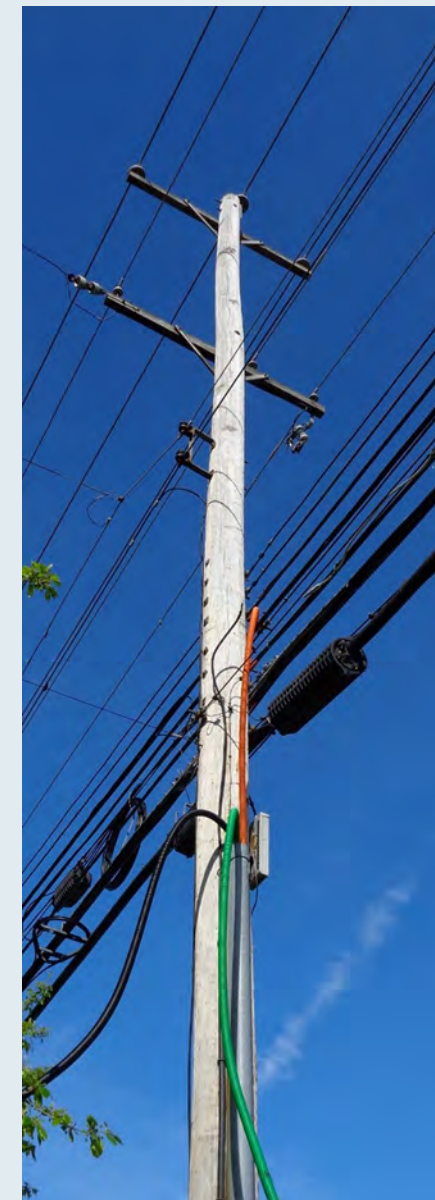
## Overall Assets, Opportunities, Constraints, and Challenges

Based on the review of previous plans, identification of the land use context and unique features, and a field investigation, the following assets, opportunities, constraints, and challenges were identified. The evaluation of trail alignments and development of the trail conceptual plan focused on ways to leverage key assets and address the significant challenges.



### Assets & Opportunities

- Mix of land uses with many popular destinations for walking and biking trips, including:
  - Schools
  - Parks
  - Seasonal Farmer's Market
  - Shops
  - Restaurants
  - Community Facilities
- Adjacent residential developments
- Concentration of parkland
- Significant area of Township owned-land
- Existing trails and trail easements
- Opportunities for future regional trail connections



### Constraints & Challenges

- Vehicular travel speeds above the 35 MPH speed limit and significant traffic volumes
- Limited right-of-way
- Inconsistent roadway cross-section
- Steep slopes adjacent to the roadway
- Stormwater management facilities and basins adjacent to the roadway
- Overhead utility line parallel to the roadway
- Pipelines and other underground utilities
- Stream crossings with associated floodplains and wetlands
- Numerous driveways that are wide and closely spaced in some areas





## Trail Use and Users

Given the mix of land uses, people may use the trail for both transportation and recreational purposes, including trips to schools, shops, work, parks, and other community facilities. As part of the development of this Feasibility Study and Master Plan, the needs of a range of users and ability levels were considered, including children and adolescents, families, and adults of all ages.

### Residents

According to Census 2010, there are 10,300 people living in the five Census Block Groups adjacent to Paoli Pike in East Goshen Township. With an area of 7.08 square miles, the population density is approximately 1,450 people/square mile for this area of the Township. Based on applying the population density to the 2.7 mile trail corridor, an estimated 4,000 people live within a 10 to 15 minute walk to/from the Paoli Pike corridor. This is a rough approximation and does not account for the actual route and walking distance to/from the trail or the number of people that live close to the trail corridor in neighboring municipalities. It also doesn't reflect future demand given increasing population forecasts for the Township. However, it demonstrates the potential demand and use of the trail given the population of the Township and the nearby residential developments.

One of the potential uses of the trail for residents is to commute to work. Based on Census LEHD data from 2013, there are 4,300 working residents that live in the five Census Block Groups adjacent to Paoli Pike in East Goshen Township. Over 46% of these residents work less than 10 miles from home and may live within a distance where walking or biking is an option. West Chester and Great Valley are the top employment locations, further demonstrating the potential demand for future regional trail connections to the east and west, particularly to support trips to work.

Another potential use of the trail is for trips to school. There are three schools in the West Chester Area School District located along the Paoli Pike Corridor with a total enrollment of 3,000 students. The private and independent Goshen Friends School is also located along Paoli Pike and has approximately 150 students. A multi-use trail was selected as the preferred facility type for the corridor, in part to provide a facility that would be safe and convenient for children walking or biking to school.

### Employees

Based on Census LEHD data from 2013, there are 5,800 people working in the five Census Block Groups adjacent to Paoli Pike in East Goshen Township. Over 32% of these employees live less than 10 miles from their place of employment, including 12% that live in East Goshen, West Chester, and West Whiteland. The Paoli Pike Trail may provide an opportunity for employees in the Goshen Corporate Park or other key employment locations to walk or bike to work.

### Visitors

The Paoli Pike Trail also has the potential to attract and serve users beyond people that live or work in the Township and along the corridor. Today, visitors utilize the Township and Applebrook Parks, or specifically their existing trails, for recreational purposes. The Paoli Pike Trail will increase access to the Parks and also support recreational use. Future trail connections to the regional trail network and other points of interest will only further expand access and use of the trail.



## Alternatives Evaluation

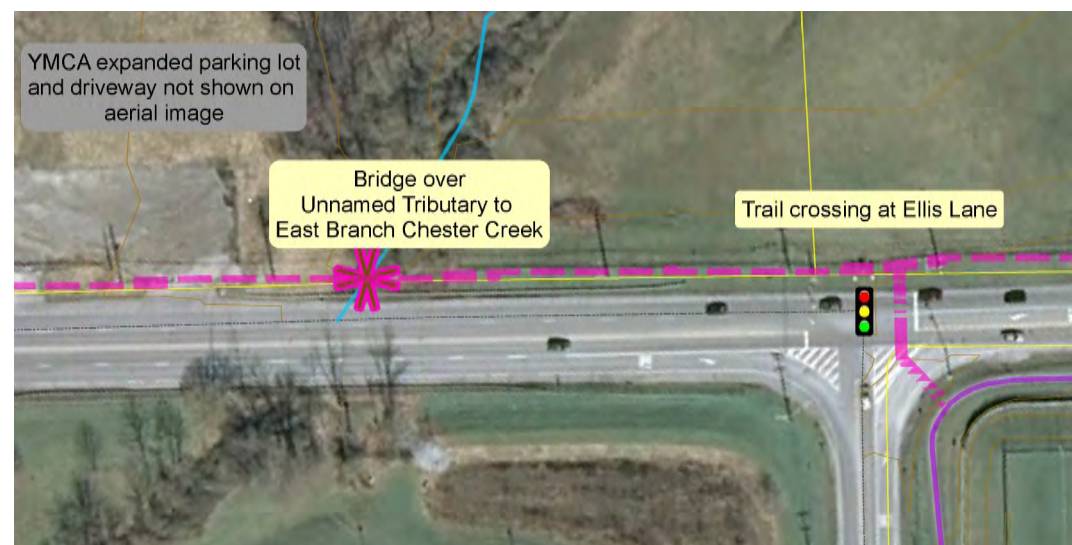
### Selection of the Preferred Bicycle and Pedestrian Facility Type

During the development of the *Central Chester County Bicycle and Pedestrian Plan*, different types of bicycle and pedestrian facilities were considered and evaluated for the Paoli Pike corridor, including on-road facilities (i.e. bicycle lanes) and off-road facilities (i.e. sidewalks, pedestrian paths, and multi-use trails). Through the planning process, bicycle lanes were dismissed and a multi-use trail was selected as the preferred facility to support both bicyclists and pedestrians. Building on the previous plan, this Feasibility Study and Master Plan focused solely on the feasibility, conceptual design, and implementation plan for a multi-use trail.

### Evaluation of Alternative Alignments for the Paoli Pike Trail

The evaluation of alternative alignments for the Paoli Pike Trail focused on areas directly adjacent to the roadway, on both the north and south sides. Potential alignments not directly adjacent to the roadway, were discussed and dismissed due to feasibility issues and the lack of connectivity to key destinations.

Based on the review of previous plans and data and a field investigation, an initial trail alignment was developed. The initial alignment was based on several factors, including connectivity, safety, feasibility, constructability, environmental and cultural resources, and right-of-way. The initial alignment presented the trail on the north side of Paoli Pike between Airport Road and east of Reservoir Road, and on the south side of Paoli Pike between east of Reservoir Road and Line Road. This alignment included a mid-block trail crossing just east of Reservoir Road to transition from the north side to the south side and utilization of existing trail segments within Applebrook Park. Alignment Evaluation Maps with the initial alignment are included in Appendix B. The Alignment Evaluation Maps show the initial general trail alignment along with notes regarding existing features (i.e. water resources, historic resources, buildings, existing trails) and potential elements of the trail design.



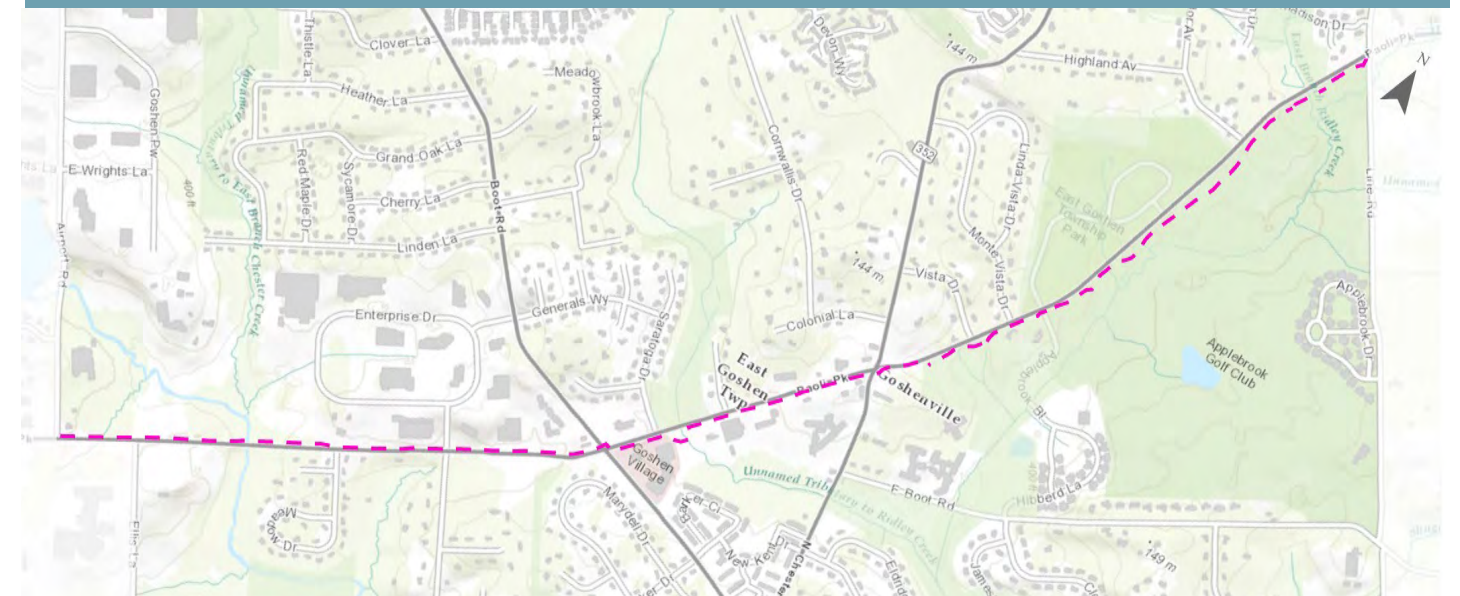
### Selection of the Preferred Alignment

The Alignment Evaluation Maps showing the initial alignment were presented to the Trail Committee, property and business owners, Board of Supervisors, and the public at three separate meetings held in May and June 2015. Several questions and concerns were raised with the mid-block crossing east of Reservoir Road and the alignment on the south side of Paoli Pike between east of Reservoir Road and Boot Road. Based on this input, the alignment in this area was further evaluated, including the continuation of the trail on the north side of Paoli Pike between Reservoir Road and Boot Road. This alternative provided several advantages, including eliminating the mid-block trail crossing, minimizing impacts to residential properties on the south side of Paoli Pike, providing a safer crossing at the Boot Road intersection cut-off, and providing connections to additional key destinations.

The East Goshen Township Board of Supervisors approved the preferred alignment, which specifically includes accommodating the trail on the north side of Paoli Pike between Airport Road and Boot Road, and on the south side of Paoli Pike between Boot Road and Line Road. This alignment was the basis for the conceptual trail plan.

### Paoli Pike Trail Preferred Alignment

- North side between Airport Road and Boot Road
- South side between Boot Road and Line Road
- Utilize segments of existing trails in Applebrook Park







### III. DESIGN GUIDELINES & FEATURES

#### Roadway and Roadside Design Guidelines

The development of Paoli Pike Trail conceptual plan was based on current design standards and guidelines, including the following key publications:

- *Design Manual Part 2 (DM-2): Highway Design*, Publication 13M, PennDOT, 2015
- *Smart Transportation Guidebook*, PennDOT and NJDOT, 2008
- *A Policy on Geometric Design of Highways and Streets, 6th Edition*, American Association of State Highway and Transportation Officials (AASHTO), 2011
- *Guide for the Development of Bicycle Facilities, 4th Edition*, American Association of State Highway Officials (AASHTO), 2012
- *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, American Association of State Highway Officials (AASHTO), 2004
- *Manual on Uniform Traffic Control Devices*, Federal Highway Administration, 2009

Appropriate design criteria were selected based on the road typology and the land use context for the Paoli Pike Corridor. Paoli Pike is designated as a Community Arterial and the land use context can be considered Suburban Corridor from Airport Road (T-317) to Boot Road (SR 2020) and from North Chester Road (SR 0352) to Line Road. Likewise, the current and desired land use context for Paoli Pike between Boot Road (SR 2020) and North Chester Road (SR 0352) can be considered Town/Village Center.

**TABLE 1.4 (ENGLISH)  
MATRIX OF DESIGN VALUES – COMMUNITY ARTERIAL**

Community Arterial	Rural	Suburban Neighborhood	Suburban Corridor	Suburban Center	Town/Village Neighborhood	Town/Village Center	Urban Core
Lane Width <sup>1</sup>	11' to 12'	10' to 12'	11' to 12'	10' to 12'	10' to 12'	10' to 12'	10' to 12'
Shoulder Width <sup>2,3</sup>	8' to 10'	4' to 8' (if No Parking or Bike Lane)	8' to 10'	4' to 6' (if No Parking or Bike Lane)	4' to 6' (if No Parking or Bike Lane)	4' to 6' (if No Parking or Bike Lane)	4' to 6' (if No Parking or Bike Lane)
Parking Lane	NA	7' to 8' Parallel	NA	8' Parallel	7' to 8' Parallel	7' to 8' Parallel	7' to 8' Parallel
Bike Lane <sup>4</sup>	NA	5' to 6' (if No Shoulder)	5' to 6' (if No Shoulder)	5' to 6'	5' to 6'	5' to 6'	5' to 6'
Median (if needed)	4' to 6'	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians	16' to 18' for Left Turn 12' to 18' for Left Turn; 8' to 8' for Pedestrians
Curb Return <sup>5</sup>	25' to 50'	25' to 35'	25' to 50'	20' to 40'	15' to 30'	15' to 35'	15' to 40'
Travel Lanes	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4
Cross Slopes (Minimum) <sup>6,7</sup>	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Cross Slopes (Maximum) <sup>8</sup>	8.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Bridge Widths <sup>9, 10, 16, 17</sup>	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side	Lane Widths Plus Shoulders Each Side
Vertical Grades (Minimum) <sup>11</sup>	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Vertical Clearance (Minimum)	16'-6", See Chapter 2	16'-6", See Chapter 2	16'-6", See Chapter 2	16'-6", See Chapter 2	16'-6", See Chapter 2	16'-6", See Chapter 2	16'-6", See Chapter 2
Clear Sidewalk Width	NA	5'	5' to 8'	6'	6' to 8'	8' to 10'	8' to 14'
Buffer <sup>13</sup>	NA	6'+	5' to 10'	4' to 6'	4' to 6'	4' to 6'	4' to 6'
Shy Distance	NA	NA	NA	0' to 2'	0' to 2'	2'	2'
Total Sidewalk Width	NA	5'	5' to 6'	10' to 14'	10' to 16'	12' to 18'	14' to 22'
Clear Zone Widths <sup>14</sup>	See Chapter 12	See Chapter 12	See Chapter 12	See Chapter 12	See Chapter 12	See Chapter 12	See Chapter 12
Right-of-Way Widths <sup>15</sup>	Varies	Varies	Varies	Varies	Varies	Varies	Varies
Desired Operating Speed (Design Speed)	35-55 mph	30-35 mph	35-50 mph	30 mph	25-30 mph	25-30 mph	25-30 mph
Stopping and Passing Sight Distances (Minimum)	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1	2004 AASHTO Green Book, Exhibit 7-1
Vertical Grades (Maximum)	2004 AASHTO Green Book, Exhibit 7-2	2004 AASHTO Green Book, Exhibit 7-10	2004 AASHTO Green Book, Exhibit 7-10	2004 AASHTO Green Book, Exhibit 7-10	2004 AASHTO Green Book, Exhibit 7-10	2004 AASHTO Green Book, Exhibit 7-10	2004 AASHTO Green Book, Exhibit 7-10

*Design Manual Part 2 (DM-2): Highway Design, Publication 13M, PennDOT, 2015, Table 1.4 for Community Arterial with roadway design guidelines for Suburban Corridor and Town/Village Center highlighted*



## Multi-use Trail Design Guidelines

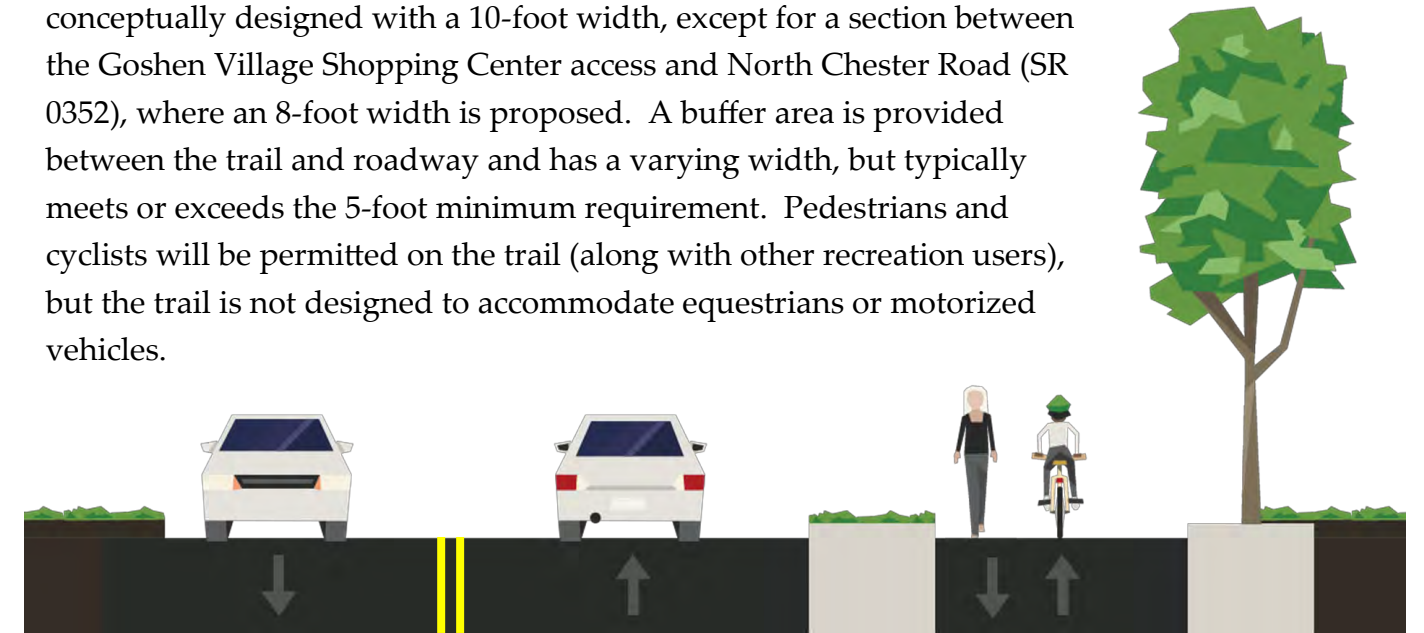
Multi-use trails are shared use, off-road facilities that accommodate multiple types of users, such as bicyclists and pedestrians. The surface material is often asphalt or crushed stone and they are designed to meet Americans with Disabilities Act (ADA) requirements. Based on the aforementioned design criteria, the recommended width for multi-use trails is 10-foot to 12-foot with 8-foot permissible in certain situations. For multi-use trails adjacent to a roadway (also known as side paths), a 5-foot to 6-foot buffer area is required between the roadway edge and trail, with 4-foot permissible (within the Town/Village Center land use context per PennDOT DM-2), if a physical barrier or safety rail is provided. Barriers or safety rails are also required in areas with steep slopes.



Buffer Area	Trail Width
5' – 6'	10' – 12'
4' permissible with a barrier	8' permissible in certain situations

## Paoli Pike Trail Concept

The conceptual design for the Paoli Pike Trail is based on design guidelines in AASHTO's *Guide for the Development of Bicycle Facilities*. The trail is conceptually designed with a 10-foot width, except for a section between the Goshen Village Shopping Center access and North Chester Road (SR 0352), where an 8-foot width is proposed. A buffer area is provided between the trail and roadway and has a varying width, but typically meets or exceeds the 5-foot minimum requirement. Pedestrians and cyclists will be permitted on the trail (along with other recreation users), but the trail is not designed to accommodate equestrians or motorized vehicles.



**Vision for Paoli Pike**

showing trail alignment on the south side and buffer area between the trail and roadway

## Existing Multi-use Trails in East Goshen Township



Photo credits: McMahon Associates, Inc., Chester County Planning Commission

## Examples of Paths and Trails Adjacent to Roadways



Photo credits: McMahon Associates, Inc., Chester County Planning Commission, Upper Uwchlan Township



## Stormwater Management

In order to manage the increase in stormwater runoff from the proposed trail, additional stormwater management facilities will be a key part of the trail construction. The linear nature of each project segment and the limited amount of existing right-of-way makes the provision of many traditional best management practices (BMPs) challenging, but several “green infrastructure” or sustainable strategies may be appropriate. The Trail Committee expressed a strong interest in considering porous (pervious) pavement for trail construction, in lieu of traditional asphalt surface and base courses. Another similar BMP that may be applicable and used in combination with porous pavement is an infiltration trench, which would be placed parallel to the trail in the grass/landscaped buffer area between the trail and the roadway. In order to limit disturbance to the existing waterways and wetland areas, elevated trail boardwalks (similar to those existing structures within the Applebrook Park) are proposed to cross the east branch of the Chester Creek and near the existing stormwater management basins between Reservoir Road and Boot Road.



### Porous Pavement

Porous (pervious) pavement consists of a permeable surface course underlain by a uniformly-graded stone bed, which can provide temporary storage for peak rate control and promote stormwater infiltration. Stormwater drains through the surface, is temporarily held in the voids of the stone bed, and then slowly drains into the underlying, uncompacted soil<sup>1</sup>. In order to maintain the pavement's effectiveness, routine cleaning (vacuuming or blowing) and edging should be performed.



### Infiltration Trench

An infiltration trench is a “leaky” (perforated) pipe in a stone filled trench with a level bottom. Infiltration trenches generally have a vegetated (grassed) or gravel surface and can provide a significant reduction in runoff volume during small storm events. Maintenance activities include landscape maintenance and regular cleaning of catch basins and inlets<sup>1</sup>.

<sup>1</sup> Pennsylvania Stormwater Best Management Practices Manual, Pennsylvania DEP, 2006

## Medians

Medians are traffic calming measures that can help to slow traffic and create a safe and comfortable environment for walking and biking. Medians define travel lanes, improve safety, provide a visual cue to the driver, and can help establish a unique identity for an area. Given the desire to beautify the Paoli Pike corridor and promote the Town Center between Boot Road and North Chester Road (SR 0352), various types of median treatments were considered and evaluated. Since Paoli Pike is a state-owned roadway, PennDOT will require the Township to accept maintenance responsibility for any median treatments that are installed. Therefore, the conceptual design of medians focused on treatments and materials that are relatively low-cost and easy to maintain. Landscaped medians were considered and dismissed due to the cost of maintenance and need to provide for turning movements. The two median treatments highlighted below were incorporated into the trail conceptual design with the goal of slowing traffic, improving safety, and establishing the Town Center identity.



### Stamped Asphalt Medians

The conceptual trail plan includes stamped asphalt median treatments in select areas of the existing center-turn lane on Paoli Pike between Saratoga Drive and North Chester Road (SR 0352). The stamped asphalt treatment is flush with the pavement and driveable, so the center-turn lane can continue to be used for left-turns and vehicle queueing, as necessary. Additionally, the stamped asphalt treatment does not require special maintenance and can be plowed and salted during winter weather conditions.



### Hardscaped Gateway Medians

Gateway median treatments are included in the conceptual trail on Paoli Pike at Reservoir Road and North Chester Road (SR 0352) to serve as gateways to the Town Center area. Given limited available right-of-way and the need to accommodate left-turn movements at the intersections, the medians are relatively narrow and proposed to be hardscaped with pavers.



## Crosswalks

Crosswalks indicate trail crossing locations for both pedestrians and motorists. Based on input from the Trail Committee, the perpendicular “continental” striped crosswalk design was selected. This is a high visibility crosswalk and does not require special maintenance, aside from routine reapplication of the thermoplastic paint when worn or damaged. The conceptual trail plan indicates high-visibility crosswalks (matching the trail width) at all driveway crossings. Also, the conceptual trail plan includes high-visibility crosswalk upgrades for all signalized intersection crossings.



Images of high visibility crosswalk example and design

## Landscaping and Amenities

Landscaping and amenities for trail users will help to create a safe and comfortable environment for walking and biking along Paoli Pike. In terms of landscaping, the conceptual plan and cost estimate includes replacement of any trees that are impacted by the alignment of the trail. Additional landscaping can be incorporated into future detailed designs for the project, particularly based on coordination with adjacent property owners. Additionally, the conceptual trail plan includes three benches/trash receptacle installations, five trail kiosks, and two locations for bike parking. These amenities were sited along the trail based on key destinations, trail use generators, and space available.



Example of bike parking



Example of a trail kiosk

## Fences

Since the Paoli Pike Trail is parallel and adjacent to the roadway, fencing is sometimes necessary to provide a barrier between the trail and roadway or to protect trail users from steep slopes adjacent to the trail. A barrier or fence is required when the 5-foot minimum buffer area between the trail and the edge of the roadway or a drop-off cannot be provided, typically due to existing condition constraints. Based on coordination with PennDOT District 6-0, a vinyl ribbon with wooden posts is a fence that has been used on other trails adjacent to state roadways where the fence is within the clear zone. Likewise, based on coordination with the Trail Committee, the conceptual trail plan includes a fence to provide trail users with a sense of security when the trail is adjacent to steep slopes at select locations between Ellis Lane and the East Branch of the Chester Creek. The fence is included in the conceptual plan, even though the 5-foot minimum buffer area is provided. The conceptual plan also includes a short segment of fence to serve as a barrier between the trail and roadway for the trail connection in Applebrook Park, just west of the Township Park entrance. The design detail, appearance, and color of fences will be selected during preliminary engineering for the trail. Finally, where the trail is adjacent to existing horse pastures at Out of Reach Farm, the trail conceptual plan shows two split rail fences, separated by 10', in order to provide a safe distance between the trail users and horses.



Photo credit: Duane Sedlock

Example of ribbon fence serving as a barrier between the trail and roadway



Existing split rail fence for Out of Reach Horse Farm that will be replaced with a double split rail fence



## Signage

Since the Paoli Pike Trail is adjacent to the roadway and there are several locations where the trail crosses roadways and driveways, signage for motorists and trail users will help to ensure safe and efficient operations on both the roadway and trail. For motorists, warning signs for trail crossings can help to raise awareness for bicycle and pedestrian activity. For trail users, stop signs at key crossings and other regulatory signs will help to minimize conflicts with motorists. Additionally, gates can be provided on the trail to alert trail users to an intersection crossing, as well as block motorized vehicles from using the trail.

Based on input from the Trail Committee, creating an identity for the Paoli Pike Trail and providing wayfinding signage will be important, particularly after several sections of the trail are constructed. Specific wayfinding signs are not included in the conceptual trail plan, but developing a trail logo or identity through a wayfinding signage program is a recommended next step in the implementation plan.

Examples of potential roadway, trail, and wayfinding/identity signage are provided below.



Example of signage to promote shared use of the trail by both bicyclists and pedestrians

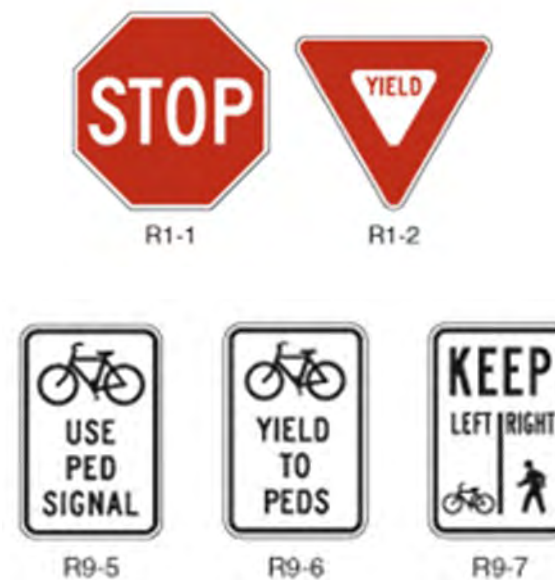


Example of signage and gates for a trail crossing of a roadway or driveway

### Roadway Warning Signs for Motorists



### Regulatory Signs for Trail Users



### Wayfinding and Trail Identity Signs






















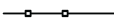










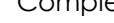
# IV. TRAIL CONCEPTUAL PLAN

## Introduction and Notes

The trail conceptual plan was developed based on the existing conditions analysis and preferred alignment for the trail. In addition to showing the trail location, the conceptual plan identifies additional design elements and trail amenities. Below are several notes regarding the trail conceptual design plans presented in this report.

- Existing conditions depicted on the conceptual design exhibit are based on GIS data received from East Goshen Township and Chester County, and have been supplemented with aerial photography and limited field measurements only.
- Legal right-of-way lines and property lines are estimated based on data received from East Goshen Township and Chester County. Legal right-of-way lines or property lines have not been independently verified through field survey or title/deed research.
- Required sidewalk easement lines shown are estimated based on the conceptual trail design. This exhibit does not depict temporary construction easements, which will likely be required to complete the construction of the trail. The size and location of all easements (temporary or permanent) will need to be determined during the preliminary engineering of the project
- Further operational evaluation of signalized intersections is required during preliminary engineering of the project.
- Detailed signing and striping design and plans shall be developed during preliminary engineering of the project.

### LEGEND

	PROPOSED MULTI-USE TRAIL (10' WIDTH UNLESS INDICATED)		TRAIL USER STOP SIGN
	PROPOSED FLUSH STAMPED ASPHALT MEDIAN		VEHICULAR STOP SIGN
	EXISTING ASPHALT MULTI-USE TRAIL		PUSH BUTTON SIGN
	PROPOSED TRAIL BOARDWALK		TRAIL CROSSING WARNING SIGN WITH ARROW
	PROPOSED ROADWAY MILL & OVERLAY		VEHICULAR YIELD HERE SIGN
	PROPOSED NEW GRASS BUFFER AREA		
	PROPOSED CEMENT CONCRETE/PAVER MATERIAL		
	PROPOSED CURB		
	PROPOSED EDGE OF PAVEMENT		
	PROPOSED PAVEMENT MARKINGS		
	PROPOSED SAFETY RAIL (FENCE)		
	PROPOSED SIGN		
	PROPOSED TRAIL KIOSK		
	REQUIRED SIDEWALK EASEMENT		
	EXISTING CURB		
	EXISTING EDGE OF PAVEMENT		
	EXISTING PAVEMENT MARKINGS		
	EXISTING CONTOUR (2 FOOT INTERVAL)		
	EXISTING SWM FACILITY LIMITS (APPROXIMATE)		
	EXISTING RIGHT-OF-WAY LINE		
	EXISTING PROPERTY LINE		
	EXISTING UTILITY POLE		

Complete legend showing the various design elements and features presented in the trail conceptual plan in this Chapter and in Appendix C.



## Trail Segments

For development of the trail conceptual plan, the corridor was divided into seven segments of capital improvements. In addition, the opportunity to utilize existing trails in Applebrook Park was identified to provide a consistent multi-use trail along the Paoli Pike corridor between Airport Road and Line Road. The seven segments for capital improvements were identified based on a variety of factors, including changes in character, right-of-way, other existing conditions, providing logical connections, and ease of implementation. The segments are defined and highlighted on the map below. The following pages present an overview and the detailed conceptual trail design for each section. Appendix C includes a large format version of the trail conceptual plan.

### A. Airport Road to Ellis Lane

*Including improvements at Ellis Lane intersection*

### B. Ellis Lane to Reservoir Road

*Including improvements at Reservoir Road intersection*

### C. Reservoir Road to Boot Road

*Including improvements at Boot Road intersection*

### D. Boot Road to Goshen Village

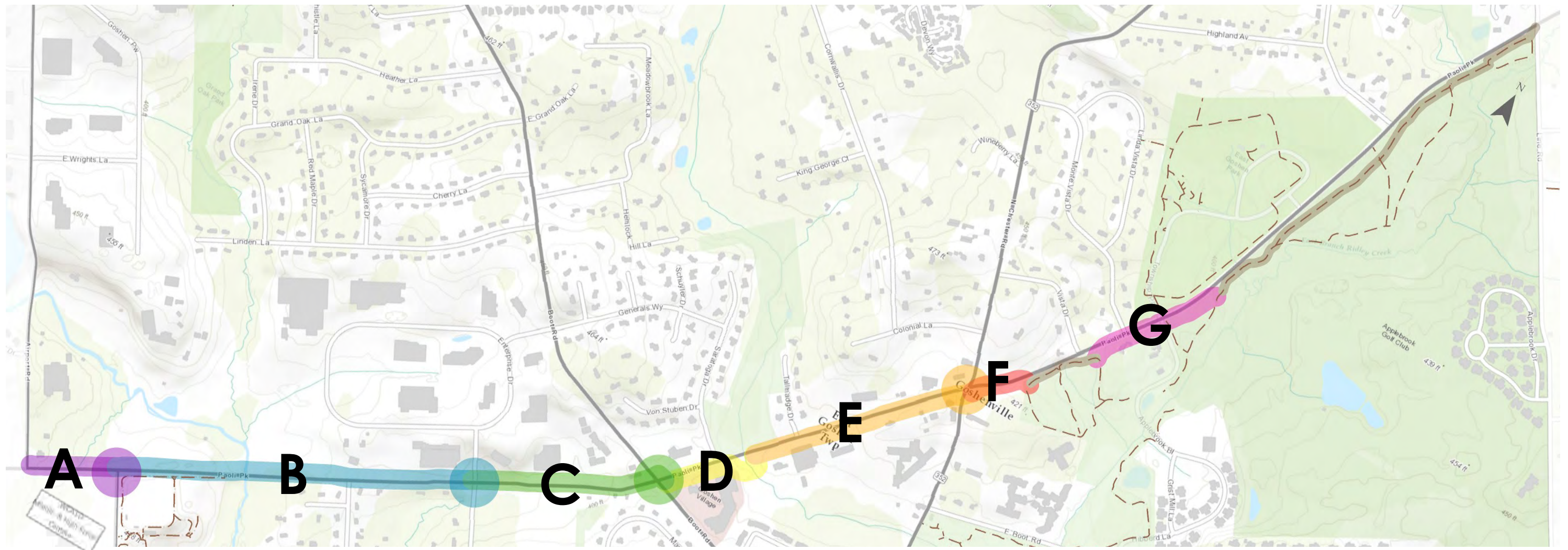
### E. Goshen Village to North Chester Road (SR 0352)

*Including improvements at North Chester Road (SR 0352) intersection*

### F. North Chester Road (SR 0352) to Existing Applebrook Trail east of Goshen Friends

### G. Connection of Existing Applebrook Trails

- Utilization of Existing Applebrook Trails to Line Road







# AIRPORT ROAD TO ELLIS LANE

## Limits

Airport Road to Ellis Lane, including improvements at the Ellis Lane intersection

## Length

0.15 miles

## Summary

10-foot wide multi-use trail on the north side of Paoli Pike between Airport Road and Ellis Lane, including extension of an existing culvert to cross the unnamed tributary of the East Branch of Chester Creek and a pedestrian crossing on the east side of Ellis Lane

## Key Connections

- J.R. Fugett Middle School and East High School (West Chester Area School District)
- Price Fields for West Chester Area School District
- Penn Liberty Bank
- West Chester Area YMCA

## Potential Future Connections

- Additional direct connections to J.R. Fugett Middle School and East High School
- West Goshen Township and West Chester Borough
- Goshen Corporate Park West (north on Airport Road)
- SEPTA Bus Route 92 (north on Airport Road)
- Likely to be implemented in conjunction with Segment B due to right-of-way and other project elements

## Existing Conditions

*Focused on the preferred trail alignment on the north side of Paoli Pike*

- Existing land uses include Penn Liberty Bank, West Chester Area YMCA, Out of Reach Farm, and the J.R. Fugett Middle School and East High School (on the south side of Paoli Pike)
- Paoli Pike is two lanes in each direction
- Overhead utility lines on the north side
- Crossing of an Unnamed Tributary to the East Branch of Chester Creek
- No pedestrian crossings provided at the Ellis Lane signalized intersection
- No dedicated bicycle or pedestrian facilities except for a pedestrian path for Price Fields at the southeast corner of Paoli Pike and Ellis Lane

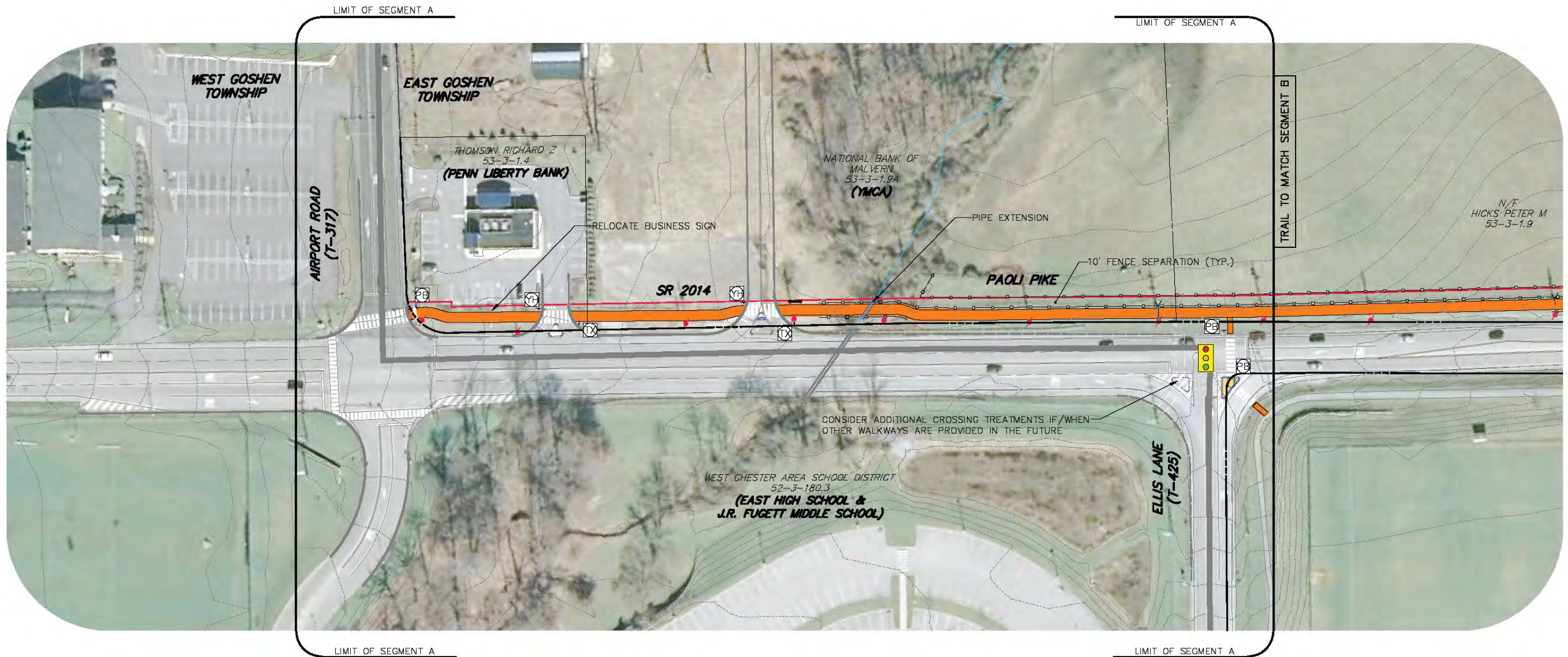


## Key Elements of the Trail Conceptual Plan

- Trail alignment is generally north of the existing overhead utility poles to minimize the need for utility relocations
- Upgrade the Airport Road signalized intersection to provide three high visibility crosswalks
- High visibility crosswalks at two commercial driveways
- Extend the existing culvert to provide a trail crossing of the Unnamed Tributary of the East Branch of Chester Creek
- New pedestrian crossing of Paoli Pike on the east side of Ellis Lane with a high visibility crosswalk with ADA compliant curb ramps, new pedestrian refuge island, and pedestrian signals and push buttons
- Double split rail fence for the Out of Reach Farm pasture to provide a safe distance between trail users and horses



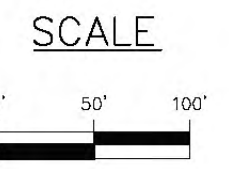
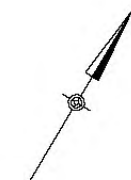
# SEGMENT A: AIRPORT ROAD TO ELLIS LANE



## LEGEND

- |   |   |   |                              |   |                                    |   |  |
|---|---|---|------------------------------|---|------------------------------------|---|--|
|  | PROPOSED MULTI-USE TRAIL (10' WIDTH)    |  | PROPOSED CURB                |  | EXISTING CURB                      |  | PUSH BUTTON SIGN                       |
|  | EXISTING ASPHALT MULTI-USE TRAIL        |  | PROPOSED SIGN                |  | EXISTING EDGE OF PAVEMENT          |  | TRAIL CROSSING WARNING SIGN WITH ARROW |
|  | PROPOSED CEMENT CONCRETE/PAVER MATERIAL |  | REQUIRED SIDEWALK EASEMENT   |  | EXISTING PAVEMENT MARKINGS         |  | VEHICULAR YIELD HERE SIGN              |
|   |   |  | PROPOSED PAVEMENT MARKINGS   |  | EXISTING CONTOUR (2 FOOT INTERVAL) |   |  |
|   |   |  | PROPOSED SAFETY RAIL (FENCE) |  | EXISTING RIGHT-OF-WAY LINE         |   |  |
|   |   |  | PROPOSED TRAIL KIOSK         |  | EXISTING PROPERTY LINE             |   |  |
|   |   |   |                              |  | EXISTING UTILITY POLE              |   |  |
|   |   |   |                              |  | EXISTING TOWNSHIP BORDER           |   |  |

NOTE:  
REFER TO PAOLI PIKE TRAIL - FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.







# ELLIS LANE TO RESERVOIR ROAD

## Limits

Ellis Lane to Reservoir Road, including improvements at the Reservoir Road intersection

## Length

0.60 miles

## Summary

10-foot wide multi-use trail on the north side of Paoli Pike between Ellis Lane and Reservoir Road, including a new trail boardwalk bridge to cross the East Branch of Chester Creek and wetland/floodplain area and improved bicycle/pedestrian crossings at the Reservoir Road intersection

## Key Connections

- Goshen Corporate Park
- Price Fields for West Chester Area School District

## Potential Future Connections

- Residential developments along Reservoir Road south of Paoli Pike
- Likely to be implemented in conjunction with Segment A due to right-of-way and other project elements

## Existing Conditions

*Focused on the preferred trail alignment on the north side of Paoli Pike*

- Existing land uses include the Out of Reach horse farm, residential property with agricultural uses, Goshen Corporate Park, and residential properties on the southside
- Paoli Pike is one lane in each direction, with left-turn lanes provided at the signalized intersections with Ellis Lane and Reservoir Road
- Steep slopes adjacent to the roadway between Ellis Lane and the East Branch of Chester Creek and the Goshen Corporate Park frontage
- Crossing of the East Branch of Chester Creek and the associated wetland/flood plain area
- Overhead utility lines on the north side between Airport Road and the East Branch of Chester Creek, where the lines transition and continue on the south side
- Vegetation adjacent to the roadway between the East Branch of Chester Creek and the Goshen Corporate Park
- Limited bicycle and pedestrian facilities include pedestrian path for Price Fields on the south side of Paoli Pike and crosswalks and pedestrian signals at the signalized intersection of Reservoir Road

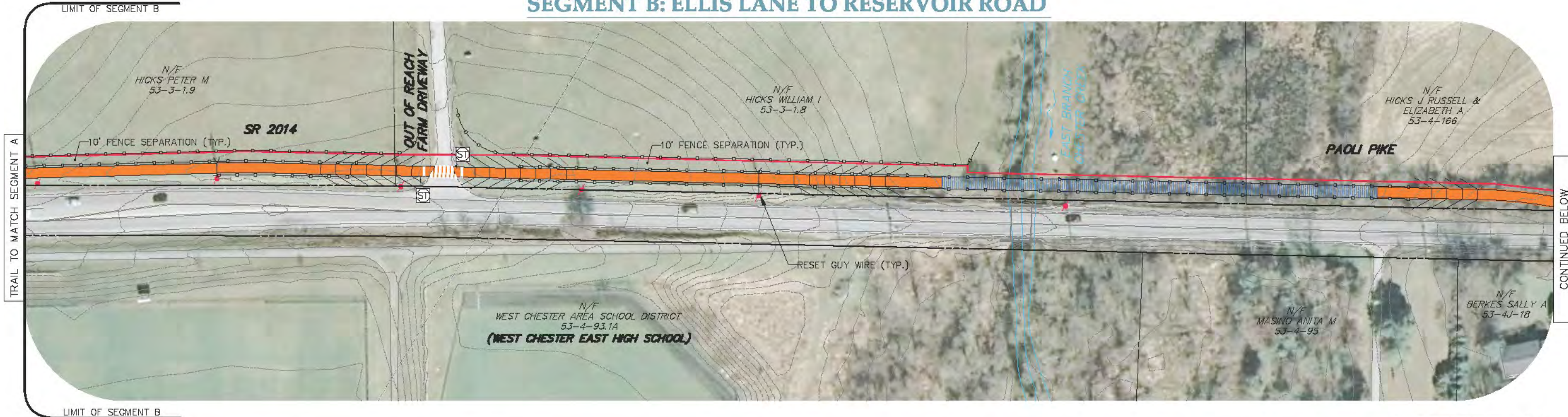


## Key Elements of the Trail Conceptual Plan








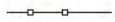




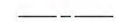



- Double split rail fence for the Out of Reach Farm pasture to provide a safe distance between trail users and horses
- Trail alignment generally at the top of steep slopes adjacent to the roadway to provide an adequate buffer area and minimize the need for re-grading or structures
- Pedestrian safety rail (ribbon fence) between the roadway and trail at select locations with steep slopes to provide trail users with a sense of security
- High visibility crosswalks at one commercial and one residential driveway
- Approximately 425-foot new elevated boardwalk trail bridge to cross the East Branch of the Chester Creek and associated wetland/floodplain area
- Remove existing field stone wall and vegetation along the roadway between the East Branch of Chester Creek and Goshen Corporate Park. Replace with new separator or screening between the trail and residential property.
- Utilization of the existing shoulder area immediately west of the Reservoir Road intersection for a portion of the trail and buffer area
- Upgrades at the Reservoir Road signalized intersection to provide four high visibility crosswalks with ADA compliant curb ramps and bicycle detection





# SEGMENT B: ELLIS LANE TO RESERVOIR ROAD



## LEGEND

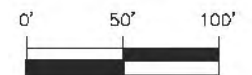
- |   |                                      |   |                              |   |                                    |
|---|--------------------------------------|---|------------------------------|---|------------------------------------|
|  | PROPOSED MULTI-USE TRAIL (10' WIDTH) |  | PROPOSED CURB                |  | EXISTING CURB                      |
|  | PROPOSED TRAIL BOARDWALK             |  | PROPOSED EDGE OF PAVEMENT    |  | EXISTING EDGE OF PAVEMENT          |
|  | PROPOSED NEW GRASS BUFFER AREA       |  | PROPOSED PAVEMENT MARKINGS   |  | EXISTING PAVEMENT MARKINGS         |
|   |                                      |  | PROPOSED SAFETY RAIL (FENCE) |  | EXISTING CONTOUR (2 FOOT INTERVAL) |
|   |                                      |  | PROPOSED SIGN                |  | EXISTING RIGHT-OF-WAY LINE         |
|   |                                      |  | REQUIRED SIDEWALK EASEMENT   |  | EXISTING PROPERTY LINE             |
|   |                                      |   |                              |  | EXISTING UTILITY POLE              |

-  TRAIL USER STOP SIGN
-  PUSH BUTTON SIGN

**NOTE:**  
REFER TO PAOLI PIKE TRAIL - FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.



## SCALE







# RESERVOIR ROAD TO BOOT ROAD

## Limits

Reservoir Road to Boot Road, including improvements at the Boot Road intersection

## Length

0.30 miles

## Summary

10-foot wide multi-use trail on the north side of Paoli Pike between Reservoir Road and Boot Road, including a new trail boardwalk bridge to cross existing stormwater management basins and wetlands and improved bicycle and pedestrian accommodations at the Boot Road intersection to connect the trail on the north and south sides of Paoli Pike

## Key Connections

- Goshen Corporate Park
- Goshen Executive Center
- Sunoco Gas Station and Convenience Store
- CVS Pharmacy
- Goshen Village Shopping Center

## Potential Future Connections

- Marydell Farm Park (south side)
- Residential developments along Boot Road, both north and south of Paoli Pike

## Existing Conditions

*Focused on the preferred trail alignment on the north side of Paoli Pike*

- Existing land uses include Goshen Corporate Park, Sunoco, CVS, and Goshen Village Shopping Center and residential properties on the south side (including one identified as a Class II Historic Resource)
- Paoli Pike is one lane in each direction, with left-turn lanes provided at the signalized intersections with Reservoir Road and Boot Road
- Exclusive and separate right-turn cut-off from southbound Boot Road to westbound Paoli Pike
- Stormwater management basins and wetland areas adjacent to the roadway
- Existing trail easements on Goshen Corporate Park property near the Reservoir Road intersection
- Limited bicycle and pedestrian facilities include crosswalks and pedestrian signals at the signalized intersections of Reservoir Road and Boot Road

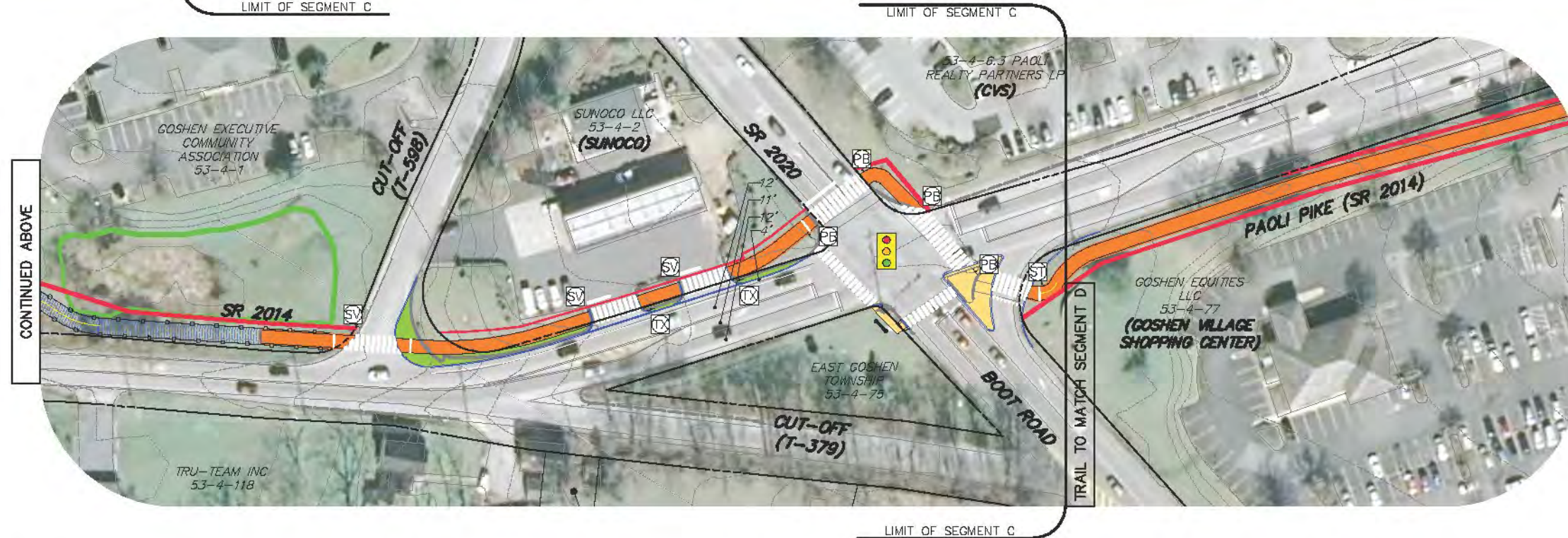
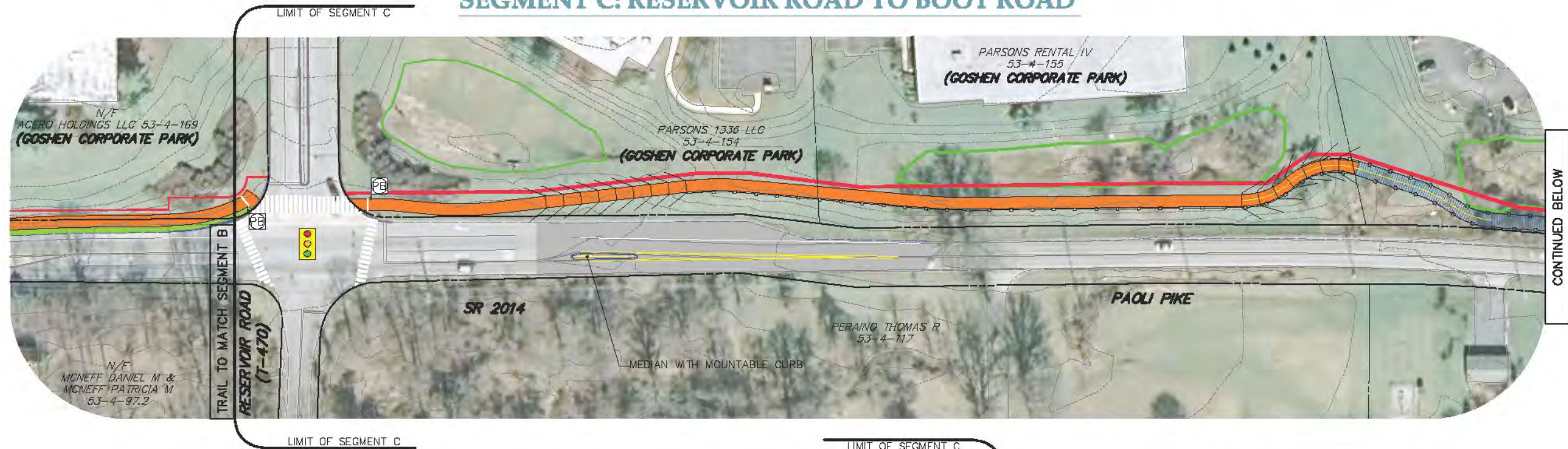


## Key Elements of the Trail Conceptual Plan






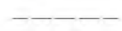






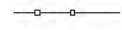



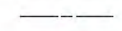





- Hardscaped center median on Paoli Pike east of Reservoir Road as a traffic calming and gateway treatment for the Town Center area
- Trail alignment generally meanders around existing stormwater management basins
- Approximately 250-foot new elevated boardwalk trail bridge to cross existing stormwater management basins and wetland area
- Narrow the existing width of the Boot Road cut-off to improve safety, reinforce the one-way operations for the roadway, and decrease the crossing distance for trail users
- High visibility crosswalks at two commercial driveways for Sunoco
- Potentially repurpose the Township owned “triangle” property on the southwest corner of Paoli Pike and Boot Road as a public gathering space with trail amenities, such as a kiosk and benches
- Upgrade the Boot Road signalized intersection to provide four high visibility crosswalks with ADA compliant curb ramps, a larger refuge island for trail users at the southeast corner, pedestrian signals and push buttons, and bicycle detection for the trail crossing

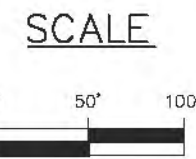


## SEGMENT C: RESERVOIR ROAD TO BOOT ROAD



### LEGEND

 PROPOSED MULTI-USE TRAIL (10' WIDTH)	 PROPOSED CURB	 EXISTING CURB	 TRAIL USER STOP SIGN
 PROPOSED TRAIL BOARDWALK	 PROPOSED EDGE OF PAVEMENT	 EXISTING EDGE OF PAVEMENT	 PUSH BUTTON SIGN
 PROPOSED NEW GRASS BUFFER AREA	 PROPOSED PAVEMENT MARKINGS	 EXISTING PAVEMENT MARKINGS	 VEHICULAR STOP SIGN
 PROPOSED CEMENT CONCRETE/PAVER MATERIAL	 PROPOSED SAFETY RAIL (FENCE)	 EXISTING CONTOUR (2 FOOT INTERVAL)	 TRAIL CROSSING WARNING SIGN WITH ARROW
 PROPOSED ROADWAY MILL & OVERLAY	 PROPOSED SIGN	 EXISTING RIGHT-OF-WAY LINE	<b>NOTE:</b> REFER TO PAOLI PIKE TRAIL - FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.
	 REQUIRED SIDEWALK EASEMENT	 EXISTING PROPERTY LINE	
	 PROPOSED TRAIL KIOSK	 EXISTING UTILITY POLE	
		 EXISTING SWM FACILITY LIMITS (APPROXIMATE)	







# BOOT ROAD TO GOSHEN VILLAGE

## Limits

Boot Road to Goshen Village, including improvements at Goshen Village Road signalized intersection

## Length

0.19 miles

## Summary

10-foot wide multi-use trail on the south side of Paoli Pike between Boot Road and Goshen Village Road, including utilization of an existing bridge over an Unnamed Tributary of Ridley Creek and a new trail crossing of Goshen Village Road

## Key Connections

- Goshen Village Shopping Center with a mix of retail shops, restaurants, and services
- TD Bank
- Chester County District Court 15-1-02

## Potential Future Connections

- Residential developments on the north side of Paoli Pike and along Boot Road south of Paoli Pike

## Existing Conditions

*Focused on the preferred trail alignment on the south side of Paoli Pike*

- Existing land uses include the Goshen Village Shopping Center, TD Bank, and Chester County District Court, with CVS and residential developments on the north side of Paoli Pike
- Paoli Pike is one lane in each direction with left-turn lanes provided at Boot Road, CVS entrance, and Saratoga Drive and a center lane gore area approaching Goshen Village Road
- Existing driveway bridge crossing the Unnamed Tributary of Ridley Creek to provide access to the Goshen Village Shopping Center
- Several established trees along the Goshen Village Shopping center frontage along Paoli Pike
- Overhead utility lines on the south side of Paoli Pike
- Difference in elevation between Paoli Pike and Goshen Village Shopping Center
- Limited bicycle and pedestrian facilities include a crosswalk and pedestrian signal to cross Paoli Pike at the signalized intersection Goshen Village Road

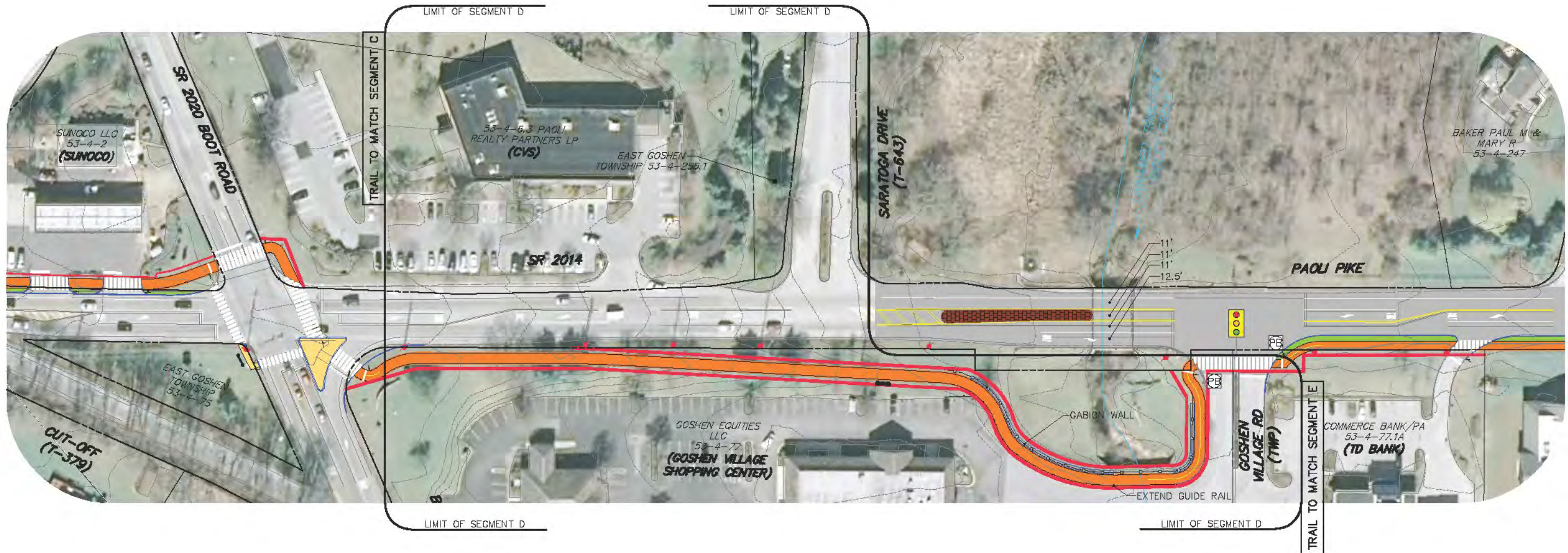


## Key Elements of the Trail Conceptual Plan


















- Trail alignment generally south of the existing utility poles to minimize pole relocations and re-grading
- Utilization of the existing driveway bridge crossing the Unnamed Tributary of Ridley Creek by providing the trail in the existing grass area on the bridge
- Pedestrian safety rail to protect and provide trail users with a sense of security in the area of the existing bridge crossing of the Unnamed Tributary of Ridley Creek
- Upgrades at the Goshen Village Road signalized intersection including a high visibility crosswalk, pedestrian signals with push buttons, and bicycle detection to cross Goshen Village Road



# SEGMENT D: BOOT ROAD TO GOSHEN VILLAGE



## LEGEND

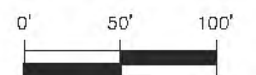
- |   |  |   |                              |   |                                    |
|---|--|---|------------------------------|---|------------------------------------|
|  | PROPOSED MULTI-USE TRAIL<br>(10' WIDTH UNLESS INDICATED) |  | PROPOSED CURB                |  | EXISTING CURB                      |
|  | PROPOSED FLUSH STAMPED<br>ASPHALT MEDIAN                 |  | PROPOSED EDGE OF PAVEMENT    |  | EXISTING EDGE OF PAVEMENT          |
|  | PROPOSED ROADWAY MILL & OVERLAY                          |  | PROPOSED PAVEMENT MARKINGS   |  | EXISTING PAVEMENT MARKINGS         |
|   |  |  | PROPOSED SAFETY RAIL (FENCE) |  | EXISTING CONTOUR (2 FOOT INTERVAL) |
|   |  |  | PROPOSED SIGN                |  | EXISTING RIGHT-OF-WAY LINE         |
|   |  |  | REQUIRED SIDEWALK EASEMENT   |  | EXISTING PROPERTY LINE             |
|   |  |  | PROPOSED TRAIL KIOSK         |  | EXISTING UTILITY POLE              |

 PUSH BUTTON SIGN

**NOTE:**  
REFER TO PAOLI PIKE TRAIL – FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.



## SCALE







# GOSHEN VILLAGE TO NORTH CHESTER ROAD (SR 0352)

## Limits

Goshen Village Road to North Chester Road (SR 0352), including improvements at North Chester Road

## Length

0.34 miles

## Summary

8-foot wide multi-use trail on the south side of Paoli Pike between Goshen Village Road and North Chester Road (SR 0352), including mill and overlay to narrow existing travel lanes on Paoli Pike and provide space for the trail, grass buffer area, and new curb

## Key Connections

- Goshen Village Shopping Center
- TD Bank
- East Goshen Township Building
- East Goshen Elementary School
- M&T Bank
- Wawa
- Swiss Farms
- Goshen Friends School, Meeting House, and Cemetery

## Potential Future Connections

- Commercial and residential developments on the north side of Paoli Pike

## Existing Conditions

*Focused on the preferred trail alignment on the south side of Paoli Pike*

- Existing land uses include the East Goshen Township Building, East Goshen Elementary School, and a number of retail establishments and services
- Paoli Pike is one lane in each direction, with a consistent center left-turn lane
- Eight commercial driveways
- Gradual to steep slopes adjacent to the roadway on the south side, particularly near the M&T Bank
- Overhead utility lines on the south side
- Limited bicycle and pedestrian facilities include crosswalks and pedestrian signals at the signalized intersection of North Chester Road (SR 0352)

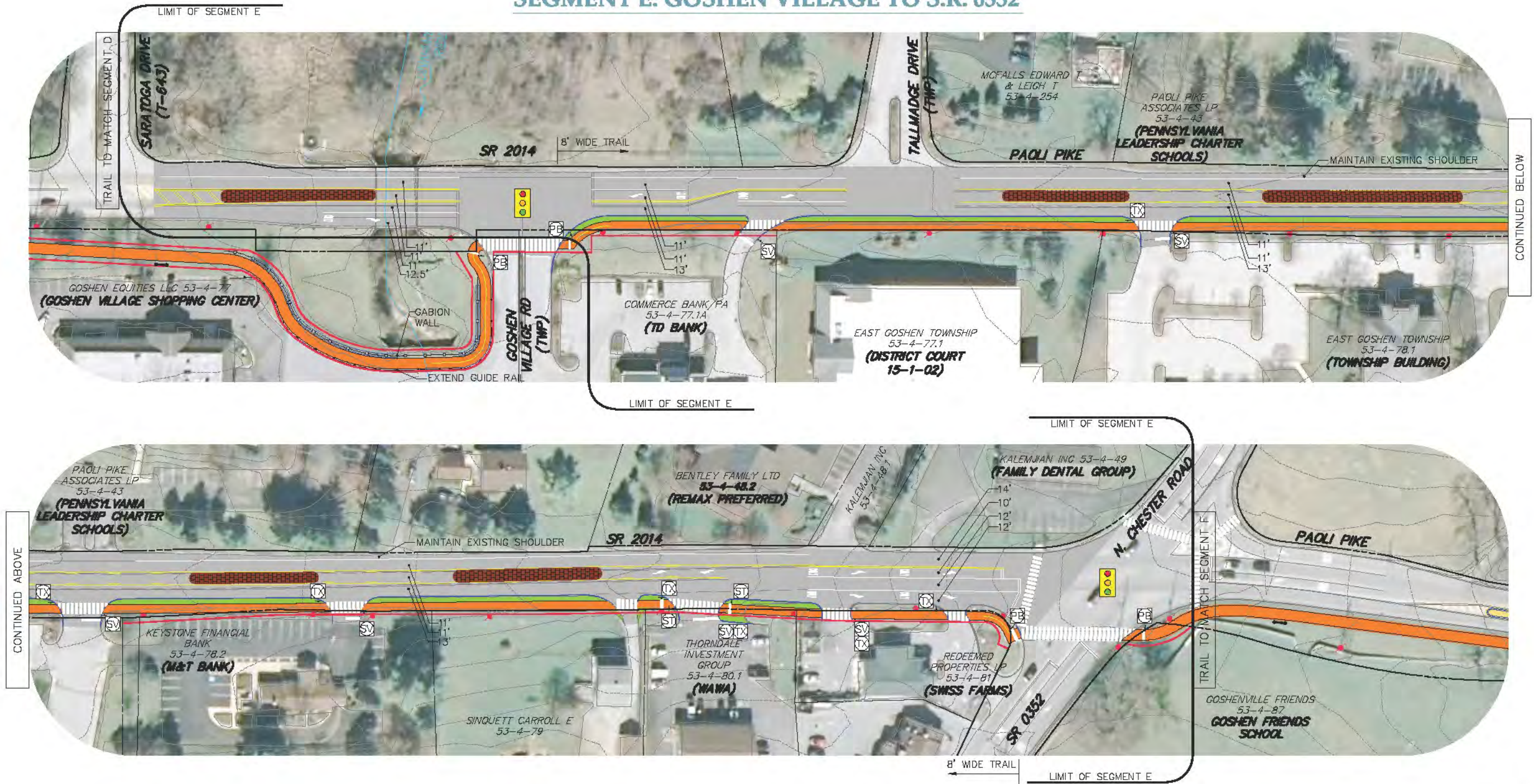


## Key Elements of the Trail Conceptual Plan

- Mill and resurface Paoli Pike between Saratoga Drive and North Chester Road (SR 0352) and restripe to provide an 11-foot travel lane eastbound, 11-foot center left-turn lane/stamped asphalt median, and a 13-foot travel lane westbound. This creates additional area to provide a curbed grass buffer area and the 8-foot trail on the south side of Paoli Pike.
- Trail alignment is generally on the north side of the existing utility poles to minimize utility relocations
- Provide flush stamped asphalt at select locations to calm traffic, create an identity for the Town Center area of the Township, and beautify the corridor
- Eight high visibility crosswalks for the commercial driveway crossings
- Narrow the existing driveway entrance for Wawa to 36-feet to improve safety and create a shorter crossing distance for trail users. Provide stop signs at the driveway for trail users, due to the high level of traffic volumes and turning movements at the driveway.
- Upgrade the North Chester Road (SR 0352) signalized intersection to provide four high visibility crosswalks with ADA compliant curb ramps, pedestrian signals and push buttons, and bicycle detection for the trail crossing



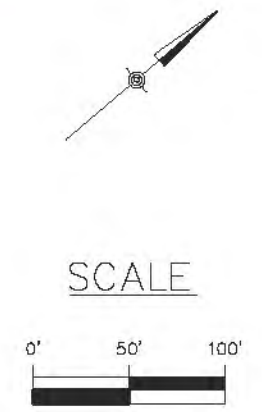
## SEGMENT E: GOSHEN VILLAGE TO S.R. 0352



### LEGEND

- |  |  |  |                              |  |                                    |  |  |
|--|--|--|------------------------------|--|------------------------------------|--|--|
|  | PROPOSED MULTI-USE TRAIL<br>(10' WIDTH UNLESS INDICATED) |  | PROPOSED CURB                |  | EXISTING CURB                      |  | TRAIL USER STOP SIGN                   |
|  | PROPOSED FLUSH STAMPED<br>ASPHALT MEDIAN                 |  | PROPOSED EDGE OF PAVEMENT    |  | EXISTING EDGE OF PAVEMENT          |  | VEHICULAR STOP SIGN                    |
|  | PROPOSED ROADWAY MILL & OVERLAY                          |  | PROPOSED PAVEMENT MARKINGS   |  | EXISTING PAVEMENT MARKINGS         |  | PUSH BUTTON SIGN                       |
|  | PROPOSED NEW GRASS BUFFER AREA                           |  | PROPOSED SAFETY RAIL (FENCE) |  | EXISTING CONTOUR (2 FOOT INTERVAL) |  | TRAIL CROSSING WARNING SIGN WITH ARROW |
|  |  |  | PROPOSED SIGN                |  | EXISTING RIGHT-OF-WAY LINE         |  |  |
|  |  |  | PROPOSED TRAIL KIOSK         |  | EXISTING PROPERTY LINE             |  |  |
|  |  |  | REQUIRED SIDEWALK EASEMENT   |  | EXISTING UTILITY POLE              |  |  |

**NOTE:**  
REFER TO PAOLI PIKE TRAIL - FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.







# NORTH CHESTER ROAD (SR 0352) TO EXISTING APPLEBROOK TRAIL (EAST OF GOSHEN FRIENDS)

## Limits

SR 0352 to existing Applebrook Park trails located east of Goshen Friends School campus

## Length

0.10 miles

## Summary

10-foot wide multi-use trail on the south side of Paoli Pike between North Chester Road (SR 0352) and existing Applebrook Park trails located east of Goshen Friends School, Meeting House, and Cemetery

## Key Connections

- Goshen Friends School, Meeting House, and Cemetery
- Applebrook Park

## Existing Conditions

*Focused on the preferred trail alignment on the south side of Paoli Pike*

- Existing land uses include Goshen Friends School, Meeting House, and cemetery and Applebrook Park with residential development on the north side of Paoli Pike
- Paoli Pike is one lane in each direction with left- and right- turn lanes provided at the signalized intersection with North Chester Road (SR 0352)
- Flat grass area between the roadway and an existing stone wall for the Goshen Friends School Campus
- Overhead utility lines on the south side
- Limited bicycle and pedestrian facilities include existing 9-foot wide trails in Applebrook Park

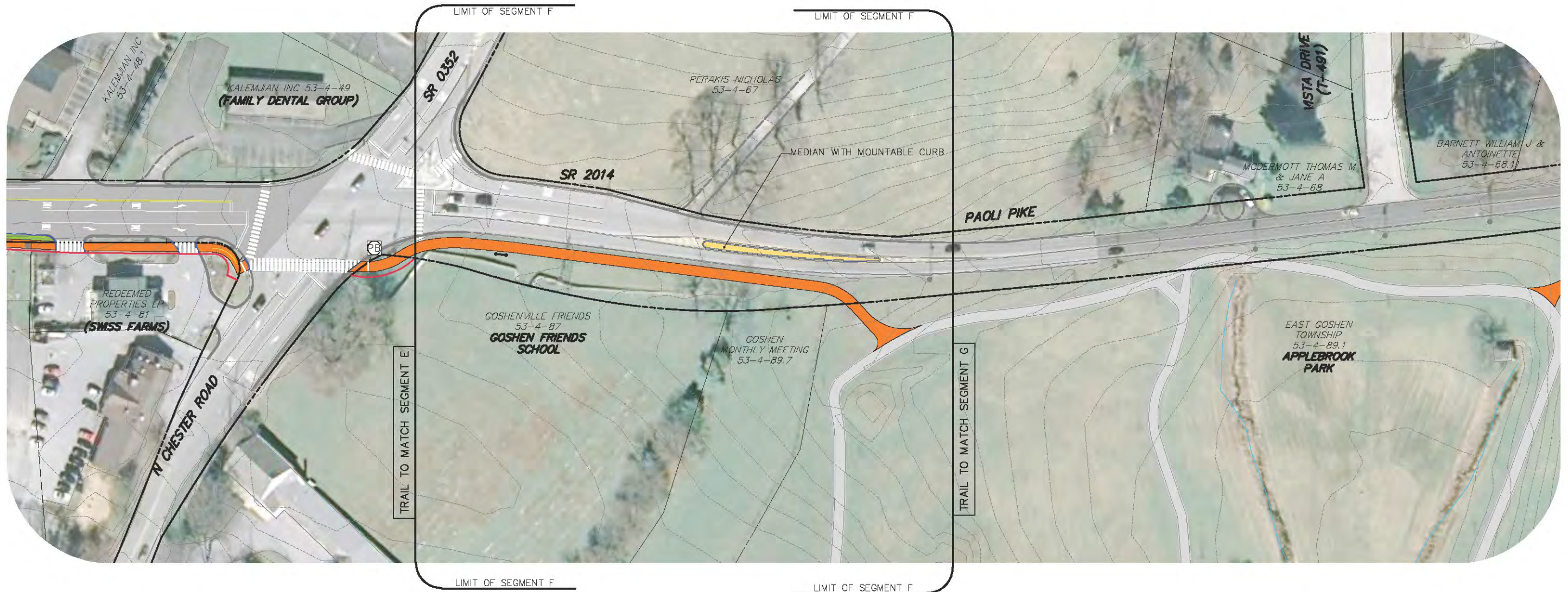


## Key Elements of the Trail Conceptual Plan














- Hardscaped center median on Paoli Pike east of North Chester Road (SR 0352) to serve as a traffic calming and gateway treatment for the Town Center area
- Trail alignment generally within the existing flat grass area between the roadway and stone wall for the Goshen Friends School
- Direct trail connection to and utilization of the existing trails in Applebrook Park



# SEGMENT F: S.R. 0352 TO EXISTING APPLEBROOK TRAIL EAST OF GOSHEN FRIENDS



## LEGEND

- |   |   |   |                            |   |                                    |
|---|---|---|----------------------------|---|------------------------------------|
|  | PROPOSED MULTI-USE TRAIL (10' WIDTH)    |  | PROPOSED CURB              |  | EXISTING CURB                      |
|  | EXISTING ASPHALT MULTI-USE TRAIL        |  | PROPOSED TRAIL KIOSK       |  | EXISTING EDGE OF PAVEMENT          |
|  | PROPOSED CEMENT CONCRETE/PAVER MATERIAL |  | REQUIRED SIDEWALK EASEMENT |  | EXISTING PAVEMENT MARKINGS         |
|   |   |   |                            |  | EXISTING CONTOUR (2 FOOT INTERVAL) |
|   |   |   |                            |  | EXISTING RIGHT-OF-WAY LINE         |
|   |   |   |                            |  | EXISTING PROPERTY LINE             |
|   |   |   |                            |  | EXISTING UTILITY POLE              |

**NOTE:**  
REFER TO PAOLI PIKE TRAIL – FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.



## SCALE







# CONNECTION OF EXISTING APPLEBROOK TRAILS

## Limits

Between existing trails in Applebrook park west of the Chester County Chamber of Business and Industry Building and existing Applebrook Trails east of the West Township Park Entrance at Hibberd Lane

## Length

0.21 miles

## Summary

10-foot wide multi-use trail on the south side of Paoli Pike between existing segments of multi-use trails in Applebrook, including an improved trail crossing at the Township Park Entrance/Hibberd Lane

## Key Connections

- Applebrook Park
- Township Park
- Chester County Chamber of Business and Industry
- Applebrook Preserve Residential Development

## Potential Future Connections

- Willistown Township and Malvern Borough, including the Patriots Path connection to the Chester Valley Trail
- Existing trails in Willisbrook Preserve
- Bryn Mawr Rehb

## Existing Conditions

*Focused on the preferred trail alignment on the south side of Paoli Pike*

- Existing land uses include Applebrook Park, Applebrook Golf Course, Chester County Chamber of Business and Industry offices, and the Township Park on the north side of Paoli Pike
- Paoli Pike is one lane in each direction with left-turn lanes provided at the signalized intersection at the Township Park Entrance/Hibberd Lane
- Steep slopes and vegetation adjacent to the roadway near the Chester County Chamber of Business and Industry office building
- Existing potential wetland area near the southwest corner of the Paoli Pike and Township Park Entrance/Hibberd Lane intersection
- Overhead utility lines on the south side
- Bicycle and pedestrian facilities include existing 9-foot wide trails within Applebrook Park and an improved pedestrian crossings (with signage and push button activated yellow flasher) at the East and West Township Park Entrances

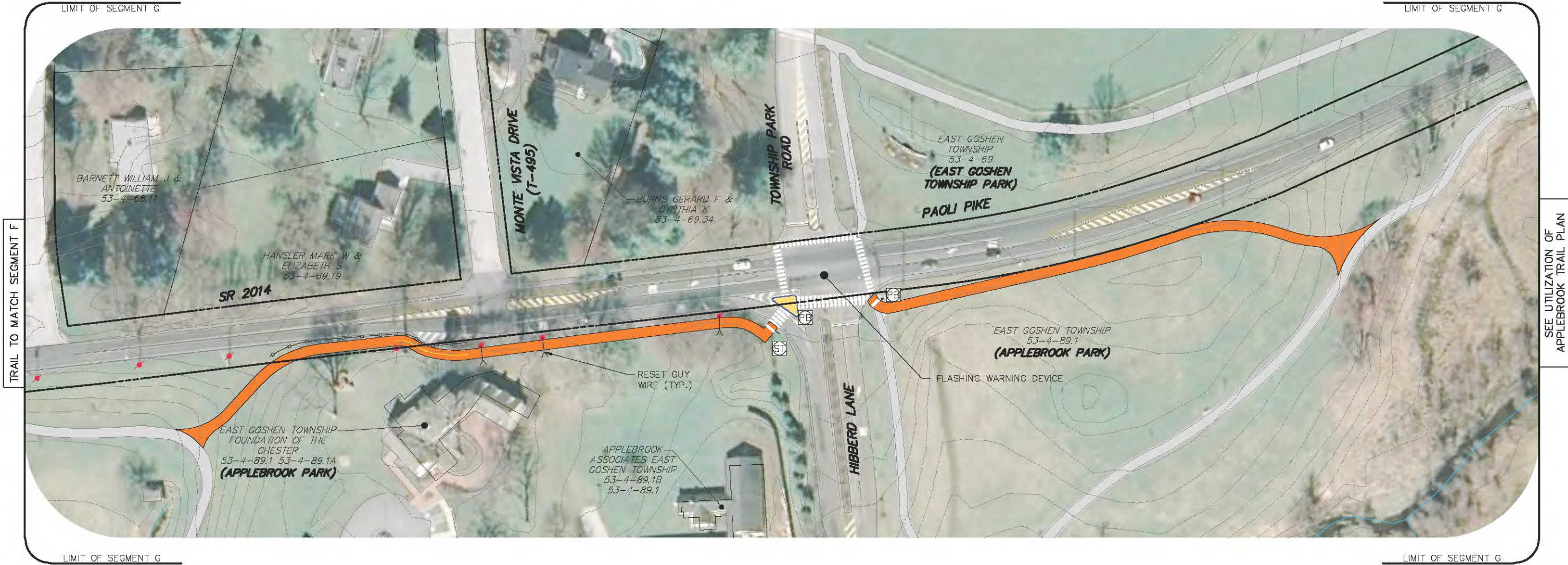


## Key Elements of the Trail Conceptual Plan

- Direct trail connection to and utilization of the existing trails in Applebrook Park
- Trail alignment designed to minimize utility pole relocations
- Pedestrian safety rail (ribbon fence) between the roadway and trail near the Chester County Chamber of Business and Industry building to serve as a barrier since the minimum buffer area is not provided
- Utilization of the existing pedestrian signal crossing at the West Township Park Entrance at Hibberd Lane



# SEGMENT G: CONNECTION OF EXISTING APPLEBROOK TRAILS



TRAIL TO MATCH SEGMENT F

SEE UTILIZATION OF APPLEBROOK TRAIL PLAN

## LEGEND

- |  |  |  |                              |  |                                    |
|--|--|--|------------------------------|--|------------------------------------|
|  | PROPOSED MULTI-USE TRAIL<br>(10' WIDTH UNLESS INDICATED) |  | PROPOSED CURB                |  | EXISTING CURB                      |
|  | PROPOSED NEW GRASS BUFFER AREA                           |  | PROPOSED PAVEMENT MARKINGS   |  | EXISTING EDGE OF PAVEMENT          |
|  | EXISTING ASPHALT MULTI-USE TRAIL                         |  | PROPOSED SIGN                |  | EXISTING PAVEMENT MARKINGS         |
|  |  |  | PROPOSED SAFETY RAIL (FENCE) |  | EXISTING CONTOUR (2 FOOT INTERVAL) |
|  |  |  |                              |  | EXISTING RIGHT-OF-WAY LINE         |
|  |  |  |                              |  | EXISTING PROPERTY LINE             |
|  |  |  |                              |  | EXISTING UTILITY POLE              |

- TRAIL USER STOP SIGN
- PUSH BUTTON SIGN

NOTE:  
REFER TO PAOLI PIKE TRAIL – FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.



## SCALE





# UTILIZATION OF EXISTING APPLEBROOK TRAILS TO LINE ROAD

## Limits

Existing trails in Applebrook park between just east of the West Township Park Entrance at Hibberd Lane and Line Road

## Length

0.82 miles

## Summary

Existing 9-foot wide multi-use trail on the south side of Paoli Pike within Applebrook Park, including a connection to Line Road

## Key Connections

- Applebrook Park
- Township Park
- Applebrook Preserve Residential Development

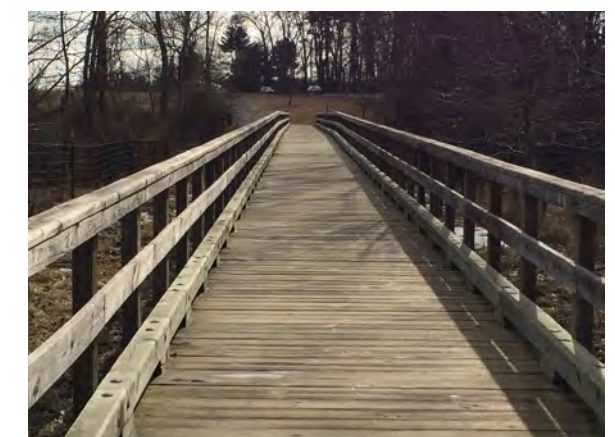
## Potential Future Connections

- Willistown Township and Malvern Borough, including the Patriots Path connection to the Chester Valley Trail
- Existing trails in Willisbrook Preserve
- Bryn Mawr Rehab

## Existing Conditions

*Focused on the preferred trail alignment on the south side of Paoli Pike*

- Existing land uses include Applebrook Park, Applebrook Golf Course, and the Township Park and residential developments on the north side of Paoli Pike
- Paoli Pike is one lane in each direction
- Overhead utility lines on the south side west of Taylor Avenue and north side east of Taylor Avenue
- Existing 9-foot wide asphalt trails within Applebrook Park are generally 30-feet to 70-feet south of Paoli Pike and include two boardwalk trail bridges crossing branches of Ridley Creek. Walking and biking are permitted on the trails today.
- Pedestrian crossings are provided at the East Township Park Entrances (with signage and push button activated yellow flasher) and Line Road signalized intersection

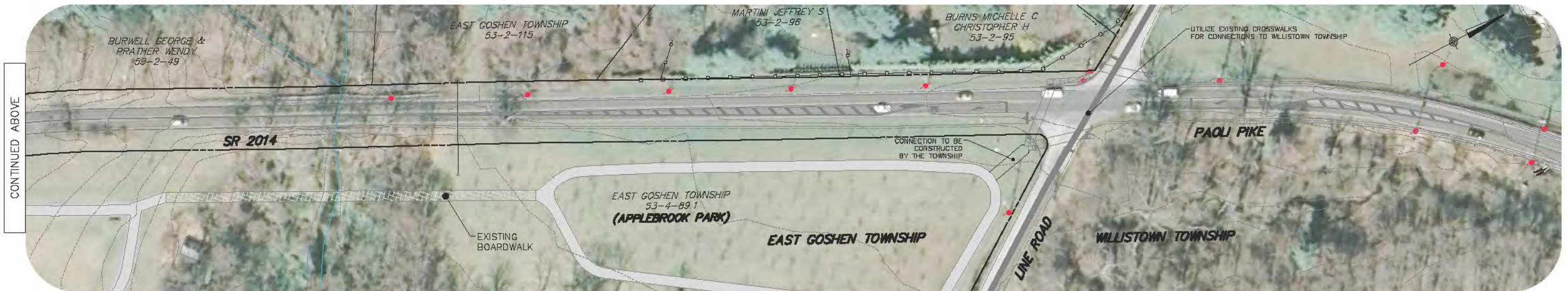


## Future Improvements to Existing Trails

- Utilization of existing trails in Applebrook Park between Segments F and G and east of Segment G to Line Road, using the trails that are closest to Paoli Pike.
- The Township will be constructing a connection to the Line Road intersection from the existing Clymer’s Woods trail.
- Widening the existing trails from 9-feet to 10-feet or 12-feet should be considered based on trail usage and maintenance needs. For example, the trails can be widened as part of future trail resurfacing or maintenance.
- Wayfinding and signage for the Paoli Pike Trail should be provided to encourage and direct users to the appropriate trail segments. Since the trail network extends throughout the park, it will be important for signage to direct users to stay on the appropriate trail for the east-west connections along Paoli Pike. This may also help to maintain the serene setting for this passive recreation park.



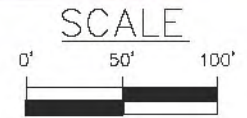
# UTILIZATION OF EXISTING APPLEBROOK TRAILS TO LINE ROAD



**LEGEND**

- EXISTING RIGHT-OF-WAY LINE
- EXISTING CURB
- EXISTING EDGE OF PAVEMENT
- EXISTING TOWNSHIP BORDER
- EXISTING CONTOUR (2 FOOT INTERVAL)
- EXISTING PROPERTY LINE
- ▭ EXISTING TRAIL
- ▭ EXISTING TRAIL BOARDWALK
- EXISTING UTILITY POLE

NOTE:  
REFER TO PAOLI PIKE TRAIL - FEASIBILITY STUDY AND MASTER PLAN FOR ALL ASSUMPTIONS, EXCLUSIONS, AND DESIGN CRITERIA USED IN THE PREPARATION OF THIS CONCEPTUAL DESIGN PLAN.





## Photographic Renderings

The following photographic renderings were developed to provide a visualization of the trail conceptual design plan.

### Out of Reach Farm Frontage

*Looking westbound toward Ellis Lane*



Existing Conditions



### Goshen Corporate Park Frontage

*Looking eastbound toward Reservoir Road*



Existing Conditions



### Township Building Frontage

*Looking eastbound toward N. Chester Road*



Existing Conditions







## V. IMPLEMENTATION PLAN & FUNDING STRATEGY

### Project Phasing

The Paoli Pike Trail will likely be implemented in phases over time, depending on the availability of funding and other factors. The seven trail segments presented in Chapter IV can advance to design and construction as separate projects or similar segments can be combined for implementation. Additionally, improvements to existing trails in Applebrook Park utilized for the Paoli Pike Trail can be implemented based on trail usage and maintenance needs.

### Project Priorities

When considering priorities and opportunities to combine segments, it is important to consider trail continuity and connections. Based on input from the Board of Supervisors and the Trail Committee, Segments C through G were identified as the initial priority for implementation. This connection between Reservoir Road and Applebrook Park is focused on providing access to the Town Center and the Township's existing parks and recreational resources. Segments A and B were identified for a future phase of implementation, particularly due to the necessary environmental permitting to cross the East Branch of Chester Creek and the need for additional coordination with West Goshen Township regarding future connections and extensions of the trail to the west.

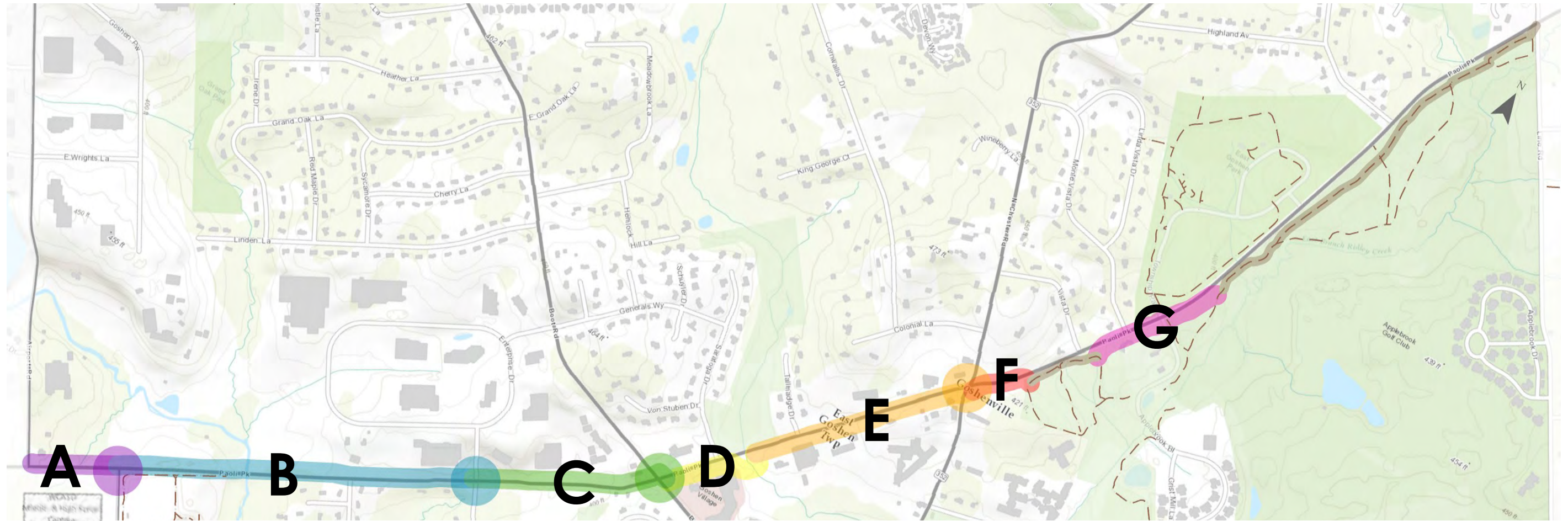
A	Airport Road to Ellis Lane	<b>Future phase of implementation</b>
B	Ellis Lane to Reservoir Road	
C	Reservoir Road to Boot Road	<b>Initial priority for implementation</b>
D	Boot Road to Goshen Village	
E	Goshen Village to North Chester Road (SR 0352)	
F	North Chester Road (SR 0352) to Existing Applebrook Trail	
G	Connection between Existing Applebrook Trails	
	Utilization of Existing Applebrook Trails to Line Road	<b>Plan for future widening</b>

### Cost Estimates

An engineer's conceptual opinion of cost was developed for each of the seven segments of the Paoli Pike Trail. The cost estimates are based on the trail conceptual plan presented in Chapter IV, which was developed using aerial photography, available GIS data, and field reconnaissance. A summary of the costs are presented on the following page and a detailed cost breakdown for each segment is provided in Appendix D. Below are several notes and assumptions regarding the engineer's conceptual opinion of cost.

- Construction estimates are based on quantities derived from the trail conceptual plan and unit prices from recently bid local projects with PennDOT oversight.
- Engineering, permitting and inspection costs are dependent on requirements associated with specific funding sources. The estimates provided are modest and could be higher if federal funds are used and lower if local funds are used.
  - Engineering & Permitting: 25% of Total Construction Cost
  - Inspection: 12% – 15% of Total Construction Cost
- Right-of-way estimates include rough approximations for temporary and permanent easements, but do not include the cost of legal fees associated with right-of-way acquisition process.
- Utility estimates include rough approximations for relocation of existing surface utilities, but do not include the cost of underground utility relocations.
- All estimates include a contingency of 10% of infrastructure cost, per PennDOT Publication 352.
- All estimates are provided in 2015 dollars and an inflation factor was not applied.





Segment	Construction (2015 \$)	Inspection	Engineering & Permitting	Utilities	Right-of-Way	Total
<b>A</b> Airport Road to Ellis Lane	\$365,000	\$55,000	\$92,000	\$15,000	\$93,000	\$620,000
<b>B</b> Ellis Lane to Reservoir Road	\$1,487,000	\$179,000	\$372,000	\$15,000	\$322,000	\$2,375,000
<b>C</b> Reservoir Road to Boot Road	\$855,000	\$129,000	\$214,000	\$0	\$225,000	\$1,423,000
<b>D</b> Boot Road to Goshen Village	\$216,000	\$33,000	\$54,000	\$0	\$94,000	\$397,000
<b>E</b> Goshen Village to North Chester Road (SR 0352)	\$1,498,000	\$180,000	\$375,000	\$45,000	\$115,000	\$2,213,000
<b>F</b> North Chester Road (SR 0352) to Existing Applebrook Trail	\$169,000	\$26,000	\$43,000	\$10,000	\$10,000	\$258,000
<b>G</b> Connection between Existing Applebrook Trails	\$252,000	\$38,000	\$63,000	\$20,000	\$0	\$373,000
<b>Utilization of Existing Applebrook Trails to Line Road</b>	<i>Plan and budget for future widening of existing trails along Paoli Pike based on trail usage and maintenance needs.</i>					
<b>Total</b>	\$ 4,842,000	\$ 640,000	\$ 1,213,000	\$105,000	\$859,000	\$7,659,000



## Funding Options and Strategy

The critical next step is to identify funding for design, right-of-way acquisition, and construction. There are two main categories of funding: public and private. Public or government funding can be provided from the federal, state, regional, county, and municipal levels. Private funding is often from non-profits, foundations, or private companies/corporations.

One of the main sources of funding for trail projects is competitive grant programs offered at various levels of government. The table on this page presents a summary of current competitive grant programs for trail projects in the Greater Philadelphia region, including East Goshen Township. Each program has different eligible projects and uses of funds, matching requirements, and timelines for implementation.

An evaluation of primary funding options was developed based on the cost estimates for each segment and the requirements and guidelines associated with various grant programs. The table on the following page identifies potential grant programs for each segment and highlights programs that are a particularly strong match.

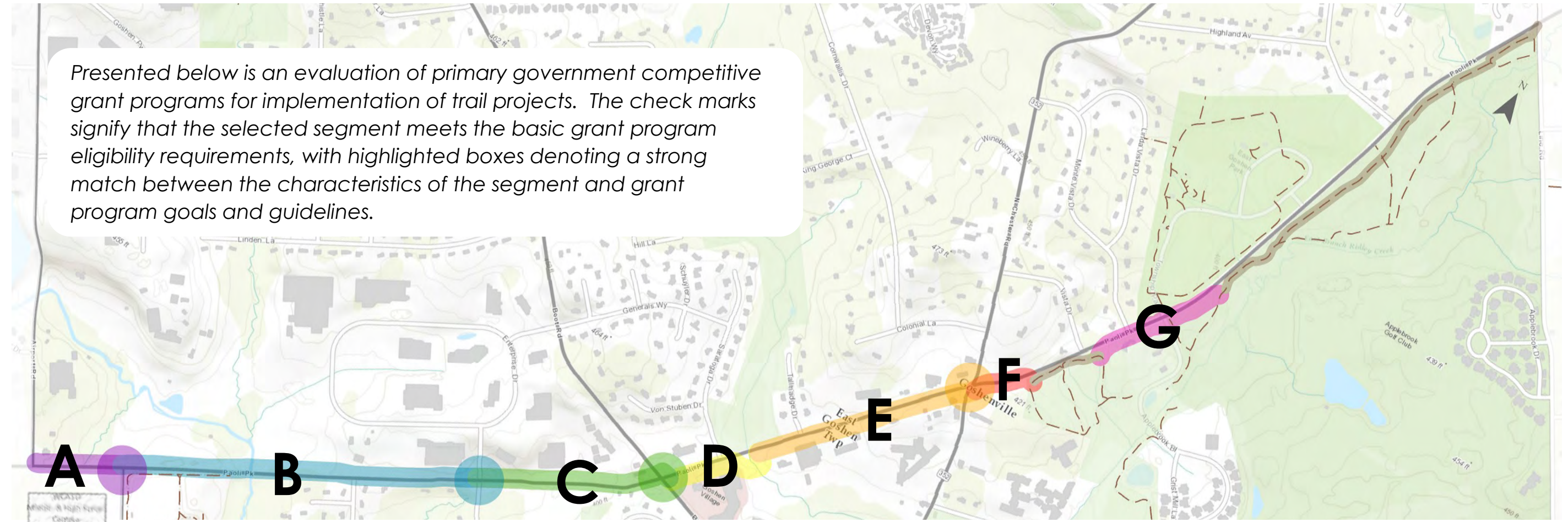
This evaluation formed the basis of the funding strategy. Given the initial priority for segments C through G, three separate grant programs were identified as a strong match for these segments. This includes the opportunity to combine segments D and E, as well as segments F and G, for two grant funding pursuits. The Township is pursuing the next available grant cycles for the Transportation Alternatives Program (TAP), Multimodal Transportation Fund (MTF), and Community Conservation Partnerships Program (C2P2). The Township will also explore other funding opportunities, as they arise.

## Summary of Current Competitive Grant Programs for Trail Projects

Program – Administering Agency	Types of Projects	Program Details
<b>Transportation Alternatives Program (TAP)</b> – PennDOT – Large MPOs	– Bicycle & pedestrian facilities – Stormwater management	– Federal funds (MAP-21) – Match requires funding all pre-construction activities – \$250,000 minimum – \$1 million maximum – 2 year timeframe to complete design, right-of-way, and utility clearance
<b>Congestion Mitigation and Air Quality (CMAQ)</b> – DVRPC	– Bicycle & pedestrian facilities – Traffic flow & congestion reduction – Transit improvements	– Federal funds (MAP-21) – Match requires funding all pre-construction activities
<b>CFA/DCED – Multimodal Transportation Fund (MTF)</b> – Commonwealth Financing Authority (CFA) with DCED	– Bicycle & pedestrian facilities, including streetscapes – Connectivity improvements – Transit improvements – Noise barriers	– Annual competitive grant program – State funds (Act 89) – 30% match – \$100,000 minimum – \$3 million maximum – 2 – 3 year timeframe to complete the grant funded activities
<b>Greenways, Trails and Recreation Program (GTRP)</b> – Commonwealth Financing Authority (CFA) with DCED & DCNR	– Greenways & trails – Parks & recreation areas	– Annual competitive grant program – State funds (Act 13) – 15% match – \$250,000 maximum – 2 - 3 year timeframe to complete the grant funded activities
<b>PennDOT – Multimodal Transportation Fund (MTF)</b> – PennDOT	– Bicycle & pedestrian facilities, including streetscapes – Connectivity improvements – Transit improvements – Noise barriers	– Annual competitive grant program – State funds (Act 89) – 30% match (based on grant award) – \$100,000 minimum – \$3 million maximum – 3 year timeframe to complete the grant funded activities
<b>Community Conservation Partnerships Program (C2P2)</b> – DCNR	– Greenways & trails – Parks & recreation areas	– Annual competitive grant program – Various federal and state funds – 50% match
<b>Chester County Open Space – Municipal Grants Program</b> – Chester County Open Space Preservation	– Trail land acquisition – Trail easement acquisition – Trail development	– Annual competitive grant program – County funds – 50% match – \$500,000 maximum for acquisition grants – \$100,000 to \$250,000 maximum for development grants – 3 year timeframe to complete the grant funded activities
<b>Regional Trails Program</b> – DVRPC	– Regional trail projects to complete The Circuit	– Private funds (William Penn Foundation) – TIP Line Item
<b>PECO Green Region Program</b> – Natural Lands Trust	– Improving municipally owned open spaces, including trails – Acquisition of land for open space	– Annual competitive grant program – Private funds – 50% match – \$10,000 maximum – 18 month timeframe to complete the grant funded activities



## Evaluation of Primary Funding Options

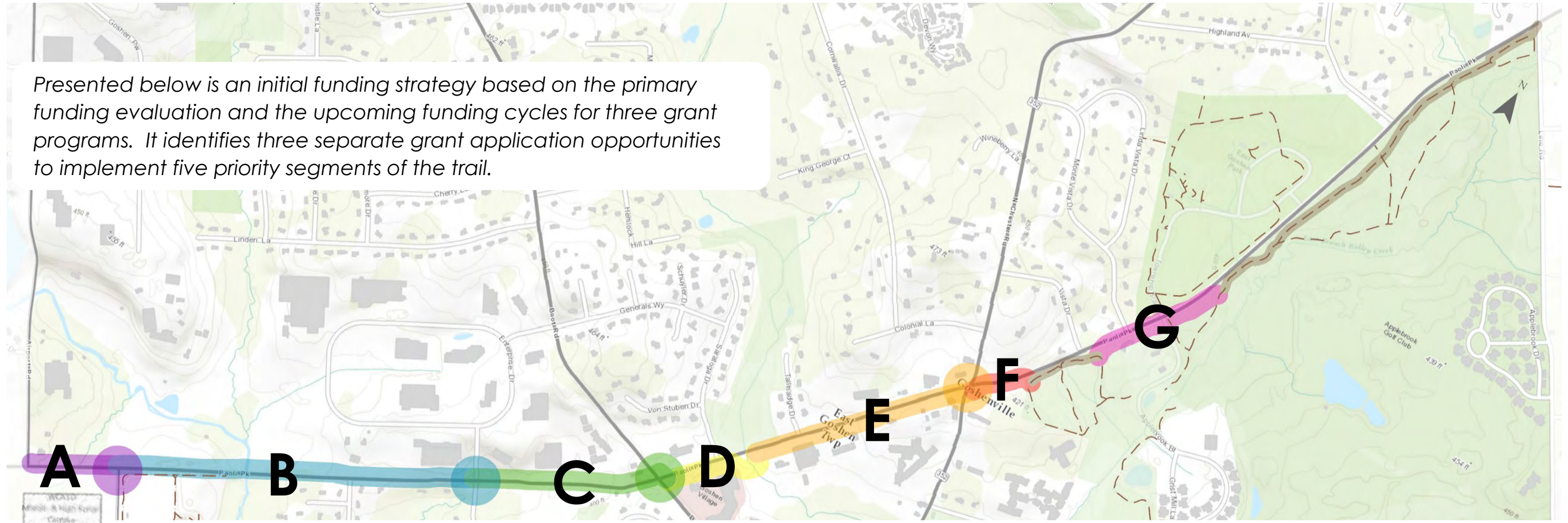


Segment	Segment Length (Mi.)	Total Cost	TAP	CMAQ	CFA- MTF	GTRP	PennDOT -MTF	C2P2
<b>A</b> Airport Road to Ellis Lane	0.15	\$620,000	✓	✓	✓		✓	✓
<b>B</b> Ellis Lane to Reservoir Road	0.60	\$2,375,000			✓		✓	✓
<b>C</b> Reservoir Road to Boot Road	0.30	\$1,423,000	✓	✓	✓		✓	✓
<b>D</b> Boot Road to Goshen Village	0.19	\$397,000			✓	✓	✓	✓
<b>E</b> Goshen Village to North Chester Road (SR 0352)	0.34	\$2,213,000			✓		✓	✓
<b>F</b> North Chester Road (SR 0352) to Existing Applebrook Trail	0.10	\$258,000			✓	✓	✓	✓
<b>G</b> Connection between Existing Applebrook Trails	0.21	\$373,000	✓	✓	✓		✓	✓
Utilization of Existing Applebrook Trails to Line Road	0.82	To be determined based on needs						✓



## Funding Strategy

Presented below is an initial funding strategy based on the primary funding evaluation and the upcoming funding cycles for three grant programs. It identifies three separate grant application opportunities to implement five priority segments of the trail.



Segment	Total Cost	Grant Funding Program	Potential Grant Request	Potential Match Amount	Notes
<b>A</b> Airport Road to Ellis Lane	\$620,000				Future Implementation
<b>B</b> Ellis Lane to Reservoir Road	\$2,375,000				
<b>C</b> Reservoir Road to Boot Road	\$1,423,000	TAP	\$ 984,000	\$ 439,000	Federal funding requirements; 2 year timeframe for completion
<b>D</b> Boot Road to Goshen Village	\$ 397,000	MTF (CFA or PennDOT)	\$2,007,692	\$ 602,307	2-3 year timeframe for completion
<b>E</b> Goshen Village to North Chester Road (SR 0352)	\$ 2,213,000				
<b>F</b> North Chester Road (SR 0352) to Existing Applebrook Trail	\$ 258,000	C2P2	\$ 315,500	\$ 315,500	Requires ownership of property or control through a minimum 25 year lease; 4 year grant contract
<b>G</b> Connection between Existing Applebrook Trails	\$ 373,000				
<b>Utilization of Existing Applebrook Trails to Line Road</b>	Plan and budget for future widening of existing trails along Paoli Pike Trail based on trail usage and maintenance needs.				





## Next Steps

Listed below are several potential next steps for East Goshen Township and project partners to implement the vision and conceptual design of the Paoli Pike Trail.

### Top Priority

#### Actively pursue funding opportunities

East Goshen Township plans to actively pursue available funding opportunities to implement the Paoli Pike Trail. The Township initiated the following grant pursuits for 2015–2016:

- Transportation Alternatives Program (TAP) application for design and construction of Segment C
- PennDOT Multimodal Transportation Fund application for design and construction of Segments D and E
- Community Conservation Partnerships Program (C2P2) and Chester County Municipal Grant Program application for design and construction of Segments F and G

The Township will consider these and other funding opportunities in the future, including budgeting for matching fund requirements associated with various grant programs. The Township will explore additional state, regional, County, and private funding options, particularly to support and leverage larger grant requests.

**In addition to the above, the Township shall consider the following opportunities to advance the project.**

#### Advance design and preliminary engineering

In conjunction with pursuing funding opportunities for design and construction, East Goshen Township can continue to advance design and engineering for the trail. Initial next steps include conducting a topographic survey and right-of-way research for the priority segments. Since project readiness is often an evaluation criteria for grant programs, advancing preliminary engineering can help to position the project to be successful for future grant opportunities.

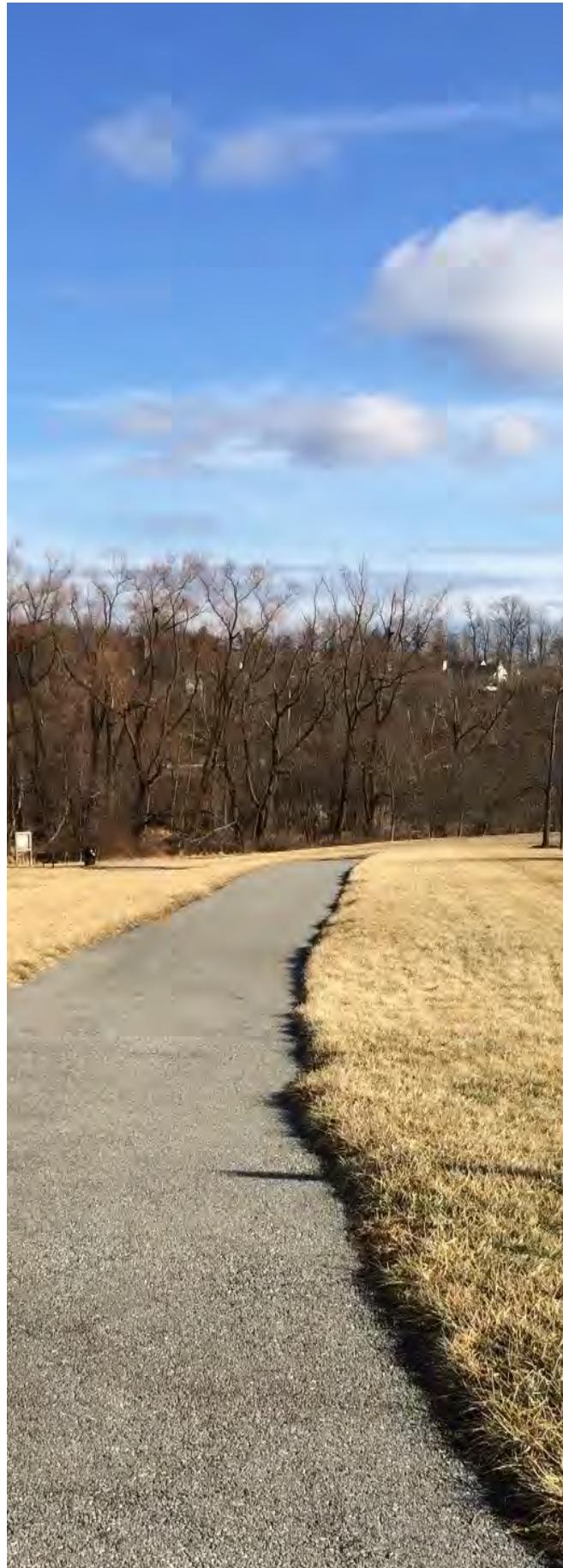
#### Work with neighboring municipalities to develop future regional connections

East Goshen Township will continue to coordinate with neighboring municipalities and support future extensions and connections to the Paoli Pike Trail. To the west, the Township will coordinate with West Goshen Township regarding an extension of the trail, possibly to the north along Airport Road, with the goal of providing a connection to destinations in both West Goshen and West Chester. To the east, the Township will work with Willistown Township and Malvern Borough to provide connections to the Willisbrook Preserve and the planned Willistown-Malvern Greenway. Additionally, the Township should focus on working with neighboring municipalities to provide connections to the Chester Valley Trail (via the Patriots Path), East Branch Brandywine Trail, and other trails in the regional trail network, known as the Circuit. As part of this coordination, the Township should advocate for the Paoli Pike Trail and planned connecting trails to be designated as official segments of the Circuit to recognize the regional significance of the trail.

#### Coordinate with PennDOT

Additional coordination with PennDOT will be required related to the design and permits for improvements within the right-of-way of Paoli Pike and other intersecting state owned roadways, including Boot Road and North Chester Road (SR 0352). PennDOT may require the Township to enter into Shared-Use Trail Maintenance Agreements for portions of the trail and associated infrastructure within the state right-of-way. Other project elements, such as the hardscaped or stamped asphalt medians, may also require a maintenance agreement with PennDOT. Additionally, improvements at signalized intersections will require PennDOT's approval of an updated Traffic Signal Permit.





### **Engage property owners, business owners, key stakeholders, and the public**

Property owners, business owners, and other key stakeholders are important partners for implementation. The Township will continue to coordinate with property and business owners on design details, potential direct trail or sidewalk connections to offices and retail establishments, temporary and permanent easements, and construction schedules. For example, the West Chester Area School District, West Chester Area YMCA, and various tenants in the Goshen Corporate Park are key stakeholders and the Township should continue to coordinate and discuss future connections to the Paoli Pike Trail.

### **Retain the Township's Trail Committee for continued oversight and guidance**

The Township should consider the continued role of the Trail Committee that was formed for the development of this Feasibility Study and Master Plan. The Trail Committee, or other existing Township commissions or committees, can continue to guide the development, implementation, and use of the Paoli Pike Trail. In particular, the Trail Committee can continue to provide recommendations to the Board of Supervisors on issues, such as future trail operations and maintenance, trail identity and signage, planning for regional trail connections, and education programs for motorists and trail users. The Trail Committee's continued involvement with the project can also help to ensure consistency, particularly if the trail is implemented in phases.

### **Plan for future trail operations and maintenance**

Trail hours of operation, winter maintenance, and other specific maintenance responsibilities have not been determined. Additionally, once the trail is constructed, there may be a need to educate motorists and trail users about trail use and safety. These are issues that should be considered and discussed as the Township moves forward with implementation and construction of the trail. Township should plan and budget for future trail operations and maintenance.

### **Develop a trail identity and wayfinding/signage program**

As part of the trail development, East Goshen Township should consider developing an identity for the Paoli Pike Trail. The identity can include a logo, wayfinding and interpretative signage, and specific design guidelines to ensure that the trail aesthetics are consistent and reflect the context and character of East Goshen Township. Wayfinding is especially important for the portion of the trail that utilizes existing trails in the Applebrook Park.

### **Update Township ordinances to incorporate the Paoli Pike Trail**

The Township's Comprehensive Plan and Parks, Recreation, and Open Space Plan, both adopted in 2015, identify implementation of the Paoli Pike Trail as a top priority. The Township should also consider updating municipal ordinances to recognize and incorporate policies to support implementation of the Paoli Pike Trail and other connecting facilities. The *Central Chester County Bicycle and Pedestrian Plan* included an evaluation of the Township's ordinances related to trails, as well as other bicycle and pedestrian facilities. The Township should consider reviewing and updating Township ordinances based on the recommendations in the *Central Chester County Bicycle and Pedestrian Plan*. For example, the Township should consider adding a definition for a multi-use trail, design standards (width and surface material) for multi-use trails, and document maintenance responsibilities. Additionally, the Township can consider developing an Official Map that includes the Paoli Pike Trail alignment.

### **Build a Connected Trail Network**

The Paoli Pike Trail and this Feasibility Study and Master Plan is just one of many steps towards the development of a well-connected trail network in East Goshen Township and beyond. The Paoli Pike Trail can become an east-west spine of the Township's trail network. To realize the full benefits of the investment in the Paoli Pike Trail, the Township should plan for future bicycle and pedestrian facilities to link the trail with nearby residential neighborhoods, employment centers, retail establishments, schools, and parks.



The Parks and Recreation Commission identified development of neighborhood connections or “feeder trails” to the Paoli Pike Trail as a goal of for 2016. This priority next step was also supported by public comments received on the Draft Report for this Feasibility Study and Master Plan. Neighborhood connections can provide safe and convenient routes for residents to walk or bike to the trail and reach the numerous destinations along the corridor. Initial planning efforts can focus on existing residential developments and major destinations that are within a five-to-ten minute walk of the Paoli Pike Corridor. Potential trail connection corridors are highlighted in the map below. The Commission, in coordination with the Trail Committee, can undertake the evaluation of potential alignments and facility types, feasibility analyses, conceptual plans, design, prioritization, identification of funding, and implementation.

In addition to the potential trail connection corridors identified in the map, several commercial property owners along Paoli Pike expressed interest in a sidewalk or trail to provide a direct connection between the Paoli Pike Trail and their respective office buildings or retail establishments. The Township should continue to discuss these short connections with interested property owners to identify potential alignments, facility types, and funding sources for implementation.

As an early action item and in support of building trail connections, the Township is constructing a wood-chip surface trail along the west side of Line Road from the existing trail in Applebrook Park near Paoli Pike to the entrance for the Willisbrook Serpentine Preserve and GCVSA Soccer Fields. When complete in 2016, this trail and improved crossing will link significant parks, recreation, and open space areas in both East Goshen and Willistown Townships with the Paoli Pike Trail.

### Potential Trail Connection Corridors

