

Separated Bike Lanes Network Connectivity Assessment

Abington Separated Bike Lane Action Plan



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Glossary

BIKE FACILITY TERMINOLOGY	
All Ages & Abilities (AA&A) bikeways	Bike facilities which incorporate National Association of City Transportation Officials (NACTO) design standards to accommodate various types of bicycles, speeds, and levels of comfort, with the goal being to support cyclists of all ages and abilities.
Bike facilities	Improvements and provisions to accommodate or encourage cycling, including bike lanes, parking, storage facilities, and shared roadways not specifically defined for bicycle use.
Cartway	The curb-to-curb width of a roadway used for traffic or parking lanes.
Conventional bike lane	An on-road, dedicated bike lane without any buffer or separation from car lanes.
Flexible delineators	Also known as flexposts, flexible delineators are 3- to 4-foot-tall posts used to provide physical separation between bike lanes and adjacent travel lanes.
Killed or Seriously Injured (KSI)	A category of crashes which resulted in serious injury or death. KSI is used to distinguish more dangerous crashes from those which result in property damage or minor injury.
Level of Traffic Stress (LTS)	A categorization of discomfort cyclists experience on a given roadway, ranked from 1 to 4. Calculated using metrics such as vehicle traffic speed, volume, and roadway width.
Multi-Use Trail	Route designed for shared use by pedestrians and cyclists and that is fully separated from motor vehicle lanes.
Separated bike lane (SBL)	A bike lane which is separated from both car lanes and pedestrians by a buffer and some form of physical protection, such as flexible delineators, curbs, medians, or elevation changes. Used interchangeably with the term “protected bike lanes.”
Shared lane	A roadway where bicycles and motor vehicles have shared use of the lane(s). Usually indicated by shared lane markings (“sharrows”) and/or “share the road” signage. Sometimes known as shared routes, bicycle boulevards, neighborhood greenways, neighborhood bikeways, or bike-friendly streets.
Shared lane markings	Also known as sharrows, shared lane markings consist of a bicycle icon and chevron icon together. Used to indicate to motor vehicles that the road is shared with cyclists.

ORGANIZATIONAL ACRONYMS

FHWA	Federal Highway Administration
DVRPC	Delaware Valley Regional Planning Commission
MPO	Metropolitan Planning Organization
NACTO	National Association of City Transportation Officials
SEPTA	Southeastern Pennsylvania Transportation Authority

1. Introduction

Separated bike lanes (SBLs) are bike lanes which are separated from both car lanes and pedestrians by a buffer and some form of physical protection, such as flexible delineators (also known as flexposts), curbs, medians, or elevation changes. SBLs are also referred to as “protected bicycle lanes.” When developed with a focus on network connectivity, SBLs are an essential component of cycling safety, helping to encourage people of all ages and abilities to cycle. SBLs are particularly critical to parts of the bicycle network with high car volumes and speeds.

Research and experience show that SBLs result in safer conditions for all road users. In 2023, the Federal Highway Administration (FHWA) completed a study which found that converting conventional bike lanes, which do not include any physical protection, to protected bike lanes cut the number of bicycle/vehicle crashes in half, on average.¹ Research consistently demonstrates that streets designed with the comfort and safety of cyclists in mind are safer for all road users alike—cyclists, drivers, passengers, pedestrians, and people using mobility devices.

Traffic safety, particularly for pedestrians and cyclists, is a key concern for both Abington residents and stakeholders. Eighteen total crashes involving cyclists occurred from 2021 to 2023 either within Abington or within a quarter mile of Abington. Of the crashes involving cyclists, two resulted in serious injuries and one resulted in a fatality. In 2023, Kevin McCreary Jr. was cycling along Old York Road in Jenkintown, just south of Noble Station, when he was struck and killed by a vehicle. Kevin's death prompted residents of both Abington and Jenkintown to renew their push for improved bicycle facilities. Defining and implementing high-quality, connected cycling infrastructure—particularly on some of the Township's busiest streets, where cyclists are most at risk—is an urgent issue for the Abington community.

Abington Township has contracted with WSP to prepare the Abington Separated Bike Lane Action Plan (Action Plan). The Action Plan will help the Township to develop a connected, safe bicycle network by identifying priority corridors for SBLs. This document (Separated Bike Lanes Connectivity Assessment) is the second of four memos that make up the Action Plan. It is organized into the following sections:

- **Potential SBLs and On-Street Bicycle Facilities:** Identifies SBLs and on-street bicycle facilities recommended by previous Township-wide plans. This section also identifies four additional corridors that were analyzed as part of this Action Plan to ensure adequate network connectivity across the Township.
- **Connectivity and Safety Assessment:** Analyzes the relative connectivity and safety benefits that would be provided by the previously recommended on-street bicycle facilities.

¹ Federal Highway Administration (FHWA). (2023, September). *Developing Crash Modification Factors for Separated Bicycle Lanes*. Publication No. FHWA-HRT-23-078.

- **High-Level Feasibility Assessment:** Presents a high-level summary of the challenges and constraints limiting the ability to construct SBLs along the corridors with the greatest connectivity and safety potential, as identified in the previous section.
- **Conclusions & Next Steps:** Identifies the potential SBL corridors that will be assessed further in the Feasibility Analysis Report. These corridors were selected based on the findings of this memo and feedback received during the first round of stakeholder and community outreach.

2. Previously Proposed Separated Bike Lanes and On-Street Bicycle Facilities

2.1. Previous Bicycle-Related Plans

The Abington Separated Bike Lane Action Plan (Action Plan) builds upon previous bicycle planning efforts in Abington Township. **Table 1** summarizes three bicycle-related plans completed by the Township over the last nine years. These plans serve as the basis of this current Action Plan.

Table 1. Summary of Previous Bicycle-Related Plans for Abington Township

PLAN	YEAR	PURPOSE	OUTCOMES
<i>Abington Master Bicycle Plan</i>	2016	Develop a comprehensive, Township-wide network of bicycle routes and trails that connect neighborhoods to various destinations.	Proposed approximately 47 miles of new bicycle routes and trails. Provided a recommended phasing plan and funding strategy for design and construction of the proposed routes.
<i>Walk, Park, Train Abington</i>	2017	Maximize the capacity, quality, and efficacy of Abington's transportation infrastructure.	Recommended infrastructure improvements to enhance multimodal connectivity to train stations and community facilities in the Township.
<i>Abington Noble Area Action Plan</i>	2023	Improve multimodal safety and connectivity near Noble Station, including along Old York Road and The Fairway.	Recommended targeted infrastructure improvements near Noble Station and outlined a five-year implementation strategy.

2.2. Previously Proposed Bicycle Network

The *Master Bicycle Plan* proposed 24 bicycle routes, spanning 47 miles, to connect to major destinations within the Township. The proposed facilities were also designed to connect to key multimodal transportation infrastructure such as Southeastern Pennsylvania Transit Authority (SEPTA) facilities and the Circuit Trails network. The recommendations presented in *Walk, Park, Train Abington* and the *Noble Area Action Plan* complement and build upon the bicycle network previously proposed by the *Master Bicycle Plan*.

Figure 1 shows the proposed Township-wide bicycle network as recommended by the *Master Bicycle Plan*, *Walk, Park, Train Abington*, and the *Noble Area Action Plan*. **Table 2** provides information on each proposed facility, including the route name or moniker, recommended roadway treatment, and a brief description of locations that would be served. Different types of bicycle facilities are recommended depending on the location:

- **Multi-Use Trails:** routes which are completely separated from roadways (also referred to as off-road trails or side paths).
- **Separated bike lanes:** bicycle lanes which are separated from both car lanes and pedestrians by a buffer and some form of physical protection.
- **Conventional bike lanes:** on-road, designated bicycle lanes that do not offer protection or separation from adjacent traffic.
- **Shared lanes:** on-road facilities which use signage and road markings to indicate that the road is to be shared with cyclists.

As shown, many of the proposed routes would include multiple facility types (i.e., one segment of the route would be a conventional bike lane, and another segment would be an off-road trail). Thus far, SBLs have only been recommended for one corridor in the Township: the *Noble Area Action Plan* recommended upgrading the existing conventional bike lanes along The Fairway between Rydal Road and Old York Road (Route Segment 12D) to SBLs.

Since 2016, the Township has developed several facilities recommended by the *Master Bicycle Plan*:

- The Abington Trail was completed in 2021, and is comprised of Route Segments 3C, 3D, 3E, 3F, and 4C. The Abington Trail consists of mostly conventional bike lanes, with some multi-use trail segments through Roslyn and Crestmont Parks.
- The Jenkintown-Alverthorpe Shared Route, which is comprised of Route Segment 14B and portions of Route Segments 2E and 19C, was completed in 2024. This route was developed as part of the larger Abington-Jenkintown Connections project.

Additionally, PennDOT has since developed conventional bike lanes on Fitzwater Town Road. All three of these new facilities are shown in **Figure 1** as existing bike lanes.

2.3. Adding SBLs to the Proposed Bicycle Network

The *Master Bicycle Plan* mostly recommended conventional bike lanes or shared lanes, neither of which offer the level of protection provided by SBLs. Conventional bike lanes do not offer any physical protection from car lanes; shared lanes also do not offer any separation from car lanes, instead requiring cyclists to share the roadway with vehicular traffic. In the nine years since the *Master Bicycle Plan* was completed, the Township has received feedback from residents and community groups indicating that the bicycle facilities proposed by the *Master Bicycle Plan* do not provide adequate protection for cyclists.

Figure 1. Proposed Abington Township Bicycle Network (Abington Master Bicycle Plan, 2016)

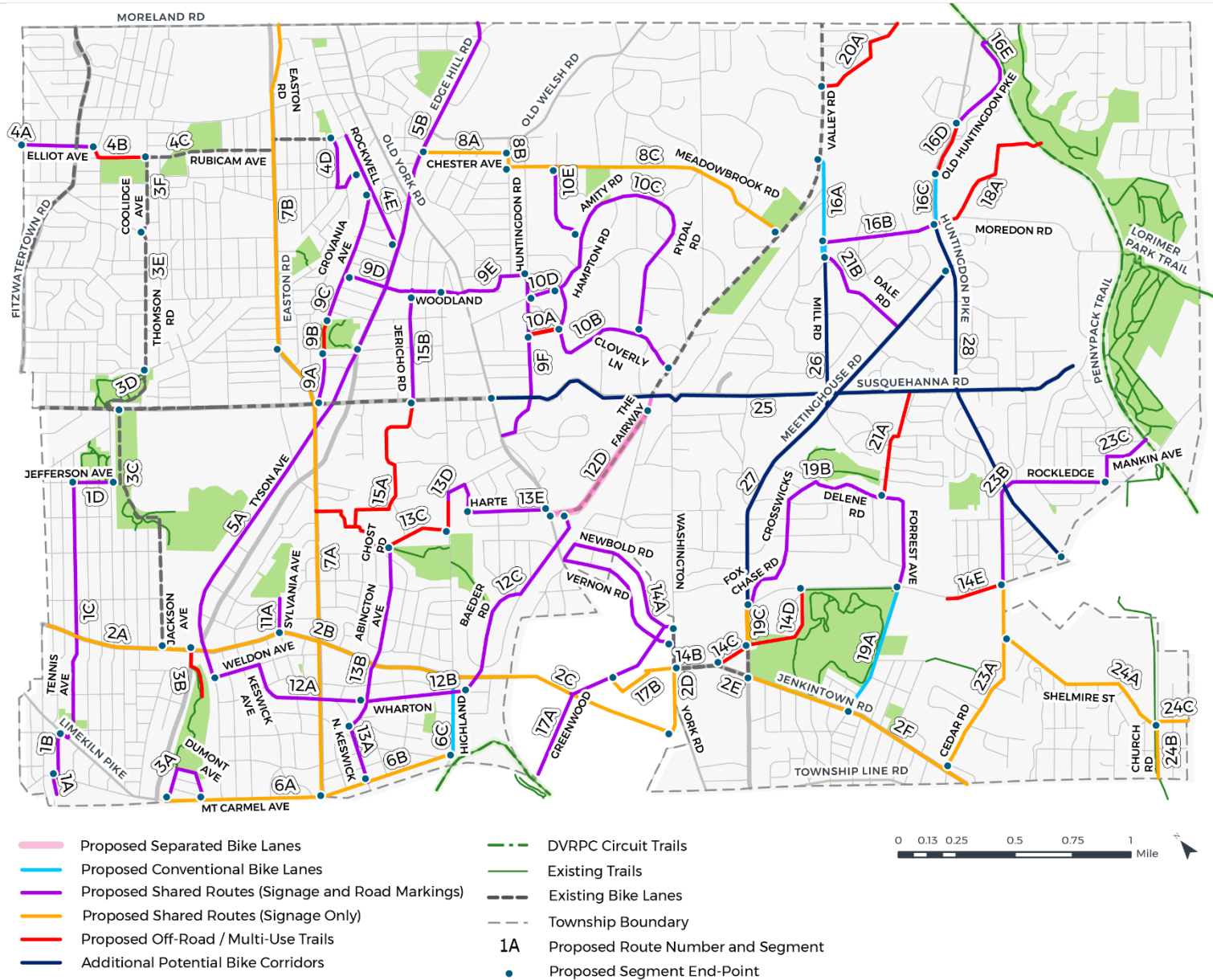


Table 2. Details of Proposed Bicycle Facilities for Abington Township

ROUTE	NAME	TREATMENT	DESCRIPTION
Abington Master Bicycle Plan			
1 (A, B, C, D)	Tennis Avenue Connector (<i>North Hills Station to Ardsley Park</i>)	Shared route (signage and road markings)	Connects Ardsley neighborhood to North Hills SEPTA rail station, the Ardsley Community Center, and neighborhood parks along Tennis Avenue.
2 (A, B, C, D, E, F)	Jenkintown Road Bike Route (<i>Upper Dublin Township to Cheltenham Township</i>)	Shared route (signage only)	Connects Abington to Jenkintown Borough, Upper Dublin Township, and Cheltenham Township. Requires the Township enter into agreements with PennDOT before installing any signage.
3 (A, B, C, D, E, F)	Penbryn Park to Crestmont Park Connector (<i>Mount Carmel Avenue to Rubicam Avenue</i>)	Shared route (signage and road markings) and off-road path	Utilizes existing and new trails to connect Penbryn Park, Ardsley Station, Hillside Cemetery, Roslyn Park, and Evergreen Manor Park. Requires the Township to coordinate with the cemetery owners before construction.
4 (A, B, C, D, E)	Crestmont Bike Route (<i>Upper Dublin Township to Crestmont Station</i>)	Shared routes (signage and road markings) and off-road path	Links to School Lane in Upper Dublin Township to provide connection to the Cross County Trail, a part of the DVRPC Circuit network. Requires the Township to coordinate with PennDOT and the Abington School District.
5 (A, B)	Tyson Avenue / Edge Hill Road Bike Route (<i>Weldon Road to Upper Moreland Township</i>)	Shared route (signage and road markings)	Links Ardsley Station, Roslyn Station, Briar Bush Nature Center, Overlook Elementary, and Roy-Chester Park. Provides opportunity to cross Old York Road via a bridge and not at grade.
6 (A, B, C)	Mount Carmel Avenue Bike Route (<i>Penbryn Park to Jenkintown Road</i>)	Shared route (signage only) and conventional bike lane	Connects Penbryn Park to Highland Avenue and Jenkintown Road. Improves connections to Glenside SEPTA rail station and SPS Technologies.
7 (A, B)	Easton Road Cross Township Bike Route (<i>Cheltenham to Upper Moreland</i>)	Shared route (signage only)	Connects to Willow Grove Park Mall and Willow Grove SEPTA rail station. Intended to be used by experienced cyclists only.

ROUTE	NAME	TREATMENT	DESCRIPTION
8 (A, B, C)	Edge Hill Road to Valley Road Bike Route	Shared route (signage only)	Connects Meadowbrook School, Jackson Park, and the Boy Scout Game Preserve.
9 (A, B, C, D, E, F)	Grovania Avenue and Keith Road Connector (<i>Roslyn Station to Old York Road</i>)	Shared route (signage and road markings) and off-road path	Connects Roslyn SEPTA rail station, Abington Library, Briar Bush Nature Center, Highland Elementary, Abington Memorial Hospital, and the Abington YMCA by using existing off-road path. Requires the Township to coordinate with Briar Bush Nature Center and Abington Memorial Hospital.
10 (A, B, C, D, E)	Penn State Loop (<i>Huntingdon Road to Meadowbrook Road</i>)	Shared route (signage and road markings) and off-road path	Links the Penn State Abington campus to residence halls along Old York Road and Abington School District Athletic facilities. Requires the Township to coordinate with Penn State Abington.
11 (A)	Edge Hill Woods Connector	Shared route (signage only)	Connects Jenkintown Road to Edge Hill Woods, a recreational destination, via Kelly Lane.
12 (A, B, C, D)	Fairway Bike Route (<i>Jenkintown Road to Valley Road</i>)	Shared route (signage and road markings) and conventional bike lane	Connects existing bike lanes on Valley Road to Keswick Village, a key retail destination, and Jenkintown Road. Provides connection to Noble SEPTA rail station.
13 (A, B, C, D, E)	Keswick Village to Abington High School Connector (<i>Mount Carmel Avenue to Highland Avenue</i>)	Shared route (signage and road markings) and off-road path	Links Abington High School to Keswick Village and Mount Carmel Avenue. Requires the Township to coordinate with Abington School District.
14 (A, B, C, D)	Noble to Pennypack Connector (<i>Noble SEPTA rail station to Rockledge Borough</i>)	Shared route (signage and road markings) and off-road paths	Links Noble SEPTA rail station to Abington Friends School, Abington Art Center, Alverthorpe Park, Manor College, Saint Basil Academy, and Rockledge Borough. Represents one of the best opportunities for an extensive, low-stress route within the Township. Requires the Township to coordinate with the Art Center and Manor College.

ROUTE	NAME	TREATMENT	DESCRIPTION
15 (A, B)	Abington Schools Trail (<i>Easton Road to Ghost Road and Keith Road</i>)	Off-road path	Improves connections to Abington High School, Abington Junior High School, and Copper Beech Elementary from Highland Elementary School, Easton Road, Highland Avenue, and Abington Avenue. Requires the Township to coordinate with the Abington School District.
16 (A, B, C, D, E)	Old Huntingdon Trail (<i>Valley Road to Pennypack Trail</i>)	Conventional bike lanes, off-road path, and shared routes (signage and road markings)	Connects existing Valley Road bike lanes to the Pennypack Trail via Old Huntingdon Pike and Moredon Road.
17 (A, B)	West Avenue (<i>Newbold Road to Jenkintown Station</i>)	Shared route (signage and road markings)	Provides direct connection from Walnut Street and downtown Jenkintown to the Jenkintown SEPTA rail station.
18 (A, B)	Moredon Trail (<i>Moredon Road to Pennypack Trail via the Sisters of the Holy Redeemer Property</i>)	Off-road path	Links to the Pennypack Trail. Requires the Township to coordinate with the Sisters of the Holy Redeemer.
19 (A, B, C)	Crosswicks Connector (<i>Jenkintown Road to Crosswicks Bird Sanctuary via Forrest Avenue</i>)	Conventional bike lane, shared route (signage and road markings), and shared route (signage only)	Connects Jenkintown Road to the main access gate to Alverthorpe Park, Manor College, and the Crosswicks Bird Sanctuary.
20 (A)	Meadowbrook Trail (<i>Valley Road to Lower Moreland Township</i>)	Off-road path	Accesses the Pennypack Trail via a path on the Meadowbrook Golf Club property, Montgomery County owned property, and two undeveloped parcels.
21 (A)	Rydal Trail (<i>Crosswicks Avenue to Mill Road</i>)	Shared route (signage only), shared route (signage and road markings), and off-road path	Connects Crosswicks Bird Sanctuary to Moredon Road via Pembroke, Dale, and Susquehanna Roads, linking cyclists to Rydal East Elementary and St. Hillary of Poitiers School.

ROUTE	NAME	TREATMENT	DESCRIPTION
22	Sunset Connector (<i>Jenkintown Borough to Alverthorpe Park</i>)	Shared route (signage and road markings)	Links The Pavilion Shopping Center, Abington Club, Alverthorpe Park, and Jenkintown Borough via Jenkintown Road, Sunset Avenue, and Evergreen Road.
23 (A, B, C)	Pennypack Connector (<i>Jenkintown Road to Pennypack Trail</i>)	Shared route (signage and road markings) and shared route (signage only)	Connects Manor College, the Huntingdon Valley Shopping Center, and Pennypack Trail.
24 (A, B, C)	Southern Connector (<i>Forrest Road to City of Philadelphia and Cheltenham Township</i>)	Shared route (signage and road markings)	Connects Manor College to Burlhome Park in the City of Philadelphia and Church Road in Cheltenham Township.

Abington Noble Area Action Plan

12 (D)	The Fairway (<i>Rydal Road to Old York Road</i>)	Separated bike lanes (concrete curb buffer)	Recommended the existing conventional bike lanes (as recommended by the Master Bicycle Plan) along The Fairway be replaced by separated bike lanes.
13 (E)	Harte Road (<i>Old York Road to Runningbrook Road</i>)	Shared route (signage and road markings)	Reiterated recommendation from the <i>Master Bicycle Plan</i> to install shared route signage and road markings along Segment E of the Keswick Village to Abington High School Connector.

This Action Plan investigates where SBLs could enhance the proposed bicycle network shown in **Figure 1**. More specifically, **the Separated Bike Lanes Network Connectivity Assessment analyzes which of the routes proposed by the Master Bicycle Plan should be prioritized for SBLs based on expected connectivity and safety benefits**. This memorandum also identifies some potential challenges that would impact the cost and feasibility of constructing SBLs on certain corridors. Later memoranda will prioritize SBL facilities for the Township to advance to construction based on which corridors would provide the greatest connectivity and safety benefits, as outlined in this memorandum, feedback received during stakeholder and community outreach, and more detailed feasibility assessments that evaluate physical conditions, traffic and parking conflicts, topography, and right-of-way requirements.

It is important to note that the Action Plan does not consider changing any of the proposed off-road trails recommended by the *Master Bicycle Plan* to SBLs. As off-road trails provide complete separation from car lanes, they already offer a comfortable and safe experience for most cyclists.

Network Gaps

To ensure maximum network connectivity, this Action Plan analyzes the benefits of installing SBLs along four additional corridors not identified in past plans:

- Route 25: Eastern Susquehanna Road
- Route 26: Mill Road
- Route 27: Meetinghouse Road
- Route 28: Huntingdon Pike

These roadways represent critical linkages in the Township's street network. They are also roads with higher traffic volumes, and therefore locations that would likely benefit from enhanced bicycle infrastructure. These routes are shown in **Figure 1** as 'Additional Potential Bike Corridors.' These routes are considered in this memorandum alongside the corridors identified in previous plans as potential locations for SBLs.

3. Connectivity and Safety Analysis

3.1. Connectivity Assessment

3.1.1. Major Destinations and Amenities

It is important to understand where people want to go when planning SBLs. To provide tangible connectivity benefits, SBLs should be located along corridors that connect popular destinations.

The Action Plan will prioritize SBL facilities which improve connections to transit, businesses, recreational facilities, community resources, and institutions.

Figure 2 shows where some important public amenities are located within Abington Township. As shown, there are schools, parks, community centers, and transit facilities located throughout the Township. Other notable destinations not shown in **Figure 2** include Willow Grove Park Mall, located near the Willow Grove SEPTA rail station, and the commercial areas in Glenside, Roslyn, Huntingdon Valley, Elkins Park, North Hills, and Keswick Village.

3.1.2. Analysis of Potential Connectivity Benefits

LINK Tool

The Delaware Valley Regional Planning Commission (DVRPC) is the Metropolitan Planning Organization (MPO) for the greater Philadelphia area, which includes Montgomery County. DVRPC has developed the web-based [LINK tool](#) to help municipalities quantify the potential impacts of building bicycle facilities. To estimate impacts, users first draw or upload locations of potential bicycle facilities. LINK then estimates the number of people, jobs, services, and amenities that would be connected based on the roadways that would be connected.

Table 3 summarizes the estimated connectivity benefits of the previously proposed on-street bicycle facilities, as calculated by LINK. For this analysis, **route segments were analyzed as one, continuous route if all the segments were proposed as on-street bicycle facilities and the segments intersect each other.** The impacts calculated by LINK include:

- **Miles of Low-Stress Islands:** total mileage of connected low-stress (Level of Traffic Stress (LTS) 1 and 2) streets, including the mileage of the route segment being analyzed.
- **Total population:** estimated number of people, per the US Census American Community Survey 5-Year Estimates (2017-2021), living in census tracts touched by the connected areas.
- **Total jobs:** estimated number of jobs, based on the US Census Bureau's LODS 8 Dataset (2020), in the census tracts touched by the connected areas.
- **Nearby Circuit Trails:** the mileage of Circuit Trails within the connected areas.
- **Rail stations:** number of SEPTA regional rail stations within the connected areas.
- **Essential services:** the number of essential services, such as grocery stores, schools, medical facilities, within the connected areas. More details are included in **Appendix A**.

Figure 2. Transit, Open Space, and Other Amenities in Abington Township

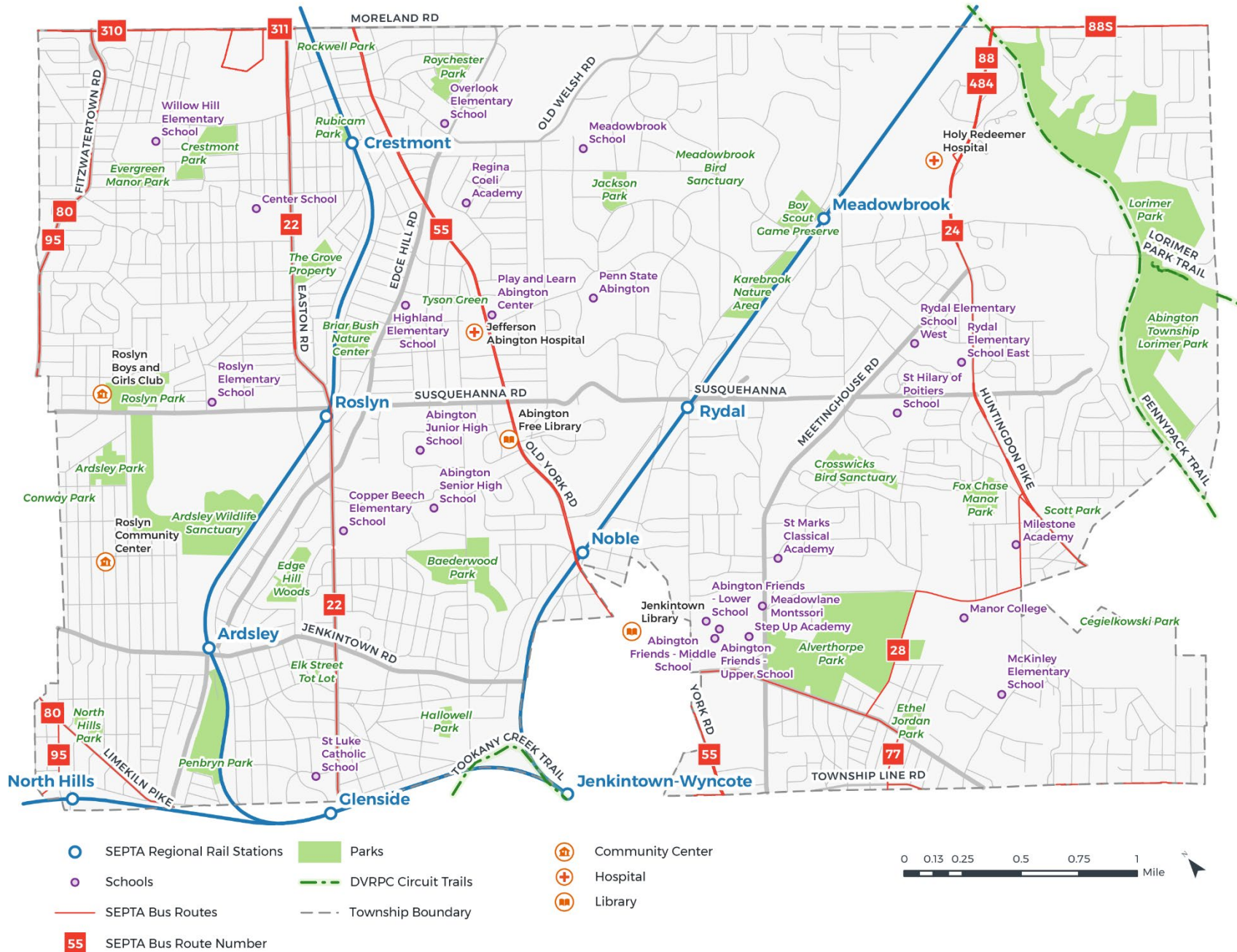


Table 3. Estimated Connectivity Benefits of Proposed On-Street Bicycle Facilities for Abington Township

ROUTE NUMBER	SEGMENT LETTER(S)	MILES OF LOW- STRESS ISLANDS	TOTAL POP. (#)	TOTAL JOBS (#)	NEARBY CIRCUIT TRAILS (MILES)	RAIL STATIONS (#)	ESSENTIAL SERVICES (#)
1	All (A, B, C, D)	30.3	4,500	700	--	1	3
2	All (A, B, C, D, E, F)	234.5	41,800	23,500	Planned: 4.6	7	38
3	A	0.74	500	100	--	--	1
4	A	211.2	36,500	15,500	Planned: 4.6	6	31
4	D, E	211.2	36,500	15,500	Planned: 4.6	6	31
5	All (A, B)	225.7	37,700	16,000	Planned: 4.6	6	34
6	All (A, B, C)	212.3	36,800	15,600	Planned: 4.6	6	32
7	All (A, B)	211.5	36,600	15,500	Planned: 4.6	6	32
8	All (A, B, C)	228.5	38,200	16,100	Planned: 4.6	6	34
9	A	211.2	36,500	15,500	Planned: 4.6	6	31
9	C	211.2	36,500	15,500	Planned: 4.6	6	31
9	D, E, F	222.9	37,700	16,100	Planned: 4.6	6	33
10	B, C, D, E	211.2	36,500	15,500	Planned: 4.6	6	31
11	All (A)	211.2	36,500	15,500	Planned: 4.6	6	31
12	All (A, B, C, D)	211.2	36,600	15,600	Planned: 4.6	7	33
13	A, B	211.2	36,500	15,500	Planned: 4.6	6	31
13	E	211.2	36,600	15,600	Planned: 4.6	6	33
14	A	23.2	5,500	8,100	--	2	7
15	B	211.2	36,500	15,500	Planned: 4.6	6	33
16	A, B, C	144.3	16,000	4,800	Existing: 9.1 In progress: 2.1 Pipeline: 4.6 Planned: 4.6	2	23
16	E	67.6	7,000	2,300	Existing: 9.1 In progress: 2.1 Pipeline: 3.2	--	12

17	All (A, B)	23.5	5,500	8,100	--	2	7
19	All (A, B, C)	78.0	9,300	2,600	Pipeline: 1.4 Planned: 4.6	2	9
21	B	77.8	9,200	2,500	Pipeline: 1.4 Planned: 4.6	2	12
23	All (A, B, C)	143.3	15,800	4,700	Existing: 9.1 In progress: 2.1 Pipeline: 4.6 Planned: 4.6	2	18
24	All (A, B, C)	10.7	2,300	900	--	--	1
25	All	181	57,300	26,000	Existing: 11.0 In progress: 1.0 Planned: 4.9	9	51
26	All	77.8	9,200	2,500	Pipeline: 1.4 Planned: 4.6	2	9
27	All	144.4	16,000	4,800	Existing: 9.1 In progress: 2.1 Pipeline: 4.6 Planned: 4.6	2	2
28	All	144.2	15,900	4,800	Existing: 9.1 In progress: 2.1 Pipeline: 4.6 Planned: 4.6	2	2

Source: DVRPC LINK Tool.

Table 4 compares the relative connectivity benefits, as estimated by LINK, of the proposed bicycle routes and route segments. To determine the relative benefits, the full range of values for each impact analyzed in **Table 3** (ex., number of rail stations within the connected areas) were divided into quintiles. The quintiles were then used to score the impacts of each route on a scale of 1 (low connectivity benefits) to 5 (high connectivity benefits). Highlights of **Table 4** include:

- **Miles of low-stress islands:** Routes 2, 5, 6, 8, and 9 (D, E, and F) would connect the most miles of low-stress streets, greatly expanding the network of streets that less confident cyclists would feel comfortable traveling on.
- **Total population:** Routes 2, 5, 6, 8, 9 (D, E, and F), and 25 would connect comparatively more-populated areas, therefore installing SBLs along these corridors would directly benefit more residents.
- **Total jobs:** Routes 2, 5, 8, 9 (D, E, and F), and 25 would connect areas with more job opportunities compared to other areas of the Township, increasing economic opportunity.

Table 4. Potential Benefit Scores for Proposed On-Street Bicycle Facilities

ROUTE NUMBER	SEGMENT LETTER(S)	MILES OF LOW-STRESS ISLANDS	TOTAL POP.	TOTAL JOBS	NEARBY CIRCUIT TRAILS	RAIL STATIONS	ESSENTIAL SERVICES	TOTAL SCORE
1	All (A, B, C, D)	1	1	1	--	1	1	5
2	All (A, B, C, D, E, F)	5	5	5	2	5	5	27
3	A	1	1	1	2	3	1	9
4	A	4	3	3	2	3	3	18
4	D, E	4	3	3	2	3	3	18
5	All (A, B)	5	5	5	2	3	5	25
6	All (A, B, C)	5	5	4	2	3	4	23
7	All (A, B)	4	4	3	2	3	4	20
8	All (A, B, C)	5	5	5	2	3	5	25
9	A	4	3	3	2	3	3	18
9	C	4	3	3	2	3	3	18
9	D, E, F	5	5	5	2	3	4	23
10	B, C, D, E	4	3	3	2	3	3	18
11	All (A)	4	3	3	2	3	3	18
12	All (A, B, C, D)	4	4	4	2	5	4	23
13	A, B	4	3	3	2	3	3	18
13	E	4	4	4	2	3	4	21
14	A, B	1	1	2	--	1	1	6
15	B	4	3	3	2	3	4	19
16	A, B, C	2	2	2	5	1	2	14
16	E	1	1	1	5	--	2	10
17	All (A, B)	1	1	2	--	1	1	6
19	All (A, B, C)	2	2	1	4	1	1	11
21	B	2	1	1	4	1	2	11
23	All (A, B, C)	2	2	1	5	1	2	13
24	All (A, B, C)	1	1	1	--	--	1	4
25	All	3	5	5	5	5	5	28
26	All	1	1	1	4	1	1	9
27	All	2	2	2	5	1	2	14
28	All	2	2	2	5	1	2	14

- **Nearby Circuit Trails:** Routes 16 (A, B, C, and E), 23, 25, 27, and 28 would provide the most connectivity to the Circuit Trail network. Routes 1, 3A, 14A and B, 17, and 24 would *not* connect to any Circuit Trails.
- **Rail stations:** many of the proposed bike routes would improve connectivity to six or more SEPTA rail stations. Routes 3A and 24 would *not* improve connectivity to any rail stations.
- **Essential services:** Routes 2, 5, 8, and 25 would improve connectivity to the largest number of essential services. Notably, Routes 1, 3A, 14A and B, 17, 19, 24, and 26 would have very little impact on cyclists' ability to access essential services.

Connections to Disadvantaged Communities

The overarching goal of this Action Plan is to improve bicycle connectivity and safety within Abington Township. Developing more attractive, comfortable, and connected bicycle facilities will ultimately encourage more Abington residents, community members, and commuters to cycle, generating a myriad of environmental, social, and economic benefits for the Township.

SBLs offer additional protection compared to conventional bike lanes; therefore, less confident cyclists are more likely to try using SBLs.² Research has found that less-confident cyclists are more likely to be women and older adults compared to other demographic groups.³ Given this propensity, SBLs that connect areas of the Township with more women, senior adults, and other disadvantaged communities would be more likely to increase rates of cycling because they would encourage a greater number of less-confident cyclists to try cycling.

DVRPC has developed an interactive web map showing [Indicators of Potential Disadvantage \(IPD\)](#) by census tract for the greater Philadelphia region, including Montgomery County. The IPD analysis identifies populations covered under [Title VI of the Civil Rights Act](#), including:

- | | |
|---|----------------------------|
| • People of color | • People with disabilities |
| • Ethnic minorities | • Older adults |
| • Low-income populations | • Women |
| • Foreign-born populations | • Youth |
| • People with Limited English Proficiency | |

DVRPC uses population data for each of these demographic groups to develop overall IPD scores for each census tract. The score calculations are determined by splitting the data for each of the IPD indicators into five bins: well below average (score of 0); below average (score of 1); average (score of 2); above average (score of 3); and well above average (score of 4). The scores for all nine indicators are then summed to calculate an overall score for each census tract (ranging from 0–36).

² NACTO. (2016, July 20). *High-Quality Bike Facilities Increase Ridership and Make Bicycling Safer*. NACTO.

³ Dill, J., & McNeil, N. (2012). *Four Types of Cyclists?: Examination of Typology for Better Understanding of Bicycling Behavior and Potential*. Portland State University.

Figure 3 shows the IPD scores for Abington Township, with darker shades indicating higher scores and lighter shades indicating lower scores. As shown, the census tracts with the highest IPD scores encompass the northern and eastern portions of the Township— the Wyndmoor Estates, Walnut Hill, Roslyn, and Crestmont neighborhoods. The census tracts with the lowest IPD scores encompass the Ardsley and Glenside neighborhoods. It is important to note **that while the IPD scores vary slightly by area, all the scores are within a narrow 6-point range, indicating there are relatively similar demographic characteristics across the Township.**

Figure 3 also shows the proposed bicycle network to demonstrate which facilities would connect to areas with high IPD scores. Proposed on-street route segments located either entirely or mostly within census tracts with IPD scores of 17 or greater include:

- Route 2 (E, F)
- Routes 4 (A, D)
- Route 7 (B)
- Route 9 (F)
- Route 12 (C, D)
- Route 13 (E)
- Route 16 (A, B, C)
- Route 16 (E)
- Route 19 (A, C)
- Route 23 (A)
- Route 24 (A, B, C)
- Route 25
- Route 28

3.2. Safety Assessment

3.2.1. Past Crashes

This Action Plan aims to improve safety for cyclists, pedestrians, drivers, and passengers alike, as SBLs have been found to provide safer conditions for all road users.⁴ The Action Plan also addresses community requests for safer bicycle facilities; Abington residents and stakeholders have requested that the Township consider installing SBLs to improve safety and better serve cyclists with different levels of experience.

From 2021 to 2023, many of the crashes resulting in death or serious injury (also referred to as killed or serious injured (KSI)) within the Township were located on a just a few roadways (**Figure 4**). For instance, three motor vehicle crashes and one cyclist crash occurred on Huntingdon Pike during just the three-year period analyzed. Other roadways which saw disproportionately high KSI across all modes (cyclists, motor vehicle drivers/passengers, and pedestrians) include Jenkintown, Old York, Meetinghouse, Susquehanna, Easton, and Fitzwatertown Roads.

Considering all bicycle crashes, not just those that resulted in death or serious injury, eighteen crashes occurred from 2021 to 2023 either within Abington or within a quarter mile of the Township boundary. These crashes are mapped in **Figure 5**. While the KSI crashes were mostly located on major roadways (Huntington Pike, Old York Road, and Susquehanna Road), the more minor bicycle crashes were distributed throughout the Township. **This widespread distribution of bicycle crashes demonstrates a need for more comprehensive and safe bicycle infrastructure.**

⁴ Federal Highway Administration (FHWA). (2023, September). *Developing Crash Modification Factors for Separated Bicycle Lanes*. Publication No. FHWA-HRT-23-078.

Figure 3. Proposed Bicycle Network and IPD Scores for Abington Township

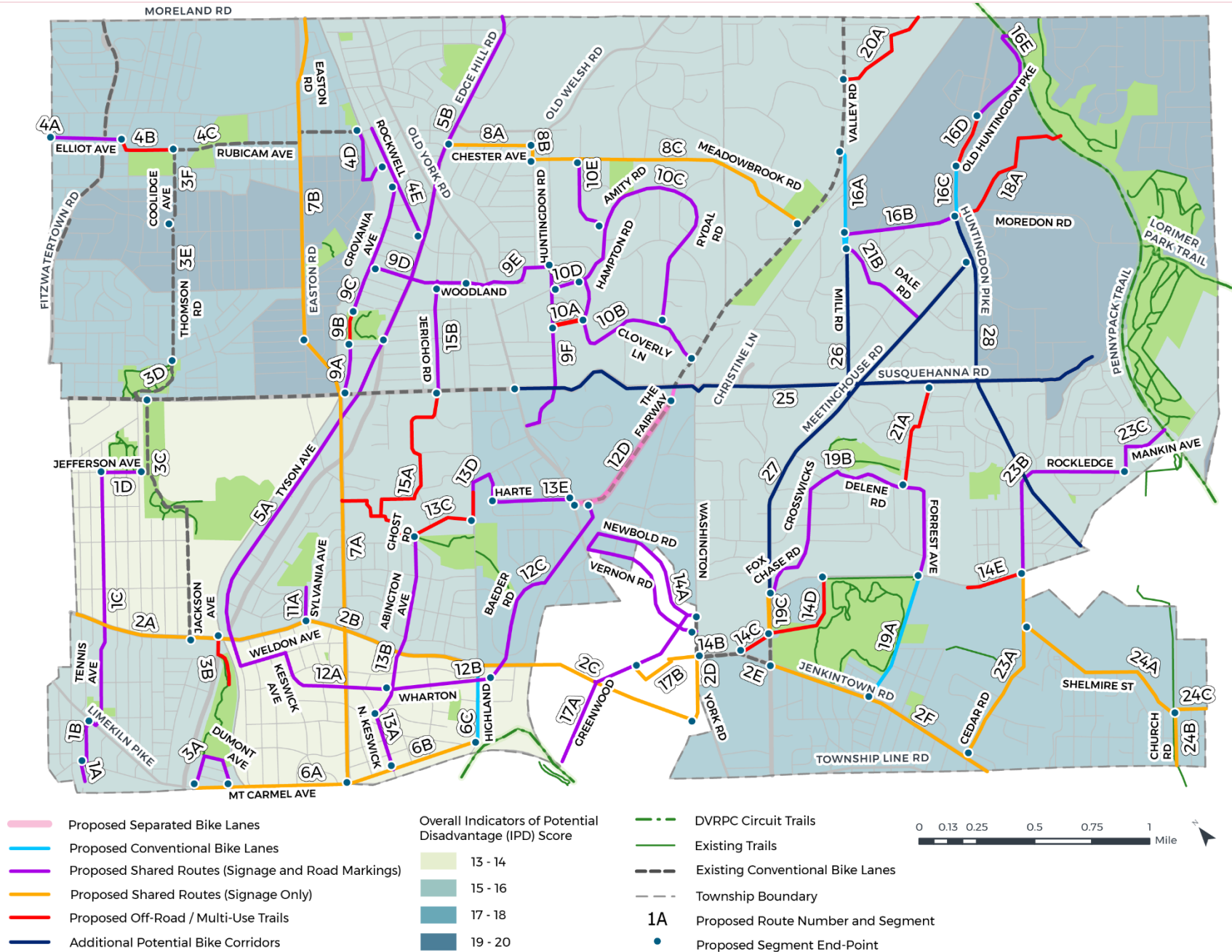
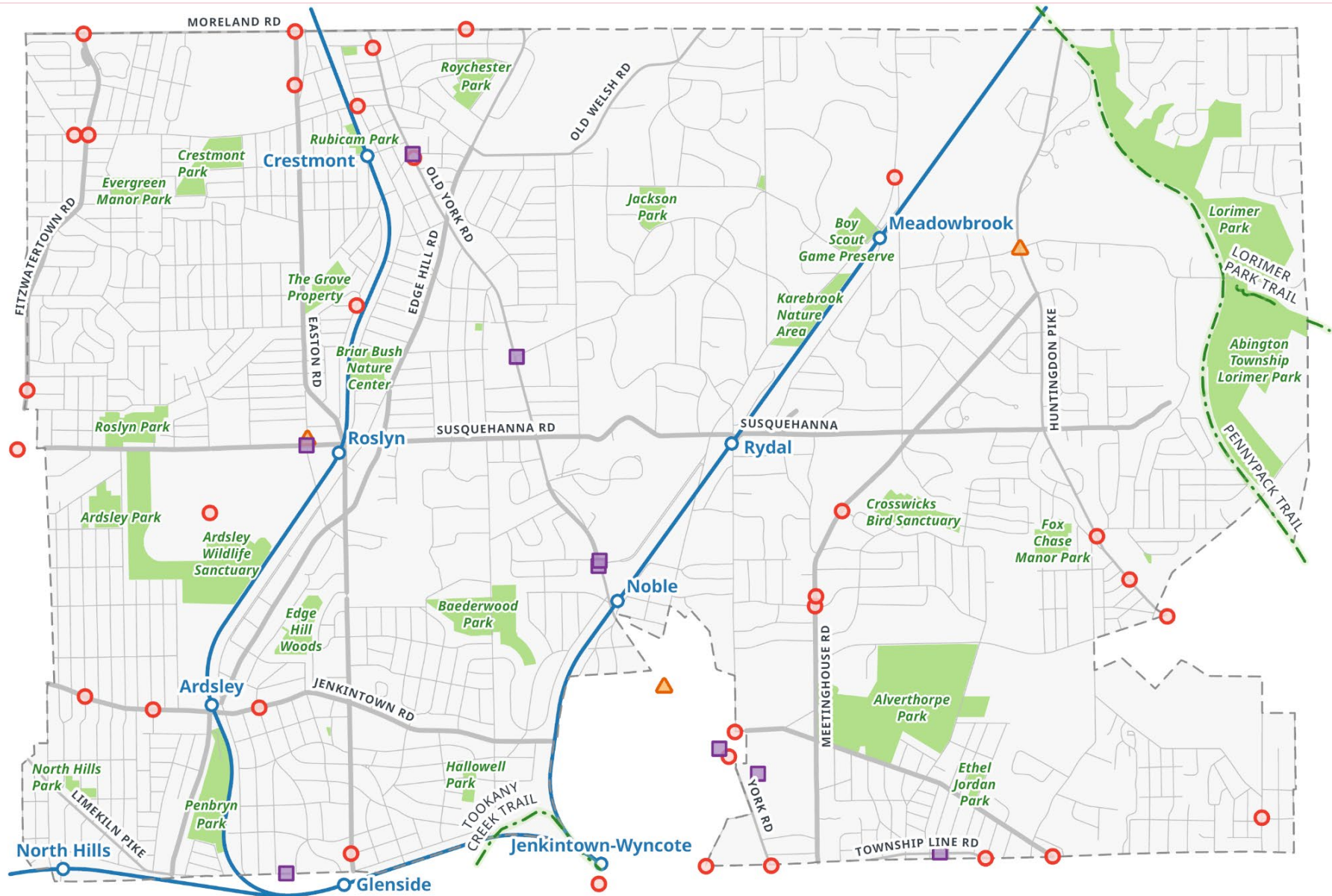


Figure 4. Crashes Causing Death or Serious Injury from 2021-2023 Within or Near Abington Township



Crashes Resulting in Death or Serious Injury, 2021 to 2023

- ▲ Cyclist (3)
 ● Motor Vehicle (32)
 ■ Pedestrian (9)

Figure 5. Cyclist Crashes, Injuries, and Fatalities from 2021-2023 Within or Near Abington Township



3.2.2. Analysis of Potential Safety Benefits

Level of Traffic Stress (LTS)

One way to assess the impact of roadway characteristics on cyclists is the level of traffic stress (LTS) methodology developed by the Mineta Transportation Institute and San Jose State University.⁵ LTS quantifies the discomfort people feel when they bicycle on streets and trails based on characteristics such as traffic speed, traffic volume, number of lanes, and frequency of parking turnover, among others. Typically, the higher the LTS, the greater the perceived danger, and the more confident the cyclist needs to be to consider riding on the road. **Table 5** summarizes the different LTS, and what types of cyclists are likely to be comfortable riding at each level. As discussed in the previous SBL Definitions and Design Standards Memo completed for this Action Plan, 'Interested but Concerned' cyclists are a slight majority (51%) of the population.⁶

Table 5. Level of Traffic Stress and Bicyclist Comfort

LEVEL OF TRAFFIC STRESS	CHARACTERISTICS	COMFORTABLE ENOUGH FOR
1	Lowest stress; comfortable for most ages and abilities	Most people
2	Suitable for most adults; presents little traffic stress	Interested, but Concerned
3	Moderate traffic stress; comfortable for those with experience biking in American cities	Enthusied and Confident
4	High traffic stress; multilane, fast-moving traffic	Strong and Fearless

Source: DVRPC LINK Tool.

Table 6 summarizes the proposed routes and route segments that would be located on higher-stress streets (LTS 3 or 4), while **Figure 6** shows the LTS of the entire previously proposed on-street bicycle network. **Streets with moderate or high stress (LTS 3 or 4) often need SBLs for 'Interested but Concerned' individuals to feel comfortable cycling on them.** Installing SBLs on Abington's higher-stress roads would reduce the perceived danger of cycling to 'Interested but Concerned' cyclists, in turn increasing the rates of cycling within the Township. **Table 3** (pages 17 and 18) detailed the miles of low-stress streets that would be connected by each of the proposed on-street bicycle routes and route segments.

⁵ Mekuria, Furth, Nixon, et al. (2012). *Low-Stress Bicycling and Network Connectivity*. Mineta Transportation Institute.

⁶ Dill, J., & McNeil, N. (2012). "Four Types of Cyclists?: Examination of Typology for Better Understanding of Bicycling Behavior and Potential." Portland State University.

Table 6. Proposed On-Street Bicycle Facilities Located on Streets with LTS 3 or 4

LEVEL OF TRAFFIC STRESS	ROUTES AND ROUTE SEGMENTS		
3	2 (A, B, C, D, E, F)	15 (B)	24 (B)
	6 (A, C)	16 (B)	25
	8 (C)	17 (A)	27
	9 (F)	19 (C)	
	12 (D)	23 (A)	
4	7 (A, B)		
	5 (B)		
	28		

Source: DVRPC LINK Tool.

Potential Impact on Bicycle Crashes

Figure 6 mapped bicycle crashes that occurred in Abington, or within a quarter mile of Abington, from 2021 to 2023. **Table 7** details which streets the crashes occurred on, whether the street has existing bicycle facilities, and whether an on-street bicycle facility has been proposed. **Installing high-quality, connected bicycle infrastructure along corridors with known crash histories would provide significant safety benefits and encourage more Abington community members to try cycling.**

The crash data suggests that implementing high-quality, safe bicycle facilities throughout the Township would likely improve cyclist safety; **only one of the corridors where bicycle crashes occurred has existing bicycle facilities.** While Susquehanna Road has conventional bike lanes west of Old York Road, there were still four bicycle crashes along the corridor from 2021 to 2023, one of which resulted in a serious injury. Given the high rate of crashes along the western Susquehanna Road, there may be a need to upgrade the existing bike lanes to SBLs.

Five roadways where bicycle crashes occurred are proposed to have on-street bicycle facilities along at least a portion of their length: Jenkintown Road, Easton Road, Huntingdon Road, Mill Road, and Huntingdon Pike. While the *Master Bicycle Plan* recommended either conventional bike lanes or shared routes for these roadways, the future facilities could instead be developed as SBLs to provide greater safety benefits.

To better address safety concerns reported by Abington residents, this Action Plan analyzes four additional corridors not previously identified by other plans. A bicycle crash occurred along three of these additional corridors between 2021 and 2023: Susquehanna Road east of Old York Road (Route 25), Mill Road (Route 26), and Huntingdon Pike (Route 28).

Figure 6. Level of Traffic Stress of Proposed On-Street Bicycle Facilities

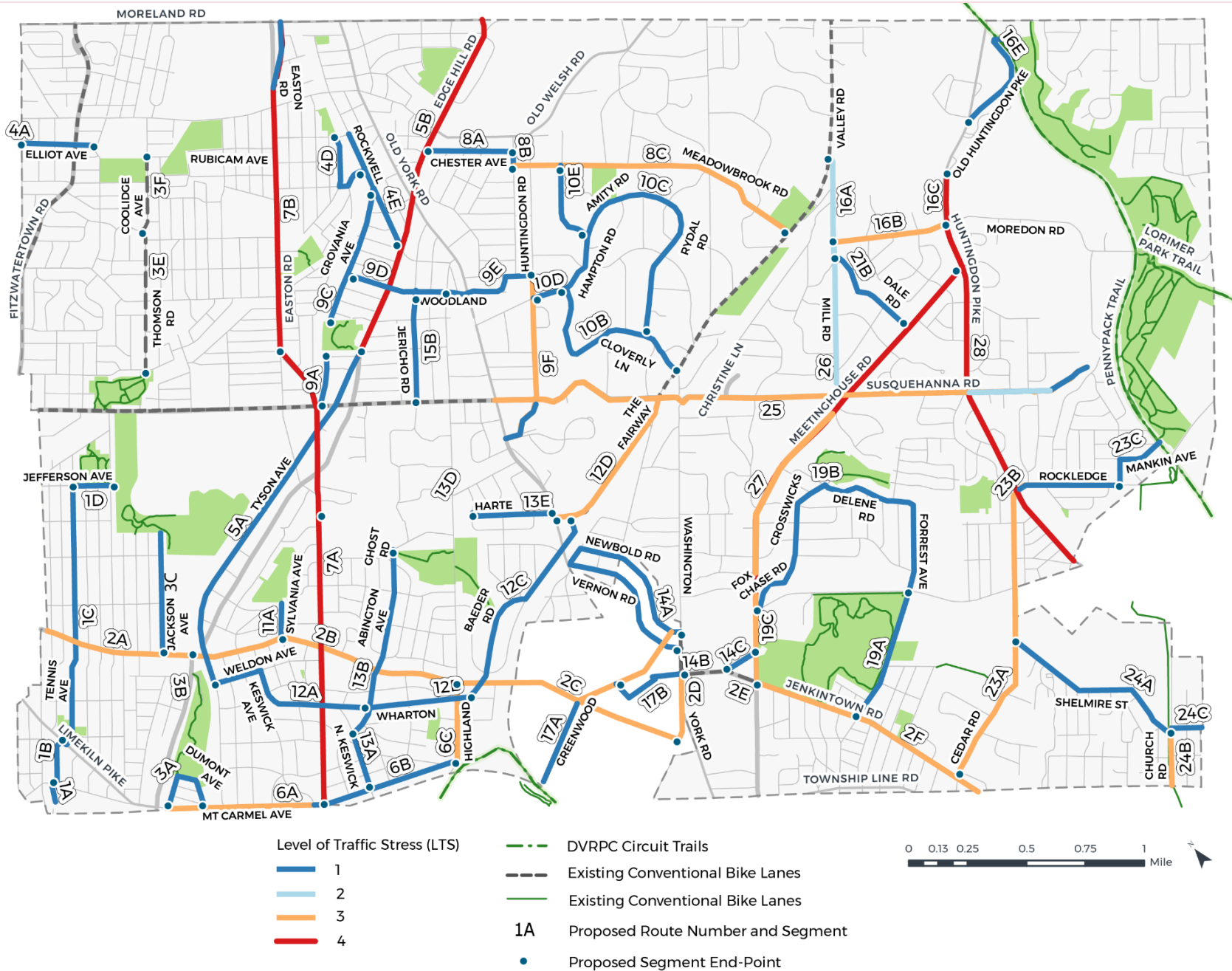


Table 7. Streets Where Bicycle Crashes Occurred, 2021–2023

STREET	BICYCLE CRASH HISTORY	BICYCLE FACILITIES	
		EXISTING	PREVIOUSLY PROPOSED
Old York Road (Jenkintown)	3 (1 Fatality)	None	None
Susquehanna Road (west of Old York Road)	4 (1 Serious Injury)	Conventional Bike Lanes	None
Huntington Pike	1 (1 Serious Injury)	None	Conventional Bike Lanes (Route 16C)
Easton Road	2	None	Shared Route (Signage Only) (Route 7)
Huntingdon Road	1	None	Shared Route (Signage and Road Markings) (Route 9F)
Jenkintown Road	1	None	Shared Route (Signage Only) (Route 2)
Limekiln Pike	1	None	None
Mill Road	1	None	Conventional Bike Lanes (Route 16A)
Moredon Road	1	None	None
Old Welsh Road	1	None	None
Patane Avenue	1	None	None
Susquehanna Road (east of Old York Road)	1	None	None
Woodland Road	1	None	None

3.3. Analysis Findings

It is important to consider the full range of benefits that would result from proposed bicycle facilities. **Table 8** summarizes the key connectivity and safety benefits that would be provided by each of the routes being considered for SBLs *based on the analysis presented in this memorandum*. The metrics summarized in **Table 8** are as follows:

- Overall Connectivity Score:** the relative connectivity rankings previously shown in **Table 4** were summed to calculate overall connectivity scores for each of the proposed routes. In **Table 8**, shades of darker green indicate facilities with higher overall connectivity scores, while lighter shades indicate lower scores.

- **Disadvantaged Communities:** routes that would connect disadvantaged census tracts, as defined by the DVRPC IPD tool and identified in **Figure 3**, are indicated in **Table 8** with green. Installing SBLs in communities with high IPD scores would help encourage more people to cycle, as many of the demographic groups tracked by the IPD score are more likely to be 'Interested but Concerned' cyclists who prefer SBLs over conventional bike lanes.
- **High LTS:** routes proposed for moderate and high stress streets (LTS 3 or 4) are indicated in **Table 8** with green, with darker green indicating LTS 4. Installing SBLs on LTS 3 or 4 streets would increase cyclist safety and comfort and encourage more people to try cycling. Installing bicycle facilities on high stress streets would also help to connect existing low-stress islands throughout the Township, increasing the mileage of low-stress streets accessible to cyclists.
- **Crash History:** routes proposed for streets where one or more bicycle crashes occurred from 2021 to 2023, as previously identified in **Figure 6** and **Table 7**, are indicated with green. Installing SBLs along these routes would improve safety outcomes by providing more protection and separation for cyclists along corridors with established crash histories.

Table 8. Summary of Connectivity and Safety Benefits of Previously Proposed On-Street Bicycle Facilities

RTE #	SEGMENT LETTER(S)	STREETS	OVERALL CONN.	DISADV. COMM.	HIGH LTS	CRASH HISTORY
25	All	Susquehanna Rd				
2	All (A, B, C, D, E, F)	Jenkintown Rd				
7	All (A, B)	Easton, Hilldale Rds				
28	All	Huntingdon Pke				
9	D, E, F	Woodland, Huntingdon Rds				
16	A, B, C	Valley, Moredon Rds; Old Huntingdon Pike				
5	All (A, B)	Tyson Ave				
12	All (A, B, C, D)	Wharton, Baeder Rds; The Fairway				
8	All (A, B, C)	Chester Ave; Meadowbrook Rds				
6	All (A, B, C)	Mt Carmel, Highland Aves				
23	All (A, B, C)	Cedar Rd; Rockledge, Mankin				
19	All (A, B, C)	Forrest Ave; Delene, Fox Chase Rds				
26	All	Mill Rd				
15	B	Jericho Rd				
13	E	Harte Rd				
24	All (A, B, C)	Shelmire St; Church Rd				
27	All	Meetinghouse Rd				
4	A	Elliot Ave				
4	D, E	Rockwell Rd; Hamilton Ave				
14	A	Newbold, Vernon Rds				
17	All (A, B)	Greenwood Ave				
16	E	Old Huntingdon Pike				
9	A	Grovania Ave				
9	C	Grovania Ave				
10	B, C, D, E	Cloverly Ln; Amity, Rydal Rds				
11	All (A)	Sylvania Ave				
13	A, B	N Keswick, Abington Aves; Ghost Rd				
21	B	Dale Rd				
1	All (A, B, C, D)	Tennis, Jefferson Aves				
3	A	Dumont Ave				

4. High-Level Feasibility Assessment

It is critical to consider the feasibility of potential SBLs throughout the development of this Action Plan to ensure the ultimate recommendations are actionable. For this memorandum, a high-level feasibility assessment was conducted to consider the constructability of SBLs along the thirteen corridors found to have the greatest potential connectivity and safety benefits (**Table 8**). A high-level feasibility assessment was also conducted on the four additional corridors analyzed as part of this memo (Routes 25, 26, 27, 28). Lastly, the feasibility of constructing SBLs on Route 14A was also considered, as Route 14A would link several other corridors identified as having high connectivity and safety potential.

One critical factor that impacts SBL feasibility is whether roadway facilities are already wide enough to accommodate an SBL or if further property acquisition is required. In locations where the cartway (curb-to-curb width) is sufficiently wide, SBLs can be installed through a fairly simple and cost-effective striping and capital project while still maintaining the existing lane configuration. These efforts could be potentially coordinated with resurfacing projects. This approach is cheaper and quicker compared to if property acquisition is required to build a roadway with adequate space for multimodal facilities, or facilities which accommodate motor vehicles, bicycles, and pedestrians.

In other cases, SBLs can sometimes be implemented through changes to the travel lane width, direction of traffic, or elimination of turn lanes. All of these potential roadway changes may require a traffic study preceding the implementation of SBLs—but remain feasible. **Table 9** shows high-level feasibility considerations for SBL routes with the highest connectivity and safety potential. Notably, **Table 9** indicates which routes could accommodate SBLs only through a major capital project, such as utility relocation or right-of-way/property acquisition.

Table 9. High-Level Feasibility Considerations for Potential SBL Routes

ROUTES		INSTALLATION CHALLENGES			ROADWAY FACILITY CONSIDERATIONS		
ID	NAME	SIGNIFICANT PARKING REMOVAL	SIGNIFICANT CONSTRUCTION & PROPERTY ACQUISITION	CONSIDER NEIGHBORHOOD GREENWAY	CONSIDER SIDEPATH	SINGLE DIRECTION SBL	CONVERT ROAD TO ONE WAY
2	Jenkintown Road Bike Route	X	X (Portions)			X	
5	Tyson Avenue / Edge Hill Road Bike Route					X	
6	Mount Carmel Avenue Bike Route	X				X	
7	Easton Road Cross Township Bike Route		X (Portions)				
8	Edge Hill Road to Valley Road Bike Route	X	X (Portions)	X			
9	Grovania Avenue and Keith Road Connector	X		X		X	
12	Fairway Bike Route						X
13	Keswick Village to Abington H.S. Connector						X
14	Newbold and Vernon Roads					X	
15	Abington Schools Trail			X		X	X
16	Old Huntingdon Trail				X		
19	Crosswicks Connector		X (Portions)	X	X (Portions)		X

ROUTES		INSTALLATION CHALLENGES			ROADWAY FACILITY CONSIDERATIONS		
ID	NAME	SIGNIFICANT PARKING REMOVAL	SIGNIFICANT CONSTRUCTION & PROPERTY ACQUISITION	CONSIDER NEIGHBORHOOD GREENWAY	CONSIDER SIDEPATH	SINGLE DIRECTION SBL	CONVERT ROAD TO ONE WAY
23	Pennypack Connector			X (Portion)			
24	Southern Connector		X		X (Portions)		
25	Eastern Susquehanna Road		X				
26	Mill Road		X				
27	Meetinghouse Road		X				
28	Huntingdon Pike				Further traffic study necessary for road diet		

5. Conclusions & Next Steps

This memorandum reviewed the previously recommended on-street bicycle facilities and then analyzed the relative connectivity and safety benefits that would be provided by installing SBLs along these roadways. The memo then presented a high-level summary of the challenges and constraints limiting the ability to construct SBLs along the corridors with the greatest connectivity and safety potential. Overall, this memo highlighted where investments in SBLs would provide the greatest benefits, and prepared the Township to work with the public to further refine which facilities to prioritize for construction.

Abington's previous bicycle plans did not recommend on-street bicycle facilities for some of the most dangerous streets in the Township. The previously proposed network also had some critical gaps. This memorandum added the following four routes for consideration for SBLs to better address safety and connectivity concerns:

- **Route 25:** Eastern Susquehanna Road
- **Route 26:** Mill Road
- **Route 27:** Meetinghouse Road
- **Route 28:** Huntingdon Pike

5.1. Stakeholder and Community Feedback

The Township and WSP held two outreach events in June 2025 to present the findings of the SBL Definitions and Design Standards Memo and the SBL Network Connectivity Assessment Memo. The first outreach event was an Advisory Group Meeting attended by stakeholders from several Township Departments and local community-based organizations. The second event was a Public Meeting open to all Abington residents, community members, and stakeholders. These two events are summarized in the Outreach Summary Memo developed as part of this Action Plan.

One of the objectives of the outreach events was to learn whether the corridors identified as having the greatest connectivity and safety potential would actually address residents' mobility needs and safety concerns. The Township and WSP also wanted to learn about any external factors that could impact the feasibility of implementing SBLs. At both events, stakeholders and community members discussed the potential benefits and issues that could result from installing SBLs on the corridors previously recommended for on-street bicycle facilities. **This feedback was used by the Township and WSP to refine the list of SBLs recommended for further assessment in the Feasibility Analysis Report.**

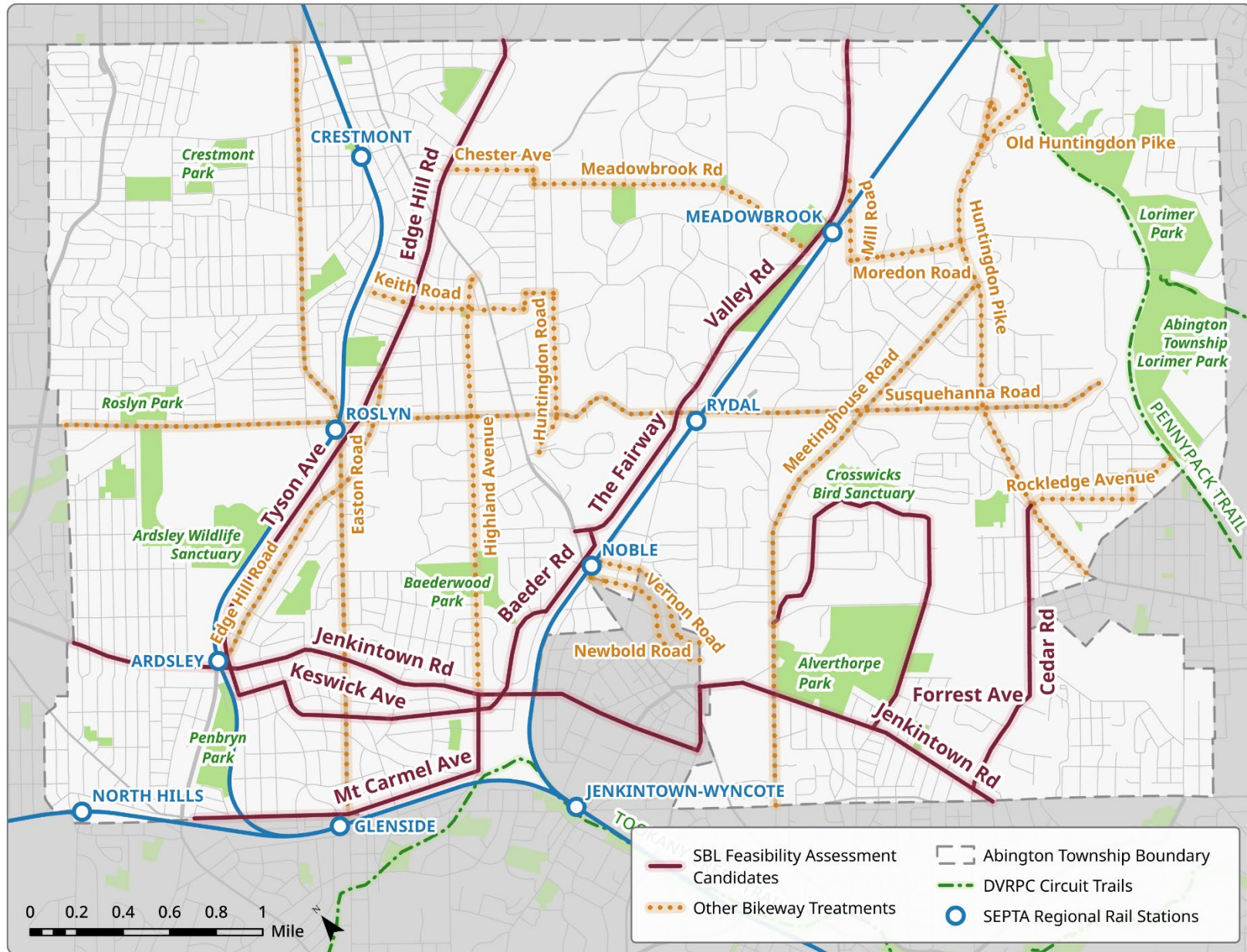
5.2. Recommended List of Potential SBL Corridors for Continued Analysis

Figure 7 shows the routes recommended for further assessment in the Feasibility Analysis Report. The upcoming memo will first determine the feasibility of implementing SBLs along these various corridors. It will then identify projects for the Township to prioritize for implementation based on the expected benefits and constructability. Lastly, the memo will detail preferred roadway treatments, potential construction phasing, and estimated implementation costs for each priority project.

As shown, some routes are recommended for other bikeway treatments besides SBLs. These routes have one or more characteristics that would make it difficult or infeasible to implement SBLs without major capital projects along most of the, or even the entire, corridor. Given these constraints, these corridors would be more appropriate for other bikeway treatments.

There are two corridors that were not analyzed in this memo but are recommended for further analysis: Valley Road and Susquehanna Road west of Old York Road. Currently, these two corridors host conventional bike lanes. During outreach, stakeholders and community members reported that the conventional bike facilities along these corridors do not provide adequate protection for less confident cyclists. Both roadways also have relatively high LTS, suggesting they are good candidates for SBLs; Valley Road has an LTS of 4, and western Susquehanna Road has an LTS of 2 or 3 depending on the segment. The Feasibility Analysis Report will analyze whether it is possible to upgrade the existing bike lanes to SBLs so that more community members can benefit from these facilities.

Figure 7. Potential SBL Corridors Recommended for Further Analysis



Appendix A: Essential Services Connected by Proposed On-Street Bicycle Facilities

Table A-1 details the number and type of essential services that would be connected by the on-street bicycle facilities proposed for Abington Township. The data shown was calculated using the LINK tool developed by DVRPC.

Table A- 1: Essential Services Connected by Proposed On-Street Bicycle Facilities for Abington Township

ROUTE NUMBER	SEGMENT LETTER(S)	ACTIVITY CENTERS FOR DISABLED AND SENIORS	FOOD STORES	HEALTH FACILITIES	COLLEGES / UNIVERSITIES	PRIVATE SCHOOLS	PUBLIC SCHOOLS	TOTAL ESSENTIAL SERVICES
1	All (A, B, C, D)	--	3	--	--	--	--	3
2	All (A, B, C, D, E, F)	7	12	7	3	2	7	38
3	A	--	--	1	--	--	--	1
3	E, F	5	10	6	3	2	6	32
4	A	5	10	6	3	2	5	31
4	D, E	5	10	6	3	2	5	31
5	All (A, B)	5	10	7	3	4	5	34
6	All (A, B, C)	5	11	6	3	2	5	32
7	All (A, B)	5	11	6	3	2	5	32
8	All (A, B, C)	5	11	6	3	4	5	34
9	A	5	10	6	3	2	5	31
9	C	5	10	6	3	2	5	31
9	D, E, F	5	10	6	3	4	5	33
10	B, C, D, E	5	10	6	3	2	5	31
11	All (A)	5	10	6	3	2	5	31
12	All (A, B, C, D)	5	10	8	3	2	5	33

ROUTE NUMBER	SEGMENT LETTER(S)	ACTIVITY CENTERS FOR DISABLED AND SENIORS	FOOD STORES	HEALTH FACILITIES	COLLEGES / UNIVERSITIES	PRIVATE SCHOOLS	PUBLIC SCHOOLS	TOTAL ESSENTIAL SERVICES
13	A, B	5	10	6	3	2	5	31
13	E	5	10	8	3	2	5	33
14	A, B	2	2	1	--	--	2	7
15	B	5	10	6	3	2	5	33
16	A, B, C	--	7	10	--	5	1	23
16	E	--	4	5	--	3	--	12
17	All (A, B)	2	2	1	--	--	2	7
19	All (A, B, C)	--	3	3	--	2	1	9
21	B	--	3	3	--	5	1	12
23	All (A, B, C)	--	7	8	--	2	1	18
24	All (A, B, C)	--	--	--	--	1	--	1
25	All	3	17	12	2	8	7	51
26	All	--	3	3	--	2	1	9
27	All	--	7	8	--	5	1	21
28	All	--	7	8	--	5	1	21

Source: DVRPC LINK Tool