

# SAFE ROUTES to TRANSIT

## Morton SEPTA Regional Rail Station

JUNE 2021





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# Project Background

## SAFE ROUTES TO TRANSIT (SRTT)

Through the SRTT program, Delaware Valley Regional Planning Commission (DVRPC) staff are working with municipalities to develop planning-level designs for improving and expanding walking and biking routes to train stations in the Philadelphia region. Morton Station was selected as one of DVRPC's projects for the 2020 Fiscal Year Work (FY) Program. The resulting design recommendations should be used to support applications for various funding sources. The project sponsors, Delaware County and Morton Borough, will pursue implementation following the completion of this study.

The SRTT program was created to provide technical assistance to municipalities and counties who want to improve bicycle or pedestrian access to rail stations, with a strong emphasis on implementation. The efforts of this project are intended to culminate in a safer Morton Station area via short-term design solutions. Thoughtful interventions that improve safe access to rail stations via walking and biking can be relatively easy to implement, promote sustainability and healthy lifestyles, and increase transit ridership without growing the number of parking spaces.

## Introduction

Morton Borough, located in Delaware County, Pennsylvania, has long been connected to downtown Philadelphia by a commuter train line. The historic Morton train station, originally constructed in 1867, anchors the central business district of Morton, along with PA Route 420 (PA 420), which crosses the Southeastern Pennsylvania Transportation Authority (SEPTA) rail line next to the station. As development has grown in and around Morton, however, conflicts among pedestrians, vehicular traffic, and transit riders have increased, making safety and access a challenge for residents, businesses, visitors, and commuters. Several previous studies have been undertaken in the area, including:

- Morton Borough Comprehensive Plan (2002);
- Congested Corridor Improvement Program: Route 420 Corridor in Delaware County (2004);
- Community Impact Assessment for the Intersection of Morton Avenue & PA Route 420 in Delaware County, PA (2005); and
- Morton Connects Multimodal Transportation Study (2018).

In addition to Morton Borough, the adjacent municipalities (Rutledge, Springfield, Ridley), Delaware County, the Pennsylvania Department of Transportation (PennDOT), SEPTA, and DVRPC have all been involved with one or more of these planning efforts, showing both the level of regional interest in this location and the scale of the challenges at issue.

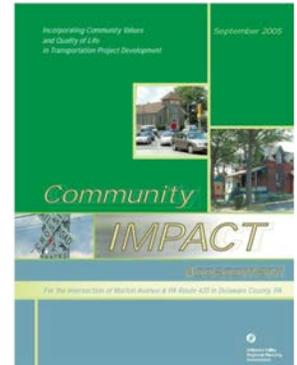
Following the completion of the Morton Connects Multimodal Transportation Study, Morton Borough applied to the FY 2019–20 DVRPC SRTT competitive grant program, designed to help municipalities and counties bridge the gap between concept development and implementation. First established in 2016, the SRTT program seeks to match motivated local governments with DVRPC's subject matter experts to define access issues, refine conceptual improvements, provide cost estimates, identify potential funding sources, and develop implementation strategies. The goal of this collaboration is to provide the project sponsor (in this case, Morton Borough) with the analysis necessary to prepare a compelling application for competitive funding sources, including the Pennsylvania Transportation Improvement Program (TIP). Given the characteristics of the Morton area, and building on the previous studies, the focus of the Safe Routes to Transit: Morton project is on improving safety and access to the train station for vulnerable users (pedestrians, bicyclists, transit riders), with a particular emphasis on the intersection surrounding the station where the Media/Elwyn Regional Rail line, Kedron Avenue, Morton Avenue, and Yale Avenue converge.

The project is a part of the DVRPC FY2020 Work Program, specifically the Pennsylvania Transit Support Program, and was funded primarily by federal Metropolitan Planning funds. It has been led by DVRPC's Office of Safe Streets (with support from DVRPC's Office of Transit, Bicycle, and Pedestrian Planning), along with the Delaware County Planning Department (DCPD). In addition to DVRPC and DCPD staff, an advisory Stakeholder Group was formed, comprising representatives of Morton and Rutledge boroughs, Springfield Township, SEPTA, and PennDOT, to provide guidance and help set priorities for the study.

## Supporting Work

### Community Impact Assessment for the Intersection of Morton Avenue & PA Route 420 in Delaware County, PA (September 2005)

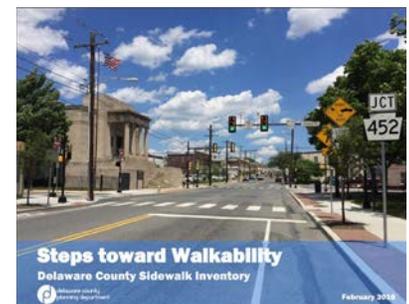
The Community Impact Assessment study was designed to “evaluate the effects of a transportation action on a community and its quality of life.” It was funded by Morton Borough, and produced by DVRPC and PennDOT. The assessment produced general recommendations from the community participants for the intersection of Morton Avenue and PA 420, as well as facilitated discussions regarding safe pedestrian access to the Morton train station. Per the study’s scope, the study team made no specific recommendations for the issues described, although the communities’ recommendations and feedback were included in the final report in their entirety.



### Steps Toward Walkability: Delaware County Sidewalk Inventory (February 2018)

The Delaware County Sidewalk Inventory report was created to identify both favorable conditions and obstacles to implementing a Complete Streets plan for pedestrians in the county. The report was funded and completed by DCPD, and included a Neighborhood Center case study of Morton Borough. The report described Morton as an area “of high potential in terms of walkability because of its strong transit access, pedestrian-oriented central business district, and relatively dense residential communities.”

Recommendations from the report included upgrading sidewalks in the area that are not Americans with Disabilities Act (ADA) compliant to meet those standards, and a solid or continental crosswalk installed at the intersection of Yale and Morton avenues. Sharrows were recommended on Church Road and on East Woodland Avenue to strengthen bicycle access to the study area from the north. Aside from Bicyclists’ Baltimore Pike, which provides a route to the station for cyclists traveling from points east and west, bicyclist accommodations are needed in the study area to increase the cycling level of comfort and adequately promote multimodalism.



### Morton Connects Multimodal Transportation Study (June 2018)

The Morton Connects Multimodal Transportation Study was completed by CHPlanning for Morton Borough in June of 2018, funded through the DVRPC-managed Transportation and Community Development Initiative program. The study provided general recommendations for the entirety of Morton Borough, as well as more specific recommendations at five problematic intersections, including the PA 420 and Morton Avenue and Yale Avenue intersection area, which is presented within a larger context that includes the Morton train station. It is this location on which this SRTT Study is focused, seeking to understand and document in more detail the pedestrian and bicyclist access to transit issues identified in Morton Connects. The study discusses conceptual transportation improvements and traffic calming for each of the intersections and pedestrian and bicyclist environment issues and potential improvements, as well as exploring alternative truck routes, parking changes, and transit improvements.



# Study Area Context

## History and Population

Morton Borough, and its surrounding communities (Rutledge, Springfield, Ridley) are rich in history, home to some of the oldest settlements in Delaware County. Morton is in eastern Delaware County, adjacent to Rutledge Borough, and is also bordered to the north, east, and west by Springfield Township, and to the south by Ridley Township. In 1854, the Morton train station was known as the Newton Railroad Station. In 1860, the town of Kedron was founded around the rail station, and the Kedron Methodist Church was built. This set the foundation for Morton's central business district, which was developed as a transit-oriented village. The community continued to grow throughout the second half of the 19th century. The Morton train station complex itself has national, regional, and local historical and architectural significance. The complex is a rare, remarkably intact suburban railroad complex built in the Victorian style. All three buildings retain most of their original features, and the station complex is still used as a train station.

John Irwin, a local businessman, is attributed with much of the borough's present-day layout. Irwin bought 76 acres in 1871 and called the property "Faraday Park," where he built a home, a machine shop, and an electrical plant and gasworks that served many local homes and establishments. Today, the Faraday Block of Morton Avenue is the main historic business district. As the commercial core developed around the train station, providing services for residents, the borough came into its own by the turn of the 20th century. The railroad station was upgraded to the present complex, cementing Morton as a turn-of-the-century bedroom community as the rail system made suburbs more accessible.

Morton's population grew significantly during the first half of the 20th century, and by the end of the 1970s, the borough had taken much of the shape that remains today, with the historic commercial core surrounded by residential streets. In 2018, Morton had a population of 2,670 people with a median age of 39.6 and a median household income of \$70,244. The median property value in Morton is \$210,500, and the homeownership rate is 52.8 percent, which is lower than the national average.<sup>1</sup>

From 2017 to 2018, jobs among Morton residents grew at a rate of 5 percent, from 1,370 employees to 1,440 employees. The most common job groups, by number of people living in Morton, are Management Occupations (160 people), Office & Administrative Support Occupations (164 people), and Sales & Related Occupations (167 people).<sup>2</sup>

## Road Network

The Morton train station is bordered by the intersection of PA Route 420 and Morton Avenue to the east, and Church Road to the west. PA 420 is also known as Woodland Avenue north of the rail line and Kedron Avenue to the south. The Woodland Avenue segment forms part of Morton Borough's western boundary with Springfield Township. PA Route 420 forms a major north-south corridor that leads north 2.5 miles to U.S. Route 1 in Springfield Township and south three miles to Interstate 95 in Tinicum Township. Baltimore Pike, which forms the northern boundary with Springfield less than a mile north of the station, is a major east-west commercial corridor through the entire eastern portion of the county.

<sup>1</sup> 2018 American Community Survey, Five-Year Estimates.

<sup>2</sup> 2018 American Community Survey, Five-Year Estimates.

Similar to many older, inner-ring suburban transit villages, the area around the Morton train station is relatively dense, with a mix of differing types of commercial and residential land uses. And also similar to many older communities, current transportation patterns (mostly vehicular, often with single-occupancy cars) can pose challenges for non-motorized movement. Older streets were designed for less traffic, smaller vehicles, and slower speeds, and not all included sidewalks when initially planned or constructed.

One of the major issues identified in all the various planning and study efforts is the area where PA 420, the rail line, Yale Avenue, and Morton Avenue all meet, at different angles. The physical configuration of the intersection is complicated by several factors contributing to the traffic congestion that occurs during peak hours; these issues are explored in the “Focus Areas” section of this report.

## Transit

The Morton train station is located along the SEPTA Regional Rail Media/Elwyn Line, approximately eight miles from Philadelphia’s 30th Street Station. The journey takes 26 minutes, one-way. Before the Coronavirus 2019 disease dramatically impacted SEPTA’s schedules, there was an average of 28 inbound SEPTA trains that stopped at Morton and 26 outbound daily.

In 2015 (the most recent year data is available), Morton Station was the fourth-busiest of all SEPTA Regional Rail stations in Delaware County (behind Swarthmore, Primos, and Radnor), and the third-busiest along the Media/Elwyn Line (behind Swarthmore and Primos). On the average weekday, there were 612 boardings and 693 disembarks.<sup>3</sup> As the last Zone 2 stop on the Media/Elwyn Line, it is common for commuters from places farther west to drive to Morton Station to save money on train fare (a difference of about \$20 per month, between Zone 2 and Zone 3).

The Morton train station is also serviced by the Route 107 bus, which stops adjacent to Morton Station on PA 420 at Morton Avenue. This route serves an average of 1,042 passengers per day and provides connections to 69th Street Transportation Center, Broomall, and a number of other suburban bus routes. The Route 107 bus stops closest to Morton Station see an average of 13 boards and 12 alights per weekday. On weekdays, buses arrive once per hour from 7:00 AM through about 8:30 PM in both directions, with one late-night bus in either direction. Buses arrive once per hour on Saturdays, 8:00 AM-10:30 PM, in both directions.

While most Morton Borough residents live within a 15-minute walk of Morton Station, there is also heavy demand for the commuter parking spaces available for SEPTA riders. According to data supplied by SEPTA, there are 323 Station parking spaces, with an occupancy rate of over 98%.

Figure 1: Morton Average Annual Daily Traffic



Source: PennDOT, DVRPC; Aerial: Southeastern PA Regional Task Force, 2017

<sup>3</sup> SEPTA, Fiscal Year 2020 Annual Service Plan, June 2019, [www.septa.org/strategic-plan/reports/FY-2020-Annual-Service-Plan.pdf](http://www.septa.org/strategic-plan/reports/FY-2020-Annual-Service-Plan.pdf).

**Figure 2: Morton Station Parking Lot Utilization**



#	LOT	AVAILABLE SPACES	CARS OBSERVED
1	Church Road Park Lot	161 Free Daily Spaces	161
2	Station Lots	76 Total Spaces; 50 Paid Daily, 26 Monthly Permit	76
3	Morton Borough Lot	36 Paid Daily Spaces	36
4	AmVets Lot	50 Monthly Permit Spaces	45

Source: SEPTA

To help limit the “spillover” of park-and-ride commuters onto the surrounding residential streets, Morton Borough passed an ordinance allowing only permit parking from 7:00 AM-10:00 AM, in addition to metered parking on Morton Avenue. Nearly half of all Morton train riders continue to access the station by walking or being dropped off at the station. The pedestrian route from the Church Road parking lot follows a sidewalk along the west side of Church Road south to a paved path that parallels the tracks and connects to the north-side platform (see Figure 2). There are two bike racks at the Station, each accommodating two bicycles.

### Local Travel Characteristics

It takes the average American 25.3 minutes to get to and from work each day. While 4.2 million households—or 3.2 percent—have a commute of less than five minutes, on the other end of the spectrum are the "super commuters" who spend 90 minutes or more each day in transit. Most people in Morton commute by driving alone, and the average commute time is 27.3 minutes. On average, people in Morton have a longer commute time than the average U.S. commute. Additionally, 0.4 percent of commuters in Morton have "super commutes" in excess of 90 minutes. In 2018, although the most common method of travel for workers in Morton was driving alone (76.6%), the second-most common was public transit (9.3 percent). The rate of commuters who take public transit to work is similar in neighboring Rutledge. Residents of both towns commute by public transit at nearly twice the national rate (4.9 percent).<sup>4</sup>

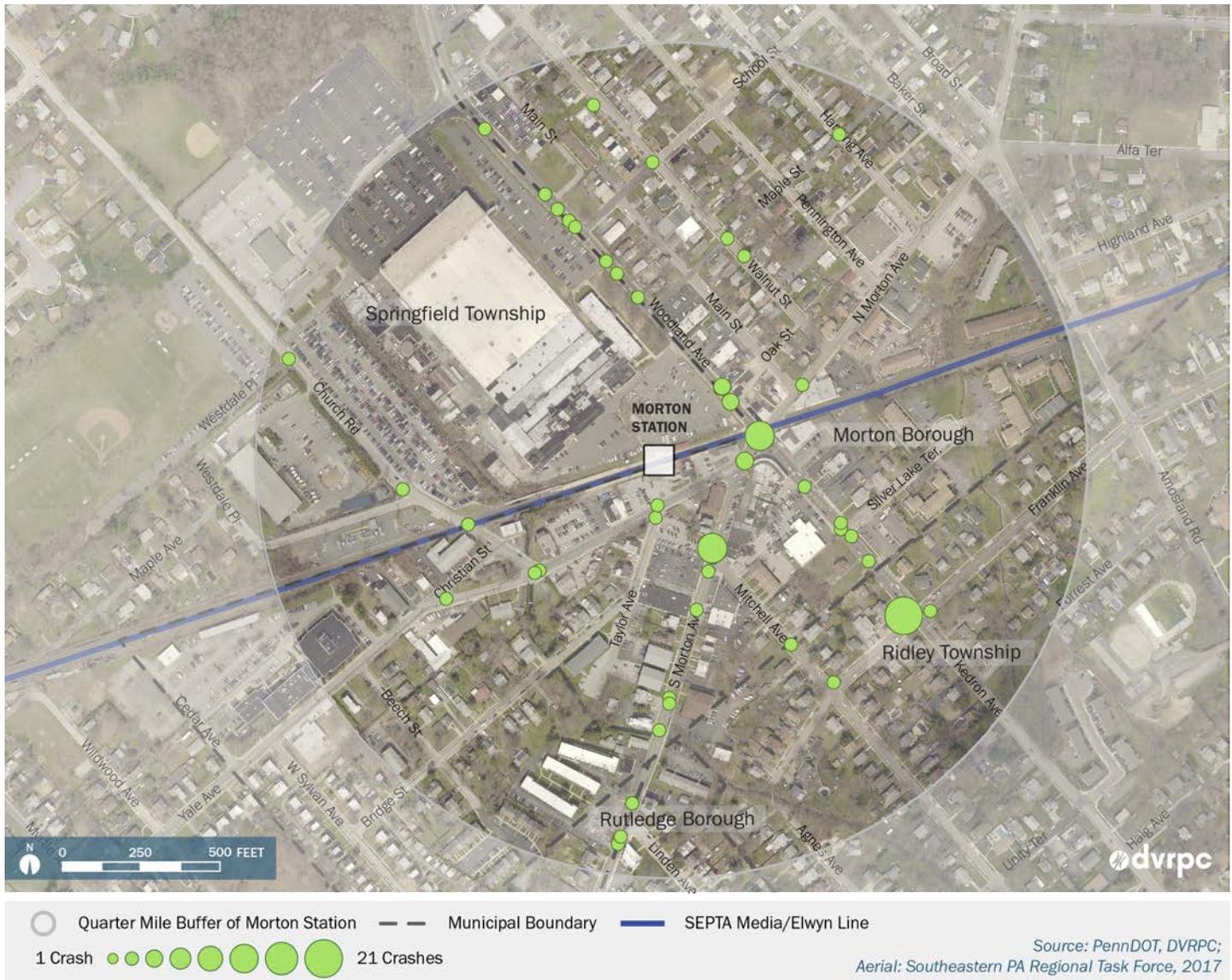
<sup>4</sup> 2018 American Community Survey, Five-Year Estimates.

# Crash Analysis

## CRASH TRENDS

PennDOT crash data was used to analyze crashes within the study area. Crashes with a quarter-mile buffer around the station were analyzed to approximate a rough walking distance around the station. The data was limited to reportable crashes within the five-year span of 2014-18, which is the most recent data available. There were 93 crashes within the study area within the five-year span. The analysis was completed using an Access database and ArcMap Geographic Information System (GIS) software.

**Figure 3: Morton Total Crashes (2014-18)**



The 93 reportable crashes in the study area between 2014 and 2018 involved 235 people (see Figure 3). There were no fatalities recorded. Of a total 68 suspected injuries, two were recorded as suspected serious injuries, and 21 were recorded as suspected minor injuries. Twenty-five were recorded as possible injuries, and 20 were recorded as injuries of unknown severity.

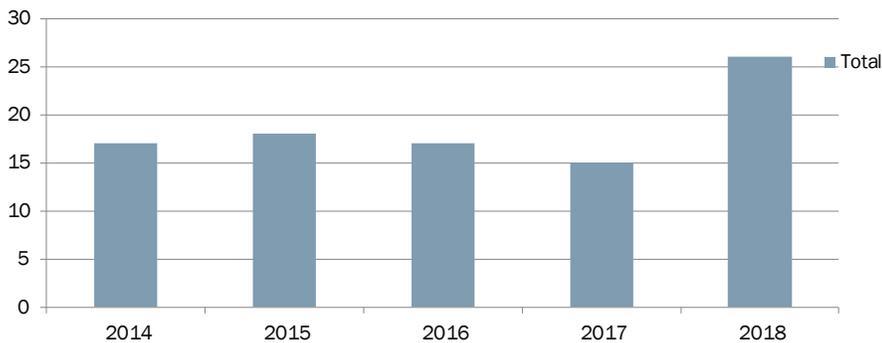
Both crashes in the study area with suspected serious injuries occurred at Mitchell Avenue and S. Morton Avenue, as well as three crashes with suspected minor injuries (see Figure 4). There were three crashes with suspected minor injuries in the vicinity of the intersection of Morton Avenue, Woodland Avenue, Kedron Avenue, and Yale Avenue. Both the intersection of Franklin Avenue and Kedron Avenue and the intersection of Church Road and Yale Avenue were the locations of two crashes each with suspected minor injuries.

**Figure 4: Morton Suspected Serious and Suspected Minor Injury Crashes (2014-18)**



The number of reportable crashes remained fairly steady from 2014 to 2017, with an average of 17 reportable crashes per year. In 2018, there was a notable increase from the previous four years to 26 crashes (see Figure 5).

**Figure 5: Morton Total Crashes (2014-18)**



Source: PennDot, DVRPC

## COLLISION TYPES

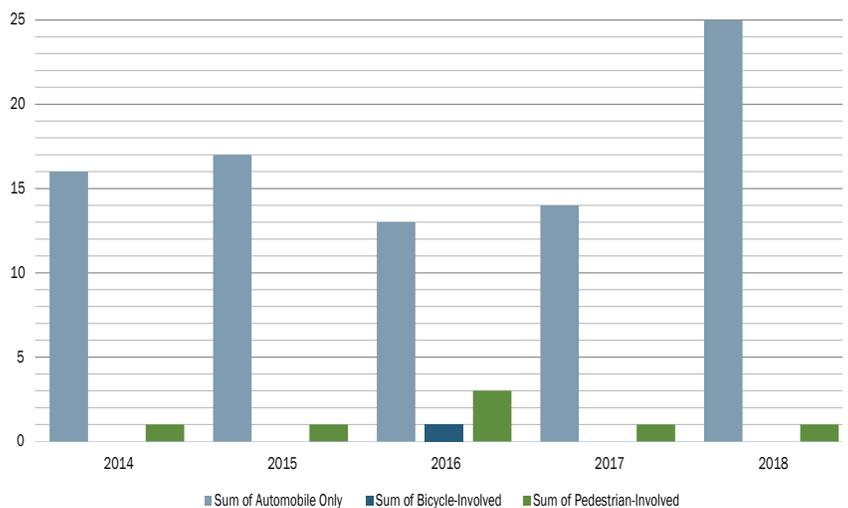
Collision types in the study area follow a similar pattern to the rest of Delaware County. The most common crash types in the study area were Angle (48.3 percent), Rear-End (22.5 percent), and Hit Fixed Object (8.6 percent). Table 1 shows that there was a higher frequency of Angle crashes and Hit Pedestrian crashes as compared to the rest of Delaware County. There were significantly less Hit Fixed Object crashes in the study area as compared to the rest of Delaware County.

**Table 1: Collision Types**

	STUDY AREA CRASH COUNTS	STUDY AREA PERCENTAGES	TOTAL CRASHES IN DELAWARE COUNTY
Non-Collision	1	1.08%	1.3%
Rear-End	21	22.58%	29.9%
Head-On	5	5.38%	6.0%
Angle	45	48.39%	30.1%
Sideswipe (Same Dir.)	3	3.23%	5.3%
Sideswipe (Opp. Dir.)	3	3.23%	2.1%
Hit Fixed Object	8	8.60%	20.1%
Hit Pedestrian	7	7.53%	3.7%
Bicyclist-involved	1	0.01%	0.8%

Automobile Only crashes were the most prevalent and ranged from a high of 25 in 2018 to a low of 13 in 2016. This is fairly consistent with the general total crash trends in the study area, as shown in Figure 6.

**Figure 6: Morton Total Crashes by Road Users**



Source: PennDOT, DVRPC

## VULNERABLE USER CRASHES

An area of focus within this study was to improve conditions around Morton Station for vulnerable road users (defined as pedestrians and bicyclists). Between 2014 and 2018, the study area had eight vulnerable user-involved crashes (seven pedestrian-involved crashes, and one bicycle-involved crash). In 2018, one pedestrian-involved crash involved two pedestrians being struck. From the seven pedestrian-involved crashes and eight struck pedestrians in this time period, there were six suspected minor injuries, one suspected severe injury, and one pedestrian with no reported injuries.

## CRASH CLUSTERS

Areas within the study area with the highest concentration of crashes from 2014 to 2018 were identified as the intersection of Kedron Avenue and Morton Avenue, the intersection of Kedron Avenue and Franklin Avenue, and the intersection of S. Morton Avenue and Mitchell Avenue (see Figure 7).

### Kedron Avenue and Morton Avenue

The intersection of Kedron Avenue and Morton Avenue is additionally a railroad crossing for the SEPTA Media/Elwyn Regional Rail line. This location was the site of 14 crashes from 2014 to 2018. This also includes some crashes at the intersection of S. Morton Avenue and Yale Avenue, which feeds directly into this intersection. This intersection saw the most crash types reported as left-turn Angle crashes with five, and Rear-End crashes with three. There was one Hit Pedestrian crash. Two crashes that occurred at this intersection resulted in reported suspected minor injuries.

**Figure 7: Morton Bicycle and Pedestrian Crashes (2014-18)**



### **Kedron Avenue and Franklin Avenue**

This intersection was the site of the highest concentration of crashes from 2014 to 2018 with 22 in the intersection, including one Non-Collision crash involving a motorcyclist. The large majority of these collisions were Angle crashes (17), which were dispersed in all directions of travel, but the most frequent orientation occurring with the initiating car traveling southbound and the hit car traveling westbound (six). There was also one Hit Pedestrian crash at this intersection. Two crashes that occurred at this intersection resulted in reported suspected minor injuries.

### **S. Morton Avenue and Mitchell Avenue**

This intersection was the site of 15 crashes from 2014 to 2018. Left-turn Angle collisions were reported for seven of the crashes, with five of those crashes attempting to turn right onto Mitchell Avenue from S. Morton Avenue. Two crashes reported suspected major injury. One of these suspected major injury reports resulted from a Hit Pedestrian crash. The other suspected major injury report was from a Same-Direction Sideswipe. Four crashes at this intersection resulted in five suspected minor injuries.

# Focus Areas

## PROBLEM IDENTIFICATION

Five focus areas were selected for recommended improvements (see Figure 8). These focus areas were selected based on a combination of analysis of crash data (see "Crash Analysis"), analysis of key desire lines (frequently used paths to the station), field observation, and stakeholder input. The five focus areas are:

- Intersection of Kedron Avenue (PA 420) and Morton Avenue (1);
- Intersection of Morton Avenue and Yale Avenue (2);
- Intersection of Morton Avenue and Mitchell Avenue (3);
- Intersection of Yale Avenue and Taylor Avenue (4); and
- Church Road (near the path that leads to the station) (5).

Figure 8: Study Area



## Focus Area 1: Kedron Avenue (PA 420) and Morton Avenue

This signalized intersection is the closest to the station and also carries the most traffic of any location in the study area. Safety is a major concern at the intersection. Its four legs meet at a skewed angle, compromising sight distance (see Figure 9). The northern legs of the intersection, including both PA 420 and N. Morton Avenue, are crossed by the SEPTA Media/Elwyn railroad tracks, creating further visibility and legibility issues for all users of the intersection. This intersection has been the focus of previous planning studies, including the Morton Connects Multimodal Transportation Study (2018) (see “Supporting Work”).

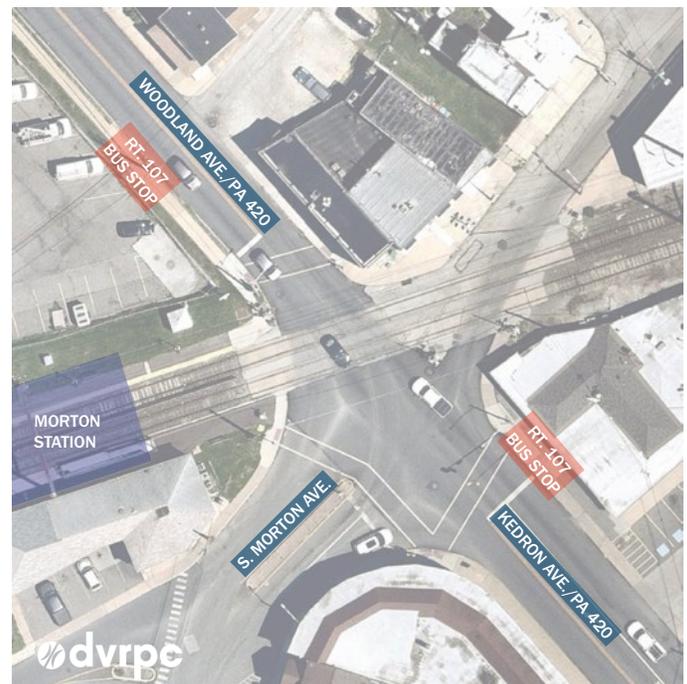
Many users of the Morton Station must traverse the intersection to reach the station, particularly pedestrians approaching the station from N. Morton Avenue. Riders of the Route 107 bus also need to cross this intersection to reach the bus stops from surrounding neighborhoods or Morton Station, which can be difficult and dangerous. N. Morton Avenue is the only logical crossing location with a crosswalk over PA 420 for neighborhoods northeast of the station. Furthermore, the AMVETS parking lot on N. Morton Avenue is one of the five parking lots frequently used by SEPTA riders. While observation of the intersection and analysis of desire lines identified the crossing over PA 420 at the northern end of the intersection as the most crucial for station access, all four crossings (including the unmarked crossing over the SEPTA tracks) are well used by pedestrians, including those accessing the station.

Crash analysis and field observations identified a number of key safety and pedestrian access challenges at the intersection. The crash analysis identified left-turning vehicle crashes as a major area of concern; in particular, the left turn from PA 420 onto N. Morton Avenue creates significant safety concerns due to the skewed angle of the turn and the presence of the railroad tracks, which combine to make the turning movement unpredictable to pedestrians and oncoming traffic.

Right-turning vehicles are also a concern. The skewed intersection creates right turns with very large turning radii, which encourages higher speeds and creates greater danger for pedestrians crossing the street. The right turn from PA 420 onto S. Morton Avenue is very problematic in this way. Right-turning vehicles are encouraged to travel at higher speeds from S. Morton Avenue onto PA 420 as well, despite the acute angle of the corner, because the geometry of the curb is designed to maximize the turning radius.

Pedestrian-crossing infrastructure leaves pedestrians dangerously exposed throughout the intersection. The N. Morton Avenue leg of the intersection lacks any crosswalk at all, which is complicated by the intersecting SEPTA railroad tracks. The remaining legs have traditional crosswalks, which offer pedestrians less visibility than continental (or “zebra stripe”) crosswalks. In addition, the crosswalks are very narrow and are not perpendicular to the curb ramps, creating longer crossings. The crossing over the S. Morton Avenue leg of the intersection is kinked in the middle, making the crossing that much longer.

Figure 9: Kedron Avenue (PA 420) and Morton Avenue



## Local Circulation Issues Around Morton Station

During the study process, local and county stakeholders raised an issue about traffic congestion and circulation problems in Morton Borough that result from train arrivals on SEPTA's Media/Elwyn Line. Specifically, the affected north-south routes are PA 420, Church Road located west of Morton Station, and Amosland Road located east of the station—all three cross the train tracks at grade (see Figure 10). In addition, Morton Avenue eastbound also experiences train-related congestion since left turns onto PA 420 northbound and through movements from Morton Avenue eastbound are also blocked during train arrivals.

**Figure 10: Morton Rail Crossings**



The crossings at PA 420, Church Road, and Amosland Road are outfitted with crossing gates that lower simultaneously to block vehicle traffic when trains pass, causing all three north-south routes to be blocked to through traffic at the same time. Together, these three crossings constitute a signal block. When east- and westbound trains arrive at the station very close in time to each other, the crossing gates remain down for extra time, lasting several minutes.

In the case of PA 420, westbound trains stretch across the roadway when stopping at the station, but PA 420 is not physically obstructed by eastbound trains while they are stopped at the station. Neither Amosland Road nor Church Road is physically obstructed by trains alighting at Morton Station.

This prompted the study team to ask SEPTA if the crossing gates could be separated and operate independently to provide some congestion relief. SEPTA explained that the grade crossings remain active—crossing gates down—when a train is within the signal block. The Federal Railroad Administration (FRA) rules require that grade crossing signals and gates be activated a minimum of 15 seconds prior to a train entering the grade crossing. Due to the proximity of the three grade crossings in Morton, all three are activated at once. This ensures compliance with the 15-second rule and that trains can traverse the area safely, given all three grade crossings are in the same signal block. To meet FRA requirements, all three grade crossings must be activated at the same time. Altering the signal block will not provide the minimum 15-second requirement, thus making the trains vulnerable to a crash with a vehicle and putting the safety of train passengers at risk.

## Focus Area 2: Morton Avenue and Yale Avenue

This unsignalized intersection is directly south of the intersection of PA 420 and Morton Avenue and the two operate in tandem in many respects, particularly for vehicles turning right off of PA 420 and continuing onto Yale Avenue. The intersection has three legs, and the only stop sign and marked crossing are over Yale Avenue (see Figure 11); no crossing infrastructure is provided across Morton Avenue as such crossing is discouraged. Like the intersection of PA 420 and Morton Avenue, the skewed angle that the streets meet at creates hazardous conditions for pedestrians. Pedestrians must use the crosswalk to access the station if they are traveling north along Morton Avenue from points south.

The crosswalk across Yale Avenue is a narrow, continental-style crosswalk and is very long—it is the single longest crosswalk in the study area, leaving pedestrians exposed. Yale Avenue is a minor road with a narrow width, but it opens considerably at the intersection to ease vehicle right turns from S. Morton Avenue. The turning radius is so large at this location that it is practically not a turn at all—vehicles simply continue straight. This creates a hazard for pedestrians who must make their presence known to drivers with no infrastructure that encourages yielding.

S. Morton Avenue in this section is uncontrolled, so vehicles do not stop unless they are queuing at the intersection with PA 420, which happens often. Vehicles traveling along Morton Avenue from the south, in particular, have a long, straight road leading to this intersection, which encourages higher vehicle speeds. Front-in, angle parking is provided to serve businesses on the east side of the street. These parking stalls are easy to pull into but create a hazard when pulling out directly into traffic with limited visibility.

## Focus Area 3: Morton Avenue and Mitchell Avenue

Like Morton Avenue and Yale Avenue to the north, this is a three-legged unsignalized intersection with a stop sign and narrow, marked crossing over Mitchell Avenue, but no controlled stop along Morton Avenue (see Figure 12). It differs, however, because the entrance to the municipal parking lot is directly across from Mitchell Avenue, creating a de facto fourth leg of the intersection where vehicles enter the lot. Morton Avenue and Mitchell Avenue meet at a skewed angle, like most other intersections in the study area. The crash analysis identified this intersection as having the most severe crash history for pedestrians, with multiple pedestrian crashes resulting in serious injuries over the five-year study period.

Field observation revealed that this intersection is a key location for transit riders accessing the station, despite its apparent distance from the station. This is because a large number of transit riders skirt the heavily trafficked intersection at PA 420 by approaching the station from the south through the municipal lot and cross Yale Avenue at Taylor Avenue to reach the station. To reach the municipal lot, many transit riders approaching from the south and east cross Morton Avenue at Mitchell

Figure 11: Morton Avenue and Yale Avenue



Figure 12: Morton Avenue and Mitchell Avenue



Avenue. These pedestrians must cross Morton Avenue without the benefit of any crossing infrastructure to increase their visibility.

In addition to the lack of visibility from a crosswalk, the angle parking along Morton Avenue creates visibility issues for pedestrians crossing Morton Avenue and for vehicles exiting Mitchell Avenue to turn onto Morton Avenue or access the parking lot. As previously noted, the straightaway design of Morton Avenue encourages higher vehicle speeds, particularly at this location, which is not as close to the intersection at PA 420.

#### Focus Area 4: Yale Avenue and Taylor Avenue

This intersection is directly adjacent to the station and has among the highest pedestrian crossing volume to access the station. It is also a three-legged, unsignalized intersection with a stop sign on Taylor Avenue and a single crosswalk over Yale Avenue (see Figure 13). It is not a high-crash location, but the pedestrian volumes at peak times demand more visibility for those crossing at this location. Furthermore, there is concern about westbound traffic on Yale Avenue creating a hazard for pedestrians at peak times, especially at night when visibility is low.

#### Focus Area 5: Church Road

The largest parking lot within the study area is on Church Road in Springfield Township. Many transit riders park at this lot and walk to the station, which is accessible via a path connecting to Church Road south of the parking lot (see Figure 14). This requires crossing Church Road, however, and no crosswalk is provided between the pedestrian path and the parking lot.

Figure 13: Yale Avenue and Taylor Avenue



Figure 14: Church Road



# Recommendations

## BEST PRACTICES

The recommended safety improvements for the area around Morton Station address the problems identified for each of the focus areas by drawing on safety countermeasures with proven crash reductions and other benefits. These strategies are used by partners in the region, including PennDOT and Delaware County transportation and public works departments. Some of the key installations include:

### Pedestrian Median Islands



Source: Alissa Barber Torres via Flickr (CC BY-ND 2.0)

Provide a refuge for pedestrians at the centerline of a roadway, allowing for two-stage crossings. They also calm right-turning vehicles and make turning movements more predictable. They have been shown to reduce pedestrian crashes by 56 percent. They also create opportunities for plantings and other installations that promote greening, stormwater management, and placemaking.

### Countdown Timers and Leading Pedestrian Intervals



Source: thisisbossi via Flickr (CC BY-SA 2.0)

Recommended at all signalized intersections, these are upgrades to standard pedestrian signals and provide pedestrians with a timer indicating how much longer the “walk” phase of the signal will last. A leading interval will activate the “walk” phase with a three- to five-second headstart before traffic begins to flow. This increases visibility for pedestrians by allowing them to enter the crosswalk before vehicles begin making turns. They have been shown to reduce pedestrian crashes by 60 percent at intersections.

### Rectangular Rapid Flashing Beacons (RRFB)



Source: Carmanah Traffic via Flickr (CC BY-NC-ND 2.0)

Alternating flashing lights on pedestrian warning signs alert drivers to pedestrians in the crosswalk. They are typically actuated by pedestrians as they enter the crosswalk. They have been shown to reduce pedestrian crashes by 47 percent.

### Continental Crosswalks



Source: National Association of City Transportation Officials (NACTO) (Retrieved 2020)

Also called “zebra stripe,” this style of crosswalk creates a much more visible crosswalk than the standard crosswalk of two parallel lines. Crosswalks should be at least the width of the adjoining sidewalks and perpendicular to the roadway without kinks that extend the exposure of crossing pedestrians. In order to be fully accessible to all users, all crosswalks should be outfitted with a curb ramp at both ends, perpendicular to the road. Where new crosswalks are proposed and no curb ramp exists, a curb ramp should be installed as soon as it is feasible to do so.

### Hardened Centerline



Source: Google Maps (Retrieved 2020)

Installing delineator posts and lane separator curb along the centerline where a roadway approaches an intersection can calm turning movements and make vehicle travel paths more predictable for all road users.

### Lane Narrowing



Source: FHWA (Retrieved 2020)

Wider lanes encourage higher speeds. Bus routes and truck routes should be 11 feet to accommodate these larger vehicles; all other roadways should have lanes of no more than 10 feet. Edgeline markings can help to narrow lanes along an existing right-of-way (ROW).

### Curb Extensions



Source: NACTO (Retrieved 2020)

Also called bumpouts, these are extensions of the sidewalk into the intersection, typically by claiming the unused horizontal roadway space that is devoted to the parking lane farther from the intersection. They benefit pedestrians by shortening the crossing distance. They can also help to calm left-turning vehicles by reducing the turning radius at the corner. They are best implemented with a permanent, concrete buildout; however, they can also be installed as a temporary measure with paint and delineator posts if the road owner permits. They can also create opportunities for plantings and other installations that promote greening, stormwater management, and placemaking.

### Parking



Source: DVRPC

Two parking alternatives are included in the recommendations. Back-in angle parking improves safety over front-in angle parking by substantially increasing visibility for drivers pulling out of parking stalls. Parallel parking improves safety when installed on both sides of the roadway by creating a traffic-calming effect on the adjacent travel lanes and increasing visibility over front-in angle parking.

### Signage

Signage is critical to communicate to road users of new and unexpected hazards. Key signage for areas with high pedestrian traffic include "Pedestrian Crossing" warnings and "Turning Traffic Must Yield to Pedestrians" signs. Signage should be designed for optimum visibility and can include RRFBs when paired with a crosswalk, especially at unsignalized locations.

## FOCUS AREA INTERVENTIONS

The recommendations in this section are divided into two categories. Tier 1 recommendations are lower cost, lower impact, and quicker to implement. Tier 2 recommendations are higher cost but generally more durable and would have a greater impact on safe access to the station.

### Focus Area 1: Kedron Avenue (PA 420) and Morton Avenue

#	STRATEGY	DESCRIPTION
<b>TIER 1</b>		
1	Intersection Improvements	The intersection is outfitted with perpendicular, continental crosswalks across all four legs to ensure safe pedestrian access. Pavement is added to the Route 107 bus stop.
2	Add Crossing	This includes a new crossing over the Media/Elwyn railroad tracks, which requires coordination with SEPTA.
3	Curb Extensions	The crossing distance over S. Morton Avenue is further shortened with low-cost curb extensions at each corner. Low-cost curb extensions can be installed with paint and bollards, eliminating the need for costly concrete improvements, but this must be approved by PennDOT, the roadway owner. These curb extensions have the added benefit of calming right-turning traffic at both corners. Curbing throughout the intersection should be reinforced to ensure cars are not parked on the sidewalk.
4	At-Grade Railroad Crossing Warning	SEPTA high-visibility paint standards for at-grade crossings is added. The same treatment should be applied on at-grade crossings at Church and Amosland roads. Signage to deter drivers from entering the track area should also be considered.
5	New Signage	New signage includes “Turning Traffic Must Yield to Pedestrians” signs at each leg of the intersection, except N. Morton Avenue.
<b>TIER 2</b>		
6	Curb Extensions	In addition to the crosswalks installed in the Tier 1 recommendations, the curb extensions are upgraded to concrete installations.
7	Pedestrian Refuge	In addition, the existing median is extended into a pedestrian refuge island with a cap extending into the intersection to calm left-turning traffic.
8	Adjust Turning Patterns	Prohibiting left turns from PA 420 southbound makes N. Morton Avenue accessible only to through movements from S. Morton Avenue and to right turns from PA 420 northbound (N. Morton Avenue is already restricted for vehicles traveling south on N. Morton Avenue). This requires Morton Borough to coordinate with PennDOT to confirm local support for restricting left turns onto N. Morton Avenue.
9	Pedestrian Signals	Pedestrian signals with countdown timers and a leading pedestrian interval are installed at all pedestrian crossings.

Figure 15: Kedron Avenue (PA 420) and Morton Avenue—Tier 1

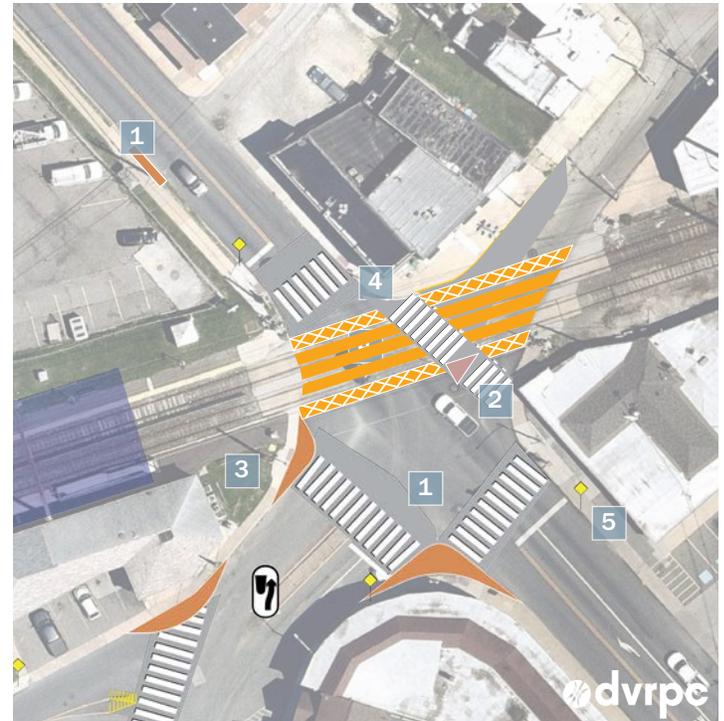
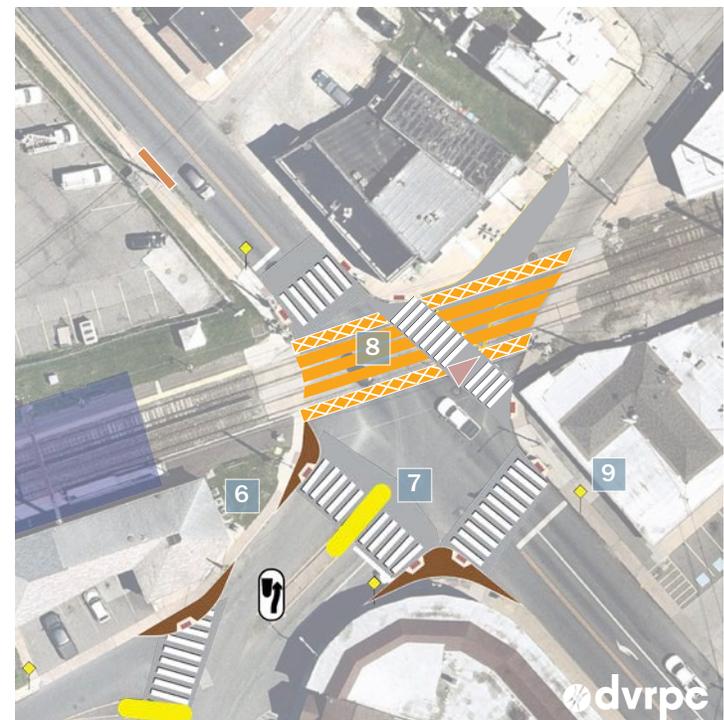


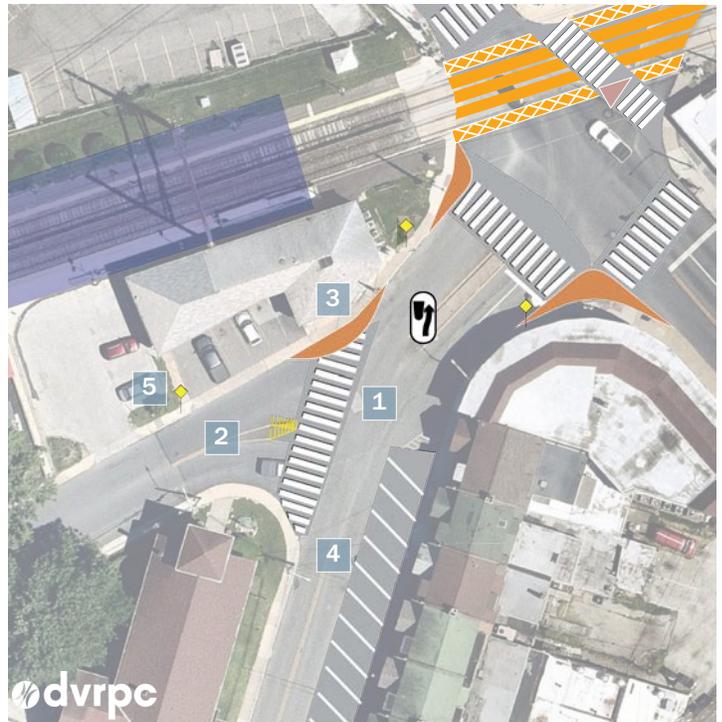
Figure 16: Kedron Avenue (PA 420) and Morton Avenue—Tier 2



**Focus Area 2: Morton Avenue and Yale Avenue**

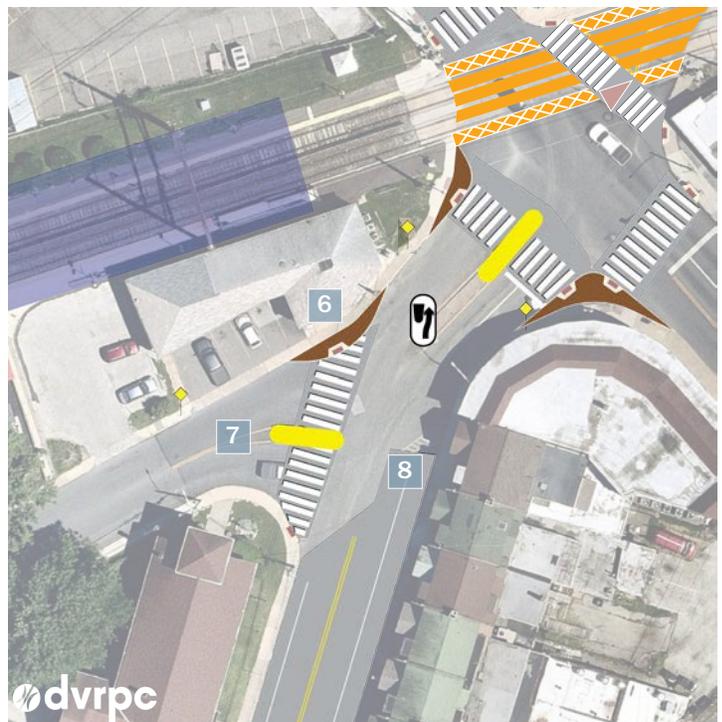
#	STRATEGY	DESCRIPTION
<b>TIER 1</b>		
1	Intersection Improvements	The intersection is outfitted with a wider, more perpendicular continental crosswalk across Yale Avenue to ensure safe pedestrian access.
2	Lane Separation	In order to install the crosswalk, the existing temporary traffic island is removed and replaced with low-cost lane separator curb and delineator posts.
3	Curb Extension	A low-cost curb extension is installed on the north side of Yale Avenue to shorten the crossing distance and calm right-turning vehicles.
4	Back-In Parking	Existing front-in angle parking is replaced with back-in angle parking to improve visibility for drivers pulling out of traffic stalls.
5	New Signage	New signage includes a "Turning Traffic Must Yield to Pedestrians" sign on Morton Avenue southbound as it approaches the intersection.

**Figure 17: Morton Avenue and Yale Avenue—Tier 1**



<b>TIER 2</b>		
6	Curb Extensions	In addition to the crosswalks installed in the Tier 1 recommendations, the curb extensions are upgraded to concrete installations.
7	Pedestrian Refuge	In addition, the existing median is extended into a pedestrian refuge island with a cap extending into the intersection to calm left-turning traffic.
8	Adjust Parking	Instead of angle parking on the east side of Morton Avenue, parallel parking is installed on both sides of the roadway.

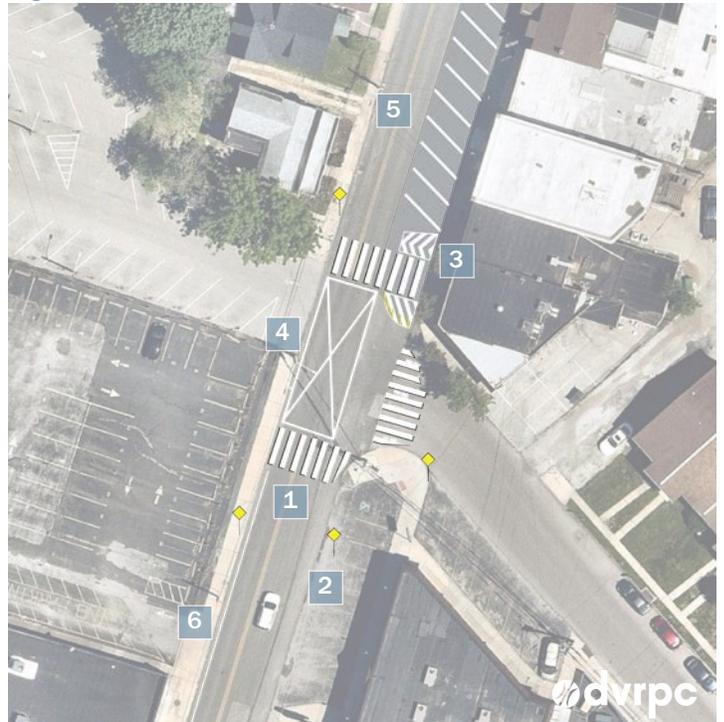
**Figure 18: Morton Avenue and Yale Avenue—Tier 2**



**Focus Area 3: Morton Avenue and Mitchell Avenue**

#	STRATEGY	DESCRIPTION
<b>TIER 1</b>		
1	Improve Crossings	The intersection is outfitted with a wider continental crosswalk across Mitchell Avenue and continental crosswalks are installed across Morton Avenue on both sides of the intersection with Mitchell Avenue to ensure safe pedestrian access.
2	Add signage	“Pedestrian Crossing” signage at the approaches to the intersection on Morton Avenue further improves visibility for pedestrians at the intersection.
3	Install Gore Area Striping	A striped gore area and delineator posts are installed at the northeast corner of the intersection to further shorten the crossing distance over Morton Avenue and increase the visibility of pedestrians to turning vehicles.
4	Intersection Improvements	“Don’t Block the Box” lane markings and signage are installed between the crosswalks to discourage traffic from blocking the intersection, especially during extended light cycles associated with the railroad crossing at PA 420 when a train is at the station; these long light cycles can result in traffic backing up to the intersection.
5	Adjust Parking	Existing front-in angle parking is replaced with back-in angle parking to improve visibility for drivers pulling out of traffic stalls and for pedestrians and drivers entering the intersection from Mitchell Avenue looking north for oncoming traffic.

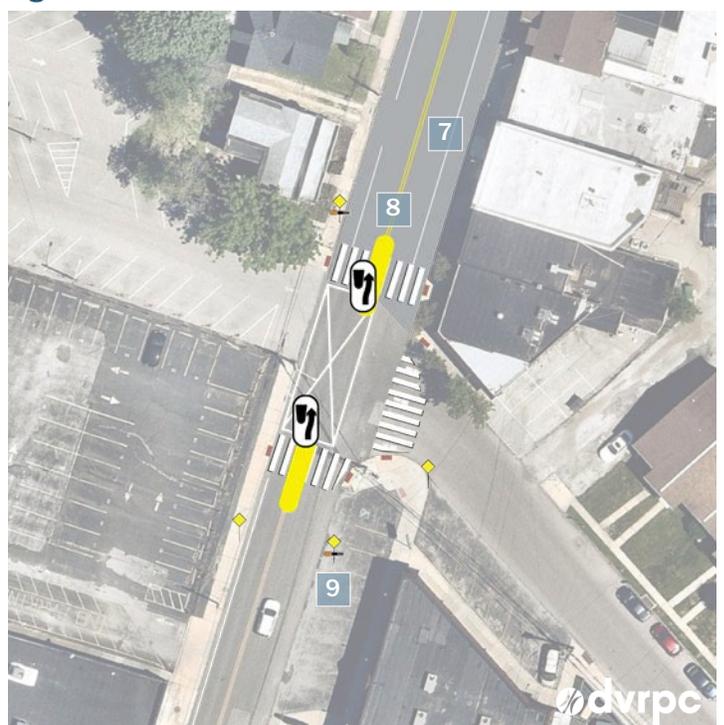
**Figure 19: Morton Avenue and Mitchell Avenue—Tier 1**



<b>TIER 1 (CONTINUED)</b>		
6	Narrow Lanes	The travel lanes south of the intersection are also narrowed to 11 feet approaching the intersection to help calm traffic entering the station area.

<b>TIER 2</b>		
7	Adjust Parking	Instead of angle parking on the east side of Morton Avenue, parallel parking is installed on both sides of the roadway.
8	Shift Centerline	In order to facilitate the eastward shift in the centerline that this change requires at the intersection, a gateway treatment is installed. The gateway treatment has co-benefits by calming traffic as it enters the Morton Avenue retail district and providing a small pedestrian refuge on each of the two crosswalks over Morton Avenue. Gateway treatments are prime locations for placemaking and greening strategies as well, although they should be designed with a low profile that does not reduce visibility.
9	Improve Signage	In addition to the crosswalks and “Don’t Block the Box” lane markings installed in the Tier 1 recommendations, the “Pedestrian Crossing” signage is further improved with actuated RRFB.

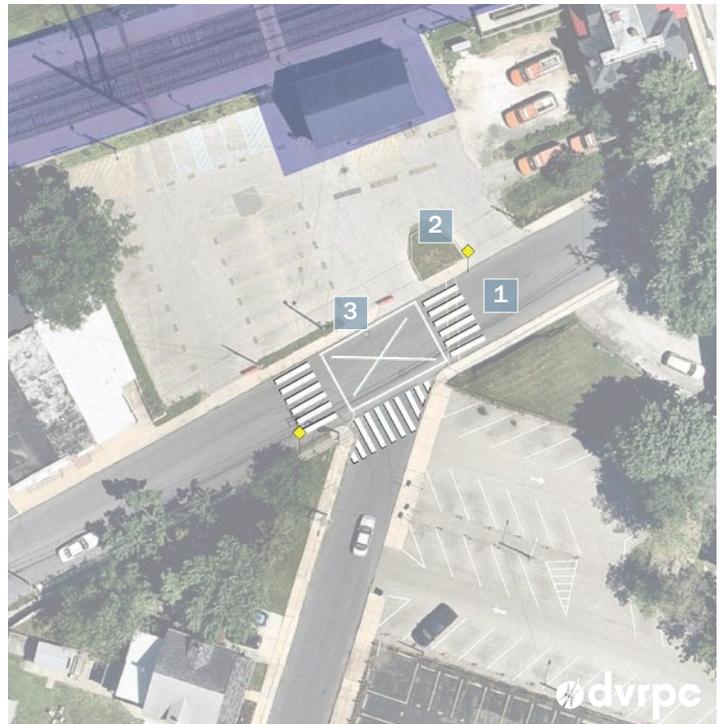
**Figure 20: Morton Avenue and Mitchell Avenue—Tier 2**



**Focus Area 4: Yale Avenue and Taylor Avenue**

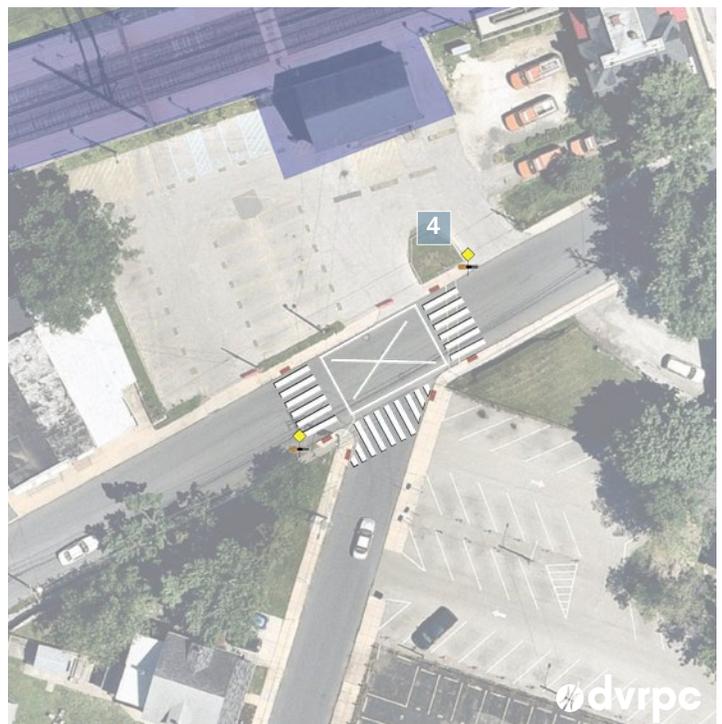
#	STRATEGY	DESCRIPTION
<b>TIER 1</b>		
1	Intersection Improvements	The intersection is outfitted with perpendicular, continental crosswalks across all three legs to ensure safe pedestrian access.
2	Add Signage	"Pedestrian Crossing" signage at the approaches to the intersection on Yale Avenue further improves visibility for pedestrians at the intersection.
3	"Don't Block the Box" Markings	"Don't Block the Box" lane markings are installed between the crosswalks to discourage traffic from blocking the intersection, especially during extended light cycles associated with the railroad crossing at PA 420 when a train is at the station; these long light cycles can result in traffic backing up to the intersection.

**Figure 21: Yale Avenue and Taylor Avenue—Tier 1**



<b>TIER 2</b>		
4	Upgraded Signage	In addition to the crosswalks and "Don't Block the Box" lane markings installed in the Tier 1 recommendations, the "Pedestrian Crossing" signage is further improved with actuated RRFB.

**Figure 22: Yale Avenue and Taylor Avenue—Tier 2**



*Consider Vertical Deflection:* While it was not evaluated as a part of this study, this intersection may be a good candidate for a vertical deflection element such as a speed table in the form of a raised intersection or raised crosswalks. Vertical deflection can significantly reduce vehicle speeds and improve pedestrian safety. Given the high volume of pedestrian activity at this location, vertical deflection should be considered.

**Focus Area 5: Church Road**

#	STRATEGY	DESCRIPTION
<b>TIER 1</b>		
1	Intersection Improvements	A new marked continental crosswalk is installed over Church Road on the north side of the intersection with Maple Avenue.
2	Add Signage	"Pedestrian Crossing" signage at the approaches to the crosswalk on Church Road further improves visibility for pedestrians in the crosswalk. Advanced warning signs closer to the railroad crossing (not shown) should also be installed to address the limited visibility for northbound drivers due to the sloped road approaching the railroad crossing.

**Figure 23: Church Road—Tier 1**



<b>TIER 2</b>		
3	Upgraded Signage	In addition to the crosswalks and "Don't Block the Box" lane markings installed in the Tier 1 recommendations, the "Pedestrian Crossing" signage adjacent to the crosswalk is further improved with actuated RRFB.

**Figure 24: Church Road—Tier 2**



## Public Engagement

During the month of September 2020, an online survey was distributed by the municipalities involved in this study, as well as DVRPC, the DCPD, and SEPTA. The survey was designed by the DCPD, with goals of eliciting public feedback on the identified problem (focus) areas and introducing potential solutions to the community. Survey responses were received from 144 individuals, and the full results can be found in Appendix A. The survey results confirmed that the identified issues were also concerns of the traveling public and provides support for the implementation of the study recommendations.

**Question: I am comfortable crossing this area on foot.**

DESCRIPTION	420/MORTON	MORTON/YALE	MORTON/MITCHELL	YALE/TAYLOR	CHURCH ROAD
Strongly Disagree	38%	39%	51%	24%	22%
Disagree	44%	36%	28%	25%	28%
Neutral	9%	14%	10%	27%	28%
Agree	7%	9%	8%	20%	17%
Strongly Agree	1%	1%	1%	4%	4%

The survey asked respondents how comfortable they felt traveling through a specific area; the five selected areas are the previously discussed “focus areas” and detailed in the accompanying table:

- Kedron Avenue (PA 420) and Morton Avenue (Focus Area 1);
- Morton Avenue and Yale Avenue (Focus Area 2);
- Morton Avenue and Mitchell Avenue (Focus Area 3);
- Yale Avenue and Taylor Avenue (Focus Area 4); and
- Church Road (Focus Area 5).

A high percentage of respondents either chose “Strongly Disagree” or “Disagree” at the following focus areas, indicating that they did not feel safe crossing at those places:

- Kedron Avenue (PA 420) and Morton Avenue (82 percent);
- Morton Avenue and Yale Avenue (75 percent); and
- Morton Avenue and Mitchell Avenue (79 percent).

**Question: Please rank your priorities for improving the study area.**

Survey respondents were asked to order eight potential improvements, based on their own sense of priorities for the study area. The priority improvements ranked by survey respondents are shown below:

1. Improve unsafe crossings.
2. Improve sight lines (when making turns or crossing on foot).
3. Ease transit-related traffic congestion.
4. Reduce vehicle speed.
5. Improve lighting.
6. Improve bicyclist safety.
7. Reconfigure angle parking on Morton Avenue.
8. Increase available parking.

These priorities reflect a strong desire to improve the overall pedestrian environment in the study area.

**Question: Which of the following treatments benefit vulnerable user access to the Morton Station?**

The survey also asked respondents to rank potential road safety treatments to the study area, based on whether the treatment would benefit vulnerable users' access to the Morton Station. The priority treatments as ranked by survey respondents are shown below:

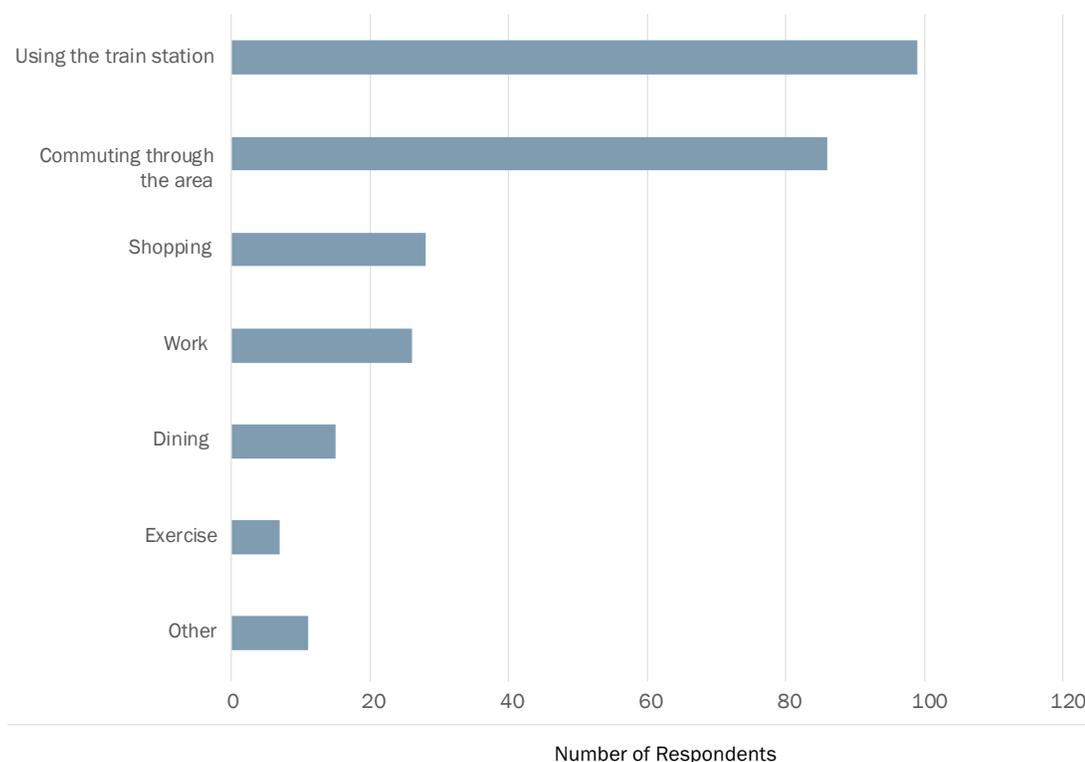
1. Crosswalks
2. Sidewalks
3. Pedestrian alert signals
4. Pedestrian refuge islands
5. Back-in angle parking
6. Bumpouts
7. Bike lanes

This list demonstrates the strong desire of most respondents for basic pedestrian-friendly infrastructure, such as crosswalks and sidewalks, as well as slightly more complex treatments, such as pedestrian alert signals and refuge islands.

**Question: Why do you most often visit the study area?**

Respondents were asked why they visit the study area most. Respondents were free to choose as many trip purposes as they wished.

**Figure 25: Why Respondents Visit the Study Area**

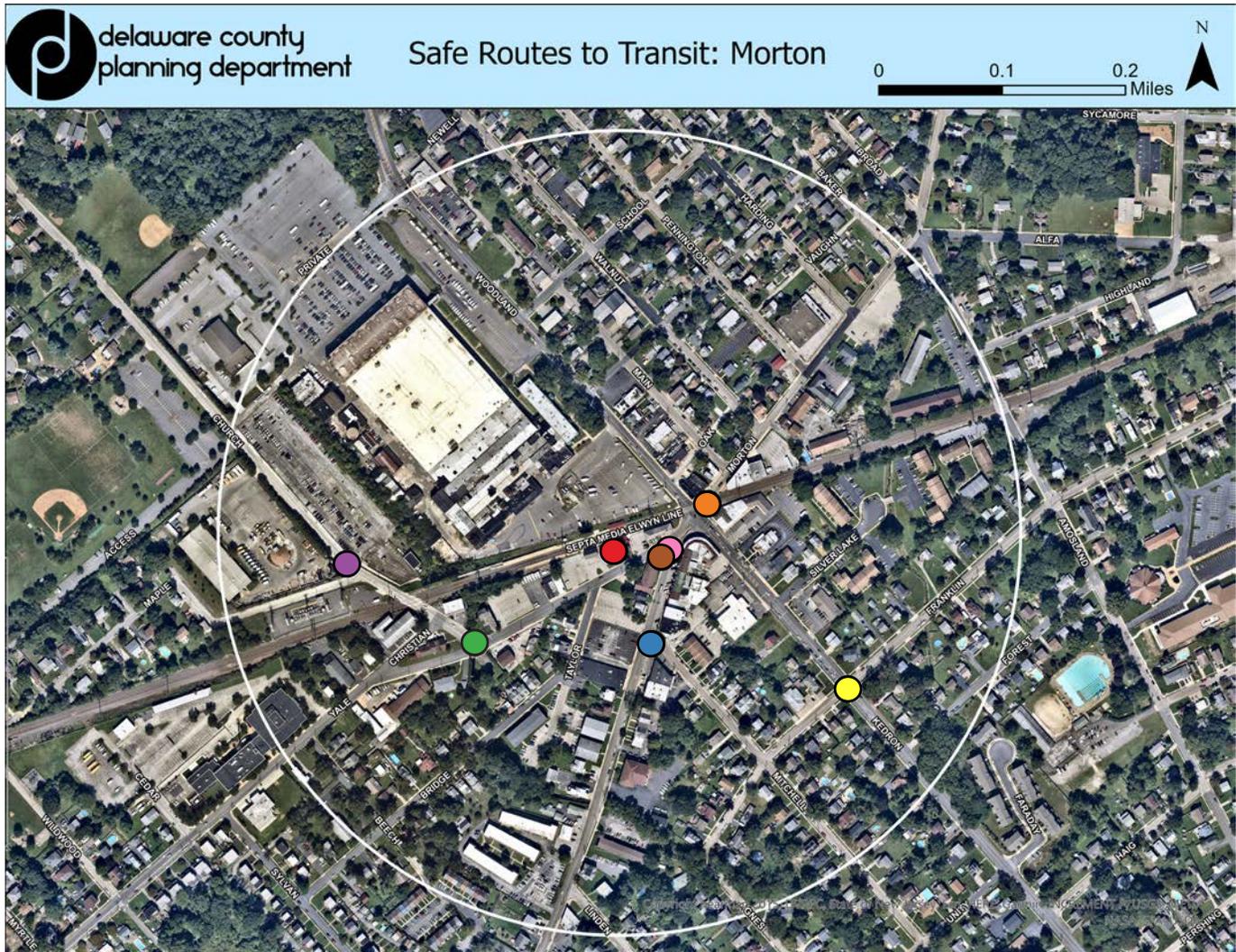


The results of this question indicate that most respondents visited the study area either to access the train station or to commute through the area (see Figure 25).

The implications of the survey for this study are explored in the “Implementation/Next Steps” section of this report.

The online survey also included a webmap of the study area for respondents to identify and comment on particular locations. Figure 26 displays these comments and their locations, demonstrating various user concerns surrounding Morton Station.

Figure 26: Survey Webmap



- Blind intersection. Hard to see cars coming from Yale Avenue.
- From the train station I routinely cross Church Street and feel very unsafe.
- Barely any parking for Morton Station.
- Hard to see when cars are coming, since there are blind spots.
- Blind intersection, I can't see cars coming from any direction. Very dangerous.
- Left turn signal would be great. People come flying down this road and people are stuck when trying to turn onto Franklin Avenue.
- Turning from Yale Avenue onto Morton Avenue, backs up because you immediately hit another light. This blocks traffic and is an accident waiting to happen.
- Cars coming from 5 different directions is unsafe.

## Implementation/Next Steps

It is recommended that Morton Borough and surrounding municipalities incorporate the recommended improvements into their ongoing planning efforts and maintenance schedules. This effort measured public opinion about the safe access needs in the focus areas, and the results were conclusive that community members are also concerned and desire change. This study presents a great opportunity to use this work as a catalyst for advancing the recommendations. Furthermore, many of these improvements not only improve safety but can also support other long-term goals for the Morton Station business area. Safety-oriented design solutions like curb extensions and gateway elements can be integrated with other long-term goals like stormwater management and placemaking, so these traffic-related solutions fit into and add to the quality of the public realm experience.

The focus areas presented are not numbered according to priority, although regarding safe pedestrian and bicyclist access to Morton Station, the intersection of Morton and Mitchell avenues (Focus Area 3) was the site with the most vulnerable user crashes: three pedestrian and one bicyclist crash. This is also the location where the highest volume of pedestrians was observed, mostly crossing Morton Avenue to and from the train station with a regularity that is consistent with peak commute times and the train schedule. These factors make Focus Area 3 a high priority for improvement since it has the greatest opportunity to improve safe vulnerable user access to Morton Station.

### Implementation Cost Table

This table presents typical unit costs for the improvements identified in the "Focus Areas" section. Although these costs have been vetted with DVRPC's Project Implementation group for accuracy, actual costs for materials and construction may differ from these estimates.

**Table 2: Implementation Costs**

DESCRIPTION	UNIT	UNIT COST	QUANTITY	TOTAL COST*
Rectangular rapid flashing beacons (RRFB)	Each	\$15,000	6	\$75,000
ADA-compliant curb ramps	Each	\$7,500	21	\$157,500
Continental crosswalk	Each	\$500	12	\$6,000
Temporary bumpouts	Each	\$250	3	\$750
Signs	Each	\$400	12	\$1,800
Concrete sidewalk extensions (50 feet long, five feet wide)	Square yard	\$200	75	\$11,250
Pedestrian refuge island	Each	\$30,000	4	\$120,000
Restripe parking	Linear foot	\$3	380	\$1,140
Gore area (with plastic bollards/lane separator curb)	Each	\$250	3	\$750

\*Construction inspection (10-15 percent), mobilization and maintenance and protection of traffic (3-5 percent), excavation, clearing and grubbing, utility relocations and other state/federal requirements are not included in the estimate.

### Funding Resources

DVRPC's Municipal Funding Resource is an online database intended to assist local governments, community groups, and non-profit organizations in identifying federal, state, regional, county, and private sources of funding for locally initiated planning and development projects.

Pedestrian and bicycle infrastructure projects can also be financed with grants, such as DVRPC's Congestion Mitigation and Air Quality Improvement Program, Pennsylvania Department of Community and Economic Development's Multimodal Transportation Fund, PennDOT's Multimodal Transportation Fund, and PennDOT's Transportation Alternatives Set-Aside.

Non-profit and advocacy groups, including America Walks and AARP, often seed small walkability projects with microgrants. The Pedestrian and Bicycle Information Center also provides examples of non-government funding sources.

## Advancement of Tiered Recommendations

### Tier 1 Recommendations

Tier 1 recommendations were advanced at several locations on PennDOT-owned facilities using the Highway Safety Improvement Program (HSIP) On-Demand Contract, which is 100 percent federally funded from PennDOT's HSIP regional line item. Several meetings were held between Morton Borough and PennDOT to discuss the procedural steps for PennDOT to advance this effort and to review proposed designs; DVRPC facilitated these meetings. As of December 2020, PennDOT's implementation was underway and is expected to continue, weather permitting. The final design of PennDOT's near-term improvements will differ from the concept sketches presented in the "Focus Areas" discussion based on PennDOT best practices, although they are designed to achieve the focus area goals identified in the study process.

Where possible, the remaining Tier 1 recommendations on both borough-owned and PennDOT-owned roadways should be incorporated into planned maintenance projects, ideally during restriping and or repaving, as these improvements are generally low-cost and largely involve paint and signs. Please refer to the Implementation Costs Table (see Table 2) and Funding Resources section as a guide when planning implementation.

### Tier 2 Recommendations

Generally, the Tier 2 recommendations were designed to accomplish the goals identified in Tier 1 but employ a more comprehensive approach, using more durable materials, and are long term by design. As with Tier 1 recommendations, some of these recommendations can be included in maintenance projects as scope expansions.

The study's five focus areas include both locally owned and state-owned facilities. This study served to strengthen communication between PennDOT and local stakeholders, which is key to advancing safety improvements on the PennDOT system in Morton Borough and neighboring municipalities. Regarding local road improvements, Morton Borough and its neighbors will lead these improvement efforts and should consider available funding opportunities in addition to municipal funds. The cost estimates table (Table 2) should be consulted when designing improvements, and the funding resources guide provides information on current programs that may be used for implementation.

During the study, stakeholders learned that Morton Avenue was included on PennDOT's near-term repaving schedule. Unfortunately, the paving project was put on hold due to the pandemic and has been postponed possibly until 2022. The postponement provides adequate time to prepare the Morton Avenue Tier 2 recommendations, specifically those at the intersection of Morton and Mitchell avenues and at the intersection of Morton Avenue and PA 420. These efforts will require close coordination between Morton Borough and PennDOT to ensure that the planned repaving project, which would otherwise restore the existing striping and roadway elements, is expanded to include the study recommendations. **PennDOT has further advised that final decisions regarding some of these improvements (such as back-in parking and curb extensions) should be finalized for the improvements to be incorporated in the upcoming resurfacing contracts in 2021.**

The study process also identified an issue on PA 420, which is the only other state-owned route in the study area. Specifically, it was noted that left turns from PA 420 southbound onto N. Morton Avenue are problematic. Stakeholder research revealed that there is a borough ordinance in place to prohibit this left-turn movement, but no such signage is included on the PennDOT traffic signal permit drawing; thus, it is not being regulated. This is another issue that will require close coordination between Morton Borough and PennDOT in order to advance. During the

study process stakeholders considered the traffic diversion that would likely occur as a result of prohibiting left turns at this intersection. Although the details of that discussion are not documented in this report, the borough will need to revisit the implications of such a safety improvement should they decide to make this improvement a priority for implementation.

The focus of this study is the Morton train station and the line it serves—SEPTA's Media/Elwyn Line—which crosses PA 420 just east of the station. The focus area recommendations identify the need for an upgraded pedestrian crossing over PA 420, which is parallel to the tracks on the north side. Because SEPTA owns ROW adjacent to their tracks, coordination with them is necessary to advance improvements that encroach on their ROW. Because SEPTA was a stakeholder on this study, this conversation is already underway and should be advanced when appropriate.

## Ensure Safe Vulnerable Access in All Projects

The Safe Routes to Transit: Morton study considered vulnerable user access within a one-quarter-mile buffer centered on the Morton train station; this distance is considered the critical walk-shed where all pedestrians and bicyclists converge en route to the station. The study team understands that people walk and bike to the station from origins outside this buffer. To promote safe vulnerable user access beyond the study's buffer, this section provides recommendations for improving safe non-motorized access everywhere, many of which can be included in maintenance projects and can be scaled depending on budget.

As this study focuses on vulnerable user access to the train station, specifically in terms of infrastructure needs, it is important to mention the need for universal accessibility. This includes access for people with various physical, mental, or emotional challenges, including vision and hearing impairments, and those requiring mobility or communication aides, to name a few examples. Universal design is an approach to design that considers all abilities. Sidewalks with curb cuts and doors that automatically open when a person moves near them are examples of universally designed products. They benefit people with disabilities, parents with baby strollers, delivery workers, and others. Human characteristics considered in universal designs may include age, gender, stature, race/ethnicity, culture, native language and learning preference.

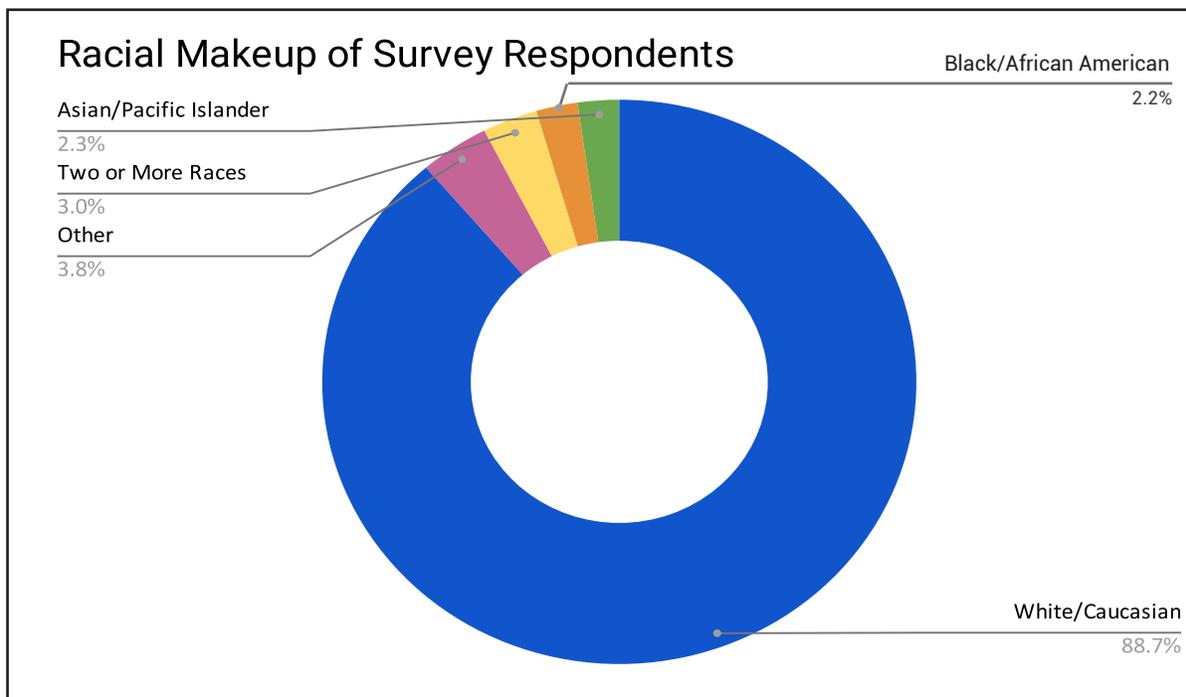
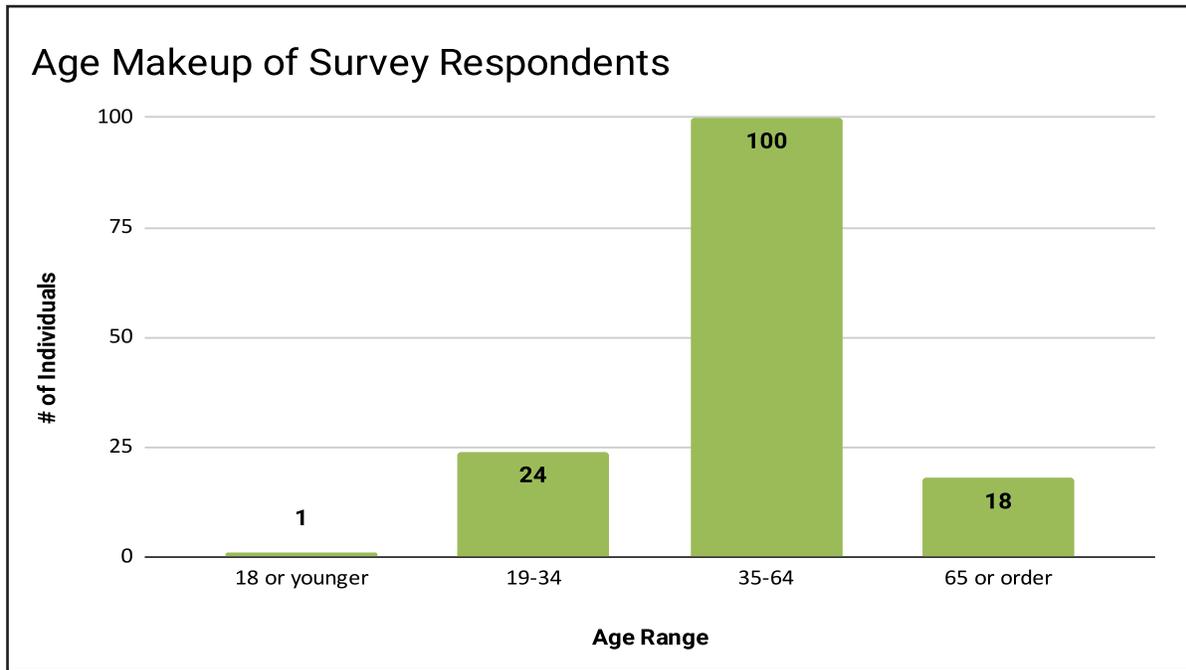
The improvement recommendations in the "Focus Areas" section present more detail on some of the recommendations here. In that section recommendations are presented as Tier 1 (less expensive and shorter timeframe to implement) and Tier 2 (more comprehensive and typically more expensive, but more effective).

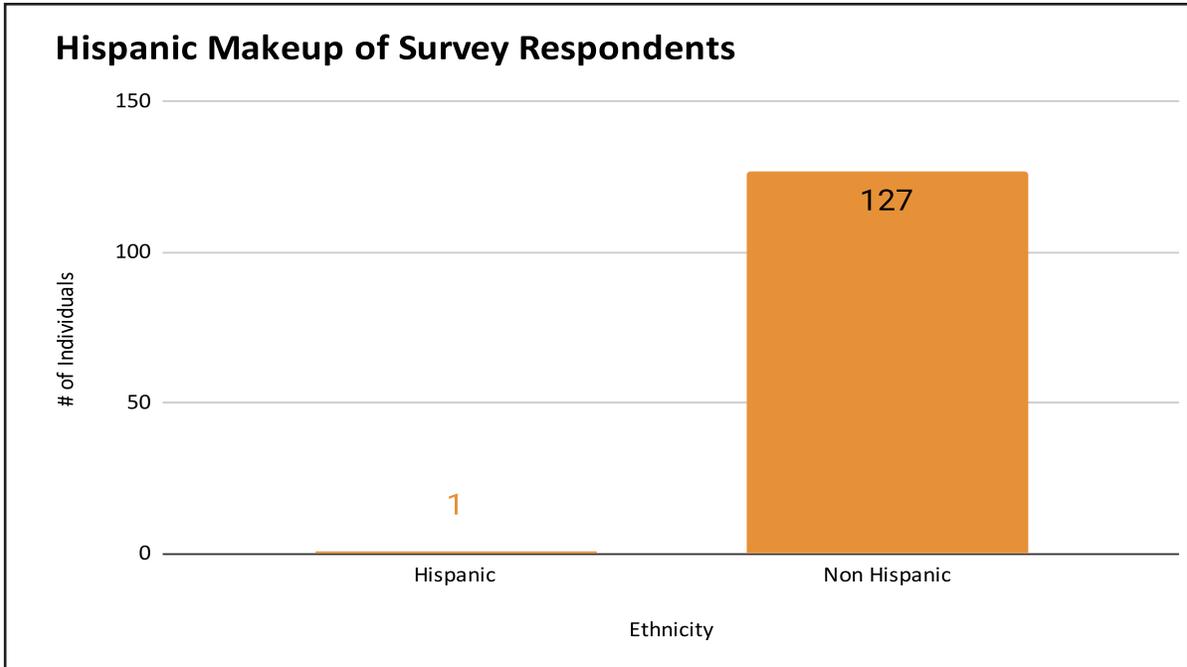
- **Complete Streets:** As described by Live Healthy PA, Complete Streets are designed and operated to enable safe access for all pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. They make it easy and safe to cross the street, walk to school, and bicycle to work. Adopting a municipal Complete Streets policy provides the context and a framework for amending standards and policies to ensure vulnerable access is considered in all projects. See DCPD's Planner's Portfolio Issue #3 Complete Streets for more information.
- **Sidewalks:** Sidewalks are essential components of the local road network to ensure mobility options for people of all ability levels. Where gaps exist, complete the sidewalk network by adding missing blocks or sections, and ensure all walkways are in good repair and free of obstructions. Sidewalks and walkways that are safely traversable by people using mobility aids like walkers and wheelchairs is the minimum standard.
- **Crosswalks:** It is considered a legal pedestrian crossing wherever two streets meet at grade, whether there is a crosswalk or not. This report presents crosswalk recommendations for each of the focus areas, and continental-style striping is the recommended best practice because of its conspicuity for drivers. Install these crosswalks where missing and upgrade existing crosswalks where lesser designs are present. It is also important to consider crosswalk alignment to ensure the shortest possible crossing distance to promote safety and encourage compliance.
- **Curb Ramps:** Every crosswalk entrance must be outfitted with ADA-approved curb ramps to ensure a safe and smooth transition between sidewalk and roadway grades. All roadway intersections must include properly oriented and properly designed curb ramps to accommodate safe and easy road crossings for pedestrians of all skill and confidence levels, as well as for people who rely on wheelchairs and similar mobility aids.

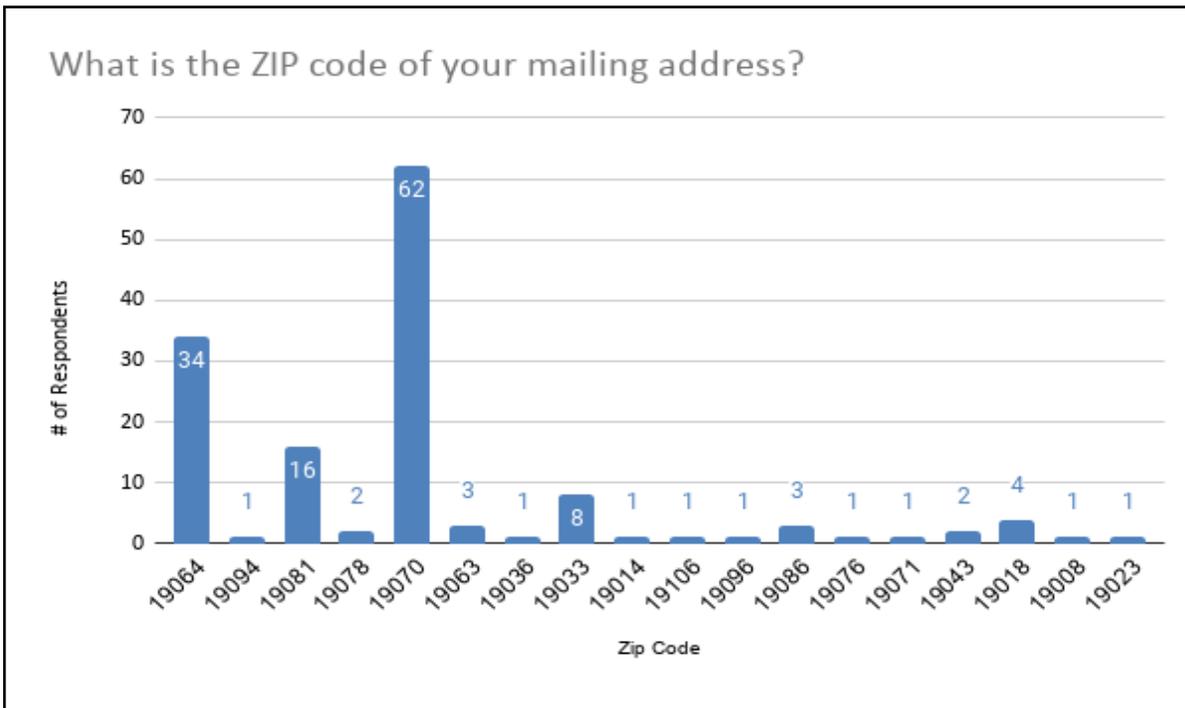
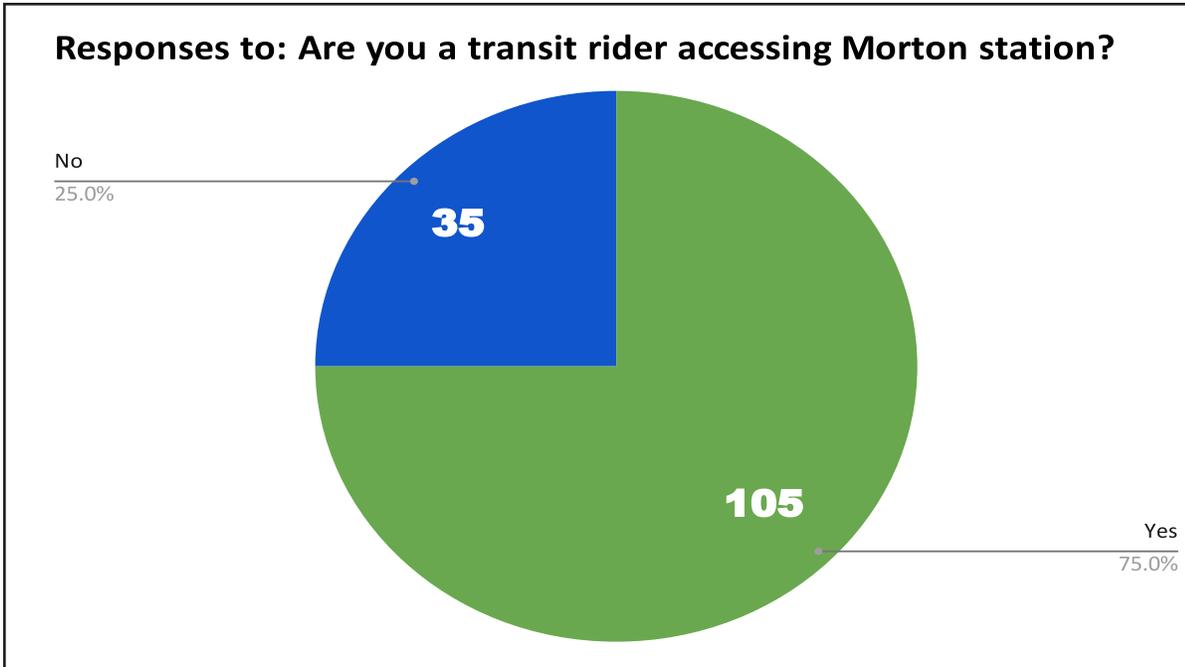
- **Pedestrian-Scale Lighting:** Overhead cobra-style lighting is common along most roadways. These fixtures are designed to illuminate the roadway for drivers but typically provide less benefit for vulnerable users of the system. Pedestrian-scale lighting features a design that places the fixture closer to the ground to illuminate the sidewalk for walkers, making it easier to navigate and also making pedestrians themselves more visible to drivers. This type of light fixture is also used as a design element to compliment local placemaking.
- **Bike Lanes:** On-road bicycle accommodation can take several forms. The most common in the DVRPC region include standard striped bicycle lanes, sharrows (road stamps indicating a shared road), and parking-protected bicycle lanes. The National Association of City Transportation Officials (NACTO) provides best practices for safely accommodating bicyclists on the roadway. Since bicycle lanes are typically denoted with striping, roadway repaving and restriping projects can easily be amended to incorporate bike lanes or sharrows. Places that accommodate bicyclists promote multimodalism which helps with congestion relief, and makes for a more equitable system.
- **Bike Parking:** In addition to safe bicycle facilities, the availability of bicycle parking—e.g., bike racks, bike storage—further encourages bicycling as a viable mode option. Currently there is bike parking for four bicycles at Morton Station, located near the platform. Municipal ordinances are one tool for prescribing bike storage specifics like the number of spaces required either as a function of the type of development (retail, office, etc.) or as a percentage of required automobile parking. Best practice examples for design standards, location, and proper orientation for bicycle storage facilities are also available from the Association of Pedestrian and Bicycle Professionals.

## Appendix A

The charts and graphics below provide a detailed breakdown of the data collected in the Public Engagement survey. Demographic information, such as participants' age, ZIP code, and racial/ethnic makeup are displayed in order to provide insights about survey respondents; however, these questions were optional to the participant and therefore total survey responses vary for each question. Individuals' names and other identifying information were intentionally kept anonymous in the survey. Survey respondents were allowed to write in additional comments so as to provide general feedback that may not have been addressed in the survey questions, which are included on pages 33–37.







## Additional Feedback from Survey Respondents

I think the best course of action would be for a better sidewalk from the platform to church road. Also, visually I think there needs to be something between the north side of the platform and the buildings behind it. It would be nice if the station itself could be touched up on the inside while preserving its heritage

1. Crossing from Morton train station over 420 at United Checking is very bad. Everytime I cross over, cars who are turning left from Morton Avenue do not look or forget there is a cross walk there. The traffic light and train signal block the view of pedestrian and cars from seeing people crossing! I have to wait a whole light cycle sometimes because cars go to fast once the light is already green, so I cross immediately once the 420 traffic stops so cars see me before they make the left turn when the light turns green.

2. Bike lanes would also be very helpful in the area!

I have lived on Church rd for 30 years and the biggest problem is EVERYONE uses Church rd instead of 420 when coming off of balt Pk and the increased traffic is causing a problem for those who are using the train station. That train station also never had so many people until the park was built and all those commuters use the parks parking lot. I take that train ever day to work and my bigger concern is the high volume of traffic on Church and the amazing amount of those cars going WELL OVER the 25 MPH speed limit. Can be impossible to come out of my driveway or play outside with my children. Fix that please.

There is no parking at station which causes many problems. Having to walk from Church is dangerous to cross tracks - need more parking actually at station, need overhead walkway from Church Rd to station as its dangerous to cross tracks and road. Need better traffic flow on Morton especially when making a left from Morton to station - no signal, very bad existing traffic flow, cant see on coming traffic to make left, traffic backs up even more when a train stopped at station. Just adding crosswalks as mentioned in survey is useless, entire area needs a long term solution. Horrible and dangerous traffic backups - been a serious problem for many years.

Parking lots are always full for Morton Train station. I live less than a mile from the train station, but always drive because I do not feel safe walking. People drive very crazy and there are many blind corners when crossing the street, since cars are coming from so many different directions I fear for my life walking. It has great potential, because Morton is such a great little downtown.

There needs to be some kind of improvement walking from parking lot to Mitchell ave. It's very dangerous. Cars never stop for pedestrians. Maybe a 3-way stop sign instead of the one?

Get the committee to stop cutting routes for marginal savings when the SEPTA contract has a no-layoff clause. A drop in ridership doesn't meant that the few people who do still need to ride can deal with schedule changes that change the normal "30 minute drive vs 90 minute" ride to "30 minute drive in and out vs 2h30m ride in and 2h ride home." An unreliable service is net negative, simply displacing that which may thrive. Trains were never good, that's why as soon as people had other options they started taking them. Go ask an old-timer why ridership peaked for a very short time from 1943 to 1947; if you can find an infantryman who served in the war who still has the clarity of mind to conceptualize it don't be shocked if you get a scowl instead of an answer. The stations are good enough for the wheelchair instead of the cane on days when the pain is small enough to walk except for the couple that can't i.e. Media but the drivers help there. Don't put the cart before the horse.

The issue of trying to cross the roadways around this train station are ridiculous, especially at Church Rd. This is especially scary in the winter when it is dark by 5 pm. I am a walker and I never feel I can access the train station safely. We could benefit from crossing guards stationed at various streets who physically stop traffic during the evening rush. Something modeled after the Swarthmore train station would be even better. That station is completely pedestrian friendly.

There are incomplete sidewalks past the map shown in this survey that limit safe pedestrian access. This limits safe crossing on Morton Ave for Rutledge and Folsom residents.

I think traffic lights need reconfigure as well as pedestrian crossing dedicated with push buttons.

I used to take the train somewhat regularly and also found it difficult during busy times to get from my house to the train station, specifically close to the station. But now I'm a walker and find the same thing.

<p>Do something different at Rios, like maybe not let cars go through there to avoid the light at Morton and 420. That adds a lot of anxious drivers trying to beat traffic, and makes that spot tough for pedestrians. (While I am not currently a regular transit rider, I was for 10+ years.)</p>
<p>Consider integrated signage strategy and system in the transit study area for more effective communication and more positive character to the transit area. Create sense of gateways for entering the area so motorists are more aware of increased pedestrian activity and crossings.</p> <p>Consider reducing some of the angled parking on Morton Ave closest to Rt 420 and replace with wider sidewalk and landscape buffers, might even encourage some small areas of outdoor eating, which could have a positive activation effect on the small commercial area.</p>
<p>No turn on red, all intersections</p>
<p>Turning left from Yale onto Morton to get to the traffic light at 420 is challenging because you cannot tell if 420 southbound traffic turning right is going to Yale (no problem) or Morton (big problem) They are often going very fast. Actually it's even worse for pedestrians crossing there. I don't understand why the pedestrian crossings are so poorly marked around here. Two white lines going across at an intersection is easy for a driver to overlook with all the other markings and signs they need to pay attention to.</p> <p>Also, if we want to encourage people to walk and bike to the train station, there needs to be sidewalk the entire length of the main access routes (420 south of the station and Church Road)</p>
<p>Coming North on Route 420, there should be an arrow always for the left turn onto Yale/Swarthmore Ave. It's there for when the gates come down; it should be available always to avoid jumping the light.</p>
<p>I would frequent the area more often if the traffic hazards were addressed. As it is I detour around to avoid the intersections in question as much as possible. I would be much likely to shop and dine in the those few blocks if improvements were made. The Swarthmore train station is marginally closer to my home, but only by .2 miles. Were the area more approachable I might also add Morton as an option when using regional rail.</p>
<p>Crossing Morton Ave at Mitchell is the most stressful part of my walk to the station. I then cut through the parking lot and cross Yale at Taylor. The Yale crossing often has vehicles moving too fast, but it still feels safer than the Mitchell crossing. Crossing Mitchell is also challenging in the evening on the way home, because drivers just aren't looking, even though there are often lots of pedestrians around at that time of day. I so appreciate your work to make this area more safe for pedestrians, cyclists, and drivers.</p>
<p>The street area and shops around Morton Station were never designed to handle the volume of traffic that is there now. Without major rerouting of traffic, any other solutions will just bottleneck the situation more.</p>
<p>prohibit left turn from 420 towards train station consider tunnel under tracks to access train from Church Street and from 420 consider creating primary ""gates"" further away from the track area - maybe 50 feet. At present maybe too close for comfort and safety for everyone.</p>
<p>Consider one way traffic only on station house side where Cleaners exists; this may reduce confusion at intersection between Morton Ave and the other road at 420.</p>
<p>Please work with the sidewalk business owners to salt/clear snow - it's super unsafe and I have fallen many times walking to/from train</p>
<p>I used to commute via the R3 but never knew where to park in Morton so even though it was my closest stop (and cheaper) I rarely used it weekdays.</p>
<p>Glad you are taking a look at this. It is an area of bad car-craziness that needs better safety and balance for all kinds of movement through it.</p>
<p>The #1 priority should be slowing the drivers down, as well as ticketing drivers who routinely run red lights at the intersection of Rt 420 and N Morton Ave.</p>
<p>There need to be a general reconfiguration of the Morton train station, Rt 420 and Morton Ave. There have been too many close calls with the increased traffic over the years. Getting in/out of WaWa can be a 10 minute event during rush hour.</p>
<p>There is no bicycle locking areas! That should be a priority.</p>

Get the train off 420 while un/loading.

Route fewer cars through the main intersection. Many people are forced to navigate that awful intersection to get across 420.

Make Morton downtown low traffic so it can be a destination

This area is very congested when the regional rail arrives at this station. Pedestrian traffic becomes dangerous due to the lack of safety standards in place. Motor vehicle traffic congestion in this area creates a hazard for pedestrian traffic.

Most people park in th the church soccer field parking lot. The opposite side for trains going to philly. That means the majority of your peopek are crossing train tracks to get to the correct side of the track. If your a little late that is not safe.

Thank you for attempting to make improvements to the area.

Cross walks and pedestrian signal.

Fix drainage issue, intersection floods and drains into the track.

It is like an olympic event getting off the train at Morton or getting on in the morning. Most times 1-2 cars have open doors and coming home you literally have to hurdle to get off. Other stations are not like that...

Most commuters park at Church Road Park, so solutions for this large amount of foot traffic need to be implemented.

The Morton train station is a great resource for those of use who live in the neighborhood and need to use the regional rail. One big problem is that it was built for fewer riders, s the location is not ideal for the growing numbers of riders, and not enough space for the general public who wish use the parking lots. The lot on Morton Ave (on the east side, in Morton) should be publicized, and more such spaces investigated and developed. I live about a mile from that station (same distance to Secane) and walking in the winter can be very hazardous, as the streets and sidewalks are not reliably maintained and can be extremely slippery for walkers. It would be nice to have an option to park closer to the station(s).

I was hit by a car while walking on the sidewalk on Church Road near Yale Ave. April 19, 2001. A car, driving east on Yale was driving too fast and could not make the left turn on to Church. He left the roadway, drove up on the side walk and struck me. I was headed to the train station..

The Morton police should have a record.

Morton Ave is owned by PennDot and is currently without sidewalks and unsafe to walk. They should take over Kedron as it is better equipped to handle traffic and be a better snow emergency route. Too many children hurt with current set up. Morton Ave should be blocked off to "pass thru traffic" from the tracks at Kedron down to Rio's and across to the current Gym and existing parking lots. The streets near the train station should be utilized for the train and local stores as a well lit park like setting with protection from the elements. More handicap sites are needed and the closer parking sites should be prioritized (assigned) for utilization of local residence. Too many "out of area" individuals take up the parking. Direct in/out traffic towards Cherry St. and Swarthmore Ave. Revitalize/relocate/replace the existing buildings for better shops and business.

Kedron Ave should become PennDots emergency snow route, not Morton Ave. Block off Kedron Ave from the train station and re-configure buildings to open area for parking. No more thru traffic onto Morton Ave from Kedron at the tracks. Utilize all open area from Kedron to Rio's and the existing Gym for reconfiguration. Direct traffic flow from train station towards Cherry and Swarthmore Ave and away from Morton Ave. Utilize Mitchell Ave for traffic flow to parking. 3 Ft sidewalks are needed from Folsom to Morton. More handicap sites closer to the train, local residence should have priority parking for daily transportation needs. Overhead protection from the elements is needed. Revitalize the real estate to reflex a park like setting with outdoor dining, pass thru windows, well lit by solar for protection, recycled benches, bike stands and more safe foot traffic rather than auto.

Additional parking is the most-needed feature. If there was additional parking car the station, pedestrians wouldn't need to park on church road of traverse all these odd crossing areas. If Septa could lease/purchase the spaces on the opposite side of the track where the warehouse is, that would be idea. I feel very unsafe using the Amvets lot when it's dark (you are fenced in/trapped at the back of the dark lot at night with no way out should someone approach you near the back fence). Or purchase the end of the lot where the car dealership took over (it used to be parking).

If related, would appreciate more bike racks at Morton and/or covered bike racks.

I rarely drive north on 420 needing to turn left onto Yale/Morton Ave., but there should be a left turn signal there. Otherwise, cars will race to grab any opening in traffic to make that left turn, at the risk of any pedestrian trying to cross Yale or Morton Ave.

The traffic lights etc. work much better for traffic emerging out of Yale/Morton Ave. - both for the cars themselves and for any pedestrians trying to cross 420 there.

I own a business at the corner of Yale and Morton Ave. The Train causes such congestion and frustration among the motorist.

Please add a bike lane on Church road. Thank you

The intersection crossing over the train tracks to Morton Ave from 420 is difficult to cross when cars are coming north on Morton. Also when crossing over 420, cars come very fast across Morton Ave

The dollar lot next to the Morton station has 1-2 cars parked daily in the turn in area, not in a parking spot typically in the afternoon. This makes it difficult to pull out of the station when other cars are parked in the lot and these cars are blocking the driving lane.

I truly appreciate this study being done. Thank you!!

Most drivers DO NOT care what-so-ever about pedestrians. They will hit you if you dare to cross, even in the safest possible way. Most drivers do not want to slow down or stop for any reason. If you'd like to re-educate people, this is the place to start. Thank you

Please don't use my hard earned tax dollars to install more speed bumps.

Looking forward to improvements. The intersection/train station/church road have been tough for a while- really hope there are changes coming.

It's about time

Yes I do, from The check cashing to maple street going north need more storm drains. You cannot walk down that side of the sidewalk without getting splashed with water. The storm drains that are there at the tracks need to be cleaned out there is a line that runs under the northbound side to the creek hasn't been cleaned out in 30 years.

I would love to see a crosswalk, traffic signal, stop sign, speed bumps or anything to help with crossing church road. It's not lit well and cars go pretty quickly. At rush hour commuters need to run to get across the street. When it rains, the speeding cars soak the pedestrians by running through the puddles. Thank you for looking into this issue! :-)

Please update the station and road configuration around the station.

Corner of Morton and Mitchell is very dangerous for children and when school is in session a crossing guard is needed. I was a commuter via train for 40 years.

I have jay walked at times because it's safer then going to a corner where traffic 8s coming in 3 or 4 directions

The "triangle" where Morton Ave. and Yale Ave. meet has been a challenge my entire life. The present pedestrian island is the best arrangement so far. Please don't mess it up.

What are the actual numbers of car accidents and pedestrian accidents at the described location points??? No details are given. Just stated as "high accident areas.

I would like to suggest a left turn signal at the intersection of R420 and Morton Ave that is not just available when the train is in the station. Making that left hand turn at any other time is extremely scary.

I would like to suggest a left turn signal at the intersection of R420 and Morton Ave that is not just available when the train is in the station. Making that left hand turn at any other time is extremely scary.

White crosswalks help reflect light on pedestrians, important especially when pedestrians wear dark clothing. Of course, good lighting is best if over the crosswalk (and flashing warning lights.) Safe crossing is needed for crossing Yale Avenue entering/exiting through the station parking area. Additional help is needed with crossing Morton Avenue at Mitchell. That area is a nightmare for both drivers and pedestrians.

Raising the platform in the train station would make it easier and faster to enter the train, and to roll on suitcases and strollers, and easier for everyone, especially the elderly, to enter the train. It is the best way to get to 30th Street Station and further travel, if we could get the suitcase on the train with ease!

The uncontrolled pedestrian traffic from the station up Church Road with no lighting or crosswalk is an accident waiting to happen.

I cross church street to walk down Yale Best post office where I live. It's very unsafe to Cross Church Street and there's no sidewalk

Yes, cars coming down Woodland Avenue (Rt. 420) toward the Morton train station are turning right toward South Morton Avenue on the red light. This is very dangerous for anyone trying to cross over Woodland Avenue by the train station to the other side. Also the cars coming from S. Morton Avenue onto Woodland Avenue turning left, creates another dangerous situation for anyone crossing over Woodland Avenue. I think there should be no turn on red. Also anyone coming out from Mitchell Avenue to Morton Avenue is blindsighted by the cars parked in front of the stores on Morton Avenue near the corner of Mitchell.

Went to a community zoom meeting detailing these issues. would love to see flashing lights installed when folks need to cross. No one I know walks all the way up to the corner, we always cut through the parking lot. Thank you all for some of these great solutions!

PLEASE PLEASE PLEASE place a traffic light at Mitchell Ave/South Morton Avenue...

Please add speed bumps on South Morton Avenue take the time to get the State to approve this even if it takes ten years to get approved let's get it done!

Ask Ridley if they would approve making Mitchell a one way street...since part of the Morton block is in Ridley.

THANK YOU FOR CREATING THIS SURVEY AND TRYING TO MAKE MORTON A SAFE WALKING TOWN..AND DRIVING TOWN.



# SAFE ROUTES to TRANSIT



## ABOUT DVRPC

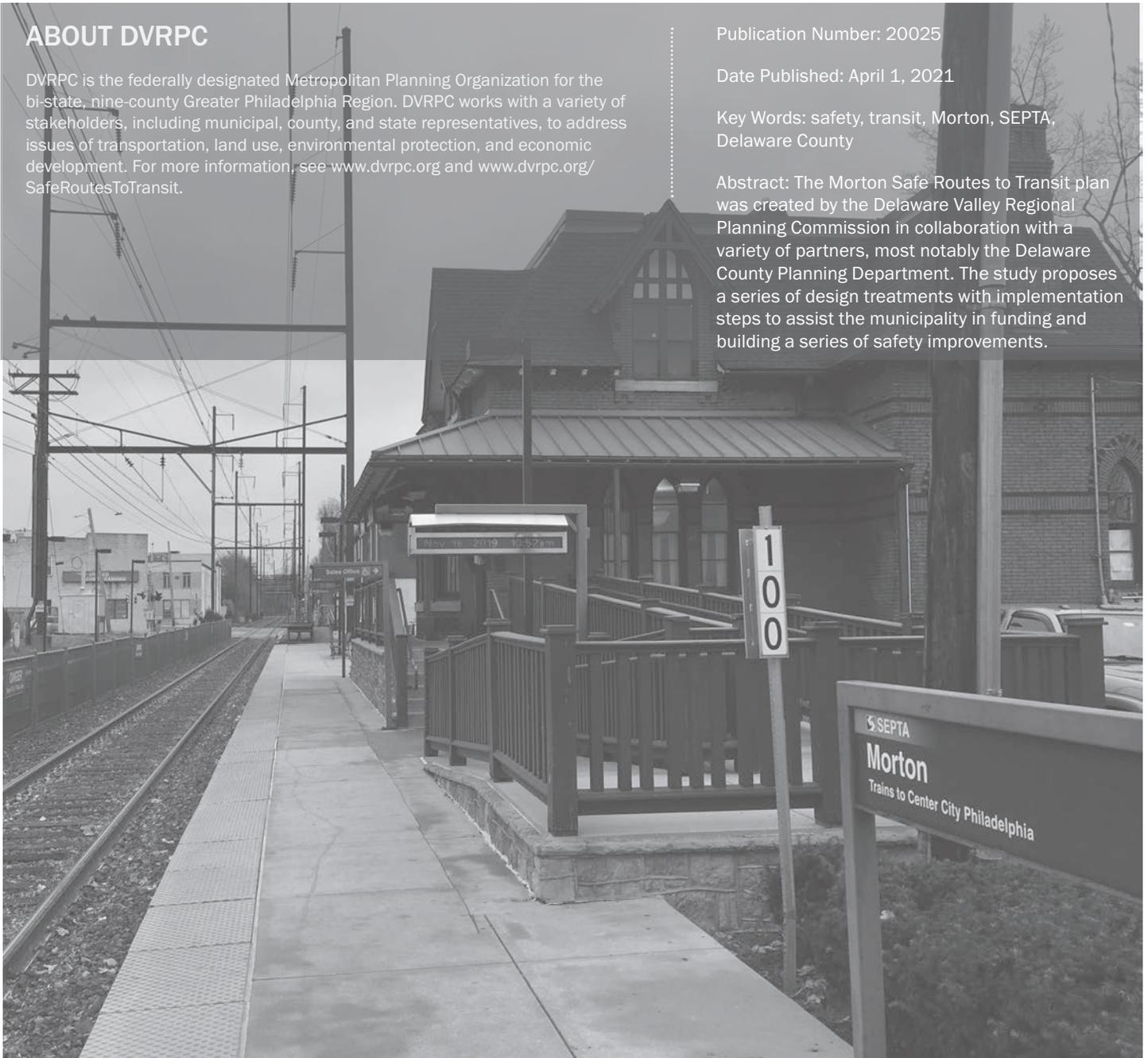
DVRPC is the federally designated Metropolitan Planning Organization for the bi-state, nine-county Greater Philadelphia Region. DVRPC works with a variety of stakeholders, including municipal, county, and state representatives, to address issues of transportation, land use, environmental protection, and economic development. For more information, see [www.dvrpc.org](http://www.dvrpc.org) and [www.dvrpc.org/SafeRoutesToTransit](http://www.dvrpc.org/SafeRoutesToTransit).

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Abstract: The Morton Safe Routes to Transit plan was created by the Delaware Valley Regional Planning Commission in collaboration with a variety of partners, most notably the Delaware County Planning Department. The study proposes a series of design treatments with implementation steps to assist the municipality in funding and building a series of safety improvements.





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