

Palmyra Bicycle and Pedestrian Planning Study

Final Report - December 2023





Acknowledgments

The New Jersey Department of Transportation (NJDOT) would like to thank all parties who participated in the creation of this Bicycle and Pedestrian Planning Study through meetings, conversations, stakeholder surveys, events, and other activities. Their feedback contributed greatly to the development of this study. It is our sincere hope that this study will serve the Borough of Palmyra, helping its residents and visitors to safely and conveniently access the NJ TRANSIT RiverLINE system, downtown Palmyra, the Route 73 South Redevelopment Area, Palmyra Cove Nature Park, the parks, schools, and other destinations throughout the Borough.

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Executive Summary

Background

The Borough of Palmyra was selected to participate in the New Jersey Department of Transportation's Bicycle and Pedestrian Planning Assistance Program. The purpose of this program is to foster the development of active transportation by providing technical planning assistance and professional services to municipalities.

Purpose

The Borough aims to support and encourage bicycle and pedestrian travel throughout Palmyra and prioritize the safety enhancements needed to realize a safe and accessible bicycle and pedestrian transportation network. The plan identifies potential alternatives for connections between the Borough's existing trip generators and the Route 73 South Redevelopment Area. The plan also documents the planning and outreach process, recommendations, and community priorities.

While any of the recommendations contained within this plan could be advanced as opportunities arise, this plan identifies priority projects based on input from the community, Borough representatives, and stakeholders. The plan should be used to guide the Borough as it makes these decisions, and it should work with relevant partners to move projects forward when possible.

Planning Process and Community Outreach

The process began with analysis of existing bicycle and pedestrian facilities, traffic volumes, and crash data. Additionally, existing plans and studies were reviewed to further understand efforts previously undertaken in the area.

Community engagement was a critical element of the planning process and helped shape the recommendations made in this plan. In-person outreach activities as well as online surveys and map-based input through the project website provided valuable feedback about community needs, priorities, opportunities, and recommendations.

A Study Advisory Committee (SAC) helped guide the plan. This committee included representatives from the Borough of Palmyra, Burlington County, NJ TRANSIT, the Delaware Valley Regional Planning Commission, Cross County Connection TMA, the New Jersey Conservation Foundation, and the Bicycle Coalition of Greater Philadelphia, as well as members of the Palmyra community.

Priority Projects

During the planning process, several key concepts were identified and evaluated for feasibility and future implementation. Priorities reflect the community's vision, the Borough's goals, and stakeholder input. A map of these priorities can be found on the following page.

Pedestrian Safety and Mobility Improvements

Safety improvements that improve visibility, including curb extensions, and signal timing changes are recommended at intersections along the Broad Street corridor as these are areas of high pedestrian activity. Driver behavior on Broad Street was a common complaint at outreach events so traffic calming measures are also recommended. Suggested improvements to the RiverLINE Trail along Broad Street include widening and filling in gaps in the path.

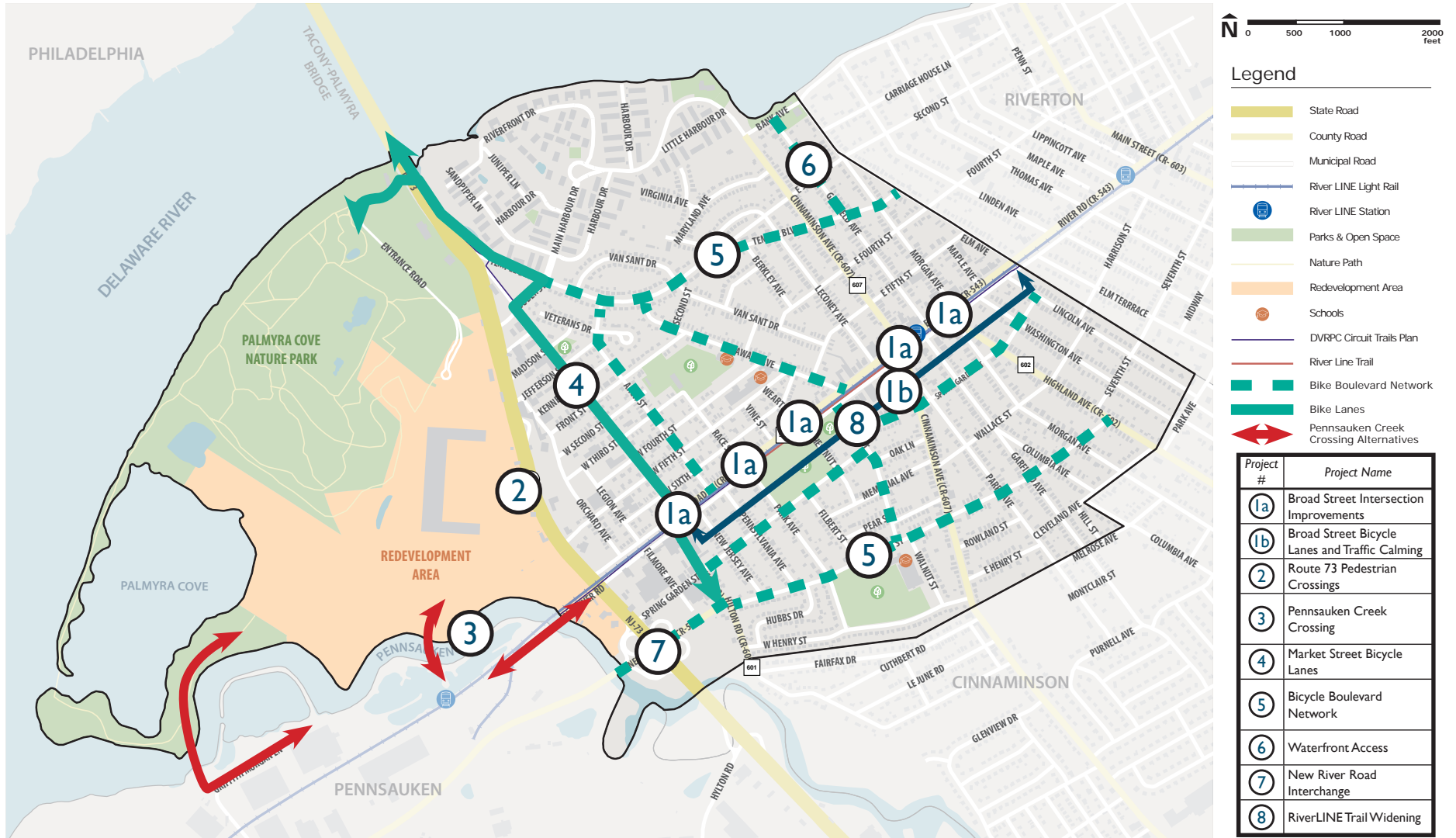
Upon completion in the coming years, the Route 73 South Redevelopment Area will generate new employment opportunities and provide new housing units. Additional pedestrian crossings of Route 73 are recommended to connect the Redevelopment Area with the rest of Palmyra. Additionally, access to the Pennsauken RiverLINE station is explored and several pedestrian routes are proposed.

Bicycle Safety and Mobility Improvements

A bicycle network across Palmyra is a major recommendation of this plan and includes bicycle lanes on Broad Street and Market Street. Proposed bicycle lanes on Broad Street would calm traffic through narrowing of the roadway and should be coupled with other traffic calming measures. Bicycle boulevards are also recommended to create a Borough-wide network of roads comfortable for bicyclists to share with motor vehicles. This proposed network links popular destinations like schools, commercial areas, and parks.

Other areas for bicycle mobility improvements include the cloverleaf intersection of New River Road with Route 73, which is a key regional link. Other proposed connections to Pennsauken Station for the Route 73 Redevelopment Area include access for bicyclists as well as pedestrians. Finally, the RiverLINE trail expansion could create room to separate pedestrians and bicyclists.

Priority Projects Map



Chapter 1: Introduction and Existing Conditions

Introduction

Background

This plan was prepared through the NJDOT's Bicycle and Pedestrian Planning Assistance Program. The Borough of Palmyra applied for this program to identify an integrated, connected, safe, and accessible pedestrian and bicycling network. In addition, a key issue for the plan is to identify potential alternatives for safe pedestrian and bicycle connections between the Route 73 South Redevelopment Area and downtown businesses, bus routes, the RiverLINE station, schools, and parks.

Once completed, the Route 73 South Redevelopment Area will have more than 1.4 million square feet of warehouse/distribution center space, creating more than 800 new jobs. In addition, there will be more than 100 units of affordable housing. Safe bicycle and pedestrian connections are needed to enable future residents and employees to walk, bicycle, and use mass transit. Students living in affordable housing will need safe access across Route 73 to schools. Future employees of the warehouse/distribution center will need access to the Pennsauken Route 73 Park and Ride or Palmyra RiverLINE stations and to the NJ TRANSIT Route 419 bus stops.

Setting

Palmyra Borough in Burlington County, New Jersey is approximately 2.5 square miles in area and home to 7,442 residents (2020 US Census). Palmyra borders Riverton Borough, Cinnaminson Township, Pennsauken Township and the Delaware River. Across the Delaware River, it borders the Tacony section of Philadelphia to which it is connected via Route 73 and the Tacony-Palmyra Bridge.

Purpose

The purpose of the study is to equip the Borough of Palmyra with a planning framework to guide the future implementation of a bicycle and pedestrian transportation network, with safe and accessible accommodations, taking an all-ages-and-abilities approach. Recommendations are consistent with established standards including the New Jersey Complete Streets Design Guide and the Burlington County Master Plan Transportation Element.

The main objectives of the study are to:

- recommend pedestrian safety and accessibility improvements with a focus on the downtown and access to transit,
- define preliminary options to safely connect future residents and workers from the Route 73 South Redevelopment Area to/from downtown Palmyra and the NJ TRANSIT RiverLINE Pennsauken Route 73 Park-n-Ride station,
- identify a Borough-wide bicycle network,
- connect bicyclists and pedestrians to adjacent communities and the multi-use regional Circuit Trail network, East Coast Greenway, Delaware River Heritage Trail, and the 250-acre Palmyra Cove Nature Park, and
- aid the Borough in addressing circulation goals in accordance with its municipal Master Plan.

Existing Conditions

This section describes land use, demographic data, and the transportation network including existing walking and bicycling facilities. Crash data was analyzed to identify trends and hot spots. Previous plans and studies were reviewed to provide an understanding of related initiatives.

Literature Review/Related Plans and Studies

The table below highlights some of the most relevant and recent plans from the municipality, county, and region. More information can be found in Appendix E.

Plan	Summary
2018 Reexamination of the Master Plan	<p>The major problems and objectives relating to land development during the previous reexamination that are relevant to this plan include:</p> <ul style="list-style-type: none"> • The improvement of the transportation system for the more efficient movement of people and goods. • The expansion of community facilities in support of the Borough’s population. • The provision of a comprehensive system of public recreation facilities.
Route 73 South Redevelopment Plan (2003) and Plan Amendment (2020)	<p>The Route 73 South Redevelopment is the most significant development effort currently ongoing in Palmyra. The plan includes two warehouses and 106 affordable housing units. There are two access points for these buildings, with one from the main road of the Palmyra Cove Nature Park and the other being a new entrance built off the “jug handle” adjacent to the Kerbeck Auto Dealerships. It is important to note that the housing units will not be age-restricted and will thus generate school-age children that must be accommodated.</p>
Burlington County Bicycle Master Plan (2014)	<p>This plan identifies a considerable concentration of crashes around the intersection of Broad Street and Cinnaminson Avenue. In its map of existing bikeways, there is a notable lack of any bikeways in Palmyra, which is reflected in its low bicycling rate relative to the county, but it is noted that Palmyra has some of the highest walking and transit use rates in the county. Route 73 is noted as a barrier—this is further emphasized in a discussion about the Delaware River Heritage Trail, as the Palmyra-Tacony bridge links the DRHT in New Jersey and Pennsylvania together yet bikes must be walked over the bridge. Finally, the plan proposes primary and secondary bikeway corridors. Broad Street, Cinnaminson Avenue, and Market Street are identified as primary corridors and Highland Avenue is identified as a secondary corridor.</p>
DVRPC Transit Village Design in Burlington County (2002)	<p>This study analyzes RiverLINE stations in the DVRPC region. Palmyra is identified as one of the towns around the RiverLINE with the elements of a Transit Village already in place. It describes Palmyra as having a “comfortable small town feel” due to “turn-of-the-century vernacular architecture, centrally located bandstand, and the railroad.” Much of the borough is an easy walk to the station, which is near most of the borough’s commercial area. Recommendations include improving access to the station via trailblazer signage, residential parking permits, sidewalk upgrades, and bus service coordination.</p>
DVRPC, Equity Through Access (Coordinated Human Services Transportation Plan), 2020 Update	<p>These plans, required by the Federal Transit Administration (FTA) Section 5310, identify “the transportation needs of individuals with disabilities, seniors and people with low incomes, provides strategies for meeting those needs, and prioritizes transportation services for funding and implementation.” These are strategies that provide better access to essential services to the most vulnerable populations (elderly, disabled or impoverished populations). Opportunities related to achieving equity through access for vulnerable populations include:</p> <ul style="list-style-type: none"> • Ensure transit stops and connecting pathways are accessible, prioritize improvements where they are not. • Develop a program for building/maintaining sidewalks that connect to transit. • Support Complete Streets, Vision Zero, sidewalk networks, public restrooms, and places to sit or rest to allow for ease/safety of going out on foot. • Prioritize accessibility improvements at key transportation hubs with significant numbers of vulnerable populations and communities with concentrations of disabled or senior populations. • Improve lighting, add security cameras, increase transit station staff, install crosswalks, pedestrian countdown timers, and traffic calming, and activation of underused spaces.

Land Use

Land use consists primarily of single-family homes, a downtown business district along Broad Street (County Route 543), highway commercial development along New Jersey State Route 73, and industrial uses between Route 73 and Market Street / Public Road. A significant portion of the residential area is a private neighborhood at the waterfront, which includes apartments and condominiums. The schools and parks are distributed across town but are generally located in the center. The Borough also encompasses the 250-acre Palmyra Cove Nature Park, and almost 20% of Palmyra's land area is water.

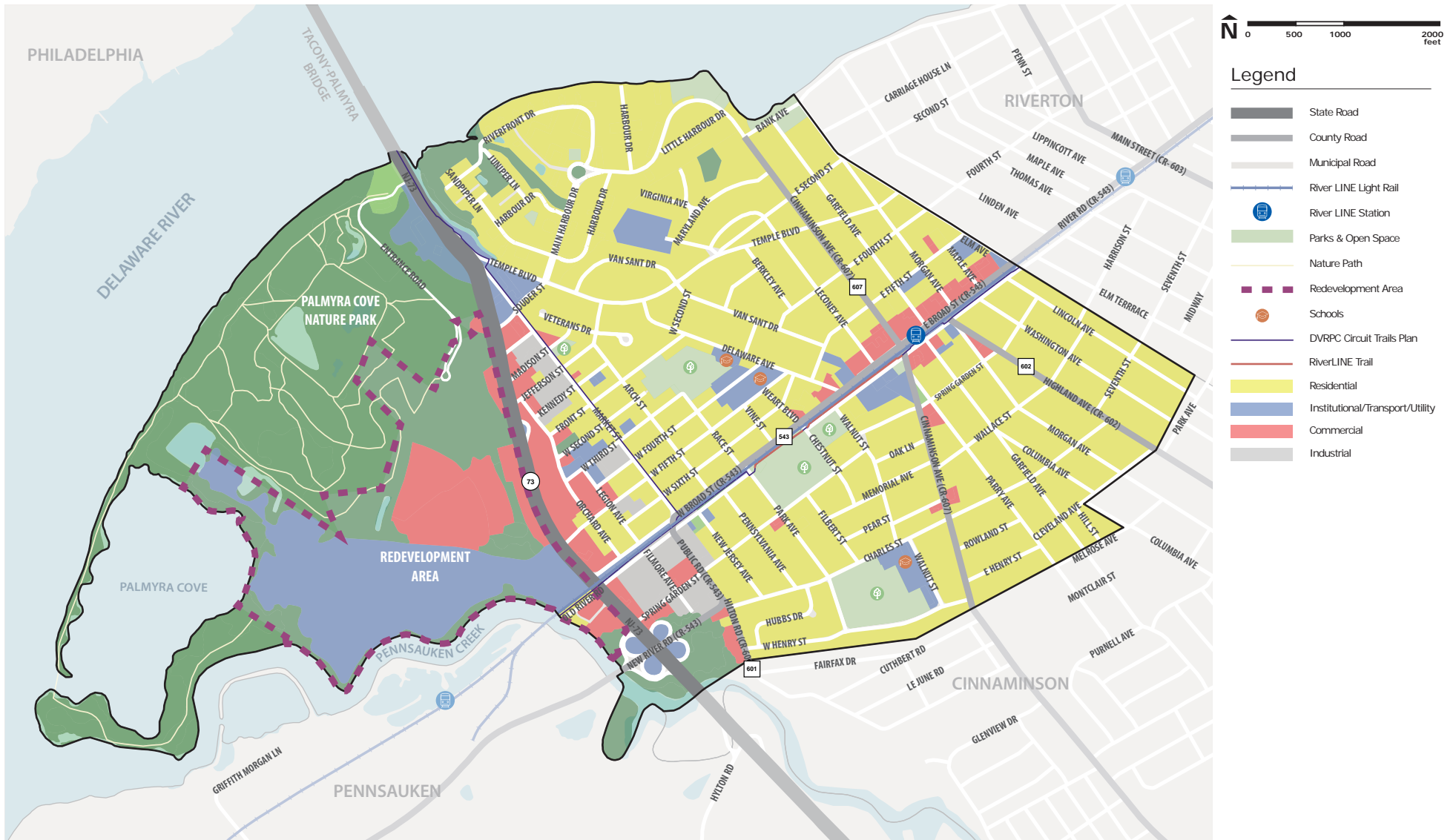
A large undeveloped tract of land south of Route 73 comprising approximately 182 acres was designated a Redevelopment Area almost twenty years ago and site work began on a portion of this property in 2021. As of July 2023, the first of these warehouses, with 700,000 square feet of space, is completed and the second is underway, as are the housing units. The property is bordered by Pennsauken Creek to the south, Route 73 to the east and Palmyra Cove Park to the north and west. NJ TRANSIT's RiverLINE commuter light rail borders the southeastern end of the property across Pennsauken Creek.

Trip Generators

A key factor in evaluating an improved bicycle and pedestrian network is to identify the places that people want to walk and bicycle to. A number of destinations were identified through analysis and public outreach. These key locations include:

- Downtown Broad Street Commercial Corridor
- RiverLINE station
- Municipal facilities: Borough Hall, Community Center, Police Department, Fire Department
- Route 73 Highway Commercial Corridor
- Route 73 South Redevelopment Area
- Schools
 - Palmyra Middle and High School
 - Charles Street Elementary School
- Parks and Open Space
 - Palmyra Cove Nature Center
 - Baby Clint Park
 - Legion Field Complex
 - Promenade Park/Bank Avenue
 - Pocket parks at Broad Street and Cinnaminson Avenue and at the merger of Cinnaminson Avenue and Parry Avenue
- Religious Institutions
 - Miller's Temple Church of God
 - Evergreen Baptist Church and Saint Paul UAME
 - Oxford United Methodist Church
 - Road to Heaven Church
 - Epworth United Methodist Church
 - Central Baptist Church
 - El-Beth-el Community Cathedral
 - Bethany Lutheran Church
 - The Islamic Center of South Jersey

Figure 1. Land Use



Data Source: NJDEP Bureau of GIS

Demographic Data

Palmyra has a population of 7,442 as of the 2020 Census, and 4,024 people per square mile. It has the fifth highest density in Burlington County, behind Riverside, Maple Shade, Beverly and Bordentown. Table I provides an overview of demographic and transportation factors from the American Community Survey (ACS) 5-Year estimates from 2021 at the municipal, county and state level.

Age

Palmyra has a higher percentage of working-age adults (19 to 64 years of age) than Burlington County and New Jersey and fewer minors and seniors than the county and state. However, the senior population throughout the state and nation is expected to increase in the coming years, making safe and accessible transportation options, including walking, a top priority.

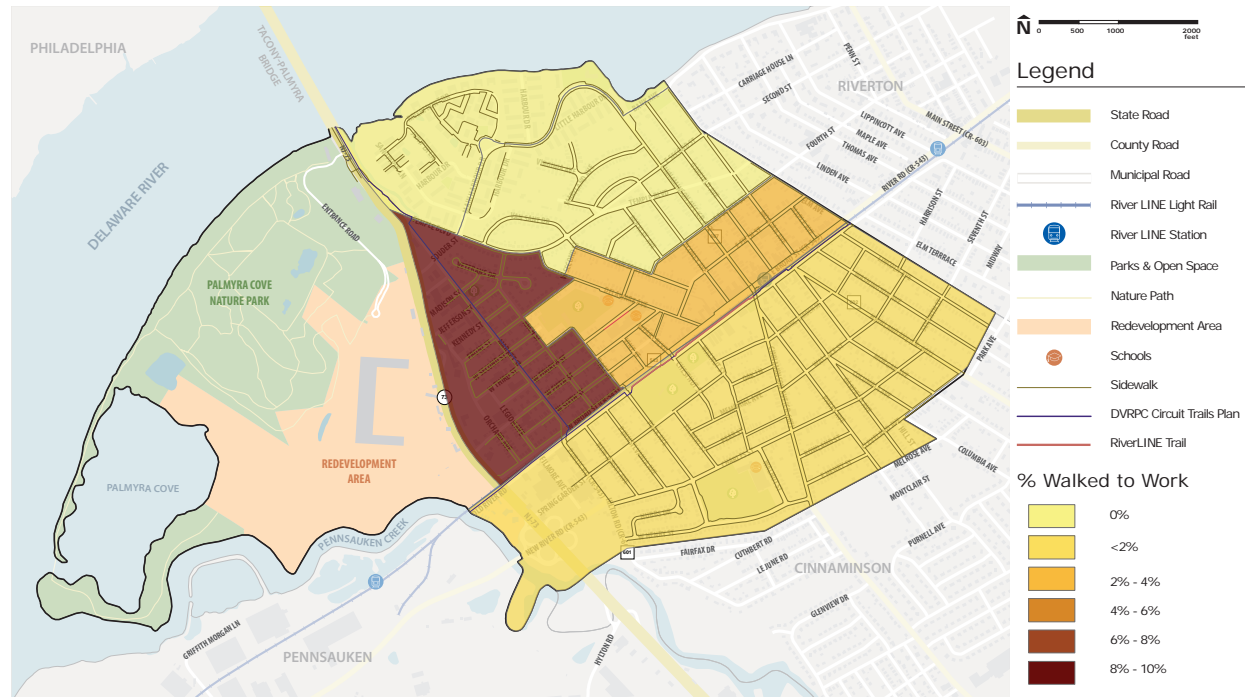
Commuting Characteristics

The U.S. Census collects information about the primary mode that residents use when commuting to work. While this provides important data about commute trips, it only tells us about those residents who are employed. This does not capture the many walking and bicycling trips that residents take to school, shopping, or for recreation.

The percentage of people driving alone to work in Palmyra is lower than that of Burlington County, but both are higher than the New Jersey average. Palmyra has a higher rate of carpooling than both the county and the state. There is a higher rate of public transportation commuting than the county but is lower than the state. The Borough also has higher rates of walking and bicycling to work than Burlington County, with a higher rate of bicycling to work than the state as well.

	Palmyra Borough		Burlington County		New Jersey	
Area (sq. miles)	2.5		820.2		8722.6	
	Total	Percent	Total	Percent	Total	Percent
Age	ACS 5-year Estimates, Table S0101					
Under 18	1,351	18.2%	96,270	20.9%	2,040,442	22.1%
19-64	5,001	67.3%	285,739	62.1%	5,699,066	61.7%
65 and older	1,077	14.5%	78,093	17.0%	1,494,516	16.2%
Total	7,429		460,102		9,234,024	
Travel to Work	ACS 5-year Estimates, Table S0801					
Workers 16 y/o or over	3,988		231,782		4,489,790	
Car, truck, or van	3,238	81.2%	197,478	85.2%	3,362,853	74.9%
<i>Drove alone</i>	2,871	72.0%	181,949	78.5%	3,021,629	67.3%
<i>Carpooled</i>	367	9.2%	15,529	6.7%	341,224	7.6%
Public transportation (excluding taxicab)	160	4.0%	6,258	2.7%	439,999	9.8%
Walked	68	1.7%	2,086	0.9%	116,735	2.6%
Bicycle	20	0.5%	464	0.2%	13,469	0.3%
Taxicab, motorcycle, or other means	-	0.0%	2,318	1.0%	80,816	1.8%
Worked from home	506	12.7%	23,178	10.0%	475,918	10.6%
Disability Status	ACS 5-year Estimates, Table S1810					
Noninstitutionalized population with a disability	961	12.9%	51,899	11.7%	946,687	10.4%

Figure 2. Percent of Population Walking to Work



Data Source: DVRPC and American Community Survey

The data shows that there is more active commuting in Palmyra than in Burlington County, which may be due to both its greater population density and the availability of light rail transit. Improvements to the bicycle and pedestrian infrastructure can help the Borough further capitalize on this trend and promote more car-free or car-light living as well as potentially attract people that prefer such a lifestyle. Additionally, the dense layout of Palmyra lends itself well to an increasingly vibrant central business district that is easily accessible by foot or bicycle for its residents.

Disability

People with physical and mental disabilities require certain infrastructure improvements to get around effectively, ranging from repairs to damaged sidewalks and paths to accessible ramps and a

variety of other mobility aids. In Palmyra, the estimated population of disabled residents is 961, or 12.9% of the Borough's population; this is greater than both the county and state.

The implications of this relatively high rate of disabled residents are significant in that there should be additional consideration made to ensure ADA accessibility standards are met at key locations to enable the independent movement of these residents. This includes both physically disabled people as well as people with cognitive and intellectual disabilities. In January 2023, New Jersey enacted a law (C.27:1B-21.39) that expands the NJDOT Complete Streets Policy to "require the consideration and implementation of design elements and infrastructure improvement projects that promote the ability of persons diagnosed with autism spectrum disorder and persons with intellectual and developmental disabilities to travel independently."

Transportation Network

Roadway Network

The roadway network in Palmyra can be divided into major streets and local streets. The major streets have higher traffic volumes and connect to the regional roadway network. Major roadways include:

- NJ Route 73 (19,064 AADT southbound and 27,042 AADT northbound in 2013)
- Broad Street (County Route 543) (5,633 AADT in 2019)
- New River Road (County Route 543) (5,500 AADT in 2014)
- Cinnaminson Avenue (County Route 607)

Local streets mostly serve residential uses and are municipally owned, and tend to carry less traffic at lower speeds.

Transit

The Palmyra station on the RiverLINE light rail system is located on East Broad Street. The station opened on March 15, 2004. Southbound service from the station is available to Camden, New Jersey. Northbound service is available to the Trenton Rail Station with connections to NJ TRANSIT trains to New York City, SEPTA trains to Philadelphia, Pennsylvania, and Amtrak trains. There is an average of 309 weekday boardings from Palmyra station during the second half of 2022 and first half of 2023.

NJ TRANSIT bus route 419 provides bus service through Palmyra to Camden to the south and Riverside to the north.

Bicycle Level of Traffic Stress

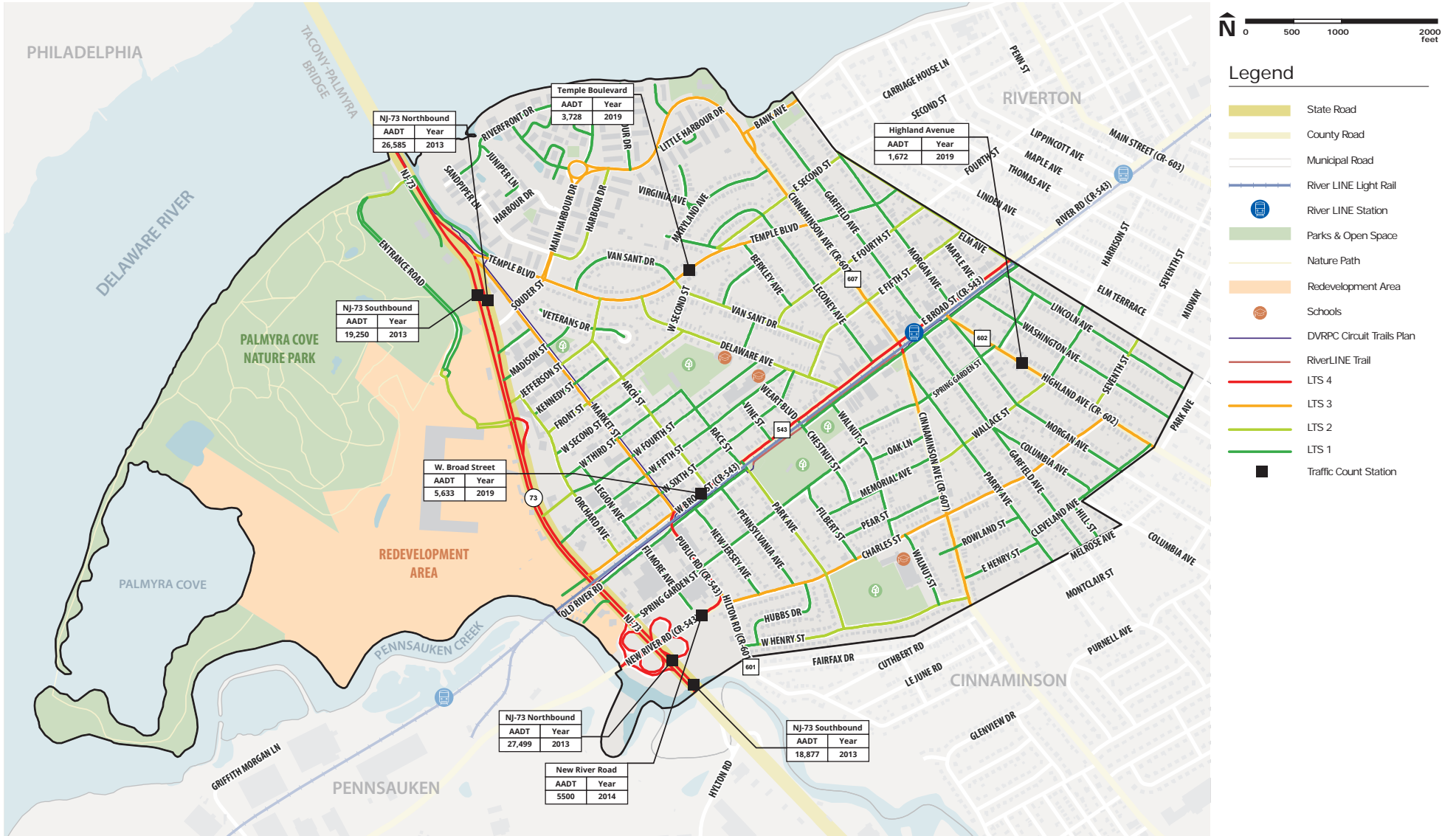
There are no dedicated bicycle facilities in Palmyra. On most streets in the Borough, bicyclists and motor vehicles share the road. The Delaware Valley Regional Planning Commission (DVRPC) Level of Traffic Stress (LTS) analysis ranks roadways in terms of the estimated comfort for bicyclists using on a scale from 1-4, with 1 meaning the least stress and 4 meaning the most stress.

Overall, 52.6% of roads in Palmyra have an LTS of 1, 18.5% have an LTS of 2, 16.2% have an LTS of 3, and 12.7% have an LTS of 4. The roads in Palmyra with a rating of 4 are NJ Route 73, New River Road, Public Road, and Broad Street from New River Road to the border with Riverton. Many roads have an LTS rating of 3, including Cinnaminson Avenue, Highland Avenue, Charles Street, Market Street, Temple Boulevard, Souder Street, Main Harbor Drive (a private road), Bank Avenue and Broad Street between Route 73 and Public Road. The remaining roads in Palmyra are rated either 2 or 1.

LTS	Comfortable Enough	Characteristics
1	Most People	Lowest Stress Comfortable for most ages and abilities
2	Interested, but Concerned	Suitable for most adults Presenting little traffic stress
3	Enthusied and Confident	Moderate traffic stress Comfortable for those already biking in American cities
4	Strong and Fearless	High traffic stress Multilane, fast moving traffic

Image: Bicycle LTS & Connectivity Analysis (dvrpc.org)

Figure 3. Traffic Volumes and Bicycle Level of Traffic Stress



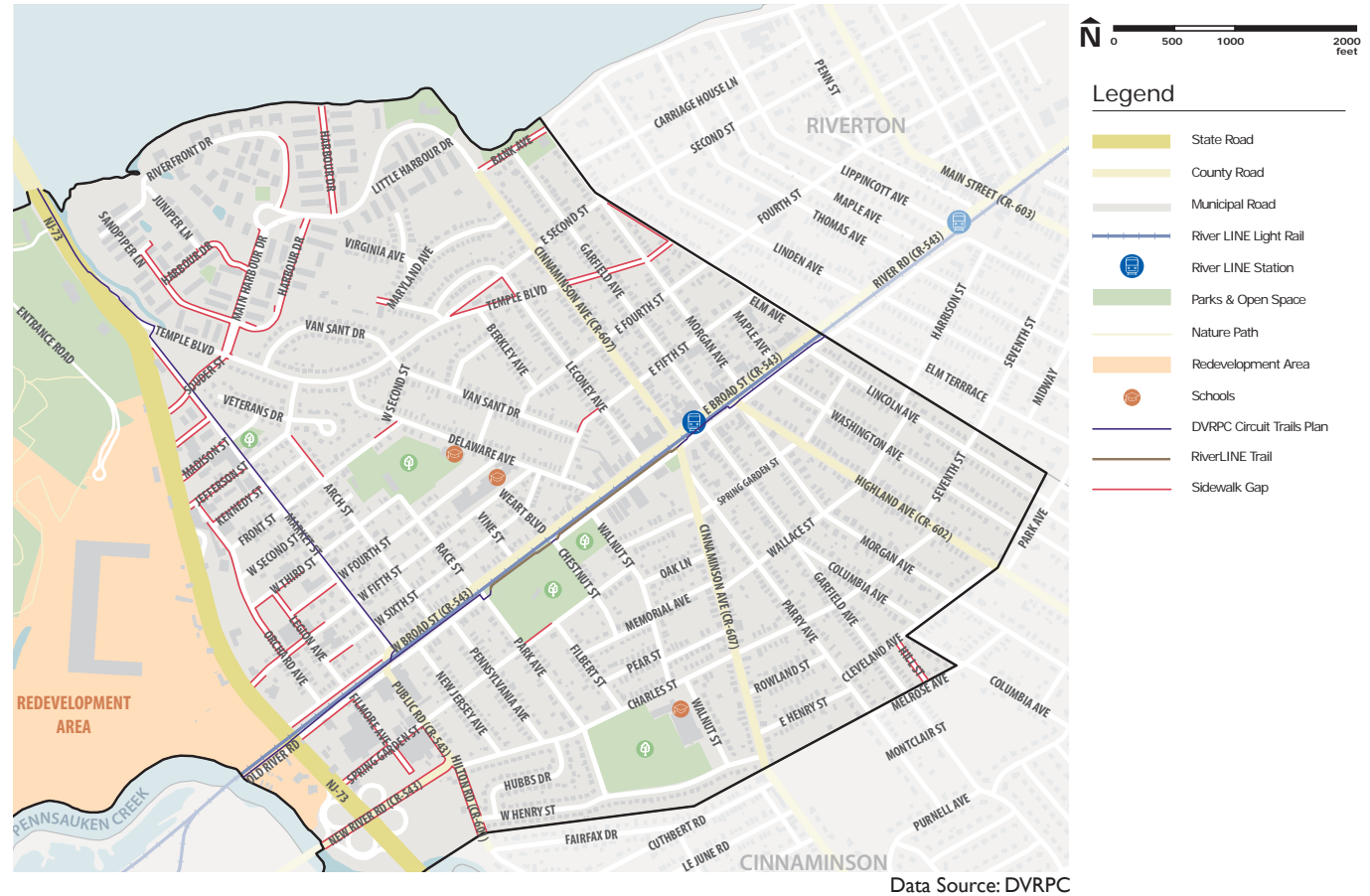
Data Source: DVRPC

Pedestrian Network

Palmyra does have a robust sidewalk network, except for some gaps which are highlighted in Figure 4. Most of these gaps are located in the industrial area of the Borough. Despite the broad coverage of sidewalks, many are not in good condition and require repairs.

There are 9.5 miles of hiking trails in Palmyra Cove Nature Park. However, the park does not allow bicycles or pets. The RiverLINE Trail, a shared-use path along the light rail corridor, is well-maintained and varies in separation from the roadway, including a fully off-road segment from Park Avenue to Chestnut Street. This path, as well as additional portions of Broad Street and Market Street, are designated as planned segments of the Delaware River Heritage Trail, which is part of Greater Philadelphia's Circuit Trails network. The exact route for the trail is still in progress but the primary focus is to link the New Jersey and Pennsylvania sides of the Delaware River, using the Palmyra-Tacony Bridge as one of the crossing points.

Figure 4. Sidewalk Gaps



Crash Analysis

From 2017-2021, there were a total of 864 crashes (average 172.8 per year) on Palmyra roads. Of these, 178 crashes resulted in 244 injuries, including 2 fatalities and 4 serious injuries. During this period, 12 crashes involved pedestrians and 8 involved bicyclists.

Key Findings

- 25% of crashes occurred within an intersection.
- Rear-end crashes were the leading cause of crashes (31%) followed by same direction – side swipe (14%) and struck parked vehicles (14%).
- 54% involved a distracted driver.
- 19% involved a driver age 65+.
- 8% involved unsafe speed.
- 6% involved alcohol or drug impaired driver.
- 21% of crashes occurred on the weekend (Saturday and Sunday).
- 43% occurred between noon and 5:59 PM.
- October (11%) and July (10%) had the highest volume of crashes.
- Over 80% of crashes occurred during clear conditions, 69% during daylight hours and 81% dry roadway conditions.
- Drivers between the age 26 and 35 made up the highest proportion of injury crashes (24%).

Over-Representation Analysis

An over-representation report was created for Palmyra Borough that compares the filtered crash criteria for Palmyra to all crashes in Burlington County and New Jersey. The over-representation report allows us to compare the geographic region (Palmyra) to the larger geographic regions in which it resides (Burlington County and New Jersey). The complete results (see Appendix F) highlight key differences in metrics between the two regions based on the filtered crash criteria.

Notable statistics from comparison report between 2017 and 2021 include:

- Roughly 54% of all crashes in Palmyra involved one or more distracted drivers compared to 48% involvement in Burlington County crashes and 49% in NJ crashes.
- Older drivers (65+ years of age) were involved in 19.7% of all crashes in Palmyra compared to 18.6% involvement in Burlington County crashes and 17% in NJ crashes.
- Young drivers (between 16 and 20 years of age) were involved in 9.6% of all crashes in Palmyra compared to 13.8% involvement in Burlington County crashes and 12.2% in NJ crashes.
- Alcohol and/or drug impaired drivers were involved in 4.9% of all crashes in Palmyra compared to 3.6% involvement in Burlington County crashes and 2.6% in NJ crashes.
- One or more occupants were not wearing their seatbelt at the time of crash in 2.6% of all Palmyra crashes compared to 1.5% of Burlington County crashes and 1.5% of NJ crashes.

Figure 5. All Crashes, by Severity



Figure 6. Bicycle and Pedestrian Crashes by Severity

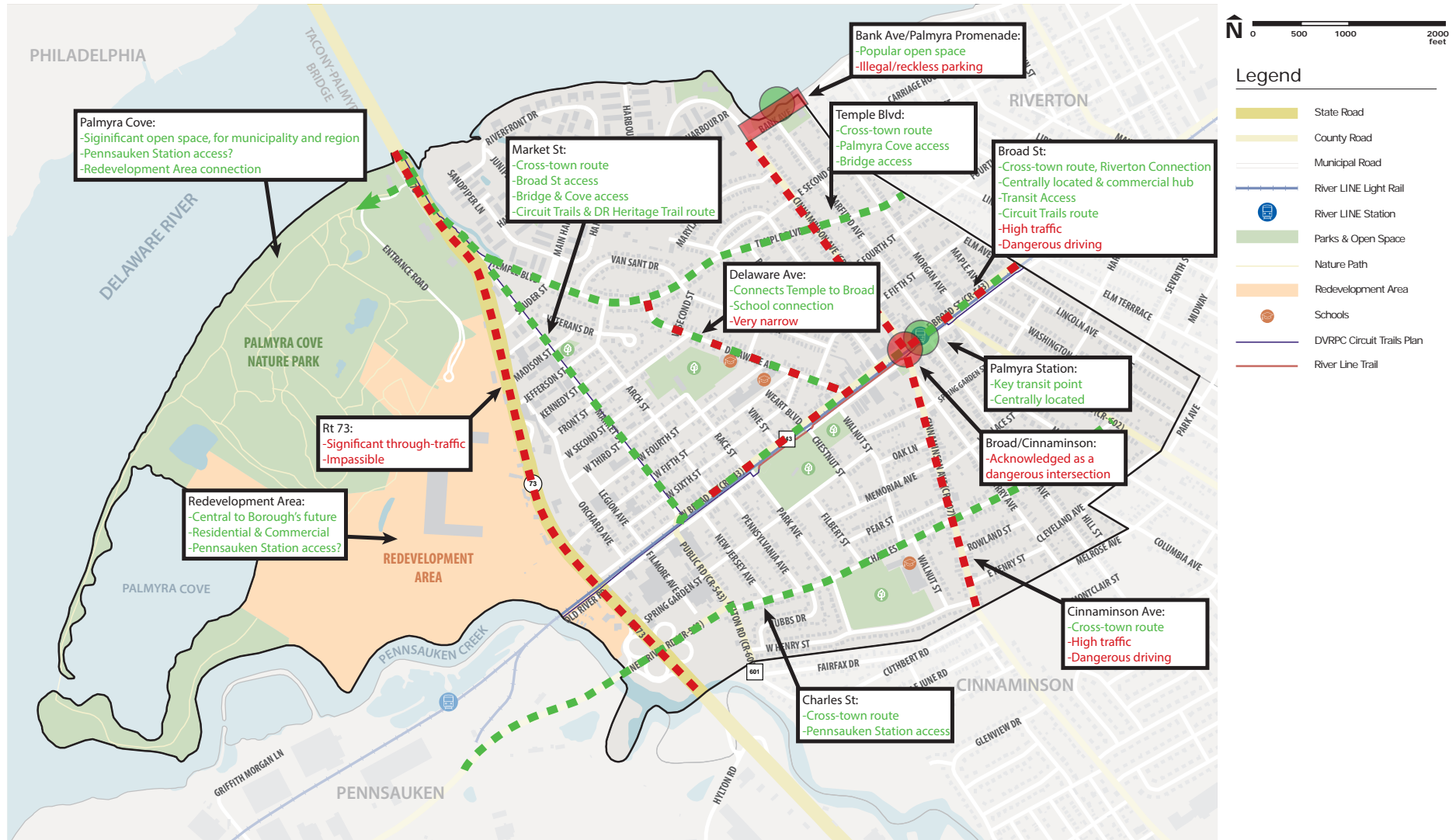


Opportunities and Constraints

A site visit was held with representatives from the Borough on June 15, 2023 to gain a deeper understanding of opportunities and constraints. Locations were identified based on input from the public and the Study Advisory Committee.

The following is a summary of opportunities (in green) and constraints (in red) based on community input and information collected through a field investigation.

Figure 7. Opportunities and Constraints



Chapter 2: Outreach Summary

Outreach Process

Community outreach was an integral part of the planning process and helped inform needs and opportunities and shape recommendations. Engagement activities were structured to gain input from a wide audience including residents and stakeholders. Public input opportunities included two in-person community events, an online survey, and an interactive map. Both events were well attended and were supplemented with online input opportunities for those that could not make it. A QR code and link to the project website was distributed at each public outreach event, as well as being promoted by the Borough on its website and social media pages. A Study Advisory Committee (SAC) provided guidance, direction, and input throughout the course of the plan. The SAC met three times throughout the study remotely using Zoom. These meetings each had a comment period during which committee members could review the material presented and provide additional comments.

The following is a summary of engagement efforts and the input received from this outreach process.



Palmyra Downtown Safety Day

May 6, 2023

Each spring, the Borough of Palmyra holds Palmyra Downtown Safety Day, closing a portion of Broad Street to traffic to make way for information tables, food sales, and entertainment. On May 6, 2023, the project team attended this event, with a table adjacent to the Borough's table at the center of the activity. There were boards with maps, examples of bicycle and pedestrian treatments, and information about the project website. Two boards included maps of the Borough, on which participants were asked to place red and green dots at locations they wanted to see improvements to promote walking and biking, or where they felt it was currently unsafe to walk or bike. A similar web-based map survey allowed members of the public that could not attend the public event to provide the same input. The photos on the following page show the cumulative input received in-person and through the website, showing hot spots in need of improvements and locations where improved access should be focused.



Survey

An online survey was available on the project website for more than two weeks after the May 6 public event. In addition, the project team had tablets at Palmyra Downtown Safety Day for participants to complete the online survey. A total of 48 surveys were completed. The results of that survey can be found in Appendix A.

The data gathered via the survey provided several key insights. Obstacles to walking and bicycling were centered on poor road/sidewalk conditions and aggressive motorists. Additionally, pedestrians felt concern regarding unsafe crossings and bicyclists noted a lack of safe bikeways. When asked what would make these modes of transportation safer, the most identified measures were an expanded bicycle/pedestrian network, safer intersection crossings, and improved maintenance.

Participants were asked to provide demographic information. This helped the project team to get a sense of who was reached. Two thirds of respondents were over 40 years old and over 20% were over 60. While 41 respondents lived in Palmyra, only six were employed in the Borough.

Interactive Map

The online map received a total of 45 responses, adding 29 new points and 16 new corridors to the map. The map survey input reflected information gathered at the May 6 event but included additional areas of interest and concern. This included interest in improvements along Cinnaminson Avenue, Market Street and New River Road and concern along those same roads as well as Route 73 and Garfield Avenue. Points of concern included the Palmyra High School field, Delaware Avenue, and warehouses along Route 73.

Input from Palmyra Downtown Safety Day and Web-based Mapping Tool

Figure 8. Map Markings - Desired Destinations/Routes for Pedestrians or Bicyclists

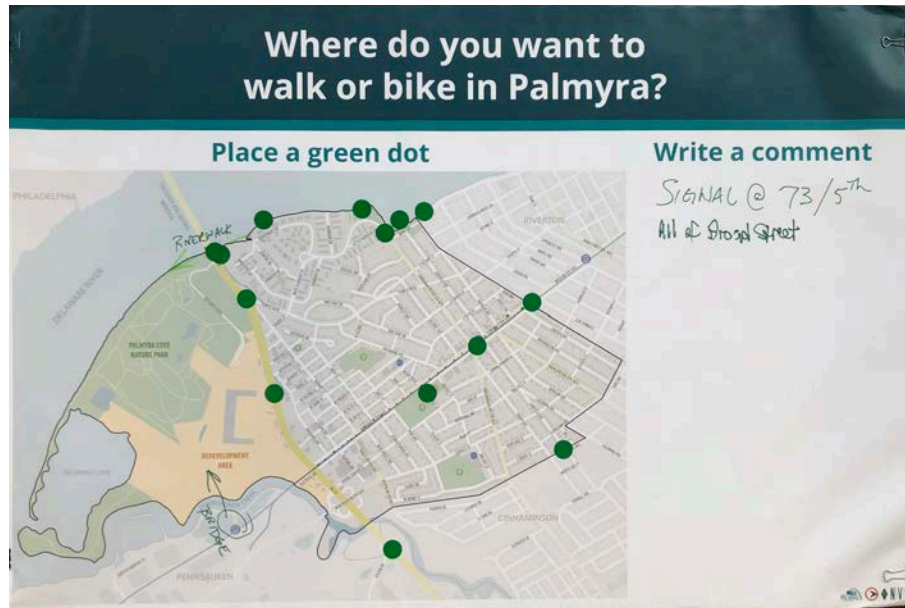


Figure 9. Map Markings - Dangerous Areas/Routes for Pedestrians or Bicyclists

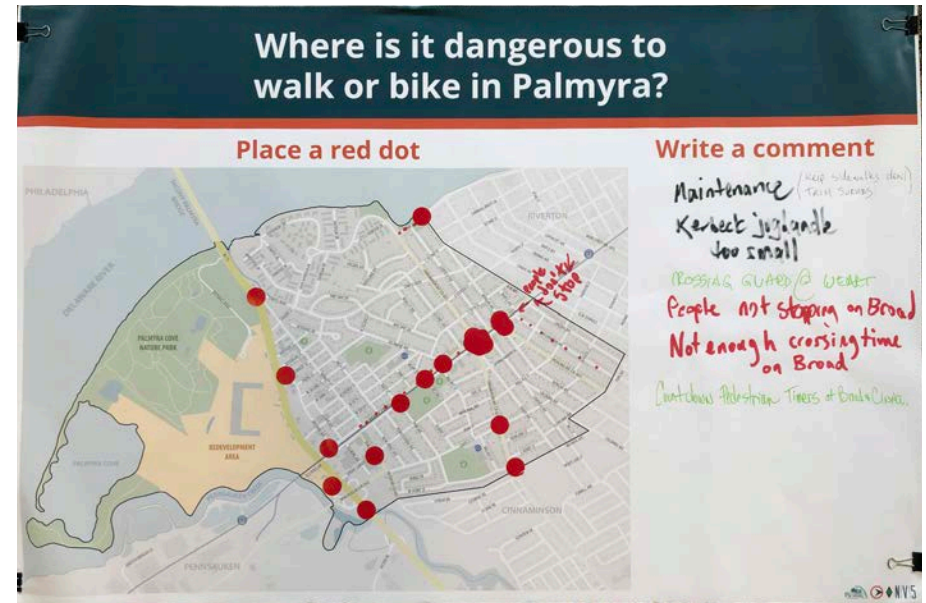
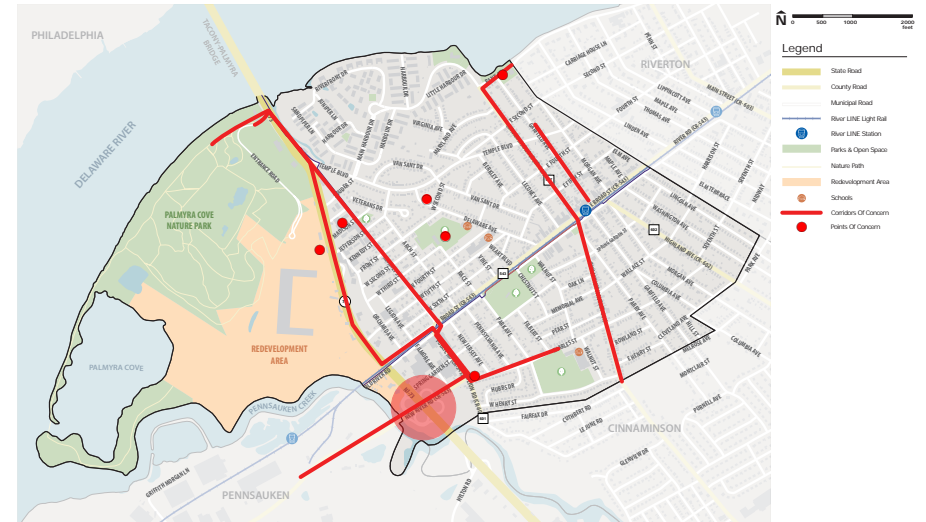


Figure 10. Desired Destinations/Routes (Physical and Online Maps Combined)






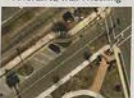










Figure 11. Dangerous Areas/Routes (Physical and Online Maps Combined)



National Night Out

August 1, 2023

National Night Out, held on August 1, 2023, is another popular annual public event. The Borough provided a table for the project team to share draft priority concepts, which were based on earlier input from the public as well as the Study Advisory Committee. Nearly 100 attendees stopped at the table to discuss the proposed recommendations, using green dots to voice their opinions regarding the priority of individual project concepts.

What do you think?		
	Priority	Additional Thoughts
 <p>Intersection Improvements</p>		<p>WAS AN ISLAND where pedestrians can stand </p> <p>To many people DO NOT give Ped the right of way</p> <p>*Lug Or idea of pedestrian islands</p>
 <p>RiverLINE Trail Widening</p>		<p>- When ADD lengthen the trail - More shade trees!</p>
 <p>Route 73 Crossing</p>		<p>- Ensure only walking to school from redevelopment</p>
 <p>Pennsauken Creek Crossing</p>		<p>- Make sure and connect to other trails</p>
 <p>Bicycle Network</p>		<p>- Bicycle Access + Safety</p>
 <p>Bicycle Lanes (Broad, Market)</p>		<p>Smooth rails </p>



Study Advisory Committee

The Study Advisory Committee included stakeholders from NJDOT, Palmyra Borough, NJ TRANSIT, Cross County Connection Transportation Management Association, Burlington County Planning, Burlington County Engineering, the Burlington County Bridge Commission, the Delaware Valley Regional Planning Commission, New Jersey Conservation Foundation, the Bicycle Coalition of Greater Philadelphia, and a few key members of the community that were active in previous planning efforts.

- NJDOT 
- Borough of Palmyra 
 - Administration
 - Council Parks and Grounds Subcommittee
- NJ Transit 
- Cross County Connection TMA 
- Burlington County 
 - Planning
 - Open Space and Park Development
 - Engineering
- Burlington County Bridge Division 
- DVRPC 
- New Jersey Conservation Foundation 
- Bicycle Coalition of Greater Philadelphia 
- Key Community Stakeholders

Each meeting began with a recap of the previous meeting, as well as public input when applicable, and ended with a discussion of next steps and the remaining project schedule. With a comprehensive group of stakeholders, the three Study Advisory Committee meetings were highly productive and served to guide the technical discussion. The following is a summary of the topics covered at each meeting.

Study Advisory Committee Meeting I

May 23, 2023

The project was introduced and project goals were clarified. The project team discussed prior studies and plans, asking for input from

the committee about additional documents that should be reviewed and included in the Literature Review. An initial discussion of existing conditions also took place, with input about other areas that should be addressed. The following focus areas were discussed:

- Broad St commercial core
- Transit – RiverLINE stations/bus line
- Route 73 South Redevelopment Area
- Palmyra Cove Nature Park
- Palmyra Promenade Park
- Schools

Study Advisory Committee Meeting 2

June 22, 2023

At the second meeting, the project team shared the Opportunities and Constraints map, which documents existing conditions and areas of focus. Based on these findings, the project team then shared a list of draft concepts with initial ideas for recommendations in order to obtain input from committee members.

Interviews and Small Group Conversations

June - July 2023

Additional discussion took place with individual SAC members and stakeholders to give detailed feedback on specific draft recommendations. Discussions included:

- Burlington County (June 27) regarding the Delaware River Heritage Trail alignment as well as access to the waterfront between the Tacony-Palmyra Bridge and Bank Street.
- New Jersey Conservation Foundation (July 11) to discuss access to the waterfront between the Tacony-Palmyra Bridge and Bank Street (which is privately owned) as well as a recreational trail connection over the Pennsauken Creek to the Palmyra Cove Nature Park, which would not connect directly to the Route 73/ Pennsauken RiverLINE station.
- NJ TRANSIT (July 13) to discuss the widening of the existing RiverLINE path and the Pennsauken Creek crossing alternative to connect the redevelopment area to the Route 73/Pennsauken RiverLINE station.

Outreach Timeline



Study Advisory Committee Meeting 3

July 20, 2023

After holding the interviews and small group conversations, detailed draft concepts were presented for committee input and guidance. The focus was on treatments and details for each draft concept, as well as prioritization of the concepts based on ongoing opportunities and the areas of greatest need.

Study Advisory Committee Meeting 4

November 2, 2023

A final meeting with the Study Advisory Committee was held near the completion of the plan, with a review of the concepts developed by the project team and the order in which they were prioritized. Final input from relevant agencies and local governments was shared and discussed.

Chapter 3: Bicycle and Pedestrian Network and Key Initiatives

Project Concept Map

Below is a map identifying the locations of the concepts developed for this plan. These include pedestrian network improvements, bicycle network improvements, and shared-use access to Pennsauken Station. The following pages detail each of these concepts.

Figure 12. Project Concept Map



Pedestrian Network Concepts



Intersection Pedestrian Improvements

Route 73 Pedestrian Crossings

Bicycle Network Concepts

Shared Lane Markings / Bike Boulevard Network

Bike Lane / Dedicated Bike Path

Pennsauken Station Access

Pennsauken Creek Potential Crossings

Pedestrian Network

While much of Burlington County is suburban or rural, most towns along the RiverLINE are dense, walkable communities. Palmyra is included in this category, with the fifth-highest population density in Burlington County and the 158th-highest in the state (out of 564, which places it in the 72nd percentile). Residents frequently walk around town to access the central business district on Broad Street, and the Borough's rates of commuting via walking or public transportation are both higher than the county average. There is community pride that Palmyra is a "walking town." The following recommendations build on this culture of walkability and will enhance pedestrian safety and accessibility.

Broad Street Intersection Improvements

Outside of Route 73, Broad Street (CR 543) has the highest level of vehicular traffic in Palmyra. It also has the most pedestrian activity. However, because it runs along the RiverLINE, intersections along this road are often complex and can be made safer for pedestrians. The ratio of pedestrian crashes to total crashes throughout Palmyra is nearly double that experienced throughout Burlington County, and Broad Street is the second-highest pedestrian crash corridor in the Borough behind Route 73. In July of 2020, a pedestrian fatality occurred at the intersection of Broad Street and Cinnaminson Avenue, caused by a distracted driver who failed to yield to a crossing pedestrian.

The following Broad Street intersections were selected for analysis:

- Market Street/Public Road
- Race Street/Park Avenue
- Weart Boulevard/Chestnut Street
- Cinnaminson Avenue
- Highland Avenue/Morgan Avenue

Recommended modifications include improving visibility of crosswalks through the use of consistent high-visibility striping, adding curb extensions to shorten crossing distances and improve pedestrian visibility, modifying signal timing to allow for leading pedestrian intervals, replacing existing pedestrian indications with

countdown displays, upgrading pedestrian push buttons through fully accessible devices, and installing new-generation blankout turn prohibition signs. See pages 33-34 for information on design guidance for these improvements.

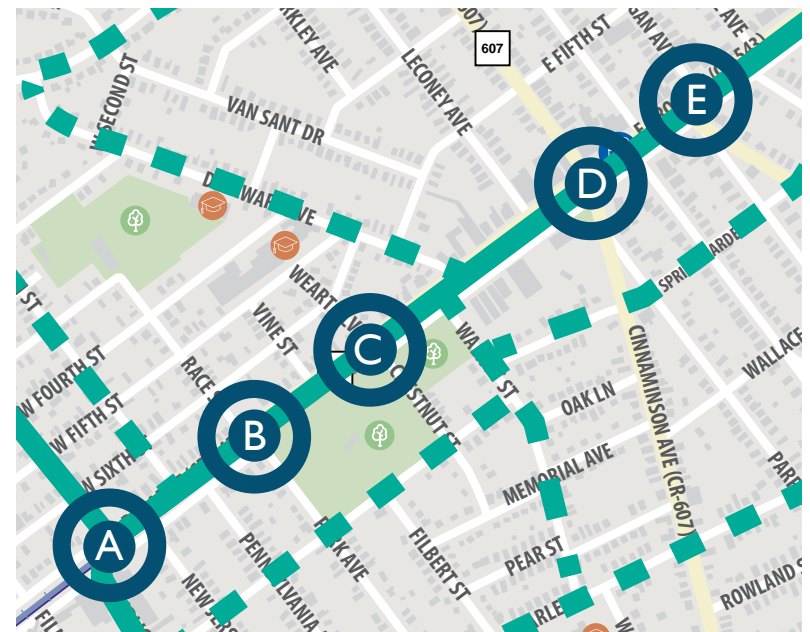
At the intersections of Race Street/Park Avenue, Weart Boulevard/Chestnut Street, and Highland Avenue/Morgan Avenue, the signals currently operate as flashing yellow "yield" signals. The exception is when the railroad crossing gates are down, at which time the light is solid red. To upgrade these signals to operate as part of the phasing for the rest of Broad Street, a traffic study would be required. Still, the conceptual modification that could have the most impact on both pedestrian and motorist safety would be upgrading the flashing signals to full traffic control signals. The operations during flash mode are not completely consistent between installation locations, and this inconsistent operation can lead to both motorist and pedestrian confusion. Through upgrades to full traffic signals with railroad pre-emption phasing, operations of the devices will be consistent from location to location, enhancing driver comprehension and pedestrian safety. An engineering investigation would be required at these intersections to determine if appropriate MUTCD signal warrants have been met. Even if these warrants are not met, full signals could be justified based on increased intersection safety and operational improvement.

Many of these conceptual modifications are among the 28 Proven Safety Countermeasures, established by the Federal Highway Administration (FHWA) as modifications that have been proven, through data-driven analysis, to reduce crashes, fatalities, and serious injuries. Other Proven Safety Countermeasures that could be considered include the addition of reflective backplates to provide increased signal head visibility in both daylight and nighttime conditions, a review of the yellow change intervals to reduce the occurrences of red-light running, installation of street lighting for increased pedestrian and intersection visibility, and the construction of median refuge islands to increase pedestrian safety within long crosswalks.

In addition to intersection improvements, the entire Broad Street corridor would be greatly improved for pedestrians with the addition of traffic calming measures. As a through corridor for vehicles that also functions as the Borough’s civic and commercial center, slowing travel speeds will increase safety for all road users. Potential traffic calming measures may include narrowed travel lanes, streetscape improvements such as flags on light poles delineating the downtown district, and other visual cues to slow traffic. Bicycle lanes would also create a similar effect by narrowing the space available to motor vehicles, as would intersection improvements such as curb extensions and high visibility crosswalks. The overall goal is to distinguish this portion of county arterial from other sections that do not play a central role to a community, to alert drivers, and to indicate the presence of vulnerable roadway users, like bicylists and pedestrians.

Figure 13. Priority Broad Street Intersections

Broad St Intersection	Upgrade to Full Signal	Leading Ped Interval	Upgrade “No Turn” Signs	Crosswalk Upgrades	Shorten Crossing Distance	Ped Push Button Fixes
A Market St (Public Rd)		●	●	●	●	●
B Race St (Park Ave)	●	●		●	●	●
C Weart Blvd (Chestnut St)	●	●		●		●
D Cinnaminson Ave		●	●	●	●	
E Highland Ave (Morgan Ave)	●	●	●	●	●	



Upgrade to Full Signal



Implement full red-yellow-green traffic signal timing at identified intersections currently stop-controlled or using flashing yellow lights

Credit: "Signal Retiming Cuts Travel Time by as Much as 30 Percent," Camden County

Considerations

- Establish consistency in signalization to eliminate confusion at intersections.
- Identify traffic patterns and volumes to establish new signal timing.

Potential Siting/Locations

- Broad Street Intersections
 - Park Avenue/Race Street
 - Weart Boulevard/Chestnut Avenue
 - Highland Avenue/Morgan Avenue

Install Leading Pedestrian Intervals (LPI)



Provide several seconds of pedestrian-only signal phasing before allowing cars to enter intersection

Credit: NV5

Considerations

- Typically requires adjustments to existing signal timing.
- LPI should be at least 3-7 seconds, depending on length of crossing.
- Curb extensions can further improve visibility of pedestrians and LPI effectiveness.

Potential Siting/Locations

- Broad Street Intersections
 - Market Street/Public Road
 - Park Avenue/Race Street
 - Weart Boulevard/Chestnut Avenue
 - Cinnaminson Avenue
 - Highland Avenue/Morgan Avenue

Upgrade "No Turn" Signs



Ensure proper functioning and visibility of "No Turn" signs

Credit: "Vision Zero Educational Signage," Circulate San Diego

Considerations

- Assess brightness of existing lights in "No Turn" signs.
- Direct sunlight can further reduce visibility of "No Turn" sign; identify locations where this is a problem.

Potential Siting/Locations

- Broad Street Intersections
 - Market Street/Public Road
 - Cinnaminson Avenue
 - Highland Avenue/Morgan Avenue

Upgrade Crosswalks



Ensure visibility of crosswalks using high-visibility design

Credit: "Public Roads, Spring 2021," FHWA

Considerations

- Place stop bars as appropriate.

Potential Siting/Locations

- Broad Street Intersections
 - Market Street/Public Road
 - Park Avenue/Race Street
 - Weart Boulevard/Chestnut Avenue
 - Cinnaminson Avenue
 - Highland Avenue/Morgan Avenue

Shorten Crossing Distances



Reduce length of crossing using curb extensions

Credit: NV5

Considerations

- Identify longest crossings and crossings with significant pedestrian volumes.
- Adjust signal timing accordingly, including implementing LPIs.

Potential Siting/Locations

- Broad Street Intersections
 - Market Street/Public Road
 - Park Avenue/Race Street
 - Weart Boulevard/Chestnut Avenue
 - Cinnaminson Avenue
 - Highland Avenue/Morgan Avenue

Improve Pedestrian Push Buttons



Ensure all signalized crossings include Accessible Pedestrian Push Buttons

Credit: "Signalized Intersection Engineering," Oregon Department of Transportation

Considerations

- Relocate push buttons as necessary to most convenient site.



Potential Siting/Locations

- Broad Street Intersections
 - Market Street/Public Road
 - Cinnaminson Avenue
 - Highland Avenue/Morgan Avenue

Figure 14. Conceptual Recommendation at Broad Street and Market Street



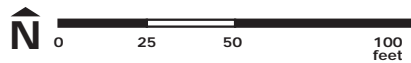
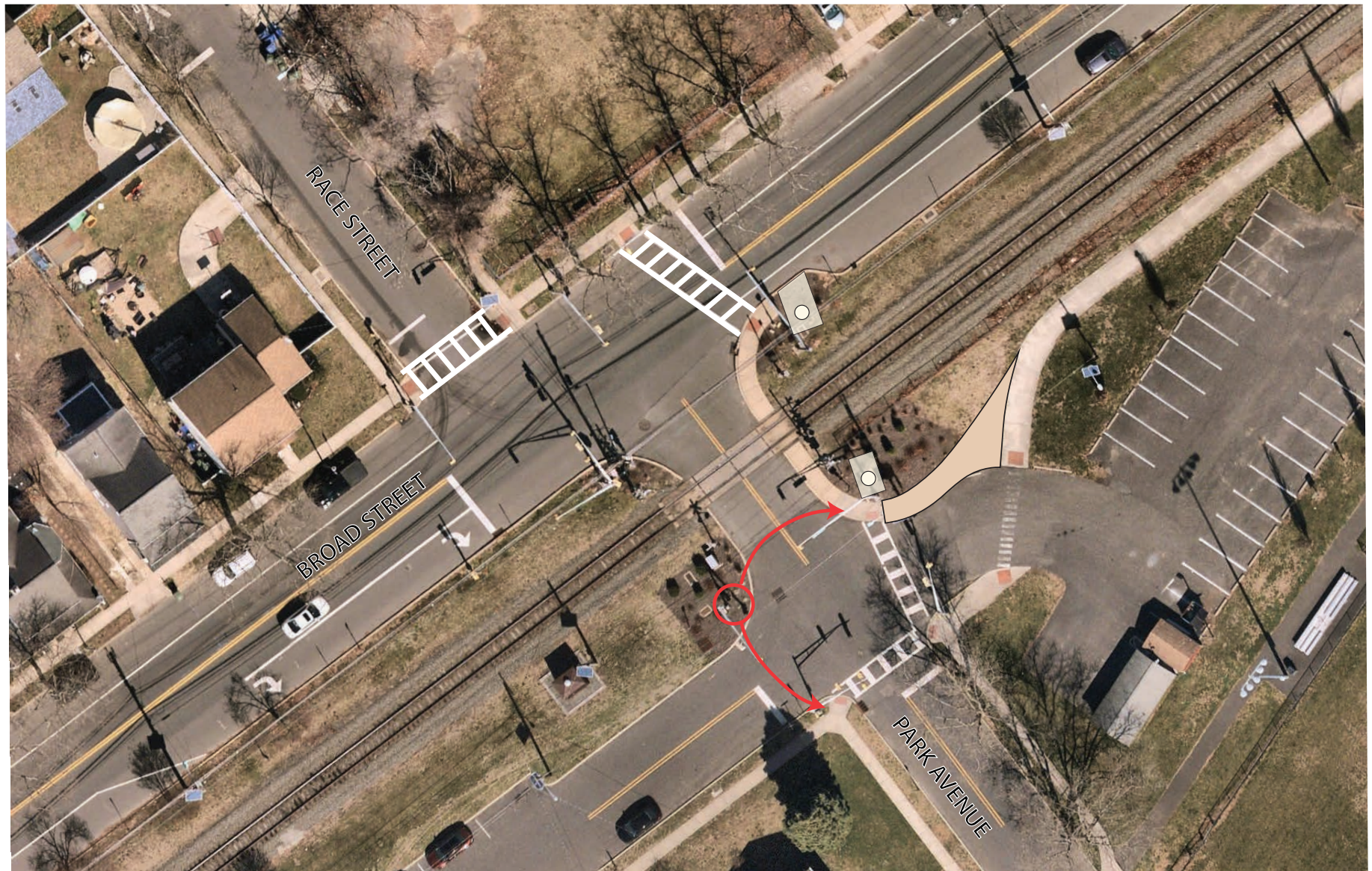
Legend

-  Curb Extension / Pedestrian Island
-  Detectable Warning Pad



New/Improved Visibility Crosswalk

Figure 15. Conceptual Recommendation at Broad Street and Park Avenue/Race Street



Legend

-  Sidewalk Connection
-  Pedestrian Push Button
-  Pedestrian Push Button Relocation/Placement
-  New/Improved Visibility Crosswalk

Figure 16. Conceptual Recommendation at Broad Street and Weart Boulevard



Figure 17. Conceptual Recommendation at Broad Street and Cinnaminson Avenue



N 0 25 50 100 feet

Legend



 Curb/Sidewalk Extension

 New/Improved Visibility Crosswalk

Figure 18. Conceptual Recommendation at Broad Street and Highland Avenue/Morgan Avenue



Legend

-  Curb Extension / Pedestrian Island
-  Detectable Warning Pad



New/Improved Visibility Crosswalk

RiverLINE Trail Widening

The RiverLINE trail runs parallel to the NJ TRANSIT RiverLINE tracks through Palmyra and into adjacent Riverton, and is proposed as a section of the Delaware River Heritage Trail, itself a part of the broader Circuit Trails network. However, this trail has two issues. The first is that its 0.88-mile span is not continuous; a section is missing between New Jersey Avenue and Park Avenue. As a result, the longest continuous span of trail is 0.68 miles. The second concern is that it is not of uniform width. Most of the trail is either 8 feet wide or narrower, with sections as narrow as 4 feet. The following diagrams explore the possibility of expanding the trail width to 10 or 12 feet, which would be sufficient to establish it as a shared use path. Large-scale diagrams of these concepts can be found in Appendix D.

Figure 21. Broad Street and Public Road

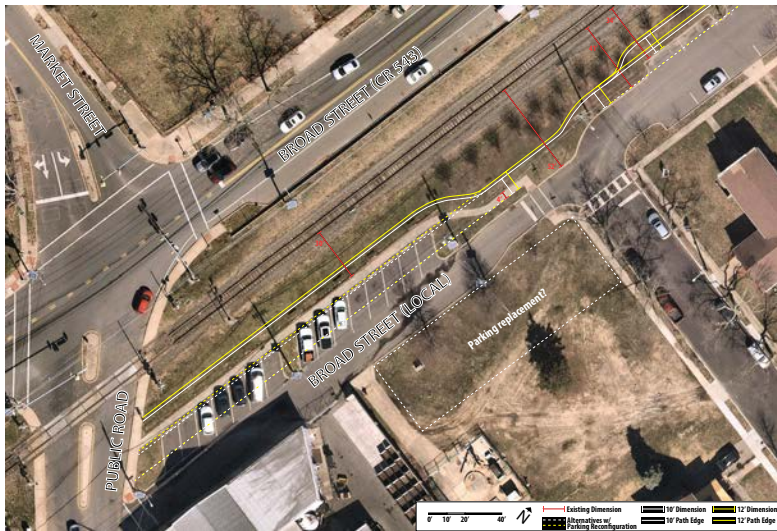


Figure 19. Broad Street and Park Avenue



Figure 20. Broad Street and Chestnut Street

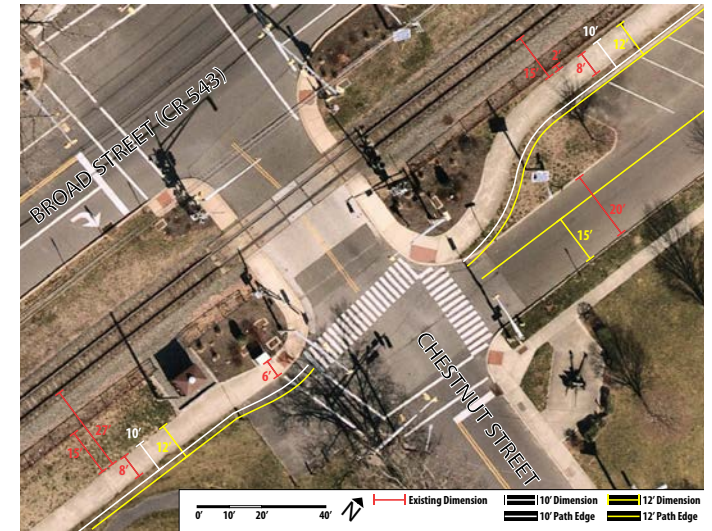


Figure 22. RiverLINE Trail Existing Widths Key Map

Figure 23. Broad Street & Cinnaminson Avenue

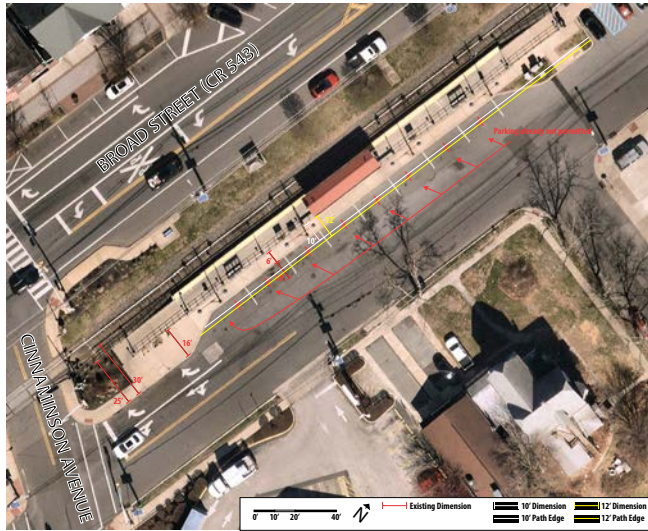
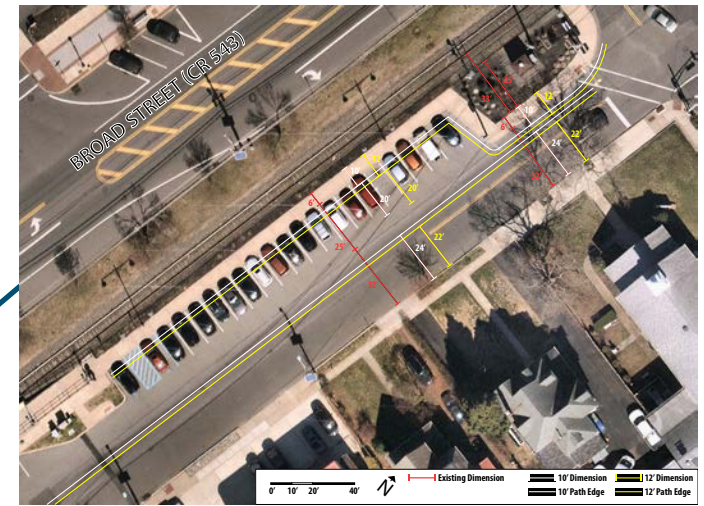


Figure 24. Parking Lot along Broad Street



Figure 25. Conceptual Recommendation at Broad Street and Highland Avenue



Conditions for RiverLINE Trail Widening per NJ TRANSIT

- NJ TRANSIT will consider plans to relocate light rail station parking spaces from the current location to across the street.
- NJ TRANSIT shall not incur any expenses for such relocation such as property acquisition and paving.
- There shall be no reduction of parking spaces.
- An agreement with the municipality will be required concerning ownership, design, operation, and maintenance of the new parking location.
- ADA access and parking compliance must not be impacted.
- NJ TRANSIT shall approve new proposed plans for ingress and egress at that location.
- New bike lanes shall not be installed any closer to the railroad right-of-way than the existing infrastructure for safety reasons.
- New bike lanes shall not impinge on sidewalks for safety reasons.
- Guardrails or fencing along the railroad right-of-way may be required for safety.
- Safety enhancements may be required at highway-rail grade crossings.
- Excessing procedure must be completed.
- A license agreement with the municipality will be required.
- All work must be performed by the RiverLINE contract operator.



Route 73 Pedestrian Crossings

While there has always been a need for increased connectivity between the developed areas of the Borough and the Palmyra Cove Nature Park, the Route 73 redevelopment greatly increases the urgency of this need. While a pedestrian crossing beneath the toll plaza does exist, this plan explores opportunities for additional connections that are more centrally located. The two potential crossings are located at the existing signalized jughandle intersection that currently allows for access to the Redevelopment Area, and an alternative crossing at the currently unsignalized intersection of West 5th Street. Both of these locations have benefits and drawbacks related to the surrounding context. The new businesses will benefit from increased access for their employees, and residents and visitors of the new housing development will need ways to safely access the site by walking.

Kerbeck Jughandle-Jefferson Street Pedestrian Connection

The existing signalized jughandle has direct access to the Redevelopment Area, but it currently has no striped crosswalk or pedestrian signals, nor does it allow direct pedestrian access to the main areas of Palmyra. Current plans to upgrade this signal include a crosswalk and pedestrian signal heads, but sidewalk connectivity to downtown Palmyra is not being addressed. There is approximately 30 feet of right-of-way along the eastern curblines of Route 73, which could allow the installation of a sidewalk or a shared-use path between the jughandle and Jefferson Street to the north. With additional pedestrian improvements along Jefferson Street between Route 73 and Market Street, connectivity between the redevelopment area and downtown Palmyra can be established.

Figure 26. Route 73 North Curbside Space, from Jughandle (Google Street View)



Figure 27. Jefferson Street from Route 73 North (Google Street View)



Figure 28. Route 73 Crossing Concepts



West 5th Street Pedestrian Connection

West 5th Street connects Route 73 to the core of Palmyra. The high school and middle school are both located along this street. Sidewalks start between Legion Avenue and Market Street and continue northeast. However, there are gaps in the sidewalk network between Route 73 and the block between Legion Avenue and Market Street. The most recent Redevelopment Plan includes a new access road along the 5th Street corridor, but this plan does not include a pedestrian crossing at Route 73. A pedestrian crossing at this location would benefit both the high school and middle school students as well as elementary school students at the Charles Street School and people accessing the Palmyra Business District. A pedestrian crossing would need to be signaled and coordinated with the existing jughandle signal in order to maintain progressive movement along Route 73. There are possible sight restrictions to be considered, including the railroad overpass to the south and a horizontal curve to the north, but these concerns can be mitigated through the use of static or active warning signs.

Another alternative considered was to modify the existing traffic signal at Route 73 and Souder Street. This signal controls the southbound left turn and the northbound through movements along Route 73. The southbound through movement coming off the Tacony-Palmyra Bridge is free flowing. While this signal is approximately 1,000 feet north of the jughandle at the redevelopment area and provides adequate space for progressive movement between the signals, upgrading the signal to control all southbound movements and provide a safe pedestrian crossing could create excessive delay and queuing back onto the bridge, which is not metered by toll lanes for vehicles entering New Jersey. Such delay and queuing would most likely lead to an increase in southbound same direction/rear end crashes, so it was determined that this option is not viable.

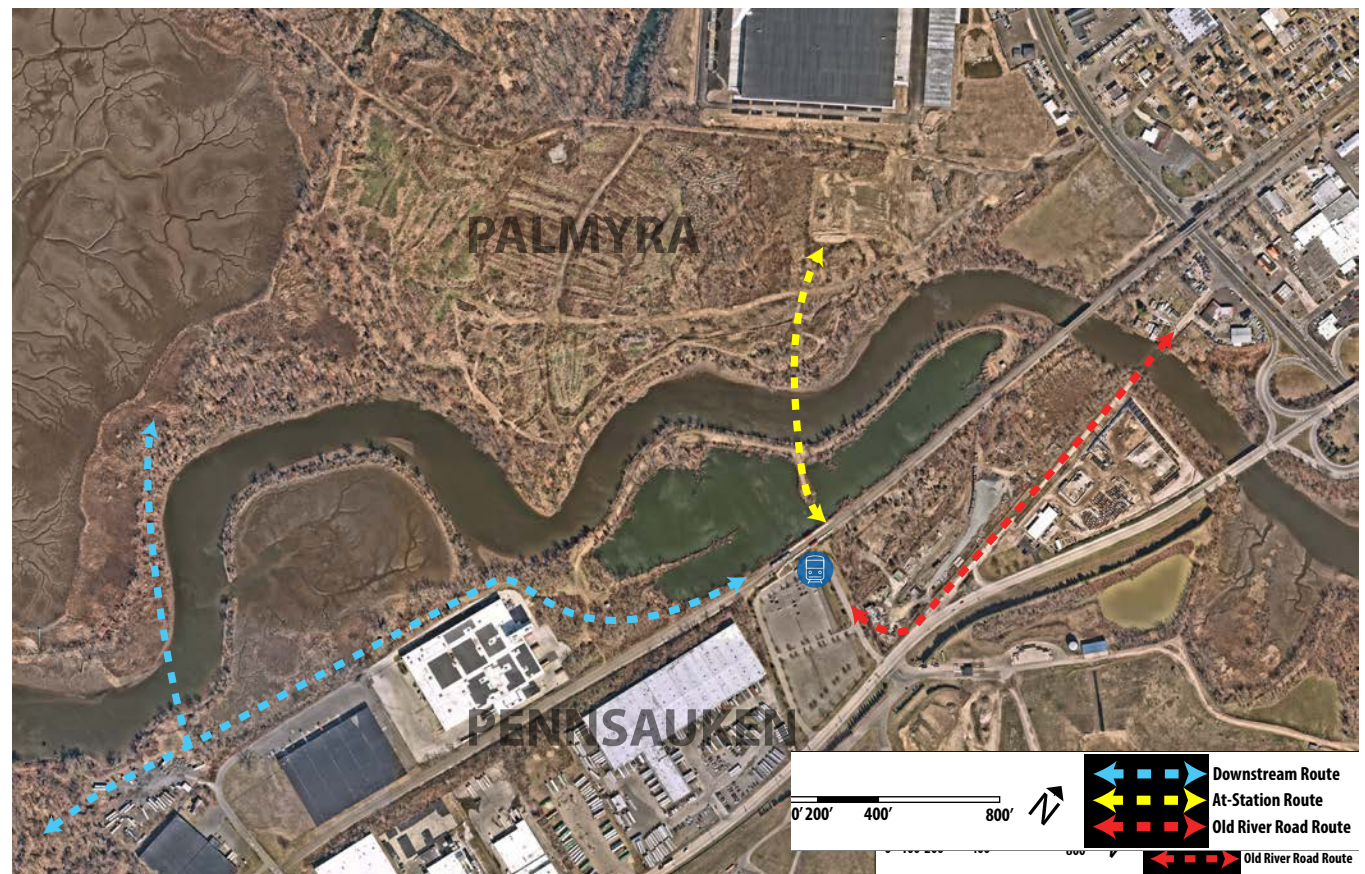
Pennsauken Creek Crossings

Pennsauken Creek separates Pennsauken Township and Palmyra Borough, and there are no bridges that connect the two municipalities for pedestrians in the area. The underutilized Pennsauken/Route 73 RiverLINE station is located on the other side of the Pennsauken Creek from the Redevelopment Area, presenting an opportunity to create connections for the Redevelopment Area. Constructing a pedestrian bridge between the Redevelopment Area and the light rail station would improve access for commuting employees of the warehouses as well as residents of the new housing and in the southwestern area of Palmyra.

Two options present themselves as the most direct connections with Palmyra's existing core. The first, shown in red, is along the Old River Road corridor, which would connect the Pennsauken Station parking lot to Palmyra, but this route connects to a part of Palmyra isolated by Route 73 and would require additional pathways to connect to downtown Palmyra as well as the Redevelopment Area. The second, shown in yellow, is the use of an existing service road as both a footing and as a means to minimize the distance between the station and the Redevelopment Area, as it is the shortest possible distance and would connect directly with the southbound platform.

A third alternative, shown in blue, would take a more indirect route, connecting further to the southwest, creating a potential connection with the Redevelopment Area from an alternative angle as well as the trails of the Palmyra Cove Nature Park. This route would be more scenic and have more recreational usability, but would be less convenient for residents of the Redevelopment Area to access Pennsauken Station.

Figure 29. Potential Pennsauken Creek Crossing Routes



Bicycle Network

There are no bicycle facilities in Palmyra, yet many residents bicycle and would benefit from their inclusion in the transportation network. The RiverLINE allows bicycles on its trains, so bicycling to transit is already an attractive travel option. In addition, trips of three miles or less are considered potential candidates for conversion from driving to bicycling. With a local bicycle network in place, many trips in Palmyra could potentially be made by bicycle. Beyond shorter distance travel, there are also longer distance bicycle connections in the process of being implemented that connect to Palmyra, with the Delaware River Heritage Trail (which will eventually connect Philadelphia and Trenton on both sides of the Delaware River) planned to be part of the DVRPC's greater Circuit Trails network. A local bicycle network could combine with the regional network and enable Palmyra residents to travel by bicycle in both contexts.

Bicycle Lanes

The roads with the most destinations often also have the highest vehicle traffic volumes. This is true in Palmyra, with Broad Street and Market Street providing continuous southwest-northeast and northwest-southeast connections across town and many of the Borough's businesses and destinations located on these roads. Bike lanes improve cyclist safety and encourage bicycle use on busier roads like these, ensuring bicyclists can comfortably reach these areas using the most direct routes. These roads have higher levels of traffic stress, but they also both have space for a bicycle lane 5 feet or wider. Adding bike lanes would narrow the driving lanes, which would have a traffic calming effect and possibly reduce the level of traffic stress.

Broad Street Bicycle Lanes

Broad Street currently has parallel parking along the south side of the street along the RiverLINE rail corridor. The north side of the street is lined with commercial establishments and has a mix of parallel and angled parking. In order to accommodate dedicated bicycle lanes and the traffic calming effect that would accompany them, some of the existing parking would need to be removed. The most likely option would be to remove the parallel parking along the RiverLINE, which requires drivers to park and cross Broad Street, typically not at intersections.

As part of any planning and design process of the Broad Street corridor, the trade-off of any loss of parking will need to be weighed against the benefits of dedicated bicycle space, slower vehicle travel speeds, and improved pedestrian conditions that are likely to accompany the addition of bicycle lanes. An initial step would be to conduct a parking utilization study during peak weekday and weekend times, taking care to note if and where parking spaces adjacent to the RiverLINE station are being used for pick-up and drop-off of commuters. If the primary function of the parallel parking along the RiverLINE corridor is commuter pick-up and drop-off, it is likely that other spaces could be made available for these activities on the other side of the RiverLINE corridor along Broad Street.

Market Street Bicycle Lanes

Market Street is a proposed alignment for part of the Delaware River Heritage Trail as a connection from Broad Street to the Tacony Palmyra Bridge. If it were to be implemented, dedicated bicycle lanes would fit within the roadway right-of-way. The street is 30 feet wide, which would allow for 5-foot bike lanes against each curb with 10-foot travel lanes in each direction. This potential design would require removal of the on-street parking on the east side of the road. Although on-street parking appears to be lightly used and the homes along Market Street have off-street parking, this would be a factor to be discussed with local residents and businesses prior to enacting this change. The alternative to dedicated bike lanes on Market Street would be shared lane markings on Arch Street, Jefferson Street, and Temple Blvd. This route is not as direct and does not provide dedicated space for bicyclists, but it would not require any changes to on-street parking.

Figure 30. Bicycle Network Map



Bicycle Boulevard Network

A network of bicycle boulevards could benefit cyclists in Palmyra by creating designated corridors where drivers are aware of and responsive to bike traffic. A network has been identified with priority given to roads that connect much of the town and have low levels of traffic stress. A variety of design treatments that discourage high vehicle speeds and volumes can be implemented to create bicycle boulevards on these roads. Many of these treatments benefit not only bicyclists, but all users of the street by enhancing safety and reducing road noise. Bicycle boulevard treatments include signs, pavement markings, and other traffic-calming measures to discourage through trips by motor vehicles while accommodating local access. The combination of treatments depends on street context and conditions.

New River Road Bicycle and Pedestrian Facilities

County Route 543 (CR 543) runs from Mansfield Township south to Camden City for approximately 28 miles. From north to south through Palmyra, CR 543 encompasses Broad Street, Public Road, and New River Road. Public Road is currently two lanes undivided, 32 feet curb-to-curb, with no shoulders or parking. New River Road is two lanes undivided, 42 feet curb-to-curb, with 10-foot shoulders outside of the Route 73 interchange. Through that interchange, the shoulder areas are dropped in favor of acceleration/deceleration lanes for the entering/exiting ramps. As Palmyra's only southwestern connection, New River Road already carries a significant volume of bicycle traffic, and it is traversed by many pedestrians as well. However, New River Road intersects Route 73 with a full cloverleaf interchange, which contains no facilities to accommodate these vulnerable road users. As the profile of CR 543 varies, accommodations for bicyclists and pedestrians will have to vary accordingly.

Bicyclists could be accommodated in a number of ways. Shared use markings and signs could be placed throughout the cloverleaf interchange. As an alternative, 5-foot bike lanes could be installed along Public Road, and the 10-foot shoulder areas along New River Road could be restriped to include bicycle lanes as well, while shared use markings could be installed through the interchange where shoulders are absent. Another option would be to stripe bike lanes through the interchange, which would entail eliminating the acceleration/deceleration lanes within the interchange and most likely create a need for the YIELD controls for the ramps entering River Road to be changed to STOP control. An engineering study would be needed to determine the impact to motor vehicle traffic in terms of increased rear-end crashes and delay/queuing, but due to the safety benefit to bicyclists, this option should be a consideration.

Accommodating pedestrians is more challenging. Public Road has existing sidewalks, but New River Road does not. As the New River Road approach to the cloverleaf interchange elevates to accommodate the overpass, there are existing guiderails, which could possibly be pulled back to provide enough width to create sidewalks or paved areas. The existing paved surface between the curb edge and the guiderail is concrete on the bridge itself, and macadam-type pavement along the four ramps. Should an investigation determine that ADA-compliant pedestrian pathways could be established or created along New River Road, curb ramps, high-visibility crosswalks, and pedestrian warning signs could be installed at the ramps to complete the pedestrian network. If these areas were determined to be non-accessible, a capital construction project most likely would be required to accommodate pedestrians safely.

Figure 31. Route 73 and New River Road Intersection



Waterfront Access

Palmyra Promenade Park on Bank Avenue is a popular waterfront public space. This small park provides views of the Delaware River and is a short and accessible distance from the core of the Borough. Parking is restricted on much of Bank Avenue, but a cutoff of Cinnaminson Avenue is informally used for parking. This small parking area could be striped with formal parking spaces, and new pedestrian pathways and crossings of Bank Avenue could be installed to connect it to the Promenade Park. These small efforts, as well as connecting this area to the bicycle boulevard network, would go a long way to improve access to the Promenade Park. Ideally, with a strong bicycle connection to surrounding residential areas, fewer people would drive and more would bike or walk to enjoy this portion of the waterfront.

Figure 32. Palmyra Promenade Park



The Delaware River waterfront is also accessible in Palmyra Cove Nature Park. During the planning process, the desire for expanded waterfront access was expressed, but such access is not feasible at this time due to private ownership of the waterfront between the Palmyra Promenade Park and NJ Route 73.

Chapter 4: Implementation

Project Implementation

The Implementation Matrix below summarizes projects in order of priority. The corresponding map locates each priority project. Project timelines assume that multiple projects will be initiated simultaneously, as funding sources are identified and when circumstances permit. Project partners are property or right-of-way owners that the Borough will need to work with to implement each recommendation.

Project #	Project Name	Project Description	Implementation Timeline	Cost to Implement	Project Partners
1a	Broad Street Intersection Improvements	Pedestrian improvements and signal upgrades to five major intersections on Broad Street	Medium	Moderate	Burlington County, NJ TRANSIT
1b	Broad Street Bicycle Lanes and Traffic Calming	On-street bicycle lanes as part of traffic calming design for Broad Street	Medium	Moderate	Burlington County
2	Route 73 Pedestrian Crossings	Pedestrian facilities to accommodate pedestrian passage across Route 73	Long	Moderate	NJDOT, Developers
3	Pennsauken Creek Crossing	Bicycle/Pedestrian bridge connecting the Redevelopment Area to the RiverLINE in Pennsauken and surrounding street network	Long	High	NJ TRANSIT, Burlington County Bridge Authority, Developers
4	Market Street Bicycle Lanes	On-street bicycle lanes connecting Broad Street to Tacony-Palmyra Bridge	Short	Low	Community
5	Bicycle Boulevard Network	Network of roadways across Palmyra with pavement markings and safety improvements for safe on-road bicyclist use	Short	Low	Community
6	Waterfront Access	Connection of Palmyra Promenade Park to Bicycle Boulevard Network	Short	Low	Community
7	New River Road Interchange	Bicyclist and pedestrian safety improvements along New River Road	Medium	High	Burlington County
8	RiverLINE Trail Widening	Expand existing path to accommodate bicycles and pedestrians	Long	High	NJ TRANSIT

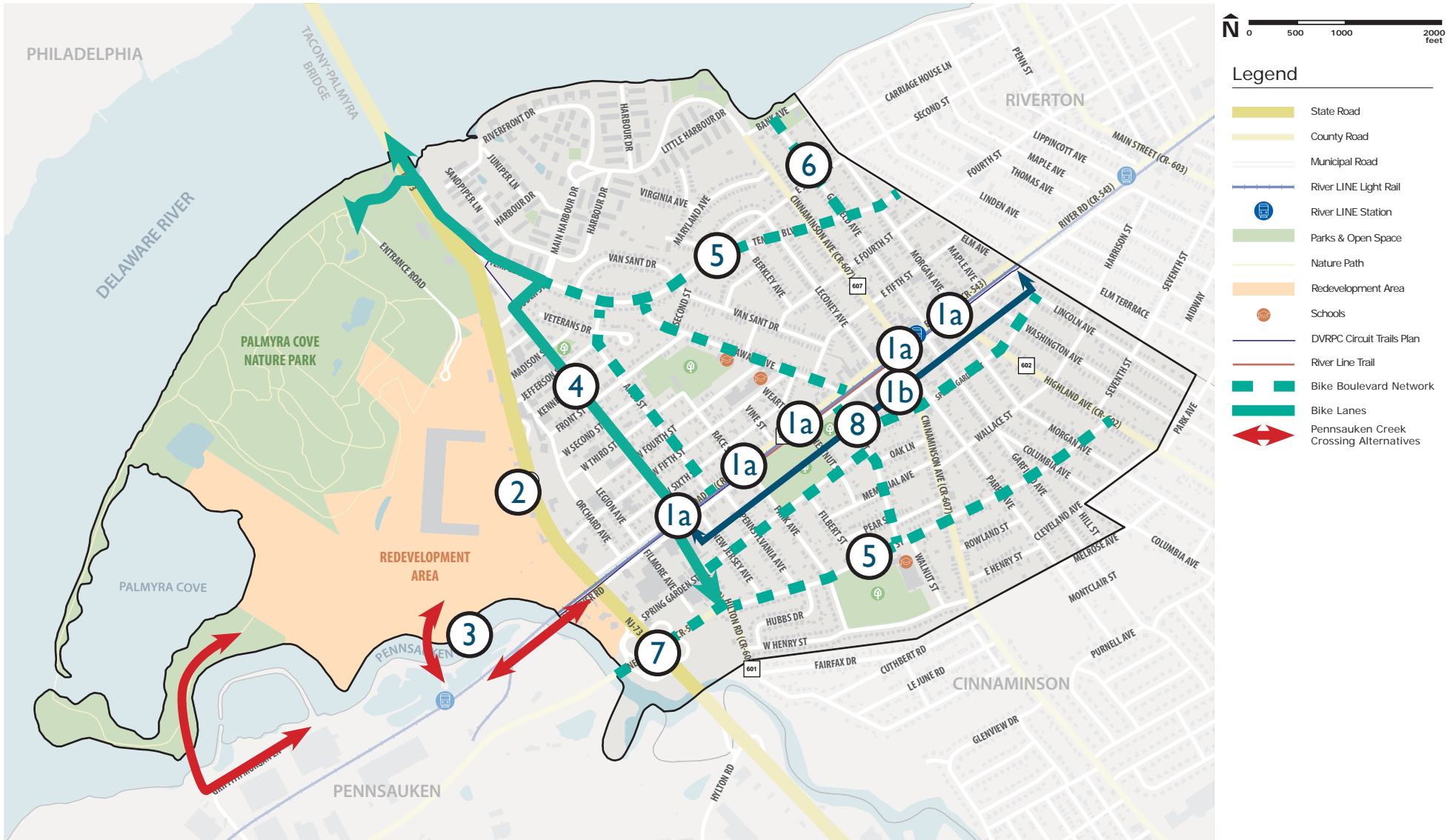
Implementation Timeline

- **Short:** 1-3 years, primarily design of sign and marking upgrades
- **Medium:** 3-5 years, due to signal design or coordination on County and State roads
- **Long:** 5-10 years, involves capital design and/or environmental reviews

Cost to Implement

- **Low:** involves primarily sign and marking upgrades on local roads
- **Moderate:** involves more detailed design coordination, signal upgrades, or non-capital geometric changes
- **High:** involves capital improvements and/or environmental review

Figure 33. Project Implementation Map



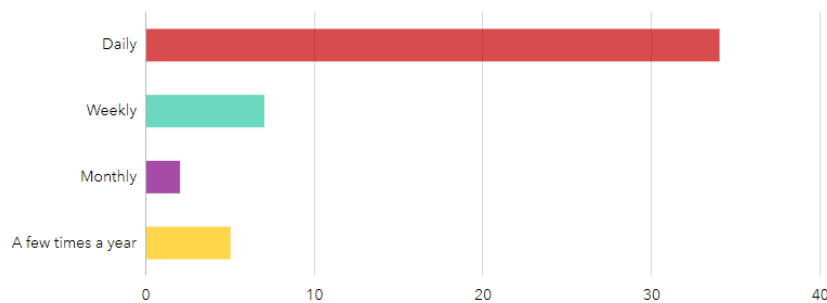
Appendix A: Survey Responses

Survey Results

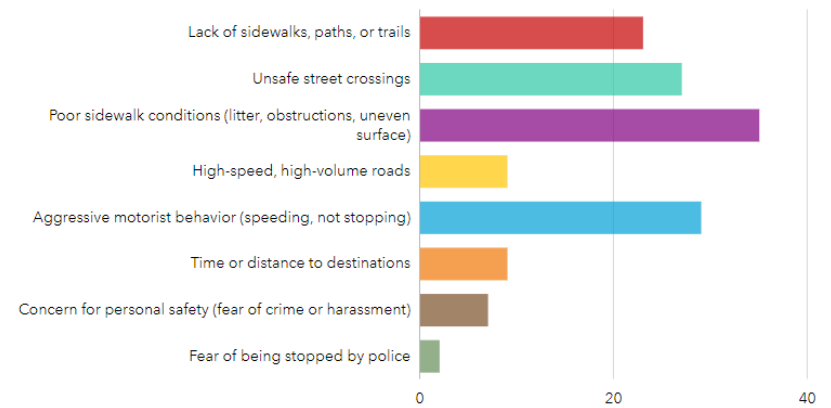
A community survey was provided to community members at Palmyra Downtown Safety Day on May 6th, 2023 and was placed on the project website, which was further disseminated via the borough's Facebook page and in emails. An online mapping survey was also created to supplement the physical map provided at Palmyra Downtown Safety Day. The results of these surveys are compiled in this appendix.

Community Survey

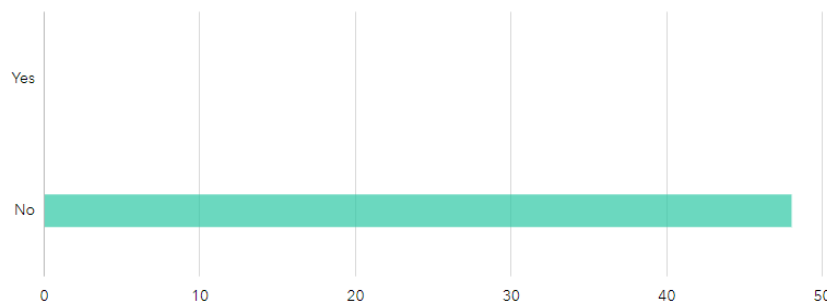
How often do you walk in Palmyra? Column Bar Pie Map



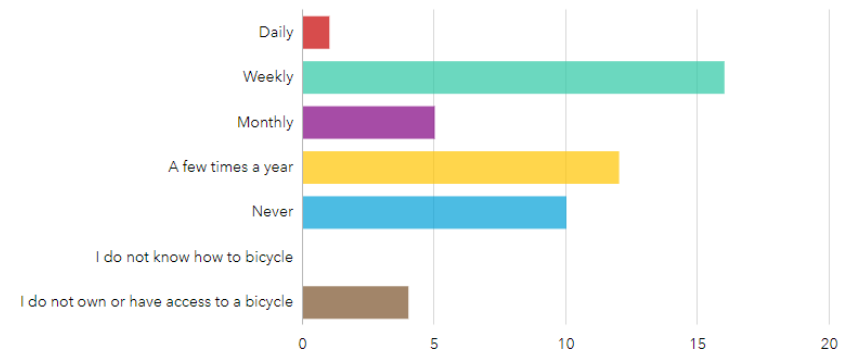
What are the biggest obstacles you face when trying to walk in Palmyra? (select the top 3) Column Bar



Do you use a wheelchair or other mobility device? Column Bar Pie Map



How often do you bike in Palmyra? Column Bar Pie Map



Mapping Survey

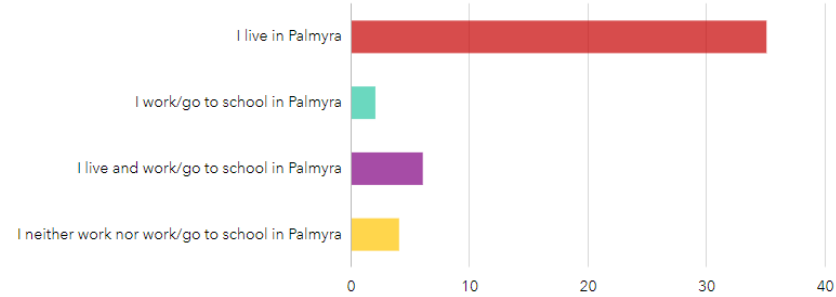
Points and Corridors of Interest



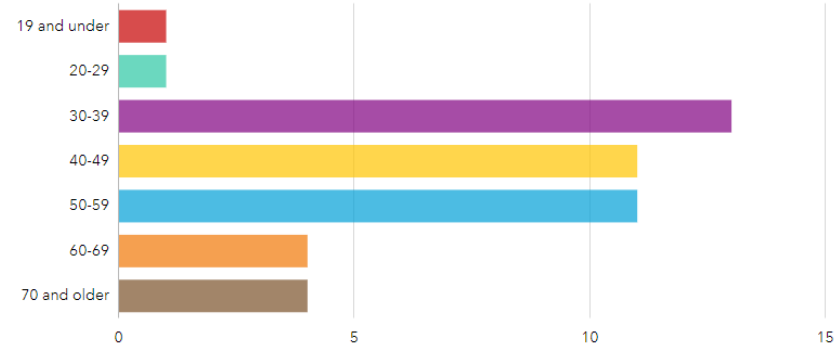
Points and Corridors of Concern



Do you live, work, and/or go to school in Palmyra?



What is your age?



Appendix B: Study Advisory Committee Meeting Minutes

Meeting I: May 23, 2023



MEMORANDUM OF MEETING

FROM: Collin Rieger
DATE: 5/24/2023
MEETING: Palmyra Bicycle and Pedestrian Plan Steering Advisory Committee Meeting 1
MTG DATE: 5/23/2023 at 4:00pm via Zoom
SUBJECT: NJDOT Local Bicycle & Pedestrian Planning Assistance Program (LBPPA) / NV5, Inc. Project # J728622-0000551.18

Meeting Purpose

The purpose of the meeting was to identify and discuss project goals, priority locations and existing resources and conditions, and to review outreach activities undertaken to date.

Attendees

David Gerken, CGP&H (Palmyra)
Bill Riviere, NJDOT
Gina Tait, Mayor of Palmyra
Simone Gore, NJTRANSIT
John Gural, Borough Administrator
Jessica O'Connor, Borough of Palmyra
Loretta Kelly, NJDOH, Palmyra resident, Green Team member
Tim Brill, NJCF Central Jersey Project Manager
Henry Gottschall, CCCTMA
Tom Stanuikynas, Burlington County
Shawn Megill Legendre, DVRPC
John Boyle, Bicycle Coalition of Greater Philadelphia
Chris Lucas, NV5 PM
Bettina Zimny, NV5
Matt Ludwig, NV5
Collin Rieger, NV5
Brian Stankus, NV5
Dave Martin, MBO

Presentation

The project team's presentation included the following concepts.

Project Goals

- Key Locations

- Downtown/RiverLine, NJ 73 corridor, Redevelopment Area, Palmyra Cove, Schools
- Feasibility study
 - Examine alternatives for safe ped-bike connections to trip generators.
 - Set up for implementation of a bike-ped network that's safe and accessible, serves all ages and abilities, and is consistent with standards, local guidance, and best practices nationwide.
 - Will ultimately come up with an overview of what's being recommended, with section and/or plan view, issues that the alternatives will address, and notes on implementation.

Literature Review

- We have reviewed several Palmyra, State-level, and County/Regional-level studies, Corridor and Master Plans – 10 documents listed on this slide.
- Asked attendees if there's anything that we've missed, please forward (Circuit Trail, Route 130 corridor study, Rt 73 South Redevelopment Plan, NJDOT Complete Streets suggested in chat – we will follow up).

Existing Conditions

- Reviewed demographics and equity factors as well as land use.

Redevelopment Plan

- Includes remediation of contamination.
- Creation of a mixed-use development, more accessible open space, and space for community events.
- Create a visually appealing gateway to Palmyra and to Burlington County.

Palmyra Cove

- Popular nature recreation area, but Route 73 is a boundary.
- Really looking for a way to open up/improve connections to it from "downtown" Palmyra.

Downtown

- Broad Street Corridor is the primary commercial corridor.
- The other commercial area is Route 73, but that is not easily accessible to peds/bikes.
- There will be a heavy focus on the Broad Street corridor for this study.

Transit

- Do we have RiverLine station use data?

- a. (response) Not yet, but [someone] said they could forward that to us. We've seen that trains can let out a "flood" of pedestrians, so good to look for opportunities for more pedestrian-specific improvement possibilities.

Traffic and Road Safety Overview

- 2017-2021 saw 864 total crashes in the Borough (173/year), 244 injuries, and 2 fatalities.
- Fatal and injury crash rates are lower than statewide averages.
- Crashes on Route 73 accounted for 46% of all crashes; 70% of all crashes were on State or County (not Palmyra) roadways.
- 12 pedestrian crashes (1 fatality, in 2020 at the Broad/Cinnaminson train station), and 8 bicyclist crashes.
- Main access to Palmyra Cove area is via the Kerbeck jughandle, with no local access; this needs to be improved.
- 74% of crashes were not at intersections, 26% at intersections.
- For this project, strong guidance will come from FHWA's Proven Safety Countermeasures.
- Initial ideas could include bicycle lanes, leading pedestrian intervals, reflective backplates for signals, crosswalk visibility enhancements, intersection lighting, advance yield/stop markings/signs, RRFBs (there is an RRFB at Temple Blvd and Delaware Avenue)

Outreach Activities

- We were in person for Palmyra Day, where a survey and mapping exercise were administered and got lots of public input
- Questions
 - a. "Where do you want to walk or bike in Palmyra"
 - b. "Where is it dangerous to walk or bike in Palmyra"
 - i. Most dangerous Broad St/73, Cinnaminson Ave
 - c. Reviewed survey results on age, residency, obstacles to walking & biking, what could make it easier to walk & bike
 - d. Mapping activity also circulated online, finding that people were most concerned about Route 73 as a whole, New River Road and 73, Cinnaminson Ave.

Discussion

Do any of the comments/results surprise anyone on the call?

- John Boyle – think it's a pretty good assessment of conditions in the borough, another agreed – John indicated the service road under the Tacony-Palmyra Bridge is missing from the map, anticipated to be a primary bike-ped connection in the future if we can get a connection to Palmyra Cove.

- Gina Tait– working on implementing a new kind of light to try to get people to stop for a crosswalk. Thinks someone got hit on a winter night out, sat on someone's desk for a long time, and now the funding is there. Usually, young kids cross at that point so it's a good thing to address.
- Shawn Megill Legendre added the link for Level of Traffic Stress (LTS) analysis.
- Tim Brill asked – can we get info on how many pedestrians-bicyclists use the Tacony Palmyra Bridge?
- Loretta Kelly said it would be interesting to see pedestrian-bicycle injuries by age group – Jessica O'Connor said this information should be in the crash data.

Next Steps

- Schedule – milestones/meetings roughly every 4 weeks for the next couple months
 - June 2 – SAC map-based input via web site
 - June 12-13 - SAC Mtg #2 – review opportunities, constraints, starter ideas
 - June 29 - SAC comments
 - July 12-13 – Public review of draft concepts
 - July 19-20 – SAC Mtg #3, review recommended concepts and priorities
 - July 28, SAC comments
 - Final Report – mid-August
- Bill Riviere – Have we identified another public event for a second public involvement meeting/workshop?
 - Gina says National Night Out would be the best option to catch Palmyra residents, but it's August 1, late given the timeframe above.
 - Bill said it might be worth pushing everything back a couple of weeks to take advantage of NNO.
 - Gina says the NNO is the best option to catch a wide variety of ages and groups.
- Shawn Megill Legendre – Question goes back to the beginning, to scope – genesis of this project centered around a crossing of Pennsauken Creek between Pennsauken and Palmyra – is that still included?
 - Chris Lucas – That absolutely came up, makes sense, and will be included as a connection that should be made.
 - The possibility of getting a connection directly from Transit makes sense, could also be a partial funding opportunity to take advantage of.
- Target date for next meeting? June 12 or 13? Let us know now, or follow up.
 - Bill Riviere – For now, let's assume it will be 4 pm on Tuesday, June 13

- Tom Stanuikynas – Suggested that it might be a good idea to talk to the [Burlington County] Bridge Commission to see if they have any plans that could impact the project.
- Network Considerations – Reviewed images of pedestrian improvements, bicycling improvements.
- Any additional thoughts, comments?
 - Shawn Megill Legendre – What about a “bike lending library?”
 - Provided by parks or something similar, people can check out/check in bikes
 - John Boyle – Suggest better access to Tacony-Palmyra Bridge, coordination with Burlington County Bridge Commission is important, improvements are happening right now on the Philadelphia side to connect to the Delaware River Trail.
 - When you get to the other side, there were once metal barriers and slip ramps, but all of that’s gone; Palmyra connection to Bridge will open up access to a wider trails network.
 - Tim Bril – Appreciate a look at the adjacent municipalities; can we look at the connections beyond the municipal borders? Bicyclists and pedestrians are heading off in many directions.
 - Bill Riviere – Appreciate the comment, and we definitely look at connectivity, we can’t really recommend improvements outside Palmyra’s borders but anytime we can connect bike-ped infrastructure we want to do that
 - Shawn Megill-Legendre– Noticed there’s a pedestrian bridge crossing a creek near Broad Street-- is that temporary or permanent?
 - (someone answered it’s a new, permanent bridge)
 - Bill Riviere – Thanks all for the presentation, asked people to continue providing feedback and keep helping us out with information, comments, suggestions.
 - Bettina Zimny/Chris Lucas – we will be circulating a copy of the presentation following the meeting.

Meeting 2: June 22, 2023

MEMORANDUM OF MEETING

FROM: Collin Rieger
DATE: 6/23/2023
MEETING: Palmyra Bicycle and Pedestrian Plan Steering Advisory Committee Meeting 2
MTG DATE: 6/22/2023 at 4:00pm via Zoom
SUBJECT: NJDOT Local Bicycle & Pedestrian Planning Assistance Program (LBPPA) / NV5, Inc. Project # J728622-0000551.18

Meeting Purpose

The purpose of the meeting was to discuss ongoing project findings, review preliminary analysis and establish further plans for the project.

Attendees

Bill Riviere, NJDOT
 Gina Tait, Mayor of Palmyra
 John Gural, Borough Administrator
 Jessica O’Connor, Borough of Palmyra
 Tom Stanuikynas, Burlington County
 Matt Johnson, Burlington County
 John Boyle, Bicycle Coalition of Greater Philadelphia
 Patrick Monahan, Bicycle Coalition of Greater Philadelphia
 Kwan Hui
 Andrew Blaisdell
 Pat Ott, MBO
 Chris Lucas, NV5 PM
 Matt Ludwig, NV5
 Collin Rieger, NV5
 Brian Stankus, NV5

Presentation

The project team’s presentation included the following topics.

Recap of Meeting 1

- June 15 Site Visit
 - o The original site visit date was postponed due to wildfire smoke, which meant a smaller team than previously intended: John Gural, Chris Lucas, Collin Rieger, and Dave Martin.

- Intersections along Broad Street were a key focus, as were sidewalks and the Palmyra Cove/Redevelopment Area.
- Requested transit ridership data from NJ TRANSIT, including RiverLINE boardings at Palmyra Station and ridership of bus route 419.
- DVRPC Level of Traffic Stress data was mapped and evaluated across the borough and will be taken into consideration in further analysis.

Opportunities and Constraints

- Broad Street
 - A corridor that many Palmyra residents access for daily life, but also for cross-town travel.
 - Improvements are recommended at five key intersections: Market Street, Race Street/Park Avenue, Weart Boulevard/Chestnut Street, Cinnaminson Avenue, and Highland Avenue/Morgan Avenue.
 - Market Street’s angled intersection leads to unusual approaches and long crosswalks, which should be addressed.
 - The Race Street/Park Avenue intersection has a missing pedestrian push button which should be fixed.
 - The Weart Boulevard/Chestnut Street intersection has a long crossing along the RiverLINE tracks that should be shortened.
 - The Cinnaminson Avenue intersection has a “No Right Turn” electronic sign that is not working properly, and has bus stop connections that should be improved.
 - The Highland Avenue/Morgan Avenue intersection has angled and long crosswalks that could be shortened. The end of the crosswalk on the north side of Broad Street lands in a painted area that functions as a curb extension, so the possibility of a built curb extension should be considered.
- Route 73
 - A divided high-speed roadway with only one traffic signal (which lacks pedestrian access).
 - Pedestrian Access is possibly a longer-term issue to resolve due to its complexity and likely need for further study. The redevelopment area is located across this road and will need some sort of access, and there is one traffic signal which does not easily lend itself to pedestrian access as it is surrounded by a car dealership. It is not clear what form the pedestrian access will take, but sidewalks are not present at this moment.
- No existing pedestrian countdown signals in Palmyra and no marked bicycle facilities.
- Many pavement markings need renewal.
- Pedestrian network considerations

- It is important to fix key gaps in the sidewalk network.
- Many sidewalks are not ADA/PROWAG-compliant, and some are in very poor condition due to tree roots or general wear.
- Crosswalk visibility should be improved, especially along Broad Street.
 - Broad Street crossings could be improved with improved paint, pedestrian push buttons and modified signals.

Bicycle Network Considerations

- There is considerable bicycle parking located around Palmyra, and many trip generators have their own bicycle parking. The retail strip along Broad Street could use more bicycle parking.
- Broad Street itself has a 35 mph speed limit, and does not have dedicated bicycle facilities.
- Bicycle improvements could be considered on Delaware Avenue, Temple Boulevard, Charles Street, and Spring Garden Street.
 - These are residential roads with low speed limits, some of which have on-street parking. Spring Garden Street is notable for having the lowest Level of Traffic Stress rating (1 out of 4).
- Broader Scope
 - The Circuit Trails and Delaware River Heritage Trail projects have identified Market Street as their preferred alignment to access the Tacony-Palmyra Bridge from Broad Street.
 - The project team proposes a route from Broad Street to the Palmyra Cove via Market Street, Souder Street, Temple Boulevard then the toll plaza underpass.

Other Draft Concepts

- Pedestrian
 - County collaboration is necessary to improve Broad Street intersection markings and signals as it is County Route 543.
 - Pedestrian access to Route 73 could be achieved near Jefferson Street.
 - A shared-lane bicycle network should be pursued, as well as a bicycle lane on Market Street
 - John Boyle, in chat, noted that Arch Street and Jefferson Street as a route to Temple Boulevard is likely lower-stress, and noted that the Circuit Trails/DRHT are subject to change.
 - Other pedestrian considerations
 - Charles Street School at Walnut Street—a midblock crossing of Walnut Street could be considered, including a raised crosswalk to slow traffic.

Discussion

Mayor Gina Tait

- The primary intersection of concern is Broad Street and Highland Avenue/Morgan Avenue; if that is to be fixed, can interim suggestions be given for how to bring change? Currently, major issues of people ignoring the traffic light, so push buttons may not significantly change that behavior.
 - o John Gural—Much could be addressed under a county project, which can find a way to supplement or improve the issue.
 - o Chris Lucas—Any details on county projects would be helpful if provided.

SAC Meeting 3

- What date would work best? July 19 or 20?
 - o Will poll SAC for best date—Bill Riviere prefers 20th

Next Steps/Timeline

- June 22: **SAC Meeting 2** review Opportunities & Constraints and Starter ideas
- June 29: SAC comments
- Concept Development & Prioritization; SAC Outreach as needed*
- July 19-20: **SAC Meeting 3** review Recommended Concepts and Priorities
- July 28: **SAC comments**
- August 1: Public review of Draft Concepts at Open Meeting
- Mid-August: Public Information Presentation of Bike/Ped Network & Priority Concepts (Virtual)
- Late August: **Final Report**
- The next council meeting is August 7th. August 1st is National Night Out, which will take place on the local (southern) alignment of Broad Street around 6 pm. Proposed having a table with draft concepts for a couple of hours, with the ability to incorporate some last pieces of input.

Additional Feedback

- Kwan Hui
 - o Public Road between New River Road and Broad Street should also have a shared lane or bicycle lane.
 - o Will the report have funding recommendations?
 - Answer of yes was given.
 - o Will Safe Routes to School grants be available?
 - Bill Riviere—This will be released July 17th.
 - o Broad Street is very wide, with two lanes each direction and parallel parking. However, it has significant bicycle and pedestrian traffic—is it possible to add bicycle lanes and bump-outs at corners? Sharrows likely won't be enough on a road like this which may encourage high speeds.
 - Gina Tait—There is concern about affecting the parking supply.

- Kwan Hui disagrees with this assessment, and John Boyle agrees this is a missed opportunity to not already have bike lanes here.
- Chris Lucas says there may need to be further analysis of road cross-sections.
- o Simone Gore—Does DVRPC have a “lending library” comparable to that of NJTPA, where municipalities can do demo projects?
 - John Boyle says yes, called the “Expo Program” (dvrpc.com/expo)
 - Bill Riviere—may try a test over a weekend before National Night Out to gauge public opinion and improve public understanding of these concepts.
- o Bill Riviere—Sharrows are minimum that is done where nothing else is attainable, and going further is usually preferable and worth effort.
- o Kwan Hui—What would a bike lane on Market Street look like?
 - Chris Lucas—Clear delineation, with paint to distinguish it from a parking lane including bike symbols.
 - Bill Riviere—Green paint is often too expensive to maintain which is why some municipalities choose not to fully paint bike lanes green.
 - Chris Lucas—Perhaps limited green paint around bike symbols will make it ‘pop’ enough that it is clear what it is. Other options could include a double white line or hatched buffer. The width should not exceed 6’-7’ although narrower driving space will slow vehicle traffic.
- o Bike boxes were suggested at major intersections so cyclists can gain priority over drivers and increase their visibility, as well as access turning lanes. Bill Riviere—There may be a need for education so people know how to use them.
- o John Gural—Wanted to reiterate that a bridge over Pennsauken Creek to access Pennsauken Station remains a high priority, and project team should continue reviewing its feasibility.
- o Matt Johnson—Can the team review SAC comments and follow-up with the SAC regarding connections with transit, the Palmyra Cove, and the Delaware River Heritage Trail? Also emphasized concept alignment for the DRHT is not confirmed and a superior alignment should be pursued if necessary.
 - In his view, the county would prefer an off-road path than a bicycle lane.
- o Bill Riviere—Additional review of concepts is encouraged to be sent to the project team.

Meeting 3: July 20, 2023



MEMORANDUM OF MEETING

FROM: Elizabeth Ward
DATE: 7/24/2023
MEETING: Palmyra Bicycle and Pedestrian Plan Steering Advisory Committee Meeting 3
DATE: 7/20/2023 at 4:00pm via Zoom
ATTENDEES: See attached Sign-In Sheet
SUBJECT: NJDOT Local Bicycle & Pedestrian Planning Assistance Program (LBPPA) / NV5, Inc. Project # J728622-0000551.18

Meeting Purpose

The purpose of the meeting was to go through the draft concepts and discuss alternatives and priorities.

Presentation

The project team presented the following concepts.

Pedestrian Network Considerations

1. Broad Street Intersection Improvements
 - a. Upgrade 5 intersections on Broad Street to full traffic signals to improve safety including pedestrian push buttons and countdown signals; currently difficult to see electronic “no left turn” and “no right turn” signs in the sun.
 - b. Modify geometrics to shorten crossings and paint high-visibility crosswalks.
2. Route 73 Pedestrian Crossings
 - a. Jughandle at Kerbeck car dealer
 - i. Signal will be upgraded as part of the redevelopment plan
 - ii. NJDOT has 30’ of ROW for a path between Jefferson Street and the jughandle
 - b. Pedestrian Bridge at West 5th Street

Bicycle Network Considerations

1. Broad Street Bike Lane
 - a. Standard bicycle lanes would require the loss of some street parking. Parking on the River Line side of the road looks underutilized. Parking counts during peak periods would be required.
2. River Line Trail
 - a. Sidewalk varies in width. Widening the sidewalk to 12’ would create a shared use path.

Pennsauken Station Access Bridge

1. Two proposed alignments
 - a. At the station (more direct)
 - b. At the southern end of the nature reserve where the creek is the narrowest (more circuitous)

Discussion

Route 73 Pedestrian Crossing

- Priority is to make sure there is a good pedestrian crossing to the affordable housing complex.
- Coordination on pedestrian improvements at the jughandle is the most urgent need.
- People including kids will want to take the shortest route across 73. Recommend putting up a fence on top of the jersey barriers to prevent people from crossing 73.
- Will the housing be closer to the 5th Street crossing or the jughandle?

Broad Street

- Broad Street crossings should have crosswalks on all legs.
- Broad Street intersection improvements should be compatible with the widened River Line path; wider curb cut for a wider path.

Pennsauken Creek Bridge Crossing

- Old Bridge Road crossing of Pennsauken Creek – is it a possibility? Would it be structurally easier since there are existing abutments?
- NJ TRANSIT prefers crossing at the station since the crossing already exists.
- This study does not get into the details. The purpose is to introduce the concepts and advance the conversation. Environmental studies would be for future analysis and would require additional funding.

Other

- Market Street is an EJ community. Bike concepts need to be vetted with community members.
- Protected bike lanes are preferred over sharrows.
- Show Broad Street bicycle facilities continuing into Riverton.
- Recommend showing pedestrian and bicycle improvements at River Road 4-leaf clover intersection
- Bike network should connect to the Bank Street Park.

Next Steps

- Include building footprints on existing warehouse and proposed housing and warehouse on concepts.
- Create a regional map of bicycle and pedestrian trails/connections for coordination of projects.
- Include a connection to Bank St at the river as part of the shared lanes/bike Blvd network on Garfield to connect to Temple.
- Add concept to improve pedestrian/bicyclist access at the River Road interchange.

Attachments

Meeting Presentation

Attendee List

Meeting 4: November 2, 2023

MEMORANDUM OF MEETING

FROM: Collin Rieger
DATE: 11/7/2023
MEETING: Palmyra Bicycle and Pedestrian Plan Steering Advisory Committee Meeting 4
MTG DATE: 11/2/2023 at 1:00pm via Microsoft Teams
SUBJECT: NJDOT Local Bicycle & Pedestrian Planning Assistance Program (LBPPA) / NV5, Inc. Project # J728622-0000551.18

Meeting Purpose

The purpose of the meeting was to discuss the project prioritization matrix created by the project team and identify any adjustments to make, as well as gather any other ideas from the SAC prior to report finalization.

Attendees

- Bill Riviere, NJDOT
- John Gural, Borough Administrator
- Jessica O’Connor, Borough of Palmyra
- Matt Johnson, Burlington County
- William Sheaffer, Burlington County
- John Boyle, Bicycle Coalition of Greater Philadelphia
- Loretta Kelly, NJDOH
- Simone Gore, NJ TRANSIT
- Patrick Farley
- Richmond Oppong
- Kwan Hui
- Jonathon Alexander
- Tim Brill
- Shawn Megill Legendre, DVRPC
- Dave Martin, MBO
- Chris Lucas, NV5 PM
- Collin Rieger, NV5
- Brian Stankus, NV5
- Bettina Zimny, NV5

Presentation

The project team’s presentation included the following topics.

Actions since Meeting 3

- Draft report not yet available
- Meetings
 - o NJDOT – discussion regarding Route 73 pedestrian crossings, Route 73/Redevelopment jug handle intersection, and New River Road bicycle access options
 - o Burlington County—discussion regarding actions taken on county roadways

Project Priority Map and Implementation Matrix

- The project implementation matrix was presented, as well as a key map with all the projects labeled by priority.
- The matrix identified each project and detailed its timeframe, costs, and possible partners.
 - o Timeframes
 - Short term – 1-3 years, mostly signs/stripping
 - Medium – 3-5 years, with signal design or County/State coordination
 - Long term – 5-10 years, capital design and/or environmental reviews
- Items by pre-meeting rank

Project #	Project Name	Project Description	Implementation Timeframe	Cost to Implement	Project Partners
1	Broad Street Intersection Improvements and Corridor Traffic Calming	Pedestrian improvements and signal upgrades to the five major intersections on Broad Street; traffic calming for the corridor	Medium	Moderate	Burlington County, NJ Transit
2	Route 73 Pedestrian Crossings	Crosswalk(s) to accommodate pedestrian crossings along Route 73	Long	Moderate	NJ DOT, Developers
3	Pennsauken Creek Crossings	Bicycle-Pedestrian bridge connecting the Redevelopment Area to the RiverLINE and/or surrounding street network	Long	High	NJ Transit, Burlington County Bridge Authority, Developers
4	Market Street Bicycle Lanes	Curbside bicycle lanes from Broad Street to Tacony-Palmyra Bridge	Short	Low	Community
5	Broad Street Bicycle Lanes	On-street bicycle lanes along Broad Street as part of traffic calming design	Medium	Moderate	Burlington County
6	Bicycle Boulevard Network	Various streets throughout Palmyra	Short	Low	
7	Waterfront Access	Connect Palmyra Promenade Park with Bicycle Boulevard Network	Short	Low	
8	River Road Interchange	Provide access for cyclists along River Road	Medium	Low	Burlington County
9	RiverLINE Trail Widening	Expand existing path to accommodate bicycles and pedestrians	Long	High	NJ Transit

Discussion

- Chris Lucas—Are there additional thoughts on the ranking? Are any projects in need of moving up or down the list?
- Loretta Kelly—Requested a summary of the prioritization process.
 - o Chris Lucas—This serves as a blueprint for how to proceed with all of the projects. Some may be able to be pursued concurrently, but this serves as a priority ranking for funding. This is a somewhat holistic ranking based on a

combination of community feedback, the timeframe of each project as well as opinions of the project team and SAC and wanted to refine it using more SAC opinions via this meeting.

- Matt Johnson—For the Broad Street improvements, can/should the intersection improvements and bicycle lanes be combined into a single item? The bicycle lanes will affect the timing of the signals anyway. Called upon William Sheaffer to follow up.
 - o William Sheaffer—The issue of NJT ownership of the traffic signals that cross the RiverLINE present a wrinkle of it being their responsibility to make any upgrades.
 - o Chris Lucas—Would separating the Broad Street improvements into traffic calming and signal upgrades make it better?
 - o William Sheaffer—The projects should go together, so it would be best to create a combination.
 - o Tim Brill—Proposed a 1A/1B approach to Broad Street improvements, tying them all together while still separating elements.
- Tim Brill—Is the River Road/Route 73 interchange owned by Burlington County?
 - o Chris Lucas—NJDOT and Burlington County would both need to be involved.
- Tim Brill—Outside connections are important to keep in mind. While this isn't reflected in this matrix, hopes the report does reflect this idea. Also proposed idea of allowing pedestrian access underneath Route 73 to connect the Redevelopment Area to the rest of Palmyra.
 - o John Gural—Significant upgrades are anticipated since the housing in the Redevelopment Area is confirmed to be happening. States that this is a high priority to local governments, as is the Pennsauken Station/Creek Bridge project. Makes it clear that improvements to connect the Redevelopment Area will be time-consuming and expensive, but are appropriately placed in the prioritization matrix. Allocating funds is the final piece.
- Shawn Megill Legendre—There seems to be a gap between the Redevelopment Area and the proposed bridge crossing Pennsauken Creek. What will connect that bridge to the Redevelopment Area and the rest of Palmyra?
 - o Chris Lucas—Showed some conceptual routes.
 - o Shawn Megill Legendre—The need for a connection after the bridge should be emphasized.
 - o John Boyle—Concerns regarding main concept for the bridge, which places people on the Pennsauken Station platform. Thinks this could cause issues.
 - o Simone Gore—NJ TRANSIT greatly prefers not adding additional at-grade crossings, so using the existing crossing at the station is preferable.
 - o John Boyle—The RiverLINE station in Delanco has two crossing points, and is worth reviewing.

- Kwan Hui—Is adding crosswalks across Route 73 (Project #2) really a long-term project? Is there additional infrastructure required?
 - o [note: there is a need to connect the jug handle to the rest of Palmyra using sidewalks for several blocks, and requiring the use of some private land]
- Chris Lucas—The project team will modify the matrix in the ways discussed (e.g. combine Broad Street projects) and leave the others.
 - o Shawn Megill Legendre—The table should still note that other projects can happen before or concurrently with others based on context or funding.
- Chris Lucas—Project team anticipates sharing a draft report with Palmyra Borough, then assisting them with next steps. The plan should be released by the end of the year, probably before the end of the month.
- Tim Brill—Was the Burlington County Bridge Commission consulted regarding using the connection under the bridge for bicyclists and pedestrians to access Palmyra Cove?
 - o Chris Lucas—It was not, however our current understanding is that it is currently a viable option for both modes already.

Appendix C: NJDOT Meeting Notes

MEMORANDUM OF MEETING

FROM: Collin Rieger
DATE: 11/10/2023
MEETING: Palmyra Bicycle and Pedestrian Plan – Route 73 Ped. Crossings Discussion
MTG DATE: 10/17/2023 at 10:00am via Microsoft Teams
SUBJECT: NJDOT Local Bicycle & Pedestrian Planning Assistance Program (LBPPA) / NV5, Inc. Project # J728622-0000551.18

Meeting Purpose

The purpose of the meeting was to discuss various concepts for the crossing of NJ Route 73 for pedestrians with NJDOT.

Attendees

William Riviere, NJDOT Bureau of Safety, Bicycle and Pedestrian Programs

Brian Bockius, NJDOT Bureau of Safety, Bicycle and Pedestrian Programs

Virgilio Tan, NJDOT Bureau of Safety, Bicycle and Pedestrian Programs

John Fam, NJDOT Bureau of Traffic Engineering

Austin Gould, NJDOT Bureau of Roadway Design, Group 2

Chris Lucas, NV5

Collin Rieger, NV5

Dave Martin, MBO

Presentation

The project team’s presentation included the following topics.

Bus stops along Route 73

1. Bus traffic will come down Route 73 and turn onto Broad St into Palmyra; no bus stops along Route 73 after Broad Street intersection.

Crosswalks

1. There will be crosswalks across the north side of the jughandle intersection with pedestrian signal heads, but there is no connection to the street network.

2. A sidewalk is needed between the jughandle and Jefferson Street, along the east side of Route 73.
3. Approx 30’ of ROW exists, in which the sidewalk could be built.
4. **DOT’s existing CPM project**
 1. Includes adding crosswalks across Jefferson St and the jughandle entrance and push button ped crossing signals, as well as adaptive timing.
 1. Get in touch with Major Access (Ken Spiegel) to start a conversation about how to get the sidewalk connection added/built.
 2. It may not be possible to add the sidewalk to the existing project.

Second crossing concept (toward the southern end of Palmyra at S 5th Street)

1. Crossing here would be ~1,400’ south of Kerbeck crossing.
 1. Spacing distance for this speed limit and signal cycle length may be ½ mile per the Access Code, but if the traffic study shows the need, an additional signal could still be considered.
 2. There may be a spacing regulation for distance between the New River Rd interchange and the potential new crossing at S 5th Street in the NJDOT Roadway Design Manual.
2. A school signal warrant would most likely need to be used to justify a new signal at this location.
 1. The town needs to request the traffic study and provide a 25% commitment to the cost of the study.
 2. A DOT study is required for this signal.
 3. If none of the signal warrants are met, DOT can consider putting a hot signal.
3. If the Borough or the developer wants to create a crossing here, they can submit an application to Major Access.
 1. ROW and utility relocation needs to be considered, these are not usually included in a DOT work order.
 2. There could be sight distance issues.
 3. S 5th Street opposes what looks like a new in/out driveway, which would also complicate traffic movements.

New River Road/Route 73 interchange

1. New River Road is a county road, and the interchange becomes State jurisdiction.
2. Pedestrians and bicyclists are using New River Road currently, with no accommodations.
3. While this will be a State investigation because they operate the ROW, it is up to the County to initiate a plan with a concept in mind

Appendix D: RiverLINE Trail Widening Details

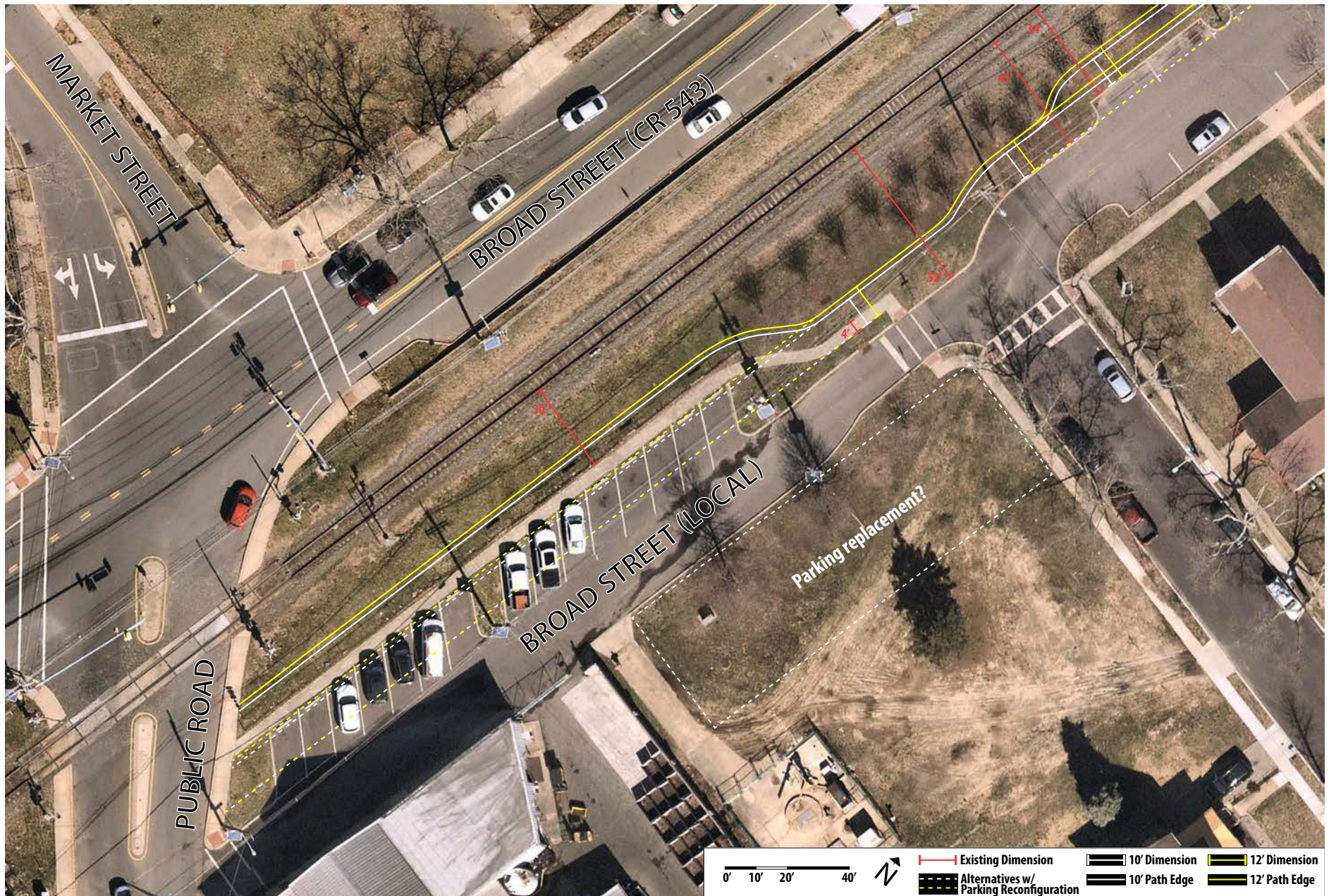
RiverLINE Trail Widening

The widening of the RiverLINE Trail is intended to expand its usefulness and accommodate a wider range of users more effectively. The following pages contain an analysis done in the process of this planning study to examine the feasibility of expanding the path, with the existing dimensions shown along with the proposed new dimensions. It is important to note that NJ TRANSIT has stipulated that the path cannot be widened in the direction of the RiverLINE, so while these diagrams show the scale of a widened path, any expansion of the path should be done in the direction of the roadway.

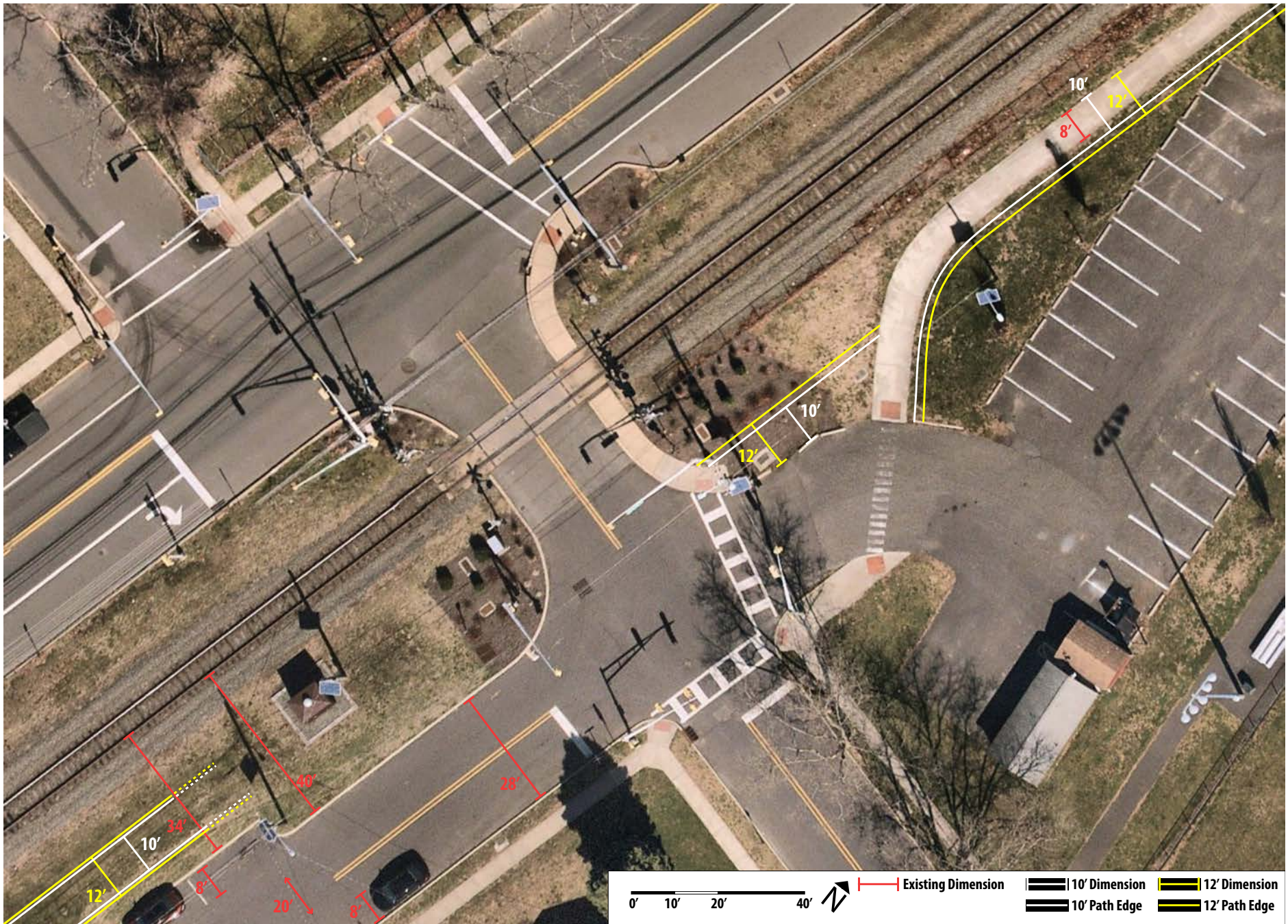
Key Map



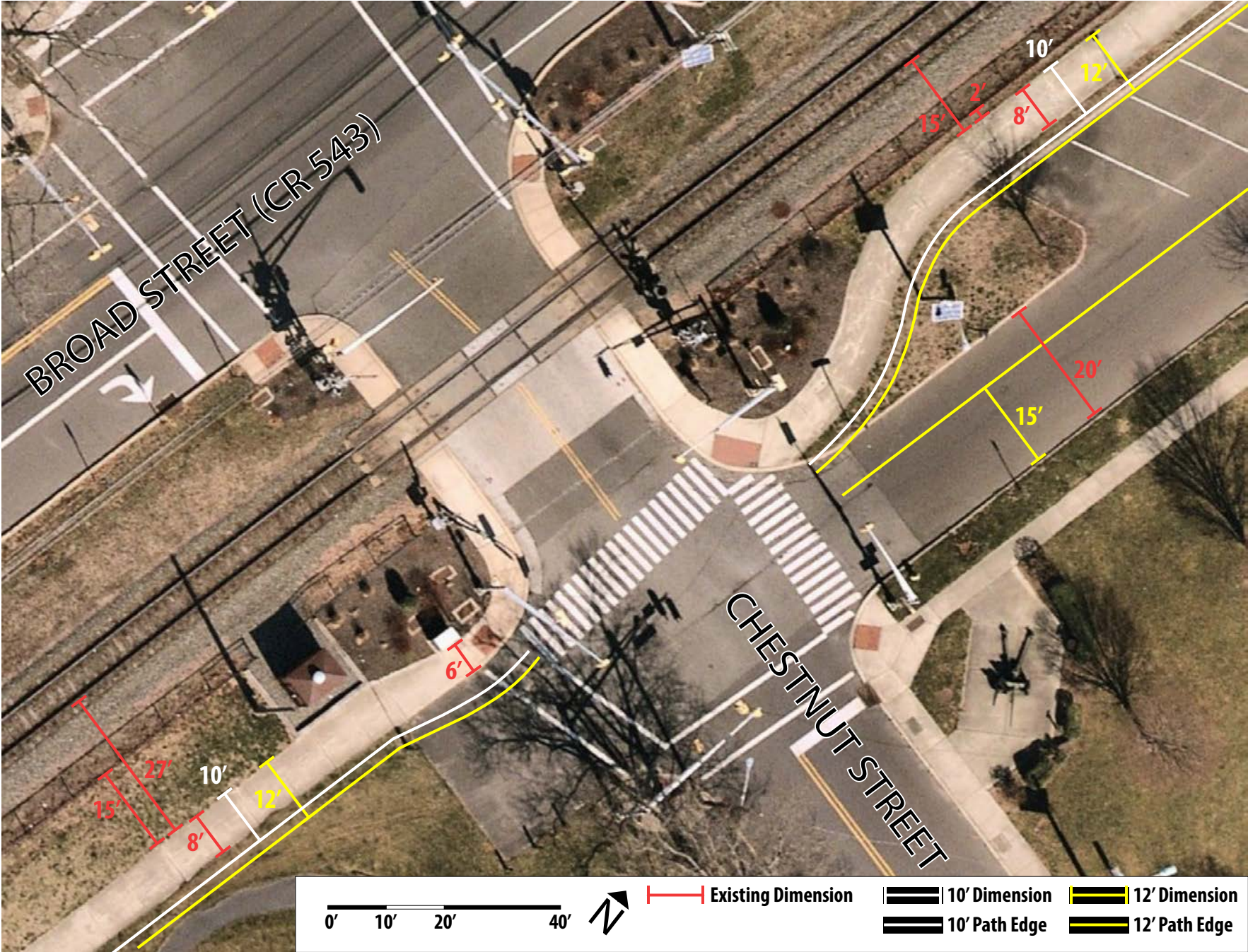
Market Street



Park Avenue



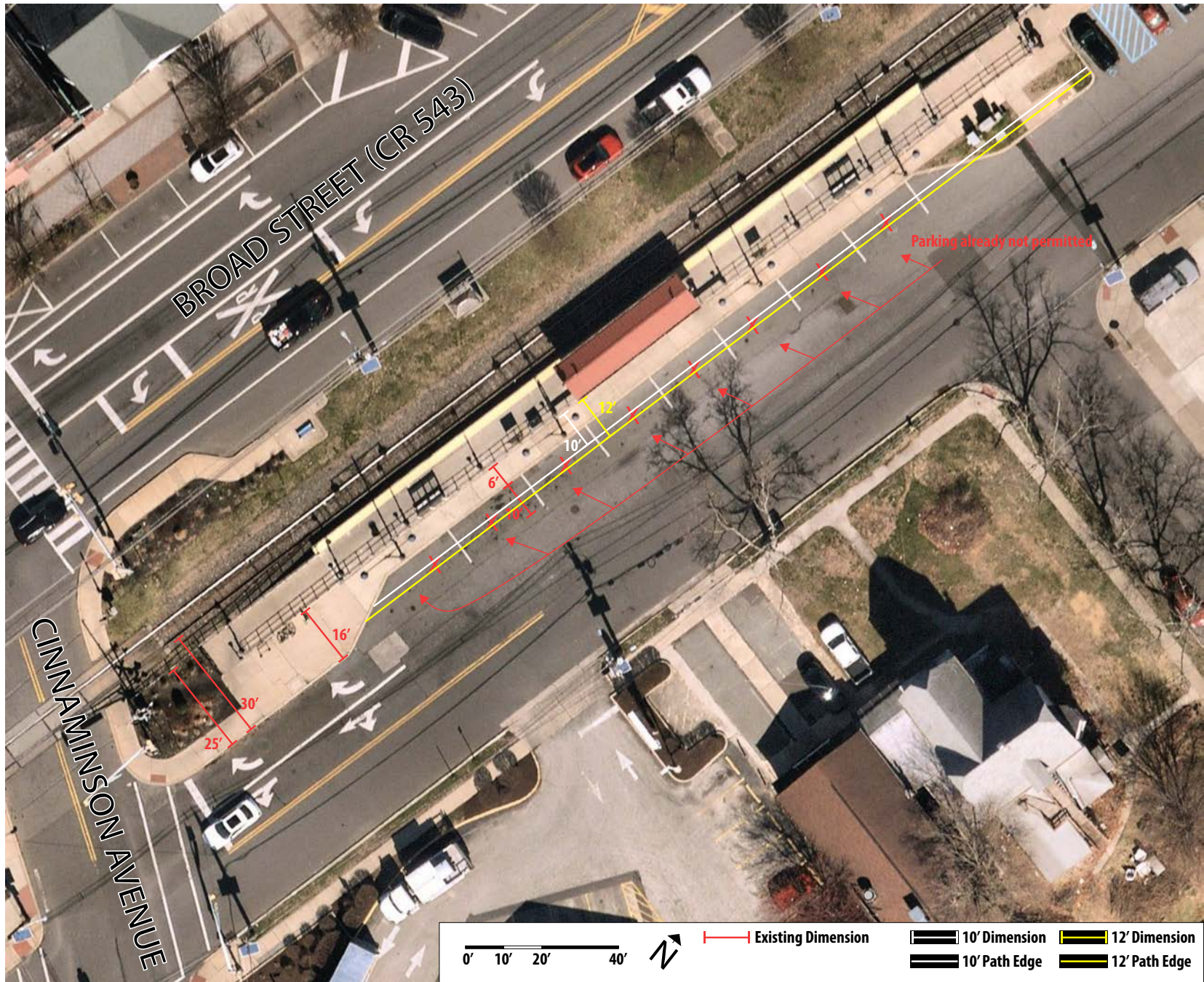
Chestnut Street



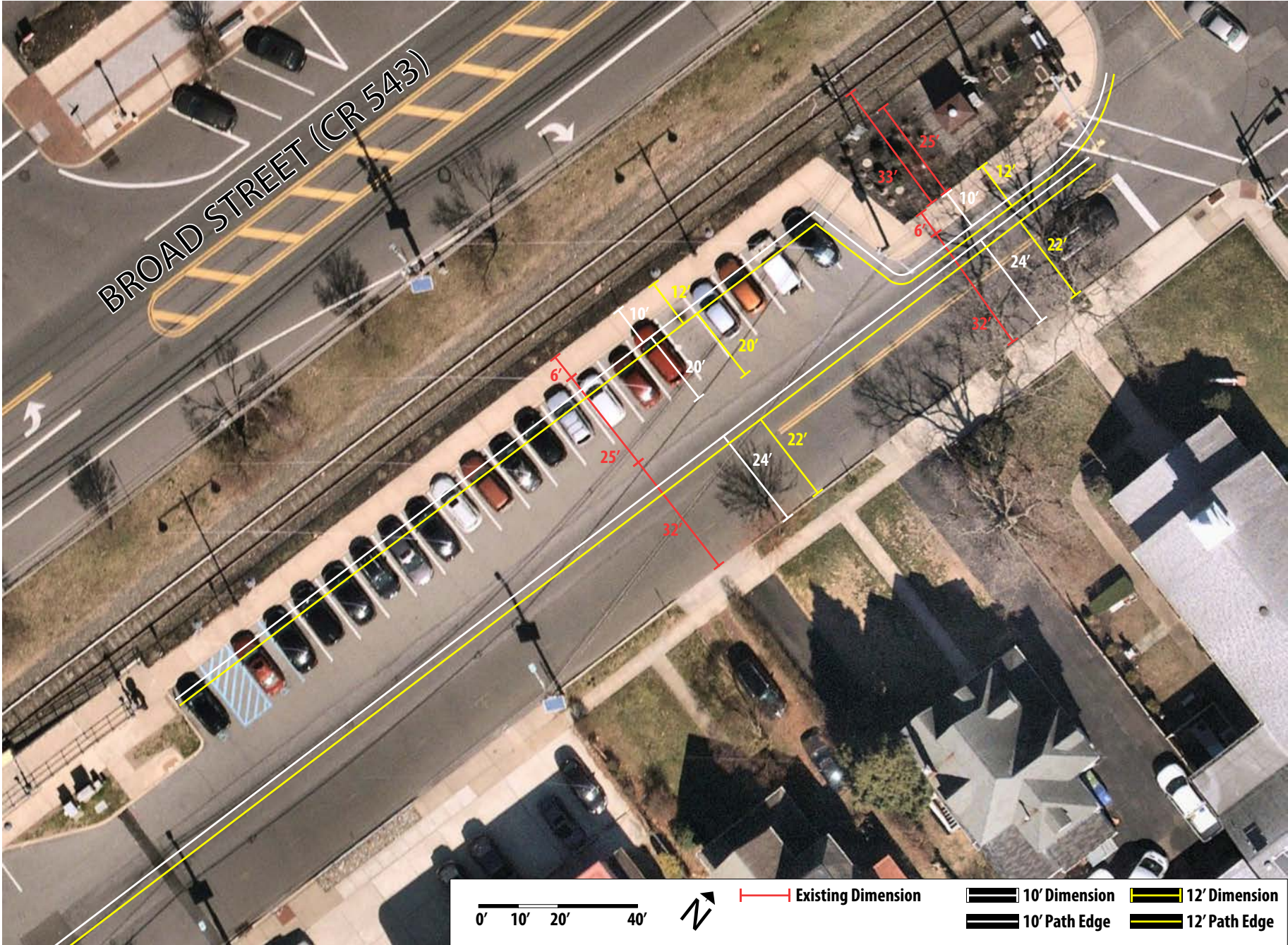
Borough Park / Cinnaminson Avenue



RiverLINE Station - Southwest



RiverLINE Station - Northeast



Appendix E: Literature Review

Borough of Palmyra

2018 Master Plan Reexamination

This 2018 reexamination of the Palmyra Master Plan is the first since 2008. It begins by summarizing the Major Problems and Objectives relating to land development during the previous reexamination. Those relevant to this study include:

- The not fully productive utilization of lands along the Route 73 corridor.
- The limited utilization of available open space.

Other issues related to elements including utilities, stormwater management and abandoned structures are also included. In response to these issues, the previous reexaminations incorporated the following relevant strategic objectives:

- The improvement of the transportation system for the more efficient movement of people and goods.
- The expansion of community facilities in support of the Borough's population.
- The provision of a comprehensive system of public recreation facilities.
- The protection of natural and environmental resources.
- The preservation of Palmyra's heritage.
- Land use/development objectives for the fully productive utilization of lands within Palmyra:
 - The protection of residential areas from encroachment of commercial and industrial uses.
 - The expansion of open space through the development of parklands along the Delaware River from the Pennsauken creek to Riverton, and through the development of a linear park and the anticipated heritage trail.
 - The undertaking of initial steps leading to environmentally sensitive development of lands west of Route 73.

There have also been changes to the underlying basis of the assumptions the plan is based on. The borough saw a 5.1% increase in population from 1960 to 2010 which is quite low compared to the county almost exactly doubling in population during that time period. Following that trend, the population is slightly older than the county and is aging. Palmyra is not as wealthy as the county or state averages, and it a decrease in employment opportunities from 2018 to 2043 is anticipated. In all, the demographics remain consistent: a small, middle-class and fairly homogenous community.

This reexamination brought forward new recommendations as well as revisions to the existing recommendations. Relevant changes to the underlying assumptions that are recommended include:

- A continued pursuit of the expansion and preservation of open space and recreation opportunities.
- Continued efforts to remediate contaminated lands south of Route 73.

Additionally, policies for the guidance of development and redevelopment are recommended to be established, including:

- Redevelopment planning should continue to be promoted.

- Development and redevelopment activities must be respectful of the environment and promote the preservation of green space.
- Public improvements and improvements to facilities frequented by the public are to be barrier-free and in accord with ADA Accessibility Guidelines.
- Create an Arts District via a zoning overlay to include the entire length of Broad Street (CR 543) within the Borough, portions of Cinnaminson Avenue (Broad Street to 5th Street) as well as the existing redevelopment area on Morgan Avenue.
 - This district is intended to be a regional draw, attracting both tourism and the permanent residency of artisans in Palmyra and revitalizing the downtown area by promoting activity.

Finally, several amendments are suggested for existing elements of the Master Plan. Relevant amendments include exploring and implementing traffic calming along Broad Street and exploring the same along Temple Boulevard, adoption of Complete Streets policy, development of an Open Space and Recreation plan, and acquisition of additional properties to for expansion of open space.

Route 73 South Redevelopment Plan, 2003

The Route 73 South Redevelopment area is home to the most significant development effort currently ongoing in Palmyra. The plan being created in 2003, the overarching goals are to eliminate the blighted conditions present (namely abandoned structures and pollution) and to create new development that would increase tax revenue, new recreation and cultural event opportunities, a visually appealing gateway into Palmyra/Burlington County/New Jersey and a core node of mixed use development to preserve existing open space and better utilize frontage and access to Rt 73 South. Specific objectives include the elimination of nonconforming uses and the remediation of brownfields, the creation of a new mixed-use district with opportunity for new commercial, hospitality and cultural/recreational facilities and the provision of passive recreation opportunities to complement the Cove.

The plan is consistent with the 2000 Master Plan Reexamination. It addresses the unproductive use of the area, as well as the regulatory issues of the area. The Reexamination calls for the expansion of open space in that area through development of the parklands, and the encouragement of commercial development along Route 73 without disturbing existing residential areas. It proposes the restriction of residential, outdoor vending, resource extraction, outdoor storage, vehicle sales and repair and gas stations.

2020 Redevelopment Plan Amendment

This amendment to the 2003 redevelopment plan significantly alters the intent of the redevelopment. The economy following the 2008 financial crisis and the 2020 pandemic is not the same, which must be accounted for. Key is that the borough must acknowledge a settlement agreement with the Fair Share Housing Center that provides for the creation of affordable units. New goals and objectives that have been incorporated are the provision of affordable housing, the remediation of brownfields, and the establishment of non-residential development that will expand ratables.

County/Regional

DVRPC Transit Village Design in Burlington County, 2002

This is a study that analyzes RiverLINE stations in the DVRPC region and provides recommendations for each one specifically, based on the general ideas of creating transit villages/transit-oriented development.

Its general description of Transit-Oriented Development, or TOD, is mixed-use development (new or redevelopment) that is moderate-to high density (relative to the existing scale of development), pedestrian designed and easily walkable to transit. TOD is desirable due to the trend since the mid-20th century of road/highway-centered development and the desire to avoid using those transportation systems. People’s preference towards this can come from multiple angles, be it a desire to live car-free for financial, logistical or lifestyle reasons or a general preference towards public transit usage and walkability. TOD is considered a smart growth strategy, as combining mixed-use development with transit access can create a lifestyle that enables trip chaining on foot and reducing overall automobile usage. Increasing density in places supported by transit helps reduce sprawl and can reduce the need for new infrastructure such as utilities. In general, the quality of life provided by TOD and the walkability it provides can boost community liveliness and local tourism as well as individuals’ physical activity and help reduce crime through consistent activity levels and “eyes on the street.”

For Palmyra, the recommendations are not as far-reaching as Palmyra is identified as one of the towns around the RiverLINE with the elements of a Transit Village already in place. It describes Palmyra as having a “comfortable small-town feel” due to “turn-of-the-century vernacular architecture, centrally located bandstand, and the railroad.” Much of the borough is easily walkable to the station, and the station is near most of the borough’s commercial area. As a result, the overall recommendations are not particularly far-reaching, as they seek to build off what is already in place by improving access to the station via trailblazer signage, residential parking permits, sidewalk upgrades, and bus service coordination. Other improvements recommended include updates to the Zoning Ordinance to: decrease minimum lot sizes, create/update parking requirements and allow bed and breakfast uses. It also suggests an updated master plan with objectives for a more transit supportive land use pattern.

More specific recommendations are centered around what are referred to as “opportunity areas.” Two of these are identified: the immediate station area and the vacant properties along Broad Street. For the station area, the plan recommends aesthetic improvements to complement existing uses to create the feel of a “vibrant town center.” For the Broad Street lots, the plan identifies specific land uses that may complement a transit village lifestyle that were not present at the time of this report (day care, toy store, bakery, coffee shop, takeout establishments, movie theater) that should be pursued to complement the area’s transit supportiveness.

DVRPC, *Equity Through Access (Coordinated Human Services Transportation Plan), 2020 Update* Equity Through Access is the name of the DVRPC’s federally required Coordinated Human Services Transportation Plan. These plans, required by the FTA’s Section 5310, identify “the transportation needs of individuals with disabilities, seniors and people with low incomes, provides strategies for meeting those needs, and prioritizes transportation services for funding and implementation.” These are strategies that provide better access to essential services to the most vulnerable populations (elderly, disabled or impoverished populations).

This 2020 update to the plan identifies “Gaps and Bridges,” which are in essence the current constraints and opportunities related to achieving equity through access for vulnerable populations. The “gaps” relevant to this analysis include:

- Infrastructure
 - ADA noncompliance at transit.
 - Sidewalk gaps including at bus stops.
 - Lack of appropriate traffic and pedestrian signals.
 - Existing infrastructure creating barriers for ADA compliance.
 - Transportation infrastructure creating barriers within and between neighborhoods.
 - Difficulty transferring between modes of transportation.
- Data and Coordination
 - Information about travel options for vulnerable communities is not always clear or accessible.
 - Lack of coordination between transit and development projects.
 - Language barriers.

To address these issues, several “bridges” were also identified for implementation, including relevant ones such as:

- Infrastructure access and affordability.
 - Ensure transit stops and connecting pathways are accessible, prioritize improvements where they are not.
 - Consistency in accessible seating.
 - Develop program for building/maintaining sidewalks that connect to transit.
 - Encourage accessible and equitable TOD.
 - Support Complete Streets, Vision Zero, sidewalk networks public restrooms, & places to sit or rest to allow for ease/safety of going out on foot.
 - Allow for seamless and accessible movement between modes by clustering infrastructure, coordinating times, improving wayfinding.
 - Prioritize accessibility improvements at:
 - Key transportation hubs with significant numbers of vulnerable populations.
 - Communities with concentrations of disabled or senior populations.
 - Essential services locations, particularly health services.
- Infrastructure with safety considerations for vulnerable users.
 - Encourage safety improvements for navigating transportation system.
 - Improved lighting, security cameras, transit station staff, crosswalks, pedestrian countdown timers, traffic calming, activation of underused spaces.
 - Employ design features that create a welcoming environment and reduce spaces that enable crime.

DVRPC, *Connections 2050 Long Range Plan, 2021*

This plan identifies 2050 as a milestone year, one that many different efforts have identified as their target year. The regional Vision Zero target year, US net zero carbon emissions target year, and UN sustainable societies and elimination of PM_{2.5} target year are all 2050, and therefore this plan also intends to reach ambitious targets by then as well. These overarching objectives are Equity,

Sustainability and Resiliency. The Plan's focus areas are thus: The Environment, Communities, Multimodal Transportation and The Economy. Relevant to this analysis in these are: that the bicycle and pedestrian network must equitably serve people of all race/color/national origin as well as low-income communities, and that the promotion of bicycle and pedestrian mobility works towards a reduction in greenhouse gas emissions.

The section on developing inclusive, healthy and walkable communities states the following relevant goals:

- The advancement of Environmental Justice for the whole region.
- Investment in community schools and amenities like parks, trails, sidewalks and other bike/pep infrastructure.
- Focusing growth in mixed-use walkable centers and promote vibrant main streets and downtowns as well as live/work opportunities.

The section on maintaining a safe, multimodal transportation network states the following relevant goals:

- Rebuilding and modernizing the region's transportation assets.
- Achieving vision zero.
- Integrating transportation modes into one accessible network.
- Improving mobility and reliability to reduce congestion and overall vehicle miles.

[DVRPC, Burlington County Highway Master Plan, 2019](#)

The Palmyra-related information included in this Plan covers both the borough's characteristics as well as those of individual roadways. It identifies roads with at least double the FHWA 2015 average crash rate as well as those with a high Volume/Capacity (V/C) ratio (0.85 or more), with a focus on roads that have high crashes without exceeding this ratio, meaning the crashes are not due to the roads being overburdened. This analysis found that Cinnaminson Avenue and Highland Avenue both fall into this category and are not expected to exceed this high V/C ratio by 2040 either. The roads expected to exceed this ratio in 2040 are Route 73 as well as the portion of Broad Street in neighboring Riverton, although Route 73 is expected to decrease in V/C by 2040. As these roads identified are not expected to increase in V/C, it is not recommended that they see an increase in capacity.

Most areas in Palmyra, save for the Cove, received a Medium-High transit score in 2010. Palmyra is designated as a Developed Suburb Planning Area and is noted as one of the main town centers in Burlington County. In the Burlington County Bicycle Master Plan, Broad Street, Cinnaminson Avenue, and Market Street are proposed to be part of the On-Road Bicycle Network, and Broad and Cinnaminson are identified as being recommended for all five long-range strategies in this plan (Operational Strategies, Transportation Demand Management Strategies, Strategies to increase Capacity of Existing Transportation Systems, Strategies to add New Transportation System Capacity, and Goods Movement Strategies). Cinnaminson Avenue, Highland Avenue, and Broad Street are also notably identified in the Plan's Incident Management Network as Expressway Detour Routes.

[Burlington County Bicycle Master Plan, 2014](#)

Burlington County's Bicycle Master Plan includes a crash analysis that echoes information that has been collected for Palmyra—a considerable concentration of crashes around the intersection of Broad Street

and Cinnaminson Avenue. In its map of existing bikeways, there is a notable lack of any bikeways in Palmyra, which is reflected in its low cycling rate relative to the county, but it is noted that Palmyra has some of the highest walking and transit use rates in the county.

In an analysis of physical barriers, Route 73 is noted as one of them—this is further emphasized in a discussion about the Delaware River Heritage Trail, as the Palmyra-Tacony bridge links the DRHT in New Jersey and Pennsylvania together yet bikes must be walked over the bridge. Finally, the plan proposes primary and secondary bikeway corridors, and Broad Street, Cinnaminson Avenue, and Market Street are identified as primary corridors and Highland Avenue is identified as a secondary corridor. In terms of phasing, there are four timeframes: immediate (none), short-term (Cinnaminson, Broad, Market), medium-term (none) and long-term (Highland).

[Burlington County, NJ 73 Corridor Study, 2011](#)

While it is referenced occasionally, this study does not include Palmyra, as the study area spans from Evesham to Maple Shade's border with Cinnaminson Township.

[Delaware River Heritage Trail, Borough of Palmyra website](#)

The planned route for the DRHT crosses through Palmyra via Broad St, including a planned extension past Broad St along the Pennsauken Creek which connects further to Philadelphia via Camden, as well as a second branch down Market Street onto the Rt 73 Bridge.

Appendix F: Crash Analysis

Palmyra Borough Crash Data Analysis

An analysis of crashes occurring between January 1, 2017, and December 31, 2021

General Summary 2017-2021 Crashes:

- » 864 Total Crashes
- » 761 Geocoded Crashes (88.1%)
- » 244 Persons Injured

Of the 864 crashes:

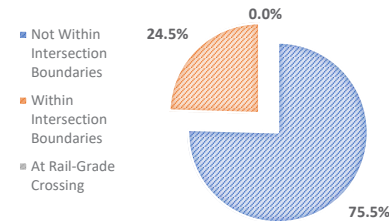
- » 25% Occurred within Intersection
- » 54% Involved a Distracted Driver
- » 43% Occurred between Noon and 5:59PM
- » 18.8% Involved a driver age 65+
- » 12 Involved Pedestrians
- » 8 Involved Cyclists
- » 7.9% Involved Unsafe Speed
- » 5.9% Involved Alcohol or Drug Impaired Driver



Palmyra Borough	2017	2018	2019	2020	2021	Total	5-Year Average
Total Crashes	168	186	185	156	169	864	172.8
Crashes Involving Pedestrians	1	1	4	4	2	12	2.4
Crashes Involving Cyclists	2	1	2	1	2	8	1.6
Distracted Driving Crashes	94	96	98	83	88	459	91.8
Impaired (Alcohol And/or Drugs) Crashes	8	8	11	1	8	51	10.2
Crashes Involving Older Drivers (65+)	34	24	37	31	34	162	32.4
Crashes Involving Young Drivers (16-20)	15	18	16	18	16	83	16.6
Unrestrained Occupant Crashes	1	3	5	10	4	23	4.6
Total Injury/Fatal Crashes	31	36	39	40	32	178	152.4
Fatal Crashes	-	-	-	2	-	2	0.4
Suspected Serious Injury Crashes	-	1	1	1	1	4	0.8
Suspected Minor Injury Crashes	5	4	8	14	17	48	9.6
Possible Injury Crashes	26	31	30	23	14	124	24.8
Property Damage Only Crashes	137	150	146	116	137	686	137.2
Percent of crashes resulting in Injury	18.5%	19.4%	21.1%	24.4%	18.9%	20.6%	

*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering

INTERSECTION RELATIONSHIP OF CRASHES, 2017-2021

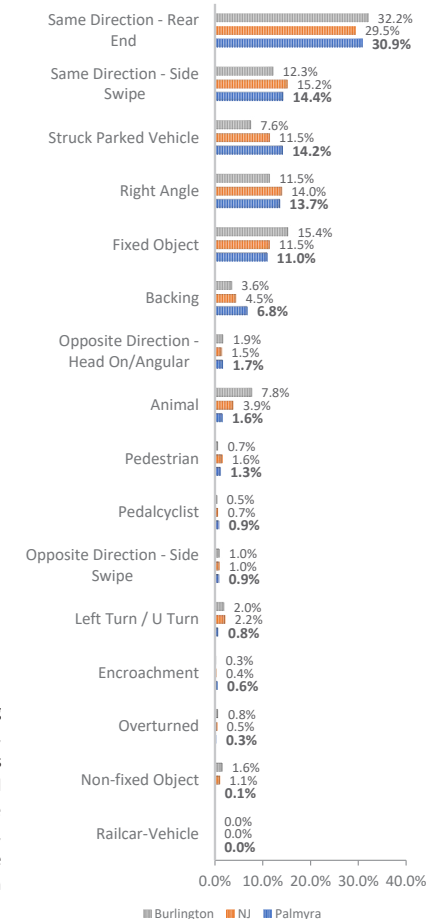


Key Findings of Palmyra Borough Crashes

There were several areas of emphasis that were over/under-represented in Palmyra Borough as compared to Burlington County and New Jersey. Roughly 54 percent of all crashes over the past 5 years in Palmyra Borough involved a distracted driver compared to 48% in Burlington County and 49% in NJ. Older drivers (65+ years of age) were involved in 2 percent more crashes than the NJ average (19.7% vs 17%). Just under 10 percent of all crashes in Palmyra involved a young driver (16-20 years of age) compared to 14 percent of crashes in Burlington and 12 percent of crashes in New Jersey. Alcohol and/or Drug impaired drivers were involved in nearly 5 percent of all geocoded crashes over the past 5 years, compared to 3.6 percent of crashes in Burlington County and 2.6 percent of NJ crashes.

Same Direction – Rear End crashes were the leading cause of crashes (30.9%) in Palmyra Borough, followed by Same Direction – Side Swipe crashes (14.4%). Struck Parked Vehicles in Palmyra (third leading crash type) was nearly double the NJ rate (14.4% vs 7.6% in NJ). The majority, three-quarters, of all crashes in Palmyra Borough occurred outside of the intersection boundaries, 24.5 percent within the intersection.

CRASHES BY TYPE, 2017-2021



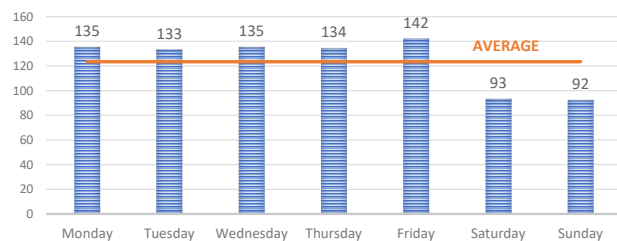
*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering

Over the past 5 years (2017-2021), about 20 percent of all crashes in Palmyra resulted in an injury, 0.4 percent resulting in a fatality. Most crashes in Palmyra took place between 2:00PM and 3:59PM (17.3 percent) and about 46 percent of all crashes took place on Route 73, followed by 14 percent taking place on Route 543.

PALMYRA BOROUGH CRASHES TIME OF DAY, TIME OF YEAR 2017 - 2021

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL	
Midnight to 2:59AM	3	5	0	2	1	1	3	2	3	3	4	3	30	3%
3:00AM to 5:59AM	4	1	4	0	1	4	1	0	3	5	0	6	29	3%
6:00AM to 8:59AM	12	10	8	12	16	10	11	8	15	13	16	11	142	16%
9:00AM to 11:59AM	6	8	4	15	8	4	9	8	17	17	4	8	108	13%
Noon to 2:59PM	10	12	15	12	16	12	26	12	13	16	13	20	177	21%
3:00PM to 5:59PM	13	13	14	13	13	21	23	24	12	19	17	12	194	23%
6:00PM to 8:59PM	15	10	6	6	11	12	11	11	7	17	6	15	127	15%
9:00PM to 11:59PM	7	6	4	5	5	3	3	2	2	7	3	8	55	6%
TOTAL	70	65	55	65	71	67	87	67	72	97	63	83	862	100%
	8%	8%	6%	8%	8%	8%	10%	8%	8%	11%	7%	10%		

CRASHES BY DAY OF WEEK, 2017-2021



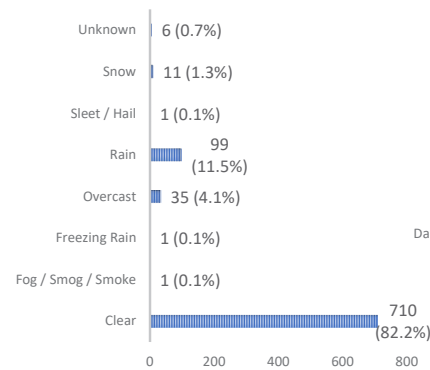
43% of crashes in Palmyra occurred between Noon and 5:59pm.

21% of crashes occurred on the weekend (Saturday and Sunday).

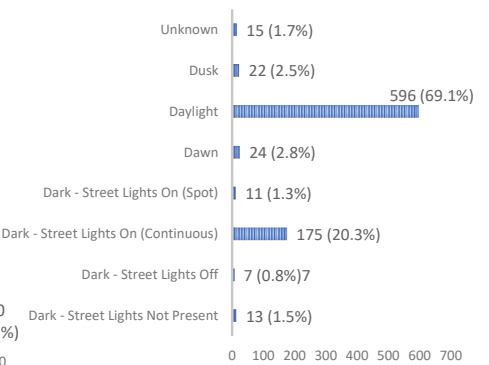
October (11%) and July (10%) had the highest volume of crashes.

*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering

ENVIRONMENTAL CONDITION DURING CRASH, 2017-2021



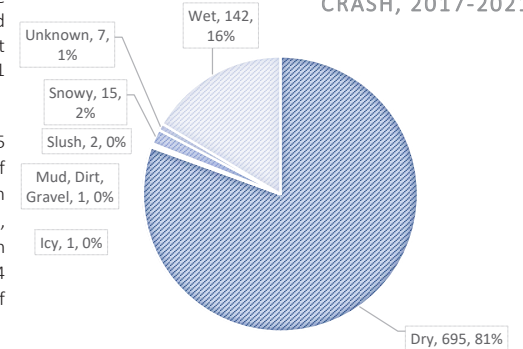
LIGHTING CONDITION DURING CRASH, 2017-2021



ROAD SURFACE CONDITION DURING CRASH, 2017-2021

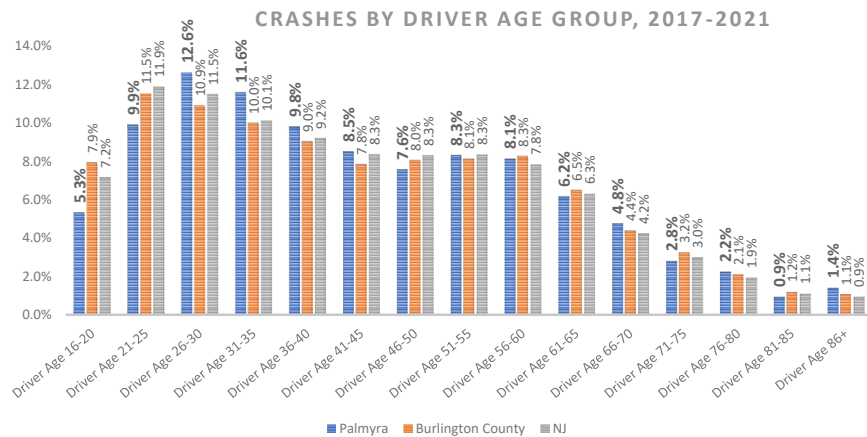
Over 80 percent of crashes over the last 5 years (2017-2021) Occurred during clear conditions, 69 percent during daylight hours and 81 percent dry roadway conditions.

Drivers between the age 26 and 35 made up the highest proportion of involvement in injury crashes in Palmyra Borough (24.2 percent), which is higher than Burlington County involvement rate of 20.4 percent and NJ involvement rate of 21.6 percent.



Just over 47 percent of all crashes in Palmyra Borough took place in a Low-Income-Minority designated community, per the NJDEP Environmental Justice Law Overburdened Communities definition. <https://www.nj.gov/dep/ej/communities.html>

*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering



- Alcohol and/or Drug impaired drivers were involved in 4.9 percent of all crashes in Palmyra compared to 3.6 percent involvement in Burlington County crashes and 2.6 percent in NJ crashes.
- One or more occupants were not wearing their seatbelt at the time of crash in 2.6 percent of all Palmyra crashes compared to 1.5 percent of Burlington County crashes and 1.5 percent of NJ crashes.

Raw Table Export

Included with this report is a raw table export of 5-years of crashes that took place in Palmyra Borough (2017-2021). This spreadsheet contains each of the geocoded and non-geocoded crashes (total 864 from 2017 through 2021). The spreadsheet contains details pertaining to each crash event, as well as several summary fields.

Over-Representation Analysis

An over-representation report was created for Palmyra Borough that compares the filtered crash criteria for Palmyra to all crashes in Burlington County and New Jersey (with same filter applied). The over-representation report allows us to compare the geographic region (Palmyra) to the larger geographic region in which it resides (Burlington County and New Jersey). The complete results (see Appendix A.) highlight key difference in metrics between the two regions based on the filtered crash criteria.

Notable Statistics from Comparison Report:

Between 2017 and 2021:

- Roughly 54 percent of all crashes in Palmyra involved 1 or more distracted drivers compared to 48 percent involvement in Burlington County crashes and 49 percent in NJ crashes.
- Older drivers (65+ years of age) were involved in 19.7 percent of all crashes in Palmyra compared to 18.6 percent involvement in Burlington County crashes and 17 percent in NJ crashes.
- Young drivers (between 16 and 20 years of age) were involved in 9.6 percent of all crashes in Palmyra compared to 13.8 percent involvement in Burlington County crashes and 12.2 percent in NJ crashes.

*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering

*Data Current 12/31/2022 – Crashes reported through November 17, 2022
MBO Engineering

Palmyra Borough 2017-2021

Created on February 1, 2023

Created by Joseph Weiss

Requested by MBO Engineering

Data extents: January 1, 2017 to December 31, 2021



Applied Filters

Cities / Municipalities - Geocoded only (Geo) = Palmyra Borough



Total Crashes	770	Fatal Crashes	2
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NJ DHTS Crash Summary	Filtered	County	State
Total Crashes	770	100.00%	100.00%
Distracted Driving Involved	417	54.16%	48.03%
Injury Crashes	164	21.30%	24.07%
Older Driver (65+) Involved	152	19.74%	18.67%
Young Driver (16-20) Involved	74	9.61%	13.78%
Unsafe Speed Involved	51	6.62%	9.08%
Alcohol Involved	38	4.94%	3.59%
Pedestrian Involved	8	1.04%	0.71%
Unrestrained Occupant Involved	20	2.60%	1.46%
Motorcycle Involved	11	1.43%	0.98%
Bicyclist Involved	7	0.91%	0.52%
Drugged Driver Involved	14	1.82%	1.11%
Fatal Crashes	2	0.26%	0.36%

Crash Severity	Filtered	County	State
No Apparent Injury	604	78.44%	75.57%
Possible Injury	115	14.94%	16.80%
Suspected Minor Injury	45	5.84%	6.48%
Suspected Serious Injury	4	0.52%	0.79%
Fatal Injury	2	0.26%	0.36%

Date & Time (Year)	Filtered	County	State
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Year	Count	County %	State %
2021	156	20.26%	15.64%
2020	147	19.09%	17.73%
2019	152	19.74%	20.65%
2018	173	22.47%	24.00%
2017	142	18.44%	21.98%
2022	0	0.00%	0.00%
2016	0	0.00%	0.00%
2015	0	0.00%	0.00%
2014	0	0.00%	0.00%
2013	0	0.00%	0.00%
2012	0	0.00%	0.00%
2011	0	0.00%	0.00%
2010	0	0.00%	0.00%
2009	0	0.00%	0.00%
2008	0	0.00%	0.00%
2007	0	0.00%	0.00%
2006	0	0.00%	0.00%

Date & Time (Month of Year)	Filtered	County	State
January	63	8.18%	9.11%
February	56	7.27%	8.10%
March	52	6.75%	8.27%
April	62	8.05%	7.01%
May	64	8.31%	8.16%
June	56	7.27%	8.22%
July	84	10.91%	7.89%
August	54	7.01%	7.72%
September	58	7.53%	7.28%
October	88	11.43%	9.26%
November	59	7.66%	10.11%
December	74	9.61%	8.85%

Date & Time (Day of Week)	Filtered	County	State
Monday	118	15.32%	14.48%
Tuesday	110	14.29%	15.13%
Wednesday	117	15.19%	15.57%
Thursday	124	16.10%	15.55%
Friday	132	17.14%	16.59%
Saturday	83	10.78%	12.33%
Sunday	86	11.17%	10.35%

Date & Time (Hour of Day)	Filtered	County	State
12 am - 2 am	15	1.95%	2.75%
2 am - 4 am	11	1.43%	1.85%

4 am - 6 am	20	2.60%	2.42%	2.00%
6 am - 8 am	83	10.78%	8.62%	7.34%
8 am - 10 am	84	10.91%	9.65%	10.77%
10 am - 12 pm	65	8.44%	9.04%	9.88%
12 pm - 2 pm	86	11.17%	12.02%	12.52%
2 pm - 4 pm	137	17.79%	14.58%	14.68%
4 pm - 6 pm	107	13.90%	17.43%	16.21%
6 pm - 8 pm	86	11.17%	10.74%	11.13%
8 pm - 10 pm	52	6.75%	6.71%	6.62%
10 pm - 12 am	24	3.12%	4.20%	4.31%

Crash Characteristics	Filtered	County	State	
Older Driver Involved	152	19.74%	18.67%	17.00%
Young Driver Involved	74	9.61%	13.78%	12.28%
Curve Related	36	4.68%	8.56%	9.26%
Run Off Road	20	2.60%	12.46%	7.74%
Live Animal Involved	14	1.82%	8.30%	4.14%
Head-On Collision	22	2.86%	2.89%	2.52%
Pedestrian Involved	8	1.04%	0.71%	1.64%
Unrestrained Passenger Involved	20	2.60%	1.46%	1.52%
Work Zone Involved	16	2.08%	1.24%	1.40%
Motorcycle Involved	11	1.43%	0.98%	0.80%
Bicyclist Involved	7	0.91%	0.52%	0.78%

Driver Contributing Factors	Filtered	County	State	
Distracted Driving	417	54.16%	48.03%	49.37%
Unsafe Speed	51	6.62%	9.08%	5.81%
Alcohol Related	38	4.94%	3.59%	2.60%
Drowsy Fatigued Driving	9	1.17%	1.65%	1.09%
Drugged Driving	14	1.82%	1.11%	0.65%
Cell Phone In Use	8	1.04%	0.78%	0.55%

Alcohol or Drugged Driver Involved	Filtered	County	State	
no	732	95.06%	96.41%	97.40%
yes	38	4.94%	3.59%	2.60%

Crash Type	Filtered	County	State	
Same Direction - Rear End	251	32.60%	34.47%	29.44%
Same Direction - Side Swipe	114	14.81%	12.99%	15.21%
Right Angle	116	15.06%	11.75%	14.04%
Struck Parked Vehicle	102	13.25%	5.59%	11.50%
Fixed Object	73	9.48%	14.94%	11.49%
Backing	43	5.58%	2.29%	4.47%

Animal	13	1.69%	8.10%	3.94%
Left Turn / U Turn	6	0.78%	2.12%	2.23%
Pedestrian	8	1.04%	0.69%	1.61%
Opposite Direction - Head On/Angular	16	2.08%	1.92%	1.52%
Non-fixed Object	1	0.13%	1.71%	1.11%
Opposite Direction - Side Swipe	6	0.78%	0.97%	0.99%
Other	5	0.65%	0.80%	0.76%
Pedalcyclist	7	0.91%	0.52%	0.74%
Overturned	4	0.52%	0.83%	0.51%
Encroachment	5	0.65%	0.29%	0.37%
Unknown	0	0.00%	0.00%	0.01%
Railcar-Vehicle	0	0.00%	0.00%	0.01%
NULL	0	0.00%	0.00%	0.00%

Driver Age Groups	Filtered	County	State	
Driver Age 21-25	98	12.73%	14.97%	14.67%
Driver Age 26-30	125	16.23%	14.15%	14.16%
Driver Age 31-35	110	14.29%	12.95%	12.47%
Driver Age 36-40	97	12.60%	11.72%	11.34%
Driver Age 41-45	84	10.91%	10.10%	10.31%
Driver Age 51-55	78	10.13%	10.42%	10.28%
Driver Age 46-50	76	9.87%	10.36%	10.25%
Driver Age 56-60	79	10.26%	10.58%	9.65%
Driver Age 16-20	51	6.62%	10.09%	8.85%
Driver Age 61-65	58	7.53%	8.32%	7.76%
Driver Age 66-70	50	6.49%	5.55%	5.21%
Driver Age 71-75	29	3.77%	4.14%	3.68%
Driver Age 76-80	21	2.73%	2.71%	2.38%
Driver Age 81-85	8	1.04%	1.47%	1.35%
Driver Age 86+	13	1.69%	1.33%	1.15%

Intersection Related	Filtered	County	State	
Not Within Intersection Boundaries	568	73.77%	76.60%	72.18%
Within Intersection Boundaries	202	26.23%	23.40%	27.82%
At or near Railroad Crossing	0	0.00%	0.00%	0.00%

Disadvantaged Community	Filtered	County	State	
Minority	35	4.55%	25.89%	23.94%
Low Income and Minority	409	53.12%	4.63%	13.68%
Low Income	0	0.00%	1.91%	2.57%
Low Income, Minority, and Limited English	0	0.00%	0.00%	1.42%
Minority and Limited English	0	0.00%	0.00%	0.13%
Low Income and Limited English	0	0.00%	0.00%	0.10%

Palmyra Borough 2017-2021

Created on February 9, 2023

Created by Joseph Weiss

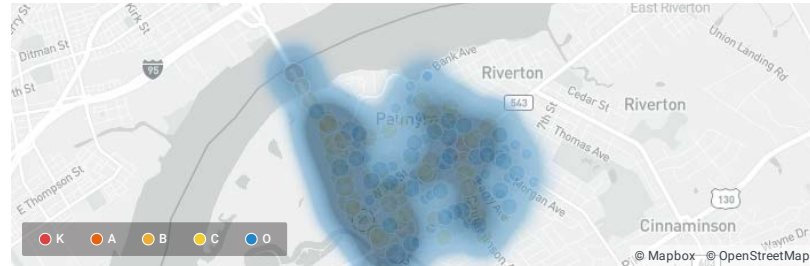
Requested by MBO Engineering

Data extents: January 1, 2017 to December 31, 2021



Applied Filters

Cities / Municipalities = Palmyra Borough



Total Crashes **864** Fatal Crashes **2**

NJ DHTS Crash Summary		Crashes
Total Crashes	864	100.00%
Distracted Driving Involved	459	53.13%
Injury Crashes	176	20.37%
Older Driver (65+) Involved	162	18.75%
Young Driver (16-20) Involved	83	9.61%
Unsafe Speed Involved	68	7.87%
Alcohol Involved	51	5.90%
Unrestrained Occupant Involved	23	2.66%
Drugged Driver Involved	13	1.50%
Motorcycle Involved	12	1.39%
Pedestrian Involved	12	1.39%
Bicyclist Involved	8	0.93%
Fatal Crashes	2	0.23%

Crash Severity		Crashes
No Apparent Injury	686	79.40%
Possible Injury	124	14.35%
Suspected Minor Injury	48	5.56%
Suspected Serious Injury	4	0.46%
Fatal Injury	2	0.23%

Date & Time (Year)		Crashes
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2021	169	19.56%
2020	156	18.06%
2019	185	21.41%
2018	186	21.53%
2017	168	19.44%
2022	0	0.00%
2016		
2015		
2014		
2013		
2012		
2011		
2010		
2009		
2008		
2007		
2006		

Date & Time (Month of Year)		Crashes
January	71	8.22%
February	65	7.52%
March	55	6.37%
April	65	7.52%
May	71	8.22%
June	67	7.75%
July	87	10.07%
August	67	7.75%
September	72	8.33%
October	98	11.34%
November	63	7.29%
December	83	9.61%

Date & Time (Day of Week)		Crashes
Monday	135	15.63%
Tuesday	133	15.39%
Wednesday	135	15.63%
Thursday	134	15.51%
Friday	142	16.44%
Saturday	93	10.76%
Sunday	92	10.65%

Date & Time (Hour of Day)		Crashes
12 am - 2 am	22	2.55%
2 am - 4 am	15	1.74%
4 am - 6 am	24	2.78%
6 am - 8 am	88	10.19%
8 am - 10 am	88	10.19%
10 am - 12 pm	74	8.56%
12 pm - 2 pm	98	11.34%

2 pm - 4 pm	149	17.25%
4 pm - 6 pm	124	14.35%
6 pm - 8 pm	94	10.88%
8 pm - 10 pm	58	6.71%
10 pm - 12 am	30	3.47%

Crash Characteristics	Crashes	
Older Driver Involved	162	18.75%
Young Driver Involved	83	9.61%
Curve Related	47	5.44%
Run Off Road	26	3.01%
Head-On Collision	23	2.66%
Unrestrained Passenger Involved	23	2.66%
Work Zone Involved	16	1.85%
Live Animal Involved	15	1.74%
Motorcycle Involved	12	1.39%
Pedestrian Involved	12	1.39%
Bicyclist Involved	8	0.93%

Driver Contributing Factors	Crashes	
Distracted Driving	459	53.13%
Unsafe Speed	68	7.87%
Alcohol Related	51	5.90%
Drugged Driving	13	1.50%
Cell Phone In Use	11	1.27%
Drowsy Fatigued Driving	9	1.04%

Alcohol or Drugged Driver Involved	Crashes	
no	813	94.10%
yes	51	5.90%

Crash Type	Crashes	
Same Direction - Rear End	267	30.90%
Same Direction - Side Swipe	124	14.35%
Struck Parked Vehicle	123	14.24%
Right Angle	118	13.66%
Fixed Object	95	11.00%
Backing	59	6.83%
Opposite Direction - Head On/Angular	15	1.74%
Animal	14	1.62%
Pedestrian	11	1.27%
Opposite Direction - Side Swipe	8	0.93%
Pedalcyclist	8	0.93%
Left Turn / U Turn	7	0.81%

Other	6	0.69%
Encroachment	5	0.58%
Overtuned	3	0.35%
Non-fixed Object	1	0.12%
NULL Railcar-Vehicle Unknown	0	0.00%

Driver Age Groups	Crashes	
Driver Age 26-30	135	15.63%
Driver Age 31-35	124	14.35%
Driver Age 21-25	106	12.27%
Driver Age 36-40	105	12.15%
Driver Age 41-45	91	10.53%
Driver Age 51-55	89	10.30%
Driver Age 56-60	87	10.07%
Driver Age 46-50	81	9.38%
Driver Age 61-65	66	7.64%
Driver Age 16-20	57	6.60%
Driver Age 66-70	51	5.90%
Driver Age 71-75	30	3.47%
Driver Age 76-80	24	2.78%
Driver Age 86+	15	1.74%
Driver Age 81-85	10	1.16%

Intersection Related	Crashes	
Not Within Intersection Boundaries	652	75.46%
Within Intersection Boundaries	212	24.54%
At or near Railroad Crossing	0	0.00%

Holiday Periods	Crashes	
Memorial Day Holiday Period	8	0.93%
New Year's Eve Holiday Period	7	0.81%
Thanksgiving Holiday Period	7	0.81%
Christmas Holiday Period	6	0.69%
Labor Day Holiday Period	3	0.35%
Independence Day Holiday Period	2	0.23%

Disadvantaged Community	Crashes	
Low Income and Minority	408	47.22%
Minority	35	4.05%
+ 4 more	0	0%



Chestnut St

DO NOT
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ONE WAY

