

Safe Routes to Transit

Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station



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Executive Summary

This study was conducted by the Delaware Valley Regional Planning Commission (DVRPC) at the request of New Jersey Transit (NJ Transit). Included in the study was an assessment of the areas surrounding three rail stations in southern New Jersey: Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station. The purpose of this study was to identify needed and desirable infrastructure improvements that would benefit those seeking to travel to and from the three train stations by foot or bicycle. Additionally, staff prepared a guide to contemporary pedestrian and bicycle amenities to serve as a resource for the project stakeholders.

Each of the three stations was assessed independently, though in a replicable manner. Included for each station area, each discussed in its own chapter, are the following:

- an introduction which provides an overview of the station area;
- a review of applicable plans and literature;
- a discussion of the existing conditions;
- an inventory of currently planned improvements;
- recommendations that emanated from this project; and
- a conclusion.

The recommendations were largely modest in scope, and several overlap with local priorities. Each of the participating municipalities is proactively working to improve the bicycle and pedestrian environment within their purview. Following is a list of the key recommendations.

Pennsauken Transit Center

- Provide pedestrian improvements at the CR 543 and CR 614 intersection.
- Provide pedestrian improvements at the CR 543 and Engard Avenue intersection.
- Install pedestrian-scale lighting and high-visibility crosswalks along the CR 543 corridor.
- Complete the sidewalk network along the CR 614 corridor.
- Install high-visibility crosswalks along the CR 614 corridor.
- Implement the recommendations of the forthcoming Camden County Bicycling and Multi-Use Trails Master Plan.

Lindenwold Station

- Improve pedestrian crossings at the CR 673 intersections with Station Avenue and Front Street.
- Complete the sidewalk network in various areas.
- Employ a consistent crosswalk design.
- Assign maintenance responsibility for the CR 673 bridge sidewalk.
- Create a multi-municipal coordination group.
- Adopt municipal-level Complete Streets policies.
- Address pedestrian and bicycle safety concerns.

Princeton Junction Station

- Employ a consistent crosswalk design.
- Improve the pedestrian crossing at the CR 571 and Sherbrooke Drive intersection with curb bump outs and a HAWK (High-Intensity Activated crosswalk) signal.
- Continue efforts to create a trail connection with Princeton.
- Install pedestrian-scale lighting, as appropriate, along trails.
- Implement the improvements noted in the West Windsor Township Master Plan.

The implementation of the recommendations will contribute to a safe and attractive alternative to commuting to the stations by motor vehicle. Implementation is the responsibility of the stakeholders. To assist with identifying funding sources to implement the recommendations, Appendix B contains a list of numerous funding sources and grant programs.

Introduction

Study Overview

This study was conducted by DVRPC at the request of NJ Transit. NJ Transit selected three rail stations for a detailed study—Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station, which are shown in a regional setting in Figure 1.

The purpose of this study was to identify needed and desirable infrastructure improvements that would benefit those seeking to travel to and from the three train stations by foot or bicycle. While bicyclists and pedestrians are similar road users in that they are more vulnerable in crashes, they require different roadway designs to safely accommodate them on a roadway.

Every municipality that participated in this project considers bicycle and pedestrian modes to be a priority, recognizes their own shortcomings, and continues to improve the bicycle and pedestrian environment as they are financially able to do so. This, perhaps, resulted in more modest recommendations, but this is only reflective of the efforts that have been and continue to be underway.

By better accommodating pedestrians and bicyclists through a safe and attractive environment, several benefits can be realized. Four are described, and these are ultimately the purpose of this study.

Increased Transit Ridership

Transit modes compete with automobile modes by way of convenience and comfort for their respective users. Additionally, transit users largely accept the increased travel time associated with their mode choice. To make transit modes more competitive or attractive to the

end user, providing a safe and convenient pedestrian and bicycle environment for individuals who work or reside near a transit station is recommended. By doing so, transit modes may become more attractive to a greater number of people.

Less Demand for Automobile Parking

The more people who can walk or bicycle to transit, and do, reduces demand on station parking facilities, and ultimately allows for a more productive use of land that would otherwise be devoted to automobile parking. Supplying one parking space for each transit user is inefficient for the service provider. Parking facilities are expensive to build and maintain, and require extensive amounts of real estate. The three stations included in this study, combined, have in excess of 50 acres devoted to automobile parking. While some parking is necessary for those who cannot commute via foot or bicycle, for those who live or work near a station enhancements to the bicycle and pedestrian environment will be a large contributor to their mode choice.

Reduced Automobile Congestion

Each vehicle that parks at a transit station contributes to station-area congestion. Most vehicles arrive and depart during peak traffic periods and are concentrated to a limited number of intersections that serve the stations. Reducing the number of vehicles parking at the stations by encouraging bicycling and walking through an attractive environment for such, will also contribute to less congestion at the intersections that surround the stations, and beyond.

More Vibrant Communities

Communities that serve the transportation needs of all users are often found to be more desirable. Many people seek homes near transit

stations where walking and bicycling to the station are possible, and may be willing to pay a premium to live near transit.

Study Area

The pedestrian environment was assessed to a three-quarter-mile radius of each station. The bicycle environment was evaluated to a distance of two miles from each station. These distances were adjusted to respond to geographic and land use considerations.

Pennsauken Transit Center

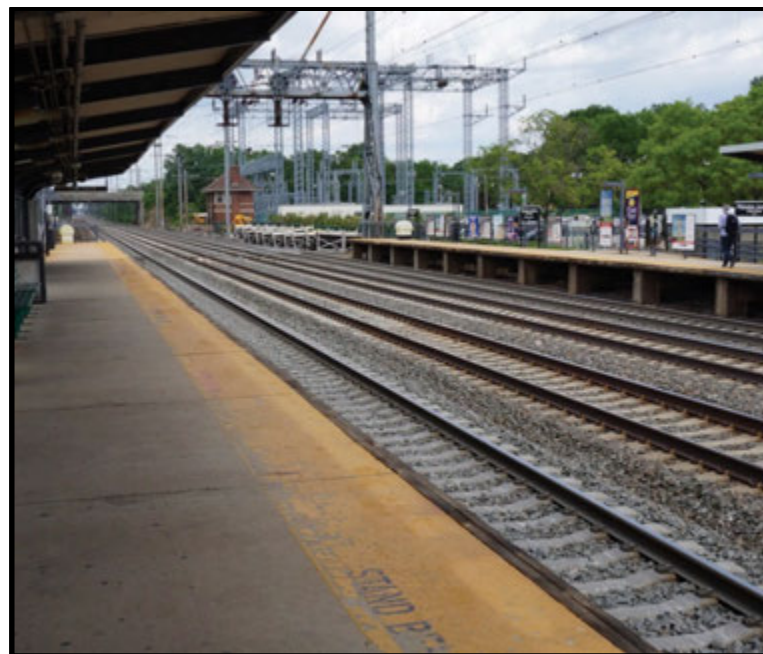
Pennsauken Transit Center is located at the crossing between two NJ Transit rail services: the River LINE and the Atlantic City Rail Line. The station opened in October 2013 and is located in Pennsauken Township, Camden County.

Lindenwold Station

Lindenwold Station is shared by the Port Authority Transit Corporation (PATCO) for its Speedline service, and NJ Transit for its Atlantic City Rail Line service. It is the Speedline's terminal station. A large parking lot abuts the southern side of the station. In addition to the two rail lines, three NJ Transit bus routes also stop at the station. Four Camden County municipalities fall into the station's defined walk shed—the boroughs of Lindenwold, Stratford, and Somerdale, and Voorhees Township.

Princeton Junction Station

Princeton Junction Station provides three types of service: Amtrak Northeast Corridor; NJ Transit Princeton Branch—Dinky and Northeast Corridor; and two NJ Transit bus routes. The station is located within West Windsor Township, Mercer County.



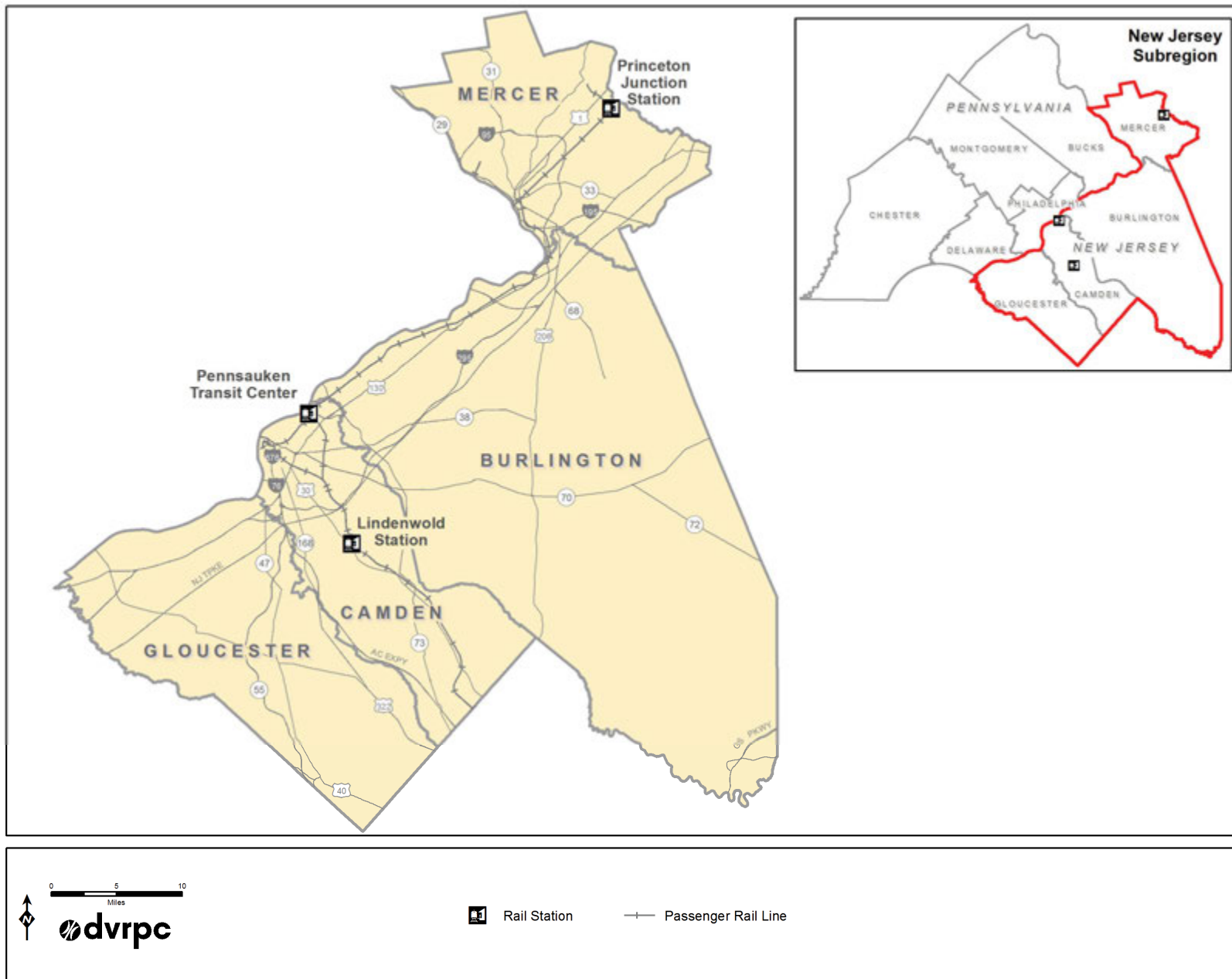
Northeast Corridor at Princeton Junction

(DVRPC, 2014)

What Does the Term *Safe* Mean for This Study?

The word *safe*, as in “Safe Routes to Transit,” is a word that is relative in nature. Nothing in life is completely safe. For this study, the study team did not attempt to plan for an environment that is completely without risk. Rather, the work focused on providing a pedestrian and bicycle environment where the convenience of using multiple routes to get to and from the station safely is high. Essentially, the measures discussed in this publication seek to enhance the pedestrian and bicycle environments to provide comfortable and attractive commuting alternatives. By accomplishing these tasks, safety should improve—real and perceived.

Figure 1: Geographical Overview of Analyzed Stations



Study Process

DVRPC staff undertook a methodical, multi-step approach to this project. From the onset, staff sought to assess each station in a comparable manner: that is, tasks should be replicable across all three stations. The goal was to develop a resource applicable to all stations that addresses contemporary pedestrian and bicycle amenities. Following is a summary of the tasks undertaken for this project.

- Review previous studies applicable to pedestrian and bicycle planning for each of the three station areas.
- Conduct field visits to each station area to inventory and assess sidewalks, crosswalks, bicycle amenities, and other related transportation aspects.
- Discuss known issues and planned improvements with local stakeholders.
- Develop pedestrian and bicycle improvement plans for each station area.

County Route Number Reference Guide

To simplify the discussion of street name versus county route number in Camden and Mercer counties, the roadways throughout this study are referred to only by county route number. Therefore, Table 1 was created to serve as a guide; each county route mentioned in this study is listed with the corresponding street name and sub-area.

Table 1: County Route Number Reference Guide

County Route	Local Name	Study Sub-Area
CR 543	River Road	Pennsauken Transit Center
CR 614	Derousse Avenue	Pennsauken Transit Center
CR 615	Union Avenue	Pennsauken Transit Center
CR 616	Cove Road	Pennsauken Transit Center
CR 760	Clements Avenue/Bethel Avenue	Pennsauken Transit Center
CR 534	Blackwood Clementon Road	Lindenwold Station
CR 544	Evesham Road	Lindenwold Station
CR 561	Haddonfield-Berlin Road	Lindenwold Station
CR 669	Warwick Road/Stone Road	Lindenwold Station
CR 670	Burnt Mill Road	Lindenwold Station
CR 673	Laurel Road/White Horse Road	Lindenwold Station
CR 677	Ogg Avenue	Lindenwold Station
CR 678	Somerdale Road	Lindenwold Station
CR 679	Preston Avenue	Lindenwold Station
CR 683	Chews Landing-Clementon Road	Lindenwold Station
CR 684	Gibbsboro Road	Lindenwold Station
CR 686	Gibbsboro Road	Lindenwold Station
CR 687	West Branch Avenue	Lindenwold Station
CR 695	White Horse Avenue	Lindenwold Station
CR 697	Broadway	Lindenwold Station
CR 699	United States Avenue	Lindenwold Station
CR 700	Carlton Avenue	Lindenwold Station
CR 702	Egg Harbor Road	Lindenwold Station
CR 727	East Atlantic Avenue/Garfield Avenue	Lindenwold Station
CR 571	Princeton-Hightstown Road	Princeton Junction Station
CR 615	Cranbury Road	Princeton Junction Station
CR 638	Clarksville Road	Princeton Junction Station

DVRPC, 2014

CHAPTER 2:

Accommodating Pedestrians and Bicyclists

Introduction

This chapter details contemporary pedestrian and bicycle amenities. The purpose is to provide a resource and reference for the involved municipalities. The amenities highlighted improve the pedestrian and bicycle environment for the comfort and safety of the user. The benefits of a Complete Streets policy are also discussed.

Pedestrian Amenities

Pedestrian amenities can be described as visual, physical, and functional enhancements to sidewalks, crosswalks, and other design techniques that support activity and safety in public spaces.

Sidewalks

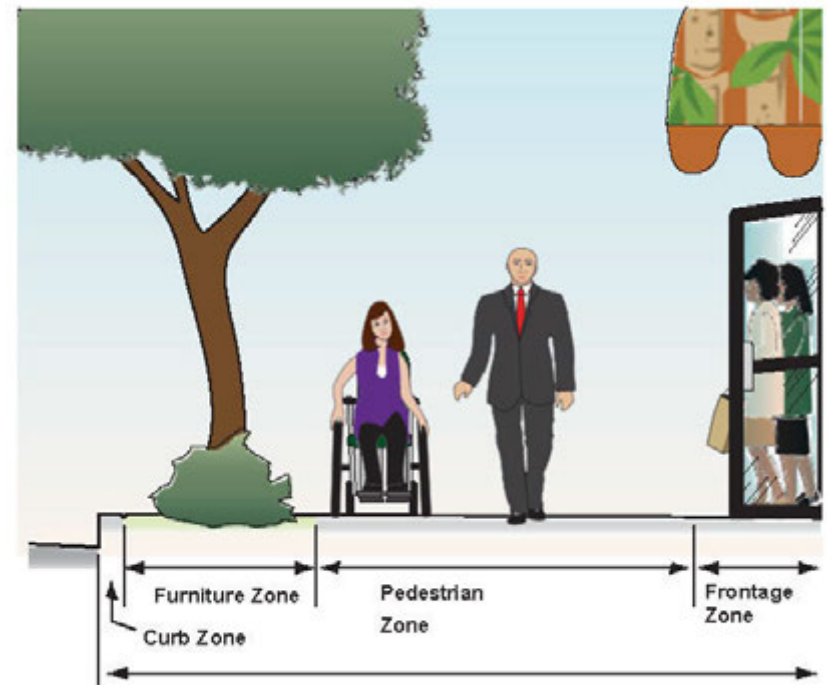
The suggested sidewalk width according to the Federal Highway Administration and the American Association of State Highway Transportation Officials in the *Guide for the Planning, Design, and Operation of Pedestrian Facilities* is about five feet or 60 inches. In many cases this is not sufficient for all the activity going on along the sidewalk.

The *Oregon Bicycle and Pedestrian Design Guide* categorizes the sidewalk into four zones, also shown in the opposing graphic.

- The frontage zone is designated for a buffer zone between the sidewalk and structures, an area where people enter and exit (minimum one foot).
- A pedestrian zone is a clear space on the sidewalk just for walking (four to six feet).
- The planter and furniture zone is used for street furniture (benches, trash cans), trees, and newspaper boxes. This may

be eliminated at pinch points (five feet minimum, including the curb zone; minimum furniture zone of two feet).

- Finally, the curb zone is a buffer between the roadway and pedestrian path, and creates a link between the sidewalk and crosswalk and street.



Sidewalk Zones

(Oregon Department of Transportation, 2012)

These suggested widths are in shopping districts or dense land use; therefore, in areas where there is less dense development the widths

that are on the lower end of the spectrum may be appropriate. At a minimum, a sidewalk can be four feet wide and adjacent to the curb. Ideally, a buffer area can be used to provide additional separation between pedestrians and vehicles. The buffer area may also be used to accommodate utility infrastructure.

Sidewalks may be constructed from a variety of materials, including concrete, brick, and stone pavers, among others. New advances in materials technology allow for pervious sidewalk treatments, which can be a form of storm water management.

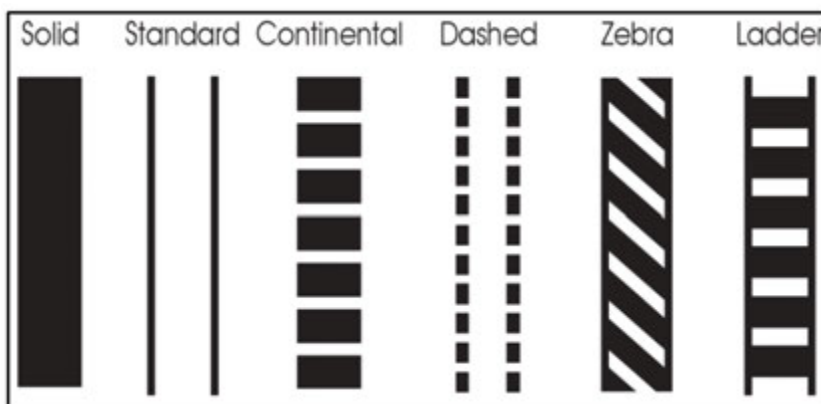
Crosswalks

Crosswalks mark preferred pedestrian crossings. They are most frequently located at intersections, though some may satisfy needed mid-block locations. The value of a crosswalk is twofold. First, it signifies to a pedestrian where the ideal crossing is located. Second, it informs motorists that they should be aware of pedestrians crossing the roadway, and the right of the pedestrian to do so. Various treatments can be used to design the best type of crosswalk for the location.

Striped Crosswalks

The most common type of crosswalk is a simple striped crosswalk. Frequently the striping consists of two paint or thermoplastic parallel lines on a road. Other types of striped crosswalks exist and may be appropriate in certain conditions. Bold crosswalks provide better visibility and in turn a higher degree of real or perceived pedestrian safety. The opposing graphic shows the six common striping patterns.

While consistency of crosswalk style is preferred, cost may dictate that crosswalks requiring greater levels of materials only be used at locations with high traffic volumes or other factors affecting pedestrian safety.



Striped Crosswalk Varieties

(Federal Highway Administration, 2006)

Raised Crosswalks

Raised crosswalks are appropriate where there is a high volume of pedestrian crossings on a medium-to low-volume road. They are primarily located at mid-block crossing locations. A raised crosswalk is essentially a flat-top speed hump with the crosswalk on the top (shown on the right). It provides good visibility and requires motorists to slow simply due to the speed hump aspect.

Enhanced Crosswalks

Some circumstances call for a crosswalk with higher visibility than what can be offered by paint or thermoplastic materials. Some examples include brick, stamped concrete, or dyed concrete. These crosswalks provide a high degree of visibility, provide a traffic-calming benefit, and may be more visually appealing. These treatments are most frequently used where both high pedestrian and high traffic volumes mix, such as in town or city centers.

Other Common Pedestrian Amenities

This section is an inventory of various techniques that can be constructed to create shorter and safer paths for pedestrians to cross a street and avoid vehicle conflicts.



Raised Crosswalk (Pedestrian and Bicycle Information Center, 2014)



Enhanced Crosswalk Example

(DVRPC, 2014)

Refuge Island

A refuge island can be an added feature to a crosswalk. It allows for a two-stage crossing, which is particularly useful for unsignalized mid-block locations. It is also used at intersections where the distance of the crossing does not efficiently allow for a single-stage crossing. The graphic on the right shows a typical refuge island that is defined by curbing. However, many styles exist, and bollards are also common. Refuge islands are also an incidental feature of divided highways.

Bump Outs/Bulb Outs

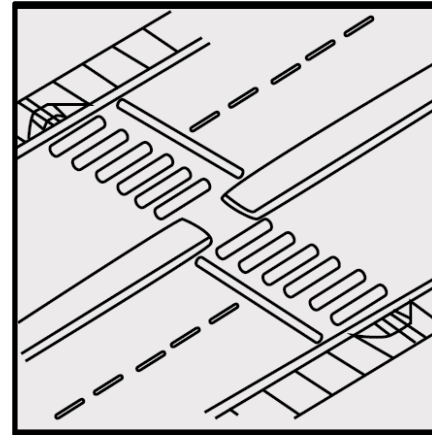
A bump out, also commonly referred to as a bulb out or curb extension, is an added feature for a pedestrian crossing. The bump out narrows the roadway at the pedestrian crossing to reduce the pedestrian's crossing distance, provide increased visibility to approaching motorists, and serve as a traffic-calming feature.

Pedestrian Countdown Timers

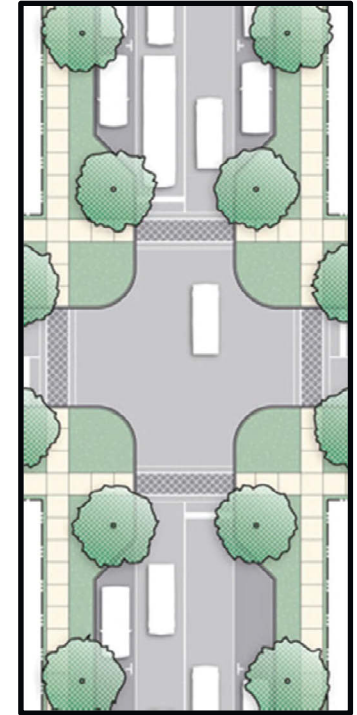
A pedestrian countdown timer is an added feature to a traffic signal. The timer is often actuated by a pedestrian push button. The timer allows a pedestrian to know the amount of time before the traffic signal will change to a phase that conflicts with the crossing. Judgment by the pedestrian may then be exercised as to whether they should begin a crossing or wait for the next cycle. An audible signal is often incorporated to assist visually impaired pedestrians.

Flashing Beacon

A flashing beacon is a pedestrian-activated crossing aide that flashes warning lights to approaching motorists to warn of a pedestrian in the crosswalk. They are appropriate for mid-block crosswalks. Upon activation from a pedestrian push button, the signal is in the center of the pole and will flash for a fixed amount of time. Some variations have in-road flashing lights.



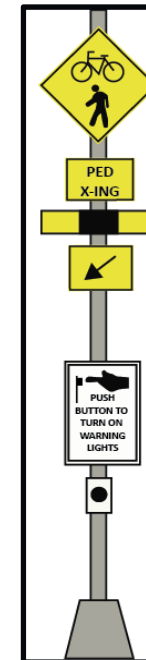
Refuge Island (DVRPC, 2014)



Bump Outs/Bulb Outs (DVRPC, 2014)



Pedestrian Countdown Timer (DVRPC, 2014)



Flashing Beacon (DVRPC, 2014)

Pedestrian Hybrid Beacon

A pedestrian hybrid beacon is similar to a flashing beacon, but it provides a red traffic signal to the approaching vehicle traffic. Upon activation from a pedestrian push button the signal turns red for a fixed amount of time, which may be displayed on a pedestrian countdown timer. These beacons are often referred to as HAWK signals.

Pedestrian-Scale Lighting

Pedestrian-scale lighting is designed to effectively illuminate the pedestrian aspects of a road. The fixtures are mounted lower or at a more pedestrian-friendly scale than typical street lights, near the sidewalks, and are often aesthetic.

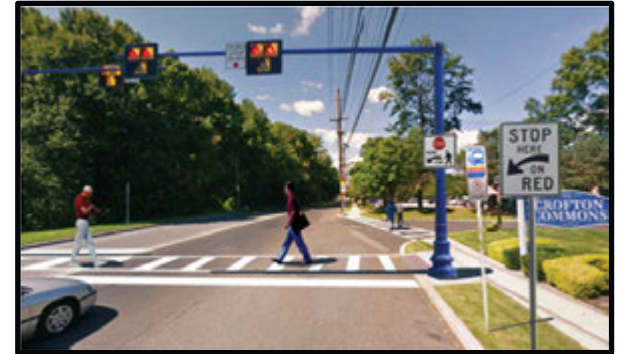
Regulatory/Warning Signage

Most pedestrian amenities require associated signage. A public works department or design engineer typically determines the type and location of needed signs. Examples include Ped Xing, Crosswalk Ahead, Yield to Pedestrians, etc.

Wayfinding Signage

Wayfinding signage is useful for providing direction to local destinations, such as train stations, libraries, and shopping districts. This is designed to help pedestrians gain orientation of their surroundings and therefore feel more comfortable walking to their destination. Municipalities implementing wayfinding signage programs typically create plans, select a unique style, and provide comprehensive sign coverage.

Pedestrian Hybrid Beacon (DVRPC, 2014)



Pedestrian-Scale Lighting (DVRPC, 2013)



Regulatory/Warning Signage (DVRPC, 2012)



Wayfinding Signage

(Downtown Dallas Arts District, 2010)

Bicycle Amenities

Complete Streets strategies promote more comprehensive thinking regarding bicycling and encourage changes in how street space is allotted and designed. There are treatments used to recognize a bicyclist's right of way on a road and other ways to make bicyclists feel more comfortable and at ease when riding to a station and storing their bicycles there.

Bicycle Lanes

Bicycle lanes are defined by striping to delineate the portions of the roadway reserved for each mode. Another treatment is colored bicycle lanes, which visually narrow the street and can then have an effect of slowing down motor vehicles on local streets. Bicycle lanes dedicate a minimum of four feet of road space per direction when parking is not present, or five feet when parking is present, to bicyclists. In addition to striping, bicycle lanes are usually accompanied by road markings and signage. Bicycle lanes are the preferred treatment if sufficient cartway space exists.

Shared Lane Markings (Sharrows)

A sharrow is a relatively new road marking that seeks to allow a road to function as if a bicycle lane were present, but without the delineation associated with a bicycle lane. It is typically used when sufficient cartway width is not available for proper bicycle lanes. The marking seeks to reinforce the bicyclist's right to use the road.

Wide Curb Lane

For major streets where bicycle lanes may be appropriate, but there is not enough space, wide curb lanes may be implemented to allow space for bicyclists and motor vehicles along a roadway. The width of a wide lane should be 14 to 15 feet, but wider widths may encourage motor vehicles to pass one another.



Bicycle Lanes
(DVRPC, 2014)



Shared Lane Markings
(Sharrows)
(DVRPC, 2014)



Wide Curb Lane
(DVRPC, 2014)

Bicycle Storage

Bicycle storage is necessary when a change in transportation modes occurs, such as at train stations or shopping districts. Bicycles are often significant investments for their users and therefore a safe and secure means to store bicycles is necessary. There are many options available for bicycle storage. Most common are bicycle racks, which are available in a countless number of styles. For more secure or longer-term storage, bicycle lockers are available.

Complete Streets Policies

A Complete Streets policy is a governing body's formal recognition that transportation is multi-modal, and accommodating all users is a goal of the municipality, county, or state. The policy typically requires engineering staff to consider all potential users when planning for roadway construction, improvement, or rehabilitation. Amenities such as sidewalks and bicycle lanes must be disqualifying from a project rather than qualified, or considered as a secondary option. Projects that would require Complete Streets considerations can be defined in individual policies but usually begin with such improvements as roadway resurfacings. The State of New Jersey is a national leader in Complete Streets. The state has adopted a policy, as have many of the state's counties and municipalities. Sample policy language is included in Appendix A.

Conclusion

Transportation is a system of multiple modes. Each mode requires its own accommodation. This chapter presented several common pedestrian and bicycle amenities that seek to accommodate their users. There is not a standard answer regarding how the cartways should be designed; rather, analysis is necessary at each location to suit the primary users. Fortunately, in New Jersey the Complete Streets efforts of the state, counties, and many municipalities is now allowing for careful consideration of travel by modes other than private automobile.



Bicycle Storage

(DVRPC, 2014)

Pennsauken Transit Center

Introduction

The Pennsauken Transit Center (PTC) is a new transit facility constructed by NJ Transit at the crossing of the Atlantic City Rail Line (ACRL) and the River LINE near the corner of CR 614 and South Zimmerman avenues in Pennsauken. PTC consists of two platforms serving the ACRL, which provides commuter rail service between Philadelphia and Atlantic City; and the River LINE, which provides light rail service between Trenton and Camden. Prior to the construction of the new station neither rail line had a stop at the location. Since the station opened in 2013 there have been averages of 55 ACRL weekday boardings, and 120 River LINE weekday boardings.

In addition to the two rail services, the station is also served by NJ Transit Bus Route 419, which provides service between the City of Camden and Burlington Borough.

The surrounding land uses are roughly bisected by the ACRL into northern and southern portions, with very different characteristics. South of the ACRL, the study area is dominated by the presence of large industrial properties. North of the ACRL, the study area is comprised primarily of a residential neighborhood with a mix of other uses and wooded areas. The residential areas north of the station are bisected themselves by NJ 90, the elevated approach to the Betsy Ross Bridge. Only CR 543 traverses the NJ 90 right of way in the vicinity of PTC. Figure 2 provides an overview of the nearby land uses and highway network.

Related Works

DVRPC has worked on two other studies in this area over the past few years: one analyzing the development potential around PTC, and the

other creating a bicycle facility network for the entirety of Camden County. The study team has selected both of the following studies as a reference for recommendations that are reiterated throughout this study.

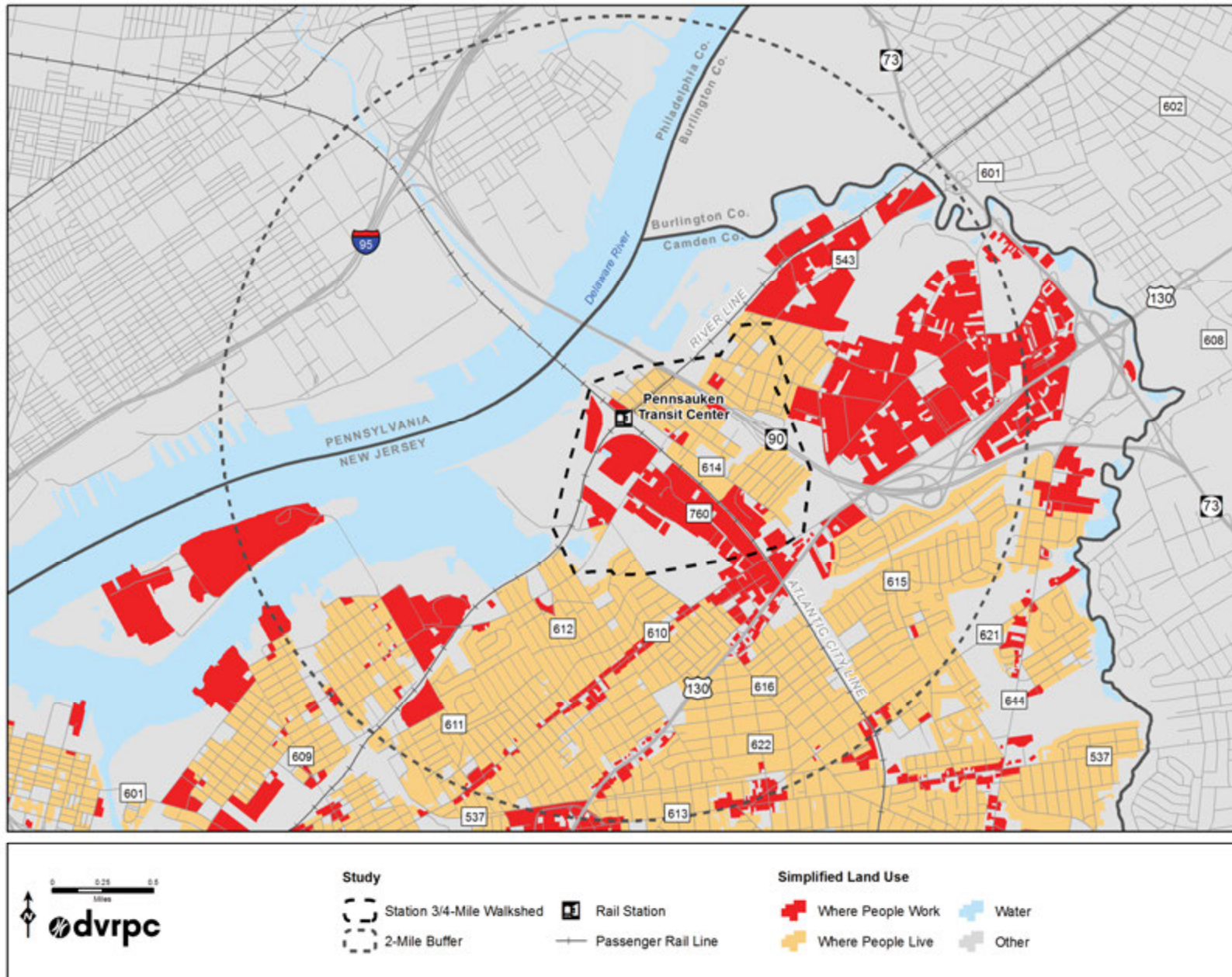
Pennsauken Transit Center: Impacts & Opportunities

This study (DVRPC Publication #13051), published in October 2013, was conducted by DVRPC to identify how the new transit facility may impact the area, and what opportunities it might provide. The study involved a thorough assessment of current land use patterns, and bicycle and pedestrian infrastructure in the area. The study recommended improvements to the pedestrian and bicycle environment, including: upgrading the CR 543 and CR 614 intersection, completing the sidewalk network along CR 614, and adding wayfinding signage, among other recommendations.

Camden County Bicycling and Multi-Use Trails Master Plan (forthcoming)

At the request of Camden County, DVRPC is currently preparing several elements of a new master plan, including the bicycling and multi-use trail element. The various elements will be combined to create the new master plan. This project inventoried existing bicycle and trail infrastructure, engaged the public and local officials, and made recommendations for an expanded network. In the vicinity of PTC, the master plan will recommend consideration of bicycle facilities along the entire length of CR 543 in Camden County, bicycle facilities along CR 616 and CR 615, and mixed treatments along CR 614. The master plan also mentions the plans for a multi-use trail along the Delaware River shore north of the station.

Figure 2: Pennsauken Station Area and Land Use



Existing Conditions

Pedestrian Facilities

PTC benefits from being located in a mature built environment. The sidewalk network is largely intact and the population density supports multi-modal travel.

For pedestrian connections with PTC, the key population resides between the ACRL and NJ 90, and west to roughly Pleasant Avenue. To accommodate this population this study will focus particularly on pedestrian crossings on CR 543 and CR 614. These two are the roads that accommodate non-local trips and are the primary means of accessing PTC.

Within the residential areas that are adjacent to PTC's northern side, a robust network of sidewalks is present. Crosswalks are also present at several locations, but both placement and design lack consistency. The rest of this section details pedestrian conditions within a three-quarter-mile walking radius of PTC. Figure 3, on the following page, provides an inventory of the sidewalks within the same area.

Bicycle Facilities

Bicycling to or from PTC is within a reasonable distance for several portions of the township. This includes the Delair neighborhood and the residential areas that radiate out from CR 615 and CR 616 east of PTC. Beyond these neighborhoods industrial areas create barriers, and neighboring River LINE stations become more convenient. The neighboring stations, each roughly 1.75 miles away, include 36th Street Station to the south and Route 73/Pennsauken Station to the north.

PTC offers open-air bicycle parking. There is ample space for additional bicycle racks and the introduction of lockers, both of which may be considered in the near term to complement off-station recommendations made in this report. There are currently no formal bicycle lanes or routes in the vicinity of PTC.



Unpaved Path between PTC and River Road (DVRPC, 2014)



Bicycle Storage at PTC (DVRPC, 2014)

Figure 3: Pennsauken Sidewalk Network



Highway Network

CR 543 (River Road)

River Road, CR 543, is a two-lane arterial that parallels the Delaware River between southern Burlington County and the City of Camden. A recent traffic count found roughly 8,000 vehicles traveling along CR 543 on a typical weekday in the vicinity of CR 614. The posted speed limit is 35 miles per hour north of CR 614 and 40 miles per hour south of CR 614. CR 614 demarks a distinct change in abutting land use patterns.

There is a sidewalk disconnect for pedestrians along CR 543 within the study area. Sidewalks exist in the residential neighborhood from John Tipton Boulevard to CR 614, at which point there are solely industrial uses for approximately 0.6 miles. There are not continuous sidewalks south of the Atlantic City Rail Line.

There are no on-road bicycle amenities. In the Camden County Bicycling and Multi-Use Trails Master Plan, CR 543 has a recommendation to consider bicycle facilities.

CR 614 (Derausse Avenue)

Derausse Avenue, CR 614, is the primary access route for PTC. The avenue extends east–west between the Delaware River and Westfield Avenue, a total distance of roughly 1.25 miles. A recent traffic count found roughly 2,700 vehicles per day travelling along the portion east of CR 543. The posted speed limit is 25 miles per hour.

The northern side of CR 614 has a sidewalk and crosswalk connection to PTC only at Zimmerman Road, past the station parking lot. The south side of CR 614 is missing sidewalks. There is currently no accommodation for bicyclists. CR 614 is a “mixed treatments – to be considered” facility in the Camden County Bicycling and Multi-Use Trails Master Plan.

CR 760 (Clements Avenue/Bethel Avenue)

CR 760 is Bethel Avenue east of, and Clements Avenue west of, CR 610. Clements Avenue is a divided two-way roadway. Clements Avenue has a sidepath adjacent to the northeast side of Bethel Memorial Park, which then becomes a typical sidewalk. However, once the roadway turns into CR 760, a sidewalk ceases to exist.

CR 616 (Cove Road)

Cove Road, CR 616, extends south from CR 543 into large residential populations in Pennsauken Township and Merchantville Borough. The road consists of two travel lanes and has a posted speed limit of 25 miles per hour. Sidewalks exist intermittently along the roadway. Currently, there are no bicycle facilities along CR 616. The Camden County Bicycling and Multi-Use Trails Master Plan recommends consideration of bicycle facilities along CR 616.

CR 615 (Union Avenue)

Union Avenue, CR 615, is an east–west road extending from one block west of CR 543 to the east on an east–south alignment. The road serves residential and industrial areas in Pennsauken Township. Largely consisting of two travel lanes, CR 615 has a posted speed limit of 25 miles per hour. A recent traffic count found roughly 3,000 vehicles per day travelling along CR 615 east of CR 543. There are currently no bicycle amenities. The Camden County Bicycling and Multi-Use Trails Master Plan recommends consideration of bicycle facilities along CR 615.

Crash Analysis

To gain an understanding of existing pedestrian and bicycle safety concerns, an analysis of available crash data was conducted for the years 2010 to 2012. Two separate analyses were done. The first was within a three-quarter-mile radius (station walk shed), and the second was in the two-mile radius of the station (station bicycle shed). Each shed remained confined to Pennsauken Township.

For the pedestrian crash analysis two vehicle/pedestrian crashes occurred within a three-quarter mile of the station. One crash location was at the intersection of CR 543 and Lennox Road, and another at the intersection of CR 543 and Sherman Avenue. Neither crash resulted in a fatality. The analysis of vehicle/bicyclists crashes found one such crash. This crash occurred at the intersection of CR 543 and Engard Avenue. This crash also did not result in a fatality.

While zero crashes is ideal, the frequency of crashes involving pedestrians and bicyclists in this area is not cause for concern.

Planned Improvements

CR 543, River Road, Improvements (TIP DB# D0902)

This project involves traffic calming and pedestrian improvements along CR 543 south of the study area, in the City of Camden's Cramer Hill neighborhood. Improvements include: new high-visibility crosswalks, bulb outs, medians, and updates to traffic signal timing. This project is slated to be constructed in 2014.

Recommendations

Recommendations are divided between pedestrian and bicycle improvements. For Pennsauken Township few additional bicycle elements are offered beyond what is currently planned in the forthcoming county plan. Pedestrian improvements are varied and widespread. All improvement locations are shown in Figure 5.

Pedestrian Recommendations

CR 543

CR 543 is an arterial that serves as a commercial and industrial corridor in this section of Pennsauken and has some sidewalk connectivity. North of CR 614 the sidewalk network is complete.

Previous projects have recommended completing the pedestrian network south of CR 614. A roughly three-quarter-mile segment lacks any pedestrian accommodation. The study team agrees with these

recommendations; however, the purpose of this study is connecting passengers and potential riders to PTC, and therefore the recommendations involve ways to improve pedestrian crossings along the roadway.

CR 543 and CR 614 Intersection

- Install high-visibility crosswalks on all four approaches.
- Upgrade traffic signals to include pedestrian push buttons with timer.
- Improve/add pedestrian-scale lighting.
- Reduce the turning radius for the westbound-to-northbound movement to slow turning vehicles.
- Install traffic-calming measures for the northbound approach due to the distinct change in land use patterns.

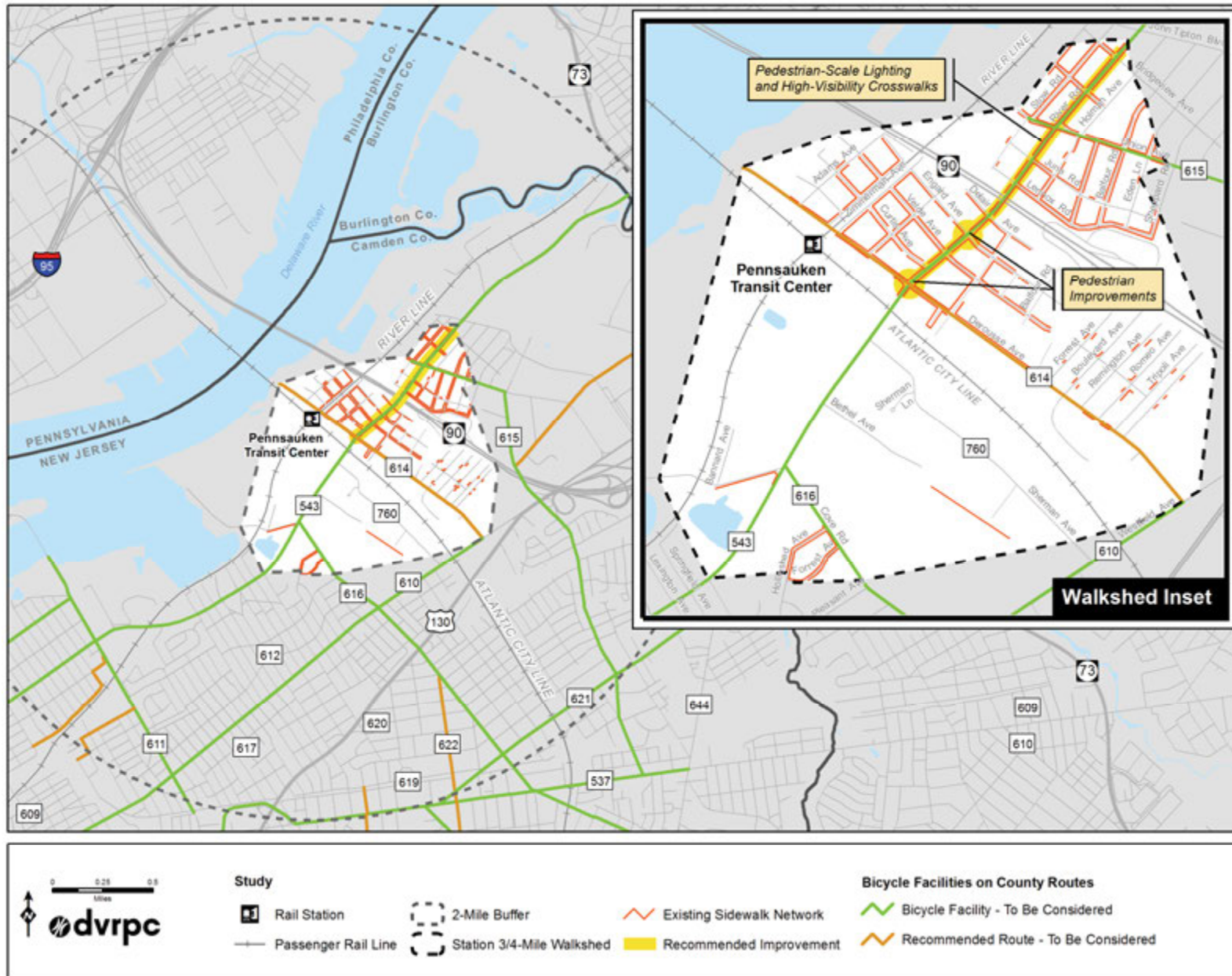
Figure 4 provides a graphical rendering of several of these recommendations.

Figure 4: CR 543 and CR 614 Intersection Improvements



(DVRPC, 2014)

Figure 5: Pennsauken Recommendations



CR 543 and Engard Avenue Intersection

- Install high-visibility crosswalks on all four approaches.
- Upgrade traffic signals to include pedestrian push buttons with timer.
- Improve/add pedestrian-scale lighting.

CR 543 Corridor

- Improve/add pedestrian-scale lighting.
- Add high-visibility crosswalks to intersecting street crossings, Curtis Avenue, Velde Avenue, and Delair Avenue.

CR 614

CR 614 lacks sidewalks along much of its southern side, west of Forrest Avenue, as well as on both sides east of Forrest Avenue. CR 614 is the only road in the study area for which new sidewalk is recommended. Three segments for sidewalk construction are offered and prioritized, along with two other improvement recommendations, including:

- new sidewalk along the south side between Holman Avenue and Boulevard Avenue;
- new sidewalk along the north side between Forrest Avenue and CR 610;
- new sidewalk along the south side between CR 543 and PTC;
- install two mid-block, marked, and signed pedestrian crossings: one at Zimmerman Avenue and the other at Bernard Avenue; and
- add high-visibility crosswalks to intersecting street crossings.

Bicycle Recommendations

Bicycle facilities are recommended to be considered for CR 543, CR 616, CR 615, and CR 610 in the county's forthcoming master plan. Additionally, CR 614 is recommended to have mixed treatments

considered. To accomplish the ends of this project, no additional bicycle lanes or routes are recommended.

Figure 5 provides a graphical rendering of many of the recommended improvements.

Conclusion

PTC is a new facility in Pennsauken Township, and its full impact will not be known for several years. The station is located in a mature residential portion of the township, and many of the area's residents may benefit from its presence. With the surrounding neighborhood being mature, an extensive sidewalk network is in place. Where the sidewalk is missing, the township is requiring new homes to add a sidewalk, which in the long term will allow for a complete sidewalk network. Several recommendations have been formulated to improve the pedestrian infrastructure in the nearer term, including:

- improving CR 543 pedestrian crossings at CR 614 and Engard Avenue;
- constructing critical missing links to the sidewalk network; and
- Standardizing pedestrian crossings.

In regards to bicycle connectivity with PTC, the forthcoming Camden County Bicycling and Multi-Use Trails Master Plan recommends consideration of a series of bicycle facilities and mixed treatments that will improve upon the existing network.

CHAPTER 4:

Lindenwold Station

Introduction

Lindenwold Station is the junction of two rail lines: the NJ Transit ACRL and the PATCO Speedline, which terminates at Lindenwold.

Lindenwold Station has the highest number of boardings for PATCO service in New Jersey. Additionally, local bus routes (403, 451, 459, and 554) stop at Lindenwold Station. The station is abutted on its southern side by a large parking lot with 3,337 spaces. The average numbers for weekday boardings for rail services in 2010 were 4,727 for the Speedline and 487 for the ACRL.

Figure 6 provides an overview of Lindenwold Station, the surrounding highways, and land uses.



Lindenwold Station Vehicle Parking

(DVRPC, 2014)

Related Works

Lindenwold Transit Hub Study

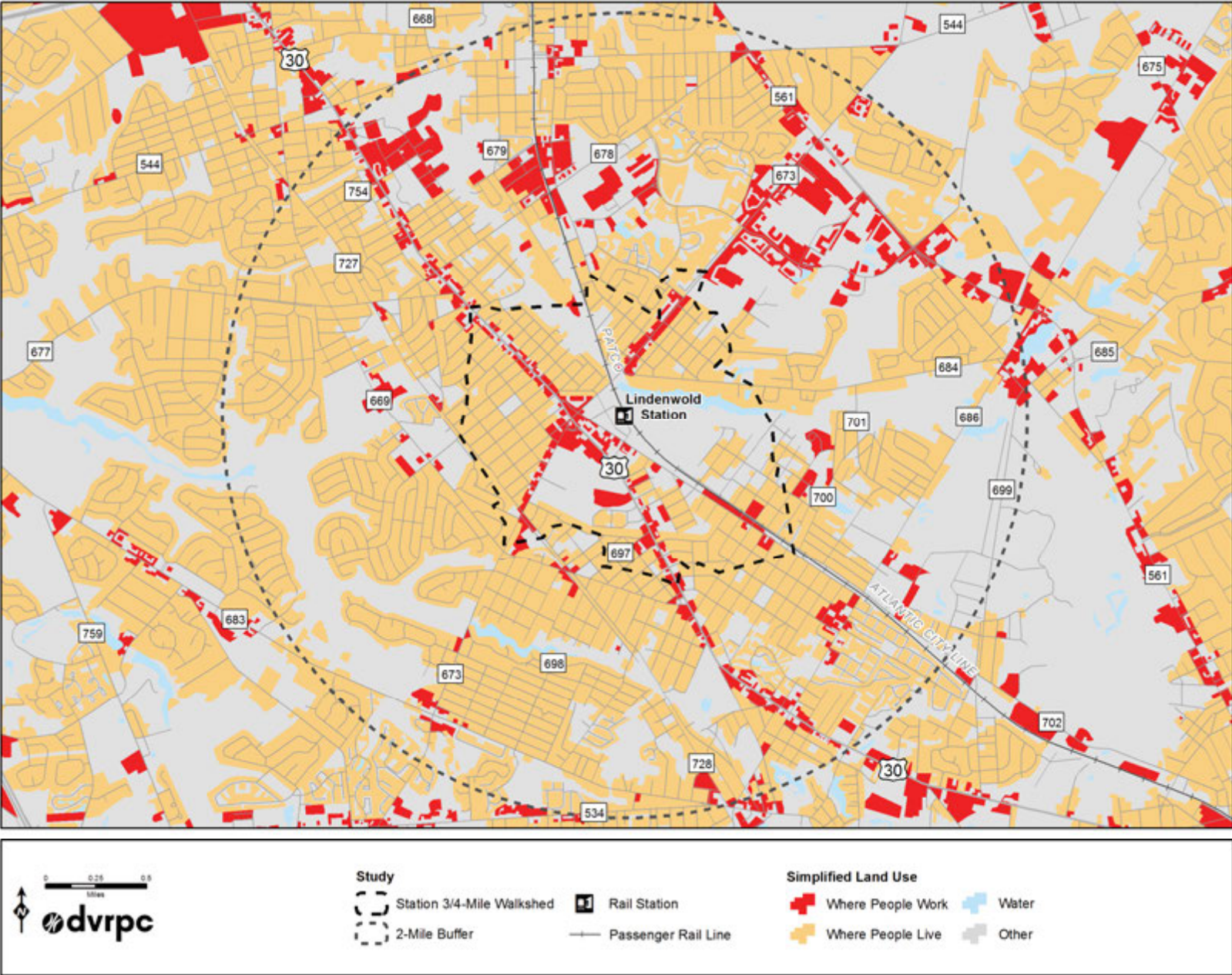
This study (DVRPC Publication #09068) was published in 2009 and included a thorough assessment of multi-modal mobility in the area surrounding Lindenwold Station. The study area was roughly the same geographic area as the present study's pedestrian walk shed. Recommendations from this study that are relevant to the present study include:

- signaling the CR 673 and Station Avenue intersection;
- the construction of several key missing sidewalk segments;
- restriping pedestrian crossings;
- providing pedestrian push buttons and countdown timers at signalized intersections; and
- the installation of wayfinding and "Share the Road" signage to aid bicyclists.

Camden County Bicycling and Multi-Use Trails Master Plan (forthcoming)

At the request of Camden County, DVRPC is currently preparing several elements of a new master plan, including the bicycling and multi-use trail element. The various elements will be combined to create the new master plan. This project inventoried existing bicycle and trail infrastructure, engaged the public and local officials, and made recommendations for an expanded network. In the vicinity of Lindenwold Station, the master plan will recommend consideration of bicycle facilities along CR 686, CR 670, CR 673, and CR 727.

Figure 6: Lindenwold Station Area and Land Use



Mixed treatments are also recommended to be considered for several roads in the vicinity of the transit center. The master plan also mentions the plans for a multi-use trail parallel to the rail line north of the transit center.

Existing Conditions Pedestrian Facilities

Pedestrian facilities (sidewalks and crossing amenities) vary throughout the study area. Figure 7 provides an inventory of the existing sidewalk network.

The existing conditions at several locations prevent safe and convenient commuting to or from the station by foot. These include:

- a narrow, unbuffered sidewalk on the CR 673 bridge over the rail line that is only present on one side of the bridge;
- a lack of safe pedestrian crossings at CR 673 and Station Avenue, and CR 673 and CR 684;
- crosswalks that are faded and lacking a consistent design; and
- gaps in the sidewalk network, particularly along the station frontage and along CR 673 south of the station.

Within the surrounding residential neighborhoods sidewalks are largely present, or sidewalk infill is an ongoing process. For some local roads that do not have sidewalks, they are not necessary due to low traffic volumes. While the need for improvement exists, there is already a lot of pedestrian infrastructure in place.

Bicycle Facilities

Bicycling to Lindenwold Station is possible for a significant portion of the surrounding population. Much of the land use around the station consists of residential neighborhoods, which allows for a sizable portion of any bicycle commute to be conducted on local roads. In most cases, only a short commute on one of the surrounding arterial highways is necessary. To complement the motorized facilities there is

also some existing bicycle infrastructure that includes bicycle lanes and trails.

The station offers bicycle parking on both sides of the station building entrance. The bicycle parking areas were recently improved by the addition of roof structures. The parking amenities can accommodate roughly 48 bicycles. During a field visit 12 bicycles were counted.



Lindenwold Station Covered Bicycle Parking

(DVRPC, 2014)

Highway Network

The study area is served by a combination of state, county, and municipal roads that provide mobility and access to vehicular traffic traveling through the area.

CR 673 (Laurel Road/White Horse Road)

CR 673 is a north–south urban minor arterial that is named Laurel Road south of US 30 and White Horse Road north of US 30. The cross section changes from two lanes north of US 30 to three lanes south of US 30. The posted speed limit is 25 miles per hour throughout the

study area. The sidewalk network along CR 673 is incomplete and there is no accommodation for bicyclists, though bicycle lanes are proposed for the portion of the road south of the station in the Camden County Bicycling and Multi-Use Trails Master Plan.

CR 702 (Berlin Road/Egg Harbor Road)

CR 702 is an urban minor arterial that runs east–west through Camden County. The cross section is two lanes with auxiliary lanes at major intersections. The posted speed limit along CR 702 in the study area is 25 miles per hour. The sidewalk network along CR 702 is incomplete. There are bicycle amenities along the road, including segments of bicycle routes and bicycle lanes.

US 30 (White Horse Pike)

US 30 carries the name White Horse Pike throughout the study area and is classified as an urban principal arterial. This major east–west roadway has a four- to five-lane cross section with a posted speed limit that varies across its length. There are several missing sidewalk segments along US 30 in the study area. There is no accommodation for bicyclists.

Trails

Several multi-use trails are proximate to the station.

Lindenwold Bicycle Path

The Lindenwold Bicycle Path extends for 0.7 miles along CR 702. Its western terminus is roughly 1.3 miles east of the station. The path also extends on a north–south alignment along CR 699. This segment is roughly 1.7 miles in length.

Green Briar Bikeway

Though this trail is distant from the station, it provides access between CR 561 and CR 699, which opens a wider area to station bicycle access. The trail extends for roughly 0.6 miles. This is located outside the study area.

East Atlantic Bikeway (Proposed)

This proposed bikeway is 7.7 miles in length and runs on a northwest–southeast alignment alongside CR 727.

Crash Analysis

A crash analysis was done in the area surrounding Lindenwold Station to gain an understanding of safety concerns for pedestrians and bicyclists. Using three years of data (2010–2012), two analyses were completed: one within a station walk shed of a three-quarter-mile radius, and the other in the two-mile radius of the station (station bicycle shed). Multiple municipalities were included in the sheds.

Figure 8 provides the spatial distribution of the crashes, and illustrates that US 30 is a primary conflict point throughout the three-quarter-mile shed around Lindenwold Station. There were nine pedestrian crashes, including one fatality. An average of approximately 29,000 vehicles per day travels along US 30 between New Road and Union Avenue.

The number of crashes involving pedestrians is higher than that of either of the other two station areas assessed for this project, and the majority of the crashes occurred where crosswalks and traffic signals are not present. To improve pedestrian safety, providing crossing amenities at key locations may be appropriate.

Figure 7: Lindenwold Sidewalk and Bicycle Networks

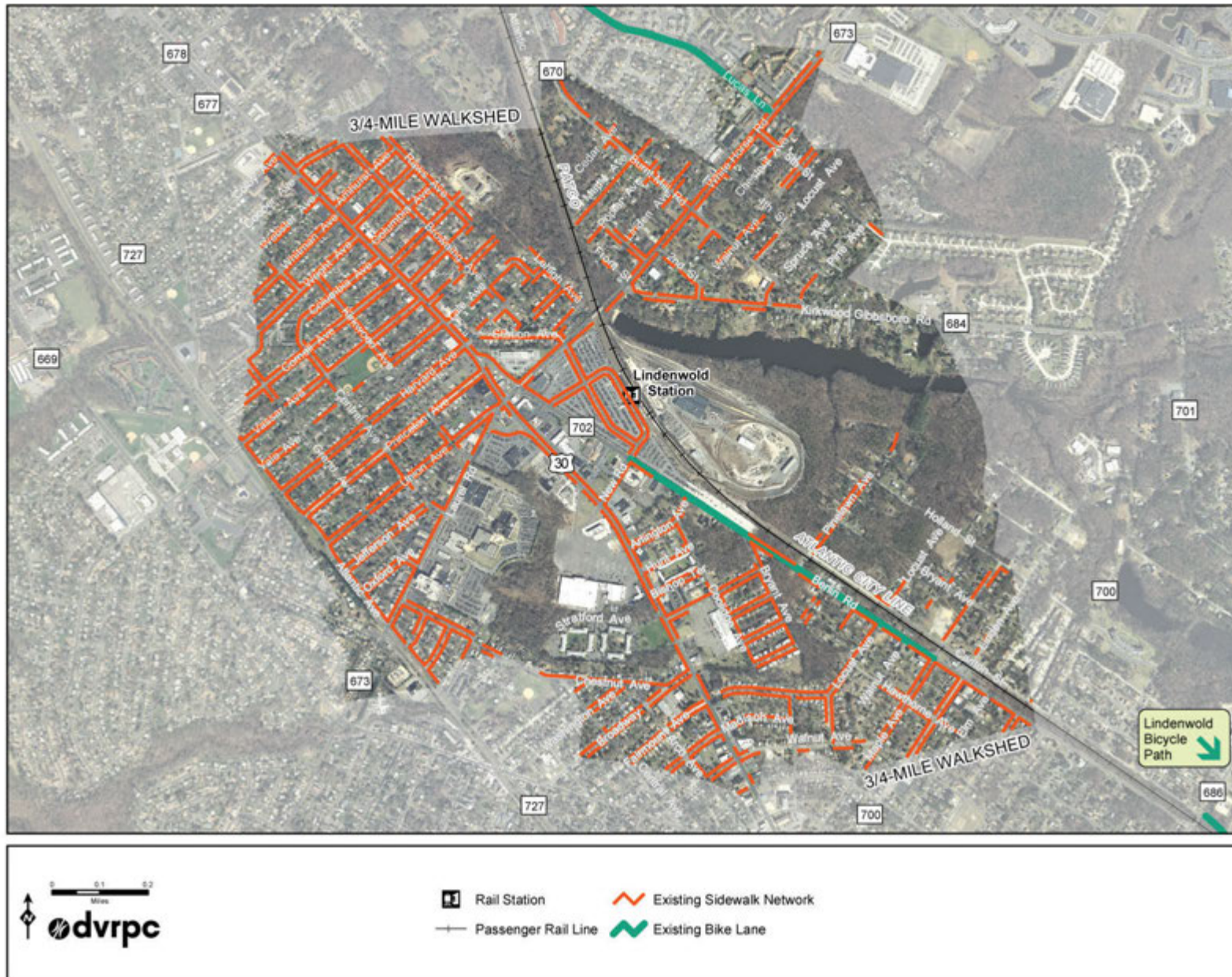


Figure 8: Bicycle and Pedestrian Crash Locations (2010-2012)

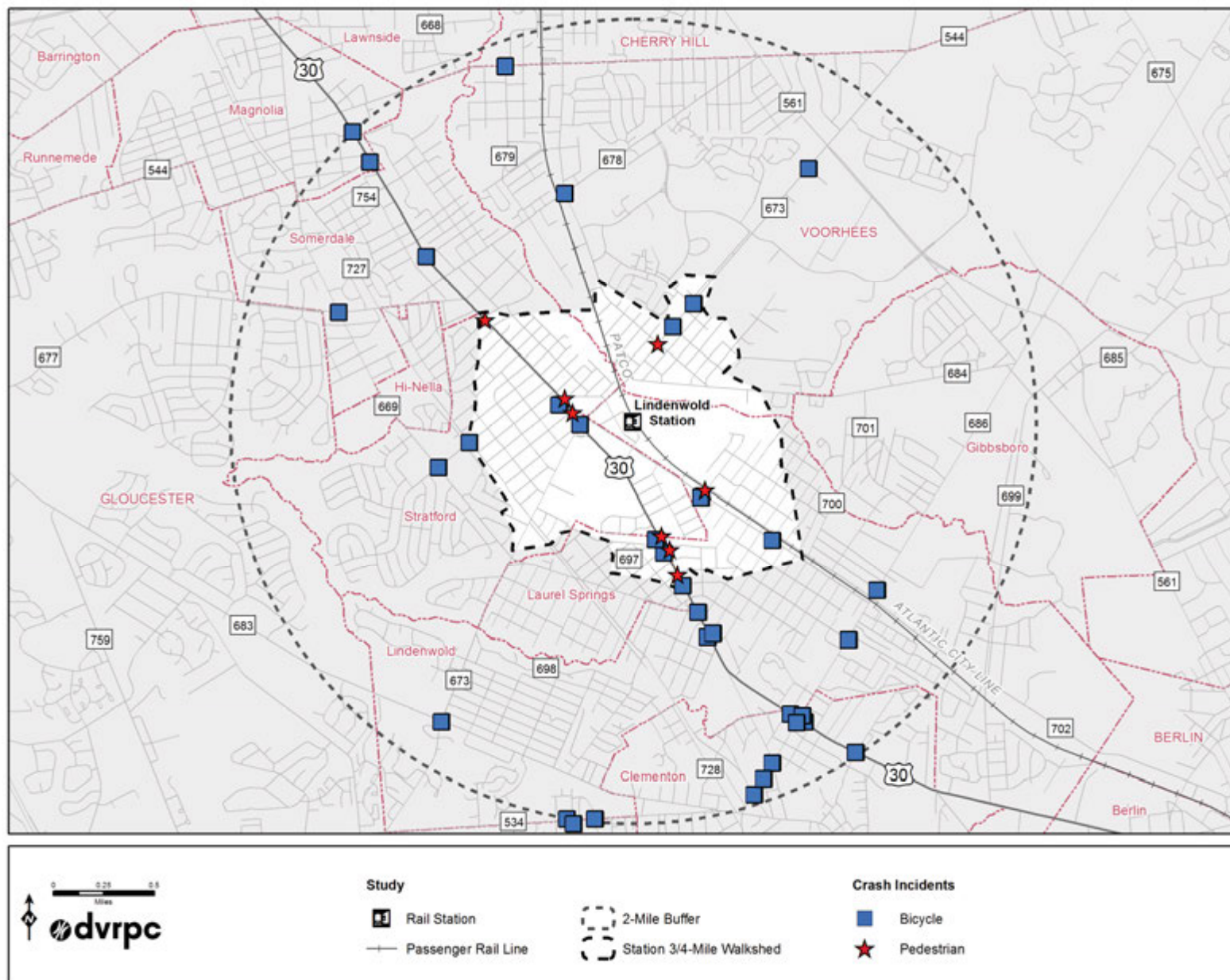


Figure 8 also shows the locations of the 30 bicycle crashes which occurred in the study area; 15 occurred along US 30. In this section of Camden County, US 30 has few traffic signals, virtually no shoulders, four travel lanes, and a posted speed limit of 45 miles per hour—all conditions that could be contributing to the significant amount of bicycle crashes. Specifically, at the intersection of US 30 and CR 686 there have been three bicycle crashes. At this intersection there are narrow sidewalks, high traffic volumes, and no shoulders. For comparison there are roughly 27,500 vehicles along US 30, compared to approximately 11,700 along CR 702. The number of crashes involving bicyclists, particularly at intersections with more than one such crash, is cause for mitigation efforts that might include providing a narrow shoulder, signage, direction to local roads, and enforcement of traffic signal and speed limit obedience.

Planned Improvements

New Road Extension

New Road is a short connector road between US 30 and Lindenwold Station. It enters the station property at its intersection with CR 702. South of US 30, New Road terminates as a driveway to the former Bradlees store. For many years municipal and county officials have desired extending New Road to the south to connect with CR 673 via the campuses of Kennedy Hospital and the Rowan University School of Osteopathic Medicine. This improvement is also recommended in the forthcoming Camden County Highway Plan. Figure 9 provides a conceptual design of the reconfigured intersection of US 30 and New Road. The benefits include reducing congestion at the CR 673 intersections with US 30 and CR 702, promoting redevelopment on the Bradlees site, and providing a more desirable multi-modal connection between the medical campus and Lindenwold Station. This also provides the opportunity for high-quality bicycle and pedestrian amenities, such as a two-way bicycle path and wide sidewalks.

Figure 9: Conceptual Design of the US 30 and New Road Intersection



(DVRPC, 2014)

Sidewalk Infill

Two segments along CR 673 are expected to have new sidewalks constructed in the near term; south of US 30 along the Echelon Ford site which is an important segment for pedestrian connections between the medical campus and Lindenwold Station, and along the station's frontage between the Walgreens pharmacy and Station Avenue.

Recommendations

Figure 11 shows a map illustrating the recommendations for the station area.

Improved Pedestrian Crossing at CR 673 and Station Avenue

This location, the unsignalized intersection of CR 673 and Station Avenue, currently has a striped pedestrian crossing on CR 673. The crossing facilitates pedestrian movements between the residential neighborhoods of Somerdale Borough and the station. Heavy traffic volumes on CR 673 and limited southbound sight distance for approaching vehicles are the concerns at this location. The 2009 DVRPC study *Lindenwold Station Transit Hub Study* (DVRPC Publication #09068) found that this location meets the Peak Hour Warrant for the installation of a traffic signal. While this study is not considering vehicular operations, the study does recommend an improved pedestrian crossing at this location. A traffic signal would satisfy this recommendation. An alternative option is a HAWK signal or a flashing beacon. Figure 10 provides a conceptual rendering of this recommendation.

Improved Pedestrian Crossing at CR 673 and Front Street Intersection

For pedestrians traveling to or from the portion of Voorhees Township west of CR 673 this location provides a critical crossing. Travel south of this location, on the western side of CR 673, is not possible due to the lack of sidewalk on the CR 673 bridge. Additionally, there are no crossing facilities within a convenient distance—the nearest being at the CR 670 intersection. For this location a HAWK signal or a flashing beacon is appropriate.

Complete the Sidewalk Network

Several locations within the study area lack a complete sidewalk network. The locations include the following:

- CR 673 along the station property (planned);
- CR 702 along the station property;
- CR 673 adjacent Echelon Ford (planned); and

- various residential streets in Lindenwold Township southeast of the station.

Discussions with project stakeholders found that sidewalks are planned for all of these areas with the exception of the CR 702 segment. Stratford Borough recently received funding for their CR 673 segment, Lindenwold Borough recently received funding for their CR 673 segment, and Lindenwold Borough has been completing the sidewalk network in the residential areas as funding becomes available. Funding should be sought to complete the sidewalk along CR 702, particularly as it leads to a county-maintained multi-use trail.

Consistency in Crosswalk Design

Existing crosswalks in the study area lack a consistent design, though most are the standard type: two parallel solid lines. The Continental Style type provides a bold pattern that reinforces a pedestrian's right of way, and is recommended to be employed throughout the study area. This type is particularly appropriate for minor and principal arterial highways.

Address Pedestrian and Bicycle Safety Concerns

Several locations within the study area have demonstrated pedestrian and bicycle safety concerns through their crash histories. Many such crashes have occurred along US 30 and are not concentrated at one or two intersections. For pedestrians, five of the eight crashes involving pedestrians occurred at intersections without crosswalks. The segment of US 30 between the New Road intersection and South Avenue intersection, roughly 0.7 miles, has no formal means for a pedestrian to cross. Few pedestrians would walk a half-mile out of their way to cross at a marked crosswalk. Providing sufficient means for pedestrians to cross in areas that are distant to marked crosswalks, via HAWK or pedestrian flasher signals, is appropriately illustrated in Figure 10.

An option to improve safety for bicyclists along US 30 is to narrow the travel lanes to provide a narrow shoulder space. While the lanes would not be as wide as standard bicycle lanes, a defined shoulder space may improve safety for bicyclists. Another option would be to explore the potential of a road diet—removing travel lanes to add formal bicycle lanes—to improve safety. Signage, such as “Share the Road” may also improve safety. In the medium term a Road Safety Audit (RSA) is recommended. An RSA brings together people with local knowledge and transportation safety experts to develop mitigation strategies.

Update CR 702 Bicycle Lanes

Refresh and update bicycle lanes along CR 702 to 2012 AASHTO design guidelines, and extend them westward to the New Road/station entrance.

Improve Station Bicycle Amenities

Add “sharrows” to the internal station entrance/exit road at New Road.

Maintain the CR 673 Bridge Sidewalk

This bridge is an obstacle for pedestrians traveling between the station and Voorhees Township. There is only a sidewalk on the northbound side of the bridge. The sidewalk is roughly four feet wide and is unbuffered from the northbound travel lane. Between the bridge and CR 684 a similar pedestrian environment is present. A field visit during snow conditions found the snow from the travel lanes plowed onto the sidewalk making it nearly impassable for pedestrians. The portion leading to CR 684 suffers from encroachment from vegetation. Considering this is a county road, and the county has adopted a Complete Streets policy, the county would be the natural party to lead this action. The bridge is expected to be replaced in the coming years. Better accommodating multi-modal travel can be incorporated into the replacement bridge design.



Snow-Covered Sidewalk on CR 673 Bridge (DVRPC, 2014)

Create a Multi-Municipal Coordination Group

A multi-municipal coordination group of neighboring municipalities and transit service providers would be useful because of the high number of municipalities that border the station. Such a group could work to create uniform pedestrian and bicycle amenity standards, and to ensure each other’s priorities are complemented as necessary. A Lindenwold Station user’s advocacy group, or another civic group, would be the ideal coordinators for the group.

Adopt a Complete Streets Policy

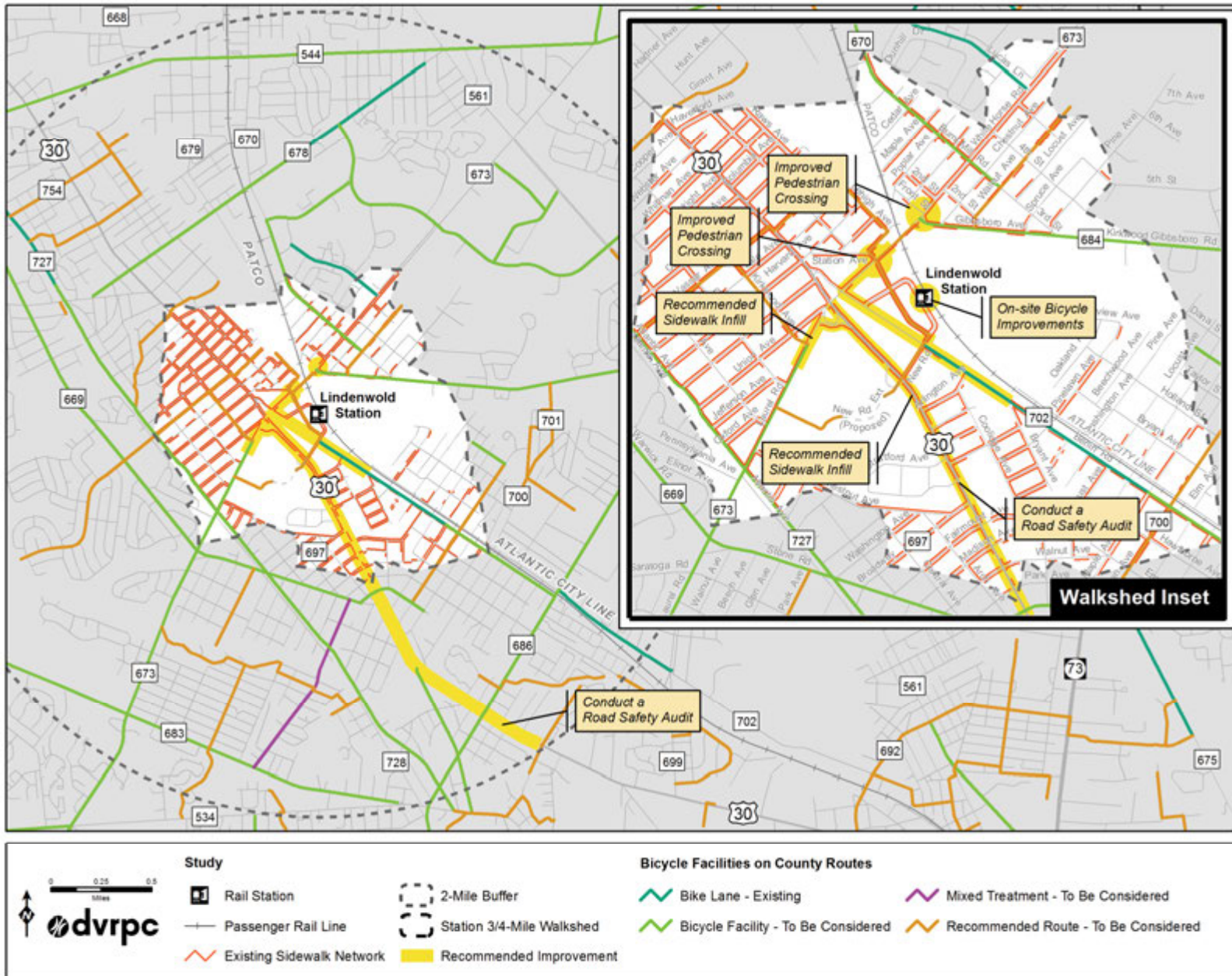
As was mentioned in Chapter 2, a Complete Streets policy is a formal recognition of transportation being multi-modal, and accommodating all users is a goal of the governing body. The state and county have both adopted policies. Each municipality should also consider adopting a policy. An adopted policy will support continued and ongoing improvements to the pedestrian and bicycle infrastructure within each municipality.

Figure 10: CR 673 and Station Avenue Conceptual HAWK Signal



(DVRPC, 2014)

Figure 11: Lindenwold Recommendations



Conclusion

The surrounding municipalities are proactively addressing the needs of pedestrians within their means. As the Camden County Bicycling and Multi-Use Trails Master Plan is implemented, bicycling to and from the station area will be improved. This study highlighted the need to complete the sidewalk network, for which efforts are currently underway, and to improve several pedestrian crossings, among other recommendations. Several improvements could be made to improve user comfort and safety.

There is a positive effort to implement pedestrian and bicycle infrastructure in the study area that should be continued by all involved parties.

Princeton Junction Station

Introduction

Commuter's Dream, Walk to the station, and other similar phrases are prevalent in real estate listings for properties around Princeton Junction Station. The demand for multi-modal access is there. One reason people move to the area is because of the train station. It is a community asset, and proper accommodation is appropriate.

Princeton Junction Station is a unique transit hub along the Northeast Corridor because it is multi-modal, with both Amtrak and NJ Transit train services, NJ Transit bus service, and quality pedestrian and bicycle amenities within the station area. The Amtrak lines that run through Princeton Junction Station are part of the Northeast Corridor (from Washington, DC, to Boston) and the Keystone (from New York City to Harrisburg, Pennsylvania) lines. NJ Transit train lines that service Princeton Junction Station are also part of the Northeast Corridor line (from Trenton to New York City) and the Princeton Branch. The unique NJ Transit Princeton Branch runs between Princeton Junction Station and Princeton University (approximately three miles) and is called the Dinky. In addition, the NJ Transit bus routes 600 (service from Trenton to Princeton Forrestal Village in Princeton) and 612 (service from Lawrence to Princeton Junction Station) stop at Princeton Junction Station.

Figure 12 provides an overview of the station area and surrounding land use.

Related Works

Princeton Junction Station Redevelopment Plan

Adopted in 2009, the plan focuses on redeveloping 350 acres north of the rail line into a mixed-use transit village from surface parking and a

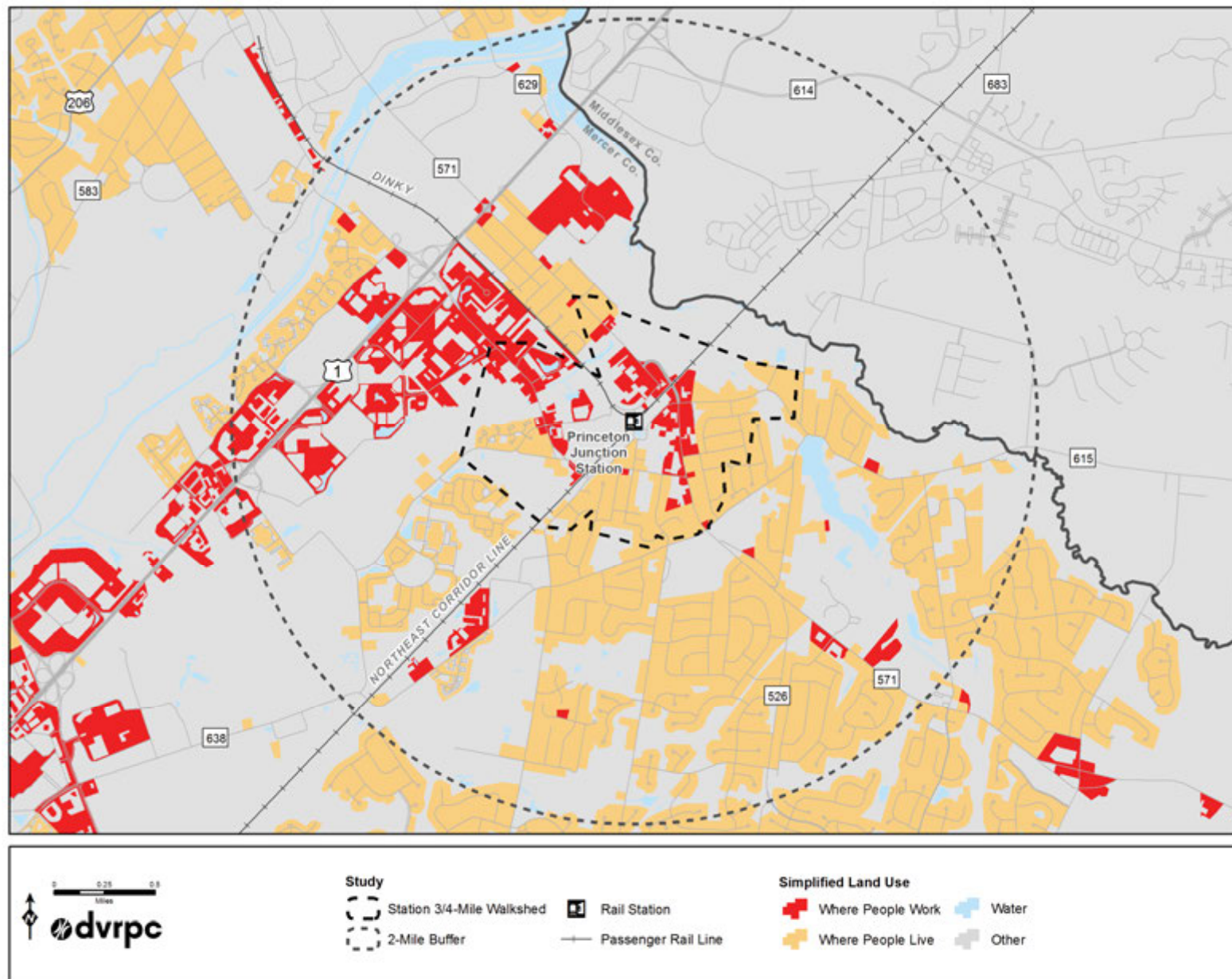
suburban-style office park. The plan calls for 487 housing units and 208,000 square feet of retail space, 872,000 square feet of office space, as well as a parking structure and other complementary land uses. The area is currently occupied by several office buildings and surface parking. The plan takes great effort to ensure proper pedestrian and bicycle accommodation is incorporated into the redevelopment plans.

Much of the station area's redevelopment relies on the extension of Vaughn Drive to Washington Road. Vaughn Drive currently terminates at the station's parking area, though one could traverse the parking lots, cross a Dinky Line at-grade crossing, and use Station Drive to reach Washington Road. Vaughn Drive is slated to be extended when funding is secured.

West Windsor Township Master Plan, Circulation Plan Element

The circulation element of the township's master plan suggests a robust network of sidewalks, bicycle lanes, and paths. The plan recognizes the importance of pedestrian and bicycle access to Princeton Junction Station, and makes accommodation to improve the related infrastructure. West Windsor Township has been proactive in improving the pedestrian environment; the master plan mentions that the first sidewalk master plan was adopted in 1983 and that many of its recommendations have been implemented. Specific locations for sidewalk infill and the addition of bicycling infrastructure are identified, some of which has already been constructed. These are mentioned later in the Recommendations section of this chapter.

Figure 12: Princeton Junction Station Area and Land Use



West Windsor Bicycle and Pedestrian Alliance (WWBPA)

The WWBPA is a non-profit advocacy group supporting improvements to pedestrian and bicycle infrastructure in West Windsor Township. Since its creation in 2006 it has been successful in realizing many improvements in the township. It is both proactive and respected, which greatly benefits its mission. Many of the improvements this study suggests have already been put forward by the WWBPA.

Existing Conditions

Automobile parking at Princeton Junction Station is expensive and in high demand. This, coupled with a sizable component of housing in the vicinity of the station, creates a demand for bicycling to the station. The station has two bicycle parking areas: one on each side of the rail line. The south side, or New York-bound side, also has a series of 46 bicycle lockers, for which there is a roughly six month waiting list. According to the WWBPA a waiting list exists for bicycle locker rentals. The rental fee is nominal. Both sides of the station have ample amounts of uncovered bicycle parking.

Pedestrian Facilities

Pedestrian and bicycle amenities within the station area are good, with sidewalk connections from the parking lots to the platforms. The study team surveyed each intersection within a three-quarter-mile walking distance (not just radius) of the station and identified major paths that pedestrians use to access the station area.

Figure 13 shows the existing sidewalk network.

Bicycle Facilities

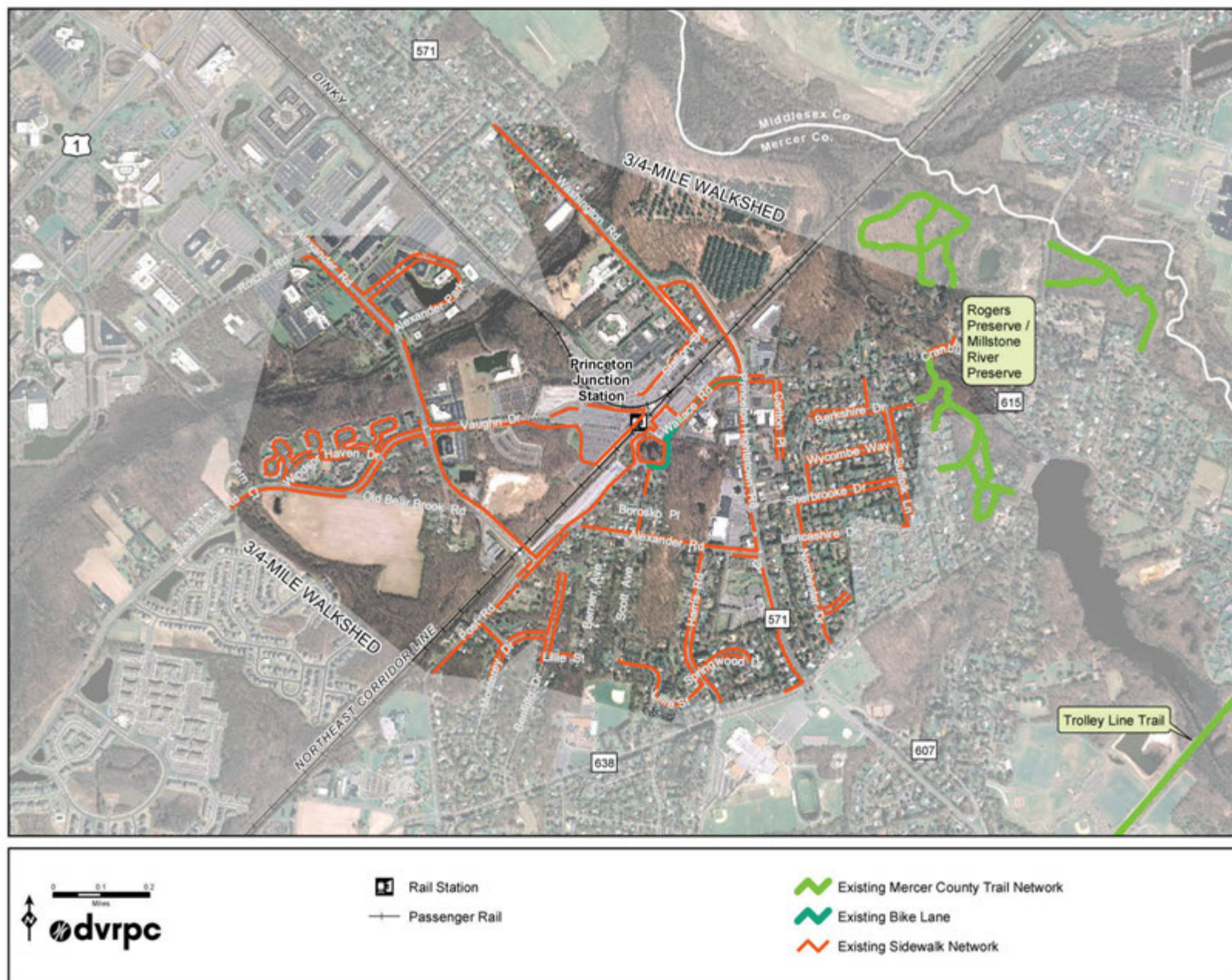
For this study connecting bicyclists to Princeton Junction Station was considered from the populated areas surrounding the station: essentially the area bounded by US 1, Rabbit Hill Road, the county border, and New Village Road. The primary focus was on the collector and arterial roads that lead to the station, as well as trails in the area.



Princeton Junction Station Bicycle Storage (DVRPC, 2014)

Bicycling to the station from the south may largely be accomplished by traversing residential roads. From the north, bicycling along CR 571 or Alexander Road is necessary. Several bicycle lanes are present in the study area, and they are shown in Figure 13.

Figure 13: Princeton Junction Sidewalk and Bicycle Networks



Highway Network

Wallace Road

Wallace Road fronts the station on the south side. It is a primarily two-lane road extending between CR 571 and Alexander Road. Along Wallace Road both the east and west side of the street have sidewalks through the station area; however, the west-side sidewalk ends after the entrance to the station, prior to Scott Avenue. Between Scott Avenue and the Alexander Road and North Post Road roundabout there is a permit parking lot. A second westbound lane used for station access extends along a portion of the road. Recently, there were bicycle lanes installed on Wallace Road. A recent traffic count found roughly 5,000 vehicles traveling along Wallace Road on a typical weekday. The posted speed limit is 25 miles per hour. It is considered a Minor Collector Road in the township's master plan.

Vaughn Drive

Vaughn Drive provides access to the station's north side and an office complex from Alexander Road. There is a sidewalk on the south side of the street only. The redevelopment plan calls for Vaughn Drive to be extended through the station area to connect with Washington Road, and to include bicycle lanes on either side. A recent traffic count found roughly 8,000 vehicles traveling along Vaughn Drive on a typical weekday. The posted speed limit is 30 miles per hour.

Alexander Road

Alexander Road stretches between CR 571 and Princeton with two-, four-, and five-lane segments. North of the station Alexander Road is abutted by numerous office complexes. On the north side, the posted speed limit is 30 miles per hour along the two-lane portions and 40 miles per hour along the four- and five-lane portions. Sidewalks exist on both sides of the roadway until Old Bear Brook Road, and then only on the east side, except the intersection at Vaughn Drive where there are sidewalks on both sides of the roadway. Recent traffic counts conducted between US 1 and North Post Road range from roughly

4,800 to 15,000 vehicles per day. A commuter parking lot recently opened adjacent the station along Alexander Road.

South of the station Alexander Road traverses a residential neighborhood for a short distance before its termination at CR 571. A roundabout at its intersection with North Post Road was recently installed. South of the station the posted speed limit is 25 miles per hour. Sidewalks have been installed on both sides of Alexander Road from the roundabout to the station area, once the roadway curves to the east; there is a consistent sidewalk on the north side, and inconsistent on the south side, of the street. There are enhanced crosswalks and pedestrian signage at Berrien Avenue, Scott Avenue, and Harris Road.

North of North Post Road, Alexander Road is considered a Secondary Arterial in the township's master plan.

Bear Brook Road

Bear Brook Road runs parallel to, and north of, the rail line. The road terminates at Alexander Road where the alignment continues as Vaughn Drive. Several housing developments line Bear Brook Road. With the exception of intersection areas, the cross section of Bear Brook Road consists of two travel lanes. The posted speed limit is 35 miles per hour. There is a meandering sidewalk on the north side of Bear Brook Road and the west side following the curve of the roadway. A multi-use trail runs alongside the road between Meadow Road and Windsor Haven Drive. A recent traffic count found roughly 2,000 vehicles per day using Bear Brook Road. The roadway is considered a Principal Collector Road in the township's master plan.

CR 571 (Princeton-Hightstown Road)

Also called Washington Road, CR 571 extends between Princeton and Hightstown as its name suggests. Between US 1 and Rabbit Hill Road, CR 571 has a two-lane cross section and a 40-miles-per-hour posted speed limit. Recent traffic counts found roughly 15,000

vehicles per day north of the rail line, and up to roughly 25,000 vehicles per day south of the rail line. The road is considered a Secondary Arterial in the township's master plan. A project to reconstruct CR 571 between Wallace and Clarksville roads to add two travel lanes, a two-way-left turn-lane, and bicycle lanes, is currently included in the Transportation Improvement Program (TIP) for New Jersey. Design is slated to occur in 2014 with construction to follow.

There is a sidewalk on the east side of CR 571 from Rabbit Hill Road to Sherbrook Drive and the commercial strip mall. At this intersection there are sidewalks on both sides of the street, and then from there inconsistent sidewalks on either side, likely constructed as development and redevelopment happened alongside the roadway.

CR 615 (Cranbury Road)

CR 615 extends from the east and terminates at CR 571, where it becomes Wallace Road. The road consists simply of two travel lanes with minimal shoulders and no pedestrian or bicycle accommodation. The posted speed limit is 25 miles per hour. The road is considered a Minor Collector Road in the township's master plan. A recent traffic count found roughly 8,600 vehicles per day traveling along CR 615. A study to assess bicycle and pedestrian improvement options is expected to begin soon.

North Post Road

North Post Road is a two-lane Principal Collector road (master plan defined) that provides access to the station area from points south. Sidewalk exists on both sides of the street until Courtney Drive (an entrance to a residential development), where there is a crosswalk with pedestrian crossing signage. The sidewalk ceases for about 1,400 feet from there to Woodmeadow Lane on the eastern side of the roadway. There are consistent sidewalks on both sides of the street from Woodmeadow Lane to Alexander Road, or the terminus of the roadway. A recent traffic count found roughly 7,100 vehicles per day travelling along North Post Road. The road terminates near the station

at its roundabout intersection with Alexander Road. The posted speed limit is 35 miles per hour. Near the station shoulders are present, though they narrow as one travels away from the station.

Harris Road/Penn Lyle Road

Harris Road, between CR 615 and Alexander Road, and Penn Lyle Road south of CR 638, are two-lane roads that provide access to the station area from points south. There is a sidewalk on both sides of Harris Road; on Penn Lyle Road there is a sidewalk only on the east side of the roadway. The West Windsor-Plainsboro High School South is located on the corner of CR 638 and Penn Lyle Road. Harris Road is classified as a Local Road while Penn Lyle is considered a Minor Collector Road in the township's master plan. A recent traffic count found roughly 3,800 vehicles per day traveling on the Penn Lyle Road portion. The posted speed limit is 40 miles per hour on the Penn Lyle Road portion and 25 miles per hour on the Harris Road portion. In 2011 bicycle lanes were installed on the southern portion of Penn Lyle Road during a resurfacing project.

CR 638 (Clarksville Road)

CR 638 parallels the rail line to the south. Though it does not serve as a means of station access, it is useful to connect bicyclists traveling from points further out to several of the previously mentioned roads. From North Post Road to CR 571 there is a sidewalk on both sides of the street. Following this intersection there is only a sidewalk on the northeast side; however, there is a pathway on the southwest side that leads into the Ronald R. Rogers Arboretum. There is no sidewalk on CR 638 from Landing Lane to the convergence with North Mill Road.

CR 638 is a Principal Collector road as defined by the township's master plan. The majority of CR 638 consists of two travel lanes. The posted speed limit is 35 miles per hour. West of CR 571 wide shoulders are present.

Trails

Several trails assist bicyclists to access roads, which then provide access to the station. All require an on-road connection to access the station.

Delaware and Raritan Canal Tow Path

The tow path runs between Trenton and New Brunswick and parallels the Northeast Corridor for its length. Within the study area the tow path traverses Princeton and offers connections with CR 571 and Alexander Road for station access. The tow path, at its closest point, is roughly 1.9 miles north of the station, and is not within the study area.

Trolley Line Trail

The Trolley Line Trail is a new, roughly 2.5-mile-long trail that runs parallel to the Northeast Corridor about 1.5 miles southeast of the station. Though it does not provide access to the station, the trail allows bicyclists to safely travel to a road which does provide safe access to the station area.

Alexander Road Trail

The Alexander Road Trail is an incomplete trail that runs along the Dinky Line, behind several office complexes, that partially extends between US 1 and the station area. This is not within the study area map. The trail still needs to be completed, lit, and have a safe crossing of US 1.

Other Trails

Several short trail segments also exist in the Township. These include:

- a short trail in the Millstone River Preserve;
- a short trail in the West Windsor Township Park; and
- a trail along a portion of Bear Brook Road.



Alexander Road Trail: Trail Head

(DVRPC, 2014)

Crash Analysis

To improve the knowledge of existing pedestrian and bicycle safety concerns an analysis of available crash data was conducted for the years 2010 to 2012. Data was analyzed for two different crash types, vehicle and pedestrian (within a three-quarter-mile radius) and vehicle and bicycles (within a two-mile radius).

There were five vehicle and pedestrian crashes within a three-quarter-mile distance of the Princeton Junction Station. The crash locations include: 819 Alexander Road, along Station Drive, in the Vaughn Drive lot, at the intersection of Scott Avenue and Wallace Road, and at the intersection of CR 571 and Wallace Road. The crashes resulted in varying degrees of injury, through there were no fatalities.

Within the two-mile bicycle shed there were two crashes: one at the intersection of Alexander Road and Canal Road, and the other at US 1 and Washington Road. A total of 160 vehicle crashes occurred during the three-year period, with a concentration of crashes at CR 638 and

Penn Lyle Road. West Windsor-Plainsboro High School South is at the southeast corner of the same intersection.

While zero crashes are ideal, the frequency of crashes involving pedestrians and bicyclists in this area is not cause for alarm.

Planned Improvements

CR 571 (Princeton-Hightstown Road) Improvements, (TIP DB# D0701)

The project limits include the intersections of CR 571 with CR 638 and CR 615, and the approximately one-mile segment connecting them. CR 571 is a major east–west corridor at the northern edge of Mercer County, and the Central Jersey Transportation Forum has endorsed the improvement concept. This is a severe safety concern regarding the area where the roadway drops from four lanes to two. Mercer County and West Windsor Township hope to make "Main Street" pedestrian, bicycle, and site access improvements, including sidewalks, protected turn lanes, and no additional through-travel lanes.

CR 615 (Cranbury Road) Project

CR 615 extends eastward from CR 571 and lacks any accommodation for multi-modal travel. This project involves a study to examine the need for, and how bicycles and pedestrians could be provided with, accommodation along the road.

US 1, Penns Neck Improvements (TIP DB# 031)

The purpose of this project is to address traffic congestion, mobility constraints, and safety concerns on US 1 and the east–west cross streets in the Penns Neck area. The Final Environmental Impact Statement and Record of Decision have resulted in the selection of the preferred alternative, which will include US 1 in a cut at CR 571, with CR 571 crossing over US 1; a new grade-separated, single-point interchange at Harrison Street; a new west-side connector road parallel to Lower Harrison Street connecting the new Harrison Street interchange with existing Harrison Street near the D&R Canal crossing;

a one-way frontage road system on both sides of US 1 between CR 571 and the new Harrison Street interchanges; and a Vaughn Drive Connector Road located west of existing Station Drive, connecting CR 571 and existing Vaughn Drive. Bicycle and pedestrian crossings of US 1 will also be studied as part of the project. The Vaughn Drive connector has since been broken out as a separate project.

Vaughn Road Extension

This project, also mentioned as part of the redevelopment plan, is to connect Vaughn Road to Washington Road. The current alignment extends between Alexander Road and the rail station parking areas. The extension will require a crossing of the Dinky Line, and is a key component of the redevelopment plan.

Bear Creek Road Residential Development

A primarily residential development has been proposed for the parcel at the intersection of Bear Brook Road and Old Bear Brook Road. At this point, the proposal includes 179 residential units and 20,000 square feet of retail space. As a traffic mitigation effort for the development, a roundabout is proposed for the intersection of Bear Brook Road and Old Bear Brook Road. Considering that sidewalks are not present along Old Bear Brook Road, this provides an excellent opportunity to complete the sidewalk network in this area.

Alexander Road Sidewalk Infill

During the course of this study it was noted that sidewalks are currently being constructed along the northbound side of Alexander Road between the roundabout and Vaughn Drive.

Recommendations

The users of Princeton Junction Station benefit tremendously from a proactive host municipality, and the work of the WWBPA. Combined, the two have identified and planned for many of the issues that a study such as this would look to solve. Therefore, most recommendations

are modest in scope, and this is only reflective of the work that has already been done.

Recommendations are shown in Figure 15.

Consistency in Crosswalks

Crosswalks within the study area lack a consistent design. This study recommends a common crosswalk treatment, preferably the Continental Style due to its bold pattern. This type is already present at many locations, such as at the station entrance from Wallace Road. Due to the added expense of this type, it may be more appropriate for mid-block locations and at signalized intersections where pedestrians will conflict with turning vehicles. For intersections that are controlled with all-way stop signs the standard type may be appropriate.

Create Pedestrian Bump Outs

Pedestrian bump outs are appropriate for pedestrian crossings where a shoulder is present. The bump out essentially narrows the crossing distance and time for pedestrians while reducing their exposure time. A very appropriate location for pedestrian bump outs is at the pedestrian flasher crossing of CR 571 at Sherbrook Drive. At this location the CR 571 shoulders are wider than other locations along CR 571, particularly for southbound travel where the shoulder is roughly 20 feet wide.

Replace the CR 571 Pedestrian Flashers with a HAWK Signal

The intersection of CR 571, Sherbrooke Drive, and the shopping center driveway is currently unsignalized and a pedestrian flasher is present. The crossing distance is extended due to an exceptionally wide southbound CR 571 shoulder lane. To further provide safety for pedestrians a HAWK signal is recommended for this location, as it would provide a protected pedestrian crossing. This location is also recommended for a curb bump out to reduce the pedestrian crossing distance. Figure 14 provides a conceptual rendering of the recommendation.

Complete a Trail Connection with Princeton

The incomplete Alexander Road Trail is the first leg in connecting the station with Princeton via a trail. Talks between local stakeholders and NJ Transit have taken place, though an agreement has not been achieved. Efforts to advance this concept are recommended to continue as this trail connection would provide benefit to station users and local residents alike.

Light Trails

Trails often traverse areas that do not benefit from nearby lighting. Providing lighting along trails increases safety and security. Many Princeton Junction Station commuters travel from New York City and return later than is otherwise typical for peak-hour for commuters. This, coupled with early wintertime sunsets, highlights the need for trail lighting.

Provide Sheltered Bicycle Parking

Considering the demand for bicycle lockers, and open-air bicycle parking, sheltering the existing open-air bicycle parking is appropriate. This would complement the recent installation of bicycle repair stations, one on each side of the station.

Add Bicycle Lanes to Alexander Road

Alexander Road is an important east-west connection between West Windsor Township and Princeton. Bicycle lanes are present west of Canal Point Road. Adding bicycle lanes between the roundabout intersection with North Post Road and Canal Pointe Boulevard would provide benefit for bicycle connections with Princeton Junction Station.

Implement Improvements Noted in the Township's Master Plan

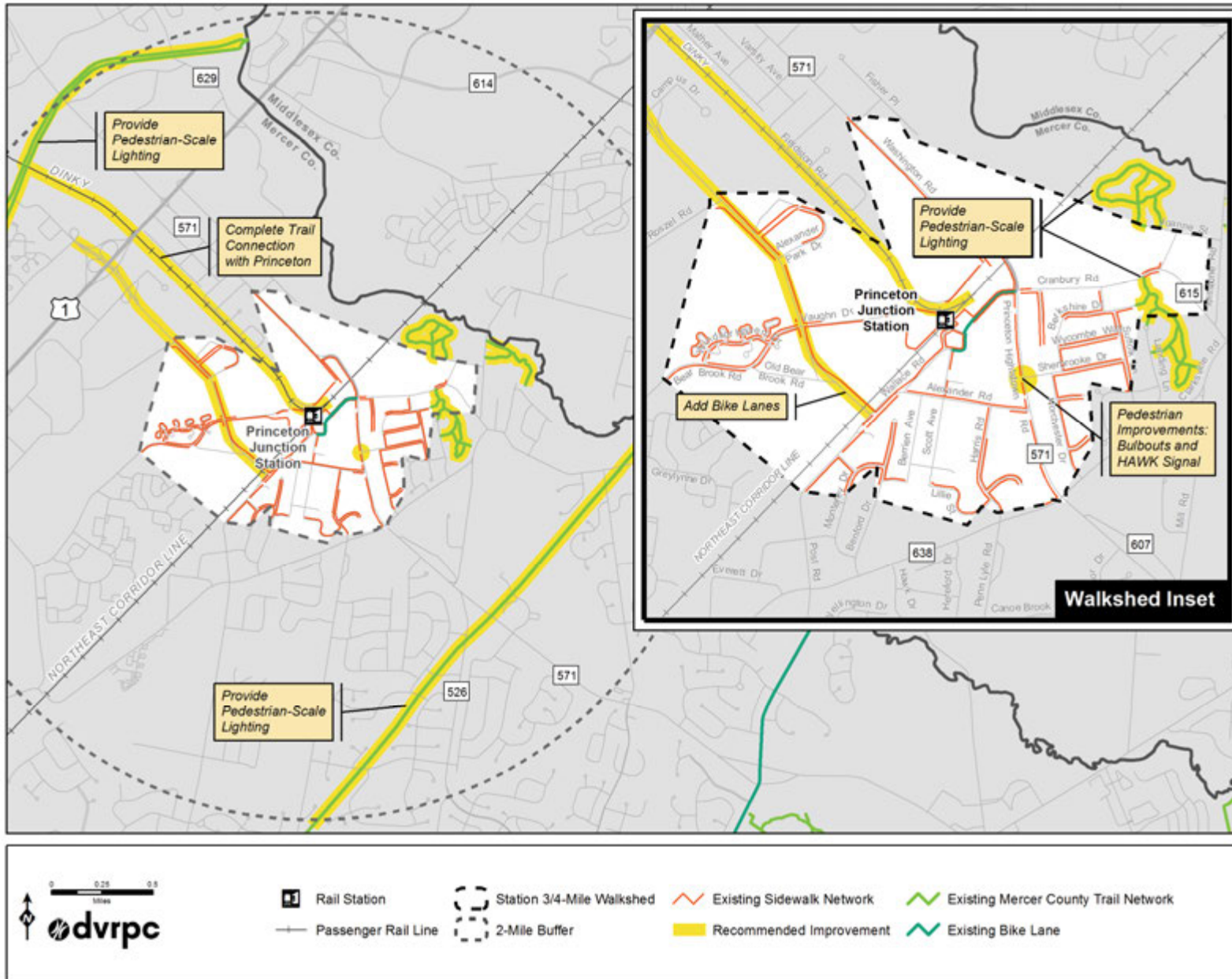
The township's master plan identifies an extensive network of on-road bicycle facilities, trails, and sidewalk infill. These improvements, in addition to the other recommendations, are shown in Figure 15.

Figure 14: CR 571 and Sherbrooke Drive Conceptual HAWK Signal



(DVRPC, 2014)

Figure 15: Princeton Junction Recommendations



Conclusion

West Windsor Township, with the assistance of the WWBPA, has been proactive at improving the pedestrian and bicycling environment. The township was the second in the state to adopt a Complete Streets Resolution (2010), and was named a Bronze Level Bicycle Friendly Community by The League of American Bicyclists (2011). Simply implementing the recommendations of previous plans would likely put the township atop suburban New Jersey municipalities for pedestrian and bicycle friendliness. The recommendations offered in this study are modest, and this is a reflection of the work that has been, and continues to be, conducted locally.

Next Steps and Conclusion

Next Steps

Planning is the easy part. Implementation is a long process that involves identifying funding sources, engineering, right-of-way acquisition or easements, and construction. Some of the pedestrian and bicycle safety issues around the station areas are critical and if improved will enhance the quality of life of the station commuters and the areas' residents. Therefore, implementation can occur as municipal staff resources and funding opportunities are available. However, during the course of this study it was determined that each of the participant host municipalities is already working to improve the pedestrian and bicycle environment.

Based on analysis of available data, review of previous studies, field visits, and discussions with individual stakeholders, a series of recommendations was developed for each station area. The recommendations were tailored to improve the pedestrian and bicycle environment surrounding each station to more comfortably accommodate those who commute by foot or bicycle, and to encourage others to do so as well. It is up to the host municipalities to prioritize and implement the recommendations if they so desire. The recommendations have been kept modest in scope, reflecting the ongoing work of the municipalities, and to ensure that implementation is within reach.

Following are several actions the municipalities can undertake to advance the recommendations.

Create a Local Priority List

Local decision makers can review the recommendations and develop a priority list and assign staff responsibilities. Timelines and goals can also be developed.

Identify Funding Sources

Many of the recommendations will be implemented by the host municipalities. For these, funding is necessary. To assist with the identification of funding a directory of potential sources was prepared and is located in Appendix B of this report.

Some recommendations may be funded by non-local sources, such as the state, county, or developers. A relationship with county planners, and in turn state planners, is necessary to advance some projects. Finally, ensuring appropriate policies, codes, and ordinances are in place is necessary to ensure desired improvements are required of developers.

Evaluate Progress and Identify New Concerns

Safely accommodating pedestrians and bicyclists around the studied station areas does not end with this study. Progress regarding the implementation of improvements will need to be monitored, and an ongoing effort to stay current with safety concerns will be required. Local police departments will be instrumental in identifying pedestrian and bicycle safety issues, and may do so through observation and crash pattern reviews.

Conclusion

This study assessed the pedestrian and bicycle environment near three rail stations in southern New Jersey: Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station. The primary goal of the study was to identify associated safety concerns, and to develop recommendations that seek to mitigate the concerns, or provide a more comfortable commuting experience for pedestrians and bicyclists. Included in this report is a guide to contemporary pedestrian and bicycle amenities (Chapter 2), as well as individual assessments for each station (Chapters 3, 4, and 5). Recommendations were developed for each station area.

Pedestrian and bicycle accommodation varies around each station. However, there is a common trait: Each participant host municipality is proactively working to improve the multi-modal environment. This, in turn, resulted in modest recommendations.

The study team expresses gratitude to the following stakeholders for their participation, and for their ongoing efforts to improve the pedestrian and bicycle environment:

- Camden County;
- Lindenwold Borough;
- Mercer County;
- New Jersey Department of Transportation;
- New Jersey Transit;
- Pennsauken Township;
- Port Authority Transit Corporation;
- Stratford Borough;
- Voorhees Township;
- West Windsor Bicycle and Pedestrian Alliance; and
- West Windsor Township.



Appendix A

Complete Streets Policy Sample Language

The following is the language used by the Town of Morristown, New Jersey, for their Complete Streets policy (adopted: July 17, 2012).

RESOLUTION ESTABLISHING AND ADOPTING A COMPLETE STREETS POLICY FOR THE TOWN OF MORRISTOWN

WHEREAS, a Complete Street is defined as a means to provide safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options; and

WHEREAS, the benefits of Complete Streets include improving safety for pedestrians, bicyclists, children, older citizens, non-drivers and the mobility challenged as well as those that cannot afford a car or choose to live car free; providing connections to bicycling and walking trip generators such as employment, education, residential, recreation, retail centers and public facilities, promoting healthy lifestyles; creating more livable communities, reducing traffic congestion and reliance on carbon fuels thereby reducing greenhouse gas emissions; and saving money by incorporating sidewalks, on-street bicycle facilities, safe crossings and transit amenities into the initial design of a project, thus sparing the expense of retrofits later; and

WHEREAS, the Mayor and Council of the Town of Morristown wish to implement a Complete Streets policy through the planning, design, construction, maintenance and operation of new and retrofit transportation facilities, enabling safe access and mobility of pedestrians, bicyclists, and transit users of all ages and abilities,

including children, youth, families, older adults, and individuals with disabilities.

NOW, THEREFORE, BE IT RESOLVED, that the Mayor and Council of the Town of Morristown adopts the Morristown Complete Streets Policy.

BE IT FURTHER RESOLVED that the Planning and Engineering Divisions within the Departments of Public Works should make Complete Streets practices a routine part of everyday operations, should approach every transportation project and program as an opportunity to improve public streets and the transportation network for all users, and should work in coordination with other departments, agencies, and jurisdictions to achieve Complete Streets.

BE IT FURTHER RESOLVED that the Planning Board, the Zoning Board of Adjustment and the Redevelopment Entity, along with their respective planning and engineering professionals, shall incorporate this Complete Streets policy into its reviews of major site plan and redevelopment projects; that all initial planning and design studies, environmental reviews, and other project reviews for projects requiring funding or approval by the Town of Morristown should: (1) evaluate the effect of the proposed project on safe travel by all users, and (2) identify measures to mitigate any adverse impacts on such travel that are identified.

BE IT FURTHER RESOLVED that an advisory committee is hereby created, and may be composed of appropriate local, county, state administrative officials and member of the public appointed by the

Mayor to recommend a Priority Action Plan of short and long-term steps, planning, and policy adoption necessary to create a comprehensive and integrated transportation network serving the needs of all users; to assess potential obstacles to implementing Complete Streets in the Town of Morristown; and to develop proposed revisions to all appropriate plans, zoning, laws, procedures, rules, regulations, guidelines, programs, templates, and design manuals, including the Morristown Master Plan, to integrate, accommodate, and balance the needs of all users in all projects.

BE IT FURTHER RESOLVED that the advisory committee shall work to incorporate the goals and objectives of the Complete Streets Policy into the Morristown Master Plan – the Unified Land Use and Mobility Plan for the Town of Morristown, which is proposed to integrate local land-use development goals and regulations with transportation policies and investment strategies.

BE IT FURTHER RESOLVED that the advisory committee should report on matters within its purview to the Town Council within one year, and annually, following the date of adoption of this Resolution.



Appendix B

Funding Options

Following is a list of potential funding options for municipalities desiring to implement recommendations from this study. The list is not exhaustive.

Funding Opportunities for Bicycle and Pedestrian Improvements

The recommendations suggested in this study are specific to each municipality and may be costly not only due to the construction and design of each project, but also the coordination for implementing such a project. Therefore, listed below is a compilation of funding sources that specifically state how each grant can be used, as well as where to find that grant.

National Highway Performance Program (NHPP)—Awarding Agency: New Jersey Department of Transportation (NJ DOT)

The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a state's asset management plan for the NHS. The construction of bicycle facilities within NHS rights of way, interstate highways included, is explicitly stated as eligible for funding under this program. Interested municipalities should work with the county to apply and secure funding for this program. More information can be found at the website: <http://www.fhwa.dot.gov/map21/factsheets/nhpp.cfm>.

Surface Transportation Program and Surface Transportation Program Urban (STP/STU)—Awarding Agency: NJ DOT

STP is a block grant program that may be used for many types of transportation projects: specifically, bicycle transportation and pedestrian walkways, and the modification of public sidewalks to

comply with the Americans with Disabilities Act. Projects on roads functionally classified as Local or Rural Minor Collector are ineligible for funding under this program. Of the STP funds apportioned to a state, 10 percent must be set aside for safety construction activities. STU funds are set aside specifically for urban areas. Current and historical information can be found at the Federal Highway Administration (FHWA) website: <http://www.fhwa.dot.gov/map21/factsheets/>.

Safe Routes to School Program—Awarding Agency: NJ DOT

The SRTS Program is funded through the FHWA's Federal Aid Program and is being administered by NJDOT, in partnership with DVRPC, North Jersey Transportation Planning Authority and the South Jersey Transportation Planning Organization.

The objectives of the SRTS Program are:

- to enable and encourage children, including those with disabilities, to walk and bicycle to school;
- to make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age; and
- to facilitate the development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of New Jersey's primary and middle schools (Grades K–8).

Projects proposals must be located within two miles of a school that serves students in grades K–8. For reference purposes the funding for the 2014 SRTS Program was available for the construction of infrastructure projects only. Infrastructure projects included the

installation of sidewalks, crosswalks, bicycle lanes, multi-use paths, traffic-calming measures, and other means to ensure the ease and safety of children walking or biking to school. More information can be found at the website:

<http://www.state.nj.us/transportation/business/localaid/safe.shtm>.

Safe Streets to Transit—Awarding Agency: NJ DOT

This program provides funding to counties and municipalities in improving access to transit facilities and all nodes of public transportation. The objectives of the SSTT program are:

- To improve the overall safety and accessibility for mass transit riders walking to transit facilities.
- To encourage mass transit users to walk to transit stations.
- To facilitate the implementation of projects and activities that will improve safety in the vicinity of transit facilities.

More information can be found at the website:

<http://www.state.nj.us/transportation/business/localaid/safe.shtm>.

Bikeway Grant Program—Awarding Agency: NJ DOT

This program provides funds to counties and municipalities to promote bicycling as an alternate mode of transportation in New Jersey. The primary objective is to reach a state goal of constructing 1,000 new miles of dedicated bike paths that are physically separated from motorized vehicular traffic. More information can be found at the website:

<http://www.state.nj.us/transportation/business/localaid/bikewaysf.shtm>.

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program—Awarding Agency: DVRPC

CMAQ provides funding for transportation control measures and other projects that will improve air quality and contribute to the attainment of the Clean Air Act standards by reducing highway source emissions.

More information can be found at the website:

<http://www.dvrpc.org/CMAQ/>.

Hazard Elimination Program (Section 1112)—Awarding Agency: NJ DOT

Bicycling and walking hazards are now specifically included in the list of eligible activities for this program. In addition, the definition of a public road now includes a publicly owned bicycle or pedestrian pathway or trail and traffic-calming measures. More information can be found on the website:

http://www.state.nj.us/njoem/programs/opb_mitigation.html

Transit Enhancement Activity (Section 3003)—Awarding Agency: New Jersey Transit (NJ Transit)

This funding program, created with a 1 percent set-aside of Urban Area Formula transit grants (Section 3007) can be used for, among other things, bicycle and pedestrian access to mass transportation, including bicycle carriage facilities on buses and trains, and storage facilities at stations and bus stops. However, historically NJ Transit has used these funds to build and maintain its bus shelters.

Green Acres—Awarding Agency: New Jersey Department of Environmental Protection

The Green Acres program was created by a ballot initiative in 1961 and has subsequently been renewed through 12 additional ballot measures. The program funds a range of activities through its five program areas: State Park and Open Space Acquisition, Local and Nonprofit Funding, Stewardship and Legal Service, Planning and Information Management, and Office of Natural Resource Restoration. Generally, all Green Acres funding is for the support of outdoor recreation and conservation and must provide public access to these resources. More information can be found at <http://www.nj.gov/dep/greenacres/>.

Cross County Connection Transportation Management Association (CCCTMA) Transportation Demand Management (TDM) Reimbursements—Awarding Agency: CCCTMA

This program makes available monies to member organizations to reward them for expanding their use of TDM strategies. This money can be used for the purchase and installation of pedestrian- and bicycle-related enhancements such as bicycle racks, crosswalks to enhance safety and visibility, and other improvements.

Private Foundation Funding—Awarding Agency: Various

In recent years, regional philanthropic organizations like the William Penn Foundation have been both generous and ambitious in providing financial support for building the regional trails network. This has occurred both through the creation of new, temporary discretionary funding programs like the DVRPC-facilitated Regional Trails Program, and on an individual basis to specific grantees in response to individual project proposals. Sponsors with project ideas should consider reaching out to the William Penn Foundation and others to explore funding opportunities that may become available from time to time.

Other Sources—Awarding Agency: Various

Bicycle and pedestrian projects are eligible for other funds, including scenic byways, bridge, transit, safety (non-construction), and federal lands programs. There are also some non-federal programs that supply smaller grants to the planning and design of bicycle facilities. These include Bikes Belong grants, Kodak American Greenway Awards, and PeopleForBikes' Community Grant Program. Additionally, as the connection between health outcomes and the ability to walk and bicycle becomes more visible, a number of health foundations and public health agencies, like the Robert Wood Johnson Foundation and Shaping NJ, have become emerging sources of funding for completing projects that expand the options for active transportation.

Safe Routes to Transit

Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station

Publication Number: 14025

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Geographic Area Covered:

Pennsauken Township, Lindenwold Borough, Somerdale Borough, Stratford Borough, and Voorhees Township, Camden County; and West Windsor Township, Mercer County

Key Words:

Accessibility, Pedestrian, Bicycle, Sidewalks, Trails, Bicycle Lanes, Transit

Abstract:

This study examined means to improve bicycle and pedestrian connection with three New Jersey Transit rail stations: Pennsauken Transit Center, Lindenwold Station, and Princeton Junction Station. For each station area existing conditions were inventoried and documented, and improvements desirable for improving bicycle and pedestrian connections with each station were identified. Affected municipalities can use this study as a resource when funding becomes available for such improvements.

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