OUR STREETS

A TRENTON BIKE PLAN FOR ALL

NUESTRAS CALLES

UNA PLANIFICACIÓN DE BICICLETAS PARA TODOS

APRIL 2025

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION | TRENTON 250 1792-2042 | tcr trenton cycling revolution | TRENTON VISION ZERO | ARTWORKS

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

The Delaware Valley Regional Planning Commission (DVRPC) is the federally designated Metropolitan Planning Organization for the Greater Philadelphia region, established by an Interstate Compact between the Commonwealth of Pennsylvania and the State of New Jersey. Members include Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, plus the City of Chester, in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties, plus the cities of Camden and Trenton, in New Jersey.

DVRPC serves strictly as an advisory agency. Any planning or design concepts as prepared by DVRPC are conceptual and may require engineering design and feasibility analysis. Actual authority for carrying out any planning proposals rest solely with the governing bodies of the states, local governments or authorities that have the primary responsibility to own, manage or maintain any transportation facility.

DVRPC is funded through a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

Title VI Compliance *The Delaware Valley Regional Planning Commission (DVRPC) fully complies with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and related nondiscrimination mandates in all programs and activities. DVRPC is committed to ensuring that no person is excluded from participation in, or denied the benefits of, all programs and activities on the basis of race, creed, color, national origin, age, gender, disability, sexual orientation, or income level, as protected by Title VI of the Civil Rights Act of 1964 and other related nondiscrimination mandates.*

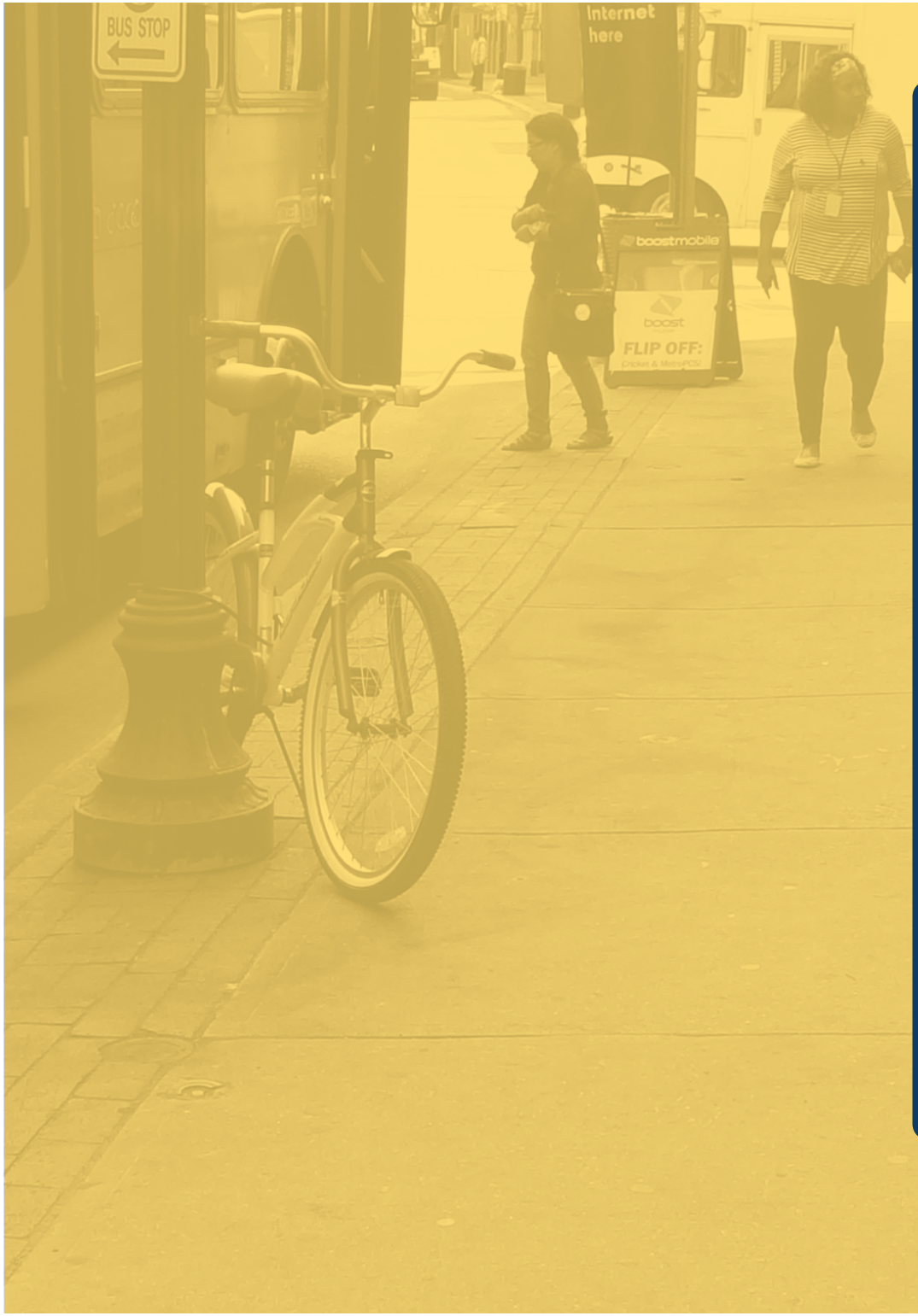
DVRPC's website, www.dvrpc.org, may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested. DVRPC's public meetings are always held in ADA-accessible facilities, and held in transit-accessible locations whenever possible. DVRPC will work to accommodate all reasonable requests for translation, interpretation, accommodations or other auxiliary services and encourages that requests be made at least seven days prior to a public meeting. Requests can be made by contacting the Commission's ADA and Title VI Compliance Officer Shoshana Akins via email at public_affairs@dvrpc.org, calling 215-592-1800, or while registering for an upcoming meeting.

Any person who believes they have been aggrieved by an unlawful discriminatory practice by DVRPC under Title VI has a right to file a formal complaint. Any such complaint must be in writing and filed with DVRPC's ADA and Title VI Compliance Officer Shoshana Akins and/or the appropriate state or federal agency within 180 days of the alleged discriminatory occurrence. Complaints that a program, service, or activity of DVRPC is not accessible to persons with disabilities should be directed to Shoshana Akins as well. For more information on DVRPC's Title VI program or to obtain a Title VI Complaint Form, please visit: www.dvrpc.org/GetInvolved/TitleVI, call 215-592-1800, or email public_affairs@dvrpc.org.

TABLE OF CONTENTS

FIGURES

TABLES



TERMINOLOGY

The following terms are used throughout this plan:

- **Bike facility:** Space on a roadway for the preferential or exclusive use of cyclists.
- **Protected bike facility:** A bike facility that is physically separated from vehicle traffic with a buffer and a vertical barrier. See Appendix D for examples of vertical barriers.
- **Neighborhood greenway** (also known as a bicycle boulevard): A low-volume, low-stress street that prioritizes bicycle and pedestrian travel over vehicle travel by utilizing different street design elements to achieve speed and vehicle volume management.
- **Complete streets:** A term describing roadways with infrastructure that accommodates all road users, including pedestrians, bicyclists, transit riders, and motorists, regardless of their age and ability.
- **Vision Zero:** An approach to transportation safety based on the premise that our transportation system can, and must, be designed to anticipate human error and prevent crash fatalities and serious injuries on the road. Vision Zero recognizes that people will make mistakes, so infrastructure and policy should be designed to ensure those mistakes are not fatal or life altering.
- **Feasibility:** The project team defined the feasibility of adding bike facilities to a roadway if the following criteria are met:
    - existing curb lines do not change
    - property does not need to be taken
    - significant capital investments are not required
    - existing on-street parking is underutilized
    - the City of Trenton Public Works Department has the capability and experience to install the materials and designs proposed[1]

[1] Public Works has capability and experience implementing thermoplastic line striping and bolt-down elements such as flex posts.

EXECUTIVE SUMMARY

The Delaware Valley Regional Planning Commission (DVRPC) partnered with the City of Trenton to create a citywide bike plan, *Our Streets: A Trenton Bike Plan for All* (referred to in this report as the *Our Streets* plan). The plan is intended to support the construction of a network of feasible and implementable on-road bike facilities that provide the highest level of safety, comfort, and separation possible for those riding a bike in the city. Because of Trenton's historic narrow streets and disconnected street grid, it will be necessary to reconfigure existing streets to create safe spaces for bicyclists.

Why should the City and its partners work to do this? Thirty percent of households in Trenton do not own a vehicle, and 38 percent have only one vehicle. In a city with a poverty rate of 26.2 percent, which is well above the state average of 9.7 percent, investing in complete streets infrastructure is critical as lower-income residents are more likely to rely on walking, biking, or riding transit to complete trips to work and school. Yet, the city's streets often prioritize motorists. Trenton's auto-centric infrastructure also has harmful environmental impacts on residents. When residents drive, it increases air pollution in the city.

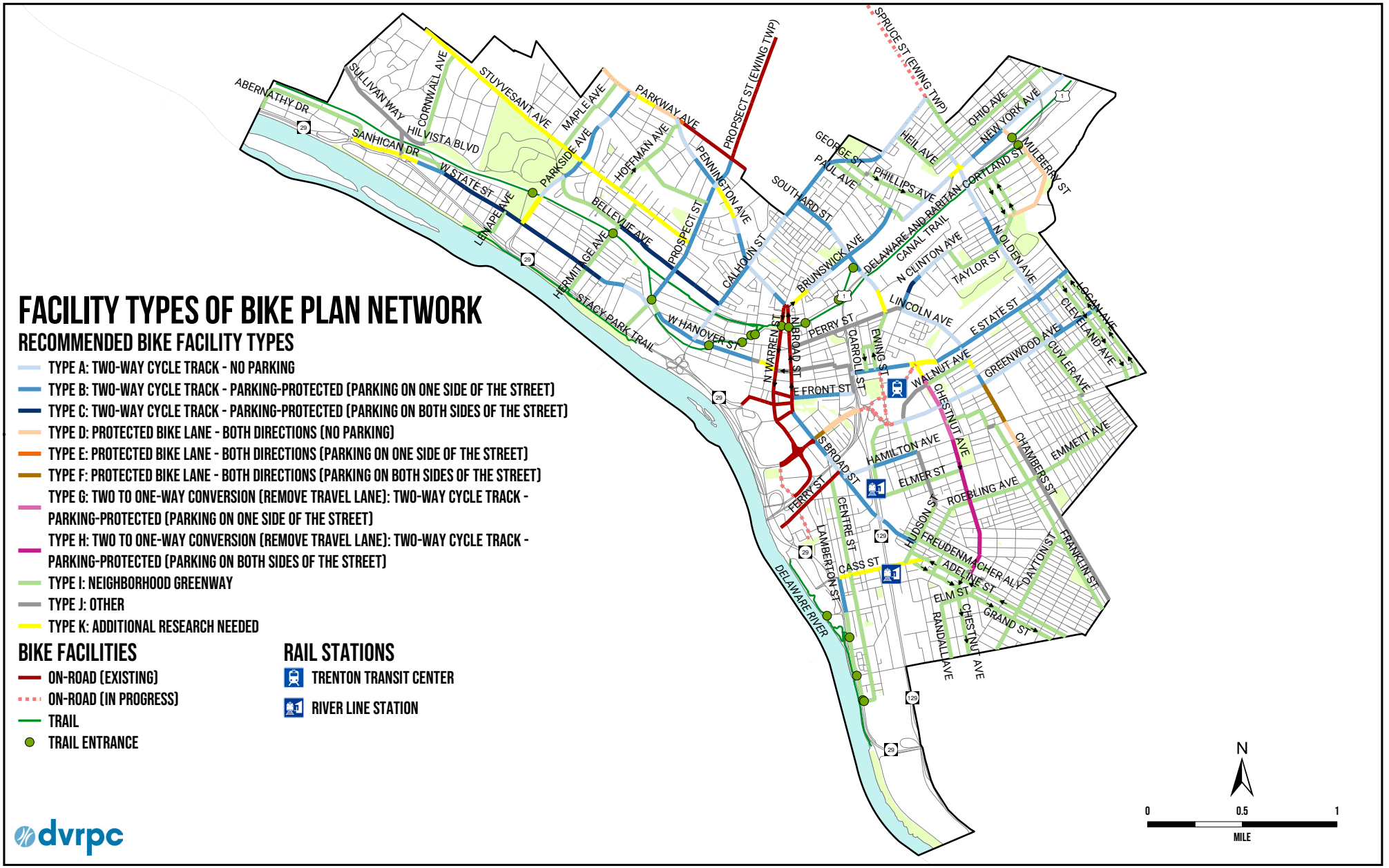
The *Our Streets* plan builds on previous complete streets efforts, including the *Trenton Complete Streets Design Handbook* (2021), the City's Complete and Green Streets Ordinance (2022), and the *Trenton Vision Zero Plan* (2025). While these helped advance the vision of a safer city for cyclists, they did not provide a clear path forward for installing on-road bike facilities or implementing roadway design changes. In addition, public engagement has been limited, leaving out the local community, who often have the most knowledge of how to improve a roadway and had been asking for a comprehensive citywide bike plan.

The DVRPC project team analyzed existing conditions, including the city's transportation network, land use, community demographics, and potential bike trip-generating locations, to inform which streets should be prioritized for the addition of bike facilities. Roadway widths and public feedback were used to recommend specific bike facility types on segments of the city's street network. To gather feedback about proposed street design changes, the project team conducted robust community engagement targeting residents who currently ride a bike (or that would like to) and residents that have never engaged with the City before, such as the Spanish-speaking population. The team administered public surveys in person and online to understand how respondents feel about bicycle safety in Trenton. Many of the 274 respondents indicated that traffic safety was a primary concern. To get more information about which type of bike facilities might make biking feel safer, the project team conducted three in-person public engagement events (*Our Streets* events as shorthand) in the neighborhoods that were least-represented in the survey. The three events attracted an estimated 300 attendees. Most attendees were willing to try implementing the following strategies for a few months in order to fit bike facilities on the narrowest city streets:

1. Converting two-way streets to one-way streets.
2. Adjusting street parking by either (a) reducing street parking from both sides of the street to parking on one side of the street, or (b) removing street parking altogether.

Following the analysis of existing conditions and public feedback, the DVRPC project team developed a bike network that is continuous, low-stress, and easily navigable for cyclists (see Figure 1). This network connects riders to key destinations throughout Trenton.

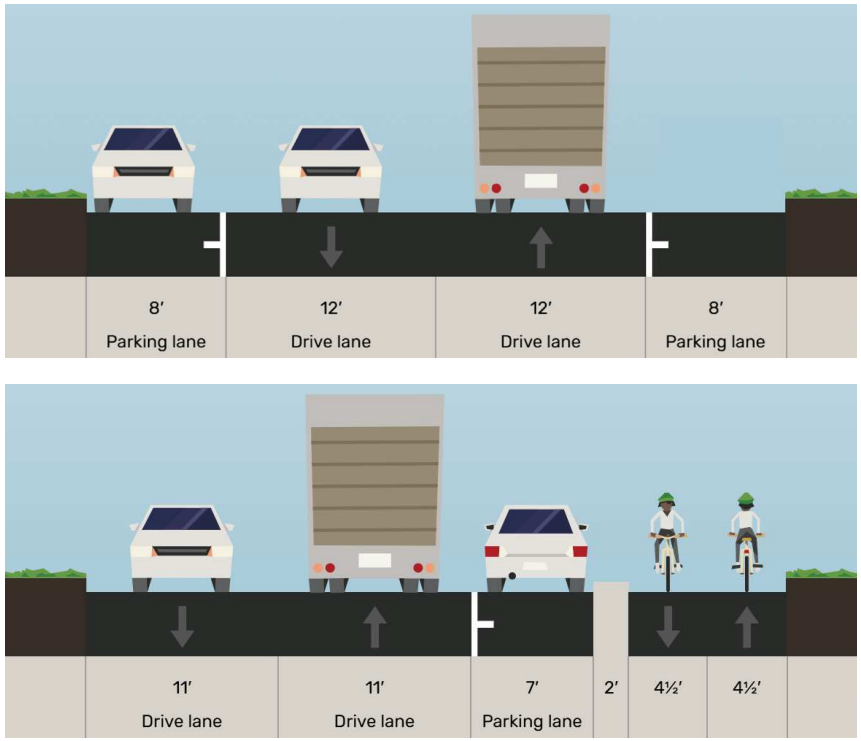
Figure 1: Recommended Bike Network



Source: DVRPC and NJ TRANSIT (2024)

To ensure the bike network's feasibility, the project team identified roadways with available or flexible space where bike facilities could be installed without altering curb lines or acquiring private property. For example, Southard Street, between New Willow Street and Martin Luther King Jr. Boulevard, is recommended to be reconfigured to add a two-way protected cycle track (see Figure 2). To create the necessary space for this bike facility, the travel lanes in each direction were shifted towards the western curb, and an underutilized parking lane was removed. The remaining parking lane was repositioned between the travel lanes and the bike facility to increase separation between motorists and bicyclists.

Figure 2: Southard Street (Existing Conditions and Proposed)



Note: The cross sections above look north on Southard Street, between New Willow Street and Martin Luther King Jr. Boulevard. Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

Bicycle Facility Types

To provide the highest level of safety, comfort, and separation while being feasible on the narrow streets of Trenton, generally three types of bicycle facilities are recommended: one-way protected bike lanes, two-way protected cycle tracks, and neighborhood greenways.

One-Way Protected Bike Lane

A one-way protected bike lane is exclusively for cyclists and uses a barrier to physically separate them from vehicle traffic (see Figure 3). An advantage of a one-way protected bike lane is that it enables cyclists to travel in the same direction as adjacent vehicles, making travel more predictable. Additionally, there are fewer conflict points between cyclists than a two-way protected cycle track, as there is no contra-flow riding.

Figure 3: One-Way Protected Bike Lane

Source: DVRPC (2023)

Two-Way Protected Cycle Track

A two-way protected cycle track is located on one side of the roadway for the exclusive use of cyclists, enabling them to travel in both directions (see Figure 4). An advantage of two-way protected cycle tracks is that they occupy significantly less space compared to installing a one-way protected bike lane on each side of the roadway, as both directions share a single barrier.

Figure 4: Two-Way Protected Cycle Track

Source: DVRPC (2023)

Neighborhood Greenway

A neighborhood greenway is a low-traffic street designed to prioritize travel for bicycles and pedestrians over motor vehicles (see Figure 5). To enhance safety for both motorists and cyclists sharing the road, vertical and horizontal deflection treatments are recommended. Additionally, the speed limit on these roadways is recommended to be reduced to a maximum of 20 miles per hour. Even without dedicated road space, these streets can be as or more comfortable for bicyclists compared to busier and higher speed roadways.

Figure 5: Neighborhood Greenway

Source: www.pedbikeimages.org / Russ Roca

When designing the bike network, the project team used lane width guidance from the National Association of City Transportation Officials (NACTO) Urban Street Design Guide.[1] According to the Guide, a standard travel lane in an urban area like Trenton should be 10 feet wide. If the roadway accommodates bus service or experiences significant truck traffic, 11 feet is recommended. However, because the city has a limited number of streets that connect through neighborhoods, different user needs and lane widths must be balanced and somewhat flexible. Finally, the guide recommends that on-street parking lanes be at least seven feet wide. Using this guidance, the project team constructed a recommended roadway width table to determine where roadway space was available for a one-way protected bike lane or a two-way cycle track (see Table 1).

[1] *"Lane Width." National Association of City Transportation Officials, July 24, 2015. nacto.org/publication/urban-street-design-guide/street-design-elements/lane-width/.*

Table 1: Bidirectional Roadway Width Recommended for Each Type of Protected Bike Facility

Bike Facility Type (status of on-street parking)	Recommended Roadway Width (feet)	
	Without Bus Service	With Bus Service
Two-way cycle track (no parking)	31	33
Protected bike lane — both directions (no parking)	36	38
Two-way cycle track (parking on one side of the street)	38	40
Protected bike lane — both directions (parking on one side of the street)	43	45
Two-way cycle track (parking on both sides of the street)	45	47
Protected bike lane — both directions (parking on both sides of the street)	50	52

Source: DVRPC and NACTO (2024)

Strategies to Address Space Constraints

In order to fit bike facilities on the narrowest city streets, one or more of the following strategies will need to be used.

Two-to-One-Way Street Conversion

This strategy involves changing a street that previously accommodated motorist travel in two directions to a street that accommodates motorist travel in only one direction. The project team recommends piloting one-way street changes on Chestnut Avenue, paired with Division Street and Monmouth Street (see the recommended bike network in Figure 1).

Street Parking Adjustments

There are two different approaches to adjusting street parking to fit dedicated bicycle lanes on narrow streets: reducing street parking from two sides to one side of the street, or removing street parking from both sides of the street. When considering where to apply these parking adjustments, the project team identified roadways in Trenton where street parking wasn't used to capacity (see Figure 6) while avoiding roadways where on-street parking was near or at capacity. The team also tried to avoid parking changes on business corridors or in dense residential areas when possible.

Figure 6: Underutilized Parking on Calhoun Street

Note: Calhoun Street between Southard Street and Trent Avenue.
Source: Google Street View (2019)

Traffic Calming Measures

On streets where two-to-one-way conversions or adjusting parking is likely not currently possible, the project team recommends traffic calming measures like speed humps, reduced speed limits, and pavement markings (see Figure 7). Together, these measures work together to create neighborhood greenways, low-stress streets that reduce cut-through traffic and make bicycling more safe and comfortable.

Figure 7: Example of Traffic Calming Measures

Source: www.pedbikeimages.org / Dan Burden

Conclusion

Implementing this plan is possible with sustained and dedicated effort from elected officials, City staff, and community organizations and residents. Building the bicycle network is directly in line with existing city policy and ordinances. A high-quality bike network will also contribute to achieving the goal of zero traffic-related fatalities and serious injuries for all road users.

Below are the key next steps that the City needs to take in order to make full plan implementation possible.

Leveraging Existing Projects for Bike Plan Implementation

Any time changes are being made to Trenton's roadways, there is potentially an opportunity to install portions of the bicycle network. This includes projects being led by the City or Mercer County. Developer-led projects can be required or requested to include many bicycle-friendly and supportive improvements. Bike plan implementation will require the City to engage and coordinate with developers, City departments, and County staff during project development processes and be proactive in taking any steps necessary to enable bike lane installation.

Dedicating Increased and Sustained Funding for Implementation and Maintenance

Bike lane construction must be budgeted for in order to cover the necessary line striping, signage, and physical barriers between the bike lanes and moving or parked vehicles. Once the network is built, ongoing maintenance is necessary.

Increasing Staff Capacity

Implementation of the bike plan falls mainly to staff within the Department of Housing and Economic Development and the Department of Public Works. To ensure construction, planning staff will need to have an active role in project development processes. This will ensure that opportunities to install the bike lanes through all types of road projects are leveraged, the bike plan and the *Trenton Complete Streets Design Handbook* are adhered to, and necessary public outreach and engagement is done. Finally, the City needs more grant management capacity. Many of the main funding programs require significant time and can only be managed by direct employees of the City.


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

CHAPTER 1:

PROJECT BACKGROUND

DVRPC partnered with the City of Trenton's Division of Planning to develop a citywide bike plan, *Our Streets: A Trenton Bike Plan for All*. This plan builds on previous initiatives in Trenton and was developed with input and feedback from the public and key local, county, and regional stakeholders.

Previous Studies and Initiatives

The *Our Streets* plan drew inspiration and ideas from previous plans and initiatives that advanced the vision of a safer and more comfortable Trenton for vulnerable road users, including cyclists. One of the first initiatives was in 2012 when Trenton City Council passed a resolution that directed the City to design all roadway projects to accommodate the safe movement of all road users, including pedestrians, bicyclists, transit riders, and motorists, regardless of age and ability.

In 2016, DVRPC partnered with the City of Trenton to produce the *Downtown Trenton Bicycle and Pedestrian Plan*,[2] which proposed bicycle, pedestrian, intersection, and trail improvements within downtown Trenton. Following the plan's release, the City of Trenton and the New Jersey Department of Transportation (NJDOT) partnered with Michael Baker International, an engineering firm, to study Perry Street. Perry Street was identified as needing further investigation as it serves as a critical connector for multimodal travel even though it currently offers limited accommodations for pedestrians and cyclists. This study, known as *Perry Street Future*,[3] was published in 2021 and

MERCER COUNTY BICYCLE MASTER PLAN

The project team referred to the *2020 Mercer County Bicycle Master Plan*[1] as a starting point when planning bicycle facilities on streets that Mercer County has jurisdiction over. However, the Mercer County plan and the *Our Streets* bike network recommendations differ on some corridors due to *Our Streets* network prioritizing and recommending physically separated facilities when feasible.

One of the top priorities of the *Our Streets* plan is to create a network of continuous and implementable on-road bike facilities that provide the highest level of safety, comfort, and separation possible for those riding a bike in the city. Because of this, the *Our Streets* bicycle network recommends protected bicycle lanes with vertical separation on all streets where space allows, whereas the Mercer County plan includes bike lanes with painted buffers but no vertical separation. In addition, the *Our Streets* project team used the strategies described on page 42 to reconfigure the existing street width to create a safe space for bicyclists. As a result, the project team was able to fit dedicated bicycle lanes on a greater number of streets, including ones that Mercer County has jurisdiction over. In situations where space could not be feasibly reconfigured, the *Our Streets* plan matched recommendations to the Mercer County plan. An example of this is the conventional bike lane that is recommended on Chambers Street (see Figure 34 for the bike network). In the past, Mercer County has been willing to make on-street parking adjustments as long as the City brings the necessary ordinance changes to City Council and they are approved.

[1] *"2020 Mercer County Bicycle Plan Element | Mercer County, NJ." Mercer County, 2020. mercercounty.org/departments/planning/2019-bicycle-master-plan.*

[2] *"Downtown Trenton Bicycle and Pedestrian Plan." Delaware Valley Regional Planning Commission, 2016. dvrpc.org/products/14022.*

[3] *"Perry Street Future." City of Trenton, 2021. njbikeped.org/wp-content/uploads/FinalReport_PerryStreetFuture_lores.pdf.*

proposed design alternatives to make the areas of Perry Street near the Route 1 interchange safer and more accessible for multimodal travel.

In 2021, DVRPC published the *Trenton Complete Streets Design Handbook*.[4] Complete streets are roadways designed to accommodate the safe movement of all road users, including pedestrians, bicyclists, transit riders, and motorists, regardless of their age and ability. This handbook outlines a series of design treatments based on street typologies and area overlays for more directed complete streets recommendations in the city. In 2022, Trenton City Council passed the Complete and Green Streets Ordinance requiring new projects to follow the *Trenton Complete Streets Design Handbook*. In 2024, DVRPC published *Community Engagement Activities Summary for Our Streets: A Trenton Bike Plan for All*,[5] a companion to this report that shares lessons learned from the *Our Streets* engagement process. Later in 2024, DVRPC published the *Trenton Trails Plan*,[6] which inventories existing and future trails in the city and develops a list of conceptual trails for further study in order to develop a unified network. Finally, in 2025 DVRPC published the *Trenton Vision Zero Plan*, which aims to eliminate traffic-related deaths and injuries by guiding the implementation of a citywide Vision Zero policy.

While these previous plans and initiatives helped advance the vision of a safer and more comfortable city for vulnerable road users, they did not provide specific recommendations, beyond some in downtown, especially for bicyclists. An analysis of the citywide road network with resultant specific recommendations was necessary. In addition, limited public engagement was conducted for the plans, leaving out the local community who often have the most knowledge of how to improve a roadway and had been asking for a comprehensive citywide bike plan. These factors led to the development of the *Our Streets* plan, which was shaped by input from community engagement to produce feasible and implementable recommendations. To ensure the plan did not duplicate past work, the project team sought out steering committee members that had been involved in previous Trenton studies. See the blue call-out box for the list of Committee members.

[4] *"Trenton Complete Streets Design Handbook." Delaware Valley Regional Planning Commission, 2021. dvrpc.org/products/18041.*

[5] *"Community Engagement Activities Summary for Our Streets: A Trenton Bike Plan For All." Delaware Valley Regional Planning Commission, 2024. dvrpc.org/products/23141.*

[6] *"Trenton Trails Plan." Delaware Valley Regional Planning Commission, 2024. dvrpc.org/products/22300.*

OUR STREETS STEERING COMMITTEE

The steering committee was made up of representatives from organizations and agencies within Trenton or whose jurisdiction includes Trenton. The agencies and individuals are listed below.

- Aaron Brooks, *Trenton Public Schools*
- Caitlin Fair, *East Trenton Collaborative*
- Cheryl Kastrenakes, *Greater Mercer Transportation Management Association*
- Jacque Howard, *Trenton 365*
- James Sinclair, *Bicycle and Pedestrian Resource Center, Alan M. Voorhees Transportation Center*
- Jim Simon, *(former) Isles Inc.*
- John Boyle, *Bicycle Coalition of Greater Philadelphia*
- Jonathan "Lank" Conner, *Artworks*
- Julie Krause, *(former) NJ Department of Environmental Protection*
- Kurt Lituma, *East Trenton Collaborative*
- Lisa Serieyssol, *(former) Lawrence Hopewell Trail Corporation*
- Matthew Broad, *Trenton Health Team*
- Matthew Lawson, *Mercer County*
- Matthew Zochowski, *Mercer County*
- Michael Viscardi, *NJ TRANSIT*
- Patrick Monahan, *Bicycle Coalition of Greater Philadelphia*
- Shereyl Snider, *East Trenton Collaborative*
- Sonia Szczesna, *(former) Tri-State Transportation Campaign*
- Wills Kinsley, *Trenton Cycling Revolution*

OUR STREETS PROJECT TEAM

The DVRPC project team included three members from the Office of Transit, Bicycle, and Pedestrian Planning:

- Cassidy Boulan, *Associate Manager*
- Marissa Volk Binjaku, *Transportation Planner*
- Christopher Mulroy, *Transportation Planner*

The City of Trenton team members:

- Michael Kolber, *(former) Senior Planner*
- Anthony Santora, *Chief of Traffic Maintenance Operations*


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

CHAPTER 2:

EXISTING CONDITIONS

The project team analyzed existing conditions in Trenton, focusing on the city's transportation network, land use, community concerns, and potential bike trip-generating locations, to inform the plan's recommended bike network and facility types.

Roadway Jurisdiction

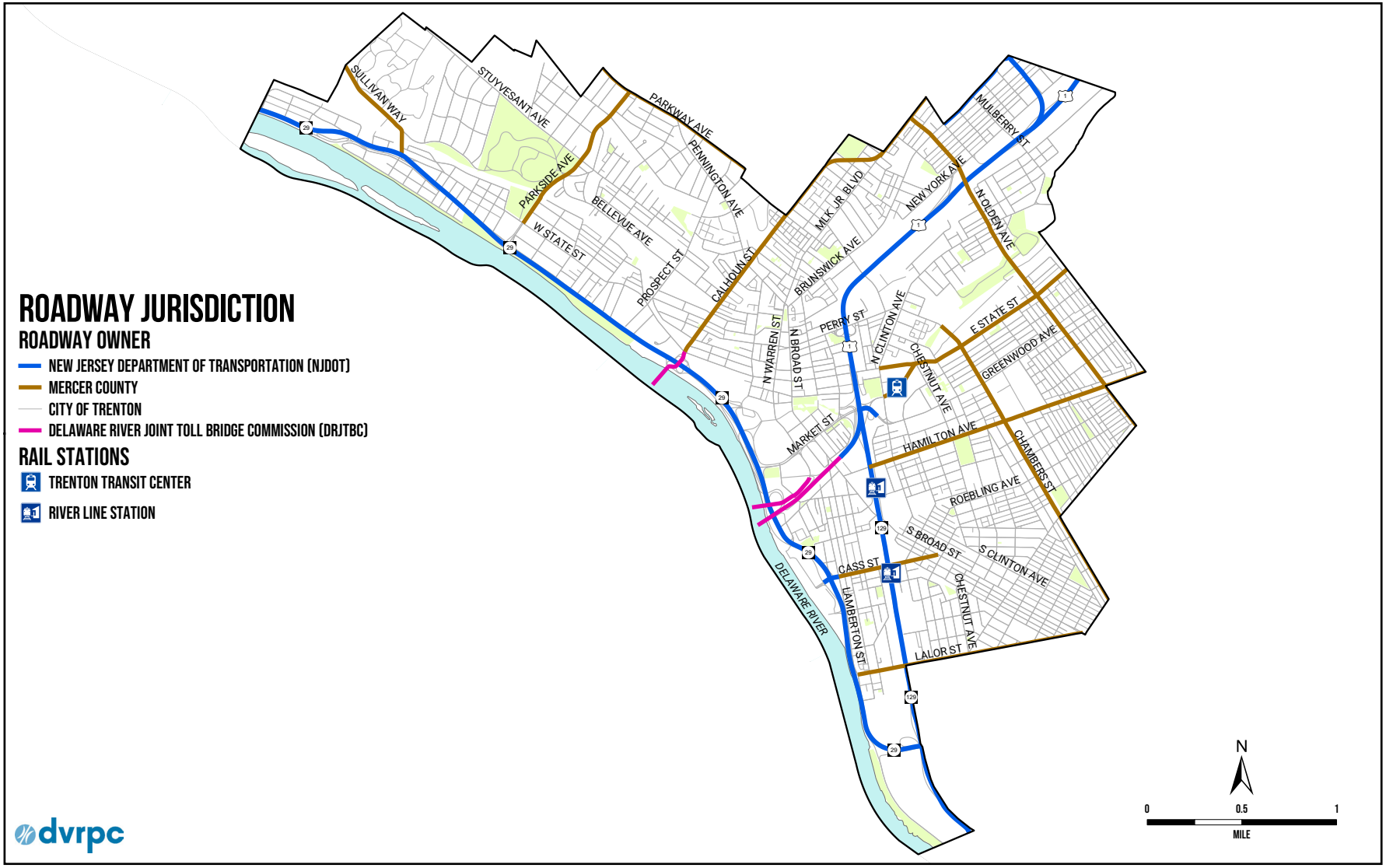
Roadway jurisdiction determines who has decision-making power and responsibility for the design and maintenance of each roadway segment. Four governmental bodies own roadways in Trenton, including the City of Trenton, Mercer County, New Jersey Department of Transportation (NJDOT), and the Delaware River Joint Toll Bridge Commission (DRJTBC). A majority of roadways in Trenton are locally controlled, including Brunswick Avenue, Prospect Street, and Stuyvesant Avenue (see Figure 8). Mercer County maintains key arteries that stitch the city's roadway network together, including Calhoun Street, Hamilton Avenue, and N. Olden Avenue.

Meanwhile, NJDOT is responsible for maintaining the state highways in Trenton, including Route 29, Route 129, and US-1, while DRJTBC controls all three bridges that connect Trenton with Morrisville, Pennsylvania, over the Delaware River, including the Lower Trenton Bridge (also known as the "Trenton Makes" bridge), the Trenton-Morrisville Toll Bridge, and the Calhoun Street Bridge. To build a safe, comfortable, and connected bike network, it is essential for all the governmental bodies that control roadways in Trenton to work together.

Roadway Widths

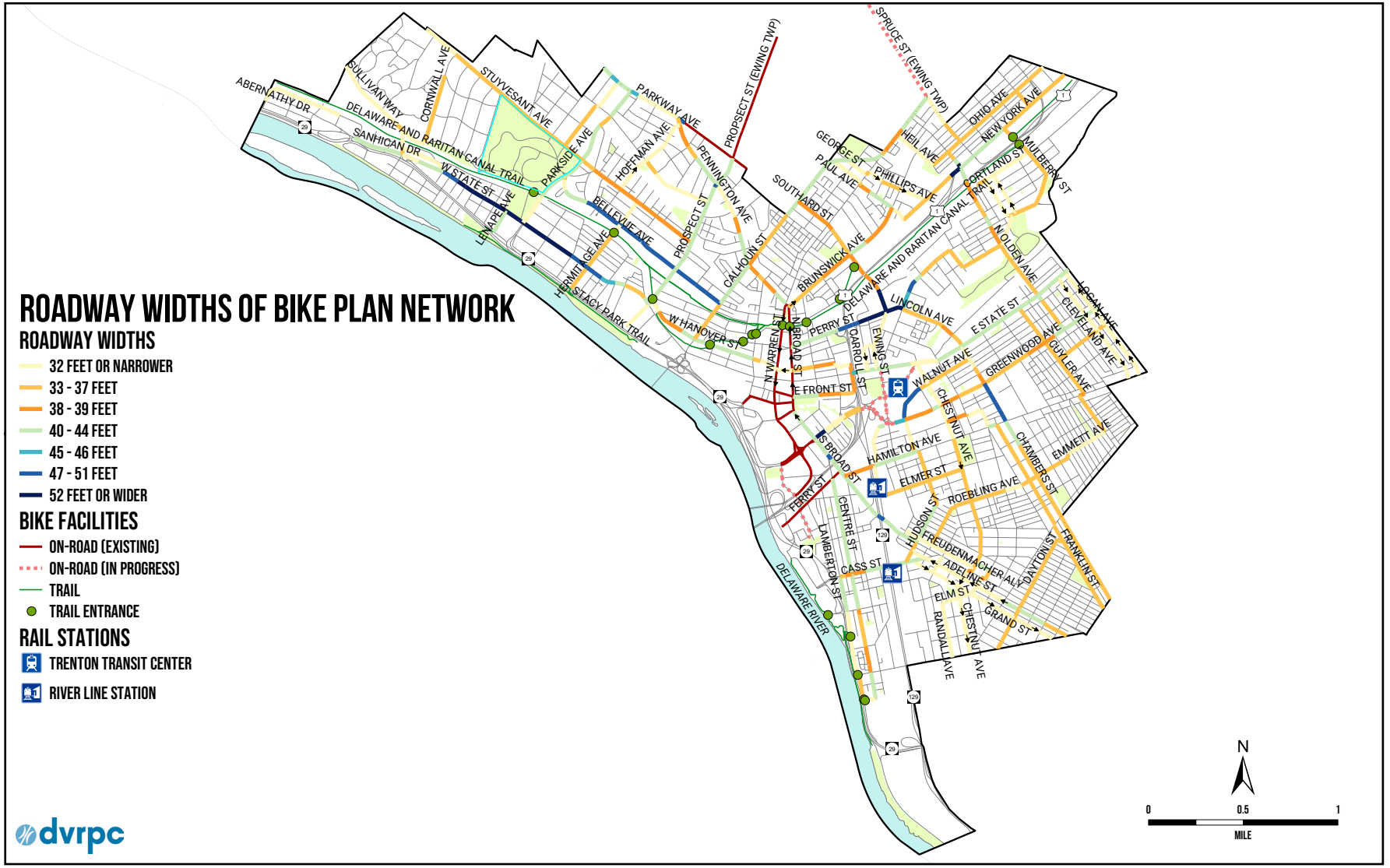
The City of Trenton was established in 1719, and as a result, its roadways are narrow. Most are between 30 and 40 feet wide, as shown in Figure 9 on the following pages. Motorists are currently prioritized over other modes of transportation on the city's narrow roadways. To install the recommended bike facilities, certain roadways must be configured to make space for dedicated and protected bike facilities.

Figure 8: Roadway Jurisdiction



Source: DVRPC, NJDOT, and NJ TRANSIT (2024)

Figure 9: Roadway Widths of Bike Plan Network



Source: DVRPC, NJDOT, and NJ TRANSIT (2024)

A typical roadway in Trenton has one vehicle travel lane in each direction. In residential neighborhoods and along commercial corridors, there is often on-street parking on both sides of the street (see Figure 10). According to the National Association of City Transportation Officials (NACTO), in an urban setting a vehicle travel lane should generally be 10 feet wide but 11 feet wide on roadways with bus service or significant freight traffic. In addition, NACTO recommends that on-street parking lanes be at least seven feet wide.[7]

For a one-way protected bike lane, NACTO recommends a minimum width of eight feet; this includes five feet for the bike lane and three feet for the buffer.[8] For a two-way cycle track, it recommends a minimum of 11 feet, this includes eight feet for the bike lane and three feet for the buffer.[9] For a bidirectional roadway in Trenton, Table 2 shows recommended widths for each type of protected bike facility.

[7] *"Lane Width," National Association of City Transportation Officials, July 24, 2015, nacto.org/publication/urban-street-design-guide/street-design-elements/lane-width/.*

[8] *"One-Way Protected Cycle Tracks," National Association of City Transportation Officials, August 2, 2019, nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/one-way-protected-cycle-tracks/.*

[9] *"Two-Way Cycle Tracks." National Association of City Transportation Officials, August 2, 2019. nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/two-way-cycle-tracks/.*

Figure 10: Typical Bidirectional Trenton Road with On-Street Parking

Source: Google Street View (2022)

Table 2: Bidirectional Roadway Width Recommended for Each Type of Protected Bike Facility

Bike Facility Type (status of on-street parking)	Recommended Roadway Width (feet)	
	Without Bus Service	With Bus Service
Two-way cycle track (no parking)	31	33
Protected bike lane — both directions (no parking)	36	38
Two-way cycle track (parking on one side of the street)	38	40
Protected bike lane — both directions (parking on one side of the street)	43	45
Two-way cycle track (parking on both sides of the street)	45	47
Protected bike lane — both directions (parking on both sides of the street)	50	52

Source: DVRPC and NACTO (2024)

On-Road Bike Facilities and Trail Network

Trenton has a network of regional and interstate trails that travel through the city, making it an important hub for cyclists. Major trails include the Stacy Park Trail, the Delaware River Heritage Trail, the Assunpink Greenway, and the Delaware and Raritan (D&R) Canal Trail, which is part of the East Coast Greenway. Trenton's Wellness Loop, a 1.5-mile facility on N. Broad and N. Warren streets, connects to the D&R Canal Trail, as shown in Figure 11 on the following pages. It is one of the city's only existing on-road bike facilities and was installed in 2019 with a combination of buffered bike lanes, conventional bike lanes, and sharrows. The other few existing on-road bike facilities in Trenton include conventional bike lanes on Market Street and Parkway Avenue.

Transit Routes

The recommended bike network is intended to support the creation of safer and more accessible connections to transit. The Trenton Transit Center is the city's public transit hub, serving as a point of entry and transfer for 25,000 to 30,000 daily riders. At the Transit Center, the city is served by three rail services, operated by NJ TRANSIT, SEPTA, and Amtrak. NJ TRANSIT operates the Northeast Corridor Line, a commuter rail line between Trenton and New York City, and the River LINE, a light rail line between Camden and Trenton. SEPTA operates the Trenton Line, a commuter rail line between Philadelphia and Trenton. Amtrak operates several intercity train services with stops in Trenton, including the Northeast Regional Line. Along with rail transit, Trenton is served by many bus routes, including ten operated by NJ TRANSIT and one by SEPTA, as shown in Figure 12 on the following pages. To ensure that there is no adverse impact on bus service, roadways on the recommended bike network where a bus operates must be designed accordingly.

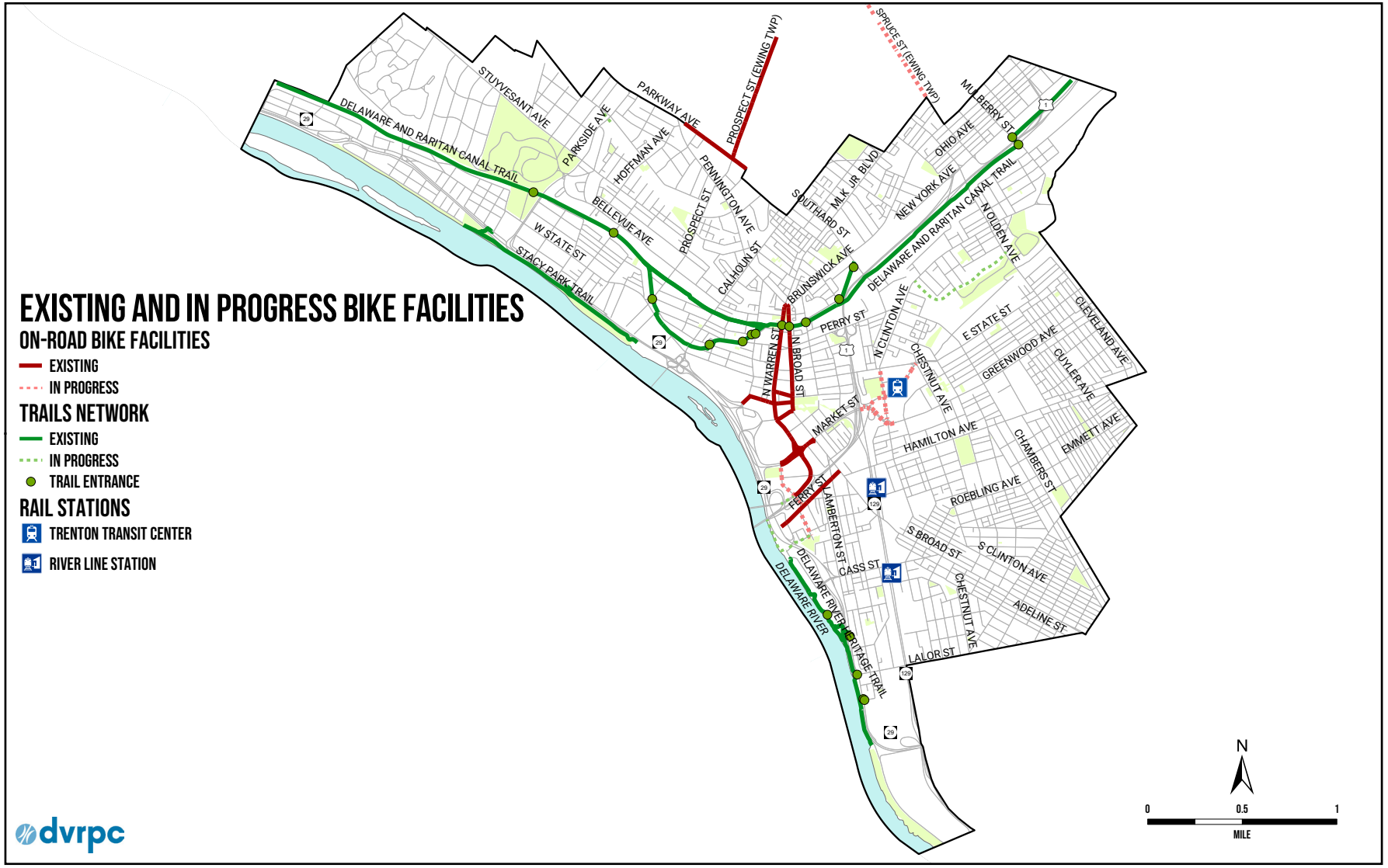
High Injury Network

The High Injury Network (HIN) identifies a subset of streets in Trenton that account for a disproportionate number of severe traffic crashes. Developed using NJDOT crash data from 2016 to 2020, Trenton's HIN revealed that 75 percent of all traffic crashes that result in death or serious injuries occurred on just 16 percent of the streets, as shown in Figure 13 on the following pages. The bike plan prioritizes adding protected bike facilities and making design changes to the roadways on Trenton's HIN to prevent future crashes and increase safety for all road users.

Key Destinations

Key destinations were defined as significant social, cultural, economic, transportation, and essential service locations in Trenton. As shown in Figure 14 on the following pages, key destinations included, but were not limited to, health facilities, schools, libraries, places of worship, transit stations, and parks. In addition, the area of the city comprising downtown Trenton was included as a key destination due to its mix of government, residential, and commercial land uses. This area is home to the New Jersey State House, the state capitol building, which is located on W. State Street. As the location of the state capital, downtown Trenton has many governmental and private job opportunities, making the area a key destination for workers. The goal of the bike plan is to provide greater access to these key destinations via safe and comfortable bike facilities.

Figure 11: Existing and In Progress Bike Facilities

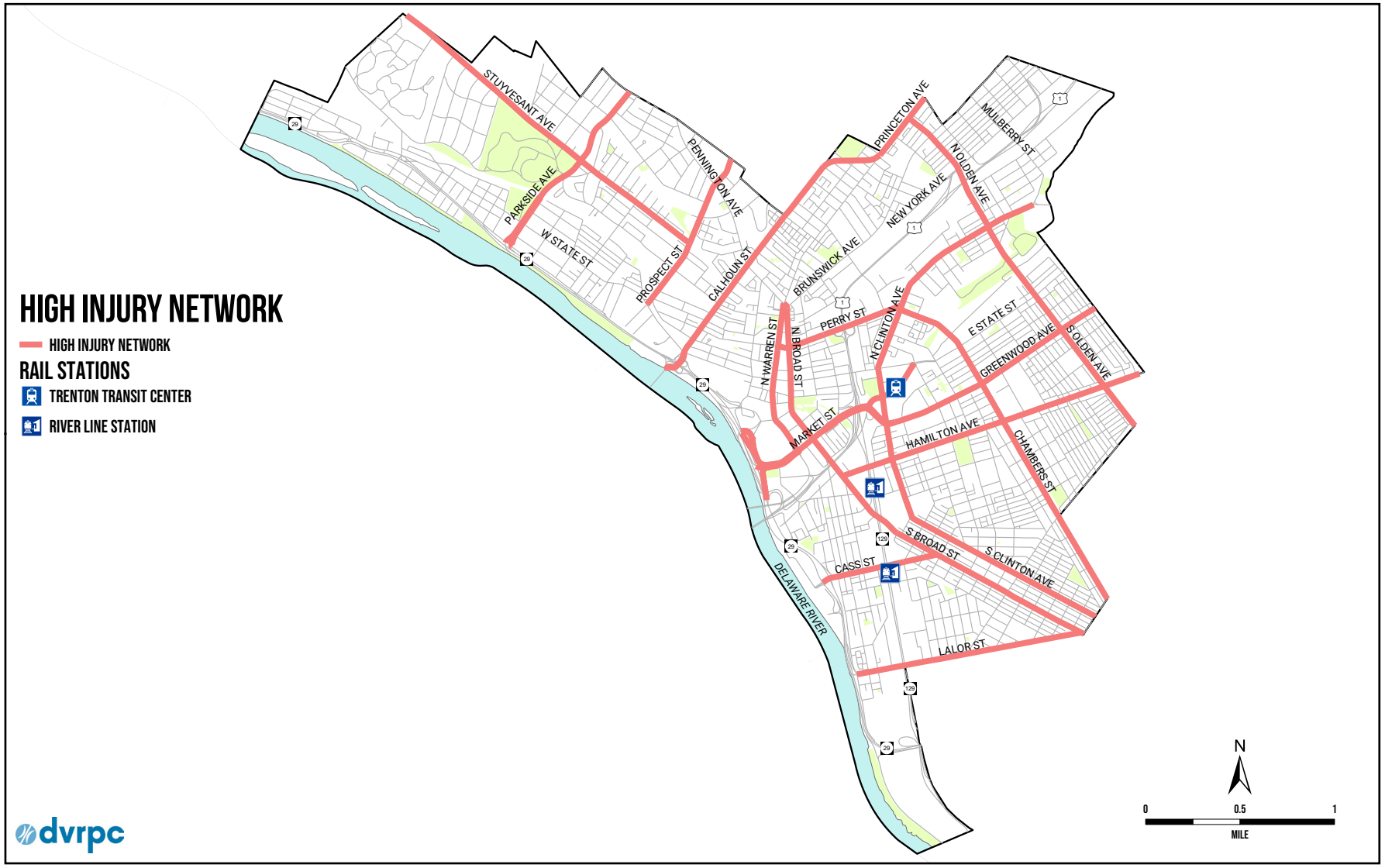


Source: DVRPC and NJ TRANSIT (2024)

Figure 12: Transit Routes

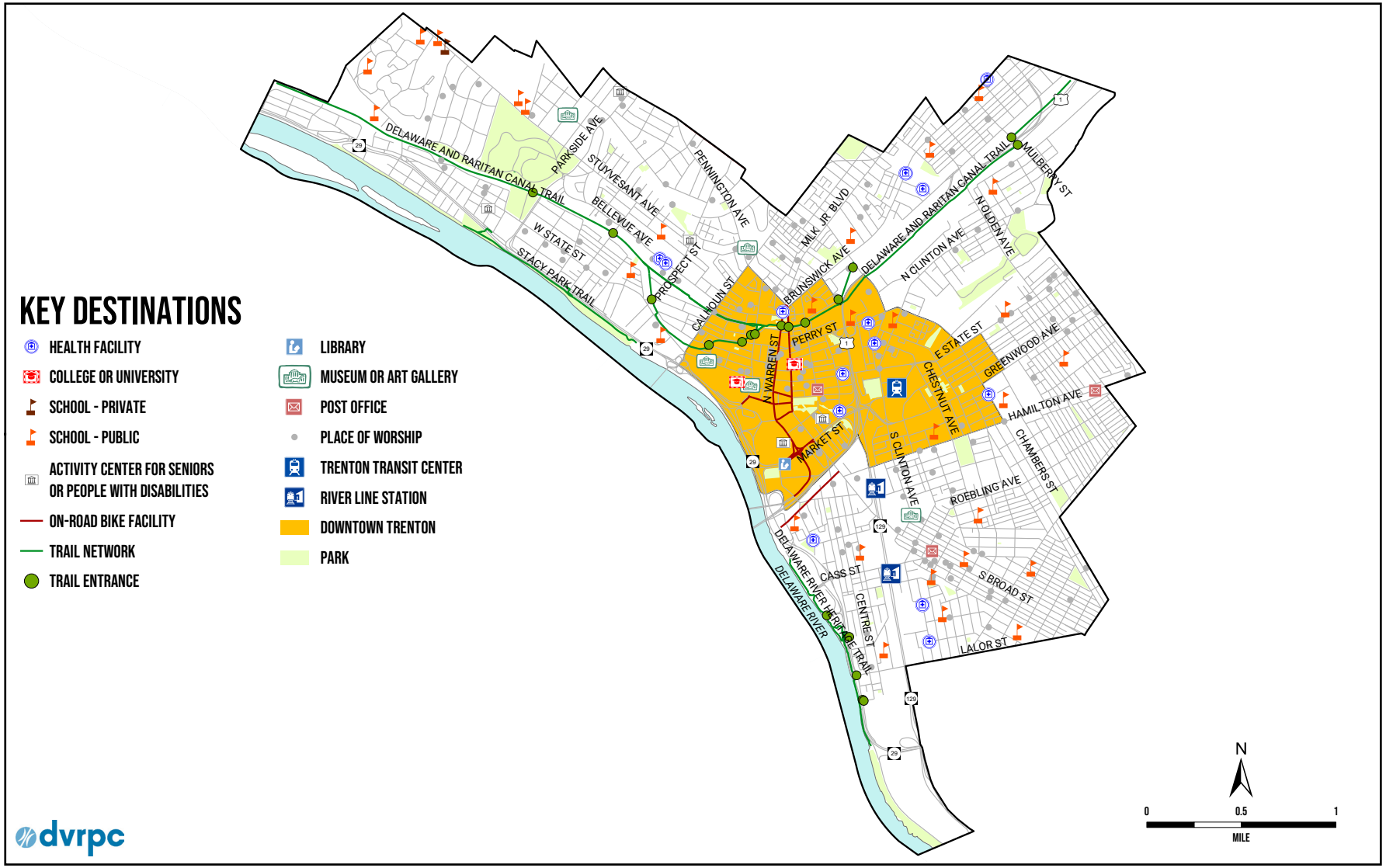
Source: DVRPC, NJ TRANSIT, and SEPTA (2024)

Figure 13: High Injury Network



Source: DVRPC, NJDOT, and NJ TRANSIT (2024)

Figure 14: Key Destinations



Source: DVRPC and NJ TRANSIT (2024)

Estimated Vehicle Volumes

Vehicle volumes in Trenton vary throughout the city, as shown in Figure A-1. For roadways on the recommended bike network with higher vehicle volumes, greater protection is needed as there is more potential for interactions between bicyclists and motorists. In contrast, a neighborhood greenway with traffic calming strategies, such as a reduced speed limit and speed cushions, is recommended for roadways with lower vehicle volumes on the bike network. These measures will allow bicyclists to ride safely and comfortably on the shared roadway as motorists will be forced to slow down. Focusing these traffic calming strategies on roadways with lower vehicle volumes avoids detrimental effects on motorist throughput.

Level of Traffic Stress

Bicycle Level of Traffic Stress (LTS) is a road classification tool used to estimate bicyclists' comfort level in the traffic stream. DVRPC's LTS assignments are based on the number of roadway lanes, effective motorist speed, and the presence and type of bike facility on the roadway segment. Each roadway segment in the city was assigned a number from one through four, with one being the most comfortable for a cyclist and four being the most uncomfortable (see Figure A-2). The bike plan prioritizes installing protected bike facilities on roadways that connect Trenton's roadway network but are currently uncomfortable for bicyclists due to their high LTS score.

Complete Streets Typologies

Complete streets are roadways designed to accommodate the safe movement of all road users, including pedestrians, bicyclists, transit riders, and motorists, regardless of their age and ability. DVRPC published the *Trenton Complete Streets Design Handbook* in 2021 to advance the implementation of complete streets in the city. It establishes eleven street typologies based on characteristics that impact street activity: types of road users (people walking and/or biking, private vehicles, trucks, etc.), land use, density of uses, estimated daily vehicle traffic volumes, bus routes, and whether it is the downtown area. For each street typology, the handbook recommends adding bicycle facilities that fit the roadway characteristics (see Figure A-3). The handbook recommended bike facility types that created as much separation as possible for cyclists to ensure their safety and comfort. This guidance informed and helped guide decision-making when designing the recommended bike plan network.

Indicators of Potential Disadvantage

Indicators of Potential Disadvantage (IPD) is a community analysis developed by DVRPC (see Figure A-4 for an analysis of the City of Trenton). An interconnected and protected bike network will provide communities in Trenton greater access to economic, social, and cultural opportunities.


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

CHAPTER 3:

PUBLIC ENGAGEMENT

To gather feedback about the *Our Streets* plan proposed street design changes, the project team conducted robust public engagement targeting residents representative of Trenton's demographics. A summary is provided in this chapter. For more detailed information including lessons learned and takeaways from the engagement process, see DVRPC's 2024 report *Community Engagement Activities Summary for Our Streets: A Trenton Bike Plan for All*.[10]

Public Survey

Objectives

To kick-off community engagement for *Our Streets: A Trenton Bike Plan for All*, the DVRPC project team worked with the City of Trenton and the project's steering committee to design public surveys based on the following objectives:

- understand how respondents currently feel about bike safety issues in Trenton
- uncover destinations that people are biking to
- identify barriers to biking, including how many respondents have access to a bike
- understand what improvements or changes would encourage more people to bike

Based on these objectives, the project team designed two surveys: one for individuals who have ridden a bike recently and the other for those who have not. Those respondents who have ridden a bike in the past year completed the cyclist survey, and the remaining respondents completed the survey for "non-cyclists." Both surveys were available in English and in Spanish.

Administration

In September and October 2022, the project team administered intercept surveys at three locations in Trenton, as seen in Table 3. In addition to the intercept surveys, the project team created an online version of the cyclist and "non-cyclist" survey that was available from September 2022 to January 2023. The online survey was distributed to the *Our Streets* steering committee to share with their list-serves and other stakeholders digitally.

[10] *"Community Engagement Activities Summary for Our Streets: A Trenton Bike Plan For All." Delaware Valley Regional Planning Commission, 2024.* dvrpc.org/products/23141.

Table 3: In-Person Survey Details

Intercept Location	Neighborhood	Date	Time of Day	Number of Responses
Art All Day event at Artworks Trenton	Mill Hill	Saturday, September 17, 2022	12:00pm-3:00pm	18
In front of Food Bazaar grocery store	Chambersburg	Thursday, October 27, 2022	10:00am-12:00pm	20
E. State Street (between Warren & Broad)	Downtown Trenton	Thursday, October 27, 2022	12:30pm-1:30pm	29

Source: DVRPC (2023)

Summary of Survey Outcomes

Over four months, the survey received 274 responses. Of the responses, 67 came from in-person intercept surveys, while 207 were completed online. Fifty percent of survey respondents were residents of Trenton, while the other 50 percent lived outside of the city. Of the survey responses, 268 were completed in English, while just six were completed in Spanish. Responses severely underrepresented the Spanish-speaking community, as 36 percent of Trentonians report speaking Spanish at home.[11] White respondents were over-represented in the survey results, totaling 66 percent of responses, though they only comprise 25 percent of the city's residents.[12] Black or African American respondents were underrepresented, at just 24 percent of all respondents, while accounting for 46 percent of Trenton's population.[13] See Appendix B for each survey in its entirety and the responses collected.

The cyclist survey asked respondents to rate how likely they were to complete more bike trips if certain investments were made, as seen in Figure 15. The question asked respondents to rate each potential investment on a scale of one to five, with one being very unlikely and five being very likely. Of 162 cyclists surveyed, 87 percent indicated that an investment in protected bike lanes would make them likely or very likely to complete more trips on a bike. Eighty-five percent of respondents indicated that a more connected bike network would make them likely or very likely to complete more trips.

The "non-cyclist" survey asked respondents to rate how likely the following factors were in preventing them from biking. The question asked respondents to rate each factor on a scale of one to five, with one being very unlikely and five being very likely. Of 112 non-cyclists, 66 percent marked that traffic safety fears (i.e., fear of car crashes) are likely or very likely to prevent them from biking. Sixty-one percent of respondents stated that personal safety fears (i.e., fear of other bodily harm) make them likely or very likely not to bike.

Of 162 cyclists, 41 percent live in Trenton and 56 percent live outside of Trenton. Of cyclists that live in Trenton, 10 percent identify as being of Spanish/Hispanic/Latino origin, 24 percent identify as people of color, 36 percent identify as female (0 percent identify as non-binary).

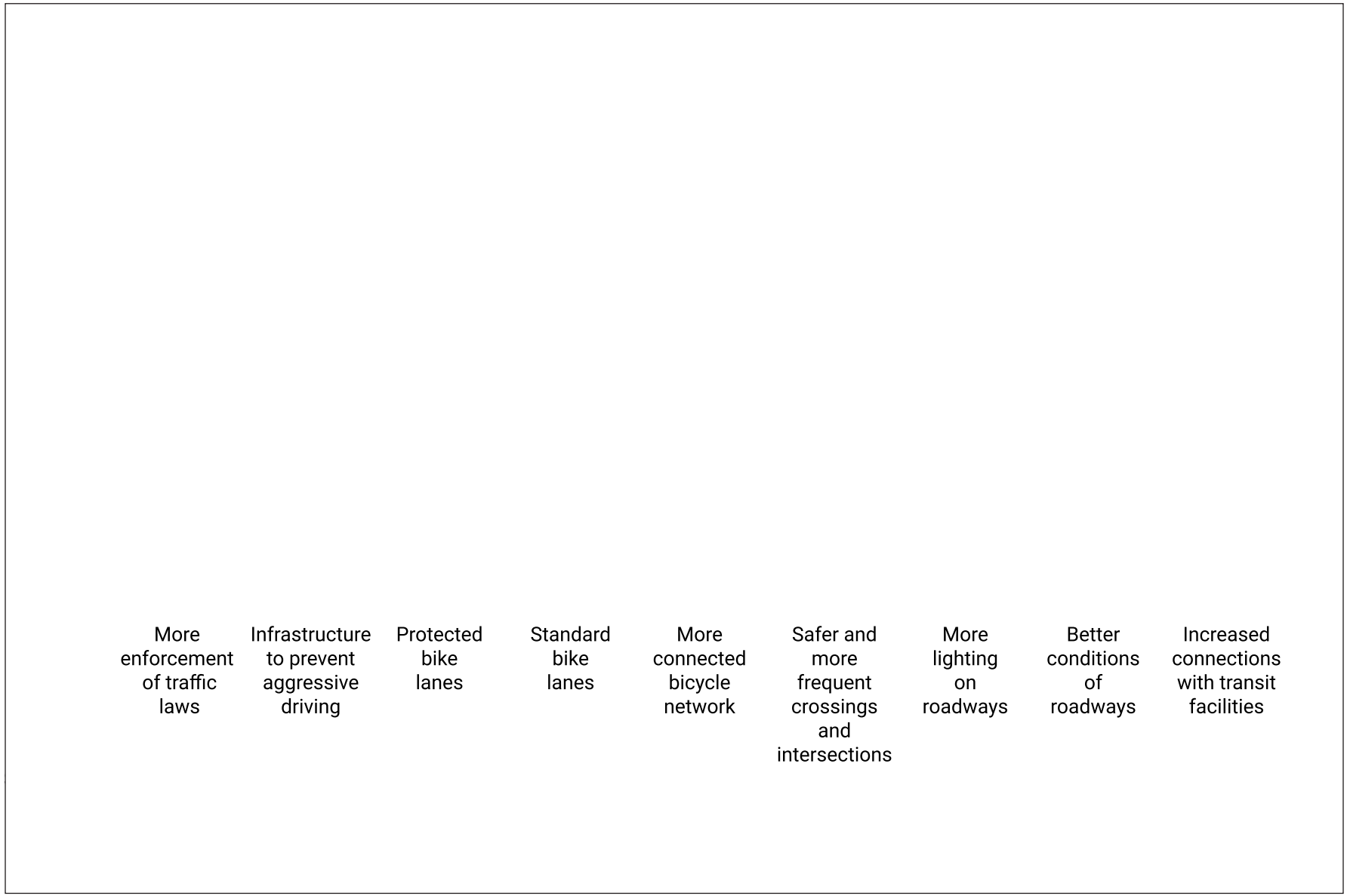
Of 112 non-cyclists, 59 percent live in Trenton and 40 percent live outside of Trenton. Of non-cyclists that live in Trenton, 29 percent identify as being of Spanish/Hispanic/Latino origin, 53 percent identify as people of color, and 70 percent identify as female (0 percent identify as non-binary).

[11] *U.S. Census Bureau. American Community Survey, 2022–2027 American Community Survey 5-Year Estimates, Table DP02. data.census.gov.*

[12] *U.S. Census Bureau. American Community Survey, 2022–2027 American Community Survey 5-Year Estimates, Table DP05. data.census.gov.*

[13] *U.S. Census Bureau. American Community Survey, 2022–2027 American Community Survey 5-Year Estimates, Table DP05. data.census.gov.*

Figure 15: Investments that May Lead to More Bicycle Trips



Source: DVRPC (2023)

Public Engagement Events

Overview

The mismatch between the demographics of survey respondents and the demographics of Trenton drove the goals and planning of the *Our Streets: A Trenton Bike Plan for All* public engagement events. Zip codes of survey respondents were mapped to see which neighborhoods were the least represented and might most benefit from an easily accessible event location in order to improve engagement rates from those areas. Three family-friendly events were held at locations across Trenton over a period of five months, as shown in Table 4. Attendance numbers are estimated, as sign-in was voluntary and many attendees arrived with their families of which typically only one family member signed in.

The project team invited elected officials, including the mayor, the council member representing the ward, and at-large council members, to each event. North Ward Councilwoman Jennifer Williams, South Ward Councilwoman Jenna Figueroa Kettenburg, and East Ward Councilman Joseph Harrison attended; Mayor Reed Gusciora attended twice. The opportunity to educate and hear feedback from elected officials in attendance was valuable to build support for the bike network and its implementation.

Additionally, the project team created an interactive web page[14] to capture feedback from those unable to attend the community events. Public comment was open from May 24, 2023 to August 5, 2023. The web page received three comments, each citing that protected bike lanes are needed for increased road safety.

Objectives

The public engagement events and interactive web page were designed to achieve the following objectives:

- educate attendees about the 2022 Trenton Complete and Green Streets Ordinance, which requires the installation of bike facilities across the city as part of its goal to accommodate all road users
- educate attendees about different bike facility types, their benefits, and their drawbacks
- gather feedback about three interrelated DVRPC-led Trenton plans (the *Our Streets* plan, *Trenton Trails Plan*, and *Trenton Vision Zero Plan*), particularly from residents who had never engaged with City of Trenton staff before, Spanish-speaking residents, residents who currently ride a bike in Trenton, and residents who want to ride a bike in Trenton but currently don't feel safe doing so

[14] *"Our Streets: A Trenton Bike Plan for All." DVRPC's Public Participation Page, 2023. dvrpc.org/ourstreets.*

Table 4: *Our Streets* Event Locations, Dates, Times, and Attendance

Event Location	Neighborhood	Date	Event Hours	Estimated Attendance
Jennye Stubblefield Senior Center	Stuyvesant/Prospect	Tuesday, April 25, 2023	6:00pm-8:00pm	~40
Samuel Naples Community Center	Chambersburg	Sunday, May 7, 2023	1:00pm-3:00pm	~150
East Trenton Collaborative	East Trenton	Saturday, August 5, 2023	1:00pm-4:00pm	~110

Source: DVRPC (2023)

Public Awareness

All event and marketing materials were developed in both English and Spanish to increase accessibility. Efforts to raise awareness about the events included:

- promotion by organizations involved in event production (Trenton Cycling Revolution, Artworks Trenton, East Trenton Collaborative, Greater Mercer TMA, the Latin American Legal Defense and Education Fund) and steering committee members to their networks
- paid social media advertising targeted to Trenton zip codes using Meta, which included Facebook and Instagram
- City of Trenton press release
- event outreach and flier distribution to community groups, local faith organizations, social service providers, and laundromats
- 500 mailers sent to randomly selected addresses in the City of Trenton
- City of Trenton web page
- email correspondence to each of Trenton's City Council members inviting them to attend the *Our Streets* events and share the event invitation with their constituents
- presentations to Trenton-based groups:
  - Trenton Planning Board meeting (April 13, 2023)
  - Trenton Health Team Community Advisory Board meeting (April 14, 2023)
  - Capital City Community Coalition (4Cs) meeting (May 4, 2023)

Additionally, the public engagement events were written about in local news outlets including *TrentonDaily* and *The Trentonian*.

Summary of Event Outcomes

The public engagement events included an educational video[15] (see Figure 16) and interactive feedback stations divided between the Trenton *Our Streets* plan, *Trenton Vision Zero Plan*, and *Trenton Trails Plan*. Findings from each of the feedback stations helped shape the final bike plan recommendations (see Chapter 4). More detail can be found in the companion report solely focused on the *Our Streets* community engagement process, linked in the introduction to this chapter.

Figure 16: Photo of Educational Video Screening

Source: DVRPC (2023)

[15] *DVRPC, "Our Streets: A Trenton Bike Plan for All," YouTube, April 25, 2023, educational video, youtube.com/watch?v=OzEQSMOGBEk.*

Attendance

The project team was able to estimate whether the events had engaged Trenton's Spanish-speaking population by tracking how many people used the Spanish-language sign-in sheet. Of 142 total sign-ins, 66 percent were on the English-language sign-in sheet and 34 percent were on the Spanish-language sign-in sheet. Thirty-six percent of Trentonians report speaking Spanish at home.[16]

Across the three public feedback events, 60 percent of those who answered the question "Have you ridden a bike in the past six months?" reported that they had ridden a bike in the past six months. Forty percent indicated that they had not ridden a bike in the past six months. The *Our Streets* events engaged a geographically diverse sample of residents across Trenton, though event attendance was clustered around each event location, particularly in East Trenton and Chambersburg (see Figure 17).

Perception of Trenton Streets

When asked, "What should we know about this street?" and "Would you like to see bikes on this street?," 102 attendees responded. See Appendix C for a table listing the streets that were mentioned most on the questionnaire. Some respondents had concerns about traffic safety, particularly fast drivers, on Chestnut and Stuyvesant avenues. Chestnut Avenue was mentioned, more than any other roadway, as having poor or no street lighting. State Street was described, more than any other roadway, as having a lot of potholes. State Street, Emory Avenue, and Hamilton Avenue were noted for having important connections to key local destinations. However, State Street and Emory Avenue are perceived as having dangerous drivers. Hamilton Avenue was also noted more than any other roadway for having heavy traffic.

Bike Facility Preferences

Across the three events, there were a combined total of 81 attendees that identified themselves as cyclists and provided feedback on their bicycle facility preferences.[17] The number of cyclists that affirmed that they would prefer riding in each type of bike facility rather than on the sidewalk are as follows:

- 81 cyclists prefer parking-protected bike lanes
- 40 cyclists prefer two-way cycle tracks
- 32 cyclists prefer neighborhood greenways
- 31 cyclists prefer protected bike lanes (which use physical barriers other than parked vehicles to separate the bike lane from motorists)

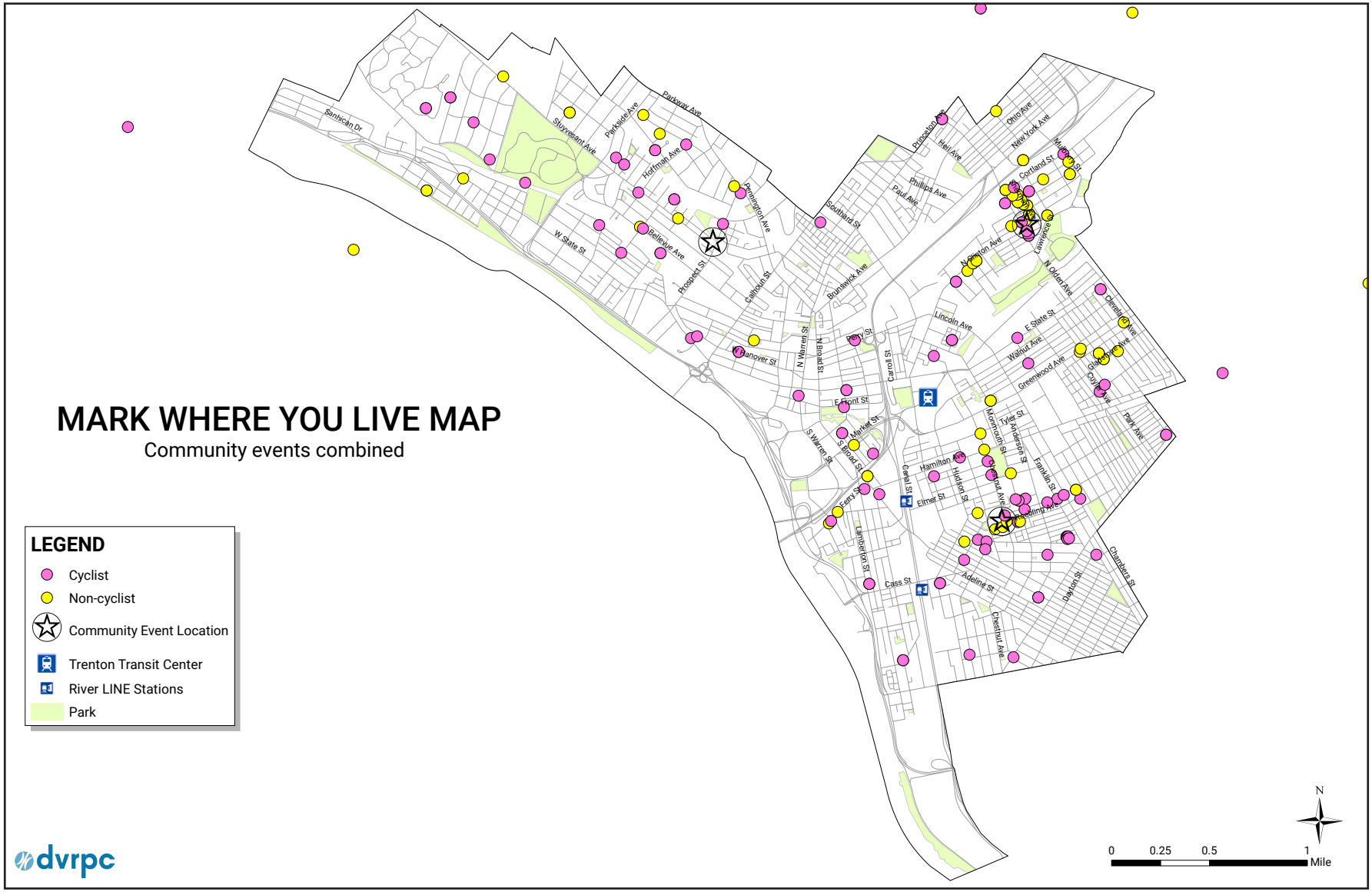
When the project team asked all attendees about their perceptions of and concerns about different types of bike facilities, the following feedback was received:

- Of 33 comments about protected bike lanes, 73 percent were positive. The main concern about this facility type was that flex posts might not offer enough protection for cyclists.
- Of 20 comments about two-way cycle tracks, 60 percent were positive. The main concern about this facility type was that there might be conflicts between cyclists going in opposite directions.
- Of 31 comments about parking-protected bike lanes, 47 percent were positive. The main concerns about this facility type included vehicle occupants opening doors into the bike lane and parked cars blocking cyclist sight lines at

[16] *U.S. Census Bureau. American Community Survey, 2022–2027 American Community Survey 5-Year Estimates, Table DPO2. data.census.gov.*

[17] *Across all three events, 81 cyclist pins were placed on the "Mark Where You Live" map, as indicated by Figure 16. These 81 cyclist pins were used as a proxy for the number of cyclists in attendance. Because event registration was optional, and not every cyclist placed a pin on the "Mark Where You Live" map, precise percentages of cyclist responses could not be calculated.*

Figure 17: Attendance Clustering Around Event Locations



Source: DVRPC and NJ TRANSIT (2024)

intersections. There was some confusion about whether these facilities would reduce or remove parking adjacent to the bike lane (they would not).
- Of 34 comments about neighborhood greenways, 47 percent were positive. The main concerns about this facility type included speeding drivers, drivers stopping suddenly to park on the street, and lack of dedicated space for cyclists – especially youth cyclists. Concerns emphasized that traffic-calming infrastructure will need to be robust in order to force drivers to slow down.

Most attendees did not comment on every facility type. The types they chose to comment on may indicate what they felt most strongly about or the types they understood best.

Prioritizing Bike Plan Implementation

Attendees placed sticky dots numbered 1, 2, and 3 on a large-format, mounted map of the proposed bike network. The dots indicated the first, second, and third priority streets that they would like to see bike facilities installed. See Figure 18 for the outcome of this activity (digitized).

Priorities were weighted to come up with scores for each street:

- sticky dots labeled "1" were weighted to equal 3 points
- sticky dots labeled "2" were weighted to equal 2 points
- sticky dots labeled "3" were weighted to equal 1 point

See Appendix C for a table of weighted street scores. There was clear consensus that N. Olden Avenue was the highest priority street for bike facility implementation. Stuyvesant Avenue was the second highest priority street. Chestnut Avenue was the third highest priority street. However, the project team only asked about implementation priorities at the third event in East Trenton, so responses reflect solely those attendees. Since many attendees were walk-ups, they may be familiar with or live along the streets surrounding the event venue (East Trenton Collaborative), and thus, they were more likely to prioritize those streets.

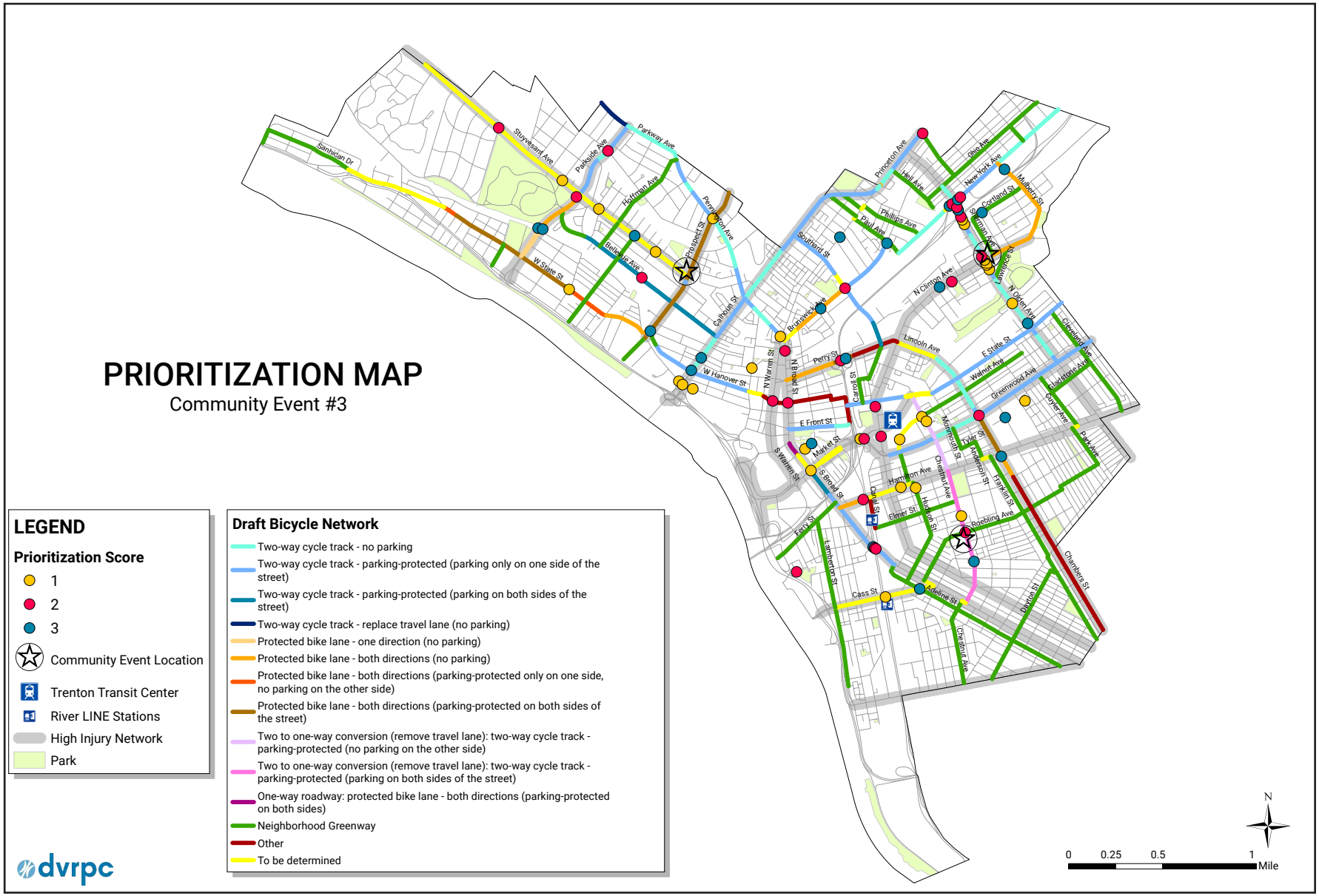
Trenton Vision Zero Plan Feedback

Attendees were encouraged to fill out a Vision Zero pledge card, which asked why safe streets in Trenton were important to them. Over 100 Vision Zero pledge cards were collected, some representing entire families. Many responses mentioned the desire for safe places to walk and bike in order to travel without contributing to carbon emissions. Some respondents mentioned having witnessed or having to deal with the consequences of traffic injuries and fatalities, and this often impacted how safe and viable a mode of transportation was for them. While children were overwhelmingly cited as a reason to have safe streets, others also identified immigrants and working-class cyclists and pedestrians needing safe streets for everyday travel.

Trenton Trails Plan Feedback

Attendees marked a map of the existing, upcoming, and conceptual trails network with colored dots indicating trails they currently use or would use if constructed. Additionally, attendees were asked what would make them feel safer when using a trail and what amenities would make their experience more enjoyable. See Appendix C for the map and full summary of responses.

Figure 18: Prioritization Map (Digitized)



Note: This map does not reflect the final bike network. See Figure 32 for the final bike network recommended by the project steering committee.
Source: DVRPC and NJ TRANSIT (2024)

Test-Riding the Network

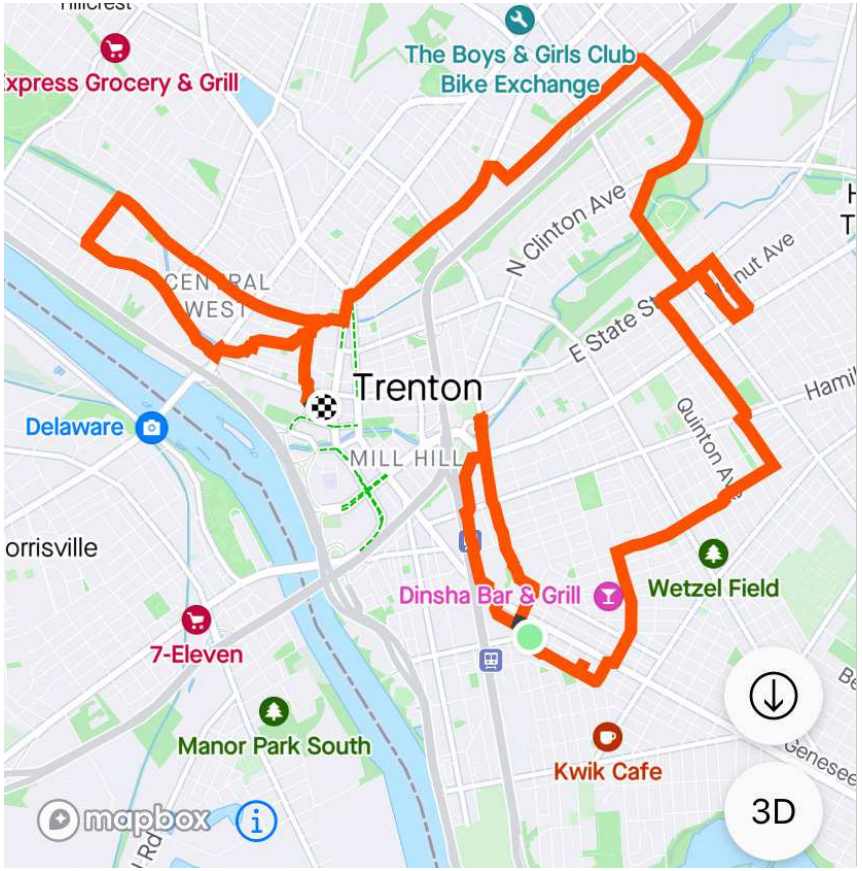
After incorporating public feedback about the recommended bike network, the project team took a test-ride of parts of the recommended network with representatives from Trenton Cycling Revolution, the Bicycle Coalition of Greater Philadelphia, and Artworks Trenton. The test ride provided additional on-the-ground insight about sightlines, level of traffic stress (LTS), traffic speeds, and traffic volumes. See the test-ride route in Figure 19.

Summary of Test-Ride Outcomes

The test-ride group suggested alternative routes when segments of the recommended bike network felt too disconnected, unsafe, or stressful based on their experience and local knowledge. Where possible, selected alternative routes run parallel to the originally proposed route and maintain or improve network continuity. The test-ride group also pointed out locations that need more detailed analysis and design in order to increase safety and comfort for those biking:

- the intersection of Washington Street and Roebling Avenue was noted for fast drivers and lack of visibility
- the staggered intersection of Elm Street and Division Street across South Broad Street was noted for its lack of visibility

Figure 19: Test-Ride Route



Source: Mapbox (2023)


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

CHAPTER 4:

BIKE NETWORK

Methodology

This section discusses the framework used to develop an implementable bicycle plan network for Trenton. The *Our Streets* plan intends to create a network of continuous and implementable on-road bike facilities that provide the highest level of safety, comfort, and separation possible for those riding a bike in the city. Below are the main guidelines the project team used to make decisions about which streets and facility types to include in the bike network.

Connectivity and Access

The project team defined bike network connectivity and access using the following principles:

- The bike network should have long straight routes that are easy to navigate.
- The bike network should connect to local destinations, including schools, parks, trails, grocery stores, churches, etc.
- The bike network should extend into all Trenton wards and neighborhoods.
- A bicyclist should never be farther than about ½ mile from the closest bike lane.
- Every one-way bike lane should have a pair, either on the same street if it is a two-way street, or on a nearby street if it is a one-way street.

Proposed Lane Widths

According to NACTO's Urban Street Design Guide, vehicle travel lanes greater than 11 feet should not be used as they may cause unintended speeding and assume valuable right-of-way at the expense of other modes.[18] Streets with high volumes of freight traffic need further consideration and analysis.

The project team defined lane width requirements as the following, using guidance from National Association of City Transportation Officials (NACTO),[19] *NJ Complete Streets Design Guide*,[20] and NJ TRANSIT planning staff:

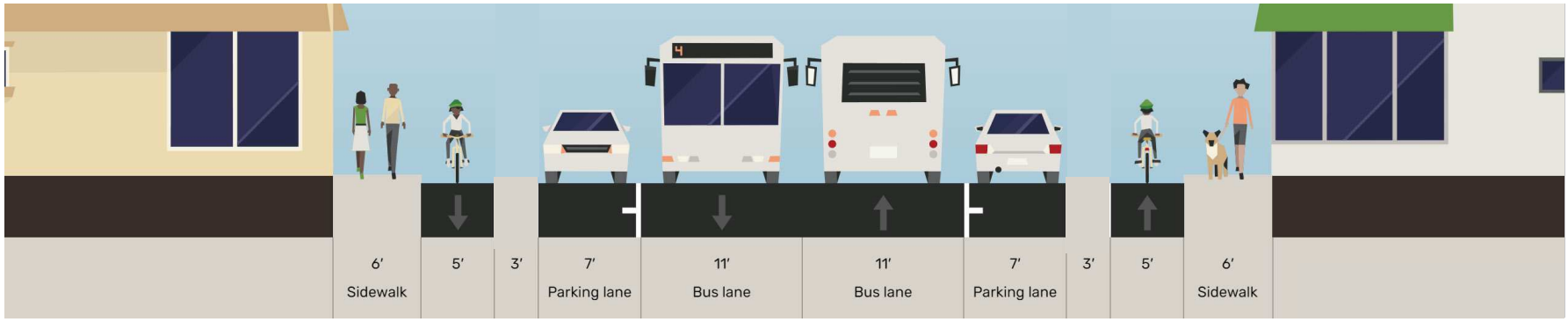
- A bike lane needs to be five feet wide at minimum (one direction) with a recommended buffer area of three or more feet wide while still maintaining suitable space for motorists and NJ TRANSIT buses.
- Streets with a fixed bus route and on-street parking need a minimum of 18 feet per travel direction. The 18 feet can be divided in the following ways:
  - Seven-foot minimum on-street parking lane(s) on streets with 11-foot or wider vehicle travel lane(s). See Figure 20 for an example cross section.
  - Eight-foot minimum on-street parking lane(s) on streets with 10-foot vehicle travel lane(s). See Figure 21 for an example cross section.
- Streets without a fixed bus route but with on-street parking need a minimum of 17 feet per travel direction (10 feet allocated to each vehicle travel lane; 7 feet allocated to each parking lane). See Figure 22 for an example cross section.

[18] *"Lane Width." National Association of City Transportation Officials, July 24, 2015. nacto.org/publication/urban-street-design-guide/street-design-elements/lane-width/.*

[19] *"Conventional Bike Lanes." National Association of City Transportation Officials, July 19, 2019. nacto.org/publication/urban-bikeway-design-guide/bike-lanes/conventional-bike-lanes/.*

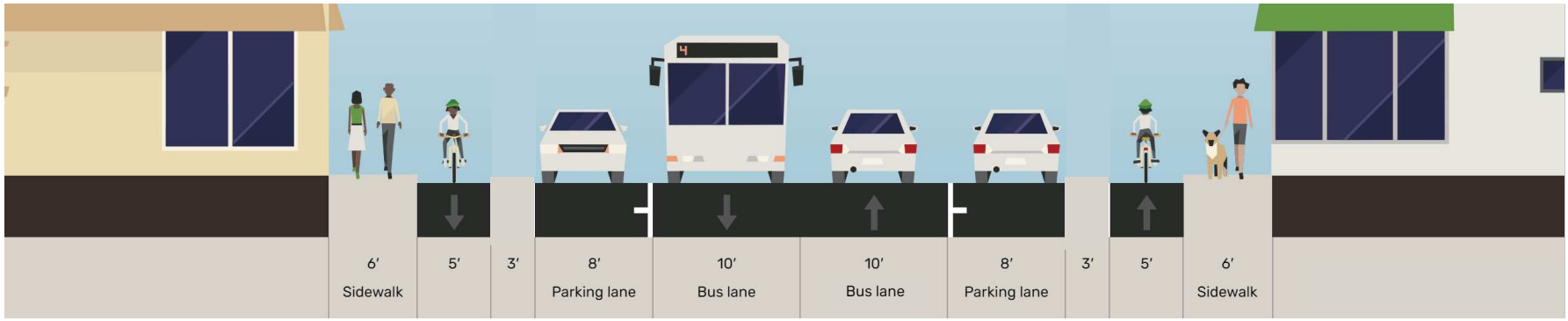
[20] *WSP | Parsons Brinckerhoff. "2017 State of New Jersey Complete Streets Design Guide." NJDOT, 2017. state.nj.us/transportation/eng/completestreets/pdf/NJCS_DesignGuide.pdf. 90-91.*

Figure 20: 11-Foot Vehicle Travel Lane(s) with 7-Foot Parking Lane(s)



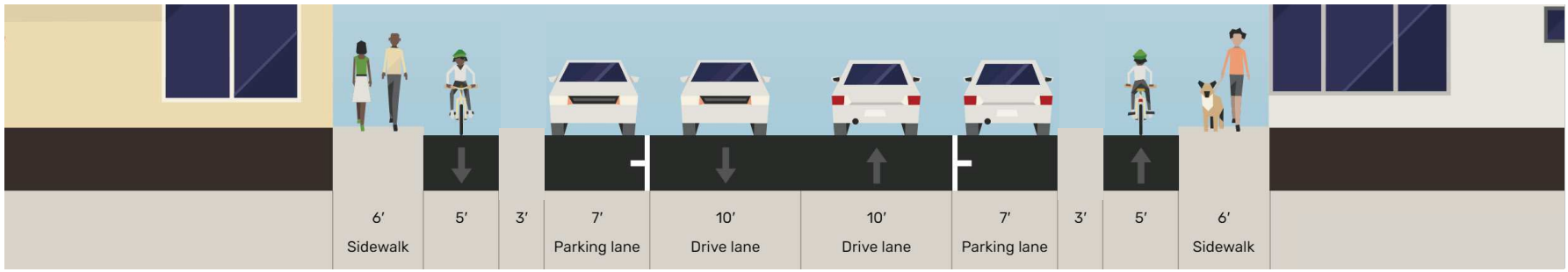
Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

Figure 21: 10-Foot Vehicle Travel Lane(s) with 8-Foot Parking Lane(s)



Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

Figure 22: 10-Foot Vehicle Travel Lane(s) with 7-Foot Parking Lane(s)



Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

Facility preferences documented from public engagement events were used to make decisions in situations where more than one kind of facility can be fit into the available cartway width.

Low-Stress Facilities

The project team defined low-stress bike facilities using the following principles:

- All dedicated bike lanes should be protected with a painted buffer zone (maximum width possible while still maintaining suitable space for motorists and NJ TRANSIT buses) and a physical barrier of some kind. See Appendix D for barrier examples.
- The facilities should be designed to accommodate cyclists of all ages and abilities, in accordance with complete streets principles.
- All roads without dedicated bike facilities (i.e., neighborhood greenways) should have a maximum speed limit of 25 mph (20 mph preferred) and have additional traffic calming elements such as speed humps, signage, and pavement markings.

Strategies to Address Space Constraints

Due to Trenton's historic narrow streets and disconnected street grid on most streets, it will be necessary to reconfigure the existing street width to create space for the bike facilities proposed in the *Our Streets* bike network. These changes will increase safety for all road users. Dedicated and protected bicycle facilities are one of the U.S. DOT Federal Highway Administration's proven safety countermeasures known to reduce conflict points between cyclists and motorists.[21] New on-road bicycle facilities are also expected to reduce interactions between cyclists and pedestrians, as they will likely discourage cyclists from riding on the sidewalk.

A street width of 52 feet is recommended to fit two protected bike lanes, two on-street parking lanes, and two vehicle travel lanes, assuming typical widths. Trenton's historic and narrow streets are generally 30 to 40 feet wide.

Additionally, many Trenton streets only have one vehicle travel lane in each direction, making a road diet impossible. Because of these constraints, changes need to be made to the streets in order to fit safe and protected bicycle facilities. If no changes are made, the bike network becomes extremely fragmented (see Appendix C).

To fit bike facilities on the narrowest city streets, one or more of the following strategies will need to be used:

1. convert two-way streets to one-way streets
2. adjust on-street parking by either (a) reducing parking on both sides of the street to parking on one side of the street, or (b) removing on-street parking

Where space can't be reconfigured and dedicated facilities aren't currently feasible, the street must be retrofitted in other ways, such as by implementing traffic calming measures, to establish shared priority between bicyclists and drivers. Each of these strategies is discussed on the following pages.

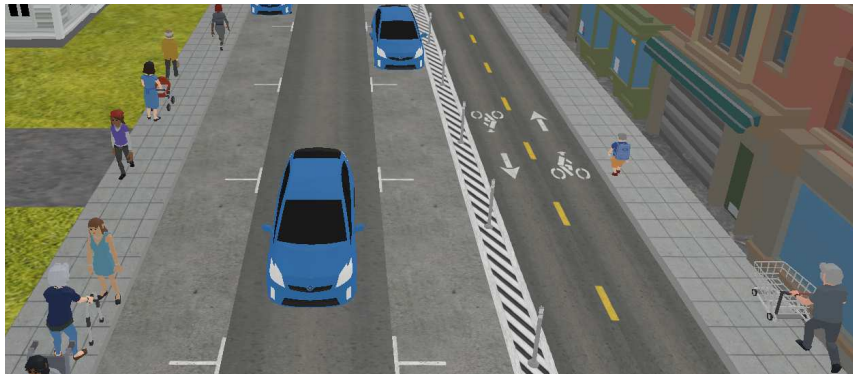
[21] *"Bicycle Lanes." US Department of Transportation Federal Highway Administration. Accessed August 5, 2024. highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes.*

Two-to-One-Way Street Conversion

This strategy involves changing a street that previously accommodated motorist travel in two directions to a street that accommodates motorist travel in one direction only. If a two-way cycle track is implemented on a one-way street, bicyclists will also still be able to travel in both directions.

The *Our Streets* bike network recommends changing Chestnut Avenue from a two-way street to a one-way southbound street. This reconfiguration will allow a two-way cycle track to be installed while preserving all existing on-street parking on Chestnut Avenue in the dense Chambersburg neighborhood (see Figure 23). Division Street and Monmouth Street are recommended to be changed from two-way streets to one-way streets to accommodate northbound vehicles, essentially "pairing" with southbound Chestnut Avenue.

Figure 23: Chestnut Avenue Conversion to One-Way Street



Source: Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2023)

Eight-seven percent of *Our Streets* public engagement event attendees were willing to try converting a two-way street to a one-way street for a few months. The project team recommends piloting one-way street changes on Chestnut Avenue, paired with Division Street and Monmouth Street (see Figure 32 for the bike network).

On-Street Parking Adjustments

There are two different approaches to adjusting on-street parking to fit dedicated bicycle lanes on narrow streets: reducing on-street parking from two sides to one side of the street, or removing on-street parking from both sides of the street. When considering where to apply these parking adjustments, the project team identified roadways in Trenton where on-street parking was under capacity while avoiding roadways where on-street parking was near or at capacity. The team also tried to avoid parking adjustments on business corridors and in dense residential areas when possible.

Eighty-one percent of *Our Streets* public engagement event attendees were willing to try reducing on-street parking from both sides of the street to one side of the street for a few months.[22] An example of underutilized on-street parking, where reducing parking from both sides of the street to one side of the street is recommended, is highlighted below (see Figure 24).

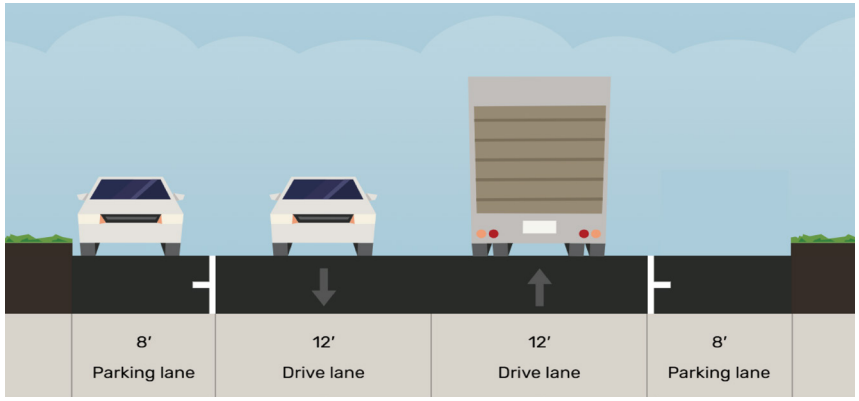
Figure 24: Calhoun Street Between Southard Street and Trent Avenue

Source: Google Street View (2019)

[22] During the public engagement events, the project team phrased questions about the trade-offs of proposed street designs as "Are you willing to try [trade-off] for a few months? Why or why not? On which streets?" The questions were phrased this way because proposed street design changes would likely be piloted before becoming permanent.

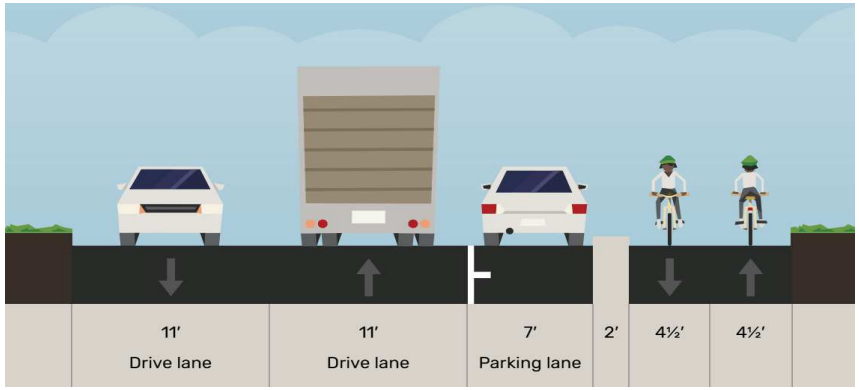
Southard Street between New Willow Street and Martin Luther King Jr. Boulevard is also recommended for reduction of underutilized on-street parking. This segment of Southard Street was reconfigured to add a two-way protected cycle track (see Figures 25 and 26).

Figure 25: Southard Street (Existing Conditions)



Note: Cross section facing north on Southard Street, between New Willow Street and Martin Luther King Jr. Boulevard. Source: Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

Figure 26: Southard Street (Proposed)



Note: Cross section facing north on Southard Street, between New Willow Street and Martin Luther King Jr. Boulevard. Source: Created using Streetmix, licensed under CC BY-SA 4.0 (2024)

To create the necessary space for this bike facility, the travel lanes in each direction were shifted towards the western curb, and an underutilized parking lane was removed. The remaining parking lane was repositioned between the travel lanes and the bike facility to increase separation between motorists and bicyclists.

Sixty-three percent of *Our Streets* public engagement event attendees were willing to try removing on-street parking for a few months. To effectively determine the utilization of on-street parking, it should be observed at different times and days of the week.

Traffic Calming Measures

On streets where two-to-one-way conversions or adjusting parking is likely not currently possible, the project team recommends traffic calming measures like speed humps, reduced speed limits, and pavement markings. Together, these measures work together to create neighborhood greenways, low-stress streets that reduce cut-through traffic and make bicycling more safe and comfortable.

Bicycle Facilities

Bicycle facilities that provide the highest level of safety, comfort, and separation while also being implementable on the narrow streets of Trenton were recommended for the bike network. The three types of recommended bicycle facilities include:

- one-way protected bike lane
- two-way protected cycle track
- neighborhood greenway

One-Way Protected Bike Lane

A one-way protected bike lane is a lane for the exclusive use of cyclists that utilizes a barrier to physically protect them from the vehicle travel lane, as shown in Figure 27. The barrier, such as a concrete curb, should be installed in the painted buffer between the bike and vehicle travel lanes. One key benefit of a one-way protected bike lane is that it allows cyclists to travel in the same direction as motorists, which makes travel more predictable. In addition, there are fewer conflict points between cyclists compared to a two-way protected cycle track, as there is no contra-flow riding.

Figure 27: One-Way Protected Bike Lane

Source: DVRPC (2023)

The project team recommends a one-way protected bike lane for streets in the *Our Streets* bike network with high vehicle speeds and volumes. Where roadway space is available and there is a demand for on-street parking, the on-street parking lane should be shifted between the vehicle travel lane and the one-way protected bike lane, as illustrated in Figure 27. This shift will preserve on-street parking adjacent to the bike lane while providing greater protection for cyclists as there will be an additional barrier protecting them from motorists.

Two-Way Protected Cycle Track

A two-way protected cycle track is a lane on one side of the roadway for the exclusive use of cyclists that allows them to travel in both directions, as shown in Figure 28. In a similar design to a one-way protected bike lane, a two-way protected cycle track should be protected by a barrier, such as a concrete curb, which should be installed in the painted buffer between the bike and vehicle travel lanes. Installing a two-way protected cycle track requires less roadway space than a one-way protected bike lane on both sides, as it only necessitates one barrier to protect cyclists traveling in both directions.

Figure 28: Two-Way Protected Cycle Track

Source: DVRPC (2023)

The project team recommends a two-way protected cycle track for streets in the *Our Streets* network with high vehicle speeds and volumes and limited roadway width. Where roadway space is available and there is demand for on-street parking, the parking lane should be shifted between the vehicle travel lane and the bike facility. This adjustment will preserve on-street parking while enhancing protection for cyclists by adding an extra barrier between them and motorists.

Neighborhood Greenway

A neighborhood greenway, also known as a bicycle boulevard, is a low-volume, low-stress street that prioritizes bicycle and pedestrian travel over vehicle travel. On a neighborhood greenway, the speed limit is recommended to be reduced to 20 miles per hour, as motorists and bicyclists share space on the roadway. Additionally, signage should be installed to alert motorists to the lower speed limit and inform them they are driving on a roadway that prioritizes cyclists and pedestrians, as shown in Figure 29.

Figure 29: Neighborhood Greenway

Source: www.pedbikeimages.org / Russ Roca

Vertical and horizontal deflection treatments should be installed on a neighborhood greenway to increase safety and comfort for cyclists and pedestrians by lowering vehicle speeds and volumes. Vertical deflection treatments can include speed humps, speed tables, or speed cushions, as shown in Figure 30.

Figure 30: Example of Vertical Deflection

Source: www.pedbikeimages.org / Dan Burden

Meanwhile, horizontal deflection treatments can include neckdowns, partial street closures, or chicanes, as shown in Figure 31 on the following page. Specific treatments should be tailored to a roadway's unique characteristics and a list of treatments to potentially incorporate can be found in *Identifying Neighborhood Greenway Possibilities in Philadelphia*,[23] published by DVRPC in 2018. This report categorizes neighborhood greenway treatments into four purposes: signage, bicycle and pedestrian prioritization, speed reduction, and volume reduction; a table of treatments can be found on pages 35-37 of that report.

[23] *"Identifying Neighborhood Greenway Possibilities in Philadelphia." DVRPC, November 2018. dvrpc.org/products/16043/.*

Figure 31: Example of Horizontal Deflection

Source: DVRPC (2023)

Due to space constraints and feasibility concerns, the proposed *Our Streets* bike network includes sharrows or conventional bike lanes on a limited number of roadways. On the network, there are also a limited number of roadways where the facility type is listed as "Additional research is needed." This is also due to space constraints and feasibility concerns. Additional studies and community outreach are needed to determine the most appropriate facility type for these roadways.

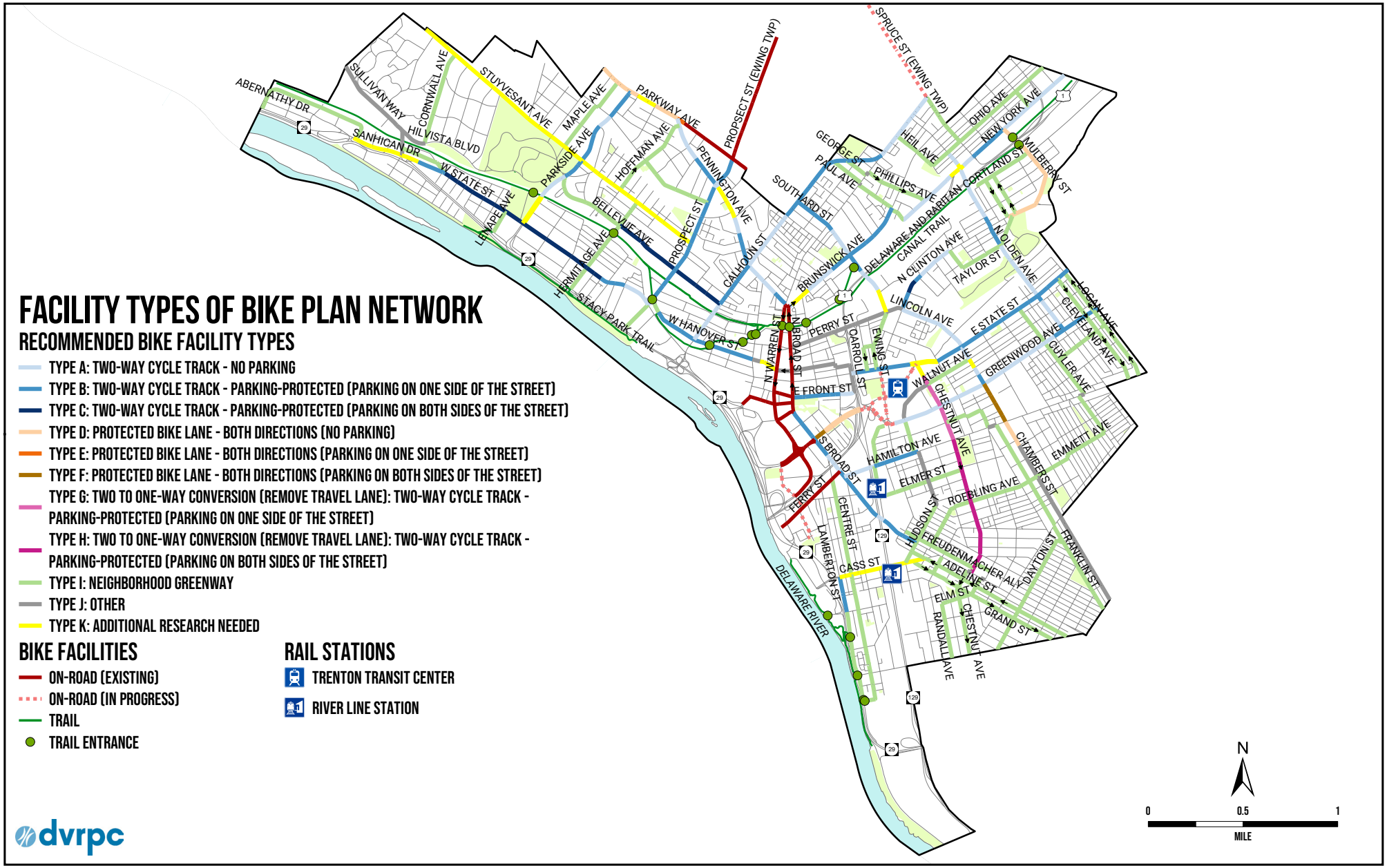
Recommended Bike Network

The *Our Streets* steering committee, informed by existing conditions and updated and refined after public and stakeholder feedback, recommends the following bike network, as shown in Figure 32 on the following page. The *Our Streets* bike network was designed to be continuous, low-stress, and easily navigable for cyclists, connecting them to key destinations throughout Trenton. To ensure the bike network is feasible, the project team identified roadways with available or flexible space where bike facilities could be installed.

In addition, the project team identified roadways, primarily residential streets, that provide important connections to the city's greater street network but are recommended as neighborhood greenways due to their limited width and potential for low vehicle speeds and volumes. Along with examining a roadway's width and role in the city's greater street network, the project team also considered the prevalence and demand of a roadway's on-street parking. The result was the project team designed the bike network to connect cyclists to key destinations throughout Trenton while limiting its impact on existing on-street parking.

Furthermore, the *Our Streets* bike network incorporates many recommendations from the 2020 *Mercer County Bicycle Master Plan* but expands on the network to provide coverage throughout the city with added elements for safety and comfort, as discussed in the following section.

Figure 32: Recommended Bike Network



Source: DVRPC and NJ TRANSIT (2024)

Upgrades to Existing On-Road Facilities

The planned bike network includes upgrades to existing on-road bicycle facilities in Trenton to increase their level of separation and protection. Bike lanes recommended to be improved include Trenton's Wellness Loop. The Wellness Loop consists of a mix of sharrows and conventional and buffered bike lanes on North Broad Street and North Warren Street and links to the D&R Canal Towpath. The Wellness Loop connects to additional bike facilities in downtown Trenton, which are a mix of sharrows and conventional bike lanes. All conventional bike lanes and sharrows are recommended to be upgraded to buffered and protected facilities.

Additional Improvements

In addition to installing the bicycle facilities of the recommended network, the following improvements are recommended to be included in maintenance and capital projects, either led by the City or developers, to make biking in Trenton more safe and comfortable.

Enhance Visibility Through Street Lighting

Lighting should be consistent with the City of Trenton's Land Development Ordinance (2023), specifically the Exterior Lighting section (Article 9.3).[24] However, the City of Trenton Land Development Ordinance (2010) still applies to designated redevelopment areas. Proper lighting is critical for bicyclists' safety as it enhances their visibility to other roadway users, especially motorists, which reduces the likelihood of a crash. In addition, adequate street lighting can help guide bicyclists on the road, allowing them to more easily see where they are going and what is in front of them. For recommendations on tailoring lighting to specific contexts, refer to the *Trenton Complete Streets Design Handbook*.

Visual Cues at Intersections

Markings should be installed across the intersections of roadways with bike lanes to guide bicyclists. Per the *Trenton Complete Streets Design Handbook*, intersection bike crossing markings should be the exact width of the bike lane and emphasize the potential conflict area. The markings reduce the risk of a crash by alerting all road users, especially motorists, that they are entering a potential conflict area with bicyclists.

Ensure Quality Roadway Conditions

Poor roadway conditions, such as potholes or uneven surfaces, make it more challenging for bicyclists to maintain control, increasing the likelihood of a crash. As outlined by NJDOT statewide guidance issued in March 2024, potholes should be patched in a timely and efficient manner.[25]

Increase Visibility with Daylighting

Per New Jersey Statute Title 39 - Motor Vehicles and Traffic Regulation, section 39:4-138, the State prohibits vehicles from parking within 25 feet of a crosswalk and 50 feet of a stop sign.[26] For example, at a four-way stop intersection, vehicles are prohibited from parking within 50 feet of the near-side stop sign and 25 feet of the far-side crosswalk. Despite these restrictions, motorists in Trenton will often park in these illegal spaces as there is no infrastructure to prevent them. To prevent this, daylighting in the form of bike racks, planters, curb extensions, murals, or bioswales should be installed at intersections throughout Trenton. Figure 33 shows the intersection of Gates and Vanderbilt Avenues in Brooklyn, New York, which has

[24] *"Exterior Lighting." City of Trenton Land Development Ordinance, December 2023. trentonnj.org/DocumentCenter/View/8586/Trenton-LDO-Adopted-122123.*

[25] *"NJDOT Annual Statewide Pothole Repair Campaign Begins next Week." NJDOT, March 1, 2024. State of New Jersey. nj.gov/transportation/uploads/comm/news/details/comm_np_20240301_135857_NJDOTtobeginannualPotholecampaignnextweek.pdf.*

[26] *"39:4-138.6 Legislative History Checklist." NJ State Law Library, 2009. repo.njstatelib.org/server/api/core/bitstreams/7199d10c-93a8-4b6c-b15d-0ce0ba6ce9d2/content.*

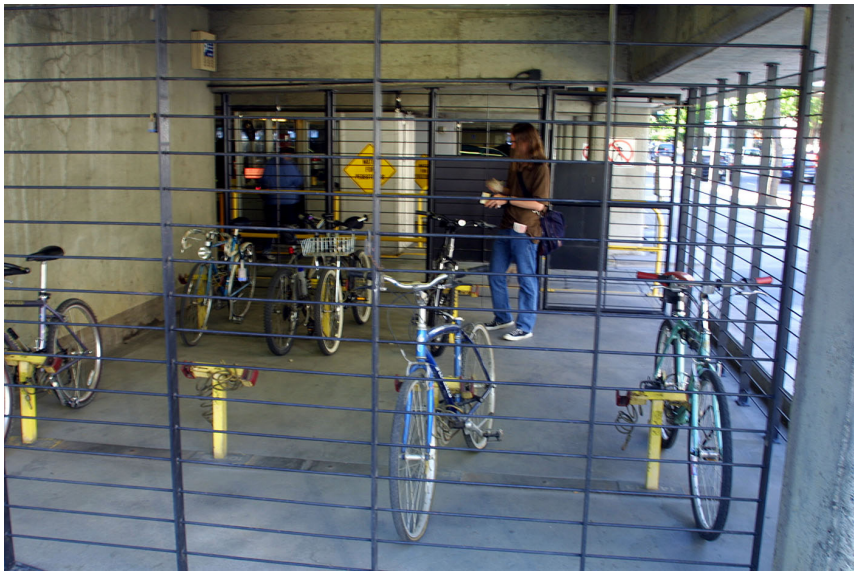
daylighting installed using bike racks, planters, and boulders. Installing daylighting in Trenton will increase the safety of all road users at an intersection, especially bicyclists and pedestrians, as they attempt to cross the intersection. This is because bicyclists and pedestrians will be more visible, as illegally parked vehicles will no longer obstruct the sight line between them and motorists. This type of intersection improvement is particularly important in a dense neighborhood like Chambersburg, which has high pedestrian foot traffic, but on-street parking is in high demand.

Source: Stephen Nessen, Gothamist (2023)

Figure 33: Daylighting in Brooklyn, New York

Install Bicycle Parking

Safe and accessible bike parking should be provided at transit stations, key destinations, and along commercial corridors. This encourages more bike trips since bicyclists will know they can securely store their bikes at their destination without fear of theft. Bike parking should be in the form of bike lockers or racks, as shown in Figure 34. Per NACTO guidance, bike parking should be within 50 feet of transit stations and key destinations and should be placed in view of the sidewalk in a well-lit location.[27]



Source: www.pedbikeimages.org / Dan Burden

Figure 34: Secure Bike Parking

Design Bus Stops to Minimize Conflicts

On roadways with bus service and bicycle facilities, bus stops should be designed to minimize conflict between the bus, passengers boarding and alighting, bicyclists, and pedestrians. For additional information, please review DVRPC's 2024 report, *Planning for New Jersey Transit Service Along Bicycle Facilities*.[28]

[27] *"Bike Parking." National Association of City Transportation Officials, May 17, 2016. nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/bike-parking/.*

[28] *"Planning for New Jersey Transit Bus Service Alongside Bicycle Facilities." Delaware Valley Regional Planning Commission, 2024. dvrpc.org/reports/23136.pdf.*

Trenton Transit Center Access

In June of 2022, the City of Trenton and DVRPC finalized the Local Concept Development (LCD) Study for circulation improvements at the Trenton Transit Center to mitigate its auto-centric design and increase accessibility for pedestrians and bicyclists. It recommends implementing a road diet on Market Street, Greenwood Avenue, and South Clinton Avenue near the Trenton Transit Center to add a buffered bike lane on both sides of each roadway. The LCD Study also recommends a realignment of Wallenberg Avenue near East State Street to add a combination of buffered bike lanes and sharrows to each side of the roadway. In addition, it recommends converting South Clinton Avenue, between Wallenberg Avenue and Greenwood Avenue, to be for the exclusive use of transit, pedestrians, and bicyclists. The LCD Study circulation improvements are included on the bike network map as "On-road (in progress)." The *Our Streets* bike network was designed to connect seamlessly to the circulation improvements to increase safety and access to the Trenton Transit Center. The preliminary engineering phase for the circulation improvements is scheduled to begin in 2025, and the final design phase is expected to start in 2026. The construction of the project is estimated to begin between 2028 and 2029.

TRANSIT SERVICE ALONG BICYCLE FACILITIES

As complete streets are implemented across New Jersey, NJ TRANSIT is looking to review their processes and operations to improve the safety of bus operators, passengers boarding and alighting, bicyclists, and pedestrians. DVRPC conducted a literature review that revealed that there are few existing studies or design guidance about designing bus stops that reduce bus–bicycle interactions along mid-density, mid-volume transit corridors that are common across the region and the nation. In response, DVRPC organized a bus stop design workshop that brought together key stakeholders including road owners, cycling advocates, and NJ TRANSIT to brainstorm implementable bus stop designs that aim to reduce bus–bicycle conflicts at a NJ TRANSIT bus stop on Prospect Street in Trenton, as this is one of the streets recommended for bicycle facilities in the bike network. The workshop resulted in three key findings:

- Additional infrastructure can be added to minimum bus stop requirements in response to crash data or local context such as increased vehicle and bicycle volumes, vehicular speeds, and space and funds available.
- Vertical barriers preserve longevity of bike lane striping treatments, but present maintenance considerations for the road owner and curbing considerations for transit providers.
- Certain innovative designs may need to be funded locally, as requirements associated with using federal funds increase costs and time.

To view the resulting conceptual designs and learn more, refer to Chapter 6 of the *Planning for New Jersey Transit Bus Service Alongside Bicycle Facilities* report (see footnote 25).

CHAPTER 5:

CONCLUSION

Implementing this plan is possible with sustained and dedicated support and effort from elected officials, City staff, and community organizations and residents. Building the bicycle network described is directly in line with existing city policy and ordinance related to complete streets. A high-quality bike network will also contribute to achieving the goal of zero traffic-related fatalities and serious injuries since bike lanes are an FHWA proven safety countermeasure.

The *Our Streets* events and other ongoing work in the city has shown that working with community groups to get feedback and conduct more effective community engagement can help projects advance with resident support. Tactical urbanism or demonstration projects can also help neighborhoods "test" changes before they are made permanent, which can be another strategy to help fine-tune facility design, build buy-in, and overcome resistance. DVRPC's tactical urbanism program, called Expo: Experimental Pop-ups,[29] can assist with this "testing" process.

Next Steps

Implementing the Our Streets bike network requires the steps listed below.

Leveraging Existing Projects for Bike Plan Implementation

Any time changes are being made to Trenton's roadways, there is potentially an opportunity to install portions of the bicycle network or other supportive improvements. Regular resurfacing projects can be finished with new line striping that includes bike lane striping and markings. This includes projects being led by the City or Mercer County for the county road system within the city. Some of these changes require the City to do necessary outreach and engagement. Getting feedback and buy-in from those affected by the project is an important precursor to any ordinance change or other motion before the Planning Board or City Council. To optimize this method of implementation, the City and County can review future year repaving plans and conduct any necessary public engagement, testing of parking reductions, and passing any necessary changes to ordinance in advance of the construction season.

Developer-led projects can be required or requested to include lighting, bike parking, and/or improvements to bus stop striping and signage and once a bike lane is constructed, any project along it must be required to replace the striping and signage to its original condition.

Both of these mechanisms require City staff to engage and coordinate with developers, City staff, and the County during project development processes and be proactive in taking any steps necessary to enable bike lane installation.

Dedicating Increased and Sustained Funding for Implementation and Maintenance

When compared to other transportation projects, bike lane construction is a relatively inexpensive street improvement. Still, budgeting for line striping, signage and physical barriers between the bike lanes and moving or parked vehicles is necessary. Once the network is built, ongoing maintenance is needed. The scale and cost of network maintenance can vary based on the

[29] *"Expo: Experimental Pop-Ups." Delaware Valley Regional Planning Commission. Accessed October 31, 2024. dvrpc.org/expo/.*

materials and equipment used. To maintain the system, sufficient yearly funds must be budgeted and programmed.

Increasing Staff Capacity

Implementation of the bike plan falls mainly to staff within the Department of Housing and Economic Development and the Department of Public Works. To ensure construction, City planning staff will need to have an active role in project development processes led by developers, the City of Trenton, and Mercer County. This will ensure that the City leverages opportunities to install bike lanes through all types of road projects and construction adheres to the bike plan and the *Trenton Complete Streets Design Handbook*. Once projects are underway, staff will need to do the outreach and engagement to communities to get feedback and build support, especially for the projects that will require parking reductions.

Increased staff in the Public Works Department is especially needed to ensure that repaving, line striping, and installation of bike lane barriers can be done in a timely manner and maintenance can be done on an ongoing basis. In addition to on-the-ground implementation, Public Works Department staff need to assist with any ordinance changes, outreach, and education of elected officials, and coordination of any necessary engineering and striping plans.

Finally, the City needs more grant management capacity. Bike network construction can be done as part of larger capital projects funded through state and federal programs like Transportation Alternatives Set-Aside, Safe Routes to School, and Safe Streets and Roads for All. Awards through these programs require significant time and can only be done by direct employees of the City.

OUR STREETS

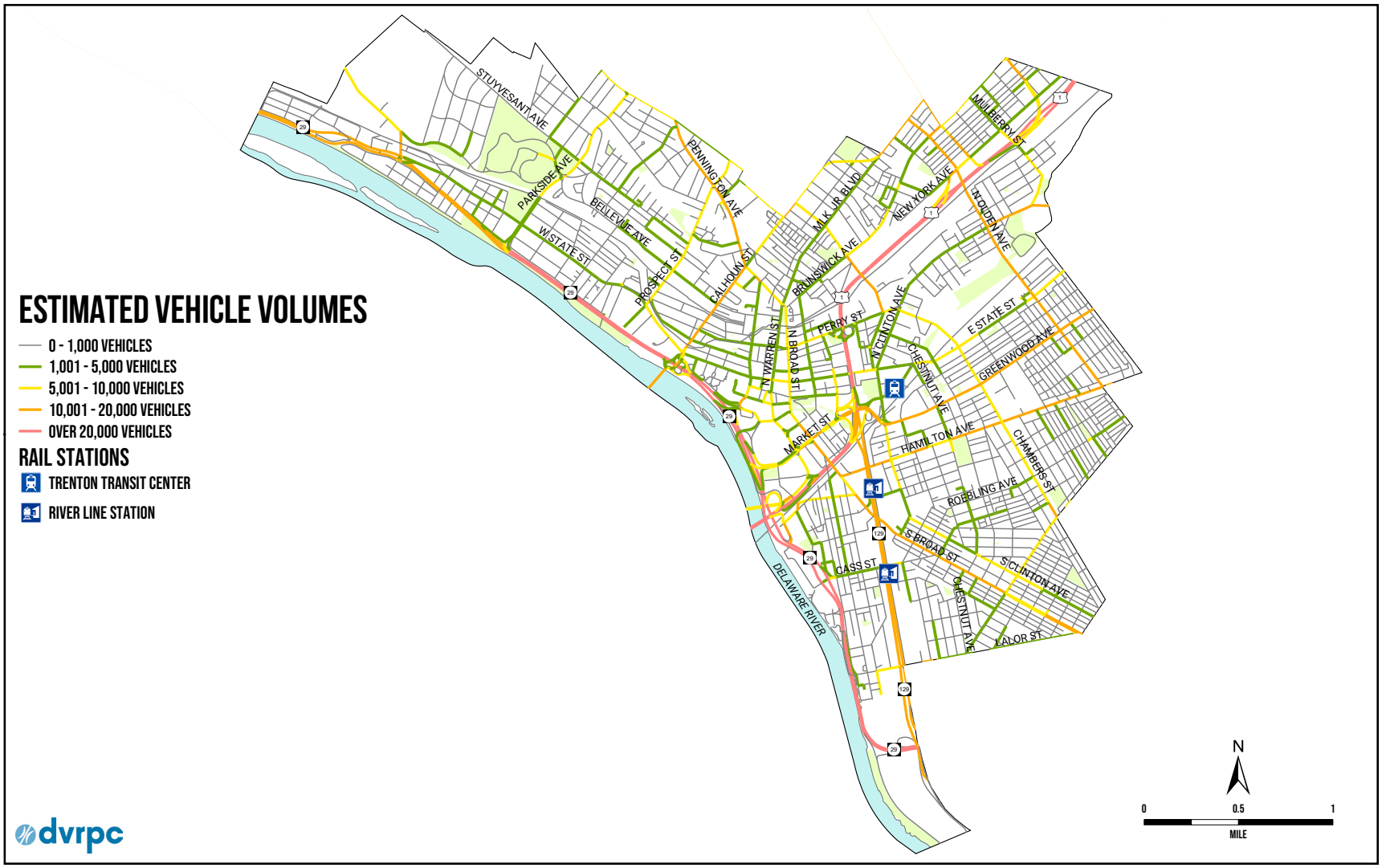
APPENDICES

A: Additional Existing Conditions Maps
B: Public Survey and Findings
C: Public Engagement Event Outreach & Materials
D: Examples of Bike Lane Barriers

APPENDIX A:

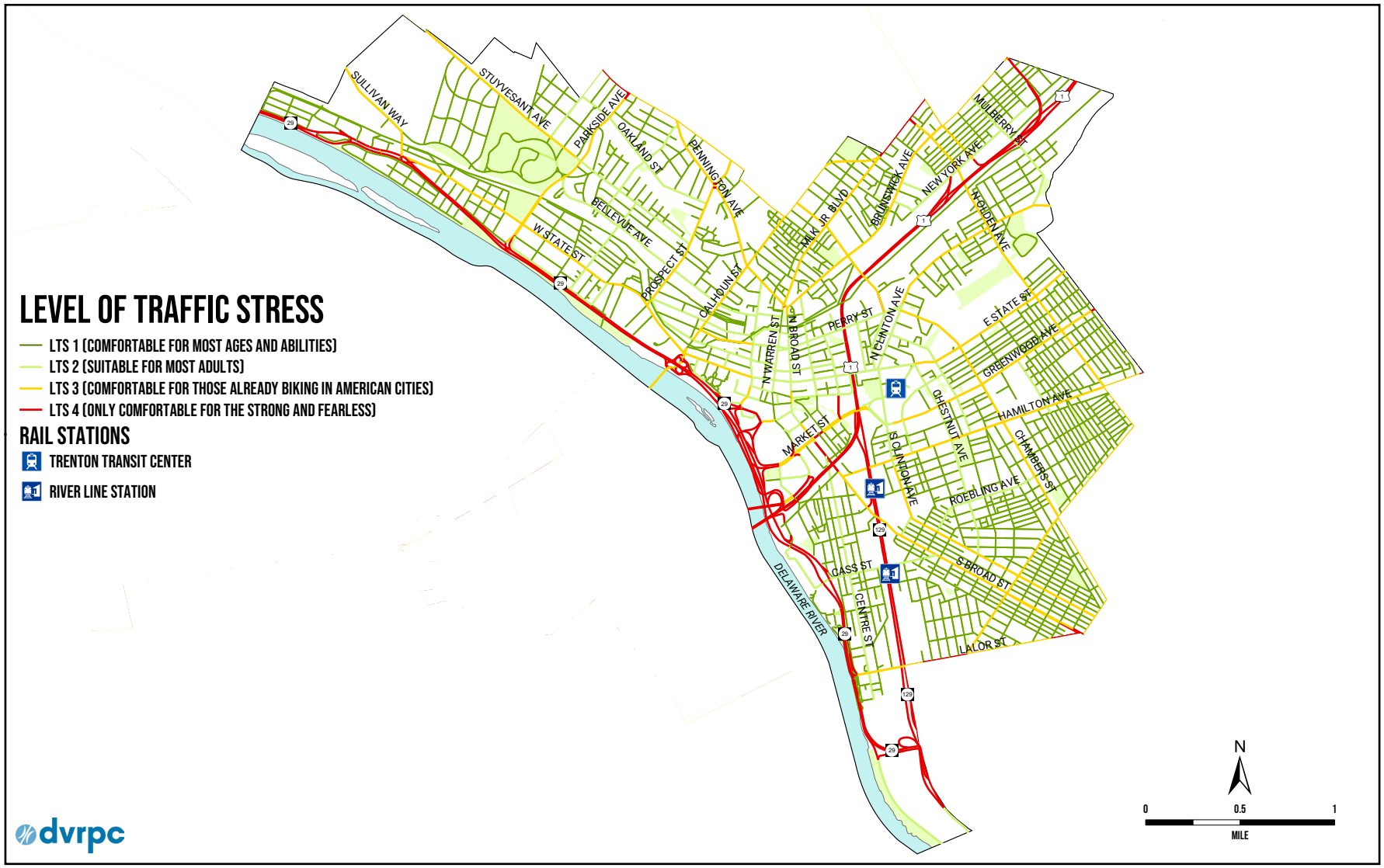
ADDITIONAL EXISTING CONDITIONS MAPS

Figure A-1: Estimated Vehicle Volumes



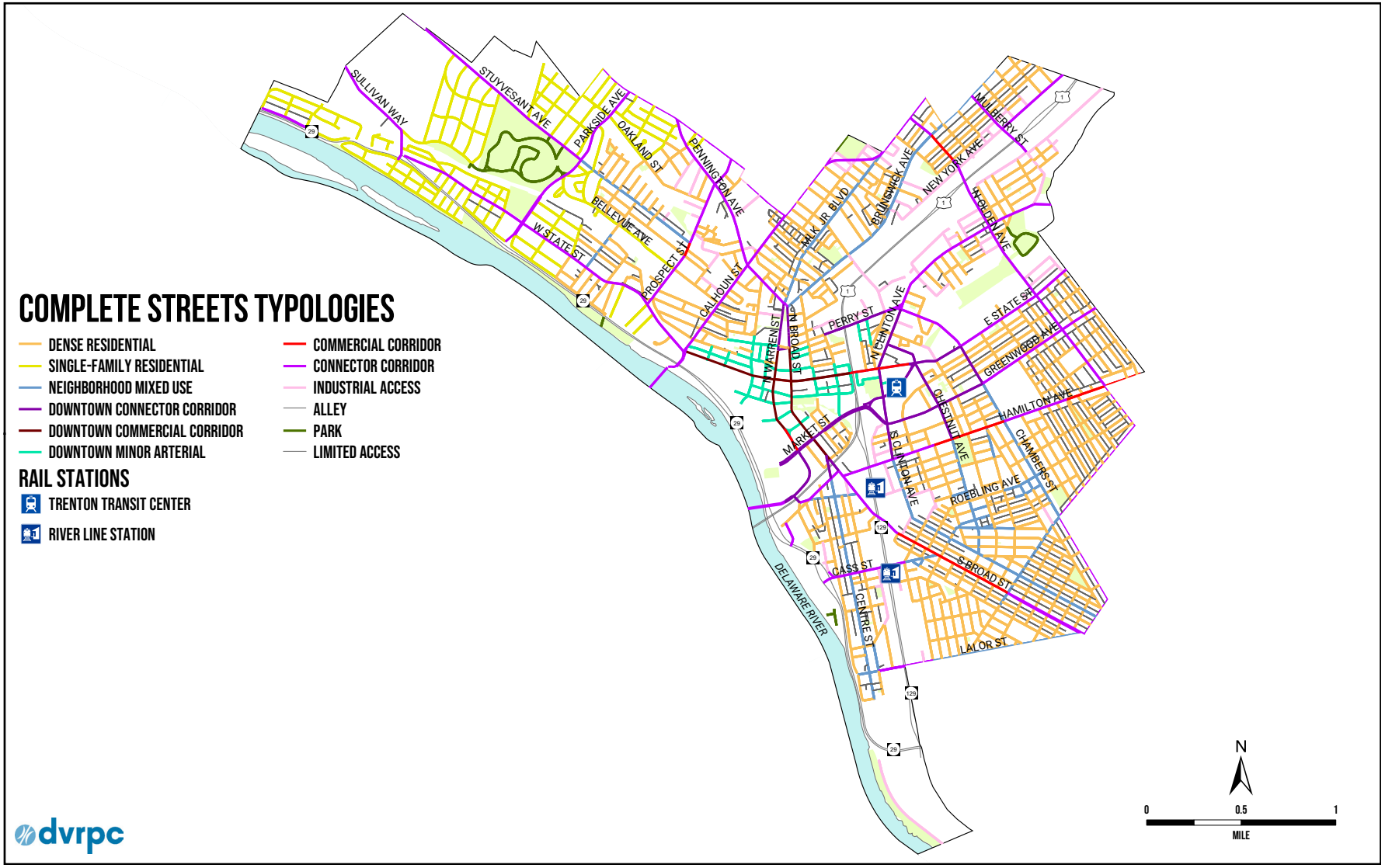
Source: DVRPC NJ TRANSIT, and NJDOT (2024)

Figure A-2: Level of Traffic Stress



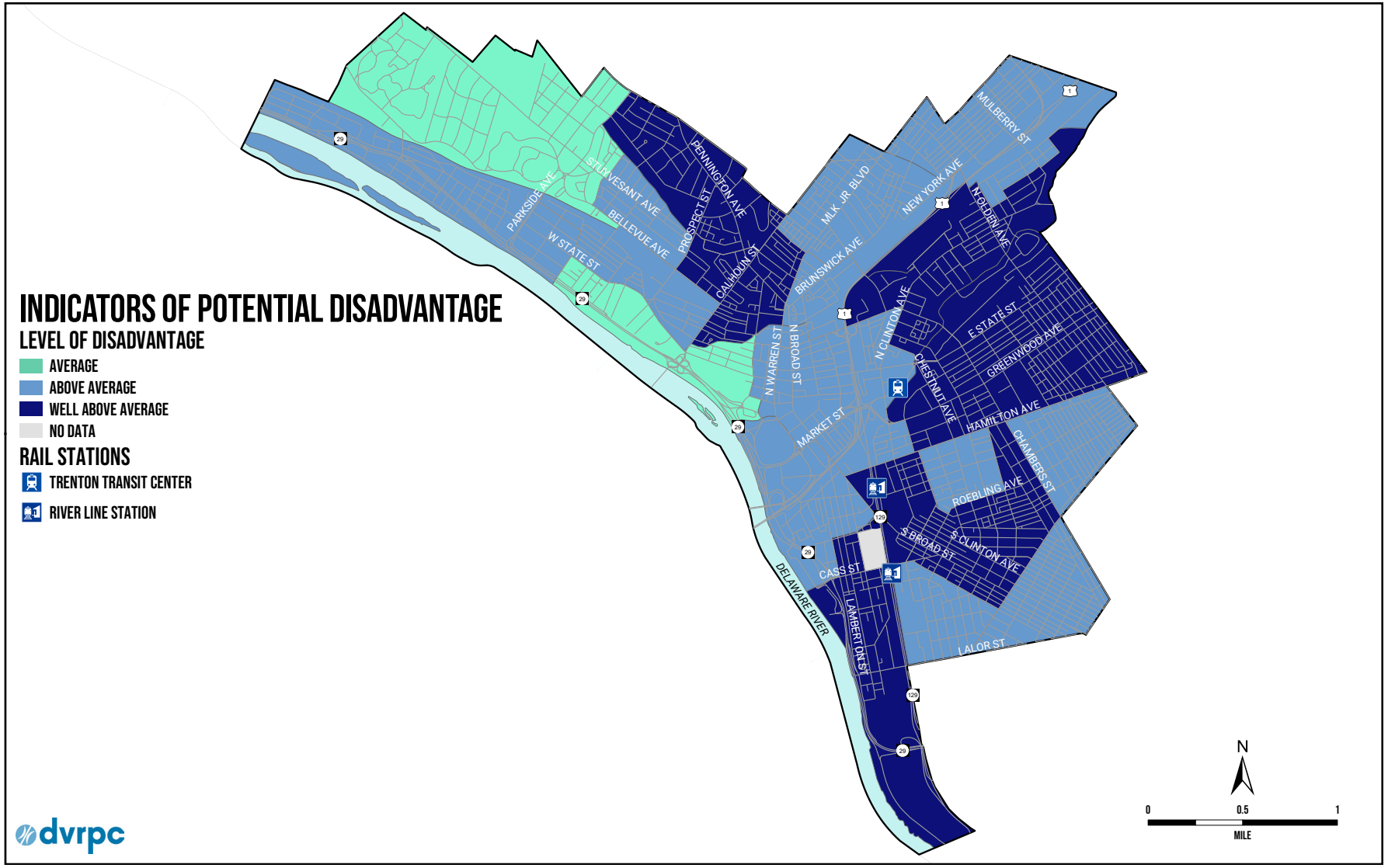
Source: DVRPC and NJ TRANSIT (2024)

Figure A-3: Complete Streets Typologies



Source: DVRPC and NJ TRANSIT (2024)

Figure A-4: Indicators of Potential Disadvantage



Source: DVRPC and NJ TRANSIT (2024)


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

APPENDIX B:

PUBLIC SURVEY AND FINDINGS

Figure B-1: Non-Cyclist Survey

Non-cyclist Survey
2022

When was the last time you rode a bike?

- ☐ Within the last month
- ☐ Within the last 6 months
- ☐ Over 6 months ago
- ☐ I have never ridden a bike in the City

1. How are you connected to the City of Trenton? (select all that apply)

- ☐ I live in Trenton
- ☐ I work in Trenton
- ☐ I attend school in Trenton
- ☐ I visit Trenton (cultural amenities, hobbies/interest, family/friends, etc)
- ☐ I own a business in Trenton
- ☐ Other: _____

2. Which of these modes of your transportation do you use three or more times per week? (select all that apply)

- ☐ Public transit (NJ Transit, SEPTA)
- ☐ Bicycle
- ☐ Walking
- ☐ Driving Alone
- ☐ Carpooling
- ☐ Ride-share (Uber, Lyft, taxi)
- ☐ Other: _____

3. Do you have access to a bike?

- ☐ Yes
- ☐ No

4. How do you feel about the following statement?
"I am willing to be mildly inconvenienced as a motorist to improve safety conditions for bicyclists in Trenton."

Strongly Disgree ***Disagree*** ***Neutral*** ***Agree*** ***Strongly Agree***

5. On a scale of 1-5, how likely are the following to prevent you from biking?

Personal Safety Concerns
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Traffic Safety Concerns
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Cost of purchasing a bike
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

The way biking is perceived by others
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Need to travel with others (e.g. children, parents)
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Inability to run certain errands (e.g. grocery store)
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Lack of dedicated bike facilities or routes
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

Lack of space to store bike
1** (Very Unlikely)* ***2 ***3*** ***4*** ***5** (Very likely)*

DEMOGRAPHICS

DVRPC's public outreach process will ideally represent the residents of Trenton, NJ by geographic and demographic diversity. Please help us understand who is responding to this survey by sharing some of your demographic characteristics.

6. Are you of Spanish/Hispanic/Latino origin? Yes No

7. How would you describe yourself? (please select all that apply)

- □ Asian or Pacific Islander
- □ White
- □ Other: _____
- □ Black or African American
- □ American Indian, Native American, or Alaskan Native

8. What is your age? Under 18 18-34 35-44 45-54 55-64 65-74 75+

9. What is your annual household income?

- □ Less than $20,000
- □ $20,000 to $40,000
- □ $40,000 to $60,000
- □ $60,000 to $80,000
- □ $80,000 to $100,000
- □ $100,000 +

10. What is your gender? _____ **11. What is your zip code?** _____

If interested in receiving updates about this project, please provide your email address:

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related nondiscrimination mandates in all activities. For more information about DVRPC's Title VI Program or to obtain a Title VI Complaint Form, visit www.dvrpc.org.GetInvolved/TitleVI, call (215) 592-1800, or email public_affairs@dvrpc.org.

Source: DVRPC (2023)

Figure B-2: Cyclist Survey

OUR STREETS
A TRENTON BIKE PLAN FOR ALL

Cyclist Survey 2022

When was the last time you rode a bike?

- ☐ Within the last month
- ☐ Within the last 6 months
- ☐ Over 6 months ago
- ☐ I have never ridden a bike in the City

1. How are you connected ot the City of Trenton? (select all that apply)

- ☐ I live in Trenton
- ☐ I work in Trenton
- ☐ I attend school in Trenton
- ☐ I visit Trenton (cultural amenities, hobbies/interest, family/friends, etc)
- ☐ I own a business in Trenton
- ☐ Other: _____

2. Which of these modes of your transportation do you use three or more times per week? (select all that apply)

- ☐ Public transit (NJ Transit, SEPTA)
- ☐ Bicycle
- ☐ Walking
- ☐ Driving Alone
- ☐ Carpooling
- ☐ Ride-share (Uber, Lyft, taxi)
- ☐ Other: _____

3. Which of the following are reasons you bike? (select all that apply)

- ☐ Go to/from work
- ☐ Go to/from school
- ☐ Recreational/Exercise
- ☐ Shopping/Errands
- ☐ Visiting family or friends
- ☐ Don't own a car
- ☐ Other: _____

4. What are the three places you bike to most often?

5. How often do you bike on average?

- ☐ Often (4+ times per week)
- ☐ Sometimes (1-3 times per week)
- ☐ Occasionally (1-3 times per month)
- ☐ Seldom (less than once per month)
- ☐ Never

6. How do you feel about the following statements:

"I feel safe and comfortable riding my bike in Trenton with the current routes and facilities"

Strongly Disagree ***Disagree*** ***Neutral*** ***Agree*** ***Strongly Agree***

"I am willing to be mildly inconvenienced as a motorist to improve safety conditions for bicyclists in Trenton."

Strongly Disagree ***Disagree*** ***Neutral*** ***Agree*** ***Strongly Agree***

8. On a scale of 1-5, how likely would you be to complete more trips on a bicycle with the following?

More enforcement of traffic laws
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Infrastructure to prevent aggressive driving (e.g. speed bumps, curb extensions, etc.)
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Protected bike lanes (protection may include curb, parking lanes, and/or delineators)
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Standard bike lanes
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

More connected bicycle network
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Safer and more frequent crossings & intersections
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

More lighting on roadways
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Better conditions of roadways (e.g. fewer potholes, debris, or snow)
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

Increased connections with transit facilities (i.e. NJTransit, SEPTA)
***1** (Very Unlikely)* **2** **3** **4** ***5** (Very likely)*

DEMOGRAPHICS

DVRPC's public outreach process will ideally represent the residents of Trenton, NJ by geographic and demographic diversity. Please help us understand who is responding to this survey by sharing some of your demographic characteristics.

9. Are you of Spanish/Hispanic/Latino origin? Yes No

10. How would you describe yourself? (please select all that apply)

- ☐ Asian or Pacific Islander
- ☐ White
- ☐ Other: _____
- ☐ Black or African American
- ☐ American Indian, Native American, or Alaskan Native

11. What is your age? Under 18 18-34 35-44 45-54 55-64 65-74 75+

12. What is your annual household income?

- ☐ Less than $20,000
- ☐ $20,000 to $40,000
- ☐ $40,000 to $60,000
- ☐ $60,000 to $80,000
- ☐ $80,000 to $100,000
- ☐ $100,000 +

13. What is your gender? _____ **14. What is your zip code?** _____

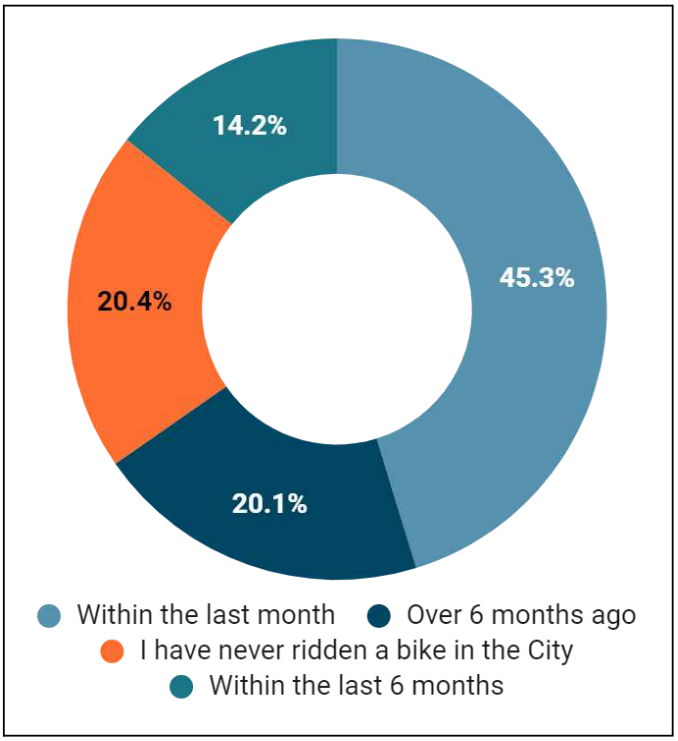
If interested in receiving updates about this project, please provide your email address:

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related nondiscrimination mandates in all activities. For more information about DVRPC's Title VI Program or to obtain a Title VI Complaint Form, visit www.dvrpc.org.GetInvolved/TitleVI, call (215) 592-1800, or email public_affairs@dvrpc.org.

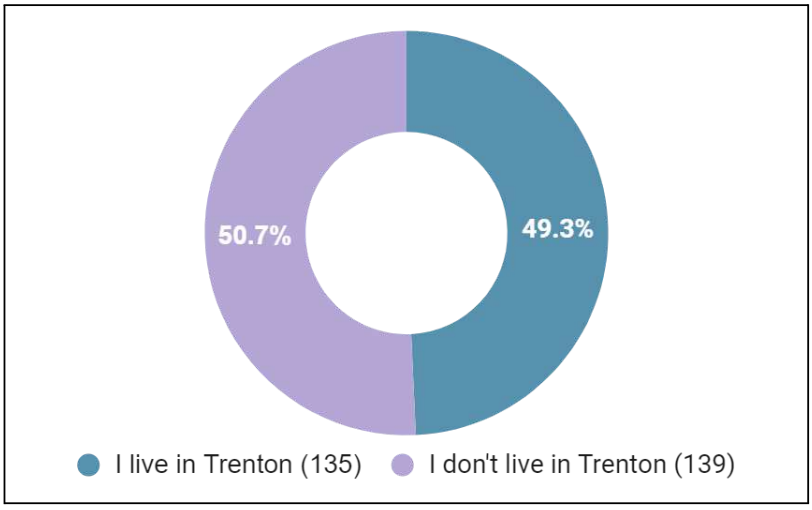
Source: DVRPC (2023)

Figure B-3: Survey Findings (All Respondents)

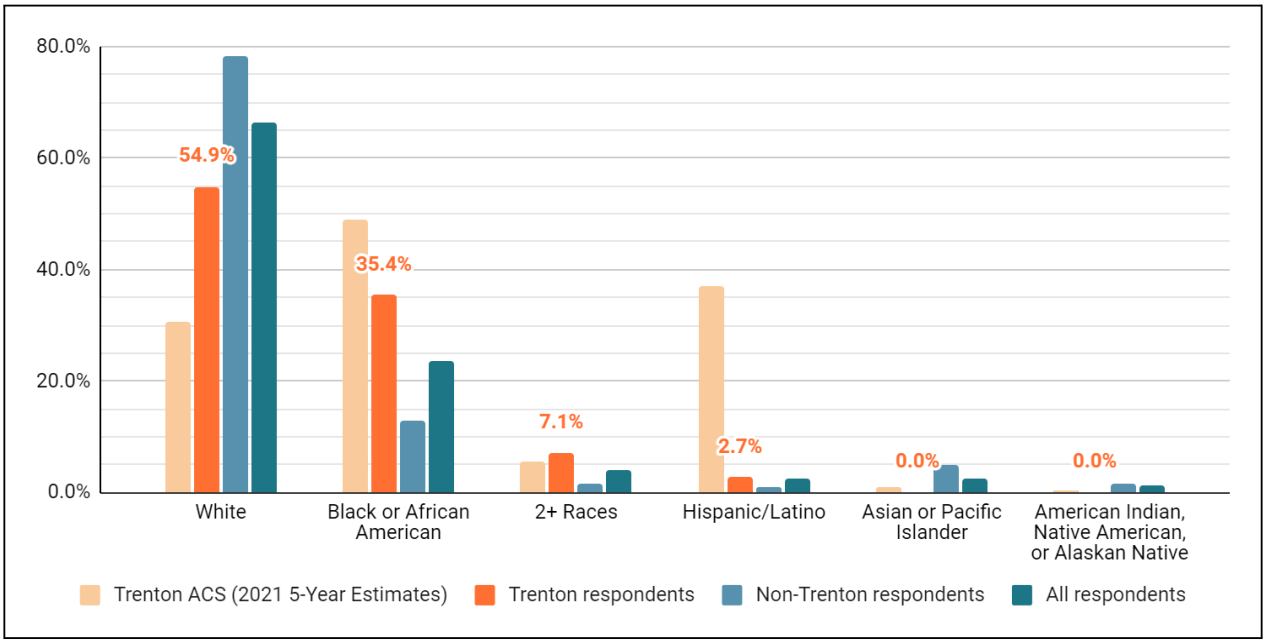
Question: When was the last time you rode a bike?
Responses: 274



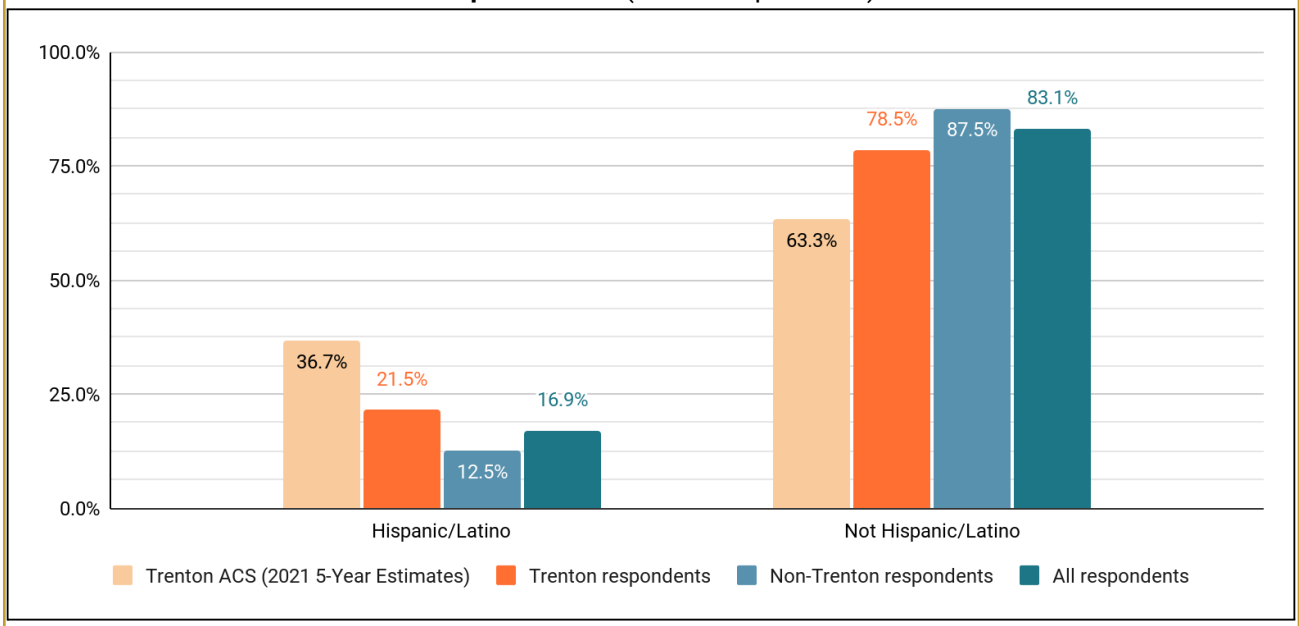
Question: How are you connected to the City of Trenton?
Responses: 274



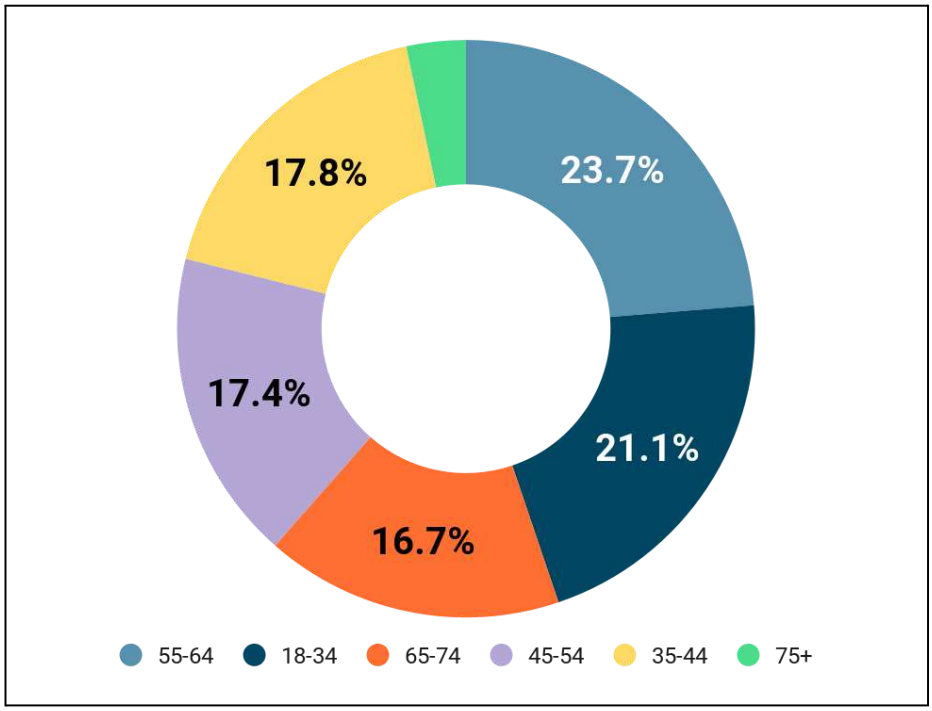
Question: How would you describe yourself? (Select all that apply)
Responses: 243 (of 274 respondents)



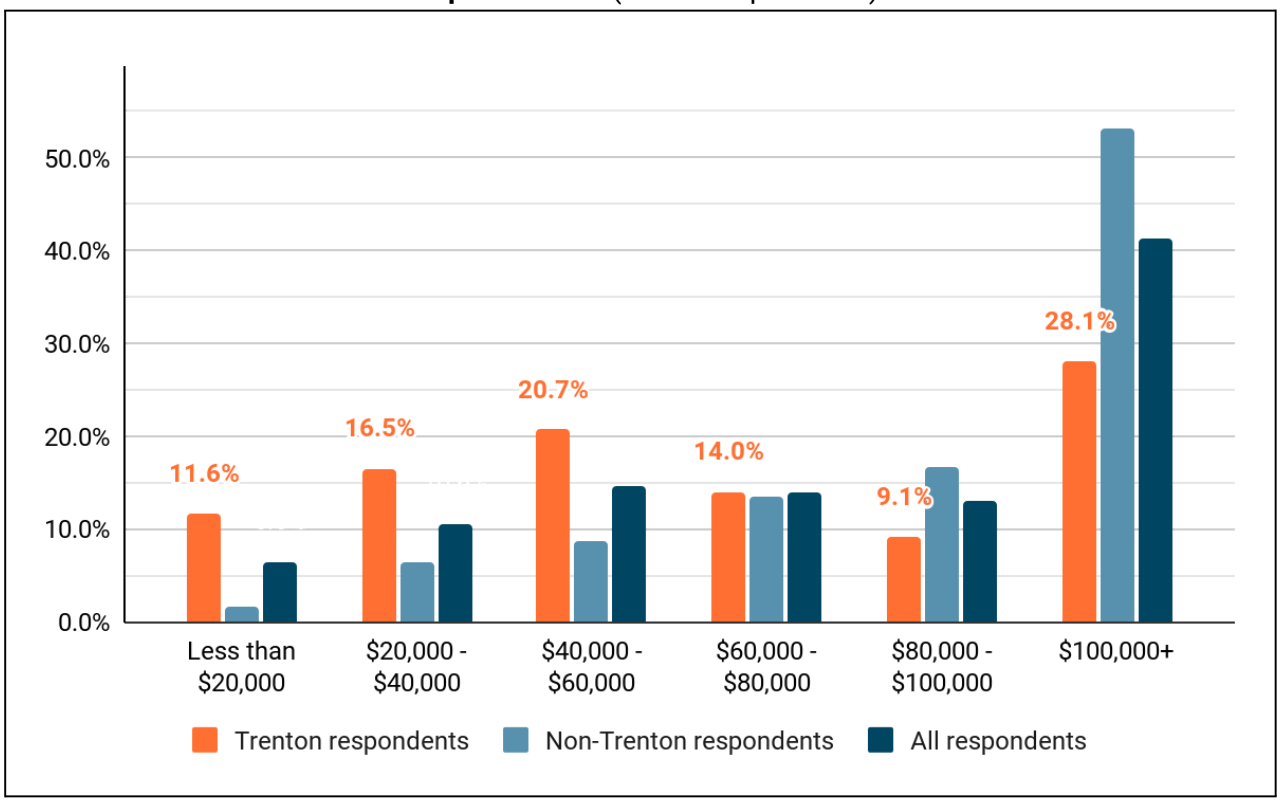
Question: Are you of Spanish/Hispanic/Latino origin?
Responses: 266 (of 274 respondents)



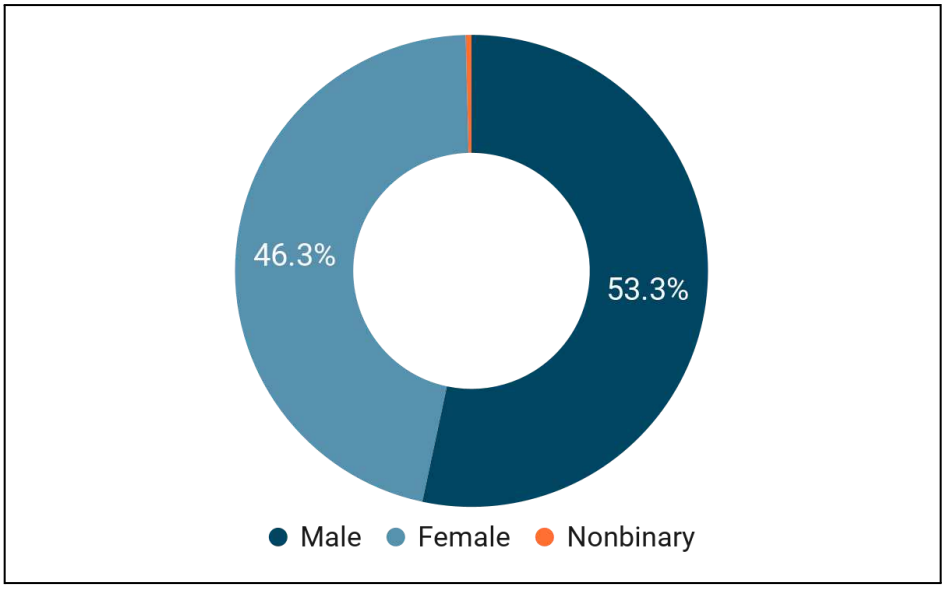
Question: What is your age?
Responses: 270 (of 274 respondents)



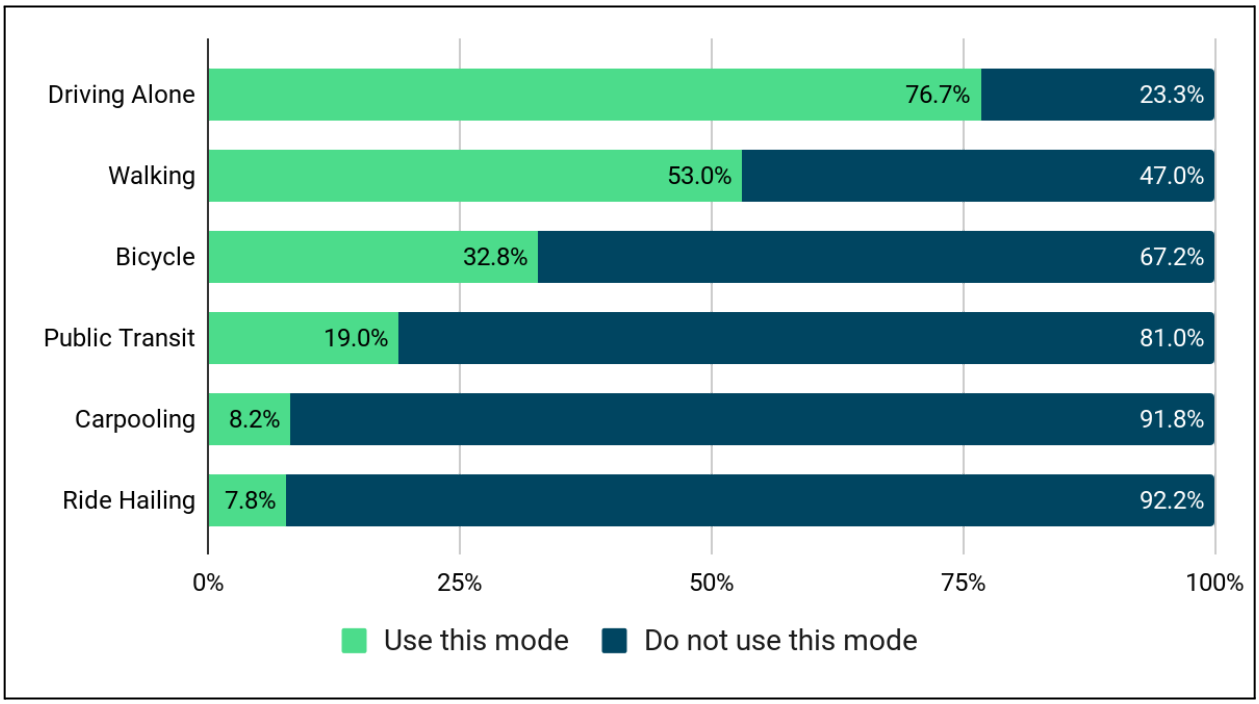
Question: What is your annual household income?
Responses: 245 (of 274 respondents)



Question: What is your gender?
Responses: 255 (of 274 respondents)

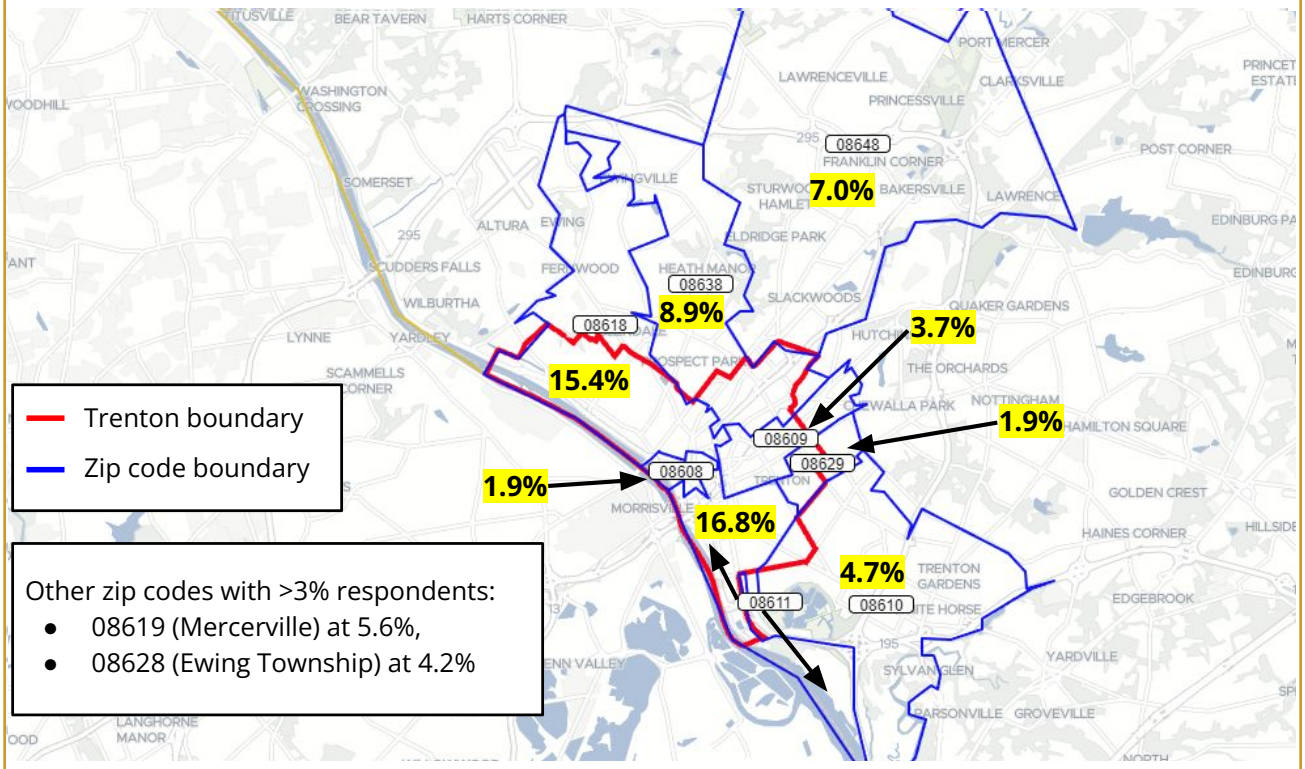


Question: Which of these modes of transportation do you use three or more times per week? (Select all that apply)
Responses: 245 (of 274 respondents)



Source: DVRPC (2023)

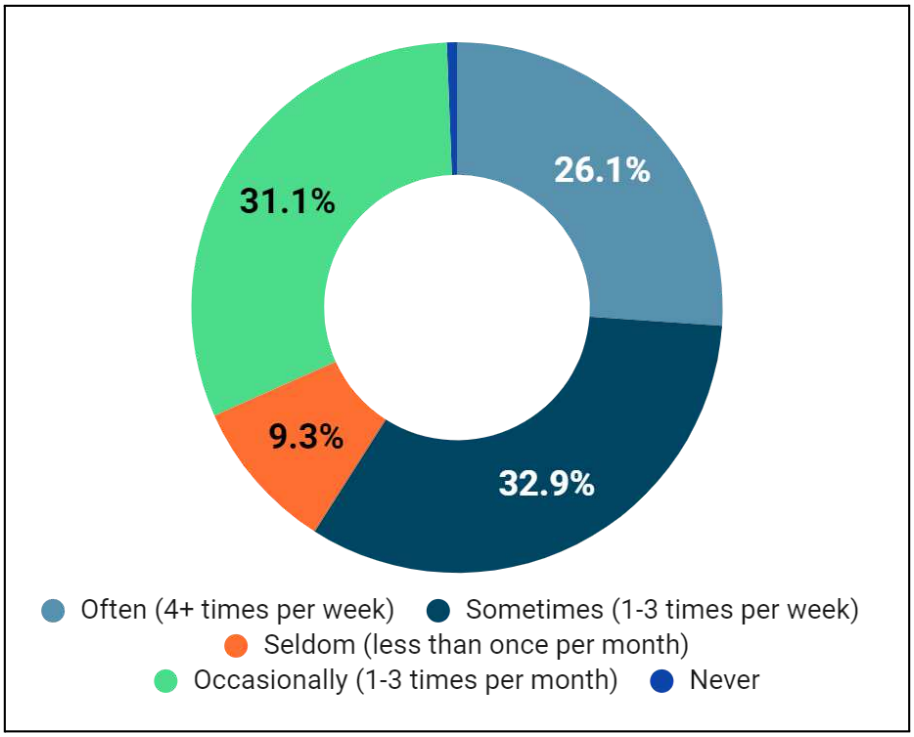
Question: What is your zip code?



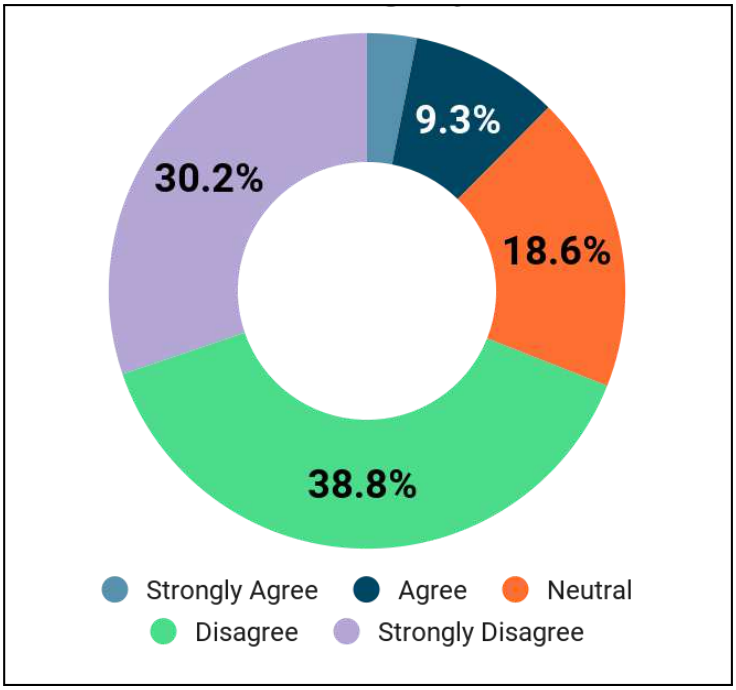
Source: DVRPC (2023)

Figure B-4: Survey Findings (Cyclist Respondents)

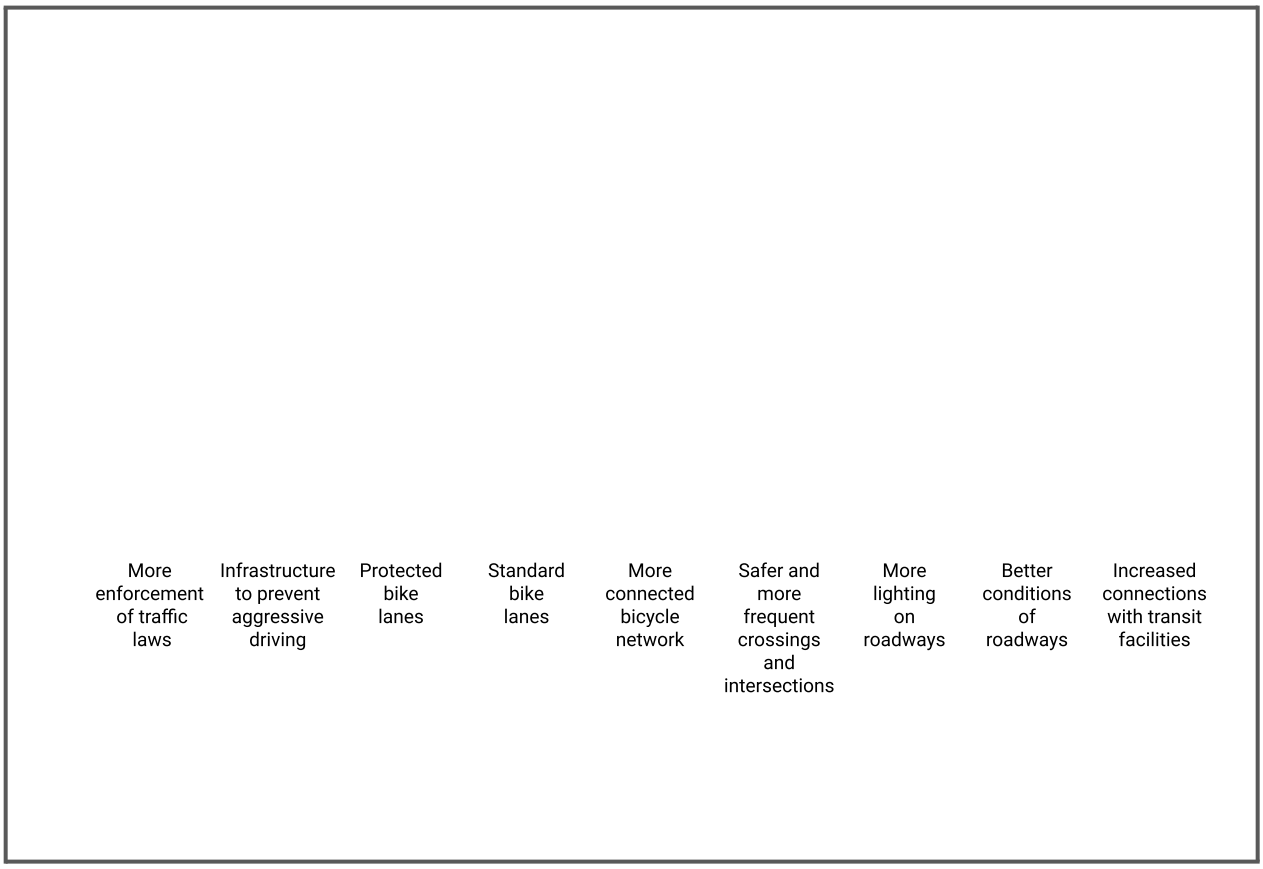
Question: How often do you bike on average?
Responses: 161 (of 162 cyclists)



Question: How do you feel about the following statement, "I feel safe and comfortable riding my bike in Trenton with the current routes and facilities."
Responses: 161 (of 162 cyclists)



Question: On a scale of 1-5, how likely would you be to complete more trips on a bicycle with the following?
Responses: 162



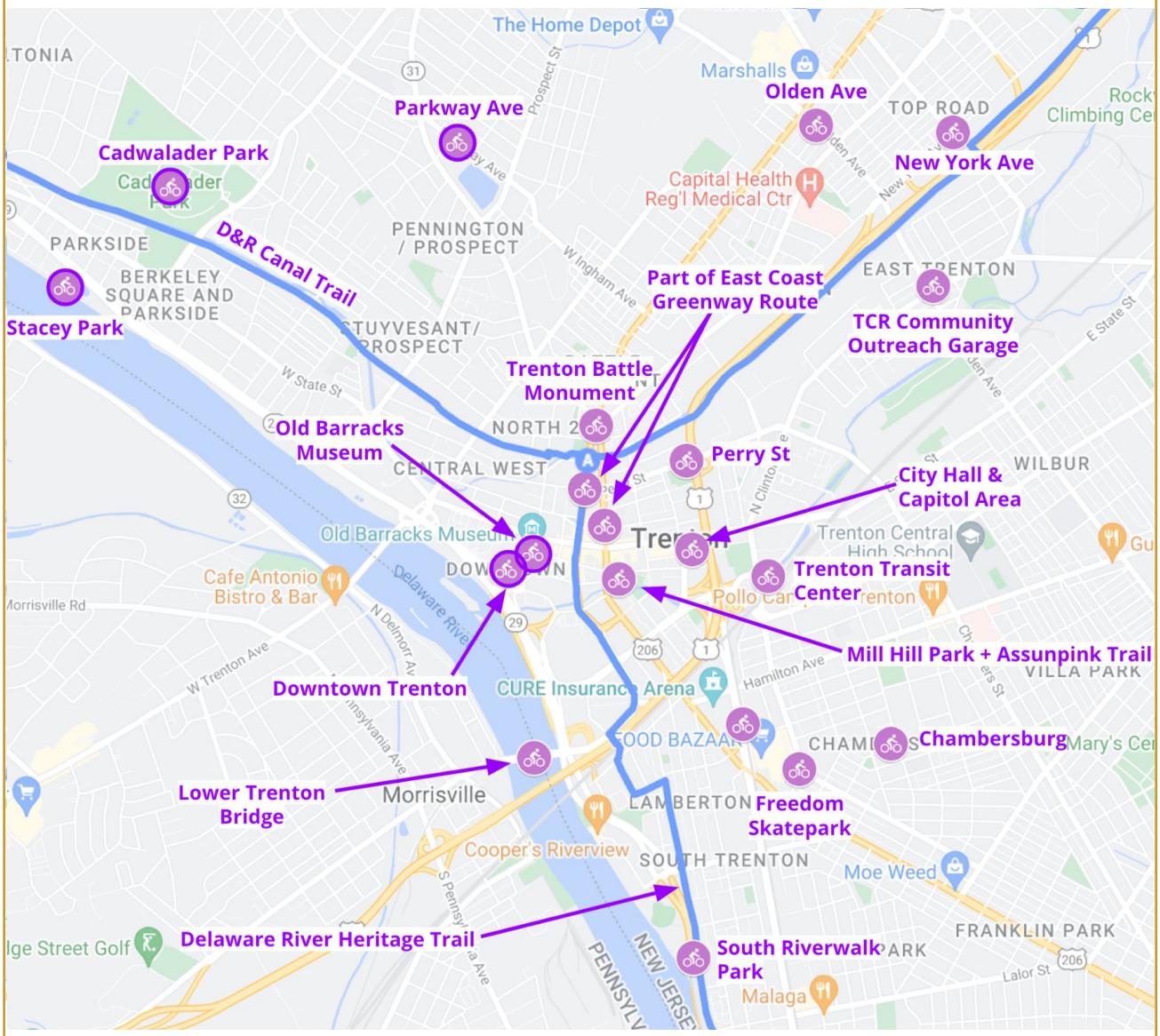
Impactful Investments:

- Protected bike lanes (141 marked likely or very likely).
- More connected bicycle network (137 marked likely or very likely).
- Trenton cyclists want better condition of roadways (61 marked likely or very likely).

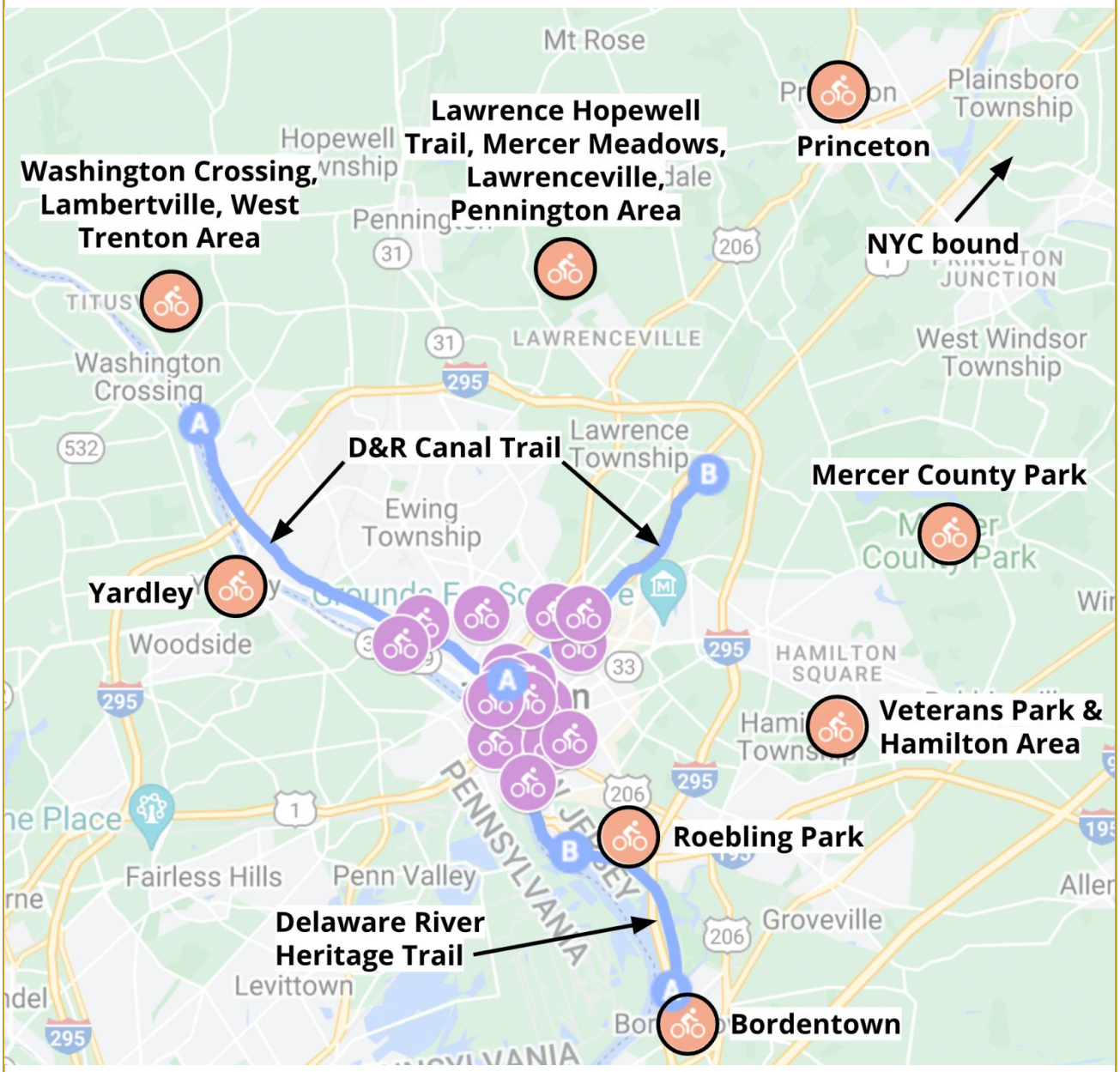
Least Impactful Investments:

- More enforcement of traffic laws (86 marked likely or very likely).
- Increased connections with transit facilities (93 marked likely or very likely).

Question: What are three places you bike to most often? *(Destinations within City of Trenton)*

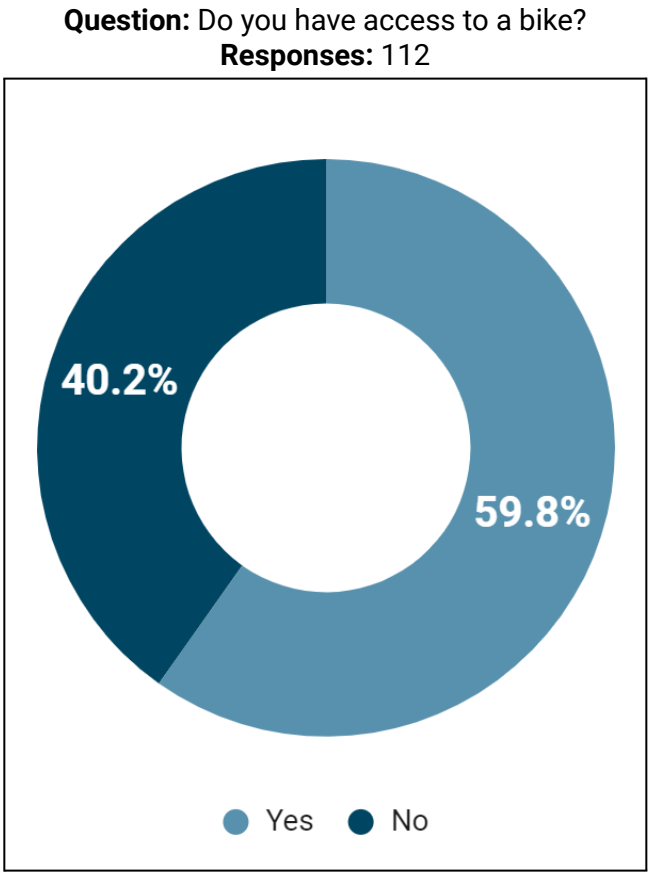


Question: What are three places you bike to most often? *(Destinations outside City of Trenton)*

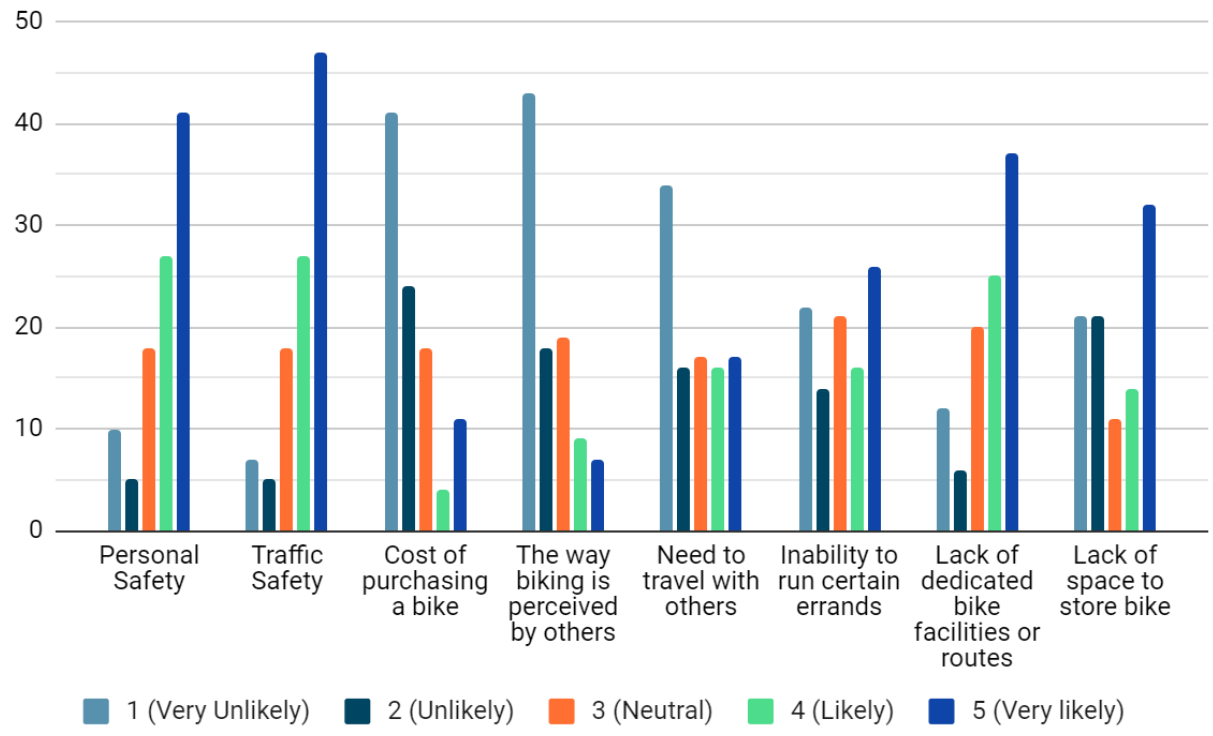


Source: DVRPC (2023)

Figure B-5: Survey Findings (Non-Cyclist Respondents)



Question: On a scale of 1-5, how likely are the following to prevent you from biking?
Responses: 112



Impactful Barriers:

- Traffic Safety (74 marked likely or very likely)
- Personal Safety (68 marked likely or very likely)

Least Impactful Barriers:

- Cost of purchasing a bike (15 marked likely or very likely)
- The way others perceive biking (16 marked likely or very likely)

Source: DVRPC (2023)


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

APPENDIX C:

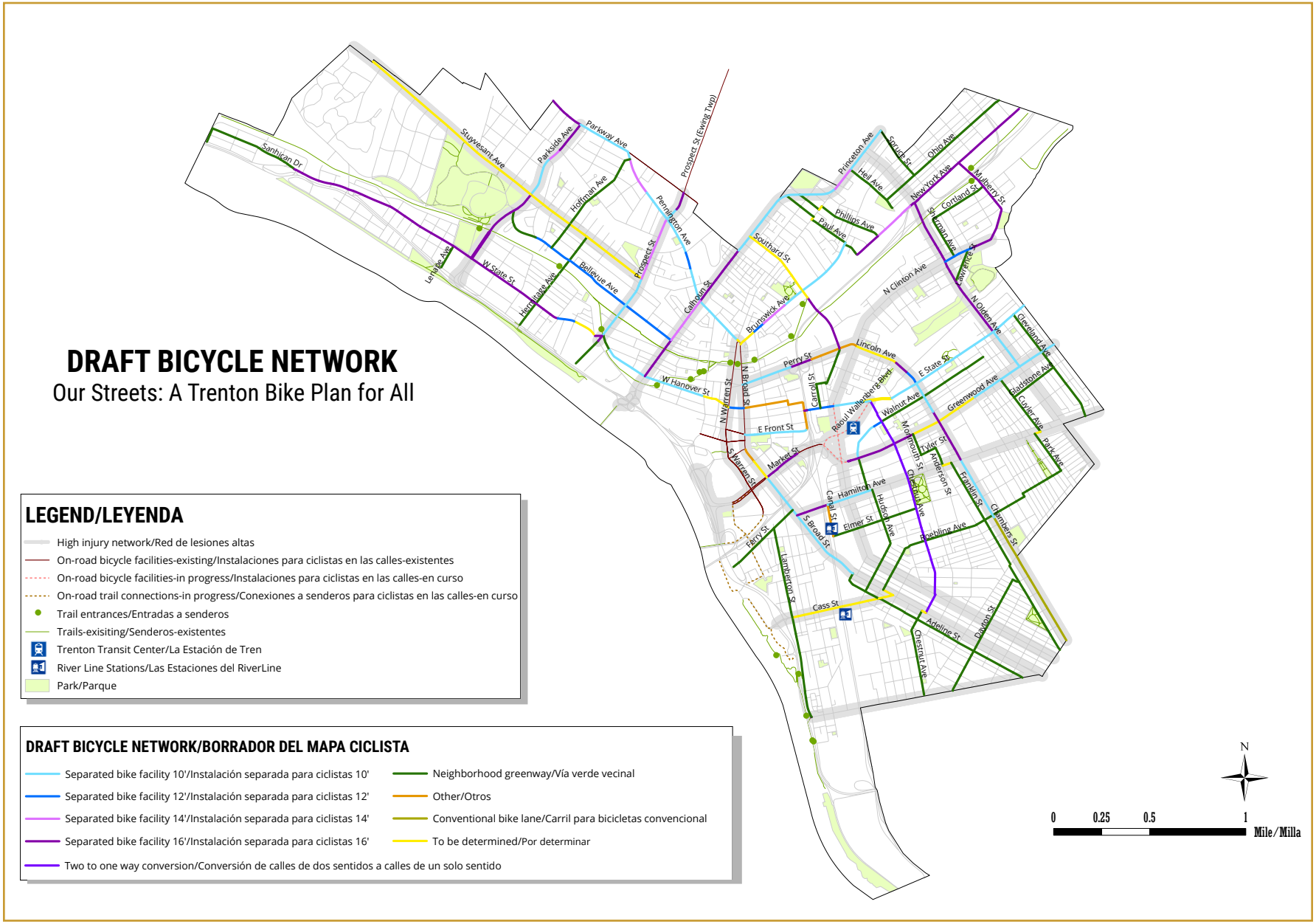
PUBLIC ENGAGEMENT EVENT OUTREACH & MATERIALS

Event Flier Outreach and Distribution Summary

The project team contacted many organizations and individuals to invite them and their members to the *Our Streets: A Trenton Bike Plan for All* public engagement events. Organizations that the project team was able to connect with received a promotional toolkit and printed fliers to help spread the word about the events. Organizations and individuals the team reached out to are listed below:

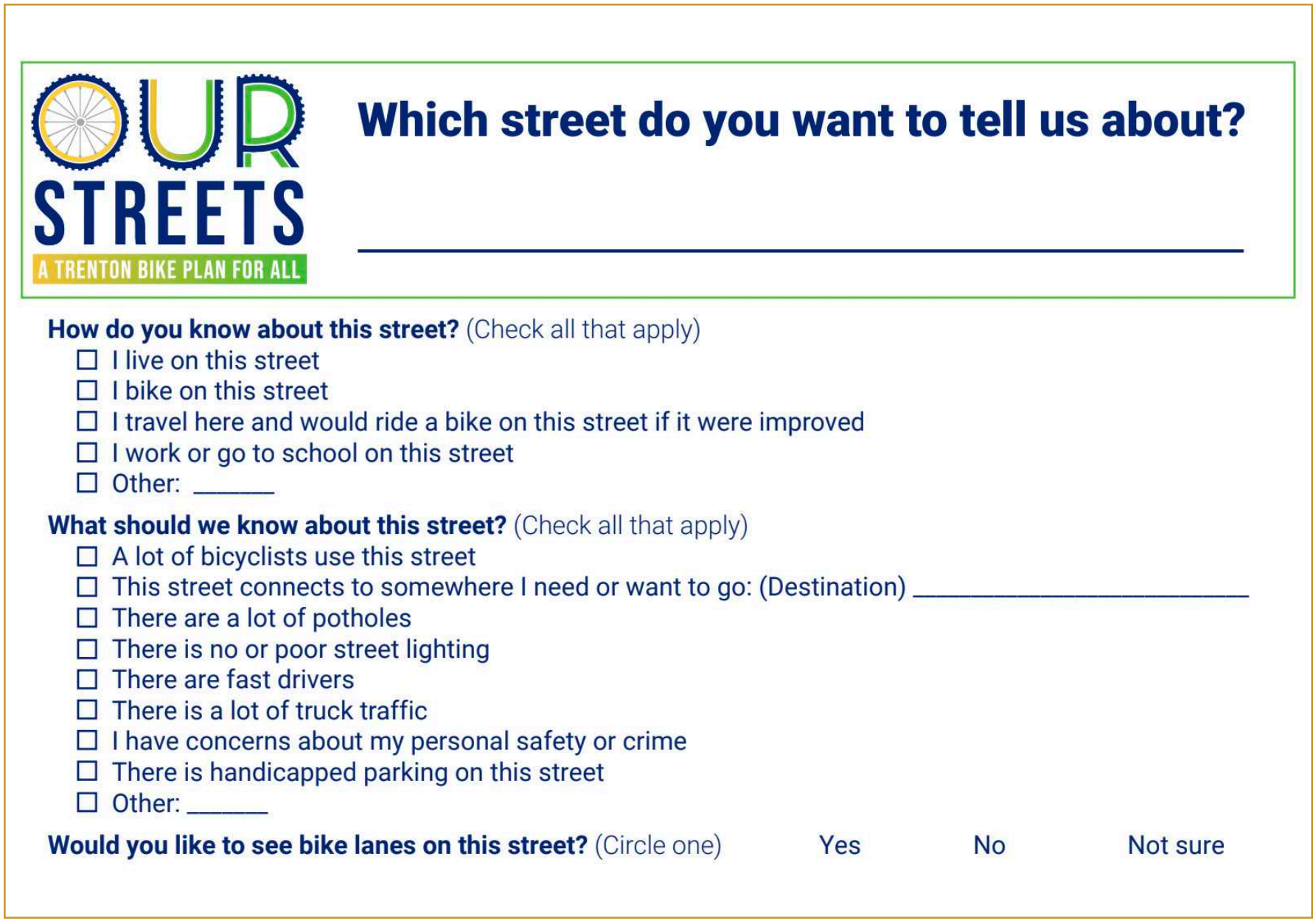
- Trenton Councilmembers
  - Teska Frisby (West Ward)
  - Joseph Harrison (East Ward)
  - Jennifer Williams (North Ward)
  - Crystal Feliciano (Councilwoman at Large)
- Latin American Legal Defense and Education Fund
- Trenton Cycling Revolution
- Artworks Trenton
- Trenton Health Team Community Advisory Board
- Capital City Community Coalition (4Cs)
- Trenton365 and HUB-13
- East Trenton Collaborative
- Darlene C. McKnight Elementary School
- El Centro - Catholic Charities Diocese of Trenton
- Freedom Skatepark
- Civic Associations in Trenton
- Puerto Rican Community Center
- Latino Merchants Association
- One Up One Down Coffee Roastery
- Pentecostal Church Assembly of God
- Shiloh Baptist Church
- Westminster Presbyterian Church
- East Coast Greenway
- Isles, Inc.
- Greater Mercer Transportation Management Association
- Greater Philadelphia Bicycle Coalition
- Lawrence Hopewell Trail
- The College of New Jersey (TCNJ)
- The HUT Community App (administered by Legacy International Foundation for Education)
- Trenton Downtown Association
- AARP
- School District of Trenton
- DVRPC's Public Participation Task Force members who live or work in the Trenton area

Figure C-1: Draft Bike Network Map from 05/07/2023



Source: DVRPC (2023)

Figure C-2: Trenton Streets Questionnaire



OUR STREETS
A TRENTON BIKE PLAN FOR ALL

Which street do you want to tell us about?

_____

How do you know about this street? (Check all that apply)

- ☐ I live on this street
- ☐ I bike on this street
- ☐ I travel here and would ride a bike on this street if it were improved
- ☐ I work or go to school on this street
- ☐ Other: _____

What should we know about this street? (Check all that apply)

- ☐ A lot of bicyclists use this street
- ☐ This street connects to somewhere I need or want to go: (Destination) _____
- ☐ There are a lot of potholes
- ☐ There is no or poor street lighting
- ☐ There are fast drivers
- ☐ There is a lot of truck traffic
- ☐ I have concerns about my personal safety or crime
- ☐ There is handicapped parking on this street
- ☐ Other: _____

Would you like to see bike lanes on this street? (Circle one) Yes No Not sure

Source: DVRPC (2023); see Table C-1 for select responses

Figure C-3: Bike Routes Questionnaire (Cyclists Only)

Source: DVRPC (2023); see Table C-1 for select responses

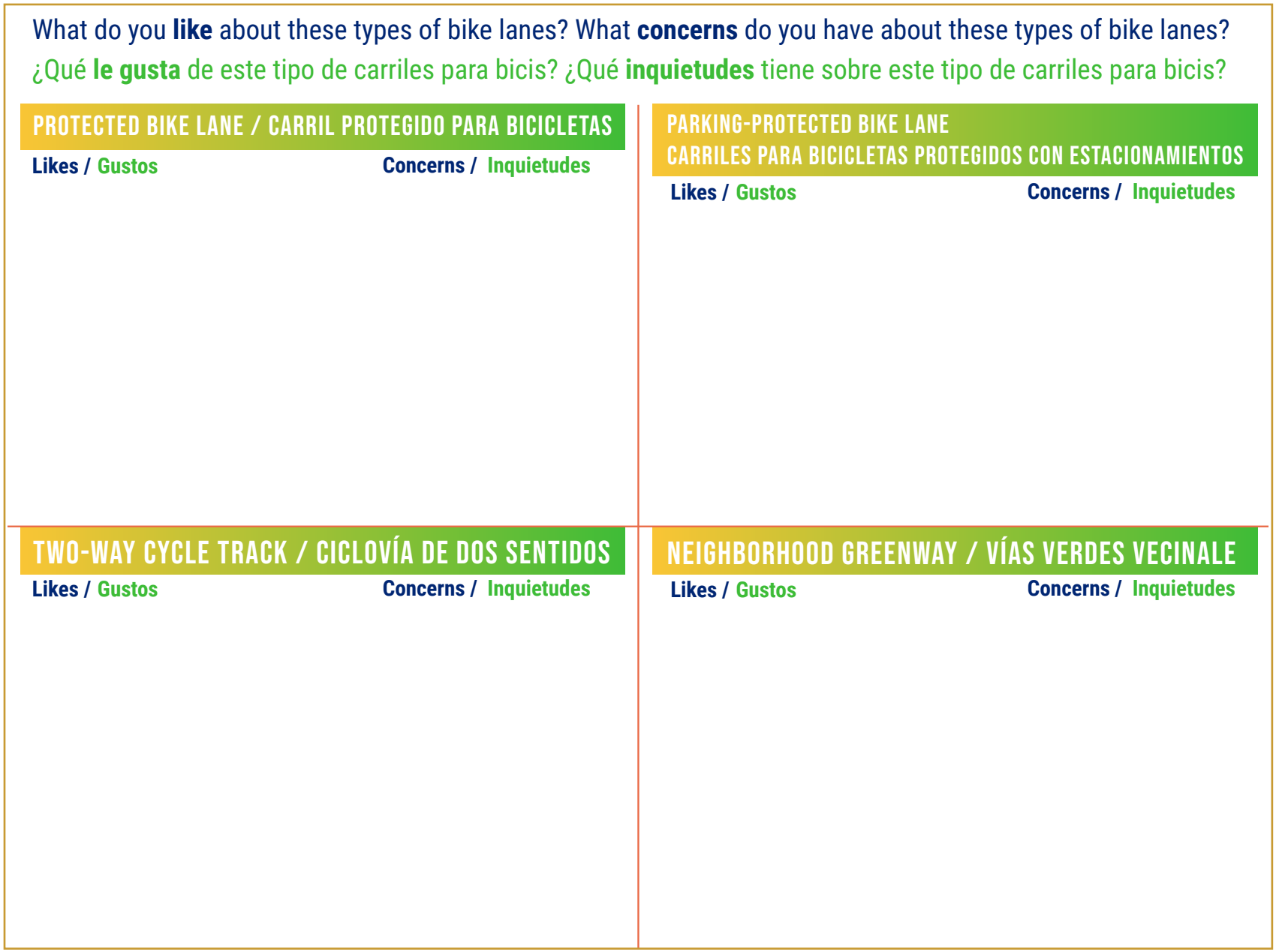
Table C-1: Most Mentioned Streets on Questionnaires

Street Name	Number of Mentions on Trenton Bike Routes Questionnaire	Number of Mentions on Trenton Streets Questionnaire*	Total Mentions	Responses to "Would you like to see bike lanes on this street?"		
				Yes (%)	No	Not Sure or N/A
State Street (E. and W.)	12	8	20	11 (55%)	1 (5%)	8 (40%)
Chestnut Avenue	9	4	13	9 (69%)	0	4 (31%)
Hamilton Avenue	8	1	9	8 (89%)	0	1 (11%)
Emory Avenue	2	5	7	6 (86%)	0	1 (14%)
Broad Street	6	1	7	4 (57%)	0	3 (43%)
Greenwood Avenue	3	3	6	6 (100%)	0	0
Clinton Avenue	5	1	6	4 (67%)	0	2 (33%)
Stuyvesant Avenue	5	1	6	6 (100%)	0	0
Calhoun Street	5	0	5	2 (40%)	0	3 (60%)
Warren Street**	3	1	4	1 (40%)	2 (50%)	1 (25%)
Parkside Avenue	4	0	4	4 (100%)	0	0

**Trenton streets questionnaire was not distributed at the third event.*
***Warren Street already has bike lanes installed.*

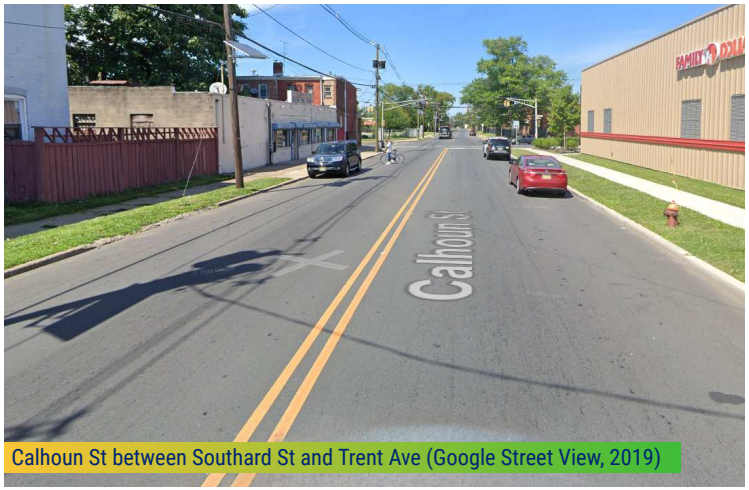
Source: DVRPC (2023); see Figures C-2 and C-3 for Trenton Streets Questionnaire and Trenton Bike Routes Questionnaire

Figure C-4: Bike Facility Likes and Concerns



Source: DVRPC (2023)

Figure C-5: Two-Sided to One-Sided Parking



Calhoun St between Southard St and Trent Ave (Google Street View, 2019)

Stuyvesant Ave between Laurel Ave and Whittier Ave (Google Street View, 2019)

On some streets, not all parking spaces are used.

En algunas calles no se utilizan todos los espacios de estacionamiento.

In order to fit bike lanes on narrow streets, for a few months, are you willing to try changing street parking from parking on two sides of the street to street parking on one side of the street? Why or why not?

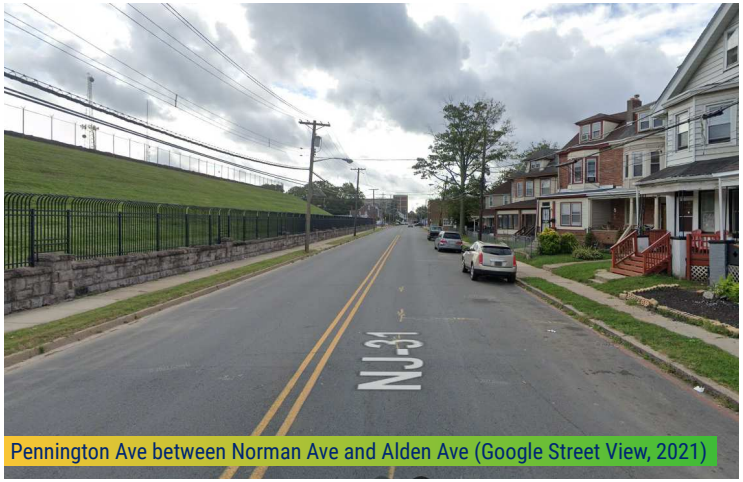
Para colocar carriles para bicicleta en calles estrechas, ¿estaría dispuesto a probar el cambio del estacionamiento en ambos lados de la calle a un solo lado de la calle por unos meses? ¿Por qué, o por qué no?

On which streets? ¿En cuáles calles?

Source: DVRPC (2023)

Figure C-6: Parking Removal

Hamilton Ave between Broad St and S Clinton Ave (Google Street View, 2022)



Pennington Ave between Norman Ave and Alden Ave (Google Street View, 2021)

On some streets, not all parking spaces are used.

En algunas calles no se utilizan todos los espacios de estacionamiento.

In order to fit bike lanes on narrow streets, are you willing to try removing street parking for a few months? Why or why not?

Para colocar carriles para bicicleta en calles estrechas, ¿estaría dispuesto a probar la eliminación del estacionamiento en las calles por unos meses? ¿Por qué, o por qué no?

On which streets? ¿En cuáles calles?

Source: DVRPC (2023)

Figure C-7: Two-Way Street to One-Way Street

Chestnut Ave between Roebling Ave and Emory Ave (Google Street View, 2022)

One-way street with two-way cycle track (Made with 3D Street Editor)

Chestnut Ave, a two-way street, is proposed to be changed to a one-way street with a two-way cycle track or protected bike lanes.

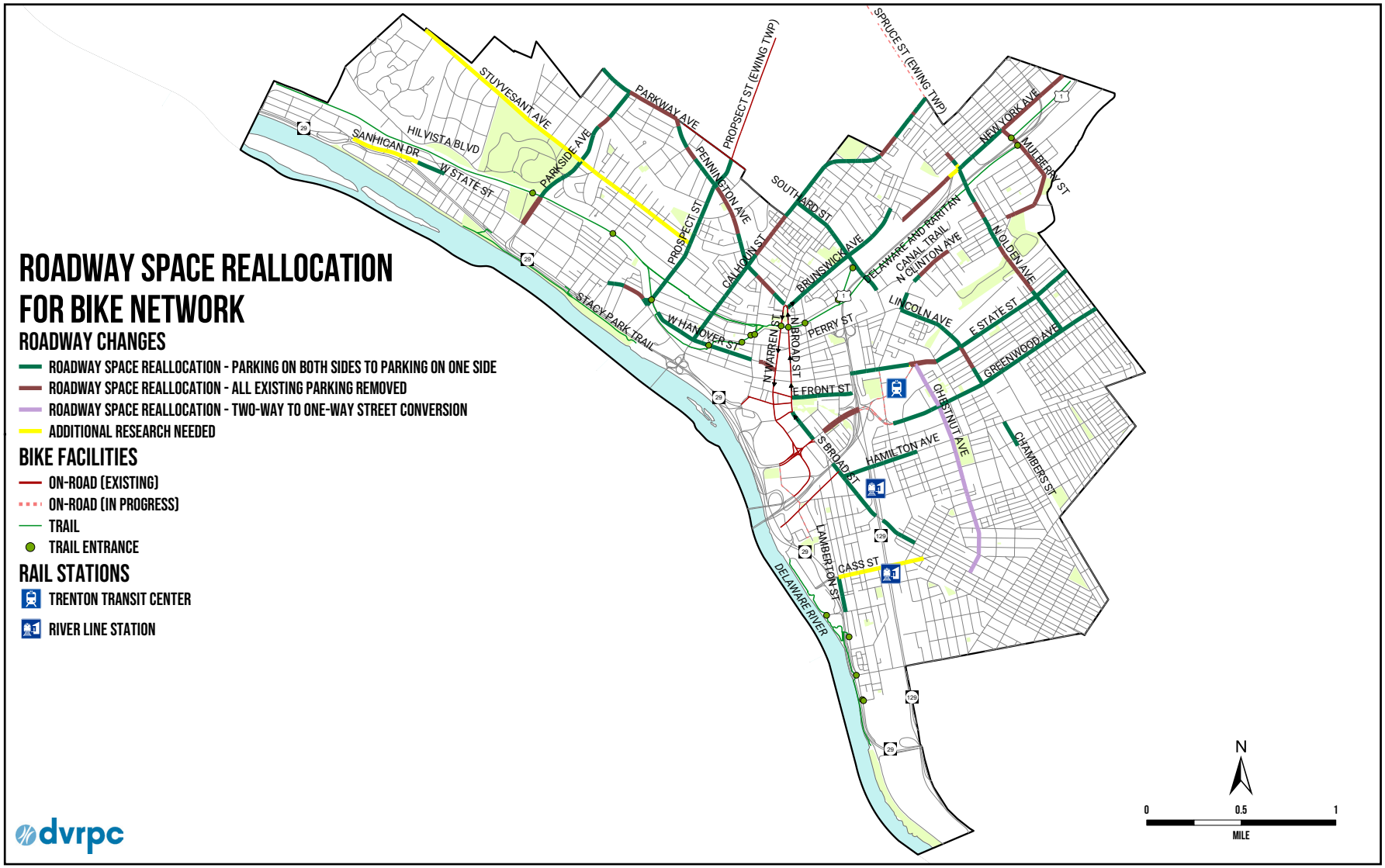
Se propone cambiar Chestnut Ave, una calle de dos sentidos, a una calle de un solo sentido con carriles para bicicletas protegidos o una ciclovía de dos sentidos.

In order to fit bike lanes on narrow streets, for a few months, are you willing to try changing certain streets from a two-way street to one-way street? Why or why not?

Para colocar carriles para bicicleta en calles estrechas, ¿estaría dispuesto a probar en esas calles el cambio de una calle de dos sentidos a un solo sentido por unos meses? ¿Por qué, o por qué no?

Source: DVRPC (2023)

Figure C-8: Roadway Space Reallocation for Bike Network



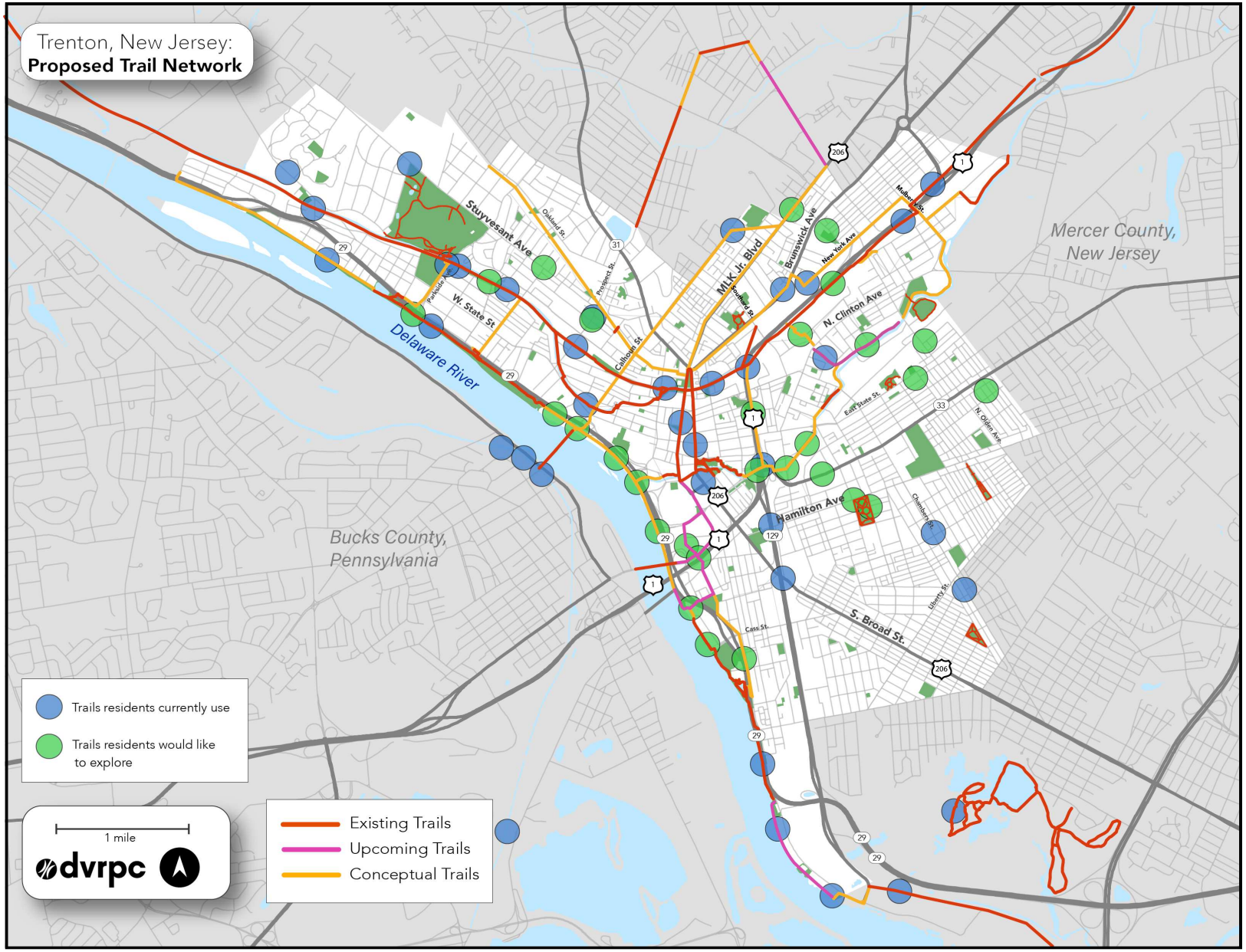
Source: DVRPC (2023); see proposed street changes in Figures C-5, C-6, and C-7

Table C-2: Priority Streets for Bike Network Implementation

Street Name	Sticky Dot Score			Weighted Score
	1 (3 points)	2 (2 points)	3 (1 point)	
N. Olden Avenue	6	3	3	27
Stuyvesant Avenue	3	1	1	12
Chestnut Avenue	2	1	1	9
W. State Street	3			9
S. Broad Street	1	2	1	8
New York Avenue		2	2	6
Parkside Avenue		2	2	6
Walnut Avenue	2			6
Calhoun Street	1		2	5
Hamilton Avenue	1	1		5
Market Street	1	1		5
Cass Street	1		1	4
Livingston Street	1		1	4
Prospect Street	1		1	4
S. Clinton Avenue		2		4
W. Hanover Street		2		4
Chambers Street		1	1	4
Hudson Avenue	1			3
McKinley Avenue	1			3
N. Clinton Avenue		1	1	3
Pennington Avenue	1			3
Perry Street		1	1	3
Willow Street	1			3
Bellevue Avenue		1		2
Brunswick Avenue			2	2
N. Broad Street		1		2
Princeton Avenue		1		2
Steel Street		1		2
Cortland Street			1	1
Martin Luther King Jr. Boulevard			1	1
Trenton Central High School			1	1

Source: DVRPC (2023); see Chapter 3 for Prioritization Map

Figure C-9: Trenton Proposed Trail Network



Source: DVRPC (2023); see Chapter 3 for more details about *Trenton Trails Plan* feedback

The *Trenton Trails Plan* team received the following feedback from *Our Streets* event attendees.

Attendees indicated that they currently use the following trails most frequently:

- The Delaware and Raritan (D&R) Canal Trail (all existing segments)
- The Delaware River Heritage Trail (all existing segments)
- The Trenton Wellness Loop

Attendees indicated that they would be likely to use the following future trails:

- The D&R Greenway Connector
- The Delaware River Heritage Trail (Marine Terminal Park to Lamberton Road segment)
- The Stacey Park Trail (Riverside Drive to Abernethy Drive segment and Trenton Water Works to Old Wharf Park segment)

When asked "Which amenities would make you feel more comfortable and safe on Trenton trails?," the most common attendee responses included:

- Increased lighting
- Regular trash pick-up
- Benches
- Water fountains
- Other trail users
- Trail maps and signage
- Security measures such as police patrol or cameras


BUS STOP
Internet
here
boostmobile
boost
FLIP OFF:

APPENDIX D:

EXAMPLES OF BIKE LANE BARRIERS

Figure D-1: Examples of Bike Lane Barriers

BIKE LANE BARRIERS

Inspired by: 14 Ways to Protect A Bike Lane by Green Lane Project (research by Nathan Wilkes, City of Austin)

ARMADILLOS
Recommended width (barrier + bike lane)
6.5 feet - 8 feet
Protection Level
1 **2** 3 4
Installation Cost
$ **$$** $$$ $$$$
Armadillo Lifespan
Short Term → Mid Term

PARKING PROTECTED*
Recommended width (barrier + bike lane)
14 feet - 16 feet
Protection Level
1 2 3 **4**
Installation Cost
$ **$$** $$$ $$$$
Delineator Lifespan
Short Term → Mid Term
**Shown with flexible delineators*

CAST IN PLACE CURB
Recommended width (barrier + bike lane)
6 feet - 8 feet
Protection Level
1 2 **3** 4
Installation Cost
$ $$ **$$$** $$$$
Curb Lifespan
Mid Term → Long Term

PARKING STOPS
Recommended width (barrier + bike lane)
5.5 feet - 8 feet
Protection Level
1 2 **3** 4
Installation Cost
$ $$ **$$$** $$$$
Parking Stop Lifespan
Short Term → Mid Term

CONCRETE BUTTONS
Recommended width (barrier + bike lane)
6.5 feet - 8 feet
Protection Level
1 **2** 3 4
Installation Cost
$ **$$** $$$ $$$$
Concrete Button Lifespan
Short Term → Mid Term

PLANTERS
Recommended width (barrier + bike lane)
8 feet plus the planter width
Protection Level
1 2 3 **4**
Installation Cost
$ $$ $$$ **$$$$**
Planter Lifespan
Pilot → Mid Term

CONCRETE JERSEY BARRIERS
Recommended width (barrier + bike lane)
7 feet - 8 feet
Protection Level
1 2 3 **4**
Installation Cost
$ $$ $$$ **$$$$**
Jersey Barrier Lifespan
Mid Term → Long Term

RAISED BIKEWAY
Recommended width (barrier + bike lane)
5.5 feet
Protection Level
1 2 **3** 4
Installation Cost
$ $$ $$$ **$$$$**
Bikeway Lifespan
Mid Term → Long Term

FLEXIBLE DELINEATORS
Recommended width (barrier + bike lane)
8 feet
Protection Level
1 **2** 3 4
Installation Cost
$ **$$** $$$ $$$$
Delineator Lifespan
Pilot → Short Term

K-71 BOLLARDS
Recommended width (barrier + bike lane)
7 feet - 8 feet
Protection Level
1 **2** 3 4
Installation Cost
$ $$ **$$$** $$$$
K-71 Bollard Lifespan
Pilot → Short Term

KEY

Protection Level
1 = No vertical barrier to reduce vehicle impact
2 = Vertical barrier improves driver behavior, with minimal change to vehicle impact
3 = Vertical barrier will slow vehicle before impact
4 = Vertical barrier will significantly slow or stop vehicle before impact

Installation Cost (estimate)
$ = $8K-$15K per lane-mile
$$ = $15K-$30K per lane-mile
$$$ = $30K-$80K per lane-mile
$$$$ = $80K-$20M per lane-mile
Additional source: Tactical Urbanism Guide

Lifespan (estimate)*
Pilot = Some maintenance after few months
Short Term = Some maintenance after 1 year
Mid Term = Some maintenance after 5 years
Long Term= Some maintenance after >5 years
**All materials dependent on volume and weather. Striping and markings may last 3-72 months.*

Source: DVRPC (2023); photo sources on the following page

Figure D-1 photo sources (see previous page):

1. Bike Delaware (2014)
2. BikePortland.org (2019)
3. AustinTexas.gov (date unknown)
4. San Francisco Municipal Transportation Agency (2017)
5. DVRPC (2023)
6. Bicycle Coalition of Greater Philadelphia (2019)
7. Seattle Department of Transportation (2022)
8. Center City District Philadelphia (2023)
9. NACTO Urban Bikeway Design Guide (date unknown)
10. Google Maps, Denton, TX (2023)

OUR STREETS: A TRENTON BIKE PLAN FOR ALL

Publication Number:
23144

Date Published:
April 2025

Geographic Area Covered:
Trenton City, Mercer County, New Jersey

Key Words:
Trenton, bicycle, bike plan, bike network, complete streets, multimodal, engagement, outreach, public participation

Abstract:
The Delaware Valley Regional Planning Commission (DVRPC) partnered with the City of Trenton to create a citywide bike plan called *Our Streets: A Trenton Bike Plan for All*. The plan builds on previous complete streets plans and initiatives, including the *Trenton Complete Streets Design Handbook* and the *Downtown Trenton Bicycle and Pedestrian Plan*. The plan recommends constructing a network of feasible and implementable on-road bike facilities that provide the highest level of safety, comfort, and separation possible for bicyclists in the city. This report summarizes the background and purpose of the bike plan, existing conditions in Trenton, public engagement efforts, and the recommended bike network.

Staff Project Team:

Cassidy Boulan, *Associate Manager, Office of Transit, Bicycle, and Pedestrian Planning*
Christopher Mulroy, *Transportation Planner*
Marissa Volk Binjaku, *Transportation Planner*
Angela Rio, *Graphic Designer and Print Specialist*

Staff Contact:
Cassidy Boulan
Associate Manager, Office of Transit, Bicycle, and Pedestrian Planning
Phone: (215) 238-2832
Email: cboulan@dvrpc.org

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800
www.dvrpc.org

OUR STREETS

A TRENTON BIKE PLAN FOR ALL

NUESTRAS CALLES

UNA PLANIFICACIÓN DE BICICLETAS PARA TODOS

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION | TRENTON 250 1792-2042 | tcr trenton cycling revolution | TRENTON VISION ZERO | ARTWORKS