

Ridge Pike West Corridor Study

Lower Providence Township, Montgomery County, PA



June 2018

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Executive Summary

The Ridge Pike West Corridor, which is located at the western end of Lower Providence Township, extends from approximately Cross Keys Road to the Perkiomen Creek. The area surrounding this corridor was recently the subject of the creation of a new zoning district within Lower Providence Township, the Ridge Pike West District. This district was created to foster the redevelopment and renewal of the area, with the intent to provide the community with an efficient multimodal transportation system.

In order to assist Lower Providence Township in planning for this future redevelopment that is envisioned with this new district, Lower Providence Township, through the assistance of the Montgomery County Planning Commission, applied to the Delaware Valley Regional Planning Commission (DVRPC) for a Transportation and Community Development Initiative (TCDI) grant to identify



recommendations in support of a multimodal transportation system to accommodate additional development anticipated with the new zoning. The focus of this effort is on the multimodal transportation infrastructure needs of this area, which includes vehicular, bicycle, pedestrian, and transit-oriented services along the corridor.

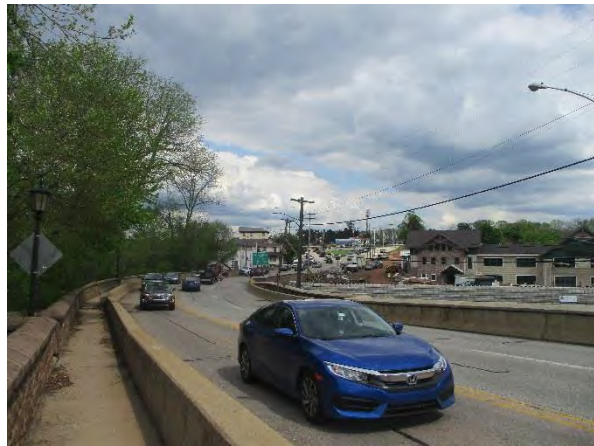
As an extension of identifying an improved, connected, multi-modal, transportation system within the community, one component of this effort includes an evaluation of the potential need for a second crossing of the Perkiomen Creek in the vicinity of Ridge Pike to efficiently accommodate the existing and future demands of vehicular, transit, and pedestrian/bicycle traffic anticipated in the area, due both to the increased development resulting from the rezoning, as well as general background growth from increased development throughout the regional area.

Improvements

In order to improve existing traffic conditions and help in accommodating the long-term future traffic demand, it is recommended to construct a Connector Roadway, extending from Germantown Pike to Ridge Pike, in the short term, and ultimately, across the Perkiomen Creek, intersecting with Second Avenue (PA Route 29) south of Main Street. This will serve as a second crossing of the Perkiomen Creek, and it is recommended that the existing bridge be maintained.

Other key features of the improvement plan include the following:

- Improved Access Management along the Ridge Pike corridor - the provision of rear access collector roadways on both the north and south side of Ridge Pike will assist in providing access to the properties that abut Ridge Pike and reduce conflicts with turning movements/congestion resulting from left-turning vehicles on Ridge Pike. Cross-access easements between properties should also be encouraged to limit the number of direct accesses to/from Ridge Pike, and the accesses that are permitted should be limited to restricted (i.e. right-in/right-out) movements only. Vehicular left-turn entry and exit movements should be planned and steered to occur to the rear of these properties. These access roadways also provide more direct access to some of the deeper parcels, allowing application of the dual-zoned benefits, which allow for commercial use along Ridge Pike and residential uses in the rear of the properties.
- Improved Pedestrian Connections - it is recommended that sidewalk connections be provided along the existing roadways including Ridge Pike, Germantown Pike, and Cross Keys Road within the study area. Additionally, it is recommended that all new future roadways also be constructed with sidewalks or trails along both sides, as feasible, including the proposed Connector Roadway and the proposed rear access collector roadways.
- Improved Bicycle Connections - it is recommended that bicycle lanes also be placed at appropriate locations within the study area. The improvement plan includes recommendations to provide dedicated bicycle lanes along both Ridge Pike and the Connector Roadway. Additionally, given the anticipated mixed-use nature of this area, it is recommended that future local roads/access roads be designed with a paved shoulder or wide lanes to also accommodate bike activity.



- Public Transit Enhancements - It is not anticipated that additional public transit routes will be needed for this study area, even with the anticipated future development. However, the locations of that development should be monitored and coordinated with SEPTA to ensure that the bus stops for that Route 93 bus service has stops in the appropriate locations. It is also recommended that Lower Providence Township work with developers as development and redevelopment occurs to have bus shelters built at appropriate locations along the Ridge Pike corridor.

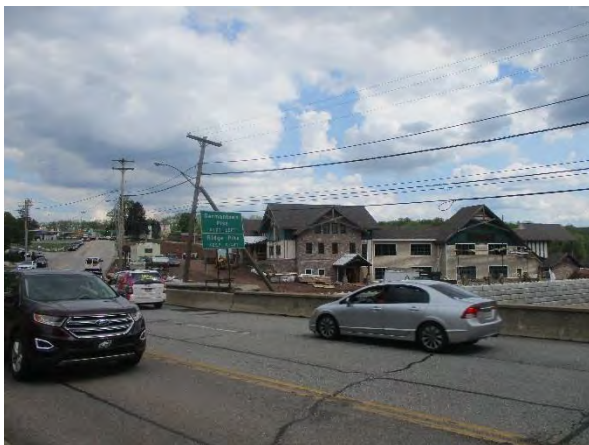


Next Steps

There has been significant regional collaboration in the development of this long-term improvement plan. It is recommended that this collaboration continue to encourage the implementation of this plan over time.

Specific steps toward implementation include the recommendation that Lower Providence Township adopt an “Official Map” that includes both the specific alignment of the Connector Roadway and the local roadways and access roadways that are also recommended in this study. Their inclusion in an adopted official map provides the ability for the Township to inform and work closely with developers to implement portions of these roadways over time.

Additionally, through the on-going efforts of the PennDOT Perkiomen Creek crossing project, it is our understanding that PennDOT will fund the project to move ahead with design, right-of-way acquisition and construction of the Connector Roadway, from Germantown Pike to Ridge Pike, and potentially Pechins Mill Road within a potential timeframe of 5-7 years, with the full extension to cross the Perkiomen Creek and intersect with Second Avenue (PA Route 29) at some point in the future.



Finally, it is recommended that Lower Providence Township continue to work with developers and affected property owners as new development and redevelopment occur along the corridor to enforce the recommendations outlined in this report.

While the second bridge crossing that is recommended as part of this project may not occur for several years due to the needed designs, funding, and right-of-way acquisitions, steps can be taken now to assist in the overall implementation and over time, these smaller steps will result in noticeable improvements to the transportation system in the area of Ridge Pike West.

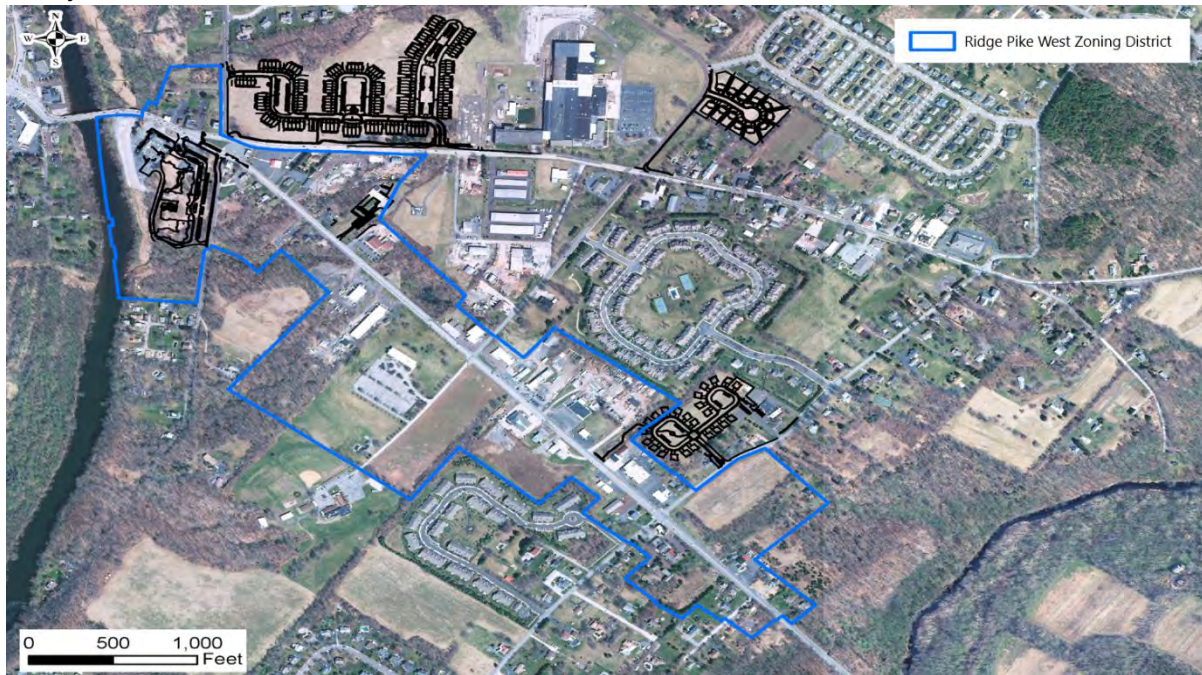


1 | Background

Introduction

The Ridge Pike West Corridor, which is located at the western end of Lower Providence Township, extends from approximately Cross Keys Road to the Perkiomen Creek. The area surrounding this corridor was recently the subject of the creation of a new zoning district within Lower Providence Township, the Ridge Pike West District. This district was created to foster the redevelopment and renewal of the area. The specific area that is the subject of this new zoning district, is noted in **Figure 1**.

FIGURE 1
Study Area



As stated in the ordinance, the intent of this new zoning is to provide opportunities for well-designed commercial, residential, and limited industrial development with pedestrian friendly designs. The intent also includes the following:

- Improved vehicular access to public streets
- Increase the number of pedestrian and vehicular connections

- Create mixed-use parcels to foster economic development including higher density residential uses

In order to assist Lower Providence Township in planning for this future redevelopment that is envisioned with this new district, Lower Providence Township, through the assistance of the Montgomery County Planning Commission applied to the Delaware Valley Regional Planning Commission (DVRPC) for a Transportation and Community Development Initiative (TCDI) grant to identify recommendations in support of a multimodal transportation system to accommodate additional development anticipated with the new zoning. The focus of this effort is on the multimodal transportation infrastructure needs of this area, which includes vehicular, bicycle, pedestrian, and transit-oriented services along the corridor.



A resulting component of this effort includes an evaluation of the potential need for a second crossing of the Perkiomen Creek in the vicinity of Ridge Pike to efficiently accommodate the existing and future demands of vehicular, transit, and pedestrian/bicycle traffic anticipated in the area, due both to the increased development resulting from the rezoning, as well as general background growth from increased development throughout the larger region. Additionally, if a second crossing is to be recommended, this study also includes preliminary recommendations for the location and configuration of this crossing.



The study area for this project, through Lower Providence Township, consists of two principal arterials, Ridge Pike and Germantown Pike, each roughly 0.6-mile-long segments that traverse the northwestern end of the Township. Carrying over 10,000 vehicles per day each, both Ridge Pike and Germantown Pike are vitally important roadways that provide regional traffic flow and connectivity across Lower Providence Township, as well as across central Montgomery County. They provide linkages to a wide variety of key destinations, including schools, office parks, community facilities, retail shops, parks, and residential neighborhoods. Furthermore, they serve as a parallel route to US Route 422 and are used as alternative or emergency routes when there are US Route 422 incidents.

However, development along Ridge Pike within the study area is small scale, inconsistent, and may be ripe for redevelopment, which the recently-adopted rezoning hopes to guide. Existing conditions and key issues within the Ridge Pike West Corridor, which have contributed to the lack of redevelopment, include the following:



- Lack of continuous and connected bicycle and pedestrian facilities, increasing reliance on vehicular travel for even short trips.
- High vehicular speeds and traffic volumes that create an unsafe and uncomfortable environment for walking and biking during off peak hours.
- Auto-oriented land development pattern with parking lots along lot frontages, buildings set back from the roadway, and wide driveways or frontage openings that limit walkability.
- Inconsistent lot sizes, including shallow lots in many cases, which lack of connectivity and access easements between properties that would help improve access management and safety of this corridor.
- Closely spaced signalized intersections and lack of capacity to support peak period vehicular traffic volumes on both sides of the Perkiomen Creek, which increase delay and result in traffic congestion, most commonly during peak commuter periods.

Ridge Pike	
Limits	Perkiomen Creek to Cross Keys Road
Length	0.6 miles
Classification / Road Typology	Principal Arterial
ADT	11,050
Posted Speed Limit	40 MPH

These issues are a concern for Lower Providence as they can impact the attraction and retention of both residents and businesses. Additionally, this area connects to the adjacent municipality of Collegeville Borough via the Perkiomen Bridge, a relatively narrow bridge that dates back to 1791, which crosses the Perkiomen Creek. This bridge is the only crossing within a span of approximately 4.5 miles along the creek, which results in heavy traffic volumes and heavy delay extending along both sides of the bridge during many hours of the day. And while a sidewalk is provided across the northern side of bridge for pedestrians/bicyclists, it is narrow, approximately four (4) feet in width, making travel in both directions difficult for walkers, let alone bicyclists. Furthermore, there is little connectivity to the bridge for pedestrians and bicyclists, especially on the Lower Providence side of the creek.

As a result, transforming the Ridge Pike West Corridor was identified as a top priority in Lower Providence Township's vision and plans for the future. Additionally, proactively planning for that transformation prior to development occurring is vital to ensuring that future development is designed in accordance with the connectivity goals outlined in the ordinance. With the help of DVRPC's TCDI grant, the plan produced in the pages that follow provides a blueprint for achieving the Township's vision of making Ridge Pike West a more complete, multi-modal transportation corridor complete with a defined zoning vision to encourage and support the transportation infrastructure and planning needs of the study area in both the near and longer term.

Previous Plans

This Ridge Pike West Corridor Study builds on previous regional and Township planning efforts, which have focused on improving traffic flow along both Ridge Pike and Germantown Pike, as well as addressing the need for a second bridge crossing of the Perkiomen Creek. These prior studies and timeframes are listed below. This study builds upon those efforts by focusing on the need for specific multimodal improvements within the rezoned western section of Ridge Pike, that can be implemented as development and redevelopment occur. Additionally, this effort includes the determination of a specific alignment recommendation for a future second bridge crossing of the Perkiomen Creek, to assist in the long-term planning effort of acquiring funding, so that project can ultimately be moved forward to design and construction.

2002



Route 29 Re-Alignment Study

- Recommended improvements to the offset Route 29 intersections in addition to changes to the traffic flow over the Perkiomen Bridge.

2003



Germantown Pike Corridor Study

- Identified four potential bridge alignments, one of which, Option 3A, was endorsed by both the Lower Providence Township Board of Supervisors, and supported through a Township resolution, as well as the Collegeville Borough Council.

2010



Second Collegeville Bridge Crossing Feasibility Evaluation

- Further Evaluation of proposed crossing alignments completed during the period when Decade of Investment projects were being determined by state legislators.

2018



Ridge Pike West Corridor Study (this project)

- Recommending multimodal improvements to address additional development expected from rezoning. Includes recommendation for specific alignment of a second bridge crossing.

2018



Perkiomen Creek Crossing Improvement Study

- Study commissioned by PennDOT to evaluation of near-term recommendations to improve traffic flow on both sides of the Perkiomen Creek at Germantown Pike/Ridge Pike and at Main Street/PA Route 29 (North) and Main Street/PA Route 29 (South).

Currently Proposed Improvements

As a result of the prior efforts, the construction of a second Collegeville Bridge crossing has been included in the Delaware Valley Regional Planning Commission (DVRPC) Transportation Improvement Plan (TIP) for FY2019 and has been identified as a Decade of Investment Project. The project (MPMS 102273) specifically references providing an additional bridge over the Perkiomen Creek between Ridge Pike and Germantown Pike in Lower Providence Township and Route 29 in Collegeville Borough, including new connections and relocated intersections on both ends of the bridge. The new bridge is to improve operations and lessen congestion on the existing 1791 stone arch bridge, which is the second oldest bridge in Pennsylvania. Lower Providence Township, as well as Collegeville Borough, has been advocating for this major project to occur due to significant peak hour congestion under existing conditions.



The funding description listed in the TIP includes funding for preliminary engineering in 2020, and funding for final design, as well as the actual construction occurring in the second four years of the program (2023-2026).

Another notable improvement proposal is coordinated with a development planned within Collegeville Borough. A Royal Farms convenience store with gas pumps has been proposed and is going through the land development process in the Borough, and if approved, will be located on the north side of Main Street, to the west of First Avenue (PA Route 29). As part of that project, it is proposed to realign First Avenue (PA Route 29) to intersect Main Street directly opposite Second Avenue (PA Route 29). The intent of this improvement is to remove the offset between First Avenue (PA Route 29) and Second Avenue (PA Route 29), along Main Street and allow vehicles destined to travel between the two to travel directly across Main Street at one location. This improvement would significantly reduce the traffic congestion that currently exists in the area, extending over the Perkiomen Creek Bridge into Lower Providence Township. At the writing of this study, it should be noted that the Royal Farms project has not yet been approved by Collegeville Borough or PennDOT but has been continuing to work with both in an effort to develop a plan that is acceptable to all.



Project Process and Schedule

In the pages that follow, this Ridge Pike West Corridor Study develops recommendations to improve the multimodal transportation system to accommodate future development anticipated as a result of the recently adopted Ridge Pike West Zoning, including increased connections to encourage means other than passenger vehicle travel for residents and employees within the study area, and plans and develops a specific alignment recommendation for a second crossing of the Perkiomen Creek. With the recommendations, the local municipalities, Montgomery County, and PennDOT can plan for the ultimate implementation of a second Perkiomen Creek bridge crossing at some point in the future. This coordinated transportation and land use plan provides a blueprint for transforming the Ridge Pike West corridor into a safe, vibrant, comfortable, and desirable area of the Township for walking, biking, and driving. The process started in early 2017 upon receiving a TCDI grant award through DVRPC, and is expected to be completed and a plan approved by the Lower Providence Township Board of Supervisors at their meeting on June 21, 2018.

Stakeholder and Public Involvement

The Ridge Pike West Corridor Study was developed and shaped with input from Township officials, staff, business owners and residents of Lower Providence Township and other project partners. Meeting materials and participants are included in Appendix A—Stakeholder and Public Involvement Meeting Materials.



5

Committee Meetings

- The Ridge Pike West Corridor Study Committee met five times throughout the planning process and provided input on key deliverables and recommendations. The diverse Committee of stakeholders was selected by Lower Providence Township to oversee the planning process, and included representatives from Township, Collegeville Borough, Montgomery County Planning Commission, PennDOT, SEPTA, and state representatives and state senator representatives, in addition to local business owners. Additionally, a representative from the Delaware Valley Regional Planning Commission served as advisory members of the Committee.

3

Public Meetings

There were three public meetings scheduled for this project. Two were held, on November 16, 2017 and April 5, 2018, at the Township’s regularly scheduled Board of Supervisors hearing. Additionally, in order to address questions raised during the second public meeting, an additional meeting was held on May 3, 2018, again at the regularly scheduled Board of Supervisors meeting. Notification letters were specifically sent from Lower Providence Township to all of the property owners expected to be directly impacted by the proposed Connector Roadway that is recommended in this report advising them of the May 3, 2018 public meeting. Each meeting was advertised and provided an opportunity for citizens to review and ask questions of the consultant team. The final public meeting, where approval of the Township Board of Supervisors is anticipated, is scheduled for June 21, 2018. Ultimately, it is anticipated that these recommendations will become part of an Official Map to assist the Township and others in ultimate implementation of the improvements recommended in this study.



2 | Existing Conditions

Existing Issues

There are several existing constraints to an efficient transportation system within the vicinity of the Ridge Pike West Corridor that serve as a discouragement to redevelopment and revitalization of the corridor. These must be addressed in order to maximize development and redevelopment potential in the area.

Vehicular Transportation Issues

One of the largest obstacles for efficient vehicular traffic operations is the limitation of capacity caused by the relatively narrow existing Perkiomen Bridge, over the Perkiomen Creek connecting Lower Providence Township with Colledgeville Borough. This bridge currently provides a single westbound travel lane, two eastbound travel lanes, and a separated approximate four-foot sidewalk along the north side of the bridge.

From a vehicular perspective, this limited cross-section, in conjunction with the close spacing of multiple, heavily-trafficked and signalized intersections on either side of the bridge, results in significant delay and heavy traffic congestion most notably during the commuter peak hour periods. This situation is exacerbated particularly by the close spacing of the offset Route 29 intersections with Main Street, at First Avenue and Second Avenue, as well as the nearby Third Street Avenue intersection with Main Street. The green time required for these side street approaches to Main Street often result in traffic backing up in either direction along Main Street/Ridge Pike, particular toward the east into Lower Providence on both Germantown Pike and Ridge Pike in the weekday afternoon peak hour, with the single westbound lane over the Perkiomen Bridge.



As noted above and in the study area, traffic queues often extend along the key corridors of Germantown Pike and Ridge Pike. Since traffic queues extending along Main Street from Colledgeville,

continue across the bridge into Lower Providence, they reduce the capacity of the Germantown Pike/Ridge Pike signalized intersection, which lies within 500 feet to the east of the bridge. Often times, westbound Ridge Pike and Germantown Pike are unable to proceed westbound through the signalized intersection and across the bridge when they get a green signal, since traffic queues prohibit them from traveling through the intersection, resulting in lengthy queues extending further east into Lower Providence



Township up to and beyond Cross Keys Road from time to time. This is particularly an issue during the weekday afternoon commuter peak hour when westbound traffic volumes are more than 20% higher than the eastbound traffic volumes.

An additional issue resulting from this congestion is the corresponding congestion on River Road. The intersection of River Road and Germantown Pike, which is controlled by a stop sign on the River Road approach, is approximately 200 feet or less from the signalized intersection of Germantown Pike and Ridge Pike. Due to the close proximity of these intersections, Germantown Pike traffic regularly queues beyond the River Road intersection, making it very difficult for vehicles to access Germantown Pike from River Road, particularly for traffic trying to turn left from River Road. Frustrations set in due to the routine queues along Germantown Pike, and many drivers attempt to bypass this congestion by turning off of Germantown Pike, using parallel roadways to get to River Road, adding more traffic to the difficult movement accessing Germantown Pike in such close proximity to the bridge.

Trying to avoid this can prove to be difficult for drivers during the peak hour due to the congestion. This is because the other nearest crossings of the Perkiomen Creek are almost two miles to the north along Route 113 and almost three miles to the south at the recently replaced Arcola Road Bridge.

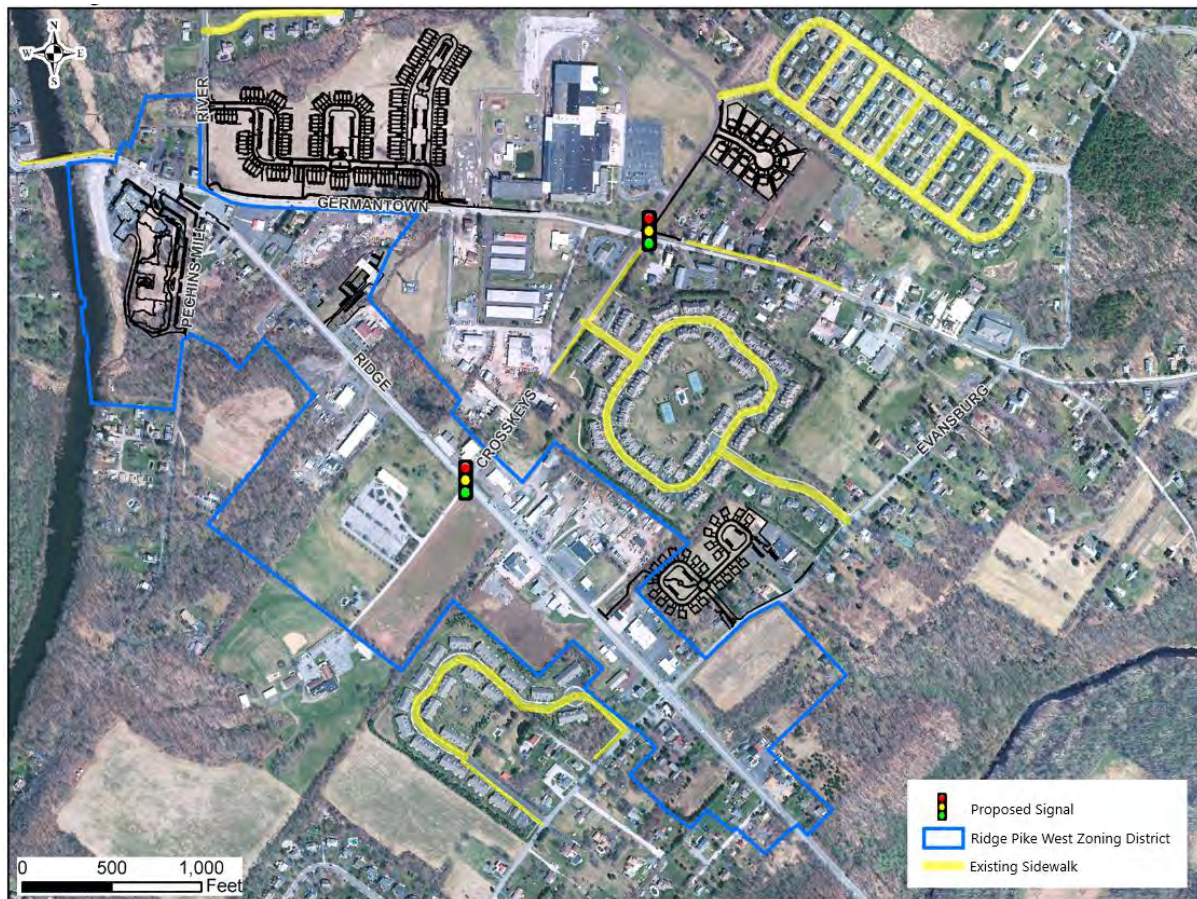
The peak hour traffic congestion resulting from these issues makes access to the properties along Ridge Pike West difficult, since traffic queues along Ridge Pike often block driveways, making movements into and out of properties with frontage on Ridge Pike problematic, particularly for left-turn movements. This makes it difficult for the effective use of these properties since potential customers, residents, and employees avoid the area and the delay caused by the issues in the area. Consequently, many Ridge Pike properties remain either vacant or underutilized. Notable examples are the Perkiomen Bridge Hotel on the Collegeville side of the bridge, the Collegeville Pit Stop, and the Collegeville Inn, although redevelopment of that site is proposed, as a low-traffic generating assisted-living facility.

Existing Pedestrian/Bicycle Network Issues

From a pedestrian/bicyclist perspective, minimal accommodations are currently provided within the study area. While a narrow, separated sidewalk is provided on the north side of the Perkiomen Creek Bridge, which extends into a more sizeable sidewalk system to the west of the bridge within Collegeville, there is little connectivity in this project study area within Lower Providence. The existing pedestrian accommodations are highlighted in **Figure 2**. Note that this generally includes sidewalks within three nearby relatively new residential developments located off of Level Road and Evansburg Road, as well as only a short sidewalk section extending across the bridge, but ending before reaching the intersection of Germantown Pike and Ridge Pike.



FIGURE 2
Existing Pedestrian Connections



Furthermore, given the lack of connectivity with the area itself, there is also a lack of connectivity to the regional trail network that abuts this area. Located just to the west of this area is the Perkiomen Trail, which traverses Collegeville Borough. This Montgomery County trail intersects Main Street within a quarter mile from the Perkiomen Creek Bridge. Yet, given the lack of connectivity within Lower Providence Township, it is difficult for Lower Providence residents and employees to access this regional trail, which provides a 20-mile connection from Oaks to Green Lane Borough, as well as providing a direct connection to the Schuylkill River Trail, an 18-mile trail linking Mont Clare and Philadelphia. Additionally, located less than one half mile to the east of this area is the Evansburg State Park, which contains miles of biking and hiking trails, as well as other recreational amenities. However, there are no trails or pedestrian connections from the Ridge Pike corridor to the park, even though Ridge Pike runs through the Park. This lack of connectivity limits the ability of Lower Providence residents and employees from using this vast trail network and park system as a means of commuting and as a means of recreation.

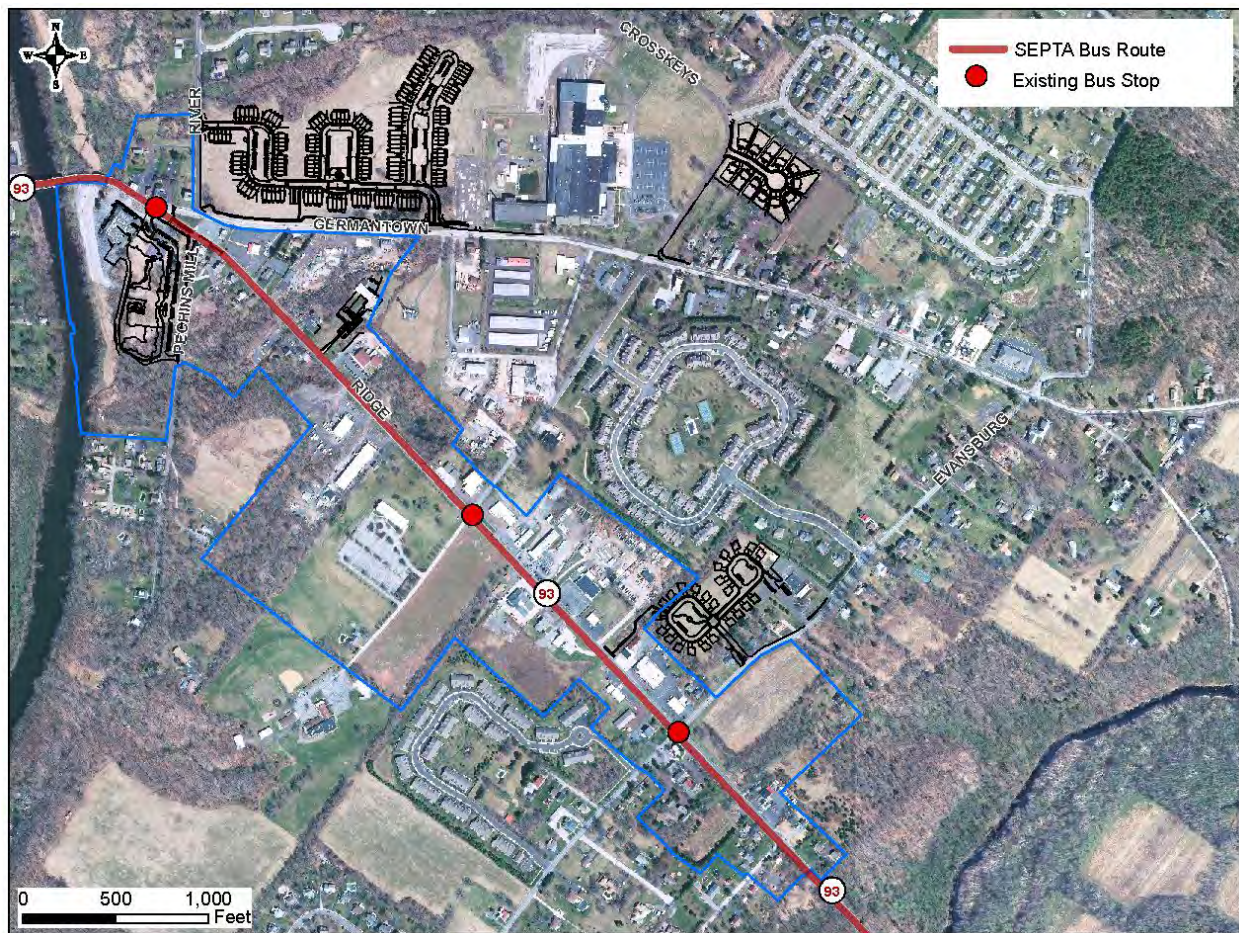
Existing Public Transit Issues



From a public transit perspective, there are also limited accommodations. SEPTA Bus Route 93 traverses the study area along Ridge Pike. This route connects Pottstown to the Norristown Transportation Center, which provides linkages to the Regional Rail system. Within the vicinity of the study area, regular stops of the Route 93 bus occur at Germantown Pike, Cross Keys Road, and Level Road/Evansburg Road, as well as at several locations along Main Street in Collegeville,

including at First Avenue and Third Avenue. The existing public transit services within the study area are highlighted in **Figure 3**.

FIGURE 3
Existing Public Transit



It should be noted that the variability of traffic conditions in the study area creates particular difficulty for SEPTA in scheduling and providing timely transit service on Bus Route 93 on Ridge Pike. The pinch point created by the Perkiomen Bridge, along with varying traffic conditions on U.S. Route 422 and other parallel roadways, can create significant delays, particularly westbound in the weekday afternoon peak hour. But this excessive delay does not occur to the same extent and at the same time on all days, so it is difficult to predict. If actual travel time is less than scheduled, buses are not to run early so they do not miss customers. Operators are instructed to stop at the next time point and wait, but on-board customers become dissatisfied with those delays. Conversely, late buses affect the reliability for customers along the entire Pottstown to Norristown corridor. On-time performance constantly swings between double digit early and late trips, partly because it is hard to predict accurate travel times through this segment.

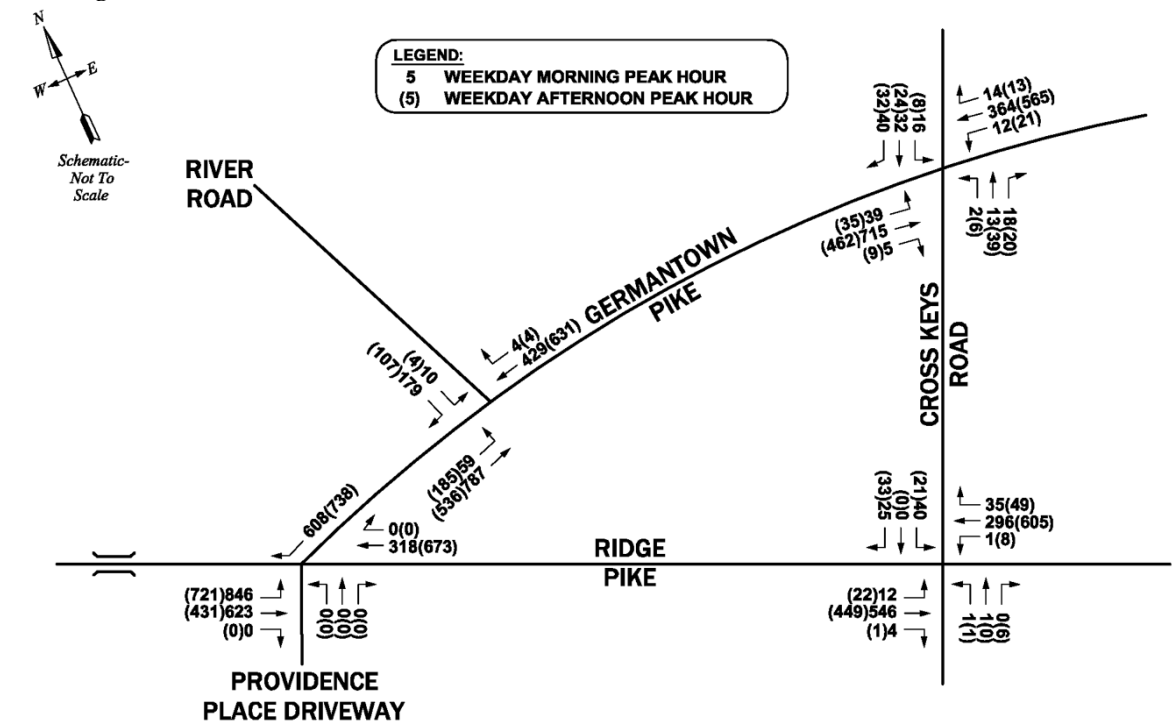
Existing Traffic Volumes

In order to accurately document existing multimodal transportation volumes within this study area, Manual Turning Movement (MTM) counts were conducted during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon (4:00 AM to 6:00 PM) peak hour periods at the following intersections:

- Germantown Pike and Ridge Pike (S.R. 4031)
- Germantown Pike and River Road (S.R. 4009)
- Germantown Pike and Cross Keys Road
- Ridge Pike (S.R. 4031) and Cross Keys Road

These multimodal counts, including counts of passenger vehicles, heavy vehicles, and pedestrians, were done on a typical midweek day in May 2017. The traffic counts were tabulated by 15-minute periods to establish the four highest consecutive 15-minute periods, which constitute the weekday morning and weekday afternoon peak hours, which serve as the basis for this analysis. **Figure 4** illustrates the 2017 existing weekday morning and weekday afternoon peak hour vehicular traffic volumes at the study area intersections. The actual MTM counts are provided in Appendix B.

FIGURE 4
Existing Traffic Volumes



Existing Traffic Patterns

In addition to using peak hour intersection counts and in order to get a clearer picture of the existing vehicular traffic patterns in the vicinity of the existing Perkiomen Creek Bridge, we utilized information from Streetlight Data. Streetlight Data is a company that uses big data to process and then summarize helpful traffic information. Location based services (smartphone apps that track device location), navigation-GPS data (devices or tools/apps that help people navigate such as connected cars and trucks, Google Maps, Wayz, etc.), and contextual data are the resources from which Streetlight Data

gathers all of its information. Streetlight Data then uses a software data processing engine to summarize that data into a useable excel spreadsheet format.

McMahon utilized Streetlight Data for the Ridge Pike West Corridor Study, based on the need for more advanced traffic engineering metrics. In order to more effectively determine if and when a second Perkiomen Creek bridge crossing is needed, and how much traffic is likely to utilize that bridge if it is constructed, this data was used to determine the origin and destination of the trips traveling over the existing Perkiomen Bridge during the weekday morning and weekday afternoon peak commuter periods. The specific zones utilized for this evaluation included the following:

- First Avenue, north of Main Street
- Main Street, west of Second Avenue
- Second Avenue, south of Main Street
- River Road, north of Germantown Pike
- Germantown Pike, east of River Road
- Ridge Pike, east of Germantown Pike.

Figures depicting a summary of the resulting travel periods in both directions during the weekday morning and weekday afternoon peak periods are summarized in **Figures 5 through 8**. As shown, the heaviest traffic flow in the westbound direction comes from Germantown Pike and departs to Second Avenue during the weekday morning peak, while in the same direction in the weekday afternoon peak period, the origin of traffic traveling over the bridge is more evenly split between Germantown Pike and Ridge Pike, with the primary destination splitting between Second Avenue and Main Street. In the eastbound direction, during both peak periods, the origin of most traffic traveling over the bridge is Second Avenue from the south, while the destination is heavily oriented to Germantown Pike in the weekday morning peak period and more evenly split among the three destinations during the weekday afternoon peak period.



FIGURE 5
Existing Traffic Pattern – Westbound AM Peak

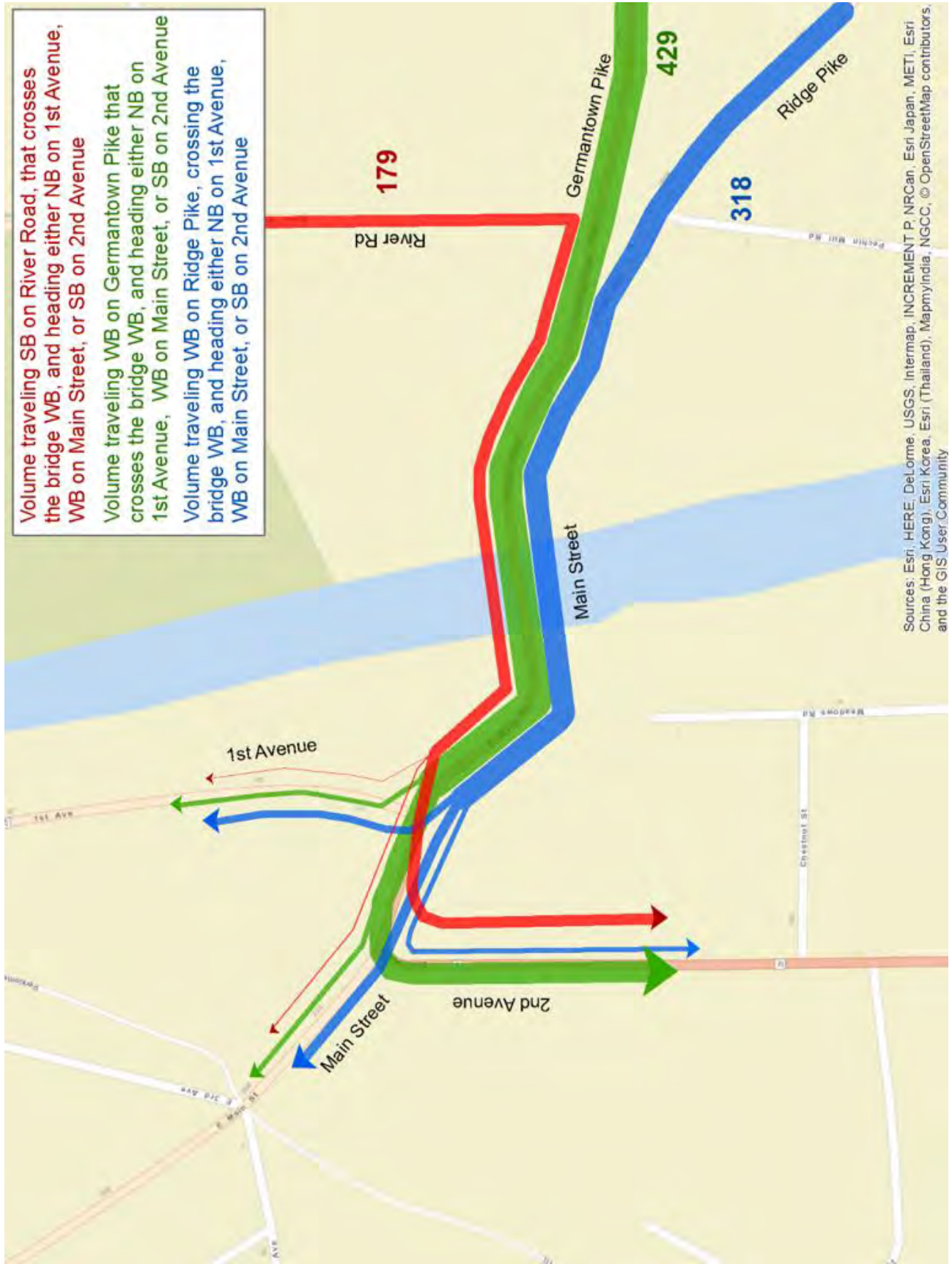


FIGURE 6
Existing Traffic Pattern – Westbound PM Peak

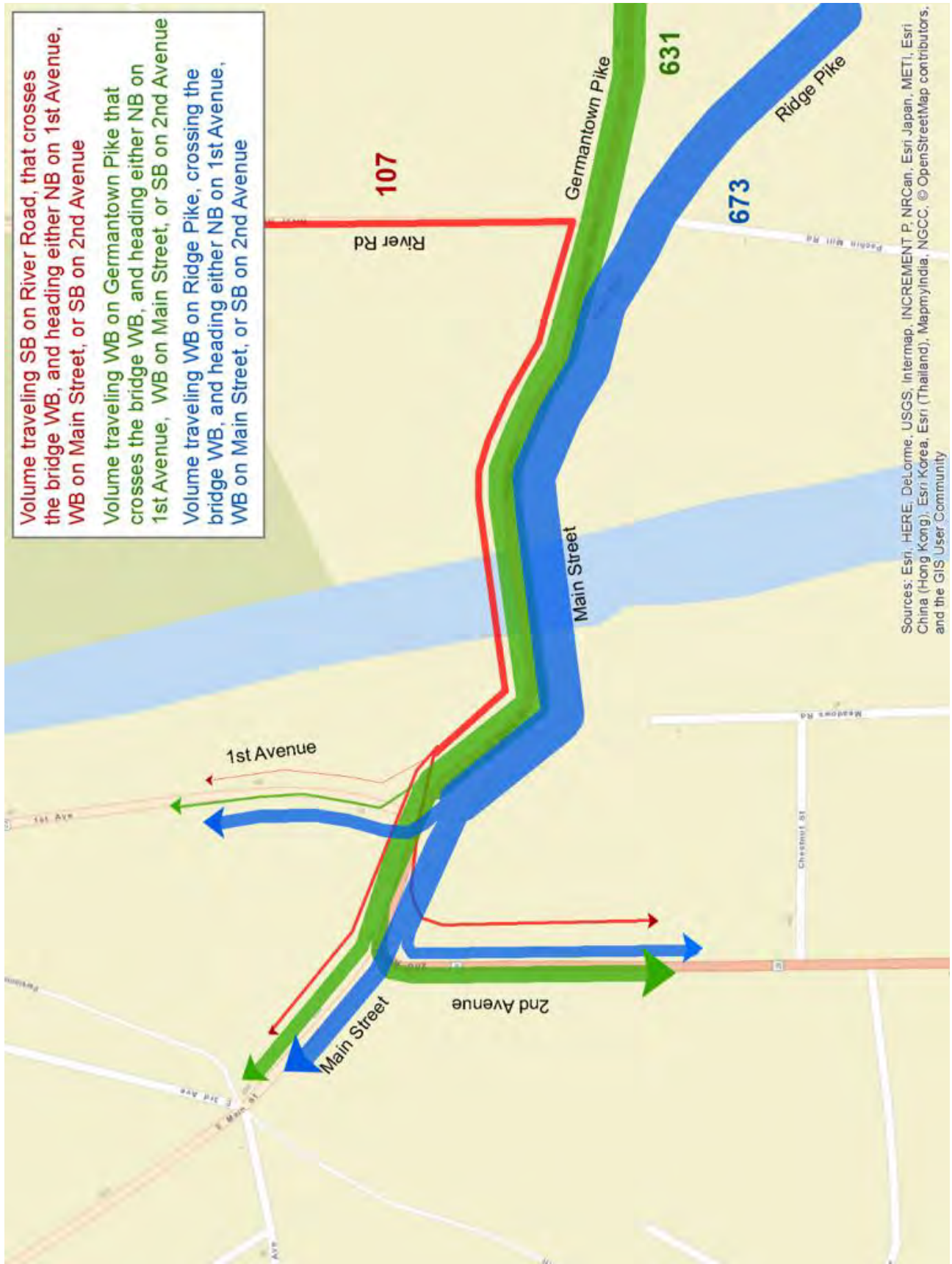


FIGURE 7
Existing Traffic Pattern – Eastbound AM Peak

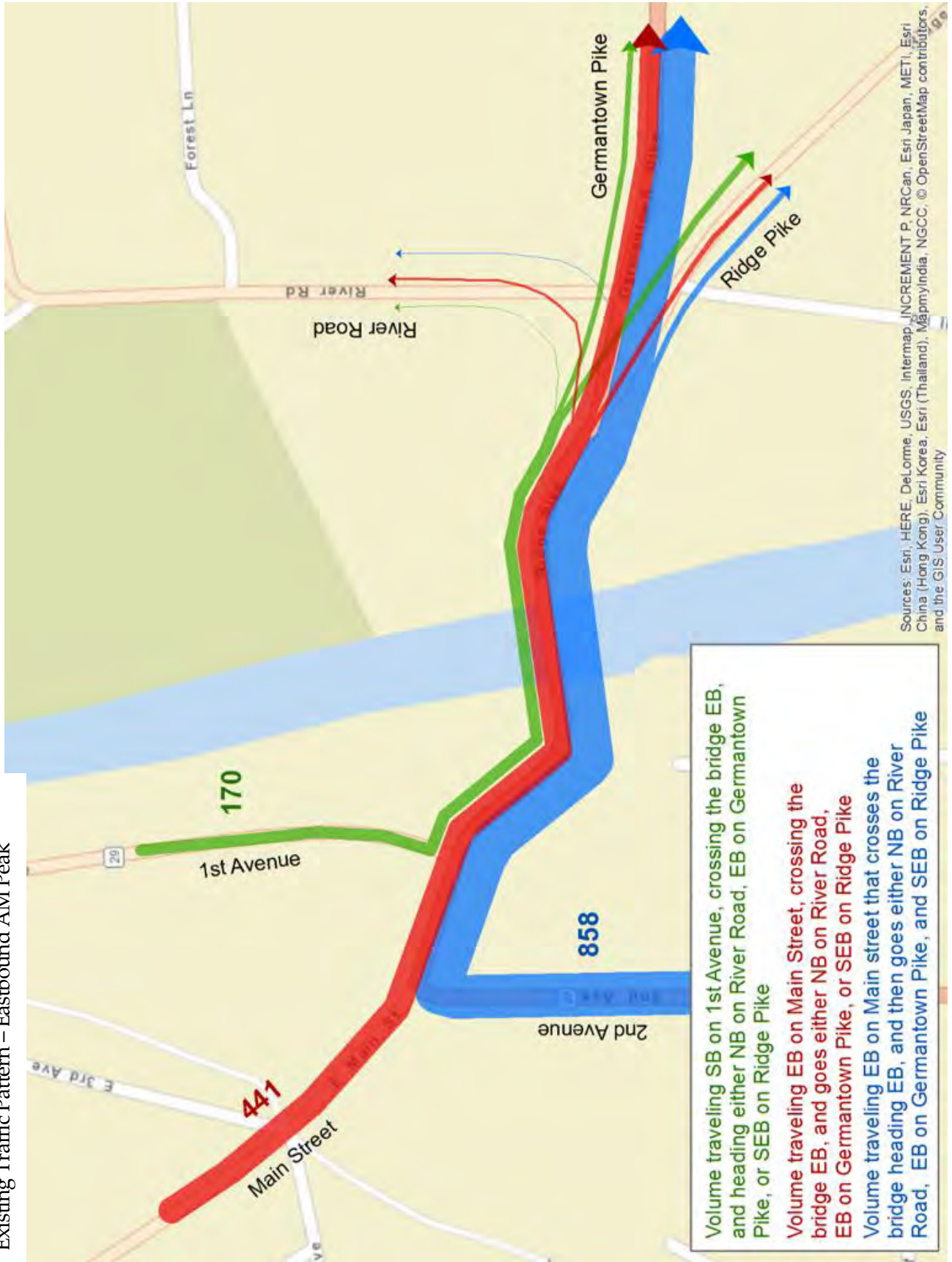
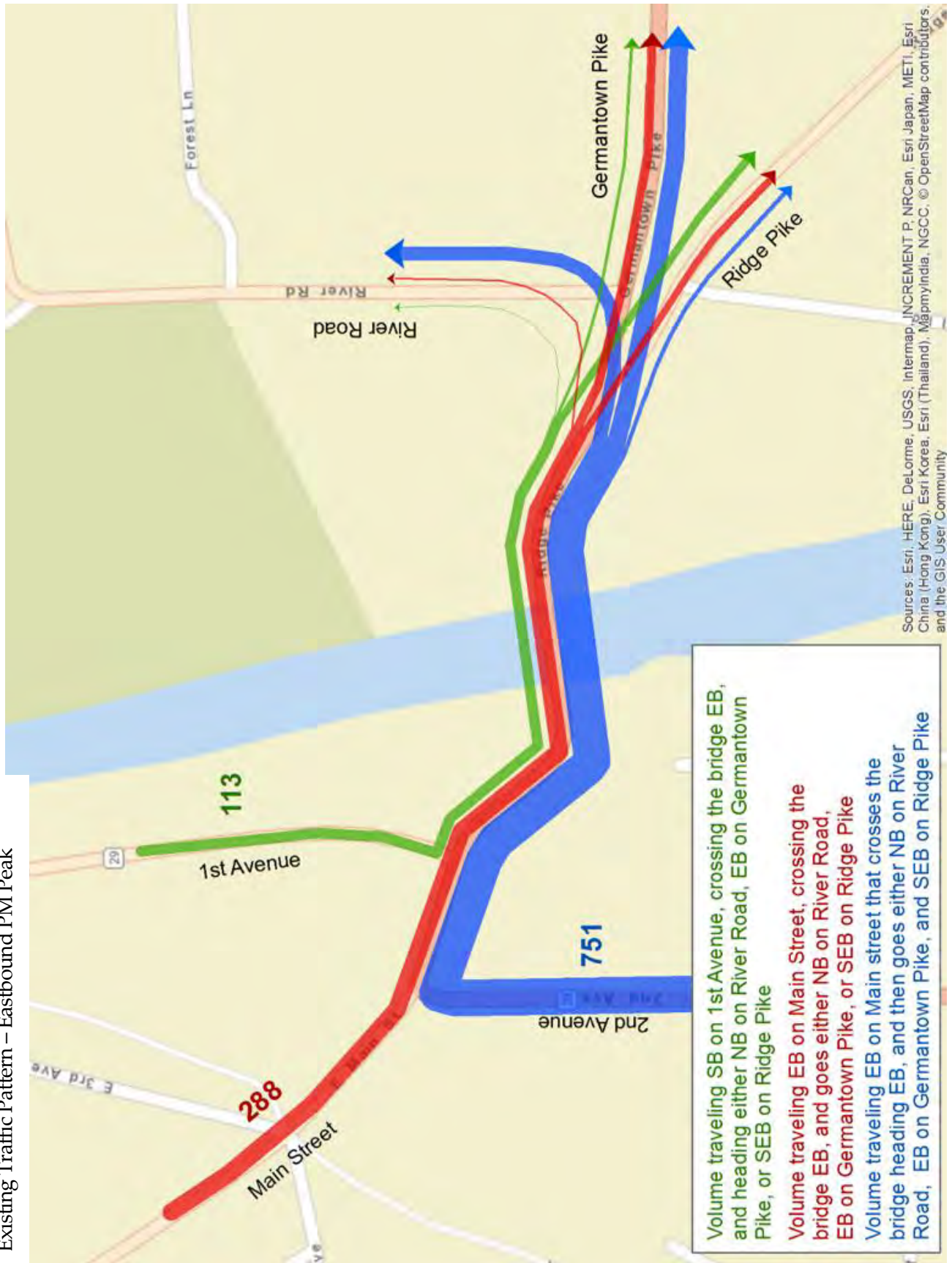


FIGURE 8
Existing Traffic Pattern – Eastbound PM Peak



One observational note, as a result of this analysis, is that traffic traveling over the existing Perkiomen Creek Bridge is more heavily oriented to and from the south compared to the north in most cases, particularly on the western side of the bridge. Traffic traveling over the bridge using either River Road or First Avenue is much lower than the other evaluated zones. This is indicative that the location of a second bridge to the south of the existing bridge would be more desirable than one to the north of the existing bridge.

Additionally, Streetlight Data was also utilized to determine the overall travel lengths of vehicles using the Perkiomen Bridge. This was evaluated based on prior information that traffic using the bridge was primarily local traffic. This information is summarized in **Figures 9 and 10**. As shown, during the weekday morning peak period, when there is a majority of commuter traffic, approximately 22% of total traffic using the bridge travels 20 miles or longer on their trips. Furthermore, during that period approximately 33% of westbound traffic and 51% of eastbound traffic travels between 10 and 20 miles. During the weekday afternoon peak period, when a higher percentage of traffic is non-commuter traffic, such as trips to the nearby shopping areas, a smaller percentage of total bridge traffic, approximately 12%, travels more than 20 miles in their trip. Also, during the weekday afternoon peak period, approximately 30% of total bridge traffic travels between 10 and 20 miles.

FIGURE 9
Existing Bridge Traffic Details Westbound

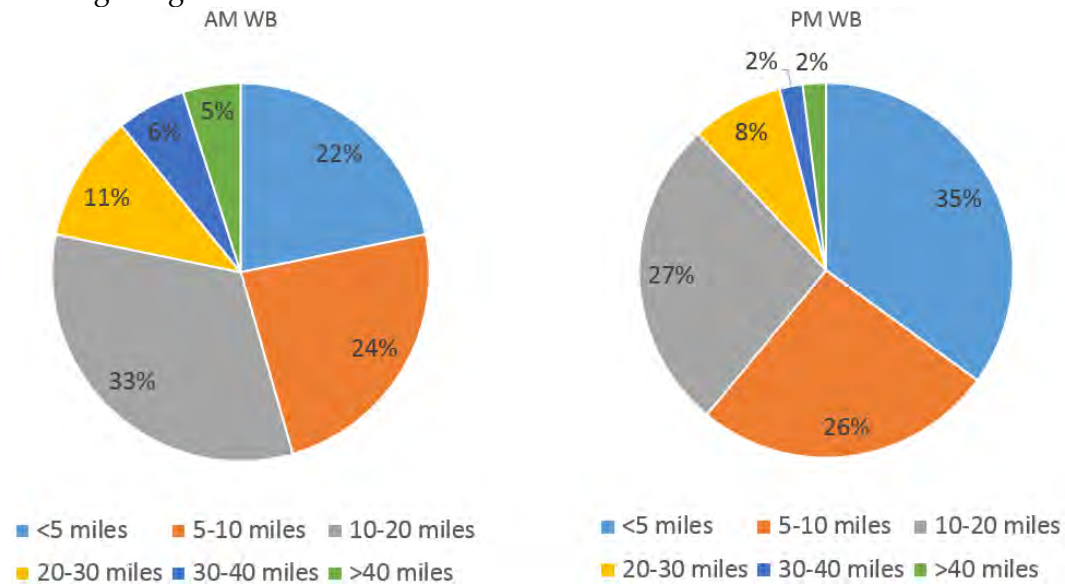
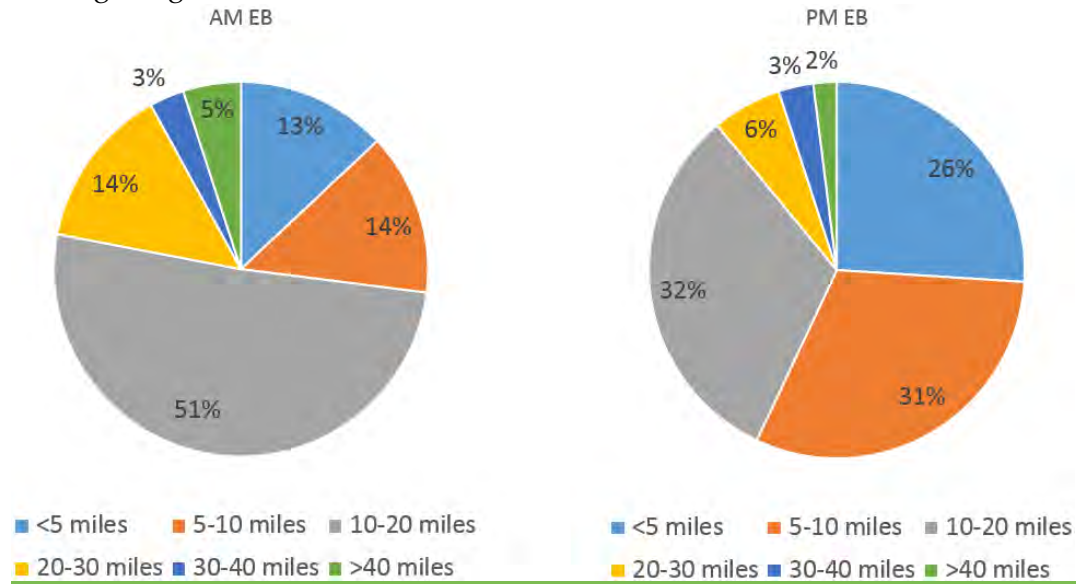


FIGURE 10

Existing Bridge Traffic Details Eastbound

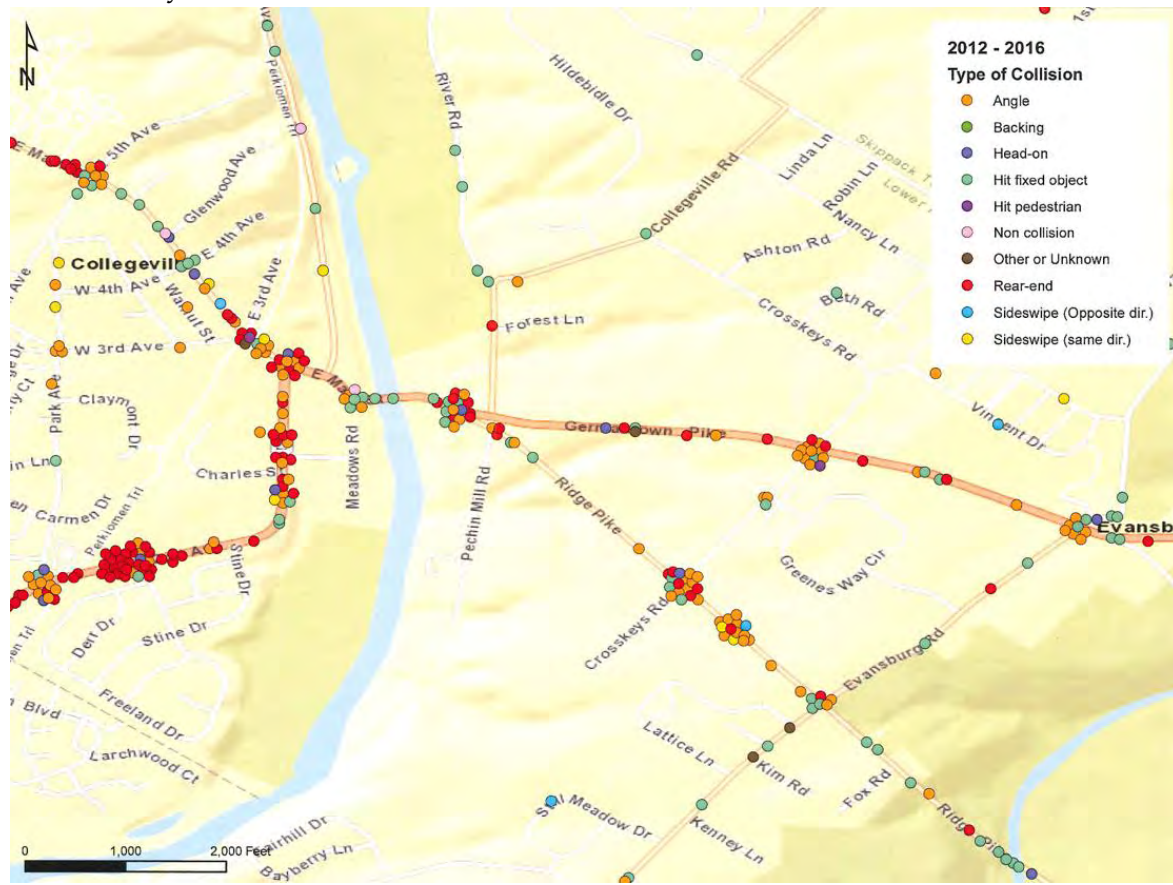


Crash Data

Depicted in **Figure 11** is a summary of the reportable crashes that occurred within the vicinity of the Perkiomen Bridge from 2012 through 2016. In total, 317 reportable crashes occurred within this study area. The largest percentage of these crashes were either rear-end crashes (34%) or angle crashes (33%) with hit-fixed-object (22%) as the third most prevalent. The remaining crash types occurred with much less frequency, all under 4%. It should be noted that more than half of these occurred within Collegeville, on the other side of the Perkiomen Creek. Specifically, within Lower Providence Township, the majority of these crashes occurred at the larger intersections within the study area, notably the intersection of Germantown Pike and Ridge Pike, which has the highest volume of vehicles traveling through it, followed by the intersections of Cross Keys Road with both Ridge Pike and Germantown Pike. The percentage of crash type for the crashes within Lower Providence Township was similar to that for the entirety of crashes shown in Figure 11. Of the total of 145 crashes shown in Lower Providence Township, the majority were angle crashes (37%, followed by hit-fixed object (32%) and rear-end (20%). The remaining crash types occurred with much less frequency, all under 4%.



FIGURE 11
Crash History



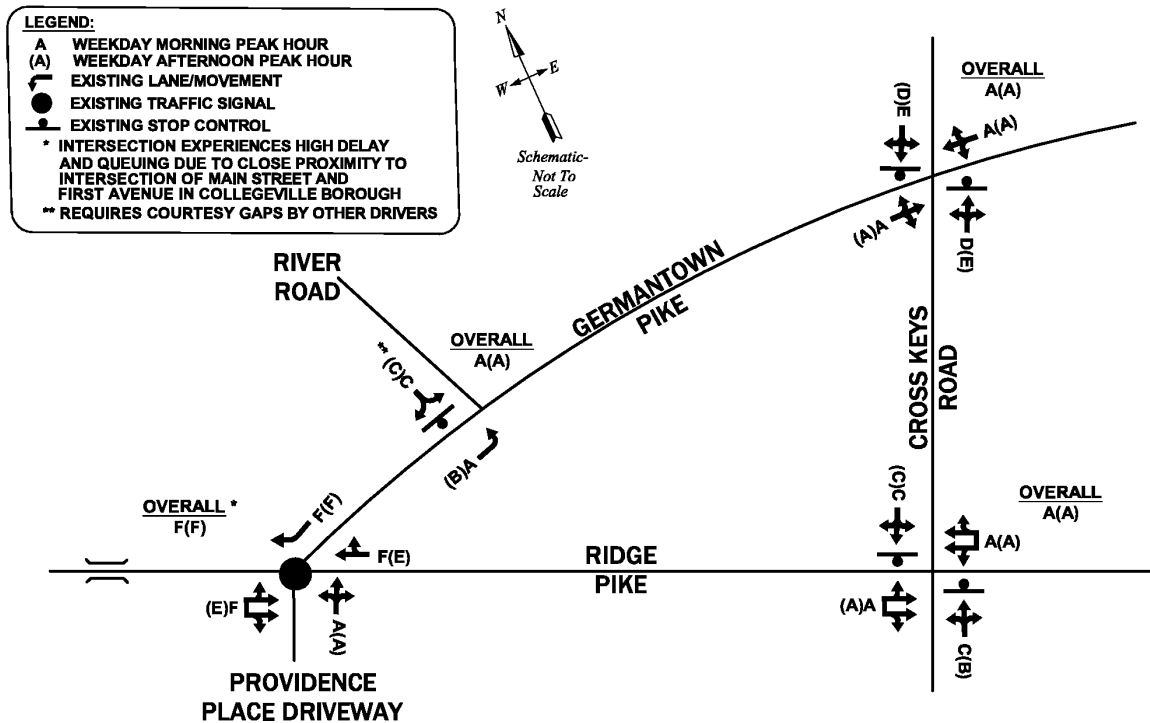
Existing Traffic Conditions

The vehicular traffic volumes summarized in Figure 4, were subject to capacity/level of service analysis in accordance with the techniques outlined in the Highway Capacity Manual. These standard capacity/level-of-service analysis techniques, which calculate total control delay, are more thoroughly described in Appendix C for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level of service (LOS) for each intersection type. Level of service (LOS) is the criteria utilized to evaluate the study intersections and roadways in accordance with standard traffic engineering practice. In the surrounding area, PennDOT District 6-0, as well as many local municipalities, considers LOS A through D as constituting acceptable operating conditions, while LOS E represents conditions approaching capacity, and LOS F indicates that traffic volumes exceed capacity.

The 2017 existing weekday morning and weekday afternoon peak hour traffic volumes presented in Figure 4 were subjected to the detailed capacity level of service analysis methodology described above. The results of that analysis are summarized in **Figure 12** and the detailed capacity/level of service analysis worksheets are contained in Appendix D.

As shown in Figure 12, the intersection of Germantown Pike and Ridge Road currently operates with excessive delay during both the weekday morning and weekday afternoon peak hours. It should be noted that actual conditions are often even worse than depicted in the resultant traffic analysis summary figure. The proximity of several closely-spaced intersections in this area, including into Collegeville, and the limited capacity of the Perkiomen Bridge result in traffic queues extending into adjacent intersections. This reduces the capacity of the signalized intersections since these queues often block traffic from traveling through the signalized intersections even when given green lights, further increasing the delays and queue lengths. Consequently, traffic queues routinely extend from the Germantown Pike/Ridge Pike intersection eastward along both Germantown Pike and Ridge Pike. This increases delay on the side street approaches to these corridors, beyond that noted in the analysis. In particular, this results in increased queues along the River Road approach to Germantown Pike and, to a lesser extent, on the Cross Keys approach to Germantown Pike.

FIGURE 12
Existing Levels-of-Service





3 | Short-Term Future Conditions

This section includes recommendations to accommodate short-term conditions. The year 2025 was selected as the design year for short-term conditions to account for the year that improvements are likely to be constructed.

Proposed and Anticipated Development

The area within and around the study area is beginning to experience development pressure. Several developments within the Ridge Pike West Zoning District and within the area surrounding the District are already approved or proposed and likely to be open and operational by 2025. These developments will continue to add stress to the existing transportation system. The specific developments known at the time of this report are summarized in **Table 1**.



TABLE 1
Approved and Proposed Development Trip Generation

Development	Size	Weekday AM Peak Hour Total	Weekday PM Peak Hour Total
The Courts at Brynwood	139 townhomes	67	79
35 Evansburg Road	25 single family homes	27	30
Providence Place	160-bed life care facility	10	27
Village at Evansburg	12 single family homes	18	16
109 River Road	2,300 s.f. office space	4	3
Parcel 7	31 townhomes, 73,825 s.f. office space, and 73,824 s.f. retail space	234	456
Royal Farms - Collegeville	5,371 s.f./16 fueling positions	98	104
Total "New" Trips		458	715

(1) Based on preliminary information before official land development submission.

Utilizing the Institute of Transportation Engineers (ITE) publication, **Traffic Generation 10th Edition**, it is anticipated that these approved and proposed developments may generate approximately 460 total new vehicular trips during the weekday morning peak hour and approximately 715 total new trips during the weekday afternoon peak hour. While an improved multimodal transportation system could reduce this number, since residents, employees and customers could walk, bike, or use mass transit, the existing transportation system in this area, is not currently supportive of alternative travel means, resulting in increased demand on the roadway system.



It should again be noted that in conjunction with a Royal Farms convenience store with gas pumps proposed to be located within Collegeville Borough, on the north side of Main Street, to the west of First Avenue (PA Route 29), it is proposed to realign First Avenue (PA Route 29) to intersect Main Street directly opposite Second Avenue (PA Route 29). The intent of this improvement is to remove the offset between First Avenue (PA Route 29) and Second Avenue (PA Route 29), along Main Street and allow vehicles destined to travel between the two to travel directly across Main Street at one location. While there is no clear timetable for the approval of this development and then the associated roadway improvements, given that this development continues to work through the local and PennDOT review processes, it is anticipated that this improvement could be completed by 2025 and, therefore, were assumed to be completed in the consideration of future 2025 conditions. It is anticipated that this improvement will significantly reduce the traffic congestion that currently exists in the area, extending over the Perkiomen Creek Bridge into Lower Providence Township.

Recommended Transportation Improvements

In order to improve existing traffic conditions and help in accommodating the short-term future demand caused by the approved and currently proposed development, as well as general regional background traffic growth, some additional roadway improvements are anticipated to be needed. A key component of this is addition is a new roadway segment (connector) extending between Ridge Pike and Germantown Pike to the east of their existing intersection. This will increase the separation of the major signalized intersections along the Ridge Pike/Main Street corridor, allowing for the queue lengths to be accommodated, reducing the negative impacts of spillback.

This new roadway connection was carefully planned and projected to be located along an alignment that could ultimately be extended further west as the second bridge crossing over the Perkiomen Creek, to be discussed in more detail in the later sections of this report. It is anticipated to generally provide two travel lanes in each direction on the new Connector Roadway. It is recommended that the intersection of this roadway connection with existing Germantown Pike be controlled by the provision of a roundabout and that the intersection of the new Connector Roadway with Ridge Pike be controlled by a traffic signal. Both a roundabout and signal were evaluated at the Germantown Pike intersection with the new Connector Roadway, and either control will operate satisfactorily. The Advisory Committee preferred the roundabout and therefore it was carried forward in this study. Additionally, it is recommended that this new Connector Roadway provide sidewalks and bicycle lanes on both sides of the Connector Roadway to accommodate pedestrians and bicyclists, although additional sidewalk/bicycle lane connections to this Connector Roadway are needed to make these aspects of the transportation system ultimately more efficient and beneficial to the community. This will be further addressed on the long-term future considerations.

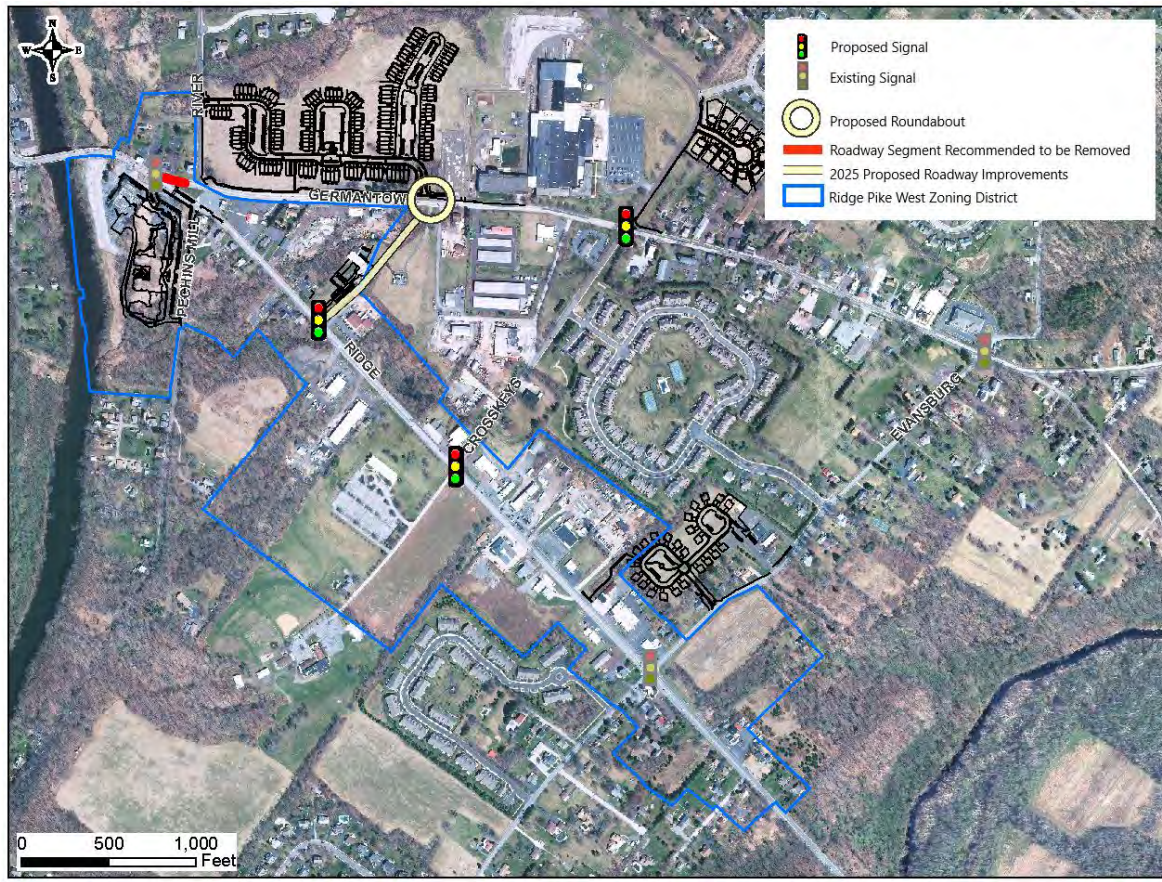


Additionally, as part of this effort to increase the distance between major intersections, it is recommended that the existing portion of Germantown Pike, between River Road and Ridge Pike, be eliminated for any vehicular travel. This will force drivers traveling between Germantown Pike and the Perkiomen Creek Bridge to utilize the proposed Connector Roadway, again creating more capacity and area to accommodate queuing between the major traffic signals along the Main Street/Ridge Pike corridor across the bridge.

Furthermore, improvements are also likely to be needed at the intersections of Cross Keys Road with both Germantown Pike and Ridge Pike. At the intersection of Ridge Pike and Cross Keys Road, installation of a traffic signal will be needed to accommodate the demand. It should be noted that it is recommended that Ridge Pike be widened at Cross Keys Road in the short-term to provide a separate left-turn lane in each direction. Furthermore, traffic signalization is also recommended for the intersection of Germantown Pike and Cross Keys Road.

The resulting recommended 2025 transportation improvements are illustrated graphically in **Figure 13**.

FIGURE 13
Short -Term Roadway Improvements

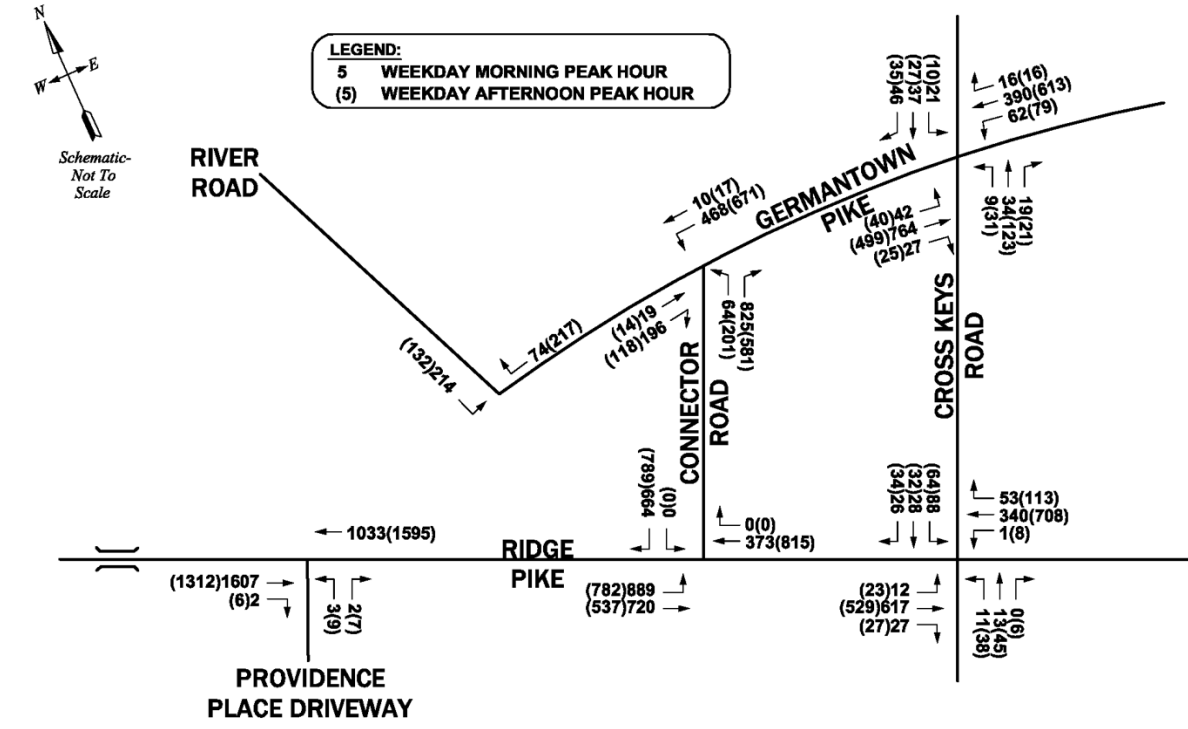


Future Short-Term Traffic Volumes

In order to determine future short-term 2025 future weekday morning and weekday afternoon peak hour traffic volumes, and annual traffic growth rate of 0.41 percent per year was applied to existing weekday morning and weekday afternoon peak hour traffic volumes to reflect regional traffic growth.

In addition to regional traffic growth, traffic associated with the approved and currently proposed development detailed in Table 1 was also distributed through the study area roadway network. The trip generation from these developments, in Table 1, was distributed within the study area based on existing traffic patterns. This distributed traffic is detailed in Appendix E. The resulting 2025 future weekday morning and weekday afternoon peak hour traffic volumes are illustrated in **Figure 14**.

FIGURE 14
2025 Traffic Volumes



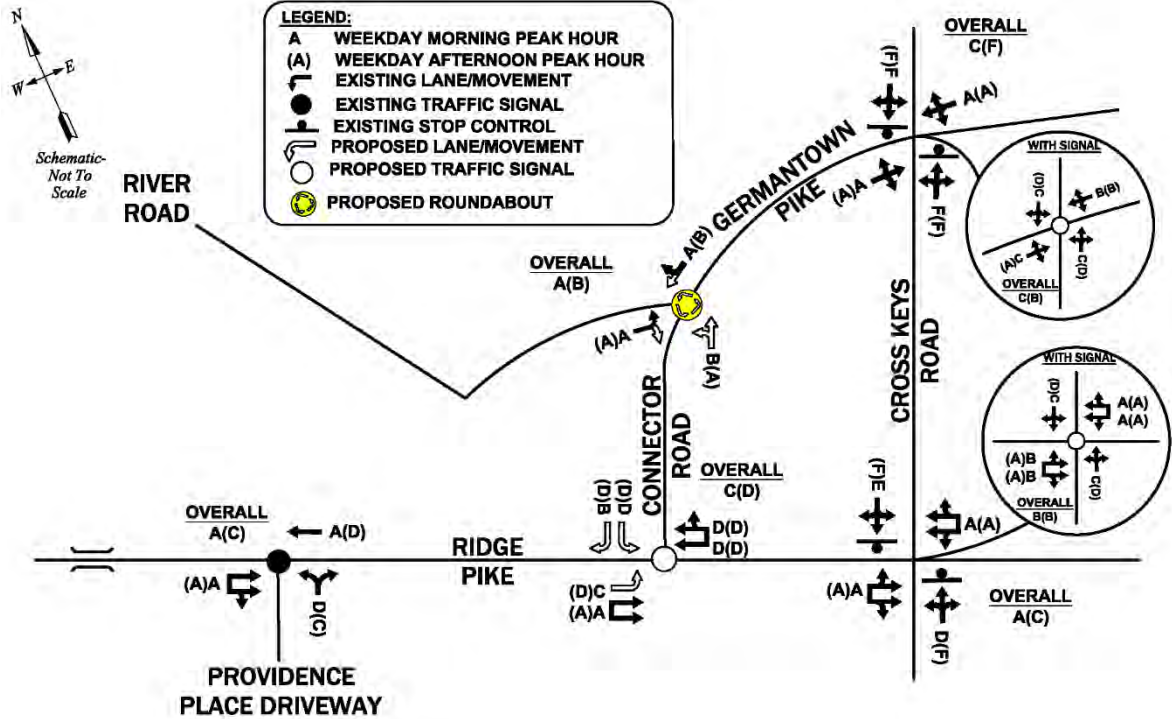
Future Short-Term Traffic Conditions

The future short-term 2025 weekday morning and weekday afternoon peak hour traffic volumes presented in Figure 14 were subjected to the detailed capacity level of service analysis methodology described previously. The results of that analysis are summarized in **Figure 15** and the detailed capacity/level of service analysis worksheets are contained in Appendix F. As shown in Figure 15, with the proposed improvements, the intersection of Germantown Pike and Ridge Pike will improve in operation to LOS D or better during both peak hours. Additionally, due to the proposed realignment of PA Route 29, with First Avenue shifting to intersect Main Street directly opposite Second Avenue, it is expected that overall queues in the area of the existing Perkiomen Creek Bridge will be lessened, minimizing the likelihood that traffic queues will extend back into adjacent intersections.

Additionally, the analysis indicates that the proposed roundabout at the intersection of the realigned Germantown Pike and River Road will also operate acceptably, with all movements operating at LOS D or better. (Note: Alternatively a signal was evaluated, and its operation would result in acceptable LOS as well).

The two Cross Keys Road intersections with Germantown Pike and Ridge Pike are also expected to operate acceptably under 2025 conditions during the peak hours with the improvements described previously.

FIGURE 15
2025 Levels-of-Service





4 | Long-Term Future Conditions

This section includes recommendations to accommodate long-term conditions. The year 2045 was selected as the design year for long-term conditions, which is twenty years after the short-term conditions.

Anticipated Future Development

It is anticipated that development and redevelopment will continue to occur within and around the study in accordance with the recently adopted new zoning district called the Ridge Pike West District, focusing on mixed-use, pedestrian-friendly development. The Montgomery County Planning Commission completed an evaluation of the likely development that is expected to occur within this area by 2045. This evaluation is summarized in a memo dated January 18, 2018, which is provided in Appendix G of this report.



Within that memo is a projection of the maximum buildout potential of the study area, which includes the potential of the development or redevelopment of almost four million square feet of industrial, commercial, and office spaces, in addition to over 400 residential units. Although this is the maximum build, it is unlikely that all of this will occur by the year 2045. As a result, summarized in the below **Table 2** is the development/redevelopment that is projected to actually occur by 2045. As shown in Table 2, over 1.3 million square feet of industrial, commercial, and office spaces is projected to occur along with approximately 257 residential units.

TABLE 2
Projected Future Development Traffic Growth

Development	Size	Weekday AM Peak Hour Total	Weekday PM Peak Hour Total
Light Industrial	420,129 s.f.	406	443
Retail	410,646 s.f.	291	1,047
Office	492,565 s.f.	696	639
Single Family Homes	7 units	15	10
Townhomes	177 units	88	102
Apartments	73 units	40	58
Total "New" Trips		1,536	2,299

Utilizing the Institute of Transportation Engineers (ITE) publication, **Traffic Generation 10th Edition**, it is anticipated that this potential future development will generate at total of 1,536 new vehicular trips during the weekday morning peak hour and approximately 2,299 new trips during the weekday afternoon peak hour. Again, while an improved multimodal transportation system could reduce this number, since residents, employees and customers could walk, bike, or use mass transit, the existing transportation system in this area is limited in these aspects. As a result, it is anticipated that most trips will be in single passenger vehicles, although recommendations are provided later in this report to improve those alternative transportation modes to encourage the use of alternate modes.

Given the existing peak hour traffic volumes of traffic within this area, which range from approximately 950 to 1,150 vehicles per hour on both Ridge Pike and Germantown Pike, the increased traffic from development and redevelopment in this area has the potential to have a significant impact on traffic operations over time. Although it must be noted that development traffic will disperse throughout the study area depending on its specific location.



Recommended Transportation Improvements

As stated previously, the intent of this report is to provide recommendations to improve the overall, multimodal transportation system in the area, including vehicular, pedestrian/bicycle, and public transit. As part of these efforts, recommendations to provide improvements to each of these modes are detailed separately below.

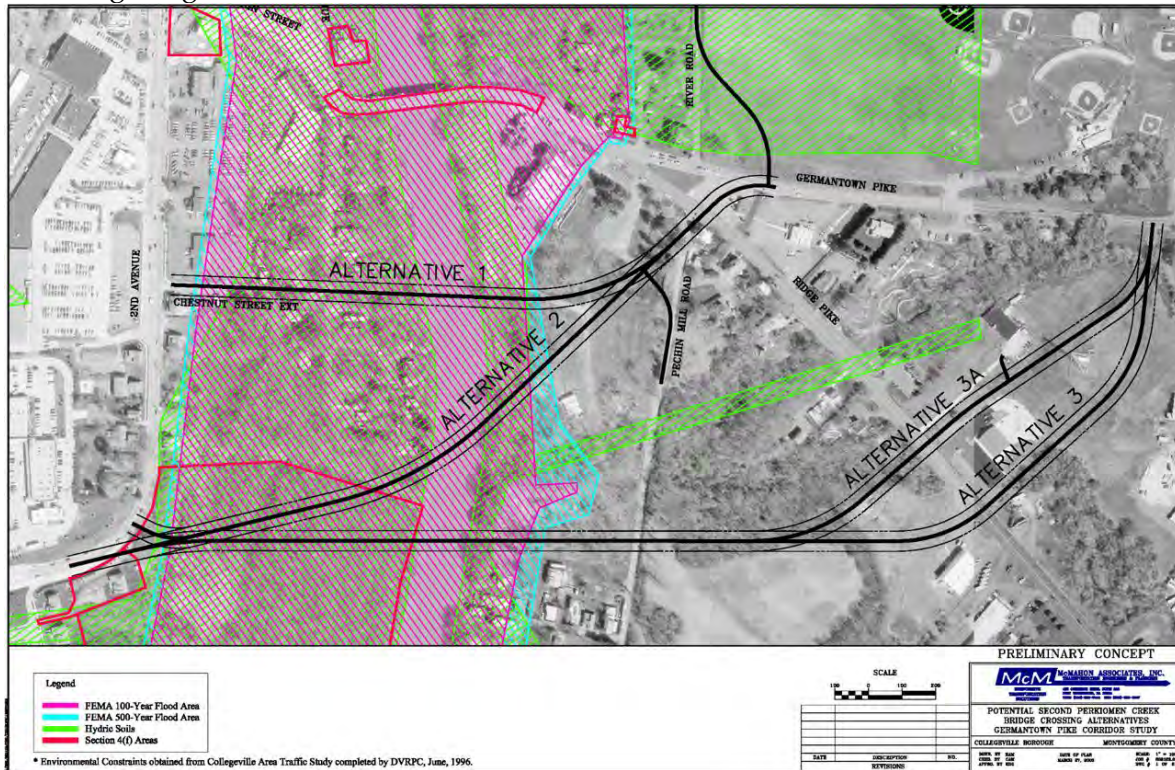
Vehicular Transportation Improvements

In order to improve existing traffic conditions and help in accommodating the long-term future demand caused by the anticipated potential development/redevelopment, some additional roadway improvements are anticipated to be needed. A major element of this is addition the continuation of the roadway segment extending between Ridge Pike and Germantown Pike, recommended under 2025 conditions, across the Perkiomen Creek, intersecting with Second Avenue (PA Route 29) south of Main Street at the bend behind the Wendy's fast food in the Redner's Shopping Center. This will serve as a second crossing of the Perkiomen Creek, and it is recommended that the existing bridge be maintained. Based on the data and travel patterns, the existing bridge will predominantly serve traffic to/from PA Route 29 (North) and Main Street (West), while a new bridge will predominantly serve traffic to/from PA Route 29 (South).

Connector Roadway Alignment

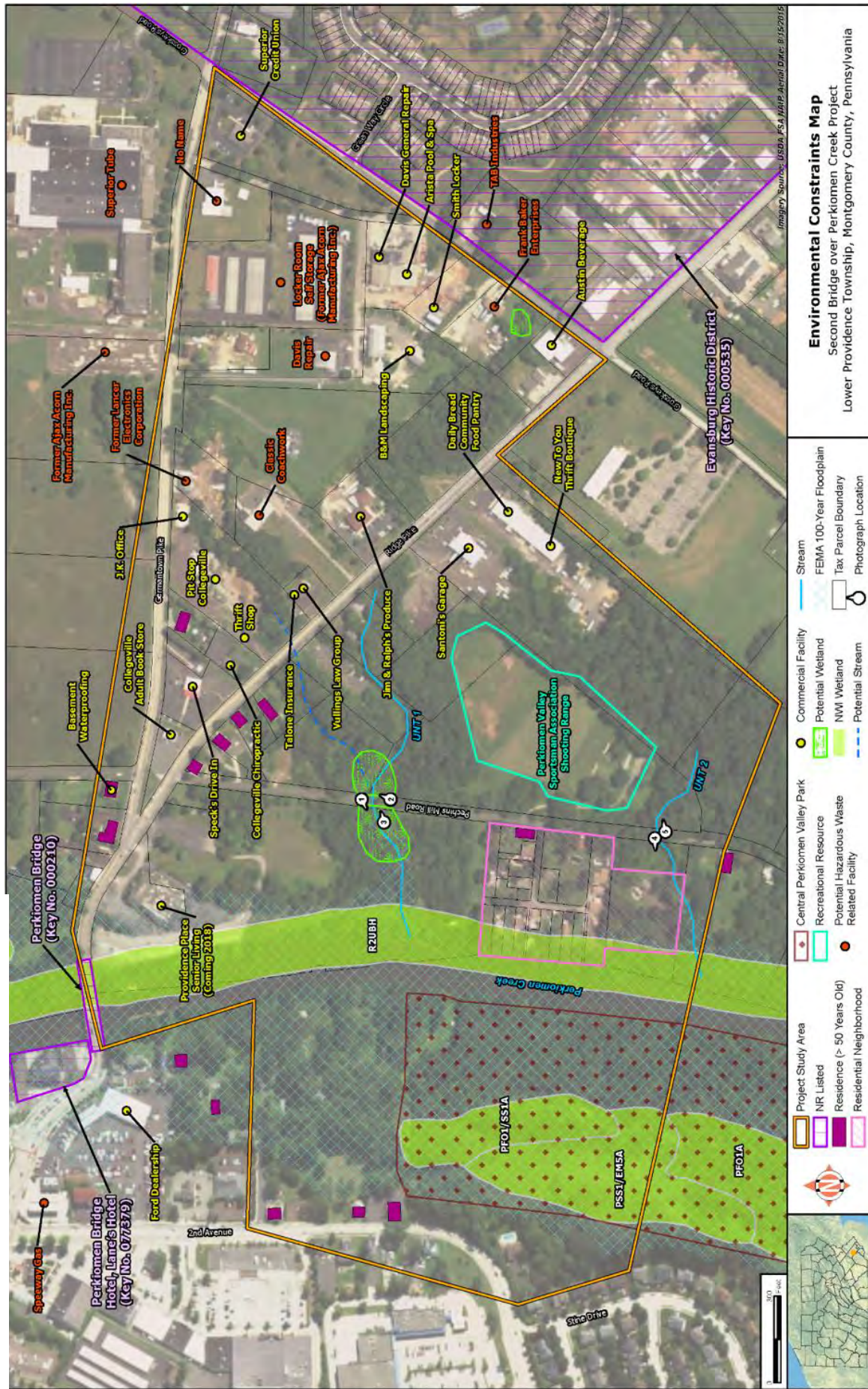
A key component of this project was to evaluate possible future alignments and configurations of this future roadway between Ridge Pike and PA Route 29 (South) in Collegeville. This builds upon the preliminary alignment alternatives that were evaluated in 2003 in conjunction with the Germantown Pike Corridor Study, an effort that was led by the Montgomery County Planning Commission. The alternatives that were evaluated in that study are shown in **Figure 16**. At that time, both the Lower Providence Township Board of Supervisors and the Collegeville Borough Council passed resolutions voicing support for Alternative 3A. It should be noted that since that time, a development, known as Providence Place has received approvals for the construction of a life-care facility to be located to the southwest of the intersection of Ridge Pike and Pechins Mill Road within Lower Providence Township. This development, which is currently under construction, would make it difficult for the construction of either Alternative 1 or 2 since the alignment would involve the roadway going through the area where the building is currently being constructed. Lower Providence Township did work with the property owner, however, to have them dedicate the southern part of this parcel (south of the wetland area) to others for taking and use of the roadway leading to/from the second Perkiomen Creek bridge crossing.

FIGURE 16
Old Bridge Alignment Alternative



As part of this alignment determination, a preliminary environmental assessment was completed by AD Marble to identify potential environment constraints within the study area that would need to be considered in the selection of a roadway and bridge alignment. The detailed results of this preliminary assessment are provided in Appendix H. Also, provided in **Figure 17** is a summary of the locations of potential constraints, including potential hazardous waste locations, historic structures, wetlands, and park areas, amongst other environmental features. Depending on the exact location ultimately selected, potential constraints will need to be more fully explored and evaluated in later detailed roadway design phases of this project.

FIGURE 17
Environmental Constraints



Several alignments were considered in this planning evaluation between Ridge Pike and PA Route 29 (South), as well as how the alignment would affect properties and be designed between Germantown Pike and Ridge Pike to phase the entire connector. In addition to environmental consideration, other factors that were considered included roadway curvature requirements, alignment of the key intersections, intersection control, traffic flow, and the location of existing structures and property boundaries. It should be noted that the alignment of this potential second bridge crossing focused on the area south of the existing bridge. This is due to both the existing roadway alignment and the traffic patterns in the area, as documented previously, that the traffic on the western side of the Perkiomen Creek is heavily oriented to Second Avenue (PA Route 29) and areas south of Main Street.

A sampling of some of the various roadway alternatives that were considered are provided in Appendix I of this report. These are provided in various levels of detail based on both their feasibility and feedback from the Advisory Committee. The key features that were ultimately supported by the Advisory Committee included following:



- Roadway Alignment with Germantown Pike – Since it is expected that the main traffic flow from Germantown Pike to and from the east will continue onto the Connector Roadway and, ultimately one of the bridges crossing Perkiomen Creek, it is recommended that the Connector Roadway be designed to flow directly into Germantown Pike as the main traffic flow. The western portion of Germantown Pike, leading to River Road, would be a minor, unaligned approach leg. (Note: This western portion of Germantown Pike may be an extension of River Road leading to the new Germantown Pike intersection with the Connector Roadway.)
- Intersection Control at the intersection of Germantown Pike/Connector Roadway/River Road – Based on the evaluation of delay and queue lengths resulting from the intersection analysis or either signalization or a roundabout, it is recommended, with the support of the Advisory Committee, that a roundabout be constructed at this intersection to minimize delays and queues. Additionally, the inclusion of a roundabout would be an opportunity to provide a “sense of place” feature for the community. This intersection design will be more fully evaluated in detailed design.
- Intersection Control at the intersection of Ridge Pike and the Connector Roadway – Based on the location of this intersection in close proximity to the bridge, it was recommended that this intersection be controlled by a multi-phased traffic signal with separate left-turn lanes on each approach, as well as separate right-turn lanes on both the northbound and southbound Connector Roadway approaches.

- Intersection of the Connector Roadway with Pechins Mill Road – Although the alignment of this new roadway is conceptual in nature only, based on aerial photographs of the area and not detailed survey, it is anticipated that the Connector Roadway can be designed either to have an at-grade intersection with Pechins Mill Road, or to grade separate the roadways having a structure over Pechins Mill Road with no access or limited access to/from it. The Advisory Committee did not feel strongly in either direction but decided the resulting design should be determined in the future as detailed design was completed and after residents along Pechins Mill Road were given the opportunity to voice their opinions. However, they did see definite benefits to providing an at-grade intersection since it would assist Pechins Mill Road residents in accessing their community without the need for a traffic signal along the Ridge Pike, which would create additional delay for vehicles traveling on Ridge Pike.

Ridge Pike Access Management

Another key aspect of the improvement plan is the improvement of access management along the Ridge Pike corridor. The recommendation in conjunction with this overall plan is the provision of rear access collector roadways on both the north and south side of Ridge Pike to assist in providing access to the properties that abut Ridge Pike. It is recommended that as properties develop/redevelop along the Ridge Pike corridor, that access be limited to/from Ridge Pike, where possible, or arrangements be made for access to be limited in the future as adjacent properties also develop/redevelop. Cross-access easements between properties should be encouraged to limit the number of direct accesses to/from Ridge Pike, and the accesses that are permitted should be limited to restricted (i.e. right-in/right-out) movements only. Vehicular left-turn entry and exit movements should be planned and steered to occur to the rear of these properties, again in conjunction with connections to adjacent properties to direct left-turning traffic toward the Connector Roadway or Cross Keys Road at controlled locations. This effort would ultimately help to minimize the impact of the development on the traffic flow along Ridge Pike. It is anticipated that this would occur over time as these properties develop and redevelop.

Under Ridge Pike West Zoning, commercial uses are required within the first 300 feet of property with the option to do residential only to the rear of the property. The rear access roadways would also open up some of the deeper parcels to provide access to these developments that connect laterally rather than via long access drives that extend from Ridge Pike exclusively.

It is recommended that Lower Providence Township adopt an “Official Map” that includes approximate locations for these rear access collector roadways to notify and direct property owners to work cooperatively toward the vision of the Township to place these roadways and/or interconnections in locations that are advantageous to both the Township and property owners to achieve the goals of better access management design, to every extent feasible as properties redevelop. Recommended locations of these roadways has been planned during this study process and are depicted in **Figure 18**.

Figure 18
Recommended Long-Term Roadway Improvements

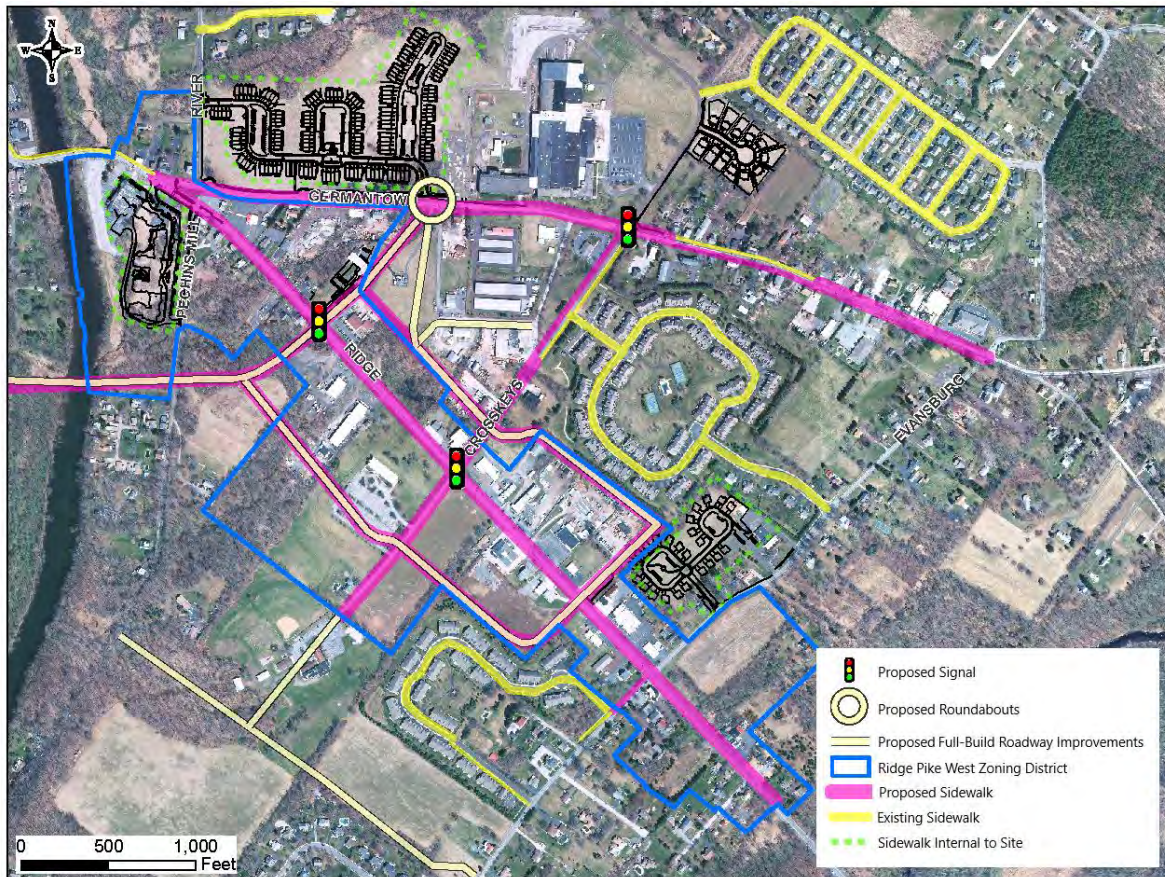


Pedestrian Connection Improvements

Improving pedestrian connectivity is vital to the Ridge Pike West community, not only to achieve the District’s goal of creating a walkable community, but also to provide an alternative for people living and/or working in the area to walk to nearby locations instead of having to utilize passenger vehicles. Given the limited existing sidewalk connections, significant improvements are needed in the area to provide a network that is useful to the community. The recommended pedestrian connections are shown on the attached **Figure 19**. As shown in the figure, it is recommended that sidewalk connections be provided along the existing roadways including Ridge Pike, Germantown Pike, and Cross Keys Road within the study area. Additionally, it is recommended that all new future roadways also be constructed with sidewalks or trails along both sides, as feasible, including the proposed Connector Roadway and the proposed rear access roadways.



Figure 19
Recommended Pedestrian Connections



It is also recommended that Lower Providence Township continue to coordinate with Collegeville Borough to ensure that the recommended pedestrian connections are continued into Collegeville providing a complete linkage to the Perkiomen Trail. While a sidewalk is currently provided from the existing Perkiomen Creek Bridge to the Perkiomen Creek Trail, it does not appear that a linkage exists from the area of the proposed second bridge crossing to the Trail. Given the limited width of the pedestrian area on the existing Perkiomen Creek Bridge, it is recommended:

- 1.) As the area is redeveloped along Ridge Pike between River Road and the Perkiomen Bridge, the sidewalk/trail that is being constructed on the north side of Germantown Pike for the Courts Brynwood townhouse project be extended to the bridge crossing. This will eventually require some of the existing buildings to be removed to get the trail/walkway along the north side of Ridge Pike.
- 2.) Pedestrians and bicyclists also be encouraged to eventually use the future second bridge to cross the Perkiomen Creek. As a result the connection from this location to the Trail must be planned and accomplished. This could include extension of the existing sidewalk that abuts the north side of Second Street (PA Route 29), to the proposed

intersection of the new Connector Roadway with Second Street (PA Route 29), as well as a widening of that sidewalk to provide additional width for pedestrians and bicyclists.

Additionally, it is also recommended that Lower Providence Township continue the sidewalk/trail connections further to the east beyond the study area of this project to connect to the Evansburg State Park improving the connectivity of this project study area to the recreational opportunities available within the Park.

Bicycle Connection Improvements

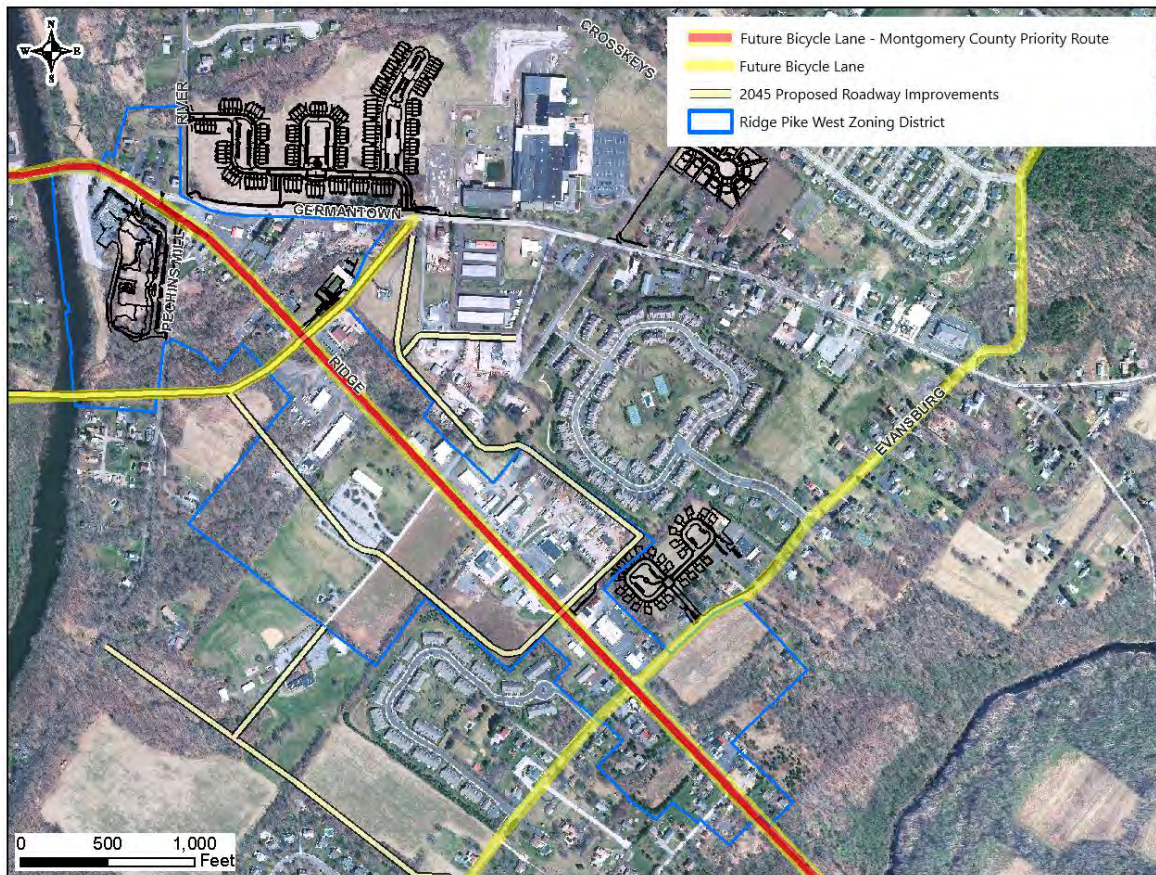
In addition to the sidewalk/trail connections above, it is recommended that bicycle lanes also be placed at appropriate locations within the study area. Considerations for the locations recommended for bicycle lanes include connectivity to the existing system, including the Perkiomen Creek Trail, as well as Montgomery County's County-wide bike plan, **Bike Montco**. As a result, provided in **Figure 20** is a summary of the areas where bicycle lanes are recommended in the area. The key locations are detailed below:



- Ridge Pike – This corridor, extending from Collegeville to the Evansburg State Park, encompassing the entirety of this study area, is being identified as a High Priority Bike Route by the County for a dedicated bike lane. This will provide a linkage from Collegeville through the study area to the trails and recreational amenities available within Evansburg State Park.
- Connector Roadway – It is recommended that a dedicated bike lane also be provided on the entirety of this future roadway that connects Germantown Pike to Ridge Pike, and then eventually Ridge Pike to PA Route 29 over a second bridge crossing. This route may eventually be a preferred bicycle path over the Perkiomen Creek given the narrow width of the existing Perkiomen Creek Bridge. As stated previously, it is recommended that Lower Providence Township and Montgomery County continue to work with Collegeville Borough in order to improve the connectivity from the intersection of the Connector Roadway with Second Avenue (PA Route 29) with the Perkiomen Creek Trail, which intersects Second Avenue (PA Route 29), less than one half mile further west.

- Evansburg Road – Consistent with the County’s draft plan, it is recommended that a bike lane be constructed along the Evansburg Road/Level Road corridor along both sides of Ridge Pike. Since this corridor is classified as an urban collector, this bike lane can be accommodated via a bike lane, paved shoulder, or wide outside shared lane.
- Proposed Local Roads/Access Roads – Given the anticipated mixed-use nature of this area, it is recommended that future local roads/access roads be designed with a paved shoulder or wide lanes to also accommodate bike activity.

Figure 20
Recommended Bicycle Connections



Public Transit Improvements

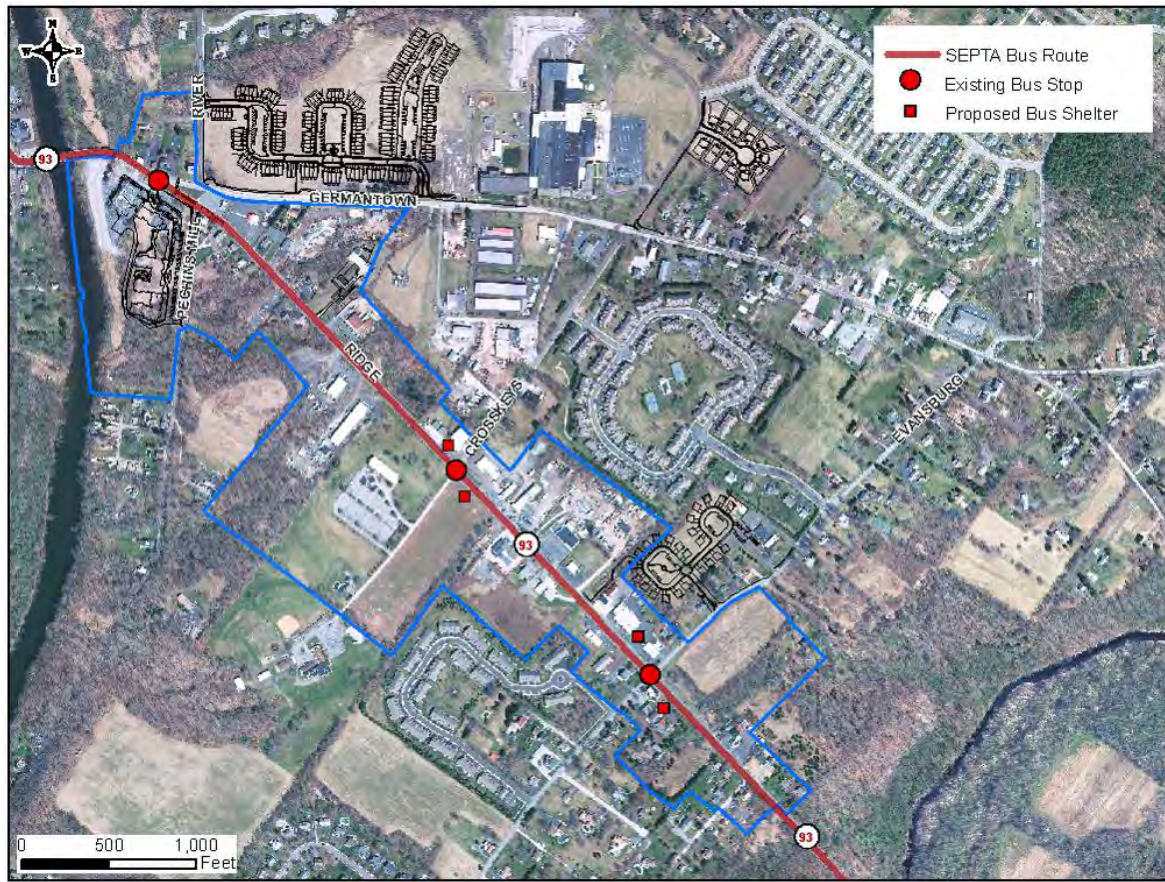
It is not anticipated that additional public transit routes will be needed for this study area, even with the anticipated future development. However, the locations of that development should be monitored and coordinated with SEPTA to ensure that the bus service has stops in the appropriate locations. It is also recommended that Lower Providence Township work with developers as development and redevelopment occurs to have bus shelters built at appropriate locations along the Ridge Pike corridor. Depicted in **Figure 21** is the locations of recommended future bus shelters. It is recommended that Lower Providence Township, through its ordinances and land development process, require developers/property owners to coordinate

with SEPTA, where appropriate, to ensure that those shelters are designed appropriately, are in accordance with SEPTA regulations, and are accessible for pedestrians along roadways and into/from adjacent buildings. The DVRPC publication, **SEPTA Bus Stop Design Guidelines**, October 2012, should be utilized in this effort.



Passenger boarding bus from front door loading pad (Source: Delaware County Planning Department 2010)

Figure 21
Recommended Public Transit Improvements



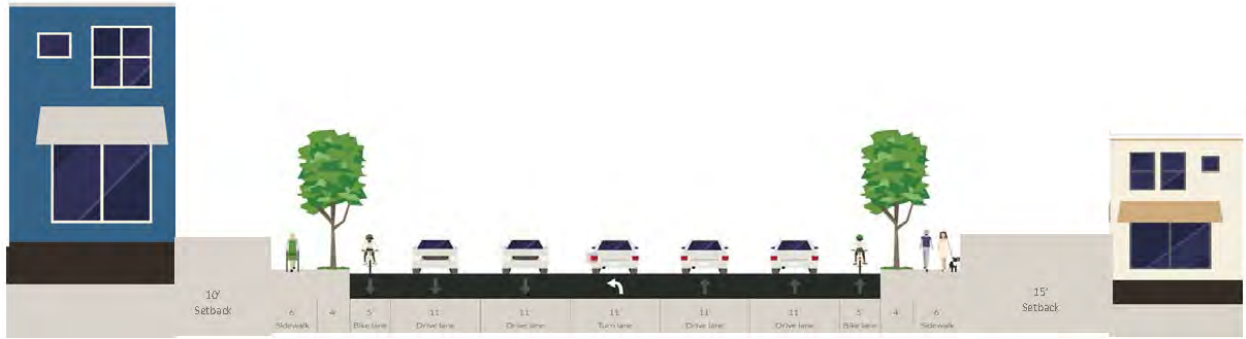
Future Roadway Cross-Sections

In summation of the recommended improvements, provided in **Figures 22 through 24**, are three figures depicting proposed cross-sections of various roadways proposed within the study area, incorporating vehicular, pedestrian, and bicycle-related improvements. A description of each of these is provided below:

- Ridge Pike, in the vicinity of Cross Keys Road – Widening is recommended at this intersection to provide a separate left-turn lane in both directions of Ridge Pike at Cross Keys Road. As a result, the recommended Ridge Pike cross section includes a left-turn lane with two travel lanes in each direction. This two lanes per direction would transition back to a two-lane cross section to the east of the Evansburg Road/Level Road, in the area where the transition currently exists. Also provided is a bike lane and sidewalk, which would be separated from the roadway by a four-foot planting area.

Figure 22

Recommended Ridge Pike Cross-Section (in the vicinity of Crosskeys Road)



- Second Perkiomen Bridge Crossing – The traffic analysis indicates that a three-lane cross section is needed to accommodate future traffic volumes for the new Connector Roadway over the Perkiomen Creek, even under 2045 conditions. This would provide for two lanes exiting Lower Providence and one lane entering Lower Providence. However, given that this future second bridge crossing could be expected to last beyond 2045, it is recommended that the bridge actually be constructed to a width that could allow for four travel lanes, two per direction. This additional width would also allow for this future bridge to also accommodate additional traffic such as if the existing Perkiomen Creek Bridge had to be closed for an extended period. As a result, the cross-section depicts three travel lanes with a buffer area on each side that could be restriped for a fourth travel lane if or when needed. Additionally, sidewalks and bike lanes should also be provided for travel in both directions.

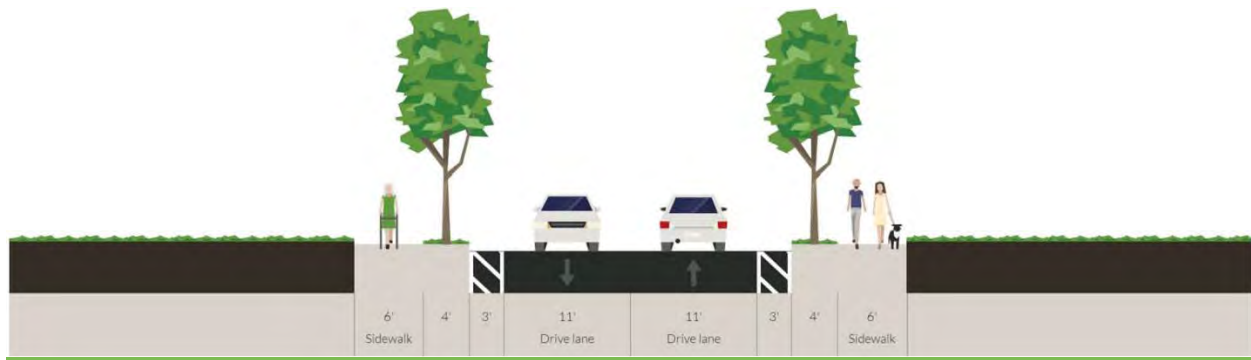
Figure 23

Recommended Second Perkiomen Bridge Cross-Section



- New Local Roadways/Rear Access Roadways – For the recommended new local roadways and rear access roadways, it is anticipated that the overall traffic volumes will be much lower than the adjacent arterials. It is recommended that one travel lane be provided in each direction with a larger shoulder area provided on each side. While bicycle travel is permitted, the volume of bicycle traffic on the smaller roadways is expected to be low and therefore, dedicated bicycle lanes are not suggested in this area. Additionally, sidewalks are also recommended on each side of the roadway.

Figure 24
Recommended Local Roads and Rear Access Roads Cross-Section

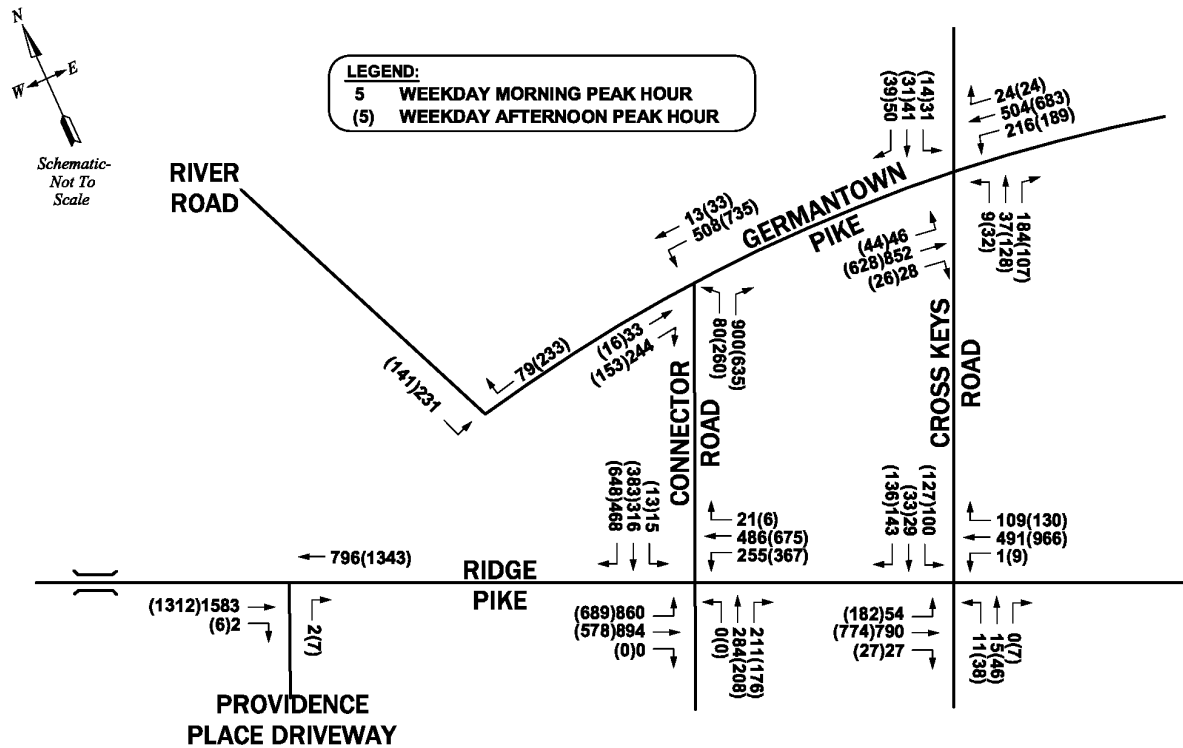


Future 2045 Traffic Volumes

In order to determine future long-term 2045 future weekday morning and weekday afternoon peak hour traffic volumes, and annual traffic growth rate of 0.41 percent per year was applied to existing weekday morning and weekday afternoon peak hour traffic volumes to reflect regional traffic growth.

In addition to regional traffic growth, traffic associated with the development projected to occur within and near the Ridge Pike West District detailed in Table 2 was also distributed through the study area roadway network. The trip generation from these developments, also as listed in Table 2, was distributed within the study area based on existing traffic patterns. This distributed traffic is detailed in Appendix J. The resulting 2045 future weekday morning and weekday afternoon peak hour traffic volumes are illustrated in **Figure 25**.

Figure 25
Future 2045 Volumes

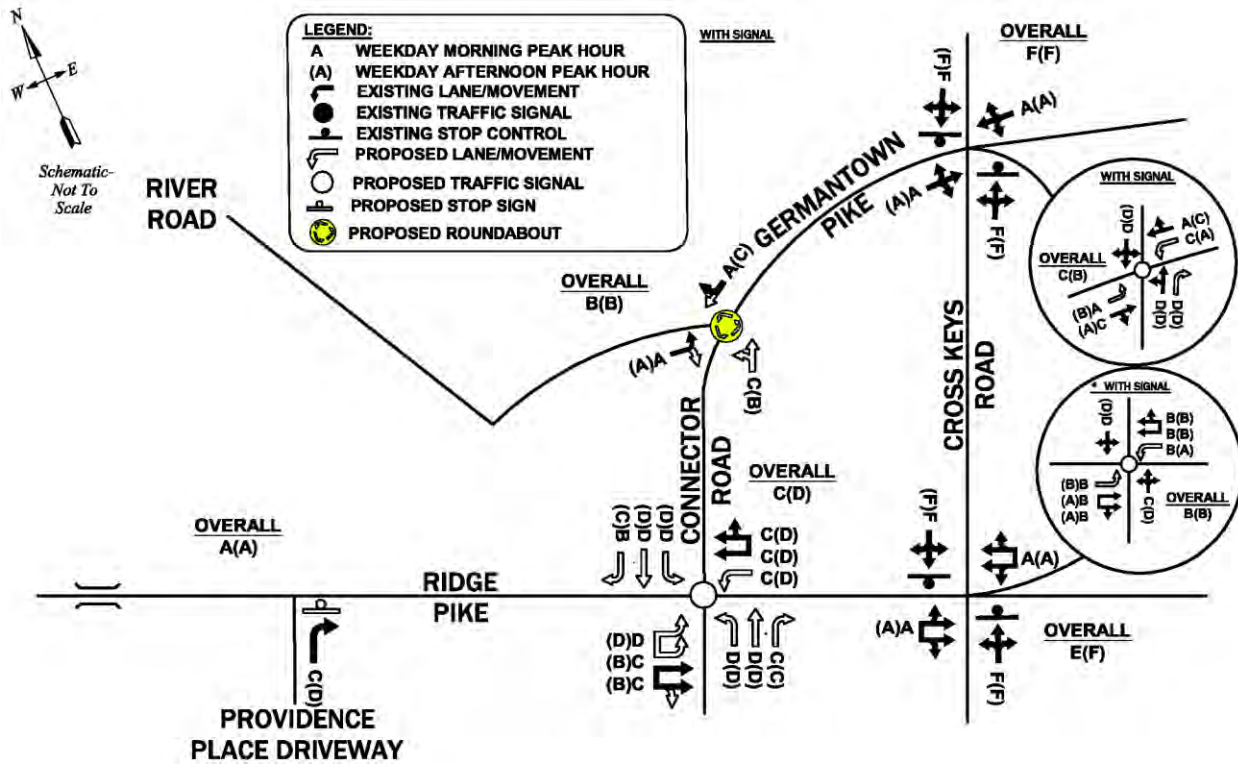


Future 2045 Traffic Conditions

The future long-term 2045 weekday morning and weekday afternoon peak hour traffic volumes presented in Figure 25 were subjected to the detailed capacity level of service analysis methodology described previously. The results of that analysis is summarized in **Figure 26** and the detailed capacity/level of service analysis worksheets are contained in Appendix K. As shown in Figure 26, with the proposed improvements, the Connector Roadway intersections with both Germantown Pike and Ridge Road will operate at acceptable levels during both peak hours.

The two Cross Keys Road intersections, with Germantown Pike and Ridge Pike are also expected to operate acceptably under 2025 conditions during the peak hours with the improvements described previously.

Figure 26
 Future 2045 Levels-of-Service



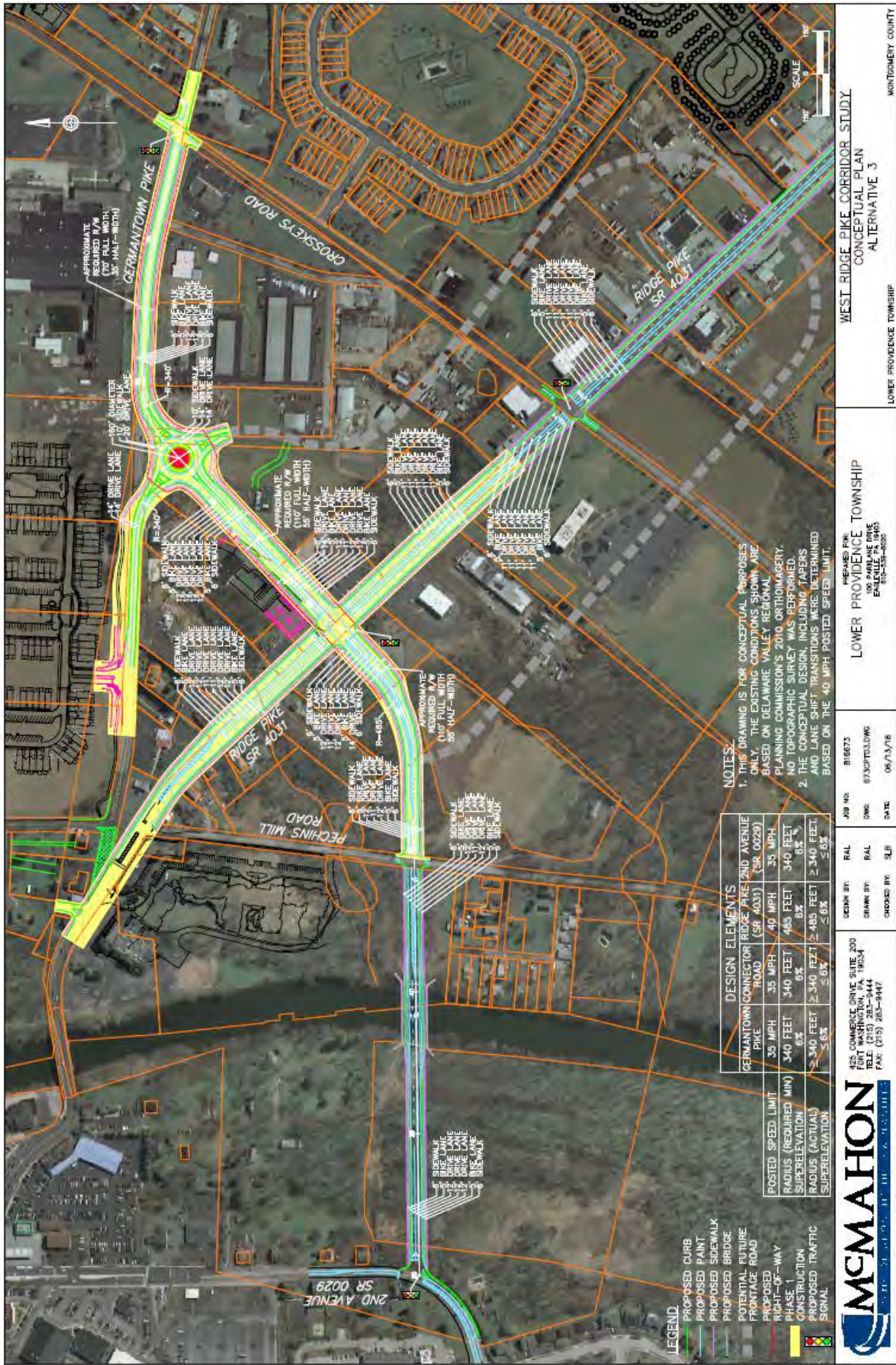


5 | Conclusions and Recommendations

In summary, based on existing conditions, as well as projected future traffic volumes, several significant transportation infrastructure improvements are recommended to accomplish a functional multimodal transportation system in the area of Ridge Pike West, in Lower Providence Township, Montgomery County. These improvements to Ridge Pike West are needed to support existing and future economic growth in and around this area for the vehicular transportation system, as well as for pedestrians, bicyclists, and public transit.

One key component of this improvement study is the completion of a new Connector Roadway that will extend between Ridge Pike and Germantown Pike in the short-term, and extend westerly across the Perkiomen Creek, requiring a second Perkiomen Creek bridge crossing in the longer term. **Figure 27** provides the recommended alignment for this Connector Roadway for its entire length, along with recommended configuration at the intersections with both Germantown Pike and Ridge Pike. Detailed planning and resultant recommendations are also included for additional local roads and rear access roads to improve vehicular connectivity and provide improved access management to the Ridge Pike corridor. Additionally, significant improvements to the pedestrian and bicycle network are also depicted in order to provide alternative means of travel in this area, as well as to provide connectivity to the Perkiomen Creek Trail on the western side of the Perkiomen Creek. These improvements also allow for improved recreational opportunities in the area. Finally, improvements to the public transit system are to be incorporated by development/redevelopment as it occurs over time.

FIGURE 27
Future 2045 Improvement Recommendations





6 | Key Next Steps

There has been significant regional collaboration among the study team, Township, PennDOT, and PennDOT Consultants, County Planning Commission, Advisory Committee members and other stakeholders in the development of this long-term, improvement study. It is recommended that this collaboration continue to encourage the implementation of this study over time.

Specific steps toward implementation include the recommendation that Lower Providence Township adopt an “Official Map” that includes the specific alignment of the Connector Roadway, as detailed in this study. It is also recommended that the “Official Map” include the vision for local roadways and rear access roadways/cross-easements also recommended in this study. While all of these connections may have some flexibility in their locations and will need to be fully designed as the masterplan comes to fruition, their inclusion in an adopted official map provides the ability for the Township to inform and work closely with developers/land owners to implement portions of these roadways and/or interconnections over time. Because the Board of the Township will likely change overtime, the “Official Map” and efforts of this masterplan will become a roadmap for the area.

Additionally, through the on-going efforts of the PennDOT Perkiomen Creek crossing project, it is our understanding that PennDOT will fund the project to move ahead with design, right-of-way acquisitions and construction of the Connector Roadway, from Germantown Pike to Ridge Pike, and potentially extend it to Pechins Mill Road within a potential timeframe of 5 to 7 years, with the full extension to cross the Perkiomen Creek and intersect with Second Avenue (PA Route 29) in the longer term into the future when funding is allocated. The “Official Map” and support of the Township will assist PennDOT with its efforts.

Finally, it is recommended that Lower Providence Township continue to work with developers and affected property owners as new development and redevelopment occur along the corridor to enforce the vision and recommendations outlined in this report. This includes the provision of sidewalks along properties, connecting to existing nearby sidewalks where appropriate and feasible, getting necessary ultimate right-of-way dedications to assist in future widenings, and pushing for the provision of the access roadways for properties abutting Ridge Pike to ultimately provide improved access management along the corridor.

While the second Perkiomen Bridge crossing recommended as part of this project may not occur for several years due to the needed designs, funding, and right-of-way acquisitions, steps can be taken now to assist in the overall implementation and over time, these smaller steps will result in noticeable improvements to the transportation system in the area of Ridge Pike West.