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Chapter 1
Background
A | Introduction

In Tredyffrin Township, the area immediately surrounding the Gateway Shopping Center does not sufficiently accommodate the mobility needs of people driving, walking, biking, or using public transit. Automobile circulation is limited by heavy traffic volumes, exiting traffic from US 202, and pass through traffic on Valley Forge Road (PA 252). While there is some bicycle and pedestrian connectivity in the area thanks to the Chester Valley Trail and sidewalk connections to Valley Forge Middle School, a major gap in the network exists around the Gateway Shopping Center. Also, bus stops in the study area consist of little more than bus stop signs with a lack of sidewalk connectivity to access the bus stops.

For these reasons, Tredyffrin Township commissioned the Gateway Multimodal Transportation Study to evaluate multimodal connections within the northeastern section of the township. Funding for this project was partially provided by Chester County through the Vision Partnership Program; which promotes collaboration between Chester County and municipalities to implement Landscapes, Chester County’s Comprehensive Policy Plan. Funding from Chester County was matched by a contribution from Regency Centers (owner of the Gateway Shopping Center) and Tredyffrin Township. McMahon Associates, Inc. was selected to provide planning consulting service for this Gateway Multimodal Transportation Study.

B | Overall Objective and Goals

The overall objective of the Gateway Multimodal Transportation Study is to:

“Evaluate multimodal transportation connections within the northeastern section of Tredyffrin Township.”

To achieve this objective, the following primary goals were identified to guide the development of the Gateway Multimodal Transportation Study:

1. Enhance the transportation network to provide access for all users and encourage non-vehicular travel
2. Provide links for pedestrians and bicyclists between key transportation assets and major destinations within the community
3. Improve access to transit for the community
4. Promote active transportation to improve the health and well-being of residents

Additionally, the study process engaged the community to identify and evaluate appropriate multimodal transportation solutions to address the objectives and goals for Tredyffrin Township.
Chapter 1 - Background

C | Community Collaboration

A study advisory committee was identified at the outset of the Gateway Multimodal Transportation Study to help guide the development of recommendations. This study advisory committee was made up of community leaders and stakeholders within the study area. The study advisory committee consisted of:

- Kevin Onell — Tredyffrin Township Supervisor
- Bill Rountree — Tredyffrin Township Planning Commission
- Tory Snyder — Tredyffrin Township Planning Commission
- John Hricko — Regency Centers
- Art McDonnell — Tredyffrin Easttown School District
- Matthew Gibson — Tredyffrin Easttown School District
- Meg Price — St. Isaac Jogues Parish
- Rachael Griffith — Chester County Planning Commission

The role of the study advisory committee was to provide input on existing transportation issues within the study area and feedback on recommendations and draft materials prepared by the project team. Three study advisory committee meetings were scheduled during the project.

Meeting #1: Project kickoff; Review existing conditions
Meeting #2: Evaluate alternative/draft concept plans; Identify priorities
Meeting #3: Review input from partner agencies and public meeting; Discuss priorities for implementation and funding

Two public outreach meetings were held during the development of the Gateway Multimodal Transportation Study. These meetings were essential opportunities for members of the community and stakeholders to provide input on the recommended improvements. The first public outreach meeting was a field visit with the owners of the Gateway Shopping Center and Tredyffrin Township representatives to discuss how to improve multimodal access to the shopping center. The second public outreach meeting was an open house meeting where attendees had a chance to provide input on existing conditions, the bicycle and pedestrian facility improvements, intersection improvements, and regional trail connections. The meeting was attended by approximately a dozen residents. In general, people were in favor of improving the safety of people who walk and bike in the study area. The primary concerns were related to ongoing maintenance costs of sidewalks that property owners would be responsible for and issues related to traffic congestion at key intersections.

Upon completion of the draft report, a third public meeting included a presentation to the Tredyffrin Township Board of Supervisors. Also, to complement the public meetings, the study materials were posted to the Tredyffrin Township website.

D | Partner Involvement

In addition to the local study advisory committee, it was important to build support from agencies that would help in the future implementation efforts resulting from the Gateway Multimodal Transportation Study. The project team discussed the draft recommendations with representatives from PennDOT District 6. McMahon facilitated a technical coordination meeting with PennDOT District 6 to review the draft conceptual plan. Feedback received from PennDOT was incorporated into the conceptual improvement plans, as appropriate. In some cases, PennDOT recommendations were noted for future consideration or action when the projects advance beyond this planning stage. Additionally, McMahon coordinated with other project partners to discuss the recommended improvements.

E | Project Tasks & Schedule

The following project tasks were identified at the beginning of the planning process and reevaluated as the study progressed:

Existing Conditions Analysis

A review of readily available data to identify opportunities and constraints for implementing future multimodal recommendations. This task included
reviewing relevant plans and studies, developing a base map of the study area, performing a field inventory of the study area, and collecting vehicle turning movement counts at key intersections.

**Multimodal Facilities Concept Plan**

A schematic concept plan was developed that identifies key, implementable improvements to the multimodal network in the study area. The focus of the study was to identify multimodal improvements to Valley Forge Road (PA 252) between Walker Road and Anthony Wayne Drive, East Swedesford Road between the Gateway Shopping Center and West Valley Road, and the Gateway Shopping Center pedestrian connections to both Anthony Wayne Drive and East Swedesford Road. The study area is shown on Figure 1.2.

**Regional Trail & Key Destination Connections**

Multimodal connections were identified to key destinations such as Valley Forge National Historic Park, Valley Forge Middle School, Swedesford Road, Wilson Farm Park, Chester Valley Trail, residential neighborhoods in the study area, and employment centers in the study area. Typical, illustrative cross sections were developed at secondary locations to provide examples of appropriate facility designs along with a preliminary implementation plan with order of magnitude cost estimates and recommended next steps.

**Implementation Plan & Funding Strategy**

An implementation plan was developed with particular focus on providing a realistic funding strategy for design and construction of the recommendations. The implementation plan serves as a blueprint for Tredyffrin Township to implement the multimodal improvements that are identified in the Gateway Multimodal Transportation Study.

**Scope Changes**

During the development of the Gateway Multimodal Transportation Study, Tredyffrin Township selected McMahon Associates, Inc. to update the Tredyffrin Transportation Partnership Transportation Capital Improvement Program. There was some overlap in certain aspects of the scope of work for these two projects, and some complementary information data gathered for that study proved useful for the Gateway Multimodal Transportation Study. That data was included in this report, and it includes traffic data and operational analyses. Also, a field meeting to review conceptual improvements was held in lieu of a general public meeting. However, to better align the two project schedules, the initial 12 month project schedule was extended. The final project schedule for the Gateway Multimodal Transportation Study is depicted in Figure 1.1 below.
Chapter 2
Existing Conditions
Chapter 2 - Existing Conditions

A | Transportation Overview

The area surrounding the Gateway Shopping Center in Tredyffrin Township benefits from having access to multiple transportation options. Access to area highways is provided by Swedesford Road, Valley Forge Road (PA 252), and US 202. There is a fairly comprehensive network of existing sidewalks, but it is hampered by a few key missing connections. The Chester Valley Trail provides a bicycle and pedestrian connection to the larger region. SEPTA buses connect this area to regional rail and other major destinations. However, even with these multiple transportation choices, getting around can be a difficult task, especially for the most vulnerable users—people biking, walking, or using public transportation.

This chapter summarizes the existing transportation features and related issues that negatively impact the mobility of residents and visitors in the study area. The identified issues illustrate the need for multimodal improvements in the study area.

General characteristics for the roads studied are provided in Table 2.1.

B | Pedestrian Connectivity

Sidewalks and crosswalks in the study area vary in design and state of repair. A detailed inventory of the existing pedestrian facilities was not performed as part of this study, however, the existing pedestrian facilities are summarized below.

The hub of pedestrian connections in this part of Tredyffrin Township is Valley Forge Middle School. Students are able to walk to school from most of the surrounding residential neighborhoods thanks to crossing guards posted at key locations along Valley Forge Road and Chesterbrook Boulevard. There are dedicated pedestrian connections to the school from the Chesterbrook communities of Springdell Village and Green Hills. The sidewalk network within Chesterbrook is fairly extensive; pedestrians are generally able to navigate within and between the various communities. On the eastern side of Valley Forge Road, a sidewalk along Walker Road provides access to Valley Forge Middle School and Valley Forge Elementary School from Anthony Wayne Drive and West Valley Road. A crosswalk at the intersection of Brookmead Road and Valley Forge Road connects to an existing pedestrian path along Valley Forge Middle School’s frontage on Valley Forge Road.

Additional sidewalk connections in the study area include:

- Swedesford Road—from Valley Forge Office Center into Upper Merion Township.
- Old Eagle School Road—from Swedesford Road to Devon Park Drive
- West Valley Road—from US Post Office to Swedesford Road (crossing Chester Valley Trail)
- West Anthony Wayne Drive—from Valley Forge Road into Wilson Farm Park

All pedestrian connections in the study area are depicted on Figure 2.1.
GATEWAY MULTIMODAL TRANSPORTATION STUDY

FIGURE 2.1 - EXISTING SIDEWALKS, TRAILS, & BICYCLE LEVEL OF TRAFFIC STRESS

Legend
- Sidewalks
- Trails
- SEPTA Bus Stops
- Crossing Restrictions

Bike Level of Traffic Stress
- LTS 1
- LTS 2
- LTS 3
- LTS 4

Destinations
- Employment
- Recreation
- Retail
- Religious
- School

Sources:
- Trails, Sidewalks - Chester County GIS
- Bicycle LTS - DVRPC
Chapter 2 - Existing Conditions

C | Bikeability

For the purposes of the Gateway Multimodal Transportation Study, bikeability refers to the ease in which a person is able to ride a bicycle on area roadways or trails.

The bikeability of roadways in the study area was determined using the Delaware Valley Regional Planning Commission’s (DVRPC) Bicycle Level of Traffic Stress (LTS). According to DVRPC:

“Level of Traffic Stress (LTS) is a road classification scheme based on the comfort of bicyclists in the traffic stream. DVRPC’s LTS assignment is based on the number of lanes, effective vehicle speed, and presence/type of bicycle facility.”

There are four categories of LTS as shown on Figure 2.1; level 1 being the least stressful and level 4 being the most stressful. Most neighborhood streets fall within LTS 1, meaning they are relaxing and suitable for children to bicycle. Busier roads that connect neighborhoods, like Chesterbrook Boulevard, Walker Road, and Valley Forge Road, mostly fit into the LTS 3 category. These roads have a moderate stress level and would be suitable for people with more experience with on-road cycling. Areas with a larger number of lanes tend to have a higher number of conflict points and faster moving traffic and fit into LTS 4. In the study area, LTS 4 roads include Swedesford Road and Valley Forge Road in the area around the US 202 interchange.

The Chester Valley Trail is a major multi-use trail facility that roughly bisects the study area. Currently, it connects the Exton Area in the west to King of Prussia in the east, and is part of The Circuit, Greater Philadelphia’s regional network of multi-use trails. However, connections to the Chester Valley Trail are limited within the study area. These public access points are listed below:

- West Valley Road—sidewalks along West Valley Road provide connections to the Chester Valley Trail from the US Post Office and Swedesford Road.
- Devon Park Drive—there is a link to the Chester Valley Trail from the intersection of Devon Park Drive and Old Eagle School Road.

Additionally, various private connections to the Chester Valley Trail have been made from businesses and residential communities. These connections improve multimodal connectivity and provide additional mode choice, but serve limited users due to access restrictions.

D | Transit Access

The study area is served by SEPTA’s Route 92 and Route 124 buses. Route 92 connects Exton and West Chester to the Paoli Train Station and King of Prussia. Route 124 connects Chesterbrook to King of Prussia, the Wissahickon Transportation Center, and Center City Philadelphia. In 2017, daily weekday ridership on SEPTA’s Route 92 averaged 383 riders per day; Route 124 saw 1,486 riders per day.

These two bus routes provide access to much of Philadelphia’s western suburbs and to Philadelphia itself. However, access to these bus routes is challenging. Gaps in the sidewalk network mean that people have no accommodating way to reach the stops. Access to the bus stops is further impeded by pedestrian crossing restrictions at key signalized intersections where bus...
stops are located. Additionally, most of the bus stops are little more than a sign on a post. A cursory inventory of bus stops located in the study area is provided in Appendix A.

There has been some consideration for improving access to bus stops in the past. The Chester County Planning Commission produced *Enhancing the Transit Environment* in 2016. This study looked at key bus stops throughout Chester County and identified potential improvements that would enhance the overall user experience. One of the case study bus stops was within the study area for the Gateway Multimodal Transportation Study. That case study looked at improving the amenities and connectivity to the bus stop serving the Gateway Shopping Center, whereby currently, SEPTA buses in the eastbound direction stop on the one-way access road between Swedesford Road and the US 202 off-ramp. Return trip riders must either traverse Valley Forge Road at the US 202 interchange area to reach a bus stop on the south side of US 202, or they must walk along Swedesford Road to catch an eastbound bus on the far side of the busy West Valley Road intersection.

There is an abundance of potential ridership generators in the area surrounding the Gateway Shopping Center. The shopping center itself is a destination, along with a large US Post Office located on West Valley Road, commercial uses along Swedesford Road west of Valley Forge Road, the Valley Forge Rest Stop of the PA Turnpike, and office locations along Swedesford Road and Devon Park Drive. However, pedestrian infrastructure to access the bus stops is largely absent.

These factors were considered when identifying future pedestrian improvements in the Gateway Shopping Center area.

### Traffic Operations & Safety

The Gateway Shopping Center is strategically located with ease of access to multiple regional highways. Roadways in the study area feed traffic to and from US 202, which provides access to US 30, US 422, the Pennsylvania Turnpike, and the Schuylkill Expressway (I-76). These connections provide convenient automobile access to Philadelphia and its western suburbs. The basic characteristics of these and other roadways in the study area are summarized in Table 2.1.

The high connectivity of area roadways and high density of residential, institutional, and commercial properties, in association with unusual intersection geometry and high traffic volumes contribute to poor intersection operations at key locations in the study area. Some of the intersections perform below an acceptable level of service as depicted on Figure 2.2. This can lead drivers to make poor decisions while driving or seek alternative routes. The alternative routes tend to be neighborhood streets where the additional cut-through traffic poses a challenge to vulnerable users. Poor driving decisions can result in dangerous situations for drivers, pedestrians, and bicyclists.

Most crashes within the study area are clustered in the area immediately surrounding the US 202 interchange. This is to be expected, as these roadways are carrying the highest volume of traffic and are consequently the intersections that perform at the lowest level of service. Crash clusters are depicted in Figure 2.3. A significant number of crashes involving pedestrians occurs in the study area. This can be attributed to the deficiencies in the sidewalk connectivity in the area.

Truck traffic volumes are generally low to moderate in this area; less than 5% on most roadways. However, there are some potential generators of truck traffic including the large US Post Office Facility, light industrial uses along Devon Park Drive, and various retail shopping centers (including the Gateway Shopping Center).
<table>
<thead>
<tr>
<th>Road Name</th>
<th>Owner</th>
<th>Functional Classification</th>
<th>Land-use Context</th>
<th>ADT</th>
<th>Speed Limit</th>
<th>Width</th>
<th>Shoulder</th>
<th>Curb</th>
<th>Sidewalk</th>
</tr>
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<tbody>
<tr>
<td>Valley Forge Road (PA 252)</td>
<td>PennDOT</td>
<td>Community Arterial</td>
<td>Suburban Neighborhood</td>
<td>17,510</td>
<td>40</td>
<td>42'</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Walker Road (west of W. Valley Road)</td>
<td>Township</td>
<td>Community Collector</td>
<td>Suburban Neighborhood</td>
<td>1,454</td>
<td>25</td>
<td>32'</td>
<td>No</td>
<td>Yes</td>
<td>One-side</td>
</tr>
<tr>
<td>Walker Road (east of W. Valley Road)</td>
<td>Township</td>
<td>Community Collector</td>
<td>Suburban Neighborhood</td>
<td>1,454</td>
<td>25*</td>
<td>26'</td>
<td>No</td>
<td>Varies</td>
<td>No</td>
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<tr>
<td>Swedesford Road (east of W. Valley Road)</td>
<td>PennDOT</td>
<td>Community Arterial</td>
<td>Suburban Corridor</td>
<td>9,441</td>
<td>45</td>
<td>60'</td>
<td>No</td>
<td>Yes</td>
<td>One-side</td>
</tr>
<tr>
<td>Swedesford Road (between W. Valley Road and Gateway Access)</td>
<td>Township</td>
<td>Local</td>
<td>Suburban Corridor</td>
<td>—</td>
<td>45</td>
<td>52'</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<td>W. Valley Road (under US 202)</td>
<td>PennDOT</td>
<td>Community Arterial</td>
<td>Suburban Corridor</td>
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<td>35</td>
<td>38'</td>
<td>One-side</td>
<td>Yes</td>
<td>One-side</td>
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<tr>
<td>W. Valley Road (north of Swedesford Road)</td>
<td>Township</td>
<td>Local</td>
<td>Suburban Neighborhood</td>
<td>—</td>
<td>25</td>
<td>24'</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>W. Valley Road (south of Swedesford Road)</td>
<td>Township</td>
<td>Local</td>
<td>Suburban Corridor</td>
<td>—</td>
<td>35</td>
<td>35.5'</td>
<td>No</td>
<td>Yes</td>
<td>Varies</td>
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<tr>
<td>Devon Park Drive</td>
<td>Township</td>
<td>Local</td>
<td>Suburban Corridor</td>
<td>5,177</td>
<td>25</td>
<td>39.5'</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Old Eagle School Road (north of Swedesford Road)</td>
<td>Township</td>
<td>Community Collector</td>
<td>Suburban Neighborhood</td>
<td>2,827</td>
<td>25</td>
<td>24'</td>
<td>No</td>
<td>Varies</td>
<td>No</td>
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<tr>
<td>Old Eagle School Road (south of Swedesford Road)</td>
<td>PennDOT</td>
<td>Community Arterial</td>
<td>Suburban Corridor</td>
<td>11,664</td>
<td>45</td>
<td>48'</td>
<td>Yes</td>
<td>Yes</td>
<td>One-side</td>
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<td>Source</td>
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<td>Township Comp Plan—Translated to PennDOT</td>
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<td>Township Code</td>
<td>Field</td>
<td>Field</td>
<td>Field</td>
<td>Field</td>
</tr>
</tbody>
</table>

*Speedhumps are installed between W. Valley Road and Thomas Road.*
The project team and stakeholders during a field visit to the study area.
Study Intersections

Weekday Morning
Peak hour — LOS

Weekday Afternoon
Peak Hour — LOS

Legend
- Study Intersections
- Weekday Morning Peak hour — LOS
- Existing Lane/Movement
- Existing Traffic Signal
- Existing Stop Control

Callout Boxes
1. Valley Forge Rd/Walker Rd
2. Valley Forge Rd/Sullivan Rd
3. Valley Forge Rd/Anthony Wayne Dr
4. Valley Forge Rd/E Swedesford Rd
5. Valley Forge Rd/W Swedesford Rd
6. Anthony Wayne Dr
7. E Swedesford Rd
8. W Valley Rd/E Swedesford Rd
9. W Valley Rd/E Swedesford Rd
10. W Valley Rd/Devon Park Dr
11. Wembley Dr/E Swedesford Rd
12. Old Eagle School Rd/E Swedesford Rd
13. Old Eagle School Rd/Devon Park Dr
Chapter 2 - Existing Conditions

F | Transportation Related Demographics

According to the US Census Bureau, approximately 2,253 people live within the study area. The current unemployment rate in the study area is 4.51%. This is slightly lower than the 4.7% unemployment rate for Tredyffrin Township and the 5.33% unemployment rate in Chester County. In addition to the low prevailing unemployment rate, the township is predicted to undergo substantial population and employment growth over the next 30 years. DVRPC predicts the population of Tredyffrin Township will grow 11.84% between 2015 and 2045. This is coupled with an employment growth prediction of 11.94% in the same period.

Vehicle ownership is widely prevalent among residents within the study area. According to the US Census Bureau, only 1% of households in the study area do not have access to a car. In fact, 57% of households in the study area have access to two or more vehicles, and 76% of residents commute alone. The average household size is 2.49 people and there are approximately 383 children ages 5-14 within the study area. Other key study area demographics are highlighted in the graphics below.

However, these demographics do not take into account people commuting from other areas to work in the study area. To some degree, these individuals are more likely to rely on modes other than single occupancy vehicles; like public transportation, walking, or biking.
Chapter 2 - Existing Conditions

G | Key Findings

The primary mobility issues faced by the study area are summarized below. These key findings identify the need for multimodal transportation improvements within the study area. The recommendations are designed to:

- Enhance the transportation network to provide access for all users
- Improve access to public transportation
- Promote active transportation to improve the health and wellbeing of residents

Primary Mobility Issues

Gaps in the sidewalk network make it hard for people to walk to destinations.

Roadway design and vehicle speeds impede bicycle mobility.

Access to bus stops is limited by poor pedestrian connectivity.

Atypical intersection design and high traffic volumes impact ability to efficiently move traffic.
Chapter 3 - Multimodal Network

A | Identified Issues

The area surrounding the Gateway Shopping Center is served by a variety of transportation options. However, due to confusing traffic circulation, disconnected bicycle and pedestrian networks, and missing links to public transportation, travel in the area can be quite difficult and often frustrating.

Through the public outreach efforts, coordination with stakeholders, and at the advice of the steering committee, the following issues were identified as the primary concerns in the community.

- **Sidewalk Network Gaps**—Within the study area, there are disconnected segments of sidewalks that serve the pedestrian needs of specific sites but do not connect to make a complete network.
  - Sidewalks along Swedesford Road deliver transit riders to office locations. However, sidewalks are not present on both sides of the road and connections to building frontages are limited.
  - The Gateway Shopping Center is effectively a pedestrian island. An interior walkway network connects all of the storefronts, but there are no sidewalk connections for people to access the site.
  - Sidewalk connections to Valley Forge Middle School and Valley Forge Elementary School afford students from the surrounding area the opportunity to walk to school. However, these sidewalks do not serve broader connection needs.
  - There is little space within the public right-of-way to make improvements to the sidewalk network, and therefore, right-of-way or easements may be necessary to advance projects.

- **Speeding Vehicles**—Some roadways within the study area were designed with a priority on peak-hour automobile capacity, rather than mobility for all users.
  - Much of Swedesford Road is designed with two travel lanes in each direction. At most times, there is an abundance of capacity. This combined with the long, straight nature of the road enables motor vehicles to speed, creating an inhospitable environment for people walking, biking, or using public transportation.
  - Walker Road is another long, straight roadway in the study area that is susceptible to speeding vehicles. For this reason, speed humps have been installed on Walker Road at some locations. However, excessive speeds still exist in the areas where no speed humps are present.

- **Cut-through Traffic**—Traffic congestion often pushes commuters from the main roadways onto residential streets in an attempt to avoid lengthy delays. Residential streets are designed to provide access to people who live along them, and these residential roads are not designed to accommodate large traffic volumes at a high rate of speed. Additionally, residential streets are often shared between mode types (people may be walking or biking in the same space that motor vehicles operate). Therefore, any increase in traffic volume is a concern. The primary cut-through concern in the study area is West Valley Road immediately north of Swedesford Road, as well
as adjoining neighborhood streets. Tredyffrin Township has made an effort to reduce cut-through traffic on West Valley Road between Swedesford Road and Walker Road by installing time restricted “No Thru Traffic” signs. While these signs likely deter a percentage of cut-through traffic, they are difficult to enforce. Cut-through traffic is still evident on West Valley Road.

- **Vehicular Circulation**—Through the efforts of the Tredyffrin Township Transportation Partnership Capital Improvement Plan, a few intersections in the study area were identified to be operating at an overall Level of Service (LOS) E or lower. An intersection operating at LOS E or lower means that the intersection is operating at or near capacity, resulting in intolerable delays for motorists. LOS is a letter grade scale from A to F based on the calculated delay. This delay is calculated using a variety of factors, such as traffic volumes and traffic signal phasing. A separate LOS is calculated for the weekday morning and afternoon peak hours. For a variety of factors, the PM LOS is often lower than the AM LOS. However, the overall LOS of an intersection may not tell the full story. The overall LOS is the average delay for all vehicles utilizing an intersections, and an intersection which operates at an acceptable LOS overall may have one or more movements which operate at LOS E or worse. The following intersections were identified as operating at an overall LOS E or lower during at least one of the peak hours:

  - Valley Forge Road / Swedesford Road
    - PM LOS E
  - Swedesford Road / Old Eagle School Road
    - PM LOS E
  - Devon Park Drive / West Valley Road
    - PM LOS F

The LOS at all intersections in the study area is depicted on Figure 2.2. Further information can be found in the Tredyffrin Township Transportation Partnership District Capital Improvement Plan. However, the Level of Service doesn’t fully illustrate how intersections are functioning in this study area. Tredyffrin Township being bisected by the US Route 202 corridor has created many awkward intersection configurations. This is especially true along Swedesford Road and in regards to access to the Gateway Shopping Center. Queuing space is limited at both the eastern and western accesses to the Gateway Shopping Center. The eastern access is complicated by intersecting Anthony Wayne Drive only approximately 50 feet from the intersection with Valley Forge Road. The eastern access has to contend with heavy turning movements and parked cars within the shopping center. These short queuing lengths are often overwhelmed by the volume of traffic the intersections receive.

- **Transit Amenities & Ridership**—SEPTA Bus Routes 92 and 124 serve many bus stops within the study area. Most of these stops are within the Swedesford Road corridor, with some stops along Devon Park Drive. Accommodations at these stops range from transit shelters to signs on posts, and pedestrian connectivity to most of the stops is very limited. These SEPTA bus routes provide connections to the Paoli Regional Rail/Amtrak station in the west and King of Prussia and Norristown in the east. They are serving many riders commuting from Philadelphia to employment in suburban Chester County.

- **Regional Trail Access**—The Chester Valley Trail (CVT) is a major regional trail in Chester County and is part of Greater Philadelphia’s Trail Network—The Circuit. While the study area is bisected by the CVT, connections to surrounding residential, commercial, and office locations are limited. Recently, Tredyffrin Township constructed a sidewalk access under US Route 202 along West Valley Road. The sidewalk project provided a connection between the CVT and Swedesford Road. However, a lack of continuous sidewalks beyond the northern intersection of Swedesford Road and West Valley Road still limits pedestrian access to the CVT in this area.

- **Valley Forge Road Multimodal Route**—Under current conditions there are challenges for pedestrians and bicycles traveling along Valley Forge Road. There is no dedicated infrastructure, and vehicle speeds and traffic volumes present a danger to pedestrians and bicycles. However, there are two prominent destinations at the northern end of Valley Forge Road—PA Turnpike Rest Stop and Valley Forge National Historic Park.
### B | Multimodal “Toolbox”

There is a clear need to serve all modes of transportation in the study area. This section attempts to illustrate the types of facilities that may be implemented to improve the transportation network in the study area. This is not intended to be an exhaustive list, but it provides illustrative examples of infrastructure improvements that are recommended in this document. Evaluation of the treatments that work best for Tredyffrin Township would be needed before any of these improvements are installed.

<table>
<thead>
<tr>
<th>Motor Vehicle Circulation</th>
</tr>
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<tbody>
<tr>
<td>Signal Modernization / Retiming</td>
</tr>
<tr>
<td>Roundabout</td>
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</tbody>
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<thead>
<tr>
<th>Pedestrian Network</th>
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<tr>
<td>Sidewalks</td>
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<td>Crosswalks / Pedestrian Signals</td>
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<tr>
<th>Transit Improvements</th>
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<tbody>
<tr>
<td>Bus Stop Amenities</td>
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<tr>
<td>Connections</td>
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<table>
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<tr>
<th>Multimodal Connections</th>
</tr>
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<tbody>
<tr>
<td>Multi-use Trail</td>
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<tr>
<td>Neighborhood Street</td>
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<tr>
<th>Bicycle Routes</th>
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<tr>
<td>Bicycle Lane</td>
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<td>Shared Use Lanes</td>
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<tr>
<th>Traffic Calming</th>
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<tbody>
<tr>
<td>Chicanes</td>
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<tr>
<td>Speed Hump</td>
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</tbody>
</table>

*Definitions on the following page.*
Chapter 3 - Multimodal Network

Motor Vehicle Circulation

**Signal Modernization / Retiming**—Improvements to the existing traffic signal systems to improve signal timing and decrease delay at signalized intersections.

**Roundabout**—A type of intersection in which traffic is permitted to flow in a counter-clockwise direction around a central island. Vehicles attempting to enter the intersection must yield to vehicles already in the intersection. The benefits of this type of intersection over typical signal controlled intersections include increased capacity and improved safety due to the reduction of conflict points, lower speeds, and easier decision making.

Pedestrian Network

**Sidewalks**—A paved path along the side of a roadway to accommodate the safe movement of pedestrians.

**Crosswalks / Pedestrian Signals**—Pavement markings and devices that assist pedestrians in crossing roadways. Pavement markings typically consist of high visibility paint or thermoplastic coatings, but can sometimes be a textured pattern or pavers. In some locations, raised crosswalks may provide additional traffic calming to improve pedestrian safety. Pedestrian signals should be installed at signalized intersections to provide guidance to pedestrians on when it is safe to cross. Note: Pennsylvania law permits pedestrians to legally cross at any intersection unless expressly prohibited.

Transit Improvements

**Bus Stop Amenities**—Street furniture that are meant to improve the user experience at bus stops while remaining low maintenance to property owners. Bus stop amenities may include benches, bus shelters, schedule displays, or anything that would be useful to a transit rider.

**Connections**—Paths that provide access for pedestrians between bus stops and destinations. Connections may be located in the road right-of-way or interior to properties.

Multimodal Connections

**Multi-use Trail**—Transportation/recreation infrastructure that is intended for multiple non-motorized modes of travel (i.e. walking, biking, etc.). Multi-use trails are a minimum of eight (8’) feet wide and may have a paved surface or compacted stone. The Chester Valley Trail is an example of a multi-use trail.

**Neighborhood Street**—Sometimes called “advisory shoulders”, these are usable areas for bicyclists and pedestrians on a roadway that is otherwise too narrow to accommodate separate facilities. A striped area on either side of the road is reserved for bicycle and pedestrian use. Motor vehicles travel in the center of the roadway, but may use the area designated for bicycles and pedestrians to pass oncoming traffic safely when it is not occupied by people biking or walking. Neighborhood streets have low traffic volumes and vehicle speeds. The typical design of an advisory shoulder is depicted in Figure 3.1 below.

This design would require approval from PennDOT Central Office.

Bicycle Routes

**Bicycle Lane**—Designated space within a roadway for the exclusive use by bicyclists. Bicycle lanes are delineated by pavement markings and signage. Bike lanes are located directly adjacent to the motor vehicle travel lane and follows the same direction as vehicular traffic.

**Sharrow**—Pavement markings within the vehicular travel lane to indicate that there may be an increased volume of bicycles in the area. Sharrows should be used only to connect other bicycle friendly facility types when no other accommodation can be made. Appropriate signage should accompany sharrow application or be used in lieu of.

Traffic Calming

**Chicanes**—A designed serpentine curve in a road intended to cause motor vehicles to slow down in areas where speeds are in excess of the posted limit. Chicanes can also create new areas for landscaping and public space within the road right-of-way.

**Speed Hump**—A raised area of the road to cause vertical deflection with the intention of slowing vehicles.

Figure 3.1—Typical Advisory Shoulder Design.
Due to the nature of the disconnected multimodal network described earlier in this chapter, the Gateway Shopping Center is generally isolated except for automobile travel. Though served by public transportation and bisected by one of the region’s premier multi-use trails, access to these transportation alternatives is limited. However, existing pedestrian facilities on the perimeter of the study area present an opportunity for Tredyffrin Township to complete these missing links to serve more users. Figure 3.2 illustrates the key improvements that would complete the multimodal network in the study area. The numbered locations correlate to cross sections presented in Table 3.1 on the following page. Further concept development is needed to advance these improvements.

In addition to the identified multimodal improvements in the study area, several improvements to traffic operations have been identified through the Tredyffrin Township Transportation Partnership District Capital Improvement Plan which was being conducted concurrent with this effort. Those improvements include signal timing modifications at the following intersections:

- Valley Forge Road and Swedesford Road (south)
- Valley Forge Road and Anthony Wayne Drive
- Swedesford Road and Gateway Shopping Center Access
- Devon Park Drive and Old Eagle School Road
- Swedesford Road and Old Eagle School Road
- Swedesford Road and US 202 Ramps

Signal retiming efforts would generally consist of optimizing the signal timing at these intersections to minimize the average length of delay for all approaches.

Additionally, at the intersection of West Valley Road and Devon Park Drive, the Tredyffrin Township Partnership Transportation Capital Improvement Plan (PTCIP) recommends the installation of a traffic signal. This intersection sees a high volume of turning movements, and the traffic monitoring documented a large number of near-misses due to this turning movement conflict. Further evaluation would determine the best infrastructure improvement at this intersection. The PTCIP further details the existing conditions and recommended improvements at the intersections within the study area.

Various safety improvements were identified to provide a vast improvement to the walkability and bikeability in the study area. Many of these improvements are low cost and may be implementable by Tredyfrinn Township Public Works staff. While others will require additional coordination with PennDOT, property owners, and other stakeholders. These improvements are listed below.

- **Sight Distance Improvements at Valley Forge Road/Anthony Wayne Drive**—Pedestrians attempting to cross from the eastern side of Valley Forge Road are obstructed from the view of vehicles turning right from Anthony Wayne Drive. This could be remedied by trimming back the vegetation on the northeast corner of the intersection to provide a clear line of sight between motorists and pedestrians waiting to cross.

- **Leading Pedestrian Interval at W. Valley Road/Swedesford Road**—Conflicts between people walking and motorists could be reduced at the intersection of W. Valley Road and Swedesford Road if pedestrians were given a head start to cross the road before vehicles. This is known as a leading pedestrian interval, and it has the ability to reduce pedestrian-vehicle collisions as much as 60% (NACTO). Providing a leading pedestrian interval at this intersection would not have a major impact on traffic operations.

- **W. Valley Road Lighting Under US 202**—The existing lighting in the underpass that carries the W. Valley Road sidewalk under US 202 provides inadequate illumination for pedestrians and bicyclists. Walking through the underpass can be uncomfortable, which can be mitigated by improving the lighting.

Transit amenities are generally recommended for all bus stops within the study area. At a minimum, these improvements should include a loading pad for improved boarding and alighting, and where sufficient space is available, bus shelters should be installed. Tredyffrin Township staff should work with SEPTA, property owners, and developers to identify the most appropriate improvement at each bus stop. The SEPTA Bus Stop Design Guidelines provides additional details on the type and design of improvements that would be appropriate at bus stops within the study area.

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Sidewalks and Internal Paths to be Installed via Land Development

Multi-use Trail could be Installed as Alternative

Sidewalks could be Installed on Either or Both Sides

Possible Future Multimodal Connection

Sources: Trails, Sidewalks - Chester County GIS; Bus Stops - SEPTA
Chapter 3 - Multimodal Network

- **Speed Feedback Signs**—Residents were concerned about vehicles speeding on Walker Road, W. Valley Road, and Thomas Road. Electronic vehicle speed feedback signs could be installed to alert motorists that they are exceeding the speed limit in these areas.

- **Trail on Swedesford Road**—As an alternative to providing sidewalks along both sides of Swedesford Road east of W. Valley Road, a multi-use trail would provide a safe location for both pedestrians and bicyclists. Limiting the conflict between bicyclists and motor vehicles is achieved by providing an alternative bike facility.

- **Shoulder Improvements on Valley Forge Road**—The long-term recommendation for Valley Forge Road north of the Middle School is to provide a multi-use trail extending to Valley Forge Park. However, a low-cost, interim improvement would be to clear the existing shoulder of debris. This could be implemented as part of a resurfacing project, and would provide adequate space for pedestrians and bicyclists in the short-term.

- **Multimodal Connection Between Walker Road and Anthony Wayne Drive**—An off-road multimodal connection between Walker Road and Anthony Wayne on the west side of Valley Forge Road should be examined.

### Table 3.1—Illustrative Multimodal Improvement Examples (numbers refer to locations on Figure 3.2)

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Multiuse trail added to the west side of Valley Forge Road, north of Valley Forge Middle School</td>
<td>New multiuse trail extending to Valley Forge Park</td>
</tr>
<tr>
<td></td>
<td>- Builds upon existing trail system on Valley Forge Middle School Property</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Connects to Valley Forge National Historic Park and Valley Forge Rest Area (PA Turnpike)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sharrows and signing on Walker Road between Valley Forge Road and Anthony Wayne Drive</td>
<td>New sharrows and signing</td>
</tr>
<tr>
<td></td>
<td>- Improve visibility / awareness of cyclists in the area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Long Term: Provide a sidewalk on the south side of Walker Road</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sharrows and signing on Walker Road between Anthony Wayne Drive and West Valley Road</td>
<td>New sharrows and signing</td>
</tr>
<tr>
<td></td>
<td>- Improve visibility / awareness of cyclists in the area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Long Term: Provide a sidewalk on the north side of Walker Road; consider traffic calming measures</td>
<td></td>
</tr>
</tbody>
</table>

- **Recommended Improvement**
- **Optional or Long-term Improvement**
Table 3.1—Illustrative Multimodal Improvement Examples (numbers refer to locations on Figure 3.2) (Continued)

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Recommended</th>
</tr>
</thead>
</table>
| 4 | Sharrows and signing on West Valley Road between Walker Road and Swedesford Road  
   • Connection between Chester Valley Trail and Walker Road (where the Bicycle LTS is lower)  
   • Optional: Pedestrian symbols to increase awareness of people walking in the roadway |   |
| 5 | Sidewalks, bus shelters, sharrows, and signing on West Valley Road south of Swedesford Road  
   • Large setback provides opportunity for transportation improvements  
   • Long-term: provide two full lanes in each direction (would require widening of US 202 |   |
| 6 | Sidewalk and bike lanes on Devon Park Drive  
   • Reducing lane widths provides traffic calming benefits—decreasing vehicle speeds  
   • Optional: provide sidewalk on both sides |   |
| 7 | Complete missing sidewalk links on Swedesford Road  
   • Complete sidewalk network on south side of Swedesford Road—expand sidewalk network on north side eventually  
   • Provide improved connectivity to bus stops and destinations |   |

*Recommended Improvement  
*Optional or Long-term Improvement
D | Priority Improvements

During project development, key projects were identified that would have the biggest positive impacts on circulation and connectivity in the study area. Concept plans and cost estimates were developed for three pedestrian improvements in the study area:

- **Swedesford Road between the Gateway Shopping Center and West Valley Road**—This improvement was identified to provide a direct connection between the Chester Valley Trail via the new sidewalk constructed along West Valley Road, between Swedesford Road and the Chester Valley Trail. This new pedestrian connection would begin at the Gateway Shopping Center parking lot and continue along the north side of Swedesford Road to West Valley Road. A striped, pedestrian walkway would be provided in the parking lot to connect the new pedestrian walkway to existing sidewalks within the Gateway Shopping Center property. The improvement would consist of a five (5') foot wide pedestrian facility with a three (3') foot wide pedestrian buffer between the facility and curb. The new facility would be completely within the PennDOT right-of-way. However, minimal property acquisition or easements may be required to accommodate the pedestrian facility. This facility would also support access to public transportation.

- **Gateway Shopping Center Western Access**—A connection between Valley Forge Road and the Gateway Shopping Center was identified as a priority, because many students walk from Valley Forge Middle School to the Gateway Shopping Center after school. Currently, there are no pedestrian facilities connecting the destinations. Plenty of space along the access drive presents an opportunity to create an inviting walkway (only very minor right-of-way is needed to complete the improvements). The current concept calls for a five (5') foot wide sidewalk and a three (3') foot wide buffer in most areas. A crosswalk at the intersection of Anthony Wayne Drive would be set to the east of the Shopping Center Access to limit the number of pedestrian conflicts with vehicles at this busy intersection.

- **Valley Forge Road**—The last priority improvement builds upon the Gateway Shopping Center Western Access recommendation by continuing a sidewalk along the eastern side of Valley Forge Road to the intersection of Walker Road. This routing was chosen because the primary users of this facility are expected to be students from Valley Forge Middle School and the school district deploys a crossing guard at the intersection of Valley Forge Road and Walker Road. Identifying the eastern side of Valley Forge Road as the priority location for a sidewalk limits pedestrian-vehicle conflicts at busier intersections to the south, but it does not preclude the possibility of a sidewalk to be constructed on the western side in the future. The chosen alignment does come with some constraints. Minor right-of-way needs will need to be addressed with four property owners. This includes the need to relocate an existing fence on two of the properties. The sidewalk would have to be routed around an existing school zone flashing beacon, as well as an historic marker for Anthony Wayne near the intersection of Walker Road. Additionally, the facility would cross one private driveway. The recommended sidewalk is of a consistent design to the other priority improvements; generally a five (5') foot wide sidewalk with a three (3') foot buffer to the curb.

Additionally, all improvements would be constructed to meet current American’s with Disabilities Act standards by including accessible ramps and other accommodations. These priority improvements, while focused around the Gateway Shopping Center, will provide additional connectivity within the study area. Particularly, they will improve connectivity for individuals using public transportation in the area. Connections to bus stops are lacking in this area of Tredyffrin Township, so providing a safe way for people to walk from the bus stops along Swedesford Road, to and through the Gateway Shopping Center and points beyond will greatly improve mobility. These improvements can be built upon to provide a connection to the Valley Forge Rest Area of the PA Turnpike in the future to provide safe accommodation for individuals that rely on public transportation to commute to that facility.

These three key pedestrian improvements were thought to provide the most transformative impact on the study area. Concept plans and cost estimates are provided on the following pages.
Example of existing sidewalk and preferred public transit infrastructure on Swedesford Road.
GATEWAY MULTIMODAL TRANSPORTATION STUDY

GATEWAY SHOPPING CENTER WESTERN ACCESS

LEGEND

- New pedestrian facility
- Bikeway adjustment
- New curb
- Existing contour (30 ft. interval)
- New edge of pavement
- New setback fence
- Existing right-of-way line
- Existing property line
- Required right-of-way line
- Permanent easement

NOTES:
1. Existing conditions depicted on the conceptual design exhibit are based on aerial photography data obtained from the Pennsylvania Spatial Data Access (PANDA) and limited field views.
2. Existing legal right-of-way and property information shown on this plan is estimated based on plans and documents received from PennDOT and digital data available from Centre County. This information has not been independently verified through field surveys or the latest research.
3. Temporary construction easements required to install the roadway improvements are not shown. The size and location of required temporary construction easements will be determined during the preliminary engineering of the project.
4. Impacts to existing underground utilities will need to be determined during the preliminary engineering of the project through subsurface utility engineering.
5. The potential stormwater management (SWMM) areas are not identified on the exhibit. The type and location of all required SWMM facilities will need to be determined during the preliminary engineering of the project.
Chapter 3 - Multimodal Network

E | Potential Improvement Costs

This section is intended to provide planning-level cost estimates for the recommended improvements in this study. These planning-level costs are intended to provide Tredyffrin Township with guidance for budgeting purposes only. Detailed engineer’s opinion of costs should be developed for each improvement prior to implementation or applying for additional funding through a competitive grant program. The planning-level costs are provided below in Table 3.2.

Engineers opinions of costs were developed for the three priority improvements.
- Swedesford Road between Gateway Shopping Center and West Valley Road — $663,284
- Gateway Shopping Center Western Access — $352,420
- Valley Forge Road — $823,504

These estimates include costs for design, utility relocation, right-of-way, construction, and inspection. Detailed cost estimates are attached in Appendix B of this document.

Table 3.2 — Planning Level Improvement Costs

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Unit Price (Range*)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Equipment</td>
<td>$200,000—$250,000 per intersection</td>
<td>Assuming 4-leg intersection, no ADA ramps</td>
</tr>
<tr>
<td>Signal Retiming</td>
<td>$2,500 per signal</td>
<td></td>
</tr>
<tr>
<td>Sidewalks</td>
<td>$20 per linear foot</td>
<td>Concrete sidewalk (5’ wide)</td>
</tr>
<tr>
<td>Crosswalks (High Visibility)</td>
<td>$1,500 per crosswalk</td>
<td>Continental style pavement marking</td>
</tr>
<tr>
<td>Crosswalks (Textured)</td>
<td>$30,000 per crosswalk</td>
<td></td>
</tr>
<tr>
<td>Pedestrian Signals</td>
<td>$20,000—$35,000</td>
<td></td>
</tr>
<tr>
<td>Bus Shelter</td>
<td>$5,230—$41,850 each</td>
<td></td>
</tr>
<tr>
<td>Bench</td>
<td>$220—$5,750 each</td>
<td></td>
</tr>
<tr>
<td>Multi-use Trail</td>
<td>$64,710—$4,288,520 per mile</td>
<td>Assumed 8’ wide, paved surface</td>
</tr>
<tr>
<td>Sharrow</td>
<td>$22—$600 each</td>
<td>Required maximum spacing — 500’</td>
</tr>
<tr>
<td>Chicane</td>
<td>$2,200—$26,000 each</td>
<td></td>
</tr>
<tr>
<td>Speed Hump</td>
<td>$7,500 each</td>
<td></td>
</tr>
<tr>
<td>ADA Curb Ramp</td>
<td>$6,500 per ramp</td>
<td></td>
</tr>
</tbody>
</table>

*Unit price ranges can vary greatly depending upon the project scope.

Sources:  
- Costs for Pedestrian and Bicyclist Infrastructure Improvements (UNC, 2013)
- Consultant Experience on Similar Projects
Chapter 4
Achievable Goals
Chapter 4 - Achievable Goals

A | Introduction
Transforming the area surrounding the Gateway Shopping Center into a walkable, bikeable, transit friendly community will not happen overnight. Rather, it will take hard work and commitment on the part of the community, municipal staff, property owners, and elected officials.

Availability of funding and other resources will play a big role in determining how the recommendations in this document materialize. However, there are some short-term steps that can be implemented to set up Tredyffrin Township to achieve their long-term vision for transportation in the study area.

This study will serve as the catalyst for implementing multimodal improvements. However, many of the recommendations presented will require detailed follow-up and community support before transformational changes can be implemented.

The Action Plan is organized into three categories:

- **Implementing Priorities** provides next steps for the priority projects identified in this study.
- **Multimodal Policies** lay the groundwork for creating a culture that prioritizes the mobility of people over automobiles.
- **Funding Strategies** identify available funding sources for capital and program improvements.

Figure 4.1 provides an overview of the key action items and general next steps. Overall, policies and capital improvement projects are vastly different in terms of costs, timeframes for implementation, and responsible parties. However, the two categories play an interrelated role in the overall success of the community. For instance, capital projects can build upon successful policy implementation, and effective policies ensure appropriate development of transportation infrastructure that serves all people.

![Figure 4.1 — Overview of Action Items and Next Steps](image-url)
Chapter 4 - Achievable Goals

B | Implementing Priorities

Capital improvements can be implemented in a number of ways in the study area. Typically, the responsible entities are the municipality, PennDOT, or a property owner (via the land development process). However, regardless of who takes the lead on implementation, there are a few next steps that Tredyffrin Township can work on to position these capital improvement projects for implementation.

Build Community Support

Building a strong foundation of local support can start immediately. Successful implementation of capital improvements relies heavily on the will of residents that will be impacted by the projects, both positively and negatively. Getting people talking and excited about the project goes a long way towards advancing implementation. However, it is important that a consistent and unified message is communicated throughout the community. To facilitate this, Tredyffrin Township can employ a few key strategies highlighted below.

- Develop a flyer or brochure highlighting the need and benefit for improving multimodal connectivity in the study area. This flyer can be distributed to Tredyffrin Township elected officials, residents, and key stakeholders via newsletters, mailings, community meetings, events, and posting on the township’s website.
- Devote a prominent page on the township’s website to track the progress and provide updates on the advancement of the priority projects.
- Give presentations and have conversations with various homeowners associations and businesses in the vicinity of the improvements.
- Target outreach to property owners who will be most impacted by the projects.
- Demonstrate the regional benefit to and request letters of support from neighboring municipalities, large employers, and institutions.
- Remain engaged with PennDOT in regards to future maintenance on area roadways.
- Provide input to the Chester County Planning Commission on their biennial updates to the county’s Transportation Improvements Inventory.

Various stakeholders will need to be engaged to advance the capital improvements. The following list highlights some of the key project stakeholders, but it is not intended to be an exhaustive list. Additional important stakeholders may be identified as Tredyffrin Township builds community and political support for the project.

Organizations

- Tredyffrin Township Board of Supervisors
- Pennsylvania Department of Transportation (PennDOT), Engineering District 6
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Delaware Valley Regional Planning Commission (DVRPC)
- Chester County Planning Commission
- Chester County Board of Commissioners
- Tredyffrin-Easttown School District
- Regency Centers (owners of Gateway Shopping Center)
- Greater Valley Forge Transportation Management Association
- Transportation Management Association of Chester County

Pennsylvania General Assembly

- PA House District 157 Representative Melissa Shusterman
- PA Senate District 19 Senator Andrew E. Dinniman

United States Congress*

- Senator Robert Casey Jr.
- Senator Patrick Toomey
- PA 6th District Representative Chrissy Houlahan

*As of January 2019. Elected officials are subject to change. Check for district representation.

Identify Phasing

Given the scope and scale, Tredyffrin Township may wish to implement the improvements in a series of
Chapter 4 - Achievable Goals

phases. Availability of funding and other factors impact which capital improvements should be pursued first. Tredyffrin Township staff, with input from boards and commissions, should examine the recommendations in this document to identify the sequencing for implementation. It is logical that the priority capital improvement projects would be advanced before the additional multimodal connections are considered. The priority projects already have a jump start on implementation, because concept plans and cost estimates have been prepared for this effort.

Each of the three priority projects have some independent utility. Therefore, they could be implemented in any order and still provide an increased transportation benefit to the community. Factors that Tredyffrin Township should consider when deciding how to phase the implementation of these projects include availability of funding, benefit to the community, and community support.

Pedestrian Checklist

A small interim step that could be completed by township staff or with assistance of a transportation engineering consultant is the completion of PennDOT’s Pedestrian Accommodation at Intersections Checklist (TE-672). This form is used to determine the justification for providing pedestrian accommodation at intersections.

“As specified in the MUTCD, Section 4E, an engineering study shall be conducted to determine the need for pedestrian accommodation at signalized intersections and the related design and operational features. Based on the engineering study and engineering judgment, proper documentation shall be made at all new signalized intersections and modifications to existing signalized intersections. This documentation shall be provided with guidance from this checklist.”

TE-672

Much of the information needed to complete the checklist has been compiled during this effort or through the Tredyffrin Township Transportation Capital Improvement Plan that was developed concurrently. Additional information needs that will need to be obtained include:

- Identification of the need for Accessible Pedestrian Signals (APS), pushbuttons, and countdown timers.
- Justification statement for improving pedestrian accommodation at study area intersections.

Property Owner Coordination

Construction of some priority improvements will require the acquisition of right-of-way or easements from private property owners. Tredyffrin Township should begin coordinating with impacted property owners to complete the projects.

Acquiring the necessary property ahead of time can remove a complicated step in the project delivery process.

In addition to property acquisition, it is important to Tredyffrin Township to communicate the future maintenance responsibilities to the property owners. Some of those responsibilities are currently covered in the Tredyffrin Township Code—Chapter 177: Streets and Sidewalks, which details how and when sidewalks shall be cleared after a snow event.

Recommended Funding Strategy

Appropriate funding sources are listed later in this chapter. However, the project team believes that the Multimodal Transportation Fund (MTF) from either PennDOT or the Commonwealth Financing Authority would be most appropriate for implementing the priority improvements in the study area. Tredyffrin Township could submit a joint application with key stakeholders to obtain funding for all three priority projects in one MTF round.

For example, if Regency Centers takes responsibility for design and construction of the Gateway Shopping Center Western Access project and Tredyffrin Township completes right-of-way acquisition for the other two projects the matching requirements should be satisfied for the MTF program. This would be an excellent example of a public/private partnership, which would likely score very highly with these programs. For an investment of less than $450,000, nearly $1,400,000 could possibly be awarded for construction of these pedestrian connections.
Multimodal Policies

Policies and ordinances can be the catalyst for a physical transformation to the area around the Gateway Shopping Center. These policies can help guide the type and design of future development or redevelopment in the study area to create the walkable community that is desired.

These action items are usually significantly lower in cost compared to capital improvement projects. Depending upon the nature of the policy changes, some can be implemented in a short time frame, while others may require a longer time to build community support for the change. In many cases, utilizing professional services from a planner or legal counsel is beneficial to help develop appropriate policy language. This is particularly important for amendments to the Zoning Ordinance. The Board of Supervisors, Planning Commission, and township staff play a key role in developing updates to township policies and plans.

Land Use Regulations

A review of Tredyffrin Township’s current land use regulations was completed as part of this study. The full review can be found in Appendix C of this document, but some highlighted findings are listed below.

- Trail facilities are not defined.
- Sidewalks are not required for all land developments.
- Sidewalk design standards may not meet minimum ADA requirements as written.
- Trail design standards do not meet current best practices for recommended design standards.
- No guidance is provided for the development of on-road bicycle infrastructure.

Addressing these inconsistencies and deficiencies will help Tredyffrin Township obtain a cohesive multimodal network throughout the township, and specifically within the study area.

Official Map

Tredyffrin Township should consider adopting an official map to guide where community facilities and infrastructure should be installed via the land development process. An Official Map communicates the planned locations of future public lands and facilities such as streets, trails, parks, and open space. Benefits of an Official Map include focusing limited financial resources, making needed connections, communicating community plans to property owners and developers, creating an effective negotiation tool, supporting other land use tools, and addressing public land acquisition needs.

Tredyffrin Township has a head start on creating an Official Map with the Green Routes Pedestrian Network map. This map can serve as the base for development of an Official Map in the future.

Complete Street Policy

Many municipal governments have adopted complete streets policies to illustrate their commitment for safe transportation infrastructure for all. Smart Growth America has prepared a Complete Streets Local Policy Workbook to help municipalities develop complete streets policies of their own.

The Smart Growth America guide identifies four key steps to developing a municipal complete streets policy.

1. Modify existing ordinances to support complete streets.
2. Develop design guidelines for multimodal facilities.
3. Educate staff and elected officials on the importance of planning for all users of the transportation system.
4. Measure progress in implementing complete streets projects and policies.

The guidebook also provides useful example language for municipalities to incorporate complete streets policies into municipal code.

In a similar effort, Tredyffrin Township passed a resolution supporting the development of Circuit Trails. A complete streets resolution would go one step further to ensuring the township’s commitment to all users on all public facilities in the township.

Education

Tredyffrin Township can have a role in educating residents about the rules of the road related to pedestrians and bicyclists. Information and tips can be posted on the township’s website and included in regular mailings to residents. The township should work with bicycle and pedestrian advocacy groups, like Bike Chester County to develop an appropriate outreach strategy.
Funding Strategies

Funding for transportation projects in Pennsylvania can come in a variety of forms. Traditionally, transportation improvements have been funded through the State’s Transportation Improvement Program. However, multimodal improvements like the ones identified in this study, can be funded through competitive grant programs or by other means. The Chester County Planning Commission prepared the graphic below (Figure 4.2) to illustrate how transportation projects are typically funded in Chester County.

Land Development Process

Transportation improvements can be implemented through the land development process when the community vision is properly documented and improvements are effectively negotiated with developers. Land development in the study area is likely very limited. However, this document should be referenced when properties are redeveloped.

Contemporary examples of this situation are currently underway in the study area. The Wayne Glen/Richter Property Development will develop multiple parcels along Swedesford Road and Old Eagle School Road into office (fronting Swedesford Road) and residential uses. The plans for these properties indicate that various multimodal infrastructure will be installed to serve the properties. Additionally, future plans to improve site access at Valley Forge Middle School and Valley Forge Elementary School are not in conflict with this study and should provide a positive impact to mobility in this area.

Figure 4.2—Transportation Project Delivery Process
Chapter 4 - Achievable Goals

Municipal Capital Budget

The most direct and likely fastest means to deliver infrastructure improvements would be for Tredyffrin Township to fully fund the project through the township general fund budget. Maintaining control of the funding would afford the township some flexibility in design. However, many of the recommended improvements are located adjacent to state-owned roads. Therefore, minimum design criteria from PennDOT would need to be met, and will be subject to PennDOT review and approval.

The time and cost savings of funding a project in this manner is gained by reducing the amount of review and approvals needed. The township would be required to obtain a Highway Occupancy Permit (HOP) to construct improvements within PennDOT’s right-of-way. Tredyffrin Township could consider enacting a Transportation Impact Fee for developers to fund offsite improvements that address deficiencies in the transportation system. Fees collected would only be eligible to be used on projects identified in a Tredyffrin Township Transportation Capital Improvement Plan which is limited to road capacity improvements.

PennDOT offers financing assistance to municipalities for transportation capital improvements. The PA Infrastructure Bank is a program that provides low interest loans for transportation projects. The program is intended for construction projects, but other phases such as design, right-of-way acquisition, and transportation equipment purchases are considered on a case by case basis. Eligible projects include road construction and resurfacing, traffic signals and signal upgrades, drainage structures, and stormwater management.

Tredyffrin Township staff should evaluate the feasibility of funding identified projects using township funds.

Competitive Grant Programs

Competitive grant programs provide municipalities with an opportunity to fast-track funding and construction of capital improvement projects. Grant programs typically require the project sponsor to provide some level of matching funds (usually at least 20%), and there are costs associated with administering a grant funded project. Many grant programs utilize federal funds, so funding local projects in this way will involve some of the same project delivery costs as going through the TIP process. Additionally, the required funds to complete the project in whole may not be made available by a competitive grant award, or the project may be awarded funds in phases.

Highlights of appropriate current competitive grant programs is provided below. Tredyffrin Township staff should research each to fully understand the requirements of these funding opportunities individually before making a recommendation to the Board of Supervisors to submit a funding application.

Table 4.1—Appropriate Competitive Grant Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Uses</th>
<th>Constraints</th>
<th>Required Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimodal Transportation Fund—CFA or PennDOT</td>
<td>Projects that coordinate transportation and land use</td>
<td>$100,000—$3,000,000</td>
<td>30% minimum</td>
</tr>
<tr>
<td>Congestion Mitigation and Air Quality (CMAQ)—DVRPC</td>
<td>Transportation projects that improve air quality and reduce congestion</td>
<td>$250,000 minimum</td>
<td>20% minimum</td>
</tr>
<tr>
<td>Automated Red Light Enforcement (ARLE)—PennDOT</td>
<td>Traffic signal and intersection improvements</td>
<td>Projects over $100,000 must be listed on TIP</td>
<td>None required, but encouraged</td>
</tr>
<tr>
<td>Green Light-Go—PennDOT</td>
<td>Existing traffic signal maintenance and operational improvements</td>
<td>Projects over $100,000 must be listed on TIP</td>
<td>20% minimum</td>
</tr>
<tr>
<td>Greenways, Trails and Recreation Program (GTRP)—PA DCED</td>
<td>Development of trails</td>
<td>$250,000 maximum</td>
<td>15% minimum</td>
</tr>
<tr>
<td>Transportation Alternatives Set-Aside Program—DVRPC</td>
<td>Multimodal transportation improvements</td>
<td>$50,000—$1,000,000</td>
<td>No match for construction</td>
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</tbody>
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